



UAIL-MINES/ENV/097/2018

29th November' 2018

To,

The Addl. Principal Chief Conservator of Forest (C)
Ministry of Environment, Forest & Climate Change
Govt. of India
Eastern Regional Office
A/3, Chandrasekharpur
Bhubaneswar - 751 023.

Sub: Six monthly compliance status of conditions stipulated in Environment Clearance with respect to our Baphlimali Bauxite Mine of M/s. Utkal Alumina International Limited, Rayagada, Odisha with a production capacity of 8.5 MTPA.

Dear Sir,

We are enclosing herewith six monthly compliance status of the conditions stipulated in Environment Clearance for the period from 1st April 2018 to 30th September 2018 with respect to our 8.5 MTPA Bauxite Mine vide ministry's letter no. J-11015/650/2007-IA.II (M) dated 19.02.2009.

This is for your kind information and record please.

Thanking you.

Yours faithfully,
For Utkal Alumina International Ltd.


Biswaranjan Kumar padhi
Vice President- Mines

Encl: as above.

Copy to: (i) Member Secretary, OSPCCB, Bhubaneswar
(ii) Regional Office, CPCB, Kolkata
(iii) Regional Office, OSPCCB, Rayagada

**COMPLIANCE STATUS OF CONDITIONS IMPOSED IN ENVIRONMENTAL CLEARANCE FOR
8.5 MTPA BAUXITE MINING VIDE LETTER NO J-11015/650/2007-IA.II (M), DTD.19.02.2009.
PROJECT NAME: BAPHLIMALI BAUXITE MINE, M/S. UTKAL ALUMINA INTERNATIONAL LIMITED.
Period: From 1st April, 2018 to 30th September, 2018.**

Sl. No.	Imposed Condition	Compliance Status
A. Specific Condition		
i	All the conditions stipulated by the State Pollution Control Board, Orissa in their consent to establish shall be effectively implemented.	All the conditions stipulated in the Consent to Establish (CTE) issued by SPCB, Odisha have been implemented effectively. Routine inspections have been carried out by OSPCB and Consent to Operate (CTO) has been issued vide letter No. 3863/IND-I-CON - 5450 dated 29.03.2018.
ii	The project proponent shall effectively address the concerns raised by the locals in the public hearing as well as during consideration of the project while implementing the project.	All the concerns raised in the public hearing are being implemented such as:- a) Health care by appointing doctors, paramedical staff with Medical Health Unit. b) Supply of drinking water by repairing and Constructing tube wells, Promoting education by constructing new school building and Renovation of old school building. c) Improving the livelihood by employing local people directly/ indirectly. d) Skill development programs such as training on tailoring, handicraft, mobile repairing and agriculture etc. are being effectively implemented. e) Improvement in infrastructures like Development& repair of village roads, irrigation channels, bridges/culverts, avenue plantations etc.
iii	The project proponent shall develop fodder plots in the non-mineralized area in lieu of use of grazing land.	The entire plateau of the ML area consisting of Mineralized & Non-Mineralized are capped with hard laterite which normally prevents the tree growth. However, plantation of fodder species in 1 Ha out of 5 Ha available land at the extreme south of ML area shall be taken up, within March'2019 on experimental basis.
iv	The mining operations shall be restricted to above ground water table and it should not intersect groundwater table. In case of working below ground water table, prior approval of the Ministry of Environment and Forests and the Central Ground Water Authority shall be obtained, for which a detailed hydro-geological study shall be carried out.	Our Mining operation is restricted above the ground water table. Now the lowest working depth of our existing mine pit is around 1004 m RL which is about 35mt in average from the surface, whereas the presence of ground water table has been estimated to be about 150 to 200 mtrs from the surface (800-850 m RL). Therefore, there is no probability of any GW Intersection or exploitation thereby.

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v	The project proponent shall ensure that no natural watercourse and/or water resources are obstructed due to any mining operations. Adequate measures shall be taken while diverting seasonal channels emanating from the mine lease, during the course of mining operation.	No natural watercourse or water resources are obstructed due to our mining operations. Necessary care has been taken during monsoon to divert /channelize run off rain water so that it does not carry any sediment to obstruct / affect the water bodies at the foot hill.
vi	The project proponent shall take adequate environmental safeguard measures for control of rolling down of silt and sediments and protection of the catchment area of upper Indrāvati Reservoir during the course of mining operation.	<p>In addition to as stated in Sl. No. v, to check flow of any silt and sediments, numbers of check dams/siltation ponds have been constructed and ensured by regular cleaning and maintenance. The same is being also continued concurrently with the running of the mines.</p> <ol style="list-style-type: none"> 1. Details of Check Dams and garland drains. Refer Annexure- 1 2. All the protective structures are made up of hard Khondallite/laterite & cement punned over its surface & walls. 3. Encompassed drainage area controlled by these structures. <p>The garland drains & Check dams of above dimensions are adequate to catch the run-offs & hold the siltation within the stipulated norms of surface run-off characteristics. The test reports at the outlet of the check dams are being carried out & the TSS levels are always within 100 mg/l. After these measures, the run-off confluence with the nearby seasonal nallah & ultimately to River Indrāvati after moving a distance of 7 to 8 Kms & will have hardly any bearing on the water quality of Indrāvati.</p>
vii	A 3 km stretch on the upstream and 3 Km in the downstream of the river passing through the project area should be taken up by the project authorities for plantation to arrest river bank erosion and sediment flow into the river.	There is no such perennial river/nallah exists at the ML especially in the surface plateau. However there are small natural depressions, may called as nallah, develops preferably in the rainy days during inflow/outflow of rain water at the slope of the ML, which is a part of project area, are being provided with check dam & plantations of indigenous species to arrest the erosion & sediment flow into the perennial nallah available at the bottom of the ML.
viii	The top soil shall temporarily be stored at earmarked site(s) only and it should not be kept unutilized for long. The topsoil shall be used for land reclamation and plantation.	<p>Top soil generation in the mine is very less.</p> <p>There is an old stock of 51,038 cum of top-soil still available at the earmarked site within the ML area which was generated prior to 2016-17. Subsequently the entire quantity of top-soil generated post to 2016-17 is being utilized for plantation activities.</p>

