DAMODAR VALLEY CORPORATION
Mining Section
DVC Towers, VIP Road,
Kolkata - 700 054
Email: sudhir.mukherjee@dvc.gov.in

15 YEARS OF CELEBRATING THE MAHATMA

No: HQ/Mining/Tubed FC/ 19 Dated: 17.02.2021

To,
The Divisional Forest Officer,
Latehar Division,
Latehar, Jharkhand

Sub: Diversion of 162.394ha of forest land in favour of Damodar Valley Corporation for Tubed Coal Mining Project in Latehar District in the State of Jharkhand.
(Proposal No: FP/JH/MIN/29167/2017)

Ref.: 1. Demand letter from your office vide no: 80 dated 15.01.21
2. Letter from PCCF vide no :279 dated 04.02.21

Dear sir,

Kindly refer to the above.

This is to state that 30 no of pillars (15 at mine boundary and 15 at safety zone boundary) have been erected as per specification mentioned in condition no VII of Stage I Forest Clearance at locations 1,2,3,6,7,8,9,10,11,12,13,14,15,16 & 17 of the geo reference map submitted with our application for Stage I Clearance. The balance pillaring work is expected to be completed by 15th March 21.

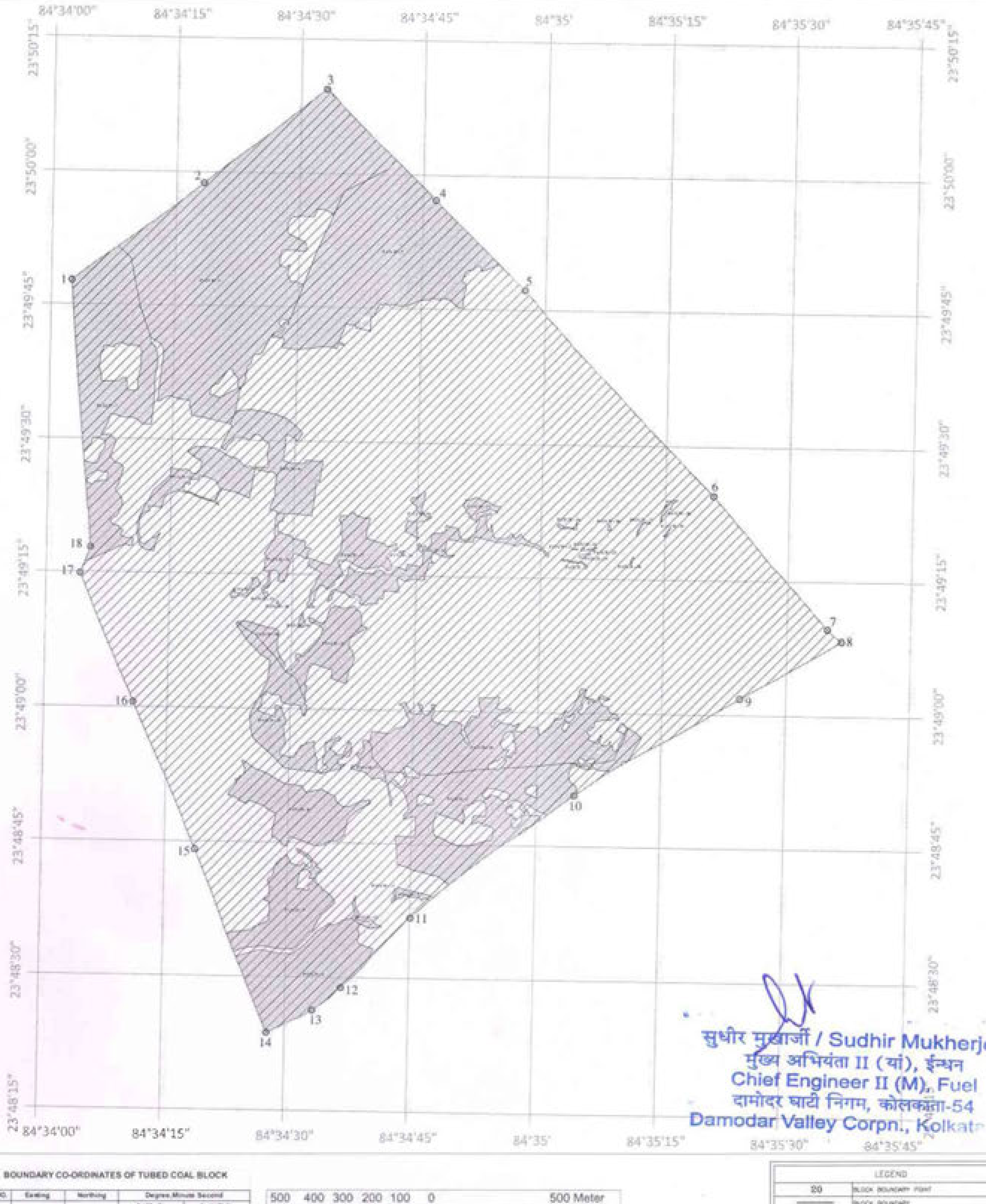
The geo-reference map along with locations of pillars is enclosed.

In compliance to the demand letter referred under sl. no. 1 above, payment of Rs. 14,35,41,000/- for the Surveillance and Monitoring Plan to the CAMPA Fund has been made vide UTR No: PUNBR 52021021518601510 dated 15.02.21 against the challan generated through Parivesh Portal. Payment has been confirmed at Parivesh Portal (Copy enclosed).

Enco.: As stated.

Your faithfully
17.2.21.
(Sudhir Mukherjee)
Chief Engineer (M), Mining

DAMODAR VALLEY CORPORATION
TUBED COAL BLOCK
GEO-REFERENCED BOUNDARY MAP SHOWING THE FOREST AREA.



सुधीर मुखार्जी / Sudhir Mukherjee
मुख्य अभियंता II (यां), ईन्धन
Chief Engineer II (M), Fuel
दामोदर घाटी निगम, कोलकाता-54
Damodar Valley Corpn., Kolkata-54

BOUNDARY CO-ORDINATES OF TUBED COAL BLOCK

SL NO.	Easting	Northing	Degree,Minute Second	
			Latitude	Longitude
1	252215.6605	2637544.694	23°49' 48.434"N	84°34' 3.0715"E
2	252667.4451	2637974.831	23°49' 59.4111"N	84°34' 18.427"E
3	253089.3124	2638194.842	23°50' 10.0422"N	84°34' 33.5329"E
4	253486.5721	2637904.046	23°49' 57.5558"N	84°34' 47.0927"E
5	253760.6565	2637499.415	23°49' 47.8218"N	84°34' 57.6824"E
6	254410.614	2636773.162	23°49' 24.5671"N	84°35' 21.06"E
7	254811.6702	2636325.39	23°49' 10.2617"N	84°35' 35.4648"E
8	254858.5866	2636283.255	23°49' 8.9186"N	84°35' 37.252"E
9	254614.8039	2636061.833	23°49' 2.0364"N	84°35' 25.1413"E
10	253942.5523	2635762.764	23°48' 51.5023"N	84°35' 5.1312"E
11	253373.5694	2635338.16	23°48' 37.3824"N	84°34' 45.2947"E
12	253141.5756	2635104.336	23°48' 29.6679"N	84°34' 37.2442"E
13	253036.3377	2635023.695	23°48' 26.9969"N	84°34' 33.6473"E
14	252844.3068	2634956.941	23°48' 24.806"N	84°34' 28.6006"E
15	252645.4415	2635576.655	23°48' 44.7365"N	84°34' 19.44"E
16	252436.7616	2636086.72	23°49' 1.1912"N	84°34' 11.7633"E
17	252250.1534	2636529.451	23°49' 15.436"N	84°34' 4.6054"E
18	252264.0395	2636629.101	23°49' 18.7268"N	84°34' 6.0417"E

ABSTRACT OF LAND SCHEDULE

Sl. No.	Mouza Name	Thana No.	Thana	District	Total area (Acre)	Total area (Hectare)	Forest area (Acre)	Forest area (Hectare)
1	Mangra	330	Latehar	Latehar	79.60	32.21	58.7	23.753
2	Tubed	333			251.38	101.72	76.03	30.77
3	Dihi	334			128.82	51.129	113.01	45.736
4	Ambajharan	335			280.42	113.48	79.29	30.98
5	Chirokallaran	336			312.28	126.413	77.28	31.274
6	Henwari	337			88.19	34.99	0	0
Total =					1134.66	460.00	401.280	162.394

LEGEND	
20	BLOCK BOUNDARY POINT
———	BLOCK BOUNDARY
(hatched)	LEASE HOLD LAND
(shaded)	FOREST LAND

DAMODAR VALLEY CORPORATION
MINING SECTION
DVC TOWERS, VIP ROAD
KOLKATA - 700 054

Project :- DAMODAR VALLEY CORPORATION
TUBED COAL BLOCK,
P.S. - LATEHAR, DISTRICT - LATEHAR,
JHARKHAND.

Scale : 1:7,000	Date :- 11.09.2017
Dwg. No.:-DVC/TUBED/G/001	Rev. - 00

Online payment history made by User Agency under CAMPA

Help

Sno.	Proposal Detail	Application_No	Application No (New)	Date of IN-PRINCIPLE	Amount to be Paid/Amount Paid (in Rs.)	Payment Status	Payment Detail	Demand Letter
1	FP/JH/MIN/29167/2017 (.../viewreport.aspx?pid=FP/JH/MIN/29167/2017) Tubed Coal Mine	MIN291672017056	5829167056	13 Nov 2019	CA: 0/- , Addl CA : 0/- PCA: 0/- , CAT : 0/- Safety Zone: 0/- , Addl PA : 0/- NPV: 0/- , SURVEILLANCE AND MONITORING PLAN : 143541000/- Other Charges1 : 0/- Other Charges2 : 0/- Other Charges3 : 0/- Total : 143541000/-	Paid	Fund Demand Verified by Nodal Officer On : 13 Feb 2021 Bank Name : Corporation Bank Mode of Payment : NEFT/RTGS (Challan) Challan Generated On : 15 Feb 2021 Transaction Date : 15 Feb 2021	Demand Letter (.../writereaddata/Fundpdf/2111212591220XBGOMDemand.pdf) Generated Challan (../UserAccount/Neft_ChallanCorp.aspx?pid=MIN291672017056)
2	FP/JH/MIN/29167/2017 (.../viewreport.aspx?pid=FP/JH/MIN/29167/2017) Tubed Coal Mine	MIN291672017556	5829167556	13 Nov 2019	CA: 44259106/- , Addl CA : 0/- PCA: 0/- , CAT : 0/- Safety Zone: 0/- , Addl PA : 0/- NPV: 101658644/- , Wildlife Conservation Plan : 65000000/- Other Charges1 : 0/- Other Charges2 : 0/- Other Charges3 : 0/- Total : 210917752/-	Paid	Fund Demand Verified by Nodal Officer On : 19 Dec 2019 Bank Name : Corporation Bank Mode of Payment : NEFT/RTGS (Challan) Challan Generated On : 19 Dec 2019 Transaction Date : 20 Dec 2019	Demand Letter (.../writereaddata/Fundpdf/12111012101216TV826DFOletterdated12-2019.pdf) Generated Challan (../UserAccount/Neft_ChallanCorp.aspx?pid=MIN291672017556)

सुधीर मुखार्जी / Sudhir Mukherjee
मुख्य अभियंता II (यां), ईन्धन
Chief Engineer II (M), Fuel
दामोदर घाटी निगम, कोलकाता-54
Damodar Valley Corpn., Kolkata-54

Office of the Principal Chief Conservator of Forest –cum- Executive Director, Wasteland Development Board, Jharkhand, Van Bhawan, P.O. - Doranda, Jharkhand, Ranchi - 834 002

Letter No- **Ranchi, Date-**

Mr. Anil Kumar
Technical Director
Forest and Climate Change Informatics Division (FCCID)
Ministry of Environment,Forest and Climate Change.
Room no. A-338,3rd Floor,Agni-Block
Indira Paryavaran Bhawan Jor Bagh Road, New Delhi-110003
Email: anil.kumar[at]nic[dot]in
Landline Telephone No.: 011-24695487

:- FP/JH/MIN/29167/2017 Tubed Coal Mine.

With reference to the above mentioned proposals it is to inform that for verification of – I compliance the proposal has been forwarded by undersign online to State Government. Government has raised query on few points which needs to be complied by the user cy and they have to upload the demand raised by the concerned DFO.

User agency is not able to upload compliance and demand since the proposal status is ng at State Government level. State Government has no provision for sending back to the Officer.

Therefore, it is requested kindly to return the proposal at the end of user agency so that yment could be made and pendency of the aforesaid proposals can be addressed.

Yours faithfully

PCCF-cum-Executive Director,
Wasteland Development Board,
& Nodal, FC, Act Jharkhand, Ranchi.

कार्यालय, प्रधान मुख्य वन संरक्षक–सह–कार्यकारी निदेशक, बंजर भूमि विकास बोर्ड, झारखण्ड, राँची।

वन भवन, डोरण्डा, राँची, झारखंड, पिन–834002, Email-pccf-ednodni@gov.in

पत्रांक :– राँची, दिनांक :–

सेवा में,

क्षेत्रीय मुख्य वन संरक्षक,
पलामू।

विषय :– लातेहार जिला अन्तर्गत तुबैद कोल ब्लॉक हेतु 162.394 हे0 वन भूमि (54.365 हे0 अधिसूचित वन भूमि एवं 108.029 हे0 जंगल–झाड़ी (Deemed Forest) के रूप में अंकित भूमि) के अपयोजन का प्रस्ताव।

प्रसंग :– झारखण्ड सरकार, वन, पर्यावरण एवं जलवायु परिवर्तन विभाग का पत्रांक वनभूमि–23/2019–4225 दिनांक 28.12.2020, इस कार्यालय का ज्ञापांक 67 दिनांक 06.01.2021 तथा आपका पत्रांक 133 दिनांक 19.01.2021

महाशय,

उपर्युक्त वन विभागीय प्रासंगिक पत्र का कृपया अवलोकन किया जाय। राज्य सरकार द्वारा यह पृच्छा की गई थी कि अपयोजन प्रस्ताव की शर्त्त सं0–7 के संदर्भ में प्रयोक्ता अभिकरण द्वारा अभी तक कितने पीलर लगाये गये है एवं कितने पीलर लगाये जाने बाकी है तथा पिलरिंग का कार्य कब तक पूर्ण कर लिया जायेगा। आपके प्रासंगिक पत्र में उपरोक्त के संदर्भ में सुस्पष्ट प्रतिवेदन अंकित नहीं है। जाँच के क्रम में पाया गया कि प्रयोक्ता अभिकरण को स्टेज–I की शर्त्त सं0–20 के अनुपालन में Surveillance & Monitoring Plan हेतु राशि कैम्पा खाता में जमा कराई जानी भी अपेक्षित है। परन्तु उन्होंने मात्र वचनबद्धता ही समर्पित की है, जो स्वीकार्य नहीं है।

अतः अनुरोध है कि राज्य सरकार की पृच्छा का सुस्पष्ट प्रतिवेदन एवं Surveillance & Monitoring Plan की राशि कैम्पा खाते में जमा कर पूर्ण प्रतिवेदन शीघ्र समंतव्य यथाशीघ्र इस कार्यालय को उपलब्ध कराने की कृपा की जाय।

विश्वासभाजन,

ह0/–
प्रधान मुख्य वन संरक्षक–सह–कार्यकारी निदेशक,
बंजर भूमि विकास बोर्ड, झारखण्ड, राँची।

ज्ञापांक ..... दिनांक .....

प्रतिलिपिः– मुख्य वन संरक्षक, प्रादेशिक अंचल, मेदिनीनगर/वन प्रमण्डल पदाधिकारी, लातेहार वन प्रमण्डल को सूचनार्थ एवं आवश्यक कार्रवाई हेतु प्रेषित।

ह0/–
प्रधान मुख्य वन संरक्षक–सह–कार्यकारी निदेशक,
बंजर भूमि विकास बोर्ड, झारखण्ड, राँची।

ज्ञापांक– 279 दिनांक– 04.2.2021

प्रतिलिपिः– मुख्य अभियन्ता, दामोदर घाटी निगम, डी0वी0सी0 टावर्स, वी0आई0पी0 रोड, कोलकाता–54 को सूचनार्थ एवं आवश्यक कार्रवाई हेतु प्रेषित। Surveillance & Monitoring Plan की राशि जमा करनी कृपया सुनिश्चित की जाय।

प्रधान मुख्य वन संरक्षक–सह–कार्यकारी निदेशक,
बंजर भूमि विकास बोर्ड, झारखण्ड, राँची।

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कार्यालय, प्रधान मुख्य वन संरक्षक–सह–कार्यका[illegible], बंजर भूमि विकास बोर्ड, झारखण्ड, राँची।

वन भवन, डोरण्डा, राँची, झारखंड, पिन–834002, Email-pccf-ednodal@gov.in

पत्रांक :– 385 राँची, दिनांक :– 22.6.2020

सेवा में,

प्रधान सचिव,
वन, पर्यावरण एवं जलवायु परिवर्तन विभाग,
झारखण्ड सरकार, राँची।

विषय :– लातेहार जिला अन्तर्गत तुबैद कोल ब्लॉक हेतु 162.394 हे0 वन भूमि (54.365 हे0 अधिसूचित वन भूमि एवं 108.029 हे0 जंगल–झाड़ी (Deemed Forest) के रूप में अंकित भूमि) के अपयोजन का प्रस्ताव।

प्रसंग :–
1. भारत सरकार पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय नई दिल्ली का पत्रांक **F.No. 8-23/2019 FC dt- 13.11.2019**
2. मुख्य वन संरक्षक, प्रादेशिक अंचल, मेदिनीनगर का पत्रांक 444 दिनांक 04.03.2020 एवं वन प्रमंडल पदाधिकारी, लातेहार वन प्रमंडल का ज्ञापांक 578 दिनांक 11.06.2020

महाशय,

उपर्युक्त विषयक भारत सरकार के प्रासंगिक पत्र द्वारा लातेहार जिला अन्तर्गत तुबैद कोल ब्लॉक हेतु 162.394 हे0 वन भूमि (54.365 हे0 अधिसूचित वन भूमि एवं 108.029 हे0 जंगल–झाड़ी भूमि) के अपयोजन प्रस्ताव को 27 शर्त्तों के साथ सैद्धांतिक स्वीकृति प्रदान की गयी है, जिसका अनुपालन प्रतिवेदन मुख्य वन संरक्षक, प्रादेशिक अंचल, मेदिनीनगर का पत्रांक 444 दिनांक 04.03.2020 (छायाप्रति संलग्न) द्वारा मंतव्य सहित इस कार्यालय को भेजी गई है।

मुख्य वन संरक्षक, प्रादेशिक अंचल, मेदिनीनगर के प्रतिवेदनानुसार विषयगत वनभूमि अपयोजन प्रस्ताव के स्टेज–I का अनुपालन प्रतिवेदन निम्नवत् प्रतिवेदित किया जाता है :–