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ix	<p>The over burden (OB) generated during the initial years of the mining operation shall be temporarily stacked at the earmarked dump site(s) only for backfilling. Backfilling shall start from the 4th year onwards of the mining operation and the entire quantity of the waste to be generated shall be backfilled. There shall be no external over burden dumps after the 8th year of the mining operation. The entire backfilled area shall be afforested. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment & Forests and its Regional Office located at Bhubaneswar on six monthly basis.</p>	<ul style="list-style-type: none"> ▪ The overburden of initial years of mining is stacked as per the approved mining scheme and within the earmarked area. There is an old stock of 25.06 lakhs cum of overburden still available at the said earmarked site & shall be consumed in backfilling activities. ▪ From 4th year onwards i.e since 1.04.2016 backfilling has been started by utilizing entire quantity of generation of overburden in the voids of the mined out area as per the proposal given in the Scheme of Mining. ▪ Re-handling of existing dump has already been started and there shall be no existence of any external dumps after 8th year of mining operation. ▪ Till September'2018, 25,100 no's. of Seedlings over 12.00 Ha area has been rehabilitated out of 30.32 Ha reclaimed area. Both the activities are under progress & shall be maintained as per the proposal within scheme period. ▪ Monitoring and management is under progress. Compliance status shall be submitted to the Ministry of Environment & Forests and its Regional Office located at Bhubaneswar on six monthly basis.
x	<p>Catch drains and siltation ponds of appropriate size shall be constructed around the mine working, mineral and temporary OB dumps to prevent run off of water and flow of sediments directly into the Kandabindha Nallah, the San River, the Indravati River and other water bodies. The water so collected shall be utilized for watering the mine area, roads, green belt development etc. The drains shall be regularly desilted, particularly after the monsoon, and maintained properly.</p> <p>Garland drains, settling tanks and check dams of appropriate size, gradient and length shall be constructed around the mine pit, topsoil dump, temporary over burden dumps and mineral dumps to prevent run off of water</p>	<p>Garland drains, settling tanks and check dams of appropriate size, gradient and length has been constructed both around the mine pit and the over burden dump to prevent run off of water and flow of sediments directly into the Natural Nallah and other water bodies.</p> <p>The sump capacity has been designed keeping 50% safety margin over and above peak sudden rainfall. Sump capacity is having adequate retention period to allow proper settling of silt material. The drains are being de-silted and maintained at regular intervals.</p> <p>Further, the rain water collected in the mine pits during monsoon is not pumped out. Rather, it is allowed to be collected at the lowest level</p>



	and flow of sediments directly into the Kandabindha Nallah, the San River, the Indravati River and other water bodies and sump capacity shall be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity shall also provide adequate retention period to allow proper settling of silt material. Sedimentation pits shall be constructed at the corners of the garland drains and desilted at regular intervals.	to augment the ground water resources. In addition to above, a scientific study was carried out on surface runoff management by deputing NIT, Rourkela and the recommendations of the study report have been implemented and ensured arresting of silts and sediments.
xi	Dimension of the retaining wall at the toe of temporary OB dump(s) and the over burden benches within the mine to check run-off and siltation shall be based on the rain fall data	Dimension of the retaining wall at the toe of temporary OB dump(s) within the mine to check run-off & siltation are as follows:- <ul style="list-style-type: none"> • height 1.00 mtr • width 0.80 mtr • length 1300.00 mtrs These dimensions are designed basing on the highest rainfall data. All the retaining walls are made up of hard Khondalite/laterite & cement punned over its surface & walls.
xii	Plantation shall be raised in an area of 680ha including a 7.5m wide green belt in the safety zone around the mining lease, backfilled and reclaimed area, around void, roads etc. by planting the native species in consultation with the local DFO/Agriculture Department. The density of the trees should be around 2500 plants per ha.	The mining was commenced during 2013-14 and as per the approved Scheme of Mining, backfilling of mined out voids has been started from 1.04.2016. Rehabilitation over reclaimed area has been started from 2017-18 & till the end of Septmber'2018, an area of 12.00 ha has been afforested out of 30.32 ha of backfilled area. However plantation is being taken up in the Mine slope including a 7.5 meter safety zone since 2005-06. Till September'2018, we have planted around 5, 61,100 saplings in an area of approx. 229.22 Ha. The remaining area will be covered progressively in phase wise manner as per the Scheme of Mining. Nursery has been developed with shed net arrangement to develop, preserve and cater the saplings during the course of plantation period.
xiii	The void left unfilled in an area of 250ha shall be converted into the water body. The higher benches of the excavated void/mine pit shall be terraced and plantation done to stabilize the slopes. The slopes of higher benches shall be made gentler for easy accessibility by the local people to use the water body. Peripheral fencing shall be	The void to be left unfilled after exhaust of ore in an area of 250 Ha, which will be converted into water body at the conceptual stage only to avoid unsafe acts/ conditions during the course of present mining . The higher benches of the excavated void pit will be terraced / planted with Trees in consultation with the local DFO/Agriculture Department to stabilize the



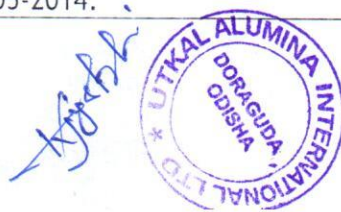

	<p>carried out all along the excavated area.</p>	<p>slopes. Provision will be made for easy accessibility by the local people to use the water body.</p> <p>Peripheral fencing shall be carried out all along the excavated area in due course incase required.</p>
<p>xiv</p>	<p>Regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of SPM and RSPM such as around crushing and screening plant, loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It shall be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.</p>	<p>Regular water sprinkling is done on haul roads, loading & unloading areas and material transfer points by deploying four dedicated water tankers of capacity 12 KL. Fixed water sprinkling arrangements has been provided on both sides of the arterial road. In addition to this, for effective dust suppression we are using dust suppressants in the sprinkling water i.e. Dust bloc chemical.</p> <p>Dust bloc is a stable emulsion of bitumen in water that is sprayed on the haul roads and stock piles. As the water is absorbed into the road, the micro spheres of bitumen contained within Dust bloc are released to bind together the fine materials in the road surface. This reduces dust emission and water is no longer required to act as the binding agent.</p> <p>Regular ambient air quality monitoring is being done in the Core Zone comprising of four locations i.e. Mining Pit, Near Crusher, Near Weigh Bridge and Near Office. Also, one continuous ambient air monitoring station along with data transfer facility to SPCB server has been established. The result of the monitored air quality data (April'18 to September'18) shows that all parameters are well within the prescribed limit and varies as mentioned below:</p> <ul style="list-style-type: none"> ❖ Sulphur-dioxide level: 4.10 - 5.50 µg/m³. ❖ Nitrogen-dioxide level: 10.31 - 11.94 µg/m³. ❖ Carbon Monoxide level: 0.12 - 0.19 mg/m³ ❖ Particulate Matter (PM10): 34.78 - 57.75 µg/m³. ❖ Particulate Matter (PM 2.5): 20.03 - 32.55 µg/m³. <p>The result of monitored data for the period of April' 2018 to September'2018 is enclosed in Annexure- II.</p>

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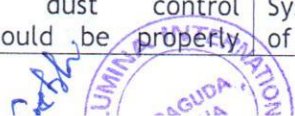


xv	Regular monitoring of the flow rate of the springs and perennial nallahs flowing in and around the mine lease shall be carried out and records maintained.	<p>The flow rate of the small perennial nallah, which is flowing near the Baphlimali hillock close to the lease boundary, is being monitored regularly and the records are maintained. The average data monitored during April'2018 to September'2018 are mentioned below :-</p> <ol style="list-style-type: none"> 1. Paikupakhala Nalla : - 1483 m³/hr. 2. Near Dandabad Nalla:- 4197 m³/hr. 3. Chandragiri Nalla: - 2135 m³/hr. 4. Mishripada: - 1283 m³/hr. <p>The results of stream flow monitoring during April'2018 to September'2018 are enclosed in Annexure-III.</p>
xvi	Regular monitoring of water quality upstream and downstream of the Khandabindha Nallah shall be carried out and record of monitored data should be maintained and submitted to the Ministry of Environment and Forests, its Regional Office, Bhubaneswar, the Central Groundwater Authority, the Regional Director, Central Ground Water Board, the State Pollution Control Board and the Central Pollution Control Board.	The same is being carried out and recorded. The results of surface water quality during April'2018 to September'2018 are enclosed in Annexure-IV. The same is also being submitted to the Central Groundwater Authority, the Regional Director, Central Ground Water Board, the State Pollution Control Board and the Central Pollution Control Board.
xvii	The project authority shall implement suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board.	<p>The following Conservation measures have been taken to augment ground water resources:-</p> <ol style="list-style-type: none"> i. Rainwater harvesting is being carried out by collecting the precipitated water through a network of drainage system into the exhaust mining pit for storage and ground recharge. ii. Movement of mine faces is being carried out systematically as per mine plan following the contour lines such that the faces have self-draining slopes. Precipitated water of the adjacent area is being collected within the mined out area. iii. Concreted Weir has been constructed to arrest rain water resulting ground water recharge. Also the Surface water flow near the pit has been diverted towards the pit and this accumulation influences to recharge ground water table. iv. Arrangement has been made that the mining method and the peripheral barrier all around mining area does not allow the storm water to go outside valley areas. The water thus trapped, percolates down and recharges the ground water.

xviii	<p>Regular monitoring of ground water level and quality shall be carried out in and around the mine lease by establishing a network of existing wells and constructing new piezometers during the mining operation. The monitoring shall be carried out four times in a year, pre- monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) and the data thus collected may be sent regularly to the Ministry of Environment and Forests and its Regional Office, Bhubaneswar, the Central Ground Water Authority and the Regional Director, Central Ground Water Board. If at any stage, it is observed that the ground water is depleted due to mining activity, necessary corrective measures shall be carried out.</p>	<p>Regular monitoring of ground water level and quality is being carried out in each season of the open wells/ dug wells located around the nearby villages and the data is being submitted to Regional Office, MoEF and SPCB, Bhubaneswar once in every six month.</p> <p>The monitoring results of Ground water quality & level during April'2018 to September'2018 are enclosed as Annexure -V.</p> <p>However, monitoring report reveals that there is no any significant impact on ground water table due to mining activity.</p>
xix	<p>Appropriate mitigative measures shall be taken to prevent pollution of the San River and the Indravati River in consultation with the State Pollution Control Board.</p>	<p>The following measures are being implemented and will be implemented in course of time also.</p> <ol style="list-style-type: none"> 1. Deep garland drains are constructed to check erratic flow of precipitated water. 2. Check dams are constructed around the slopes of valley to arrest silts and sediments if any. 3. Retaining wall of height 1.5 meter has been constructed at the edge of the valley. 4. The naked areas of the valley slopes have been covered by mass afforestation and the same will be continued till full cover. <p>San River & Indravati are flowing at a distant location 12 Kms & 9 Kms respectively. The above protection measures written Sl No. 1 to 4 shall never create any untoward situation to affect the water quality of the above two rivers due to our contribution.</p>
xx	<p>The project proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of water (surface water and ground water, if any) required for the project.</p>	<p>There is no proposal to with draw ground water for the project and surface water is being used for mining purpose. To this effect, an agreement was made between M/s Utkal Alumina Int. Ltd & Water Resource Dept. Govt. of Odisha for drawl of 9.0 cusec or 7776000 cft/day of water from Govt. water source/ from San River upstream of Indravati River. A copy the same agreement is being submitted vide letter no UAIL/ENV/2014-15/04 dated 7-05-2014.</p>