SL. No.	CONDITION	COMPLIANCE
i	Legal status of the diverted forest land shall remain unchanged.	The legal status of the diverted forest land shall remain unchanged. enclosed as **Annexure-1**
ii	**Compensatory Afforestation:** (a) Compensatory Afforestation shall be raised over degraded forest land, double in extent to the forest area being diverted, by the State Forest Department at the cost of user Agency; (b) The area proposed for diversion includes 12 ha of CA plantation done in Dihi. Protected forest' area. In addition to stipulated CA required for diversion, user agency shall pay additional cost for raising CA over degraded forest land. The additional 12 ha degraded land shall be identified and shape files shall be submitted.	(a) Agreed by user agency (b) The User Agency has submitted additional 12 ha degraded forest land for afforestation in Sikni Mauza. The KML file has been attached as **Annexure-2**
iii	The cost of compensatory afforestation at the prevailing wage rates as per compensatory afforestation scheme and the cost of survey, demarcation and erection of permanent pillars if	The User Agency has deposited an amount of Rs 4,42,59,108.00 towards compensatory afforestation in CAMPA A/C number 150725829167556 IFSC

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	required on the CA land shall be deposited in advance with the Forest Department by the project authority. The CA will be maintained for 10 years. The scheme may include appropriate provision for anticipated cost increase for works scheduled for subsequent years.	Code-CORP0000371, Corporation B Lodhi Complex Branch Block No.-1 CGO Complex Phase-1, Lodhi Road New Delhi through online challan generate from MoEF Portal. Copy of challan is enclosed as Annexure-**3.**
iv	Net Present Value (NPV): (a) The State Government shall charge the Net Present Value (NPV) for the 162.394 ha forest area to be diverted under this proposal from the User Agency as per the orders of the Hon'ble Supreme Court of India dated 30/10/2002, 01/08/2003, 28/03/2008, 24/04/2008 and 09/05/2008 in IA No. 566 in WP (C) No. 202/1995 and as per the guidelines issued by the Ministry vide letters No. 5-1/1998-FC (Pt.II) dated 18/09/2003, as well as letter No. 5-2/2006-FC dated 03/10/2006 and 5-3/2007-FC dated 05/02/2009 in this regard. (b) Additional amount of the NPV of the diverted forest land, if any, becoming due after finalization of the same by the Hon'ble Supreme Court of India on receipt of the report from the Expert Committee, shall be charged by the State Government from the User Agency. The User Agency shall furnish an undertaking to this effect.	Amount of Rs 10,16,58,644.00 towards NPV deposited in CAMPA A/C number 150725829167556 IFSC Code-CORP0000371, Corporation Bank Lodhi Complex Branch Block No.-11, CGO Complex Phase-1, Lodhi Road New Delhi through online challan generate from MoEF Portal. Copy of challan is enclosed as **Annexure-4.** The User Agency has submitted an undertaking for additional NPV regarding this condition as **Annexure-5.**
v	The cost of felling of trees shall be deposited by the User Agency with the State Forest Department.	An undertaking has been submitted by the User Agency in compliance of this condition which is annexed as **Annexure-6.** UA agreed to the terms and condition of the letter vide no. 151 dated 05.02.2020 of small forest product project Division, Daltonganj copy is attached as **Annexure-7.**
vi	All the funds received from the user agency under the project shall be transferred/ deposited to CAMPA fund only through e-portal (https://parivesh.nic.in/).	The User Agency has submitted an undertaking for all fund deposited in CAMPA Account through e-portal as **Annexure-8.**
vii	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 co-ordinates;	An undertaking has been submitted by the User Agency in compliance of this condition which is annexed as **Annexure-9.**
viii	The 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 & Regulating) Act, 1957, as amended or Rules framed there under, subject to a maximum period of 30 years;	An undertaking has been submitted by the User Agency in compliance of this condition which is annexed as **Annexure-10.**
ix	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	An undertaking has been submitted by the User Agency in compliance of this condition which is annexed as **Annexure-11.**

	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 Chief Conservator of Forests (Central) may direct that the mining activities shall remain suspended till such time, such reclamation activities are satisfactorily executed.	
x	Following activities shall be undertaken by the user agency for the management of safety zone:	
	(a) User agency shall ensure demarcation of boundary of safety zone (7.5 meter strip all along the inner boundary of the mining lease area), and its protection by erecting adequate number of 4 feet high RCC boundary pillars inscribed with DGPS coordinates and deploying adequate number of watchers under the supervision of the State Forest Department.	The User Agency has submitted undertaking in compliance of condition **x(a), x(b) and x(c)** as **Annexure-12.**
	(b) In case of the mining leases adjoining the habitation stretch of the boundary of the safety zone of the lease adjacent to the habitation/roads should be properly fenced by the user agency at the project cost to protect the vegetation /regeneration activities in the safety zone.	
	(c) Safety zone shall be maintained as green belt around the mining lease and to ensure dense canopy cover in the area, regeneration shall be taken in this area by the user agency at the project cost under the supervision of the State Forest Department.	
	(d) Afforestation on degraded forest land, to be selected elsewhere, measuring one and a half times the forest area under safety zone shall also be done by the user agency at the project cost under the supervision of the State Forest Department.	(d) The User Agency has fund deposited of compensatory afforestation in CAMPA A/C number 150725829167556 IFSC Code-CORP0000371, Corporation Bank Lodhi Complex Branch Block No.-11, CGO Complex Phase-1, Lodhi Road New Delhi through online challan generate from MoEF Portal. Copy of challan is enclosed as **Annexure-13.**
xi	Following activities shall be undertaken by the User Agency at the project cost: (a) Preparation and implementation of a plan containing appropriate mitigative measures to minimize soil erosion and choking of streams;	An undertaking has been submitted by the User Agency in compliance of this condition **xi (a), (b), (c), (d) & (e)** is annexed as **Annexure 14.** The User Agency has submitted schemes of this condition which is annexed as **Annexure-15.**
	(b) Planting of adequate drought hardy plant species and sowing of seeds in the appropriate area within the mining lease to arrest soil erosion;	
	(c) Construction of check dams, retention /toe walls along the contour to arrest sliding down of the excavated material;	
	(d) Stabilize the overburden dumps by appropriate grading/benching so as to ensure that that angles of repose at any given place is less than 28°; and	
	(e) Strict adherence to the prescribed top soil management.	

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xii	The User Agency shall obtain the Environment Clearance as per the provisions of the Environmental (Protection) Act, 1986, if required;	The User Agency has submitted the co of Environment clearance a **Annexure-16.**
xiii	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;	User Agency has submitted an undertaking that 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. **Annexure-17.**
xiv	The layout plan of the proposal shall not be changed without the prior approval of the Central Government;	User Agency has submitted an undertaking that the layout plan of the proposal shall not be changed without the prior approval of the Central Government. **Annexure-18.**
xv	The forest land shall not be used for any purpose other than that specified in the proposal;	User Agency has submitted an undertaking that the forest land shall not be used for any purpose other than that specified in the proposal. **Annexure-19**
xvi	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;	User Agency has submitted an undertaking 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. **Annexure-20**
xvii	No damage to the flora and fauna of the adjoining area shall be caused;	User Agency has submitted an undertaking that no damage to the flora and fauna of the adjoining area shall be caused. **Annexure-21.**
xviii	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;	An undertaking has been submitted by the User Agency in compliance of this condition which is annexed as **Annexure-22.**
xix	User agency shall submit CAT plan for the catchment of Sukri River. The plan shall be finalised and approved by competent authority prior to Final approval	An undertaking has been submitted by the User Agency in compliance of this condition which is annexed as **Annexure-23.** The User Agency has submitted CAT plan in compliance of this condition as **Annexure-24.**
xx	State Government shall prepare a surveillance and monitoring plan to ensure that the large scale translocation of families from the area shall not get shifted to the adjoining forest land after their reallocation. Surveillance and Monitoring system for the forest hinterlands of the project area to be planned and executed at the project cost with provisions of patrolling manpower, building infrastructure (watch tower, check post etc), forest road access and vehicular resources as necessary.	An undertaking has been submitted by the User Agency in compliance of this condition which is annexed as **Annexure-25 (A) & 25 (B)** The surveillance and monitoring plan has been prepared & submitted by the DFO, Latehar a copy of which is being annexed as **Annexure-26.**

xxi	User agency shall explore the possibility of translocation of existing native trees from the project site work in consultation with State forest department.	User Agency has given undertaking for explore the possibility of translocation of existing native trees from the project site work in consultation with State forest department **Annexure-27.**
xxii	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; and	An undertaking has been submitted by the User Agency in compliance of this condition which is annexed as **Annexure-28.**
xxiii	The user agency shall comply all the provisions of the 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.	An undertaking has been submitted by the User Agency in compliance of this condition which is annexed as **Annexure-29.**
xxiv	The complete compliance of the FRA, 2006 shall be ensured by way of prescribed certificate from the concerned District Collector.	The User Agency has submitted the copy of FRA certificate which is annexed as **Annexure-30.**
xxv	Any other condition that the concerned Regional Office of this Ministry may stipulate, from time to time, in the interest of conservation, protection and development of forests & wildlife;	User Agency has submitted an undertaking that any other condition that the concerned Regional Office of this Ministry may stipulate, from time to time, in the interest of conservation, protection and development of forests & wildlife. **Annexure-31.**
xxvi	The compliance report shall be uploaded on e-portal (https://parivesh.nic.in/).	An undertaking has been submitted by the User Agency in compliance of this condition which is annexed as **Annexure-32.**
xxvii	Violation of any of these conditions will amount to violation of Forest (Conservation) Act, 1980 and action would be taken as prescribed in pare 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	An undertaking has been submitted by the User Agency in compliance of this condition which is annexed as **Annexure-33.**

इस अनुपालन प्रतिवेदन पर प्रधान मुख्य वन संरक्षक, झारखण्ड, राँची का अनुमोदन प्राप्त है।

अतः विषयगत वन भूमि अपयोजन प्रस्ताव के स्टेज–I के शर्तो का प्राप्त अनुपालन प्रतिवेदन तीन प्रतियों में इस पत्र के साथ संलग्न कर अग्रतर कार्रवाई हेतु भेजा जा रहा है।

अनु0–यथोक्त्।

विश्वासभाजन

ह0/–
प्रधान मुख्य वन संरक्षक–सह–कार्यकारी निदेशक,
बंजर भूमि विकास बोर्ड, झारखण्ड, राँची।

ज्ञापांक 385 दिनांक 22.6.2020

प्रतिलिपिः– क्षेत्रीय मुख्य वन संरक्षक, पलामू/वन संरक्षक, प्रादेशिक अंचल, मेदिनीनगर/वन प्रमण्डल पदाधिकारी, लातेहार वन प्रमण्डल को सूचनार्थ एवं आवश्यक कार्रवाई हेतु प्रेषित।

ह0/–
प्रधान मुख्य वन संरक्षक–सह–कार्यकारी निदेशक,
बंजर भूमि विकास बोर्ड, झारखण्ड, राँची।

(232) (216)

कार्यालयः मुख्य वन संरक्षक, प्रादेशिक अंचल, मेदिनीनगर।

Office of Chief Conservator of Forests, Territorial Circle, Medininagar.
ईमेल / **Email: cf-medininagar@ gov.in**
दूरभाष /**Phone: 06562-224953 Mobile No-8987790232**

पत्रांक– 444 /

सेवा में,

प्रधान मुख्य वन संरक्षक,–सह–कार्यकारी निदेशक,
बंजर भूमि विकास बोर्ड, झारखंड, राँची।

मेदिनीनगर, दिनांक– 04.03.2020

विषयः– लातेहार जिला अन्तर्गत तुबेद कोल ब्लॉक हेतु 162.394 हे0 वन भूमि (54.365 हे0 अधिसूचित वन भूमि एवं 108.029 हे0 जंगल–झाड़ी (Deemed Forest) के रूप में अंकित भूमि) के अपयोजन प्रस्ताव के सबंध में।

प्रसंगः– आपका पत्रांक 1401 दिनांक 03.12.2019 एवं वन प्रमण्डल पदाधिकारी, लातेहार वन प्रमण्डल का पत्रांक 283 दिनांक 28.02.2020

महाशय,

उपर्युक्त विषयक आपके कार्यालय के प्रासंगिक पत्र के आलोक में वन प्रमण्डल पदाधिकारी, लातेहार वन प्रण्डल ने अपने कार्यालय पत्रांक 283 दिनांक 28.02.2020 (छायाप्रति संलग्न) के द्वारा विषयगत परियोजना प्रस्ताव, जिसमें भारत सरकार, पर्यावरण, वन एवं जलवायु परिवर्तन मत्रालय, नई दिल्ली का पत्रांक F.No.8-23/2019-FC दिनांक 13.11.2019 द्वारा Stage-I की स्वीकृति 27 शर्तो के साथ दी गयी है के संदर्भ में Stage-I की स्वीकृति में लगाये गये 27 शर्तो का बिन्दुवार अनुपालन प्रतिवेदन अपने मंतव्य के साथ सात प्रतियों में समर्पित किया है।

इस कार्यालय का ज्ञापांक 437 दिनांक 03.03.2020 के द्वारा विषयक मामले की संचिका, अनुपालन प्रतिवेदन तथा अग्रसारण पत्र प्रारूप वन, पर्यावरण एवं जलवायु परिवर्तन विभाग, झारखण्ड सरकार के पत्रांक 4542 दिनांक 08.10.2014 के निर्देश के आलोक में क्षेत्रीय मुख्य वन संरक्षक, पलामू, मेदिनीनगर की सहमति / अनुमोदन प्राप्त करने हेतु भेजी गयी। क्षेत्रीय मुख्य वन संरक्षक, पलामू, मेदिनीनगर के पत्रांक 612 दिनांक 04.03.2020 द्वारा प्राप्त अनुमोदन के आलोक में प्रस्ताव की **पाँच–पाँच प्रति** इस पत्र के साथ संलग्न कर भेजी जा रही हैं।

अनु:0 यथोक्त।

विश्वासभाजन,
04/3/2020
मुख्य वन संरक्षक,
प्रादेशिक अंचल, मेदिनीनगर।

6.3.2020 नितीश कुमार

P.F Sec-.6

4/3/2020

DAMODAR VALLEY CORPORATION
D.V.C. TOWERS. V.I.P. ROAD
KOLKATA -700 054
Phone: (033) 6607-2338 email: sudhir.mukherjee@dvc.gov.in

150 YEARS OF CELEBRATING THE MAHATMA

No. HQ/Mining/Tubed/FC/193 Dated:13.02.2020

To
Divisional Forest Officer
Latehar Forest Division
Government of Jharkhand,

Recived
17.2.2020

Sub: Diversion of 162.394 Ha. of Forest Land for Tubed Coal Mine of Damodar Valley Corporation - Compliance to your letter vide No:2052 Dated 4.12.2019
(Proposal No. FP/JH/MIN/29167/2017)

Dear Sir,

Kindly refer to above.

As required, compliance to your letter vide No:2052 dated 23.12.2019 are submitted herewith for your kind perusal and needful.

प्रभान लिपिक
लातेहार वन प्रमंडल

SL	CONDITION	COMPLIANCE
i)	*Legal status of the diverted forest land shall remain unchanged*	Agreed An undertaking in this regard enclosed in **[Annexure-I]**
ii)	***Compensatory Afforestation:*** *(a) Compensatory Afforestation shall be raised over degraded forest land, double in extent to the forest area being diverted, by the State Forest Department at the cost of user Agency;* *(b) The area proposed for diversion includes 12 ha of CA plantation done in Dihi. Protected forest' area. In addition to stipulated CA required for diversion, user agency shall pay additional cost for raising CA over degraded forest land. The additional 12 ha degraded land shall be identified and shape files shall be submitted.*	a) Agreed b) The Additional 12 ha degraded forest land for afforestation has been identified in Sikni Mouza. KML file has been attached in **[Annexure-II]**
iii)	*The cost of compensatory afforestation at the prevailing wage rates as per compensatory afforestation scheme and the cost of survey, demarcation and erection of permanent pillars if required on the CA land shall be deposited in advance with the Forest Department by the project authority. The CA will be maintained for 10 years. The scheme may include appropriate provision for anticipated cost increase for works scheduled for subsequent years.*	The cost of Compensatory Afforestation as per the demand note has been deposited in CAMPA Fund on 20.12.2019 Payment receipt enclosed in **[Annexure- III]**
iv)	*Net Present Value (NPV):* *(a) The State Government shall charge the Net Present Value(NPV) for the 162.394 ha forest area to be diverted under this proposal from the User Agency as per the orders of the Hon'ble Supreme Court of India dated 30/10/2002, 01/08/2003, 28/03/2008, 24/04/2008 and 09/05/2008 in IA No. 566 in WP (C) No. 202/1995 and as per the guidelines issued by the Ministry vide letters No. 5-1/1998-FC (Pt.II) dated 18/09/2003, as well as letter No. 5-2/2006-FC dated 03/10/2006 and 5-3/2007-FC dated 05/02/2009 in this regard.* *(b) Additional amount of the NPV of the diverted forest land, if any, becoming due after finalization of the same by the Hon'ble Supreme Court of India on receipt of the report from the Expert Committee, shall be charged by the State Government from the User Agency. The User Agency shall furnish an undertaking to this effect.*	a) Net Present Value (NPV) has been deposited in CAMPA Fund on 20.12.2019 as per the demand note Payment receipt enclosed in **Annexure- III** b) Agreed. An undertaking in this regard has been submitted in **Annexure-IV(b)**

सुधीर मुखर्जी / Sudhir Mukherjee
उप मुख्य अभियंता (वा), ईंधन
Dy. Chief Engineer (M), Fuel
दामोदर घाटी निगम-54 कोलकाता-54
Damodar Valley Corporation-Kolkata-54

SL	CONDITION	COMPLIANCE
v)	*The cost of felling of trees shall be deposited by the User Agency with the State Forest Department.*	Agreed to the terms and conditions of the letter vide no: 151 dt: 05.02.2020 of Small Forest Product Project Division, Daltonganj. Copy of letter enclosed as **Annexure-V(a)** An undertaking has been submitted in this respect in **Annexure-V**
vi)	*All the funds received from the user agency under the project shall be transferred/ deposited to CAMPA fund only through e-portal (https://parivesh.nic.in/).*	Agreed. An undertaking in this respect has been furnished in **Annexure-VI**
vii)	*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 co-ordinates;*	Agreed. An undertaking in this regards has been submitted as **Annexure-VII**
viii)	*The 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 & Regulating) Act, 1957, as amended or Rules framed there under, subject to a maximum period of 30 years;*	Agreed. In this regard an undertaking has been furnished as **Annexure- VIII**
ix)	*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 Chief Conservator of Forests (Central) may direct that the mining activities shall remain suspended till such time, such reclamation activities are satisfactorily executed.*	Agreed. An undertaking in this respect is enclosed in **Annexure-IX**.
x)	*Following activities shall be undertaken by the user agency for the management of safety zone:* *(a) User agency shall ensure demarcation of boundary of safety zone (7.5-meter strip all along the inner boundary of the mining lease area), and its protection by erecting adequate number of 4 feet high RCC boundary pillars inscribed with DGPS coordinates and deploying adequate number of watchers under the supervision of the State Forest Department.* *(b) In case of the mining leases adjoining the habitation stretch of the boundary of the safety zone of the lease adjacent to the habitation/roads should be properly fenced by the user agency at the project cost to protect the vegetation /regeneration activities in the safety zone.* *(c) Safety zone shall be maintained as green belt around the mining lease and to ensure dense canopy cover in the area, regeneration shall be taken in this area by the user agency at the project cost under the supervision of the State Forest Department.* *(d) Afforestation on degraded forest land, to be selected elsewhere, measuring one and a half times the forest area under safety zone*	a) Agreed. KML file of Safety Zone has been submitted as **Annexure-E** b) Agreed. c) Agreed. सुधीर मुखर्जी / Sudhir Mukherjee Dy. Chief Engineer दामोदर घाटी निगम Damodar Valley Corpn., Kolkata-54 d) Fund deposited. The receipt has been enclosed in