xxi	Suitable rainwater harvesting measures on long term basis shall be planned and implemented in consultation with the Regional Director, Central Ground Water Board.	<p>As a step towards rain water harvesting, the following measures have been implemented -</p> <ul style="list-style-type: none"> ❖ Rainwater harvesting is being carried out by collecting the precipitated water through a network of drainage system into the exhaust mining pit for storage, it is not used for the mining purpose. Rather, it is allowed to be collected in the lowest level to augment the ground water resources gradually. ❖ Movement of mine faces is being carried out systematically as per mine plan following the contour lines such that the faces have self-draining slopes. Precipitated water of the adjacent area is being collected within the mined out area. ❖ In addition to this four numbers of Concreted Weir have been constructed to arrest rain water resulting ground water recharge. Also the Surface water flow near the pit has been diverted towards the pit and this accumulation influences to recharge ground water table.
xxii	Vehicular emissions shall be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of mineral within the mine lease. The mineral transportation within the mine lease shall be carried out through the covered trucks only and the vehicles carrying the mineral shall not be overloaded.	Pollution testing certificate of all machinery is being verified regularly to check vehicular emission. Further emission level is kept under control by rigorous maintenance of all engines and changing of lubricants as per the recommendation of the manufacturer. A full fledge workshop is in place for maintenance of vehicles used in mining operation. Mineral transportation is being carried out with due precautions.
xxiii	No blasting shall be carried out after the sunset. Blasting operation shall be carried out only during the daytime. Controlled blasting shall be practiced. The mitigative measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented.	Blasting is being carried out only during daytime. Controlled blasting is being practiced to reduce ground vibrations and to arrest fly rocks and boulders.
xxiv	Drills shall either be operated with dust extractors or equipped with water injection system.	Drilling machine with in-built vacuum cyclone dust collector & equipped with water spraying system is being used.
xxv	Mineral handling area shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly	Water sprinkling is being carried by water tankers. Metal hoods are provided at transfer points in Crushing and Conveying System apart from provision of Covers all along the Conveyor System (18.2 km long) to restrict the dispersion of dust. In the Fixed crusher house, an efficient



	maintained and operated.	dry fog system is installed for suppression of dust at ROM hopper and Transfer points.
Xxvi	Consent to operate shall be obtained from the State Pollution Control Board, Orissa prior to start of production from the mine.	Consent to Operate has been obtained from the State Pollution Control Board, Odisha vide letter No. 10769/IND-I-CON- 5450 dated 28.05.2012& renewed up to 31.03.2019 vide letter no. 3863/IND-I-CON-5450 dated 29.03.2018.
xxvii	Sewage treatment plant shall be installed for the colony. ETP shall also be provided for the workshop and wastewater generated during the mining operation.	There is no residential colony inside the ML area. However, Modular STP of 75 KLD has been installed as an advance environmental measure for canteen & temporary messes. For workshop, Oil & Grease trap arrangement is in place & recycled water is being used for dust suppression activities. No generation of waste water during the mining operation.
xxviii	The project authorities shall undertake sample survey to generate data on pre-project community health status within a radius of 1 km from proposed mine.	Already complied.
xxix	Pre-placement medical examination and periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly.	Pre-placement medical examination and periodical medical examination of the workers engaged in the project are carried out regularly. Annual Schedule of PME is being made for all eligible employees as per DGMS requirement and necessary PME is carried out.
xxx	Provision shall be made for the housing of construction Labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	Work shed have been provided to the workers at the mine site having all facilities such as fuel for cooking, permanent toilets followed with septic tanks & soak pits drinking water, medical health care. Since the mining operation has already been commenced, the regular employees & executives are coming from the integrated town ship adjacent to the alumina refinery. Domestic effluent generation is very less as there is no residential colony inside the ML area. The small quantity of domestic effluent is treated in soak pits via septic tank. However, Modular STP of 75 KLD has been installed as an advance environmental measure for canteen & temporary messes.
	The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered fauna namely; python, panther, sloth bear, wild dog etc. spotted in the study area. Action plan for conservation of flora and fauna shall be prepared and	The Action Plan for conservation of wildlife i.e. Site Specific Wildlife Conservation Plan exclusively for Mining lease has been approved by PCCF (WL) & Chief wildlife Warden, Odisha vide letter No. 5608/1WL-SSP-80/2016 dated 27.06.2017 with financial forecast of Rs.670.451 Lakhs and an amount of Rs.535.715



xxxix	implemented in consultation with the State Forest and Wildlife Department. Necessary allocation of funds for implementation of the conservation plan shall be made and the funds so allocated shall be included in the project cost. All the safeguard measures brought out in the Wildlife Conservation Plan so prepared specific to the project site shall be effectively implemented. A copy of action plan shall be submitted to the Ministry of Environment and Forests and its Regional Office, Bhubaneswar.	Lakhs has been deposited in CAMPA FUND for implementation of the same. Further, as per the demand notice from the Divisional Forest Officer, Rayagada vide letter No. 4168 dated. 04.08.2017, an amount of Rs. 8,05,46,920/- has been deposited in CAMPA FUND for implementation of Regional Wildlife Management Plan . The copy of action taken to implement the Regional Wildlife management Plan is attached as Annexure- VI .
xxxix	Digital processing of the entire lease area using remote sensing technique shall be carried out regularly once in three years for monitoring land use pattern and report submitted to Ministry of Environment and Forests and its Regional Office, Bhubaneswar.	Digital processing of the entire lease area using the remote sensing technique by the authorized agency from Orissa Remote Space Application Center (ORSAC), Bhubaneswar has been carried out for monitoring the land use pattern. The report has been submitted vide letter no UAIL-Mines/ENV/77/2017 dated 21.07.2017 to Ministry of Environment and Forests and its Regional Office, Bhubaneswar.
xxxix	A final mine closure plan along with details of Corpus Fund shall be submitted to the Ministry of Environment & Forests 5 years in advance of final closure for approval.	The same will be submitted to the Ministry of Environment & Forests 5 years in advance of final closure for approval.
B. General conditions		
i	No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests.	No change in mining technology and scope of working will be made without prior approval of the Ministry of Environment & Forests.
ii	No change in the calendar plan including excavation, quantum of mineral bauxite and waste should be made.	There shall be no change in the calendar plan including excavation, quantum of mineral bauxite and waste/OB generation of work without prior approval from competent authority.
iii	At least four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RSPM, SPM, SO ₂ & NO _x monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.	Four ambient air quality monitoring stations have been established in both Core & Buffer Zone in consultation with the State Pollution Control Board, Odisha. Monitoring reports are attached in Annexure -II .
iv	Data on ambient air quality (RSPM, SPM, SO ₂ & NO _x) should be regularly submitted to the Ministry of Environment and Forests including its Regional office located at Bhubaneswar and the State Pollution Control Board / Central Pollution Control Board once in six months.	The monitored AAQ data is being submitted to the concerned authorities along with the half yearly compliance report once in six month.

v	Fugitive dust emissions from all the sources should be controlled regularly. Water spraying arrangement on haul roads, loading and unloading and at transfer points should be provided and properly maintained.	Water spraying on haul roads is being practiced through water tankers at an interval of two hours, for which, provision is made to deploy 4 nos. of 12 KL capacity tankers to spray water at dust generating points such as haul roads, loading & unloading areas and material transfer points. Fixed water sprinkling arrangements has been provided on the side of the arterial road. The haulage roads are being maintained to avoid rut and pot holes. In addition to this we are using dust suppressant chemical (Dust bloc) to control fugitive dust emission. (Dust bloc is a stable emulsion of bitumen in water which binds the micro dust particles.)
vi	Measures should be taken for control of noise levels below 85 dB (A) in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs / muffs.	The following measures are taken to control noise levels below 85 dB (A) in the work environment. <ul style="list-style-type: none"> • Maintenance of all machines including checking of silencers regularly, • Controlled blasting using delay detonators, installing immovable machinery on foundations and in closed rooms • Provision of earplugs/muffs to workers engaged in noise prone areas. • Regular vehicular checkup for pollution control certificates • The HEMM operators are provided with AC close cabinets which itself is acoustic in nature.
vii	Industrial waste water (workshop and waste water from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.	A full-fledged workshop is in place with the facility of Oil & grease trap arrangement. All the repair & maintenance activities are taken up in the existing facility, however major maintenances like engine overhauling etc are being taken up outside. All the used water during repair & maintenance are properly collected & treated thru oil & grease trap & recycled water is being used for dust suppression activities. There is no outside discharge of workshop effluents.
viii	Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if	Personal protective equipments are being provided to all workers respective to the nature of the job. Initial and periodical awareness training is being imparted to all workers in the Company's Vocational Training Center located within the lease area on Safety and Health Aspects.

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	needed.	Pre-placement medical examination and periodical medical examination as per DGMS guideline of the workers engaged in the project is being carried out and records maintained for corrective measures.
ix	A separate environmental management cell with suitable qualified personnel should be set-up under the control of a Senior Executive, who will report directly to the Head of the Organization.	A separate environmental management cell with suitable qualified personnel has been set up under the control of the Agent of Mines, who reports the Head of the Organization directly.
x	The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry of Environment and Forests and its Regional Office located at Bhubaneswar.	Separate fund provision has been earmarked for environmental protection measures and it is not diverted for any other purpose. The expenditure to be incurred during the year 2018-19 shall be reported to the Ministry of Environment and Forests and its Regional Office located at Bhubaneswar in the compliance status of conditions imposed in Environment Clearance for the period 1 st October'2018 to 31 st March'2019.
xi	The project authorities should inform to the Regional Office located at Bhubaneswar regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.	Complied.
xii	The Regional Office of this Ministry located at Bhubaneswar shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information / monitoring reports.	We are abide by the condition and shall extend full cooperation to the officer(s) of regional office by furnishing the requisite data / information/monitoring reports during their monitoring of compliance of the stipulated conditions.
xiii	The project proponent shall submit six monthly report on the status of the implementation of the stipulated environmental safeguards to the Ministry of Environment and Forests, its Regional Office, Bhubaneswar, Central Pollution Control Board and State Pollution Control Board. The proponent shall upload the status of compliance on their website and shall update the same periodically.	Six monthly compliance report is being submitted on the status of compliance of the stipulated environmental clearance conditions including results of monitored data to the Ministry of Environment and Forests, its Regional Office Bhubaneswar, the respective Zonal Office of Central Pollution Control Board and the State Pollution Control Board. The status of compliance of the environmental clearance conditions, including results of monitored data is uploaded on company website periodically.
xiv	A copy of clearance letter shall be marked to concerned Panchayat / local NGO, if any, from whom suggestion / representation has been received while processing the proposal.	Complied
xv	The State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Centre and	Complied.




	the Collector`s office/ Tehsildar`s Office for 30 days.	
xvi	The project authorities should advertise at least in two local newspapers widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment and Forests at http://envfor.nic.in and a copy of the same should be forwarded to the Regional Office of this Ministry located at Bhubaneswar.	Complied.