SL	CONDITION	COMPLIANCE
	shall also be done by the user agency at the project cost under the supervision of the State Forest Department.	**Annexure- III** An undertaking in this respect has been submitted in **Annexure- X (a, b, c)**
xi)	*Following activities shall be undertaken by the User Agency at the project cost:* *(a) Preparation and implementation of a plan containing appropriate mitigative measures to minimize soil erosion and choking of streams;* *(b) Planting of adequate drought hardy plant species and sowing of seeds in the appropriate area within the mining lease to arrest soil erosion;* *(c) Construction of check dams, retention /toe walls along the contour to arrest sliding down of the excavated material;* *(d) Stabilize the overburden dumps by appropriate grading/benching so as to ensure that that angles of repose at any given place is less than 28°; and* *(e) Strict adherence to the prescribed top soil management.*	Agreed. Schemes for this activities have been prepared and submitted as **Scheme a, b, c, d & e** An undertaking in this respect has been submitted as **Annexure- XI (a, b, c, d & e)**
xii)	*The User Agency shall obtain the Environment Clearance as per the provisions of the Environmental (Protection) Act, 1986, if required;*	Expert Appraisal Committee, MoEF & CC, GOI in its 51st meeting held on 5th December 2019 at New Delhi has recommended for grant of Environment Clearance to Tubed Coal Mines project of 6 MTPA capacity of M/S Damodar Valley Corporation. The issuance of letter form MoEF & CC, GOI is awaited. Copy of the Minutes of EAC meeting has been annexed as **Annexure-XII**
xiii)	*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;*	Agreed. An undertaking in this respect has been submitted as **Annexure- XIII**
xiv)	*The layout plan of the proposal shall not be changed without the prior approval of the Central Government;*	Agreed. An undertaking in this context has been submitted as **Annexure- XIV**
xv)	*The forest land shall not be used for any purpose other than that specified in the proposal;*	Agreed. An undertaking in this respect has been submitted as **Annexure- XV**
xvi)	*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;*	Agreed. An undertaking in this respect has been submitted as **Annexure-XVI**
xvii)	*No damage to the flora and fauna of the adjoining area shall be caused;*	Agreed. An undertaking in this context has been submitted as **Annexure-XVII**
xviii)	*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;*	Possibility of translocation of maximum number of trees identified to be felled shall be explored and ensure that any tree felling shall be done only when it is unavoidable. An undertaking in this respect has been submitted as **Annexure-XVIII**

Sudhir Mukherjee

SL	CONDITION	COMPLIANCE
xix)	*User agency shall submit CAT plan for the catchment of Sukri River. The plan shall be finalised and approved by competent authority prior to Final approval*	CAT plan has been prepared and submitted as **Annexure-XIX(a)** An undertaking in this respect has been submitted as **Annexure-XIX**
xx)	*State Government shall prepare a surveillance and monitoring plan to ensure that the large scale translocation of families from the area shall not get shifted to the adjoining forest land after their reallocation. Surveillance and Monitoring system for the forest hinterlands of the project area to be planned and executed at the project cost with provisions of patrolling manpower, building infrastructure (watch tower, check post etc.), forest road access and vehicular resources as necessary.*	Agreed. An undertaking in this respect has been submitted as **Annexure-XX**
xxi)	*User agency shall explore the possibility of translocation of existing native trees from the project site work in consultation with State forest department.*	Possibility of translocation of translocation of existing native trees from the project site shall be explored. In this regards an undertaking has been submitted as **Annexure-XXI**
xxii)	*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; and*	Agreed. An undertaking in this context has been submitted as **Annexure-XXII**
xxiii)	*The user agency shall comply all the provisions of the 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.*	Agreed. An undertaking in this context has been submitted as **Annexure-XXIII**
xxiv)	*The complete compliance of the FRA, 2006 shall be ensured by way of prescribed certificate from the concerned District Collector.*	Certificate in Form II issued by Deputy Commissioner, Latehar is enclosed as **Annexure-XXIV**
xxv)	*Any other condition that the concerned Regional Office of this Ministry may stipulate, from time to time, in the interest of conservation, protection and development of forests & wildlife;*	Agreed. An undertaking in this respect has been submitted as **Annexure-XXV**
xxvi)	*The compliance report shall be uploaded on e-portal (https://parivesh.nic.in/).*	Agreed. An undertaking in this respect has been submitted as **Annexure-XXVI**
xxvii)	*Violation of any of these conditions will amount to violation of Forest (Conservation) Act, 1980 and action would be taken as prescribed in pare 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*	Agreed. An undertaking in this respect has been submitted as **Annexure-XXVII**

Your kind consideration of the proposal is solicited.

Enclosed: As stated.

Yours faithfully

(Sudhir Mukherjee)
Dy. Chief Engineer (M), Mining

सुधीर मुखर्जी / Sudhir Mukherjee
उप मुख्य अभियंता (खा.), ईंधन
Dy. Chief Engineer (M), Fuel
दामोदर घाटी निगम, कोलकाता-54
Damodar Valley Corpn., Kolkata-54

F. No. 8-23/2019-FC
Government of India
Ministry of Environment, Forests and Climate Change
(FC Division)

Indira ParyavaranBhawan,
Aliganj, Jor Bag Road,
New Delhi - 110003.
Dated: October, 2019
13th Nov.

To

The Principal Secretary (Forests),
Government of Jharkhand,
Ranchi.

Sub: Diversion of 162.394 ha of forest land (54.365 ha Protected Forest Land and 108.029 ha Jungle-Jhadi land) in favour of Damodar Valley Corporation for Tubed Opencast Coal Mining Project in Latehar District in the State of Jharkhand – reg.

Sir,

I am directed to refer to the Government of Jharkhand's letter No. Van Bhumi-23/2019-2578/V.P. dated 11.07.2019 on the above mentioned subject seeking prior approval of the Central Government under Section-2 of the Forest (Conservation) Act, 1980 and to say that the proposal has been examined by the Forest Advisory Committee constituted by the Central Government under Section-3 of the aforesaid Act.

After careful examination of the proposal of the State Government and on the basis of the recommendations of the Forest 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 for diversion of 162.394 ha of forest land (54.365 ha Protected Forest Land and 108.029 ha Jungle-Jhadi land) in favour of Damodar Valley Corporation for Tubed Opencast Coal Mining Project in Latehar District in the State of Jharkhand subject to fulfilment of the following conditions:

i. Legal status of the diverted forest land shall remain unchanged;

ii. **Compensatory Afforestation:**

(a) Compensatory Afforestation shall be raised over degraded forest land, double in extent to the forest area being diverted, by the State Forest Department at the cost of user Agency;

(b) The area proposed for diversion includes 12 ha of CA plantation done in Dihi Protected forest area. In addition to stipulated CA required for diversion, user agency shall pay additional cost for raising CA over degraded forest land. The additional 12 ha degraded land shall be identified and shape files shall be submitted.

iii. The cost of compensatory afforestation at the prevailing wage rates as per compensatory afforestation scheme and the cost of survey, demarcation and erection of permanent pillars if required on the CA land shall be deposited in advance with the Forest Department by the project authority. The CA will be maintained for 10 years.

13.11.19

सुधीर मुखार्जी / Sudhir Mukherjee
उप मुख्य अभियंता (यां), ईन्धन
Dy. Chief Engineer (M), Fuel
दामोदर घाटी निगम, कोलकाता-54
Damodar Valley Corpn., Kolkata-54

The scheme may include appropriate provision for anticipated cost increase for works scheduled for subsequent years.

iv. **Net Present Value (NPV):**

(a) The State Government shall charge the Net Present Value(NPV) for the 162.394 ha forest area to be diverted under this proposal from the User Agency as per the orders of the Hon'ble Supreme Court of India dated 30/10/2002, 01/08/2003, 28/03/2008, 24/04/2008 and 09/05/2008 in IA No. 566 in WP (C) No. 202/1995 and as per the guidelines issued by the Ministry vide letters No. 5-1/1998-FC (Pt.II) dated 18/09/2003, as well as letter No. 5-2/2006-FC dated 03/10/2006 and 5-3/2007-FC dated 05/02/2009 in this regard.

(b) Additional amount of the NPV of the diverted forest land, if any, becoming due after finalization of the same by the Hon'ble Supreme Court of India on receipt of the report from the Expert Committee, shall be charged by the State Government from the User Agency. The User Agency shall furnish an undertaking to this effect.

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

vi. All the funds received from the user agency under the project shall be transferred/ deposited to CAMPA fund only through **e-portal** (https://parivesh.nic.in/).

vii. 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 co-ordinates;

viii. The 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 & Regulating) Act, 1957, as amended or Rules framed there under, subject to a maximum period of 30 years;

ix. 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 Chief Conservator of Forests (Central) may direct that the mining activities shall remain suspended till such time, such reclamation activities are satisfactorily executed.

x. Following activities shall be undertaken by the user agency for the management of safety zone:

(a) User agency shall ensure demarcation of boundary of safety zone (7.5 meter strip all along the inner boundary of the mining lease area), and its protection by erecting adequate number of 4 feet high RCC boundary pillars inscribed with DGPS coordinates and deploying adequate number of watchers under the supervision of the State Forest Department.

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कोयला खदान निगम, कोलकाता-54

(b) In case of the mining leases adjoining the habitation stretch of the boundary of the safety zone of the lease adjacent to the habitation/roads should be properly fenced by the user agency at the project cost to protect the vegetation /regeneration activities in the safety zone.

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

(d) Afforestation on degraded forest land, to be selected elsewhere, measuring one and a half times the forest area under safety zone shall also be done by the user agency at the project cost under the supervision of the State Forest Department.

xi. Following activities shall be undertaken by the User Agency at the project cost:

(a) Preparation and implementation of a plan containing appropriate mitigative measures to minimize soil erosion and choking of streams;

(b) Planting of adequate drought hardy plant species and sowing of seeds in the appropriate area within the mining lease to arrest soil erosion;

(c) Construction of check dams, retention /toe walls along the contour to arrest sliding down of the excavated material;

(d) Stabilize the overburden dumps by appropriate grading/benching so as to ensure that that angles of repose at any given place is less than 28°; and

(e) Strict adherence to the prescribed top soil management.

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

xiii. 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;

xiv. The layout plan of the proposal shall not be changed without the prior approval of the Central Government;

xv. The forest land shall not be used for any purpose other than that specified in the proposal;

xvi. 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;

xvii. No damage to the flora and fauna of the adjoining area shall be caused;

xviii. 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;

xix. User agency shall submit CAT plan for the catchment of Sukri River. The plan shall be finalised and approved by competent authority prior to Final approval.

xx. State government shall prepare a surveillance and monitoring plan to ensure that the

Seen
13.11.15

सुधीर मुखार्जी / Sudhir Mukherjee
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दामोदर घाटी निगम, कोलकाता-54
Damodar Valley Corpn., Kolkata-54

large scale translocation of families from the area shall not get shifted to the adjoining forest land after their reallocation. Surveillance and Monitoring system for the forest hinterlands of the project area to be planned and executed at the project cost with provisions of patrolling manpower, building infrastructure (watch tower, check post etc), forest road access and vehicular resources as necessary.

xxi. User agency shall explore the possibility of translocation of existing native trees from the project site work in consultation with State forest department.

xxii. 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; and

xxiii. The user agency shall comply all the provisions of the 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.

xxiv. The complete compliance of the FRA, 2006 shall be ensured by way of prescribed certificate from the concerned District Collector.

xxv. Any other condition that the concerned Regional Office of this Ministry may stipulate, from time to time, in the interest of conservation, protection and development of forests & wildlife;

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

xxvii. 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.

After receipt of the compliance report on the fulfilment of the above mentioned conditions from the State Government, formal approval will be considered in this regard under Section-2 of the Forest (Conservation) Act, 1980. The transfer of forest land to the User Agency shall not be affected by the State Government till formal orders approving the diversion of forest land are issued by the Central Government.

Yours faithfully,

13.11.19

(Sandeep Sharma)
Assistant Inspector General of Forests

Copy to:

1. The Principal Chief Conservator Forests, Government of Jharkhand, Ranchi
2. The Nodal Officer, O/o the PCCF, Government of Jharkhand, Ranchi
3. The Deputy Director General (Central), Regional Office, Ranchi.
4. User Agency
5. Monitoring Cell of FC Division, MoEF&CC
6. Guard file

13.11.19

(Sandeep Sharma)
Assistant Inspector General of Forests

15/11/19

सुधीर मुखार्जी / Sudhir Mukherjee
उप मुख्य अभियंता (यां), ईंधन
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Damodar Valley Corpn., Kolkata-54

DAMODAR VALLEY CORPORATION
D.V.C. TOWERS. V.I.P. ROAD
KOLKATA -700 054
Phone: (033) 6607-2338 email: sudhir.mukherjee@dvc.gov.in

No. HQ/Mining/Tubed/FC/193(I) Dated: 13.02.2020

Annexure- I

UNDERTAKING
TUBED COAL MINE

This is to certify that, Damodar Valley Corporation (DVC), a corporation constituted under DVC Act, 1948 (Act. No. XIV of 1948), undertake to ensure that the legal status of the diverted forest land shall remain unchanged during implementation of the project. This is in connection of the fulfilment of the Condition No. i of the Stage-I Clearance, for diversion of 162.394 ha forest land in Latehar Forest Division, Dist. Latehar, Jharkhand.

Sudhir Mukherjee
Dy. Chief Engineer(Mech), Mining
Damodar Valley Corporation,
D.V.C. Towers, V.I. P. Road,
Kolkata- 700054

18 February, 2020 | User: PADMES01 | SOL ID: 0082 | Menu Shortcut:

Real Time Gross Settlement System

Function	INQUIRY	Message Type	R41	UTR	UTBIH19354060030
SOL ID	0082	Paysys ID	RTGS	Tran. Type	Transfer
Tran. ID	548789120	Tran. Date	20-12-2019		

General Details

Message Status	
Reject Reason Code	
Rejection Reason	
Message Priority (1-99)*	25
Value Date*	20-12-2019
Dr. A/c. ID*	0082250010082
Cr. A/c. ID	00820125001041
Tran. Amount*	INR 210917752.00
Mobile No	
Email ID	
Charge Event ID	
Charge A/c. ID	
Instrmnt Type	
Instrmnt. No.	
Tran. Particulars	

Acknowledgement (camt.059.001.04)

2/20

18-02-2020

सुधीर मुखर्जी / Sudhir Mukherjee
उप मुख्य अभियंता (वा), ईंधन

18 February, 2020 | User: PADMES01 | SOL ID: 0082 | Menu Shortcut:

Real Time Gross Settlement System

Function	INQUIRY	Message Type	R41	UTR	UTBIH19354060030
SOL ID	0082	Paysys ID	RTGS	Tran Type	Transfer
Tran. ID	S48789120	Tran. Date	20-12-2019		

Sender's Correspondent Details

Bank/Branch Code	027	NMT147	ISO Code	UTBIONMT147

Receiver Institution Details

Bank/Branch Code*	CORP0	000371	ISO Code	CORP0000371

Ordering Institution Details

Bank/Branch Code			ISO Code	
Institution ID				
Name			Address 1	
Address 2			Address 3	

Ordering Customer Details

Cust. Name*	DAMODAR VALLEY CORPORATION		Address 1*	D V C CENTRAL A/CS OFFICE
Address 2	DVC TOWER 4TH FLOOR VIP ROAD		Address 3	

Account with Institution Details

Bank/Branch Code			ISO Code	
Institution ID				
Name			Address 1	
Address 2			Address 3	

Beneficiary Customer Details

A/c. ID*	150725829167556			
Cust. Name*	JHARKHAND CAMPA		Address 1*	CORPORATION BANK
Address 2			Address 3	

Payment Details

Line 1		Line 2	
Line 3		Line 4	
Charge Details			

Sender to Receiver Information

Line 1		Line 2	

18/2/2020

18-02-2020

http://172.16.130.61:8889/finbranch/rtgs/rtgs_ctrl.jsp

सुधीर मुखर्जी / Sudhir Mukherjee
उप मुख्य अभियंता (यां), ईंधन
Dy. Chief Engineer (M), Fuel

Online payment history made by User Agency under CAMPA

Help

Sno.	Proposal Detail	Application_No	Application No (New)	Date of IN-PRINCIPLE	Amount to be Paid/Amount Paid (in Rs.)	Payment Status	Payment Detail	Demand Letter
1	FP/JH/MIN/29167/2017 (.../viewreport.aspx?pid=FP/JH/MIN/29167/2017) Tubed Coal Mine	MIN291672017556	582916755	13 Nov 2019	CA: 44259108/-, Addl CA : 0/- PCA: 0/-, CAT : 0/- Safety Zone: 0/-, Addl PA : 0/- Wildlife NPV: 101658644/-, Conservation Plan 65000000/- Other Charges1 : 0/- Other Charges2 : 0/- Other Charges3 : 0/- Total : 210917752/-	Paid	Fund Demand Verified by Nodal Officer On :19 Dec 2019 Bank Name :Corporation Bank Mode of Payment :NEFT/RTGS (Challan) Challan Generated On :19 Dec 2019 Transaction Date :20 Dec 2019	Demand Letter (../writereaddata/Fundpdf/12111012101216TV826D 12-2019.pdf) Generated Challan (../UserAccount/Neft_ChallanCop pid=MIN291672017556)

सुधीर मुखार्जी / Sudhir Mukherjee
उप मुख्य अभियंता (यां), ईंधन
Dy. Chief Engineer (M), Fuel
दामोदर घाटी निगम, कोलकाता-54
Damodar Valley Corpn., Kolkata-54

DAMODAR VALLEY CORPORATION
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KOLKATA -700 054
Phone: (033) 6607-2338 email: sudhir.mukherjee@dvc.gov.in

No. HQ/Mining/Tubed/FC/193(IV) Dated: 13.02.2020

Annexure- IV (b)

UNDERTAKING
TUBED COAL MINE

This is to certify that, Damodar Valley Corporation (DVC), a corporation constituted under DVC Act, 1948 (Act. No. XIV of 1948), undertake to deposit the additional amount of the NPV of the diverted forest land, if any, becoming due after finalization of the same by the Hon'ble Supreme Court of India on receipt of the report from the expert committee. This is in connection of the fulfilment of Condition No. iv (b) of the Stage-I Clearance, for diversion of 162.394 ha forest land in Latehar Forest Division, Dist. Latehar, Jharkhand.