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ANNEXURE- 1

DETAILS OF GARLAND DRAIN, RETAINING WALL AND SETTLING POND

Sl. No	Type of works	Details of work			
		Length	Width (avg)	Depth (avg)	Height (avg)
01	Wall around back side of OB dump	1300 mtrs	0.8 mtrs		1 mtr
02	Drain work at the back side of OB dump	1060 mtrs	2.8 mtrs	1 mtr	
03	Drain work at ore stack yard	253 mtrs	2.7 mtrs	1 mtr	
04	Drain work at top soil dump	362 mtrs	3 mtrs	1 mtr	
05	Drain work at haul road towards OB dump	800 mtrs	2 mtrs	0.6 mtr	
06	Wall around the top soil storage yard	400 mtrs	0.8 mtr		1 mtr
07	Wall beside the cave	330 mtrs	0.8 mtr		1 mtr
08	Three settling pond on back side of OB dump	10 mtrs	8 mtrs	2.2 mtrs	
09	Parapet wall between service center facility to mine entrance	1501 mtrs	0.8 mtr		1 mtr
10	Check dam between crusher, ramp and haul road	76 mtrs	0.8 mtrs		1 mtr
11	Check dam across the slope from topsoil towards mining pit (2 nos)	47 mtrs	0.8 mtr		1 mtr
12	Check dam across the slope near mine entrance	35 mtrs	0.8 mtr		1 mtr
13	Drain work around the crusher	306 mtr	2 mtr	1 mtr	*
14	Hume pipe culvert in the natural stream flowing nearby Kalahandi Pit	5 mtrs	15 mtrs		
15	Concrete drain near fixed crusher	50 mtrs	1.5 mtrs		
16	Settling pond connected to concrete drain near fixed crusher	45 mtrs	23 mtrs	4 mtrs	
17	Parapet wall around the safety zone area of Kalahandi Pit	500 mtrs	1.5 mtrs		2 mtrs
18	Three nos. concreted weir across the natural seasonal nallah	135 mtrs	1.2 mtrs		2.5 mtrs
19	Implementation of gabion along OB dump	60 mtrs	1 mtr		1 mtr
21	Settling pond near mine entrance (1 no)	41 mtrs	25 mtrs	4 mtrs	
22	Settling pond near MRSS building	45 mtrs	23 mtrs	4 mtrs	



CORE ZONE

Annexure- II

Location: Mining Pit

Month	PM-10 µg/m ³	PM- 2.5 µg/m ³	SO ₂ µg/m ³	NO _x µg/m ³	CO mg/m ³
April' 2018	49.63	28.84	4.18	11.33	0.16
May' 2018	56.25	32.03	4.45	11.56	0.19
June' 2018	46.44	27.36	4.26	11.47	0.15
July' 2018	37.90	21.90	4.50	10.20	0.13
September' 2018	44.90	26.90	5.80	11.40	0.18
Average	47.02	27.41	4.64	11.19	0.16

Location: Near Crusher

Month	PM-10 µg/m ³	PM- 2.5 µg/m ³	SO ₂ µg/m ³	NO _x µg/m ³	CO mg/m ³
April' 2018	61.13	34.34	4.94	12.39	0.22
May' 2018	68.13	38.29	5.46	13.05	0.28
June' 2018	56.33	31.57	5.21	12.42	0.24
July' 2018	45.40	25.60	5.10	11.10	0.19
September' 2018	45.80	27.80	5.90	11.10	0.20
Average	55.36	31.52	5.32	12.01	0.23

Location: Near Weigh Bridge

Month	PM-10 µg/m ³	PM- 2.5 µg/m ³	SO ₂ µg/m ³	NO _x µg/m ³	CO mg/m ³
April' 2018	55.00	31.14	4.34	11.80	0.19
May' 2018	60.38	34.16	4.79	12.15	0.22
June' 2018	52.89	30.53	4.47	11.60	0.18
July' 2018	39.80	22.10	4.60	11.20	0.17
September' 2018	47.60	26.80	5.80	11.50	0.22
Average	51.13	28.95	4.80	11.65	0.20

Location: Near Office

Month	PM-10 µg/m ³	PM- 2.5 µg/m ³	SO ₂ µg/m ³	NO _x µg/m ³	CO mg/m ³
April' 2018	45.38	26.99	4.10	10.91	0.14
May' 2018	52.38	30.04	4.21	11.11	0.16
June' 2018	48.00	27.03	4.33	11.12	0.16
July' 2018	43.30	22.50	4.50	11.30	0.16
September' 2018	49.40	28.30	5.20	11.30	0.20
Average	47.69	26.97	4.47	11.15	0.16



Annexure- II

BUFFER ZONE

Location: Adri

Month	PM-10 µg/m ³	PM- 2.5 µg/m ³	SO ₂ µg/m ³	NO _x µg/m ³	CO mg/m ³
April' 2018	48.63	28.15	4.13	11.00	0.14
May' 2018	42.38	24.96	4.10	10.84	0.14
June' 2018	38.00	22.84	4.34	10.86	0.15
July' 2018	40.30	24.00	4.50	10.80	0.16
September' 2018	40.30	22.10	5.00	11.70	0.17
Average	41.92	24.41	4.41	11.04	0.15

Location: Chandragiri

Month	PM-10 µg/m ³	PM- 2.5 µg/m ³	SO ₂ µg/m ³	NO _x µg/m ³	CO mg/m ³
April' 2018	43.38	25.14	4.03	10.50	0.13
May' 2018	37.75	22.24	4.03	10.31	0.13
June' 2018	34.78	20.03	4.29	10.54	0.12
July' 2018	36.60	21.40	4.60	10.70	0.14
September' 2018	37.90	22.80	5.50	11.60	0.18
Average	38.08	22.32	4.49	10.73	0.14

Location: Paikkupakkhal

Month	PM-10 µg/m ³	PM- 2.5 µg/m ³	SO ₂ µg/m ³	NO _x µg/m ³	CO mg/m ³
April' 2018	57.75	32.55	4.46	11.94	0.19
May' 2018	55.63	31.49	4.43	11.88	0.19
June' 2018	50.78	28.50	4.38	11.50	0.16
July' 2018	44.10	23.80	4.30	10.60	0.13
September' 2018	46.60	27.50	5.20	11.10	0.17
Average	50.97	28.77	4.55	11.40	0.17