Sudhir Mukherjee
Dy. Chief Engineer (Mech), Mining
Damodar Valley Corporation,
D.V.C. Towers, V.I. P. Road,
Kolkata- 700054

DAMODAR VALLEY CORPORATION
D.V.C. TOWERS. V.I.P. ROAD
KOLKATA -700 054
Phone: (033) 6607-2338 email: sudhir.mukherjee@dvc.gov.in

No. HQ/Mining/Tubed/FC/193(V) Dated: 13.02.2020

Annexure- V

UNDERTAKING

TUBED COAL MINE

This is to certify that, Damodar Valley Corporation (DVC), a corporation constituted under DVC Act, 1948 (Act. No. XIV of 1948), undertake to execute the felling of trees within the diverted land, logging and transportation to the depot at its own cost. Depot rent, supervision and handling, fire safety charges, depot insurance etc. will be deposited after receiving the demand from the state government. This is in connection of the fulfilment of Condition No. V of the Stage-I Clearance, for diversion of 162.394 ha forest land in Latehar Forest Division, Dist. Latehar, Jharkhand.

Sudhir Mukherjee
Dy. Chief Engineer (Mech), Mining
Damodar Valley Corporation,
D.V.C. Towers, V.I. P. Road,
Kolkata- 700054

झारखण्ड स्टेट फौरेस्ट डेवलपमेंट कॉरपोरेशन लि0
Jharkhand State Forest Development Corporation Ltd.

(A Govt. of Jharkhand undertaking)

कार्यालयः प्रमण्डलीय प्रबंधक,लघु वन पदार्थ परियोजना प्रमण्डल डालटनगंज,पलामू।

पत्रांक :...../ दिनांक :...../

सेवा में,

वन प्रमण्डल पदाधिकारी,
वन प्रमण्डल लातेहार।

विषय :– लातेहार जिला अन्तर्गत तुबेद कोल ब्लॉक हेतु 162.394 हे0 वन भूमि (54.365 हे0) अधिसूचित वन भूमि एवं 108.029 हे0 जंगल झाड़ी (Deemed Forest) के रूप में अंकित भूमि के अपयोजन का प्रस्ताव के संबंध में।

प्रसंगः– आपका पत्रांक 2159 दिनांक 30.12.2019।

महाशय,

उपर्युक्त विषयक् प्रसांगिक पत्र के सन्दर्भ में सूचित करना है कि आपके कार्यालय पत्रांक 2159 दिनांक 30.12.2019 के द्वारा शर्त्त सं0–05 में पातित किए जाने वाले वृक्षों के पातन में होने वाले व्यय संबंधित राशि का प्राक्कलन की मॉग की गई थी। इस सन्दर्भ में सूचित करना है कि वनभूमि अपयोजन के मामलो में प्रचलित प्रक्रिया के अनुसार चिन्हित वृक्षों का पातन एवं पातित वृक्षों के टुकड़े करना तथा पातित वृक्षों के टुकड़ों का परिवहन प्रयोक्ता अभिकरण के द्वारा ही की जाती रही हैं। उक्त कार्यो पर होने वाले व्यय का वहन भी प्रयोक्ता अभिकरण द्वारा ही किया जाता हैं। प्रादेशिक प्रमण्डल द्वारा वृक्षों के पातन की अनुमति निर्गत किए जाने के पश्चात् प्रयोक्त अभिकरण द्वारा वृक्षों का पातन एवं Logging कार्य प्रादेशिक प्रक्षेत्र एवं लघु वन पदार्थ परियोजना प्रक्षेत्र के अधिकारियों की सुपरविजन में की जाती है एवं पातित वृक्ष के टुकड़े का परिवहन संबंधित प्रादेशिक प्रक्षेत्र द्वारा निर्गत अनुज्ञा पत्र पर वन निगम के वनागार तक की जाती हैं। वन निगम द्वारा अभिकरण से प्राप्त प्रकाष्ठ बोटो,खुटॉ, पोल एवं जलावन आदि के आम नीलामी द्वारा बिक्रय हेतु लॉट निंमाण,सुरक्षा डीपू रेन्ट एवं अन्य मदो में प्रयोक्ता अभिकरण से राशि की मॉग की जाती हैं।

आपके प्रमण्डल अन्तर्गत सोनवार एवं जलता परियोजना में वृक्षों के पातन एवं पातित वृक्षों के टुकड़ों का परिवहन प्रयोक्ता अभिकरण द्वारा किया गया था। लघु वन पदार्थ परियोजना प्रमण्डल डालटनगंज के द्वारा प्रयोक्ता अभिकरण से लॉट निंमाण, डीपू रेन्ट अन्य व्यय मदो में राशि की मॉग की गई थी। मॉगी गई राशि के प्राक्कलन की छाया प्रति संलग्न।

दिनांक 22.01.2020 को दामोदर घाटी निगम के तुवेद कोयला खान परियोजना के पदाधिकारियो से वार्त्ता हुई थी। उन्हे वृक्षों के पातन से संबंधित प्रचलित प्रक्रिया से अवगत कराया गया था। वृक्षों के पातन एवं परिवहन का दायित्व प्रयोक्ता अभिकरण को दिया जाना श्रेयस्कर होगा। इस संबंध में प्रक्षेत्र पदाधिकारी,लघु वन पदार्थ परियोजना प्रक्षेत्र लातेहार के द्वारा दिनांक 23.01.2020 को आपसे मिलकर वस्तुस्थिति से अवगत करा दिया गया हैं।

अतः सूचनार्थ एवं आश्वयक कार्रवाई हेतु प्रेषित।

आपका विश्वासी

ह0/
प्रमण्डलीय प्रबंधक,
लघु वन पदार्थ परियोजना प्रमण्डल,
डालटनगंज।

सुधीर मुखार्जी / Sudhir Mukherjee
उप मुख्य अभियंता (वां), ईंधन
Dy. Chief Engineer (M), Fuel
दामोदर घाटी निगम, कोलकाता-54
Damodar Valley Corporation Kolkata-54
Account Section

Final 2019

झारखण्ड स्टेट फौरेस्ट डेवलपमेंट कॉरपोरेशन लि०
Jharkhand State Forest Development Corporation Ltd.

(A Govt. of Jharkhand undertaking)

कार्यालयः प्रमण्डलीय प्रबंधक,लघु वन पदार्थ परियोजना प्रमण्डल डालटनगंज,पलामू।

ज्ञापांकः 151 दिनांकः 05.02.2020

प्रतिलिपिः सुधीर मुखर्जी उप मुख्य अभियन्ता (यांत्रिक) दामोदर घाटी निगम को सूचनार्थ एवं आवश्यक कार्रवाई हेतु प्रेषित ।

प्रमण्डलीय प्रबंधक,
लघु वन पदार्थ परियोजना प्रमण्डल,
डालटनगंज।

सुधीर मुखर्जी / Sudhir Mukherjee
उप मुख्य अभियंता (यां), ईंधन
Dy. Chief Engineer (M), Fuel
दामोदर घाटी निगम, कोलकाता-54
Damodar Valley Corpn., Kolkata-54

Account Section

Final 2019

कार्यालयः– प्रमण्डलीय प्रबंधक,लघु वन पदार्थ परियोजना प्रमण्डल,डालटनगंज।

ग्रामः– सोनवार,जिलाःलातेहार में 400/220 के0भी0 ग्रीड सब स्टेशन निर्माण हेतु अर्जित भूमि में पड़ने वाले वृक्षों के पातन हेतु सुपरविजन एवं हैडलिंग,डीपू रेन्ट,अग्नि सुरक्षा,वनागार का बीमा आदि राशि का प्राक्कलन/मदवार विवरणी।

क्र0सं0	कार्य विवरणी	निर्धारित दर	अनुमानित मात्रा	कुल	कार्य दर (रूपया में)	कुल राशि
		मानव दिवस/घ0मी0	घ0मी0 में		प्रति ईकाई	
1	टिम्बर बल्ली आदि का हैडलिंग चार्ज प्रति घ0मी0।	1.00	15 घ0मी0		240.99	3615.00
2	साईडिंग टिम्बर बल्ली आदि प्रति ट्रक 5.71 घ0मी0।	2.93	15 घ0मी0		240.99	10592.00
3	जलावन चट्टा लगाना (32 घ0मी0 एक चट्टा के लिए)	3.92	15 घ0मी0		240.99	14170.00
4	नीलमी के लिए लॉट निर्माण।	0.9	15 घ0मी0		240.99	3253.00
5	सुपरविजन चार्ज माह मई 2018 से दिसम्बर 2018 तक के लिए।					
	(क) पातन स्थलीय पर दो दैनिक वेतन भोगी कर्मी, डिपू में भण्डारण हेतु दो दैनिक वेतन भोगी कर्मी, क्षेत्रीय कार्यालय में लेखा जोखा निर्धारण हेतु एक दैनिक वेतन भोगी कर्मी (कुल पाँच कर्मी)			2x26x2= 104days	104x240.99	25063.00
	(ख) कोलतार,पेंट,लेखन सामग्री आदि @5000/Month					1000.00
	(ग) वाहन एवं पेट्रोल @5000/Month					2000.00
	(घ) दैनिक कर्मियों का कनवेयन्स @2000/Month					2000.00
	(ङ) विविध व्यय @3000/Month					1000.00
6	*डीपू रेन्ट @5000/Month*					5000.00
7	अग्नि सुरक्षा					1000.00
8	वनागार का बीमा					5000.00
	कुल तिहत्तर हजार छःसौ तिरानबे रू0 मात्र)					73693.00

प्रमण्डलीय प्रबंधक,
लघु वन पदार्थ परियोजना प्रमण्डल,
डालटनगंज ।

सुधीर मुखार्जी / Sudhir Mukherjee
उप मुख्य अभियंता (यां), ईन्धन
Dy. Chief Engineer (M), Fuel
दामोदर घाटी निगम, कोलकाता-54
Damodar Valley Corpn., Kolkata-54

कार्यालयः– प्रमण्डलीय प्रबंधक,लघु वन पदार्थ परियोजना प्रमण्डल,डालटनगंज।

ग्रामः– जलता,जिलाःलातेहार में 400/220 के0वी0 ग्रीड साब स्टेशन निर्माण हेतु अर्जित भूमि में पड़ने वाले वृक्षों के पातन हेतु सुपरविजन एवं हैंडलिंग,डीपू रेन्ट,अग्नि सुरक्षा,वनागार का बीमा आदि राशि का प्राक्कलन।

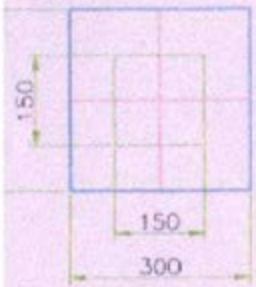
क्रम सं0	कार्य विवरणी	निर्धारित दर	अनुमानित मात्रा	युक्त	कार्य दर (रूपया में)	कुल राशि
		मानव दिवस/घ0मी0	घ0मी0 में		प्रति ईकाई	
1	टिम्बर बल्ली आदि का हैंडलिंग भार्ज प्रति घ0मी0।	1.00	40 घ0मी0		240.99	9640.00
2	लदाईंग टिम्बर बल्ली आदि प्रति ट्रक 6.71 घ0मी0।	2.93	40 घ0मी0		240.99	4947.00
3	जलावन भट्टा लगाना (32 घ0मी0 एक भट्टा के लिए)	3.92	40 घ0मी0		240.99	1181.00
4	नीलमी के लिए लौट निर्माण।	0.9	500 घ0मी0		240.99	10711.00
5	सुपरविजन भार्ज माह मई 2018 से दिसम्बर 2018 तक के लिए।					
	(क) पातन स्थलीय पर दो दैनिक वेतन भोगी वर्मी, डिपू में भण्डारण हेतु दो दैनिक वेतन भोगी वर्मी, क्षेत्रीय कार्यालय में लेखा जोखा निर्धारण हेतु एक दैनिक वेतन भोगी वर्मी (कुल पाँच वर्मी)			5x26x8= 1040days	1040x240.99	250630.00
	(ख) कोलतार,पेंट,लेखन सामग्री आदि @5000/Month			3Month	2000	6000.00
	(ग) वाहन एवं पेट्रोल @5000/Month			3Month	1000	3000.00
	(घ) दैनिक कार्यों का कनवेयन्स @2000/Month			8Month	500	4000.00
	(ङ) विविध व्यय @3000/Month			3Month	1000	3000.00
6	डीपू रेन्ट @5000/Month			8Month	5000	40000.00
7	अग्नि सुरक्षा					10000.00
8	वनागार का बीमा					20000.00
	कुल तीन लाख तिरसठ हजार एक सौ नौ रू0 मात्र					363109.00

प्रमण्डलीय प्रबंधक,
लघु वन पदार्थ परियोजना प्रमण्डल,
डालटनगंज ।

सुधीर मुखार्जी / Sudhir Mukherjee
उप मुख्य अभियंता (वां), ईन्धन
Dy. Chief Engineer (M), Fuel
दामोदर घाटी निगम, कोलकाता-54
Damodar Valley Corpn., Kolkata-54

TUBED COAL MINE

DVC, LATEHAR DISTRICT, JHARKAND



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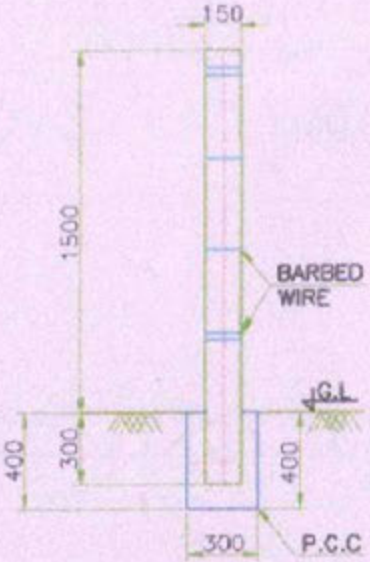

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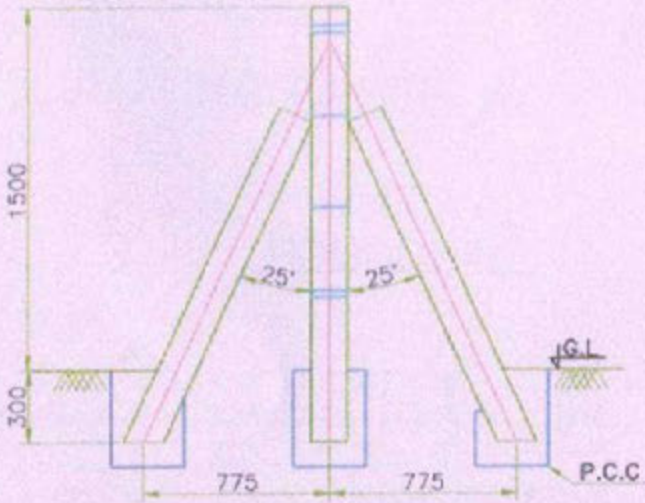
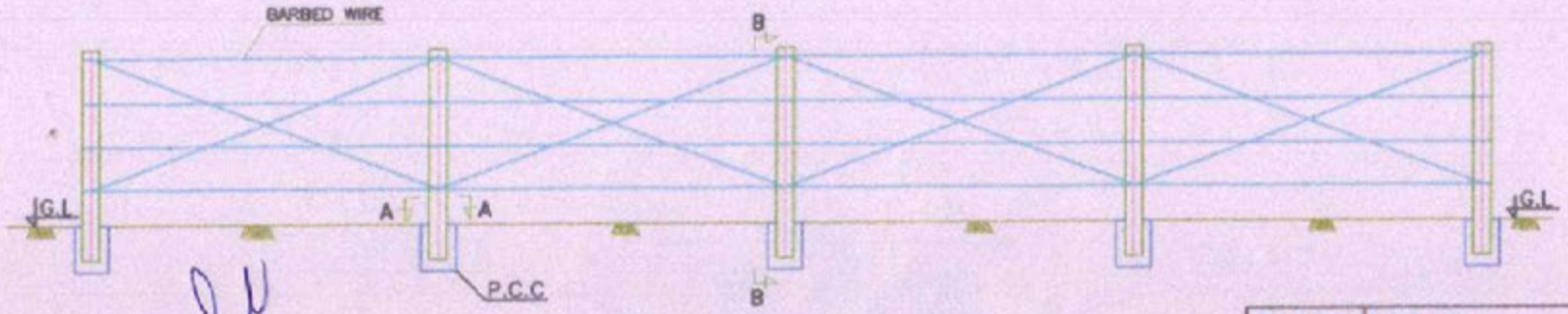


SECTION : B-B
AT CORNER
1:50



ELEVATION OF FENCING

सुधीर मुखार्जी / Sudhir Mukherjee
उप मुख्य अभियंता (यां), ईन्धन
Dy. Chief Engineer (M), Fuel
दामोदर घाटी निगम, कोलकाता-54
Damodar Valley Corpn., Kolkata-54

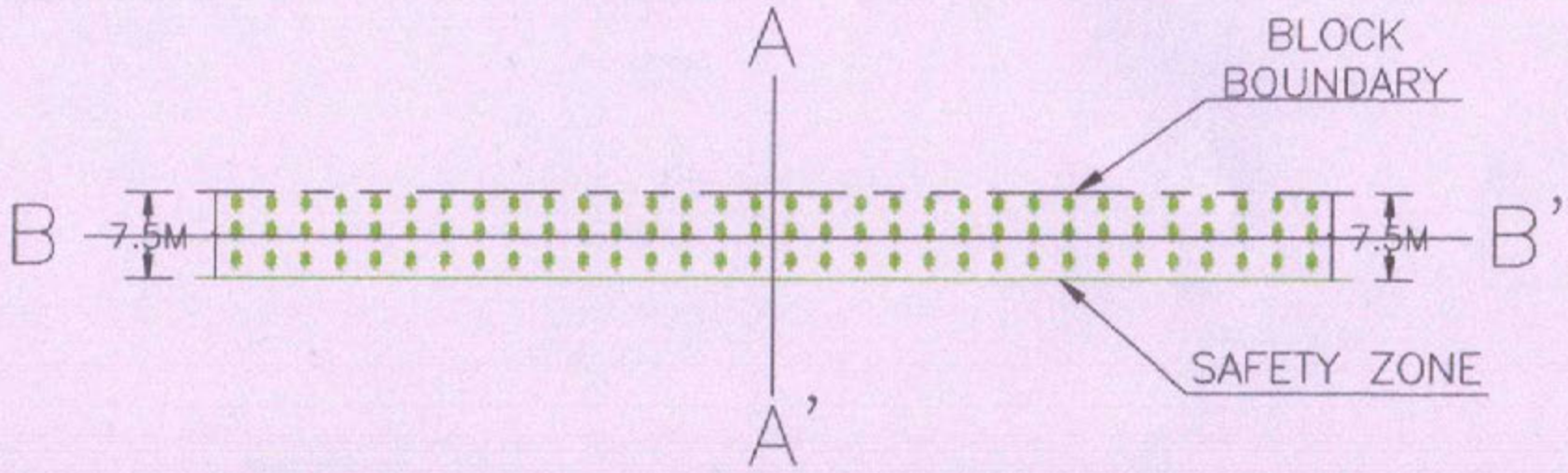
NOTE:-

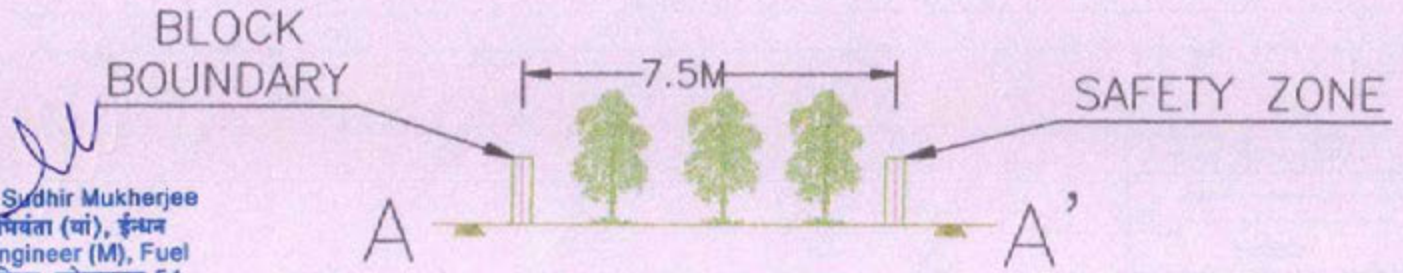
1. ALL DIMENSION ARE IN MM AND LEVELS ARE IN M.

SH-1 OF 1	DWG. NO.-	
Rev.	Description	Date
Project: TUBED		BARBED FENCING
Title: CIVIL CONSTRUCTIONAL DETAIL	Scale:- NIL	Design / Drawn / Check / Appd / Date / Rev. 0 / Size A3

TUBED COAL MINE

DVC, LATEHAR DISTRICT, JHARKAND





सुधीर मुखार्जी / Sudhir Mukherjee
उप मुख्य अभियंता (यां), ईंधन
Dy. Chief Engineer (M), Fuel
दामोदर घाटी निगम, कोलकाता-54
Damodar Valley Corpn., Kolkata-54

NOT TO SCALE

DAMODAR VALLEY CORPORATION
D.V.C. TOWERS. V.I.P. ROAD
KOLKATA -700 054
Phone: (033) 6607-2338 email: sudhir.mukherjee@dvc.gov.in

No. HQ/Mining/Tubed/FC/193(VI) Dated: 13.02.2020

Annexure- VI

UNDERTAKING

TUBED COAL MINE

This is to certify that, Damodar Valley Corporation (DVC), a corporation constituted under DVC Act, 1948 (Act. No. XIV of 1948), undertake and ensure that all funds shall be transferred / deposited to CAMPA Fund only through e-portal (https://parivesh.nic.in/). This is in connection of the fulfilment of Condition No. vi of the Stage-I Clearance, for diversion of 162.394 ha forest land in Latehar Forest Division, Dist. Latehar, Jharkhand.

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No. HQ/Mining/Tubed/FC/193(VII) Dated: 13.02.2020

Annexure- VII

UNDERTAKING

TUBED COAL MINE

This is to certify that, Damodar Valley Corporation (DVC), a corporation constituted under DVC Act, 1948 (Act. No. XIV of 1948), undertake to demarcate on ground the boundary of the diverted Forest land, Mining Lease and Safety zone by erecting 4(four) feet high reinforced cement concrete pillars, each inscribed with it serial number, distance from pillar to pillar and GPS coordinates as per the specification laid down in Stage-I Clearance at its own cost. This is in connection of the fulfilment of Condition No. vii of the Stage-I Clearance, for diversion of 162.394 ha forest land in Latehar Forest Division, Dist. Latehar, Jharkhand.

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No. HQ/Mining/Tubed/FC/193(VIII) Dated: 13.02.2020

Annexure- VIII

UNDERTAKING
TUBED COAL MINE

This is to certify that, Damodar Valley Corporation (DVC), a corporation constituted under DVC Act, 1948 (Act. No. XIV of 1948), undertake that the period of diversion of 162.394 ha forest land under the approval (F. No. 8-23/2019-FC, Dt. 13.11.2019) shall be for a period co-terminus with the period of mining lease proposed to be granted under the Mines and Minerals (Development & Regulating) Act, 1957, as amended or Rules framed there under, subject to a maximum period of 30 years. This is in connection of the fulfilment of Condition No. viii of the Stage-I Clearance, for diversion of 162.394 ha forest land in Latehar Forest Division, Dist. Latehar, Jharkhand.

Sudhir Mukherjee
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No. HQ/Mining/Tubed/FC/193(IX) Dated: 13.02.2020

Annexure- IX

UNDERTAKING

TUBED COAL MINE

This is to certify that, Damodar Valley Corporation (DVC), a corporation constituted under DVC Act, 1948 (Act. No. XIV of 1948), undertake to ensure that the mining operation is being done in a phased manner as per Approved Mine Plan after taking due care for reclamation over the mined over area as per Approved Mine Closure Plan and 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. This is in connection of the fulfilment of Condition No. ix of the Stage-I Clearance, for diversion of 162.394 ha forest land in Latehar Forest Division, Dist. Latehar, Jharkhand.

Sudhir Mukherjee
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Kolkata- 700054

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No. HQ/Mining/Tubed/FC/193(X) Dated: 13.02.2020

Annexure- X

UNDERTAKING

TUBED COAL MINE

This is to certify that, Damodar Valley Corporation (DVC), a corporation constituted under DVC Act, 1948 (Act. No. XIV of 1948), undertake to complete the following activities for the management of Safety Zone. This is in connection of the fulfilment of Condition No. x (a,b,c) of the Stage-I Clearance, for diversion of 162.394 ha forest land in Latehar Forest Division, Dist. Latehar, Jharkhand.

(a) Demarcation of boundary of safety zone (7.5 meter strip all along the inner boundary of the mining lease area), and its protection by erecting adequate number of 4 feet high RCC boundary pillars inscribed with DGPS coordinates and deployment of adequate number of watchers under the supervision of the State Forest Department.

(b) Proper fencing of the boundary of the safety zone of the lease adjacent to the habitation/roads to protect the vegetation /regeneration activities.

(c) Safety zone shall maintained green belt around the mining lease and ensure dense canopy cover in the area under the supervision of the State Forest Department.

Sudhir Mukherjee
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Management of Safety Zone
of Tubed Coal Mine
Latehar District, Jharkhand

In Compliance with Condition No. x of Stage-I Forest Clearance vide letter F. No. 8-23/2019-FC, Dt. 13.11.2019 of Ministry of Environment, Forest & Climate Change (FC Division), Govt. of India, New Delhi

Safety Zone Area :	6.6 ha
Demarcation :	Boundary of the safety zone (7.5m strip all along the inner boundary of the mining lease area), and its protection by erecting 4ft. high RCC pillars inscribed with DGPS coordinates has been executed. (KML file enclosed)
Cost of Block Plantation in Safety Zone :	Rs.878269/-
Cost of Fencing of Safety Zone (8829m x 2)= 17658 m :	Rs.5562270/-
Watch & ward :	The safety zone will be monitored by the environmental cell of the company on regular basis deploying adequate number of competent persons throughout the year under the supervision of State Forest Department (DFO-Latehar)
Total cost implication for management of safety zone :	Rs.6440539/-

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सुधीर मुखार्जी / Sudhir Mukherjee
उप मुख्य अभियंता (खा), इंजन
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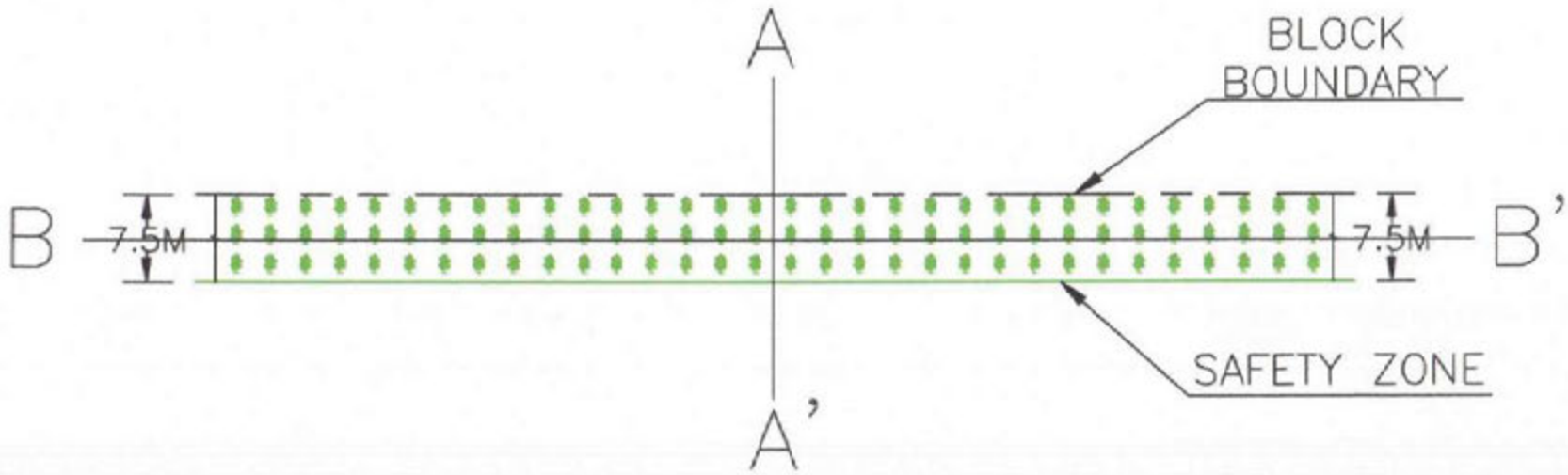
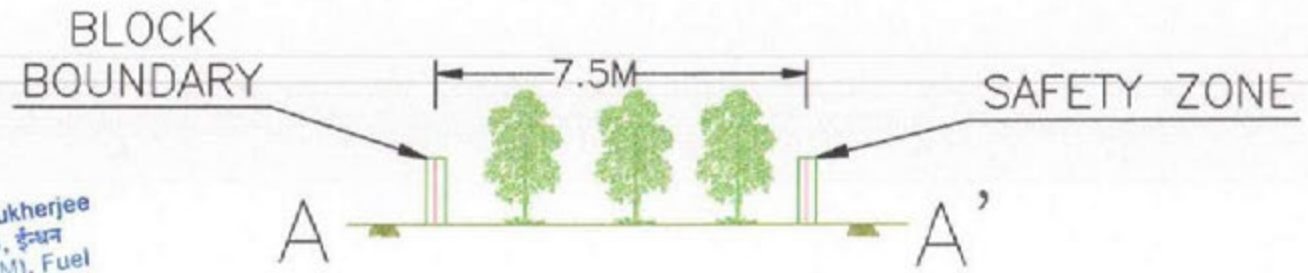
Damodar Valley Corpn., Kolkata-54

TUBED COAL MINE

DVC, LATEHAR DISTRICT, JHARKAND



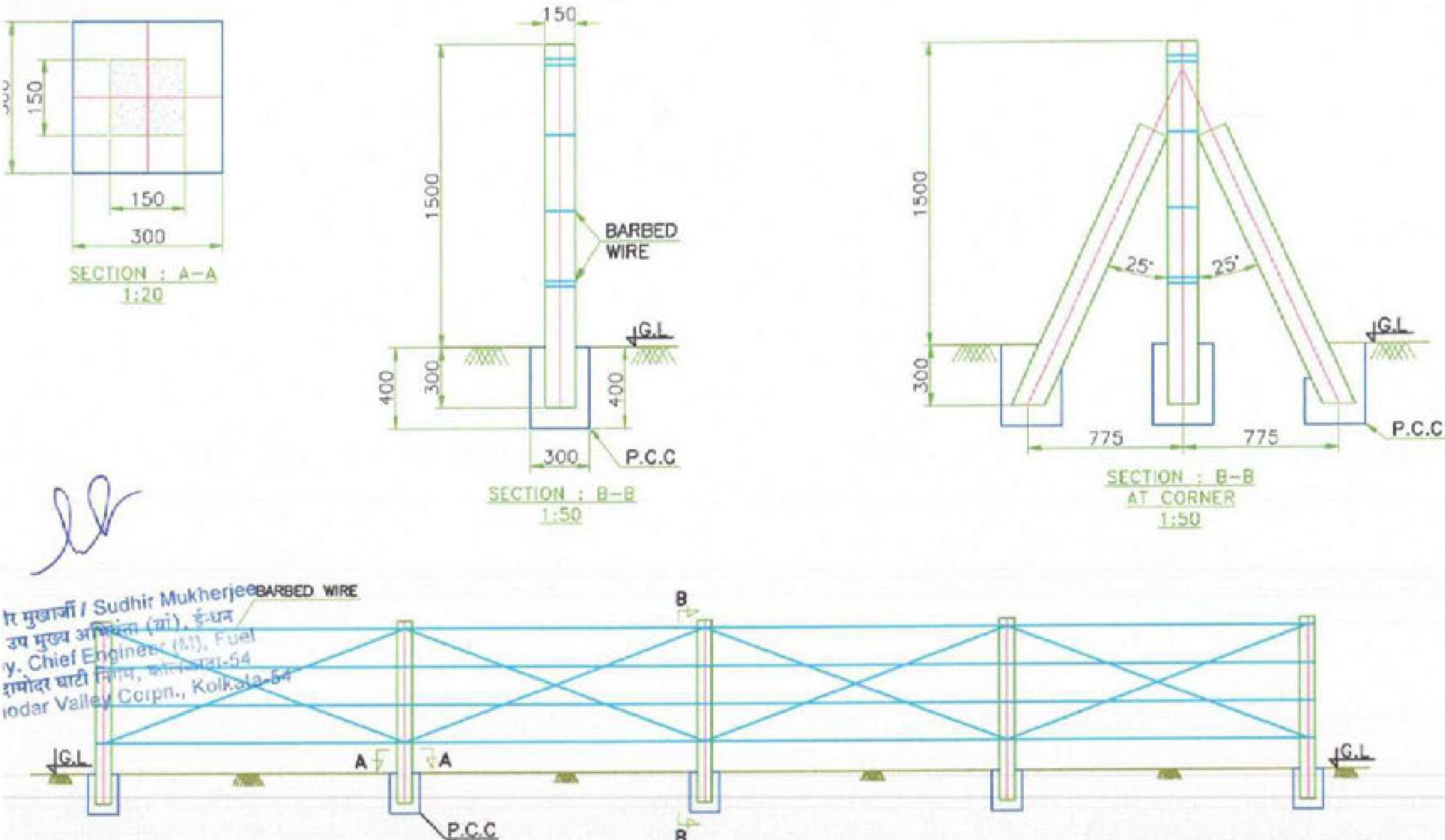


NOT TO SCALE

सुधीर मुखार्जी / Sudhir Mukherjee
उप मुख्य अभियंता (यां), ईंधन
Dy. Chief Engineer (M), Fuel
Damodar Valley Corpn., Kolkata-54

TUBED COAL MINE

DVC, LATEHAR DISTRICT, JHARKAND



सुधीर मुखर्जी / Sudhir Mukherjee
उप मुख्य अभियंता (यां), ईंधन
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दामोदर घाटी निगम, कोलकाता-54
Damodar Valley Corpn., Kolkata-54

NOTE:-

1. ALL DIMENSION ARE IN MM AND LEVELS ARE IN M.

SH-1 OF 1	DWG. NO. -	
Rev.	Description	Date
Project: TUBED		BARBED FENCING
Title: CIVIL CONSTRUCTIONAL DETAIL		Rev: 0
		Size: A3

DAMODAR VALLEY CORPORATION
D.V.C. TOWERS. V.I.P. ROAD
KOLKATA -700 054
Phone: (033) 6607-2338 email: sudhir.mukherjee@dvc.gov.in

No. HQ/Mining/Tubed/FC/193(XI) Dated: 13.02.2020

Annexure- XI (a,b,c,d & e)

UNDERTAKING
TUBED COAL MINE

This is to certify that, Damodar Valley Corporation (DVC), a corporation constituted under DVC Act, 1948 (Act. No. XIV of 1948), undertake that the following activities will be undertaken at the project cost:

a) Preparation and implementation of a plan containing appropriate mitigative measures to minimize soil erosion and choking of streams;
(b) Planting of adequate drought hardy plant species and sowing of seeds in the appropriate area within the mining lease to arrest soil erosion;
(c) Construction of check dams, retention /toe walls along the contour to arrest sliding down of the excavated material;
(d) Stabilize the overburden dumps by appropriate grading/benching so as to ensure that that angles of repose at any given place is less than 28°; and
(e) Strict adherence to the prescribed top soil management

This is in connection of the fulfilment of Condition No. xi (a,b,c,d & e) of the Stage-I Clearance, for diversion of 162.394 ha forest land in Latehar Forest Division, Dist. Latehar, Jharkhand.

Sudhir Mukherjee
Dy. Chief Engineer (Mech), Mining
Damodar Valley Corporation,
D.V.C. Towers, V.I. P. Road,
Kolkata- 700054

GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE
(IMPACT ASSESSMENT DIVISION)
(COAL MINING SECTOR)
***

SUMMARY RECORD OF 51st MEETING OF THE EXPERT APPRAISAL COMMITTEE FOR ENVIRONMENTAL APPRAISAL OF COAL MINING PROJECTS CONSTITUTED UNDER THE EIA NOTIFICATION, 2006, HELD ON DECEMBER 5, 2019.

The 51st meeting of the Expert Appraisal Committee (EAC) for Coal mining projects was held on 5th December, 2019 in the Ministry of Environment, Forest and Climate Change at Indus Meeting Hall, Jal Wing, Ground Floor, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi to consider the proposals relating to coal mining sector. The following members were present:

1.	Dr. Navin Chandra	-	Chairman
2.	Shri G.P. Kundargi	-	Member
3.	Dr. J.K. Pandey	-	Member
4.	Shri N. S. Mondal	-	Member
5.	Ms. Manjari Srivastava	-	Member
6.	Dr. R.B. Lal, Scientist 'E', MoEFCC	-	Member Secretary
MoEF&CC			
7.	Shri Munna Kumar Shah, Scientist 'D'	-	MoEFCC

Confirmation of minutes

There being no comments from any of the members of the Committee, minutes of the 50th meeting of the EAC held during 15th November, 2019 were confirmed in the presence of the members who had been present in the 51st meeting of EAC.