Location: Andirakanch

Month	PM-10 µg/m ³	PM- 2.5 µg/m ³	SO ₂ µg/m ³	NO _x µg/m ³	CO mg/m ³
April' 2018	52.13	29.83	4.24	11.44	0.16
May' 2018	47	27.55	4.21	11.4	0.16*
June' 2018	40.67	24.58	4.2	10.59	0.14
July' 2018	37.9	21.9	4.4	10.6	0.12
September' 2018	44.4	24.4	4.8	11.2	0.16
Average	44.42	25.652	4.37	11.046	0.148



STREAM FLOW MONITORING REPORT

Sl.No.	Name of the Location	stream flow in m ³ /hr						Average
		Apr-18	May-18	Jun-18	Jul-18	Sep-18		
1	Paikkupakhal Nallah	191	108	218	4330	2568	1483	
2	Near Dandabad Nallah	589	338	843	12662	6555	4197	
3	Chandragiri nalla	318	146	419	6691	3099	2135	
4	Misripada	106	68	179	3786	2275	1283	



SURFACE WATER QUALITY ANALYSIS REPORT

SANA RIVER UPSTREAM:-

Sl. No.	Parameter	Unit	Standards as per IS-2296 Class -'C'	April'2018	May'2018	June'2018	July'2018	September'2018	Average
1	Colour & Odour	--	300 & \$	CL &U/O	CL &U/O	CL &U/O	CL &U/O	CL &U/O	CL &U/O
2	Suspended Solids	Mg/l	\$	31	43	48	70	82	54.8
3	Particular Size of S.S.	μ(micron)	\$	<850	<850	<850	<850	<850	<850
4	Dissolved Solids	Mg/l	1500	128	139	126	139	125	131.4
5	PH	--	6.5-8.5	7.2	7.2	7.11	7.03	7.15	7.138
6	Temperature	OC	\$	25	25	23.4	23.0	23.4	23.96
7	Oil & Grease	Mg/l	0.1	ND	ND	ND	ND	ND	ND
8	Total Residual Chlorine	Mg/l	\$	ND	ND	ND	ND	ND	ND
9	Amm. Nitrogen as N	Mg/l	\$	0.42	0.52	0.46	0.35	0.39	0.428
10	Total Kjeldal Nitrogen as N	Mg/l	\$	1.32	1.45	1.12	0.84	1.12	1.17
11	Free Ammonia as NH3	Mg/l	\$	0.003	0.003	0.003	0.0018	0.0027	0.0027
12	Dissolved Oxygen	Mg/l	4	7.4	7.3	7.5	7.4	7.2	7.36
13	BOD (3) days at 27OC	Mg/l	3	1.1	1.0	ND	ND	ND	1.05
14	COD	Mg/l	\$	3.28	2.96	ND	ND	ND	3.12
15	Arsenic as As	Mg/l	0.2	BDL	BDL	BDL	BDL	BDL	BDL



ANNEXURE-IV

16	Mercury as Hg	Mg/l	\$	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
17	Lead as Pb	Mg/l	0.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
18	Cadmium as Cd	Mg/l	0.01	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
19	Hexa Chromium as Cr +6	Mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
20	Total Chromium as Cr	Mg/l	\$	0.052	0.058	0.051	0.034	0.029	0.0448		
21	Copper as Cu	Mg/l	1.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
22	Zinc as Zn	Mg/l	15	0.16	0.21	0.17	0.25	0.22	0.202		
23	Selenium as Se	Mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
24	Nickel as Ni	Mg/l	\$	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
25	Cyanide as CN	Mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
26	Fluoride as F	Mg/l	1.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
27	Diss. Phosphate as P	Mg/l	\$	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28	Sulphide as S	Mg/l	\$	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
29	Phenolic Compounds as C ₆ H ₅ OH	Mg/l	\$	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
30	Bio-assay Test	--	\$	98%	98%	98%	98%	98%	98%	98%	98%
31	Manganese as Mn	Mg/l	\$	0.020	0.017	0.015	0.011	0.009	0.0144		
32	Iron as Fe	Mg/l	50	0.22	0.26	0.24	0.17	0.14	0.206		
33	Vanadium as V	Mg/l	\$	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
34	Nitrate as NO ₃	Mg/l	50	0.15	0.19	0.16	0.11	0.14	0.15		



ANNEXURE-IV

17	Lead as Pb	Mg/l	0.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL
18	Cadmium as Cd	Mg/l	0.01	BDL	BDL	BDL	BDL	BDL	BDL	BDL
19	Hexa Chromium as Cr +6	Mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL	BDL
20	Total Chromium as Cr	Mg/l	\$	0.063	0.071	0.063	0.042	0.037	0.0552	0.0552
21	Copper as Cu	Mg/l	1.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL
22	Zinc as Zn	Mg/l	15	0.24	0.26	0.21	0.33	0.31	0.27	0.27
23	Selenium as Se	Mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL	BDL
24	Nickel as Ni	Mg/l	\$	BDL	BDL	BDL	BDL	BDL	BDL	BDL
25	Cyanide as CN	Mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL	BDL
26	Fluoride as F	Mg/l	1.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL
27	Diss. Phosphate as P	Mg/l	\$	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28	Sulphide as S	Mg/l	\$	BDL	BDL	BDL	BDL	BDL	BDL	BDL
29	Phenolic Compounds as C ₆ H ₅ OH	Mg/l	\$	98%	98%	98%	98%	98%	98%	98%
30	Bio-assay Test	--	\$	98%	0.032	0.028	0.028	0.025	0.0278	0.0278
31	Manganese as Mn	Mg/l	\$	0.026	0.33	0.30	0.25	0.23	0.278	0.278
32	Iron as Fe	Mg/l	50	0.28	0.33	0.30	0.25	0.23	0.278	0.278
33	Vanadium as V	Mg/l	\$	BDL	BDL	BDL	BDL	BDL	BDL	BDL
34	Nitrate as NO ₃	Mg/l	50	0.21	0.27	0.22	0.16	0.19	0.21	0.21