Details of the proposals considered during the meeting, deliberations made and the recommendations of the Committee are explained in the respective agenda items as under:-

After welcoming the Committee Members, discussion on each of the agenda items was taken up ad-seriatim.

Agenda No. 51.1

Suliyari Coal Mining Project of 5.0 MTPA of M/s Andhra Pradesh Mineral Development Corporation Limited in mine lease area of 1298 ha located in Singrauli Coalfields, Tehsil Sarai, District Singrauli (Madhya Pradesh) – Consideration of Environmental Clearance – reg.

[Proposal No. IA/MP/CMIN/73904/2018; F.No. J-11015/35/2018-IA.II

सुधीर मखार्जी / Sudhir Mukherjee

(ix) Permission for usage for surface water i.e. from kelo river (as proposed for intial 3 years) for mining operation/domestic purposed shall be obtained from concerned statutory authority

(x) Carrying capacity of the area shall be carried considering the presence of the other coal mines and mitigation measures shall be proposed accordingly.

(xi) Mining Lease or Letter of Intent for the project area shall be submitted by PP from concerned state government authorities.

(xii) Compliance of issues raised during Public Hearing shall be submitted with certain timeline and allocation.

(xiii) Social Impact Assessment Study for the proposed displacement of Tribals/SC/ST.

(xiv) Impact of mine drainage and diversion of nallah based on quality and quantity (inflow of river).

(xv) Details of hazardous waste generation (if any) during mining operations and further handling/disposal shall be provided in details.

(xvi) Impact on villages due to mining activity present in core zone (not proposed to be displaced) shall be provided.

(xvii) The activities and fund provisions for CER shall be made as per the guidelines issued by the ministry regarding CER on 1st May, 2018.

(xviii) Clarification from DFO/PCCF whether there is any presence of Elephant Corridor or movement of elephants in the region.

(xix) Impact of mine drainage on kelo river shall be submitted in detail.

(xx) Detailed Traffic impact assessment/ study for road transportation of coal to linked Railway Siding / Power Plant shall be conducted.

The proposal **was therefore returned in present form as it is**, for completing full details on Form#2 and other observations as given above.

Agenda No.50.5

Tubed Coal Mines Project M.L area 460 ha, production capacity 6 MTPA of Damodar Valley Corporation in mine lease area of 460 ha near villages Tubed, Mangra, Dihi, Ambajharan, Dhobiajharam, Nawari, Tehsil Latehar, District Latehar (Jharkhand) – Consideration of Environment Clearance

[IA/JH/CMIN/65302/2017, IA-J-11015/54/2017-IA-II(M)]

50.5.1 The proposal is for Environmental Clearance for Tubed Coal Mine Project of 6 MTPA capacity of M/s Damodar Valley Corporation located in mine lease area of 460 Ha in village Tubed, Dhobiajharan, Ambajharan, Dihi, Newari and Mangra, Tehsil Latehar, District Latehar (Jharkhand).

50.5.2 Details of the proposal, as ascertained from the proposal documents and as revealed from the discussions held during the meeting, are given as under:

(i) The project area is covered under Survey of India Topo Sheet No F45/A9 and is bounded by the geographical coordinates ranging from 23°48'20" to 23°50'09" N and longitudes 84°34'09"and 84°35'45" E.

(iii) Joint venture cartel has been formed – Not Applicable

(iv) Project does not fall in the Critically Polluted Area (CPA), where the MoEF&CC's vide its OM dated 13th January, 2010 has imposed moratorium on grant of environment clearance.

(v) Employment generation, employment to 1200 persons will be provided from the project.

(vi) The project is reported to be beneficial in terms of Socio-economic development of the local population.

(vii) Total mining lease area as per block allotment is 460 ha. Mining Plan (Including Progressive Mine Closure Plan) has been approved by the MoC, GoIon 12.10.2009 for Mine Plan and 10.08.2011 for Progressive Mine Closure Plan.

(viii) The land usage pattern of the project is as follows:

Pre-mining land use details

(Area in Ha)

S. No.	Land Use	Within ML Area	Outside ML Area	Total
1	Agricultural Land	230	-	230
2	Forest Land	162.4	-	162.4
3	Wasteland	39	-	39
4	Grazing Land	-	-	-
5	Surface Water Bodies	22	-	22
6	Settlements	1	-	1
7	Others (Specify)	-	-	-
	Old Excavation Area (East Quarry)	-	-	-
	Old Excavation Area (West Quarry)	-	-	-
	Old OB Dumps	-	-	-
	Roads & Mine Infrastructure	5.6	-	5.6
	R & R Colony	-	-	-
	Staff Colony	-	-	-
	Green Belt	-	-	-
	Balance Area	-	-	-
	Total Project Area =	460	Nil	460

Post Mining

S. No.	Land use	Land use (ha)				
		Plantation	Water Body	Public Use/	Undisturbed	Total
1	External OB Dump	63	-	-	-	63

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4	Roads	3	-	4	-	7
5	Built-up Area	7	-	3	-	10
6	Green Belt	-	-	-	-	-
7	Undisturbed Area	-	-	-	-	-
8	Safety Zone / Rationalization Area	16	-	-	-	16
9	Diversion / Below River / Nala / Canal	4	10	-	-	14
10	Water Body	-	-	-	-	-
11	Staff Colony	-	-	-	-	-
	Total Area =	423	22	15	-	460

(ix) Total geological reserve reported in the mine lease area is 189.82 MT with 170.83 MT mineable reserve. Out of total mineable reserve of 170.83 MT, 139 MT are available for extraction. Percent of extraction is 81.3.%.

(x) 12 seams with thickness ranging from 0.10 m to 15 m are workable. Grade of coal is mostly F Grade, stripping ratio 2.15, while gradient is 3° to 15°.

(xi) Method of mining operations envisages by Open Cast (Shovel Dumper & Surface Miner) method.

(xii) Life of mine is 30years.

(xiii) The project has 1 external OB dumps in an area of 63 ha with 90 m height and 55 Mm^3 of OB. Existing OB Dumps shall be re-handled and backfilled in 12th, 13th and 14th year. The OB from the current mining operations shall be backfilled from 1st year onwards. 2 internal OB in an area of 350 ha with 215.Mm^3 of OB is envisaged in the project.

(xiv) Total quarry area is 350 ha out of which backfilling will be done in 350 ha while final mine void will be created in an area of 4 Ha with a depth of 30 to 40 m. Backfilled quarry area of 330 ha shall be reclaimed with plantation. Final mine void will be converted Water Body

(xv) Transportation of coal has been proposed by Dumpers in mine pit head, from surface to siding by Road and at sidings by Rail. Dedicated railway siding is proposed for evacuation of coal. As an interim measure coal will be transported to nearby Railway Siding by Road till the commissioning of the siding.

(xvi) Reclamation Plan in an area of 460.ha, comprising of 63 ha of external dump, 350 ha of internal dump and 8.7 ha of green belt. In addition to this, an area of 6.7 ha, included in the safety zone/rationalization area, has also been proposed for green belt development.

(xvii) 162.394 ha of forest land has been reported to be involved in the project. Stage I Approval under the Forest (Conservation) Act, 1980 for diversion of 162.394 ha of forest land for non-forestry purposes has been obtained vide MoEF&CC letter No. F No 8-23/2019-FC dated13.11.2019

(xviii) No National Parks, Wildlife Sanctuaries and Eco-Sensitive Zones have been reported with 10 km boundary of the project.

(xix) The ground water level has been reported to be varying between 12m to 15 m during pre-monsoon and between 10m to 12 m during post-monsoon. Total water requirement for the project is 750 KLD.

(xx) Approval of the Central Ground Water Authority for 810m^3/Day has been obtained on 05.09.2019 vide NOC No. CGWA/NOC/MIN/ORIG/2019/5876

(xxi) Public hearing for the project of 6 MTPA capacity in an area of 460 ha was conducted on 10.01.2019 at Latehar. Major issues raised in the public hearing include Land Compensation, R&R, Socio-economic Development and Environment protection. Appropriate action to address the issues raised in the Public Hearing have already been taken/proposed to be taken are as under:

a. Land Compensation will be payble as per LA Act, 2013
b. R&R will be done as per schedule II of the LA Act, 2013
c. R&R Colony will be constructed as per schedule III off the LA Act, 2013
d. Suitable person will be given employment in unskilled category.

(xxii) SukriRiver/nalla is flowing through boundary of lease. The nallah will be diverted in consultation with the Water Resource Department of the State Government. In principle approval is accorded by the WRD Government of Jharkhand.

(xxiii) No court cases, violation cases are pending against the project of the PP.

(xxiv) The project involves 418 project affected families. R&R of the PAPs will be done as per LA Act 2013.

(xxv) Total cost of the project is Rs. 130000 lakhs. Cost of production is Rs. 700 /- per tonne., CSR cost is Rs. 6.75per tonne, R&R cost is Rs. 78.18 crores. Environment ManagementCost is Rs. 42.8 crores.

51.5.3 During deliberations on the proposal, the EAC took note as follows:

- The proposal is for Environmental Clearance for Tubed Coal Mine Project of 6 MTPA capacity of M/s Damodar Valley Corporation located in mine lease area of 460 Ha in village Tubed, Dhobiajharan, Ambajharan, Dihi, Newari and Mangra, Tehsil Latehar, District Latehar (Jharkhand).

- Tubed Coal Block (460 ha.) of Auranga Coal Field is allotted in favour of "Damodar Valley Corporation" incorporated in India under the Damodar Valley Corporation

Authority constituted under section 6 of the Coal Mines (Special Provision) Act, 2015, Allotment Order no. 103/04/2016/NA on dated 07.10.2016 under clause (c) of sub-rule (2) of rule 7 and sub-rule (1) of rule 13. DVC is deemed lessee as per section 11 of CBA act.

- Mining Plan and Mine Closure Plan for Tubed Coal Mine have been approved by Ministry of Coal vide letter No. 13016/19/2009-CA-I dated 12.10.2009 and vide Letter No. 34011-03-2011-CPAM on dated 10.08.2011 respectively. Same has been transferred along with Allotment Order on dated 07.10.2016 in the name of Damodar Valley Corporation

- ToR for the proposal was granted by this Ministry vide letter dated 16th March, 2018.

- Public hearing for the project of 6 MTPA capacity in an area of 460 ha was conducted on 10th January, 2019 at Latehar Stadium Near Boys High School, Jharkhand.

- Project involves forest land wherein PP has been granted Stage-1 FC for diversion of 162.394 ha of forest land (including 54.365 ha Protected forest land and 108.029 ha of Jungle Jhadi land) on 13th November, 2019.

- Primary baseline data on environmental quality air (PM10, PM2.5, SOx, NOx. and heavy metals was carried out in summer season 2018 (March 2018 to May 2018).

- The Sukri river enters the block from South side, then runs along South north in western part of the block. After traversing half of the block it turns westward & leaves the block. All these water courses would be diverted alopg tine boundatyj of the block. As water flow from upland beyond the lease area will be all diverted to sukri river, diversion or river diversion would not affected any down stream.

- The diversion plan has been accepted 'In principal' by Office of the Chief Engineer Design, Master Planning & Hydrology (Water Resource Department), Jal Bhawan, Ranchi vide letter no. SE/canal/304/plan/2019/1045 on dated 13.11.2019.

- NOC for ground water abstraction has been issued by Ministry of Jal Shakti, Department of Water Resources, River Development & Ganga Rejuvenation, Central Ground water Authority vide NOC no. CGWA/NOC/MIN/ORIG/2019/5876 valid from 14.08.2019 to 13/08/2021.

- The public hearing of M/s Damodar Valley Corporation for "Tubed coal mine" project in village Tubed, Mangra, Dihi, Ambiajharan, Nawari District Latehar, Jharkhand with production capacity of 6.0 TPY was held on 10.01.2019 at Latehar Stadium (Near Boys High School), Jharkhand under the Chairmanship of Additional collector Mr. Nalson Ayan Bagey and Regional Officer, Jharkhand State pollution Control Board.

- The Environment Clearance of this project is to be given by MoEF&CC. In this

news paper Pioneer and Indian Express in English and also In local Newspaper Hindustan Prabhat Khabar (Palamu version) the on 08.12.2018.

- A Wildlife Conservation Plan along with the appropriate budgetary provision prepared by prior allottee was approved by Chief Wildlife Conservator of Forest Officer, Jharkhand Ranchi Authority. The same has been transferred to M/s Damodar Valley Corporation vide letter no. 911 on dated 23.05.2018.

- The EAC, constituted under the provision of the EIA Notification, 2006 and comprising of Experts Members/domain experts in various fields, have examined the proposal submitted by the Project Proponent in desired form along with EIA/EMP report prepared and submitted by the Consultant accredited by the QCI/ NABET on behalf of the Project Proponent.

- The EAC noted that the Project Proponent has given undertaking that the data and information given in the application and enclosures are true to the best of his knowledge and belief and no information has been suppressed in the EIA/EMP report and public hearing process. If any part of data/information submitted is found to be false/misleading at any stage, the project will be rejected and Environmental Clearance given, if any, will be revoked at the risk and cost of the project proponent. The EAC has deliberated the proposal and has made due diligence in the process as notified under the provisions of the EIA Notification, 2006, as amended from time to time and accordingly made the recommendations to the proposal. The Experts Members of the EAC have found the proposal in order and have recommended for grant of Environmental Clearance (EC).

51.5.4 The Committee, after deliberations, **recommended** grant of environment clearance to Tubed Coal Mine Project of 6 MTPA capacity of M/s Damodar Valley Corporation, located in mine lease area of 460 Ha in village Tubed, Dhobiajharan, Ambajharan, Dihi, Newari and Mangra, Tehsil Latehar, District Latehar (Jharkhand), under the provisions of the Environment Impact Assessment Notification, 2006 and subsequent amendments/circulars thereto subject to the compliance of the following terms & conditions / specific conditions in addition to the standard environmental conditions notified by the Ministry mentioned below:-

(i). The project proponent shall obtain Consent to establish from the State Pollution Control Boards for the proposed peak capacity of 4 MTPA prior to commencement of the increased production.

(ii). Transportation of coal from Coal Handling Plant shall be through covered trucks.

(iii). To control the production of dust at source, the crusher and in-pit belt conveyors shall be provided with mist type sprinklers.

(iv). Mitigating measures shall be undertaken to control dust and other fugitive emissions all along the roads by providing sufficient water sprinklers. Adequate corrective measures shall be undertaken to control dust emissions, which would include mechanized sweeping, water sprinkling/mist spraying on haul roads and

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vertical greenery system, green belt, dust suppression arrangement at loading and unloading points, etc. 2-3 tier of native tree with broad leaves of plantation shall be carried out all along the road transportation till Ritchughuta Railway Station (as proposed).

(v). The company shall obtain approval of CGWA for use of groundwater for mining operations at its enhanced capacity of 4 MTPA. All the stipulated in the NOC vide no. CGWA/NOC/MIN/ORIG/2019/5876 valid from 14.08.2019 to 13/08/2021 shall be complied.

(vi). Continuous monitoring of occupational safety and other health hazards, and the corrective actions need to be ensured.

(vii). Persons of nearby villages shall be given training on livelihood and skill development to make them employable.

(viii). To ensure health and welfare of nearby villages, regular medical camps shall be organized at least once in six months.

(ix). Thick green belt of adequate width at the final boundary in the down wind direction of the project site shall be developed to mitigate/check the dust pollution. No shrubs/bushes shall be planted and only trees of native species shall be planted

(x). Efforts shall be made for utilizing alternate sources of surface water, abandoned mines or else whatsoever and thus minimizing the dependability on a single source.

(xi). The activities and fund provisions for CER shall be made as per the guidelines issued by the ministry regarding CER on 1st May, 2018.

(xii). Project Proponent shall obtain blasting permission from DGMS for conducting mining operation near villages and also explore deployment of rock breakers of suitable capacity in the project to avoid blasting very near to villages. There shall be no damages caused to habitation/structures due to blasting activity.

(xiii). Distance of 100 meters shall be maintained from the bank of Surkhi river (both side) during mining operation till the permission for diversion of river is obtained from concerned statutory authority.

(xiv). All the recommendation of approved Wild Life Conservation Plan shall be complied

(xv). No transportation of coal shall be carried by road after commission of proposed railway siding near the coal mine i.e. after 36 months from the date of issue of EC.

(xvi). The Project Proponent shall complies with all the statutory requirements and judgment of Hon'ble Supreme Court dated the 2nd August 2017 in Writ Petition

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Ors. State Government shall ensure that the entire compensation levied, if any, for illegal mining paid by the Project Proponent through their respective Department in strict compliance of judgment of Hon'ble Supreme Court dated the 2nd August 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of Common Cause versus Union of India and Ors.

(xvii). Project Proponent shall obtain the necessary prior permission from the Central Ground Water Authority (CGWA) in case of intersecting the Ground water table. The intersecting ground water table can only be commence after conducting detailed hydrogeological study and necessary permission from the CGWA. The Report on six monthly basis on changes in Ground water level and quality shall be submitted to the Regional Office of the Ministry, CGWA and State Pollution Control Board.

(xviii). Proponent shall appoint an Occupational Health Specialist for Regular and Periodical medical examination of the workers engaged in the Project and maintain records accordingly; also, Occupational health check-ups for workers having some ailments like BP, diabetes, habitual smoking, etc. shall be undertaken once in six months and necessary remedial/preventive measures taken accordingly. The Recommendations of National Institute for ensuring good occupational environment for mine workers shall be implemented; The prevention measure for burns, malaria and provision of antisnake venom including all other paramedical safeguards may be ensured before initiating the mining activities.

(xix). Project Proponent shall follow the mitigation measures provided in 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".

(xx). 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 limits for day light/night hours.

(xxi). The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered fauna, if any, spotted in the study area. Action plan for conservation of flora and fauna shall be prepared and implemented in consultation with the State Forest and Wildlife Department. A copy of action plan shall be submitted to the Ministry of Environment, Forest and Climate Change and its Regional Office.

Agenda No.50.6

Barsingsar Opencast Lignite Mining Project (revised) of M/s Neyveli Lignite Corporation Limited – For Amendment in Environmental Cl...

SCHEME FOR MITIGATIVE MEASURE TO MINIMIZE SOIL EROSION & CHOCKING OF STREAMS

In Compliance with Condition No. xi (a) of Stage-I Forest Clearance vide letter F. No. 8-23/2019-FC, Dt. 13.11.2019 of Ministry of Environment, Forest & Climate Change

(FC Division),

Govt. of India, New Delhi

For

Diversion of 162.394 Ha of Forest Land In Latehar District

In Favour of Damodar Valley Corporation for

Tubed Coal Mine

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उप मुख्य अभियंता (यां), ईंधन
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Damodar Valley Corpn., Kolkata-54

Damodar Valley Corporation

Tubed Coal Mine

1. Introduction

The Tubed Coal Mine was allotted to DVC by the nominated authority, GOI, vide Order. No 103/04/2016/NA. Dt. 07th October, 2016 of the Coal Mines (special provision) Act, 2015 for captive use its own plants at different locations in West Bengal and Jharkhand.

2. Location of Tubed Coal Mine and Mining Lease area

Tubed Coal Mine covering an area of 4.6 Sq. Km is situated in Latehar District of Jharkhand State. The block forms a part of survey of India Toposheet No. 73 A/9 (OSM No. F45A9) (1:50,000) between coordinates

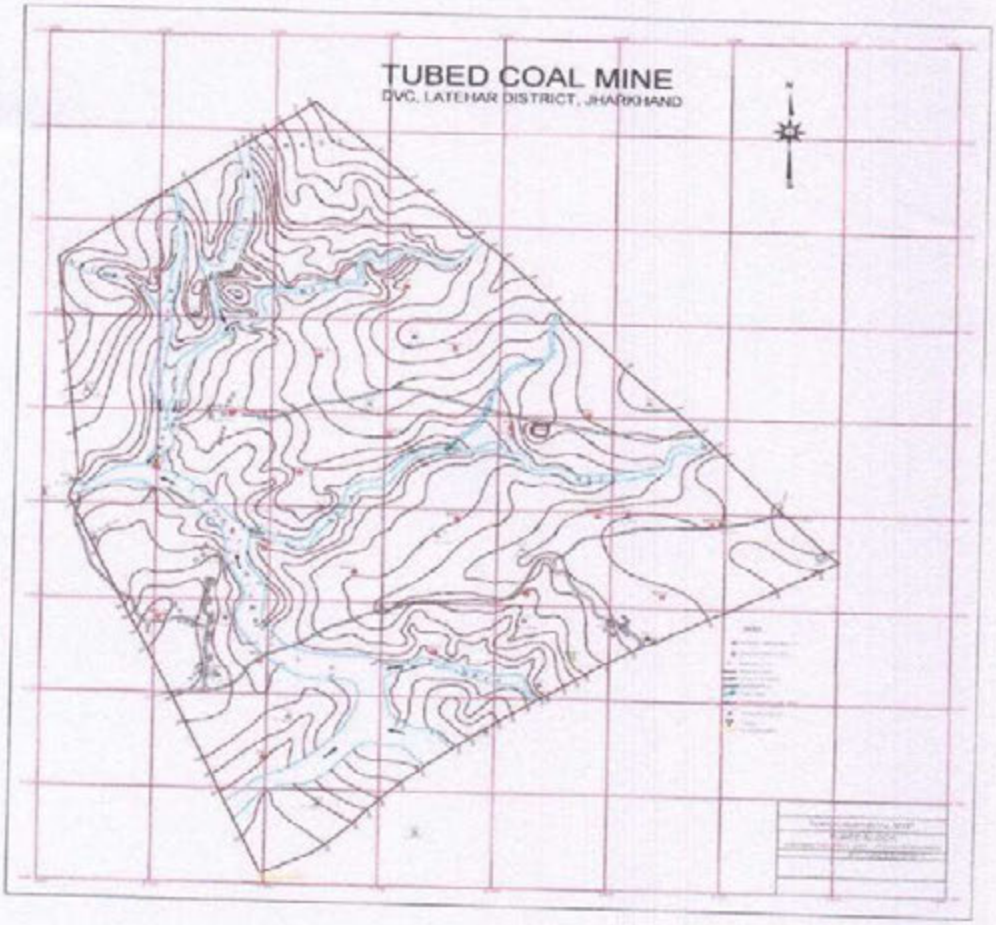
Latitude (N) 23°48'20'' to 23°50'09''

Longitude (E) 84°34'09'' to 84°35'45''

Lease area of Tubed Coal Mine is 460 ha.

3. Access

Tubed Coal Mine is well connected by fair weather road to district HQ. Latehar. Latehar is at a distance of about 12km from the Coal Block. National Highway 75 (Ranchi – Daltonganj) passes through Latehar. Latehar is at about 100km from Ranchi which is the Capital of Jharkhand State. A broad gauge railway line between Gomoh & Barwadih (loop line of East Central Railway) has Latehar as a railway Station.



4. Climate

As per annual temperature map of India (Natinal Atlas), the block falls within the temperate zone having mean temperature of 22 to 25°C. The summers & winters are extreme. According to rain fall data, the area falls in the zone of 1200 to 1400 mm.

5. Physiography & Drainage

Tubed Coal Mine exhibits undulating topography. General slope is towards west. A prominent valley is located in SW part of the block along which Sukri River flows. The ground elevation (RL) varies from 386m in the north-west (near the river) to 412 m in north - east (high land area).

The drainage of the mine is mainly controlled by Sukri River flowing in SW part of block. There are 3 East West flowing nalas which drain to Sukri River. Besides, there is also a nala located in the Northern part of the block which also joins Sukri River near Bore Hole MAT 10.

6. Present, Proposed & Post Mining Land Use in Proposed Lease Area

All Fig-in-hectares (ha)

Sl. No.	Present Land Use		Proposed Land Use		Post Mining Land Use					
	Particular	Area	Particular	Area	Plantation	Agricultural	Water Body	Road for Public Uses	Green Belt	Total
1	Agriculture	230	Quarry	350	208	138	4			350
2	Waste land	39	External Dump	63	63					63
3	Nala& River	22	Infrastructure Facility	11.3		5.3		4	2	11.3
4	Road	5.6	Embankment, Nala& Road	29	17		8	4		29
5	Habitation	1	Safety Barrier against Mine Boundary	6.7					6.7	6.7
6	Forest	162.4								
	Total	**460**		**460**	**288**	**143.30**	**12**	**8**	**8.7**	**460**

7. Existing Vegetation

The area proposed for diversion includes Bushes of dominant species as detailed below

Botanical Name	**Local Name**
Mangifera Indica	Aam
Terminalia Tomentosa	Aasan
Emblica Officianalis	Amla
Acacia Nilotica	Babul
Terminalia Bellarica	Bahera
Zyzyphus Jujube	Ber
Melia Azadirachta	Baken
Ficus Bengalensis	Bargad
Aegle marmelos	Bel
Senna occidentalis	Chakunda
Holoptelea integrifolia	Chilbil
Achyranthes	Chirchita
Ficus glomerata	Dumari
Gmelin Arborea	Gambhar
Terminalia chebula	Harra
Terminalia bellirica	Hara Baher
Tamarindus indica	Imli
Syzigium Cumini	Jamun

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Botanical Name	Local Name
Murraya koenigii	Kari
Diospyros melanoxylon	Kendu
Acacia Catechu	Khair
Swietenia macrophylla	Mahaguni
Madhuca indica	Mahua
Azadirachta Indica	Neem
Butea Monosperma	Palash
Ficus religiosa	Pipal
Pyrus	Piyar
Sorbus	Rohan
Tectona Grandis	Sagwan
Shorea robusta	Sakhua
Dalburgia Sisoo	Shisham
Lagerstroemia Parviflora	Sidha

And also the trees in local names are mainly Bandar Ladri, Birbiri, Gaam Siyar, Ghora Karanz, Ginjan, Hundra, Kakar, Kantai, Katul, Kichkochcho, Koinaar, Korkorya, Mudkur, Papara, Paproad, Ranri, Ruri Karam, Semar, Siran, Sona Rakhi, Thawta, Til, Tilay etc.

a. Factors responsible for Soil Erosion and Chocking of Streams:

Due to opencast mining a few number of Nalas have immerged in the active mining Pit. The water that's runs off from the over burden dump slope and mined out coal deposit area carry substantial amount of solid in the lower order stream and later chock the higher order streams. This lower order streamlets have high erosion capacity due to steep gradient and transport rough fragments with high velocity and deposit the same in the connecting high order streams due to velocity drop. It is also evident in the field that a number of Nalas have immersed from the periphery of the mining pit, which carry substantial soil. When these undercut material falls in to the Stream and the fragments are transported and deposited in the streambed and chokes the stream mouth.

8. Objective of Scheme

The objectives of the proposed Scheme are follow:

- To fulfil condition no. xi (a) of Stage- I approval granted by MoEF vide their Letter F. No. 8-23/2019-FC, Dt. 13.11.2019 which envisage undertaking mitigative measure to minimize soil erosion and choking of stream.
- Prevention of erosion of surface soil.
- Prevention of obstruction of discharge of water in to the streams.
- Proper Management of over burden material so as to prevent siltation in the stream.
- Prevention of overflow of eroded soil from the coal mining area to adjoining agriculture land, Natural stream and habitation.

9. Proposed Methodology

The objective can be achieved in two way approach i.e. Biological and Structural works for soil water conservation. The vegetative measures are to be adopted mostly in the upper reaches and structural work in the lower reaches such as Drain. The vegetative measures in the upper reaches will arrest the sedimentation load which is ultimately Prevent chocking of stream followed by De- Silting before onset of monsoon. The following activities are proposed to be under taken.

- During Monsoon heavy run-off is carried-with silt and sediments which increase the velocity of

construct loose boulder structure of 4 meter span of height 1.3 m at an interval of every 100 meter – 48 Nos.

- Construction of 2 nos. of settling tank at the end of Nala where the Nala joins the boundary wall of the MI area. The size of the tank will be 4 m length 3 m width and 1.5 m height.
- Grass seeds will be sown all around the exposed soil of mining pit and on all along side of the Nala immersed in the lease area up to the compound wall.

10. Measures Proposed

a. Structural Measures

- Construction of **loose boulder structure** of 4 m length 3 m width and 1.5 m height at an interval of every 100m all along the rain water discharge Nala connected from the Coal stock yard over a length of 500 meters in both directions. These structures should be made on either side to check the flow of water especially during rain.

- Construction of a **Settling Pond** two numbers (West and South-East) near the Compound wall of the lease area of 18m length x 10m width x 3.5m height where the flow of rain water collected in Garland Drain can be settled. There will be a provision of outflow of the rain water after sedimentation of the silt to outside of the lease area and join the natural stream. The siltation tank needs to be scoured intermittently.

- A retaining wall over length of 60m of height 1.5m will be constructed all along the Weigh Bridge in the Coal Stock Yard.

b. Biological Measures

- Plantation will be undertaken in the vacant space on the road side from rain-cut Nala to mining pit over 10 ha in **Block model.**

- **Grass seed** will be sown all along the exposed soil of the mining pit and alongside the rain cut Nala up to end of lease boundary. Length of mining pit all around is 4000rmt x 1m width = 4000sq.m(0.4 ha). Length of rain cut Nala 2000m x 3m= 6000sq.m or 0.6 ha. In the rest of the mining area in vacant places grass seed sowing will be over another 4 ha. So altogether grass seed sowing will be over 5.0 ha.

11. Species suitable for Block plantation

Palash(ButeaMonosperma), Amla (EmblicaOfficinalis), Neem (AzadirachtaIndica), Jamun (SyzygiumCumini), Sehejana (MoringaOleifera), Karanj (PongamiaPinnata), Babul (Acacia Nilotica), Khair (Acacia Catechu), Ber (Zyzyphus Jujube), Imli (TamarindusIndicus), Peepal (FicusReligiosa), Bargad (FicusBenghalensis), Kulu or Kadava (SterculiaUrens), Roheda (TecomellaUndulata)

12. Pre-Planting and Planting Operation

<u>**Block Model**</u>

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

i) Procurement of Seedlings:

ii) Alignment and pitting

Alignment and pitting will be taken up in the month of March – April, Pits of size 30cm X 30cm X 30cm will be dug maintaining a spacing of 2.5mtr X2.5mtr.

iii) Actual Planting

The seedling will be planted in the dugout pits of size 30cm x 30cm x 30cm with spacing of 2.5mx 2.5m. Plantation should be taken up after first regular shower of monsoon and should be completed by the end of July. Species shall be planted as per suitability of the soil condition. NPK fertilizer @ 30gms per plant should be given as basal dosage. Anti-termite insecticide should also be applied to each pit while planting. Causality if any noticed will be replaced with the excess seedling raised for the purpose, During second year also casualty replacement will be done for which seedling shall be raised.

iv) Weeding, Soil working &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 first year and second year of plantation and one weeding and soil working during third year. During the first year and second year first weeding and manuring shall be carried out during August-September and the second one during October-November. First weeding shall be an area weeding and the second will be of strip weeding. The weeding of third year will be an area weeding which will be carried out during August. After each weeding, soil working will be done around each plant at radius of 0.5mtr and manuring of each plant will be done 30gms of NFK per plant.

v) Application of insecticides:

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

The Schedule of operation for preparation of site, pre-planting, planting, post-panting is prescribed herewith.

OPERATIONS	PERIOD OF COMPLETION
i. Advance preparation of site.	End of October
ii. Alignment & Digging of pits	End of February
iii. Stacking	End of February
iv. Pre sprouted poly potted stump planting.	1st week of July
v. Casualty replacement	End of July
vi. 1st soil working, weeding, manuring	End of August
vii. Soil & water conservation measuring	End of September
viii. 2nd soil working, weeding	During October
ix. Fire line tracing	During December
x. Watch & ward.	July to March

vi) Post planting operation In 2nd Year.

a. Casualty replacement, 1st weeding soil &manuring : End of July Working

c. Watch & ward : Throughout the year

vii)3rd Year.

a. Wedding, soil working and application of manure : End of July

b. Fire line tracing : December

c: Watch & ward : Throughout the year

viii) 4th year to 10th year

a. Fire line tracing : End of December

b. Pruning & Singling : September

c. Watch & Ward : Throughout the year

ix) Grass Seeding

Particularly on eroded areas which are susceptible to further erosion should be cover with grasses. The area contains yellowish brown soil and gravely soil where the pH is below 7. In such area species like Chrysopogonfulvas, Themedatriendra and Cynodondactylon will be sown broadcast.

In the first year after a good plowing using country plow weeds will be uprooted. Farmyard manure will be added to the soil 3 truck loaded per hector. Grass seeds @ 2kg per hector will be sown broadcast. Science Grass seeds area very light may not be effective in broadcast sowing there-fore palate preparation with 6:1 (Soil+ FYM mixture) will be dibbled at a spacing of 1.5m x 1m and weeding of unwanted grasses will be made as and when necessary. In the 2nd year same procedure will be followed in order to establish the grassy land. However, grass seeding will be done over 5.0 ha.

13. Executive Agency

Damodar Valley Corporation, being the User Agency will execute the above works at the Project cost. To facilitate this, the user Agency shall establish its own Executive and Supervision cell along with required infrastructural facilities. In order to maintain the quality of the work, in house supervision through competent personnel shall be entrusted. The entire work shall be carried out in co-ordination with Forest Department (DFO, Latehar Division).

14. REQUIREMENT OF FUNDS

The total cost of implementation of mitigative measures [condition xi(a)] will be **Rs.1954687/- .** The above expenditure will be spent over the next three years period. Therefore, budgetary provision will be kept according by the User Agency.

सुधीर मुखर्जी / Sudhir Mukherjee
उप मुख्य अभियंता (यां), ईंधन
Dy. Chief Engineer (M), Fuel
दा. नि.म, कोलकाता-54
DVC, Kolkata-54

TOTAL COST OF THE PROJECT

Sl. No.	Description of the Work	Unit	Rate	Fund Required In Rs.
Biological Measures				
01	Block Plantation	10 ha	133071.00	1330710.00
02	Grass seeding	5 ha	22624.00	113120.00
Structural Measures				
03	Loose Boulder Structure (14' x 10'x 5')	48 nos.	8207.00	393936.00
04	Intermittent Settling Tank (10m x 4mx1.5m)	03 nos.	38973.50	116920.50
			Total	**1954686.50 Say 1954687/-**

Sudhir Mukherjee
Dy. Chief Engineer(Mech), Mining
Damodar Valley Corporation,
D.V.C. Towers, V.I. P. Road,
Kolkata- 700054

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

In Compliance with Condition No. xi (b) of Stage-I Forest Clearance vide letter F. No. 8-23/2019-FC, Dt. 13.11.2019 of Ministry of Environment, Forest & Climate Change

(FC Division),

Govt. of India, New Delhi

For

Diversion of 162.394 Ha of Forest Land In Latehar District

In Favour of Damodar Valley Corporation for

Tubed Coal Mine

सुधीर मुखार्जी / Sudhir Mukherjee
उप मुख्य अभियंता (खा), ईंधन
Dy. Chief Engineer (M), Fuel
दामोदर घाटी निगम, कोलकाता-54
Damodar Valley Corpn., Kolkata-54

Damodar Valley Corporation

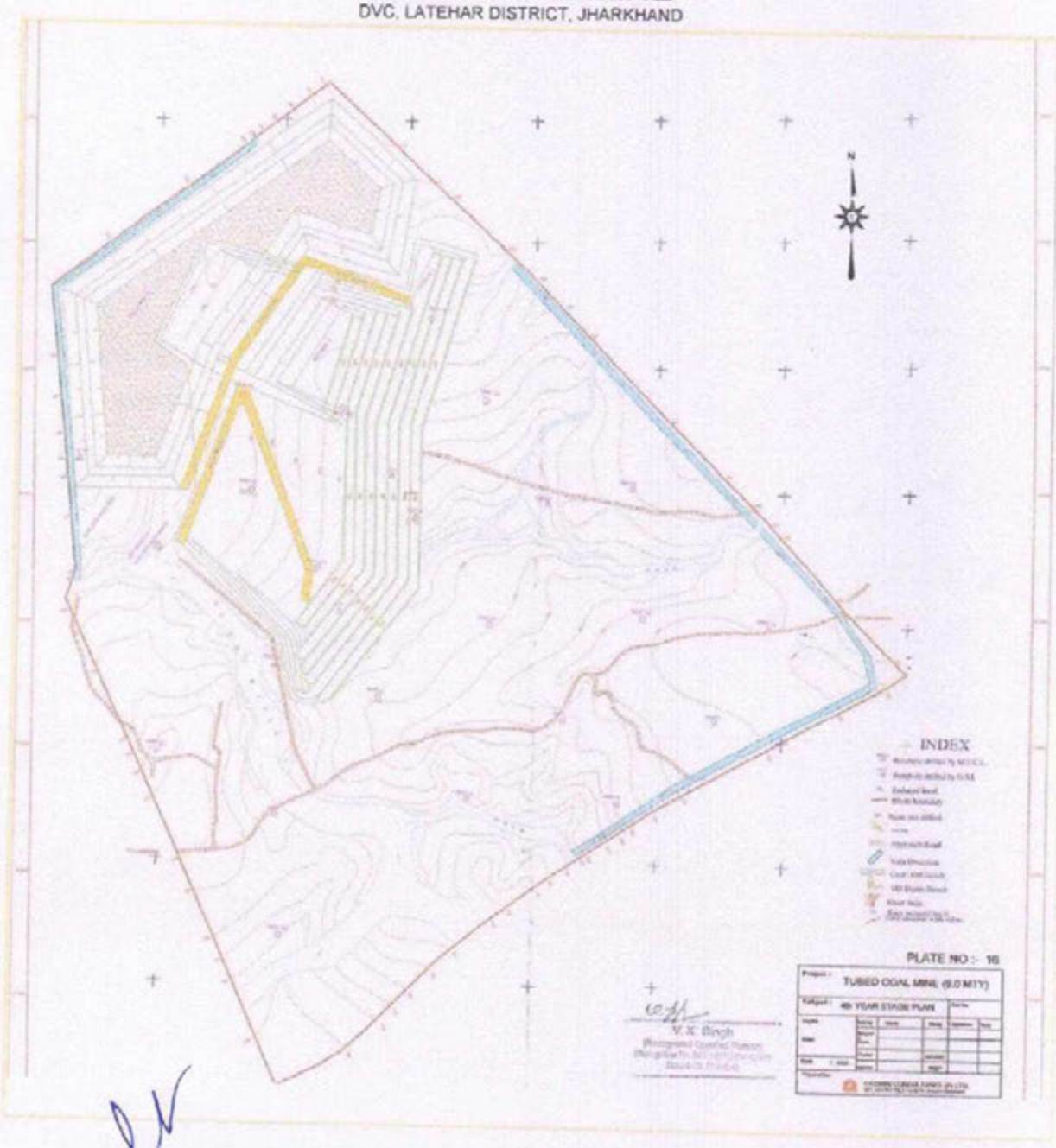
Tubed Coal Mine

Under the Latehar Forest Division

1. Introduction

The Tubed Coal Mine was allotted to DVC by the nominated authority, GOI, vide Order. No 103/04/2016/NA. Dt. 07th October, 2016 of the Coal Mines (special provision) Act, 2015 for captive use its own plants at different locations in West Bengal and Jharkhand.