BAPHLIMALI BAUXITE MINES
GROUND WATER ANALYSIS REPORT AS PER IS: 10500
PERIOD: April- 2018 TO September- 2018

Sl. No	Parameters	Unit	IS-10500 Standards	Average Reading			
				Paikupakhal	Andrakanch	Maligaon	Kandukhani
1	Colour	Hazen	5.0	CL	CL	CL	CL
2	Odour	-	Unobjectable	Unobjectable	Unobjectable	Unobjectable	Unobjectable
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Turbidity	NTU	1.0	0.425	0.405	0.5	0.425
5	pH	-	6.5-8.5	7.18	7.24	7.065	7.09
6	Temperature	°C	-	23.25	23.25	23.25	23.25
7	Total Dissolved Solids	mg/l	500	152.5	143.5	165.5	150
8	Total Hardness	mg/l	300	55	50	60	61
9	Calcium as Ca	mg/l	75	10.21	10.76	10.76	11.51
10	Magnesium (as Mg)	mg/l	-	7.83	6.905	8.86	8.23
11	Residual Free Chlorine	mg/l	0.2	BDL	BDL	BDL	BDL
12	Free CO ₂	mg/l	-	0.85	0.7	0.725	0.75
13	Sulphates (as SO ₄)	mg/l	200	14.8	66.3	17.4	16
14	Chlorides (as Cl)	mg/l	250	11.25	12.25	12.5	10.25
15	Fluorides (as F)	mg/l	1.0	0.07	0.08	0.075	0.1
16	Acidity	mg/l	-	4.8	4.4	5.05	4.7
17	Alkalinity	mg/l	200	31.25	27.5	37.5	33.75
18	Iron (as Fe)	mg/l	0.3	0.195	0.15	0.205	0.17
19	Mineral Oil	mg/l	0.01	NIL	NIL	NIL	NIL
20	Manganese (as Mn)	mg/l	0.1	BDL	BDL	BDL	BDL
21	Total Coliform	MPN/10 Oml	<2	NIL	NIL	NIL	NIL
22	Mercury (as Hg)	mg/l	0.001	BDL	BDL	BDL	BDL
23	Arsenic (as As)	mg/l	0.05	BDL	BDL	BDL	BDL
24	Zinc (as Zn)	mg/l	5.0	0.39	0.315	0.34	0.375
25	Cadmium (as Cd)	mg/l	0.01	BDL	BDL	BDL	BDL
26	Selenium (as Se)	mg/l	0.01	BDL	BDL	BDL	BDL
27	Cyanide (as CN)	mg/l	0.05	BDL	BDL	BDL	BDL
28	Copper (as Cu)	mg/l	0.5	BDL	BDL	BDL	BDL
29	Phenolic Compound (as C ₆ H ₅ OH)	mg/l	0.001	BDL	BDL	BDL	BDL
30	Lead (as Pb)	mg/l	0.05	BDL	BDL	BDL	BDL
31	Pesticide	mg/l	NIL	NIL	NIL	NIL	NIL



MONITORING DATA OF GROUND WATER LEVEL

Sl. No.	Location of Well	June- 2018	September-2018
1.	Paikupakhal	7.6	5.9
2.	Andirakanch	7.2	5.4
3.	Maligaon	7.5	6.7
4.	Kandukhani	6.0	4.8



ACTION PLAN TAKEN FOR IMPLEMENTATION OF SITE SPECIFIC WILDLIFE MANAGEMENT PLAN					
Sl. No.	Item	Unit	Total	Rate (Rs)	Total (Rs)
Soil & Moisture Conservation Measures					
1	a) Construction of loose boulder Check dam across the seasonal nala, drainage line and semi perennial nala occurring along the sloppy area of the lease.				
	1 mtr span	Nos.	60	3600	216000
	2 mtr span	Nos.	40	7113	284520
	3 mtr span	Nos.	26	14920	387920
	(A) Total				888440
	b) Contour Bonding	LS			300000
(B) Total				300000	
Fire Protection Measures					
2	Provision for a fire watch tower on North-west side of the lease near the boundary.	LS	1		500000
	(C) Total				500000
	Deployment of a fire fighting squad consisting of 5 members with provision of vehicle etc. as per approved cost norm of CWLW, Odisha for five fire months @ 3.50 lacs per annum. 3.50 lacs x 10 years.	Year	10	350000	3500000
(D) Total				3500000	
Prevention of fall & entry to mining pits by wild animals.					
3	Construction of balance RR Stone masonry $\frac{1\text{mtr}+0.75\text{mtr}}{2} \times 1\text{ mtr @ 4.00 lacs per km}$	Km	10	400000	4000000
	Where necessary along the boundary for 10km.				
(E) Total				4000000	
Development of Green Belt.					
Green Belt through following method in safety zone of 7.5 mtr width over a length of 22km inside the non-forest land					
4	ANR practices with Gap Plantation @ 400 plants per ha	Ha	8.25	38806	320150
	Block Plantation @ 1600 plants per ha	Ha	8.25	286421	2362973
(F) Total				2683123	
5	Cost of one latest Model SUV (SCORPIO-S-10) vehicle to be handed over to the DFO, Rayagada	No.	1	1600000	1600000
	(G) Total				1600000
6	Interventions for regulating impact of mining activities.				
	Interventions for regulating light, water, air, noise pollution, dump stabilisation & waste management will be carried out at the project cost as per the approved environmental management plan.	Implementation at the project cost according to the approved EMP.			
Grand Total (A+B+C+D+E+F+G)					13471563