TUBED COAL MINE
DVC, LATEHAR DISTRICT, JHARKHAND



सुधीर मुखार्जी / Sudhir Mukherjee
उप मुख्य अभियंता (यां), ईन्धन
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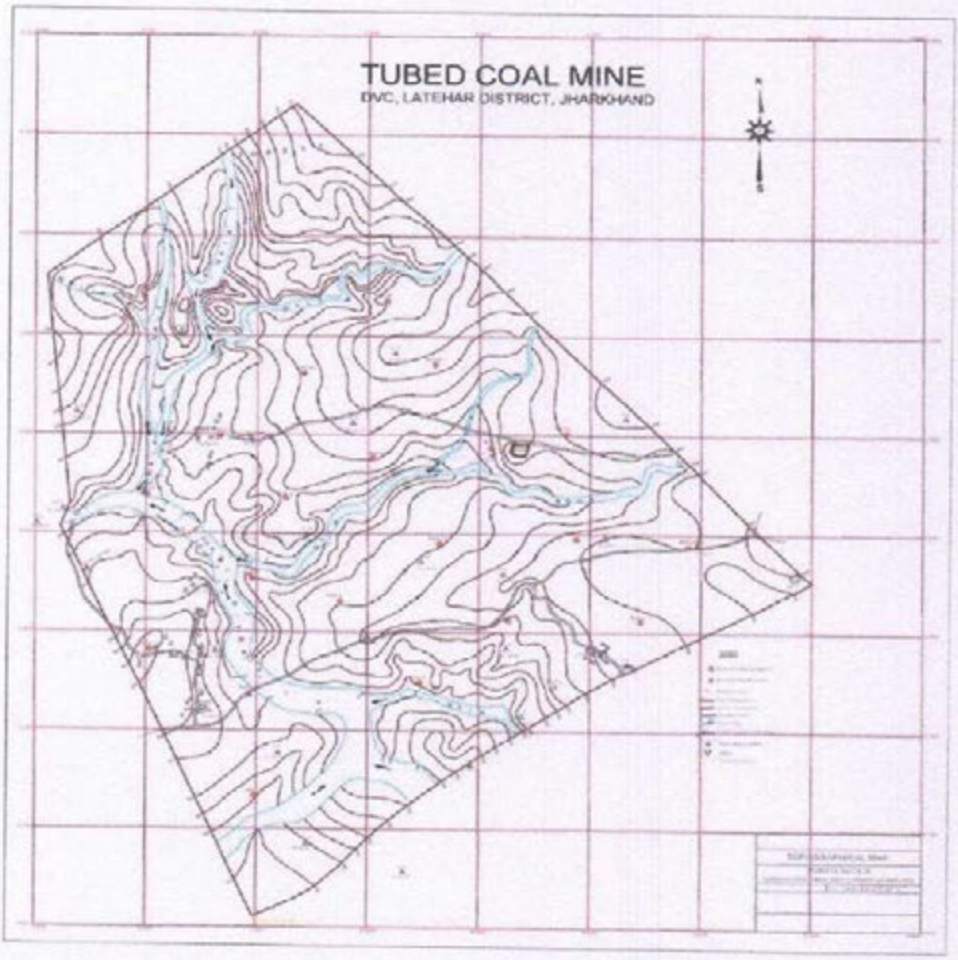
दामोदर घाटी निगम, कोलकाता-54
Damodar Valley Corpn., Kolkata-54



2. Location of Tubed Coal Mine and Mining Lease area

Tubed Coal Mine covering an area of 4.6 Sq. Km is situated in Latehar District of Jharkhand State. The block forms a part of survey of India Toposheet No. 73 A/9 (OSM No. F45A9) (1:50,000) between coordinates

Latitude (N) 23°48'20'' to 23°50'09''

Longitude (E) 84°34'09'' to 84°35'45''

Lease area of Tubed Coal Mine is 460 ha.

3. Access:

Tubed Coal Mine is well connected by fair weather road to district HQ. Latehar. Latehar is at a distance of about 12km from the Coal Block. National Highway 75 (Ranchi – Daltonganj) passes through Latehar. Latehar is at about 100km from Ranchi which is the Capital of Jharkhand State. A broad gauge railway line between Gomoh & Barwadih (loop line of East Central Railway) has Latehar as a railway Station.

4. Climate:

As per annual temperature map of India (National Atlas), the block falls within the temperate zone having mean temperature of 22°C – 25°C. The summers & winters are extreme. According to rain fall data, the area falls in the zone of 1200mm to 1400 rainfall.

सुधीर मुखार्जी / Sudhir Mukherjee
उप मुख्य अभियंता (यां), ईन्धन

5. Physiography & Drainage:

Tubed Coal Mine exhibits undulating topography. General slope is towards west. A prominent valley is located in SW part of the block along which Sukri River flows. The ground elevation (RL) varies from 386m in the north-west (near the river) to 412 m in north - east (high land area).

The drainage of the mine is mainly controlled Sukri River flowing in SW part of block. There are 3 East West flowing Nalas which drain to Sukri River. Besides, there is also a nala located in the Northern part of the block which also joins Sukri River near Borehole MAT 10.

6. Soil Type:

The soil type in the study area is acidic i.e. pH below 7. The soil in the study area is having sufficient nitrates, high phosphorous and potassium and therefore moderately fertile. Soil structure is generally loose but well drained.

7. Mine Development Strategy

In the northern boundary where Seam-II is in-cropped at shallow depth (near Borehole MAT 10), an access trench road from surface to touch 380m Floor Reduced Level (FRL) of Seam-II will be driven. Once the approach trench touches the floor of coal seam, production face would be opened by expanding Box-cut. In the formation of Box-cut the OB production would be much more then production of coal.

This excavation is proposed by shovel-dumper combination, overburden (OB)bench and coal bench are further expended by HEMM along the strike of the seam.

Top OB benches above coal seams will be 10m to 15m in height and 25m to 35m in width, where 250mm ϕ RBH drill will be used for drilling blast holes. For partings of thickness 10m and below, a benches width of 25-30 m will be worked with 160mm ϕ RBH drills.

Majority of coal benches are less than 10m in height. These will have width of 25-30m 160mm drills will be deployed. However surface miner are also proposed for winning the coal seams. Therefore workload of drilling and blasting of coal would get reduced on deployment of surface miners. Field trails will be required for designing the suitable blasting pattern in coal / parting benches.

8. Objective of the Plan:

The objectives of the proposed plan are as follows:

i) One of the stipulation [Condition No. xi (b)] "planting of adequate drought hardy plant species and sowing of seeds in the appropriate area within the mining lease to arrest soil erosion" by the Ministry of Environment & Forest and climate change, GOI vide their letter no, F. No. 8-23/2019-FC, Dt. 13.11.2019 during approval of Stage-I forest clearance.

ii) Planting of native plants which is occurring naturally in a given geography without much involvement of human being.

iii) Draught Hardy plants can adopt dryer climate and have lower water requirement and have higher rate of survival.

सुधीर मुखार्जी / Sudhir Mukherjee
उप मुख्य अभियंता (यां), ईन्धन
Dy. Chief Engineer (M), Fuel

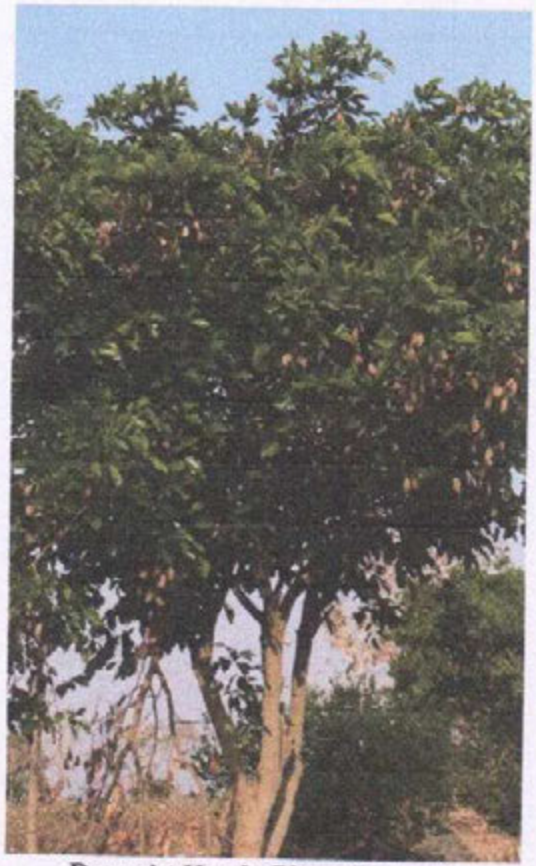
9. Proposed Methodology:

A. Biological Measures:

a) Indigenous species like Palash(ButeaMonosperma), Amla(EmblicaOfficinalis), Neem(AzadirachtaIndica), Jamun(SyzygiumCumini), Sehejana(MoringaOleifera), Karanj(PongamiaPinnata), Babul (Acacia Nilotica), Khair (Acacia Catechu), Ber (Zyzyphus Jujube), Imli (TamarindusIndicus), Peepal (FicusReligiosa), Bargad(FicusBenghalensis), Kulu or Kadava (SterculiaUrens), Roheda (TecomellaUndulata) etc. will be planted on the terraces @ 1600 per ha. over approximately 42 ha.

b) By means of cultivating vetiver which is a bunch grass has a gregarious habit and grows in tuffs. Several aspect of vetiver makes it an excellent erosion control plant in warmer climates. Vetiver's root grow almost exclusively downward 2m to 4m which is deeper than some free roots. This makes vetiver an excellent stabilizing hedge for stream banks terraces etc. and protect soil from sheet-erosion. The roots bind to the soil, therefore it cannot dislodge. Vetiver has been used to stabilize embankment, dump slopes in geologically challenging situations in an attempt to prevent dump slide during rain. The plant also penetrates and loosens compacted soil. Vetiver mulch increase water infiltration and reduce evaporation, then protects soil moisture under hot and dry condition. This mulch also protect soil against splash erosion. This type of plantation has basically the following advantages:

i) It maintain the moisture percentage into the soil.
ii) It can grow in hot & dry condition.
iii) It protects soil from erosion during rainy season.



Draught Hardy Plant (Karanj)

सुधीर मुखर्जी / Sudhir Mukherjee
उप मुख्य अभियंता (खा), ईन्धन
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दामोदर घाटी निगम, कोलकाता-54

VETIVER PLANT

10. Present, Proposed & Post Mining Land Use in Proposed Lease Area

All Fig-in-hectares (ha)

Sl. No	Present Land Use		Proposed Land Use		Post Mining Land Use					
	Particular	Area	Particular	Area	Plantation	Agricultural	Water Body	Road for Public uses	Green Belt	Total
1	Agriculture	230	Quarry	350	208	138	4			350
2	Waste land	39	External Dump	63	63					63
3	Nala& River	22	Infrastructure Facility	11.3		5.3		4	2	11.3
4	Road	5.6	Embankment, Nala& Road	29	17		8	4		29
5	Habitation	1	Safety Barrier against Mine Boundary	6.7					6.7	6.7
6	Forest	162.4								
	Total	**460**		**460**	**288**	**143.30**	**12**	**8**	**8.7**	**460**

11. Executive Agency

Damodar Valley Corporation, being the User Agency will execute the above works at the Project cost. To facilitate this, the user Agency shall establish its own Executive and Supervision cell along with required infrastructural facilities. In order to maintain the quality of the work, in house supervision through competent personnel shall be entrusted. The entire work shall be carried out in co-ordination with Forest Department (DFO, Latehar Division).

सुधीर मुखार्जी / Sudhir Mukherjee
उप मुख्य अभियंता (यां), ईंधन
Dy. Chief Engineer (M), Fuel
दामोदर घाटी निगम, कोलकाता-54

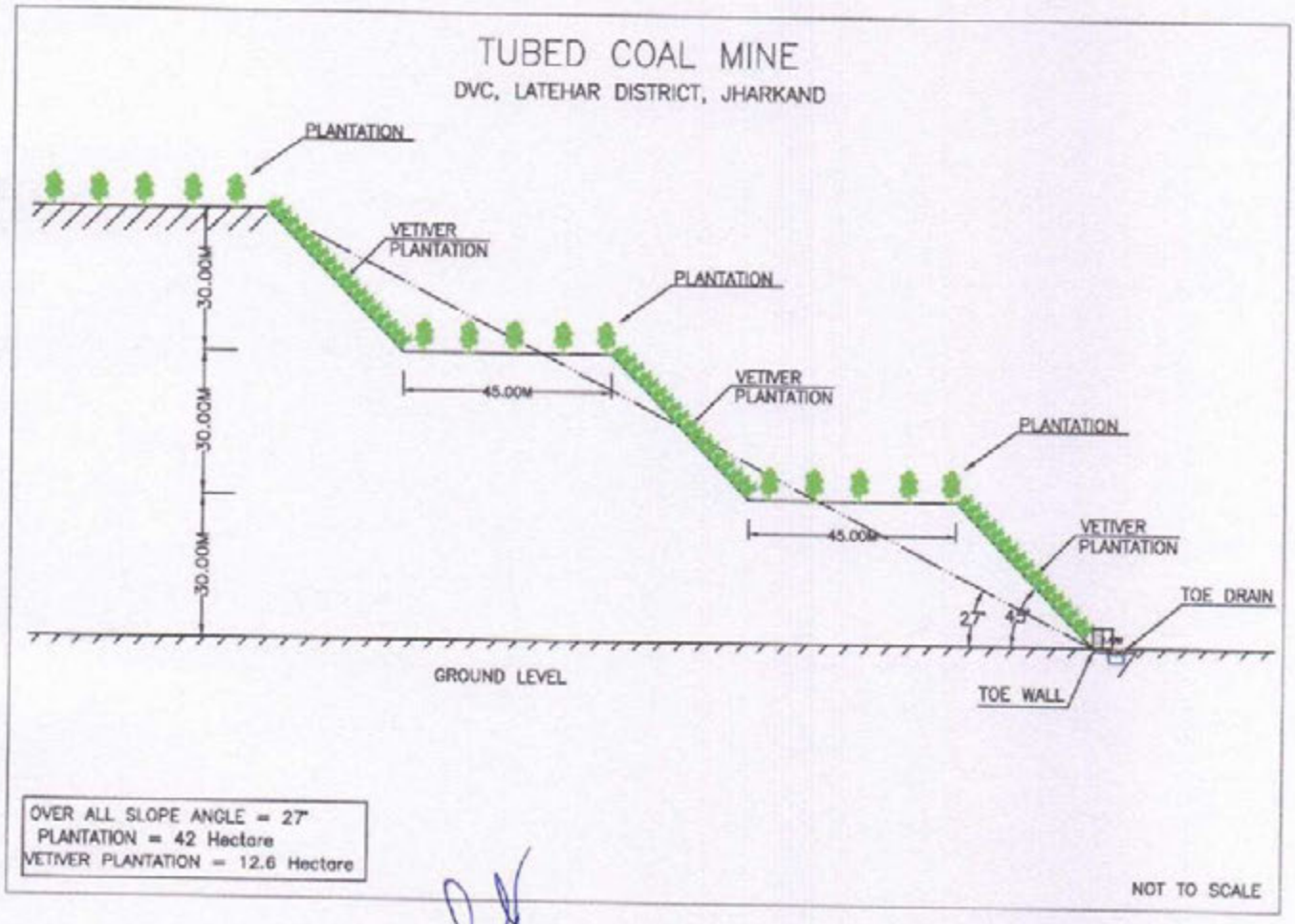
12. Requirement of Funds

The total cost of the implementation of planting of adequate draught hardy species and showing of seeds in the appropriate area within the mining lease area to arrest soil erosion [condition xi (b)]will be **Rs.60,80,206/-**

TOTAL COST OF THE PROJECT

Sl. No.	Description of the Work	Unit	Rate	Fund required In Rs.
Biological Measures				
01	Block Plantation	42ha	1,33,071.00	55,88,982.00
02	Vetiver Plantation	12.6 ha	38,986.48	4,91,223.60
			Total	**60,80,205.60** **Say 60,80,206/-**

Sudhir Mukherjee
Dy. Chief Engineer (Mech), Mining
Damodar Valley Corporation,
D.V.C. Towers, V.I. P. Road,
Kolkata- 700054



सुधीर मुखार्जी / Sudhir Mukherjee
उप मुख्य अभियंता (यां), ईन्धन
Dy. Chief Engineer (M), Fuel
दामोदर घाटी निगम, कोलकाता-54
Damodar Valley Corpn., Kolkata-54

SCHEME FOR CONSTRUCTION OF CHECK DAM, RETENTION/TOE WALL TO ARREST SLIDING DOWN OF THE EXCAVATED MATERIAL ALONG THE CONTOUR

In Compliance with Condition No. xi (c) of Stage-I Forest Clearance vide letter F. No. 8-23/2019-FC, Dt. 13.11.2019 of Ministry of Environment, Forest & Climate Change

(FC Division),

Govt. of India, New Delhi

For

Diversion of 162.394 Ha of Forest Land In Latehar District

In Favour of Damodar Valley Corporation for

Tubed Coal Mine

सुधीर मुखर्जी / Sudhir Mukherjee
उप मुख्य अभियंता (खां), ईंधन
Dy. Chief Engineer (M), Fuel
दामोदर घाटी निगम, कोलकाता-54
Damodar Valley Corpn., Kolkata-54

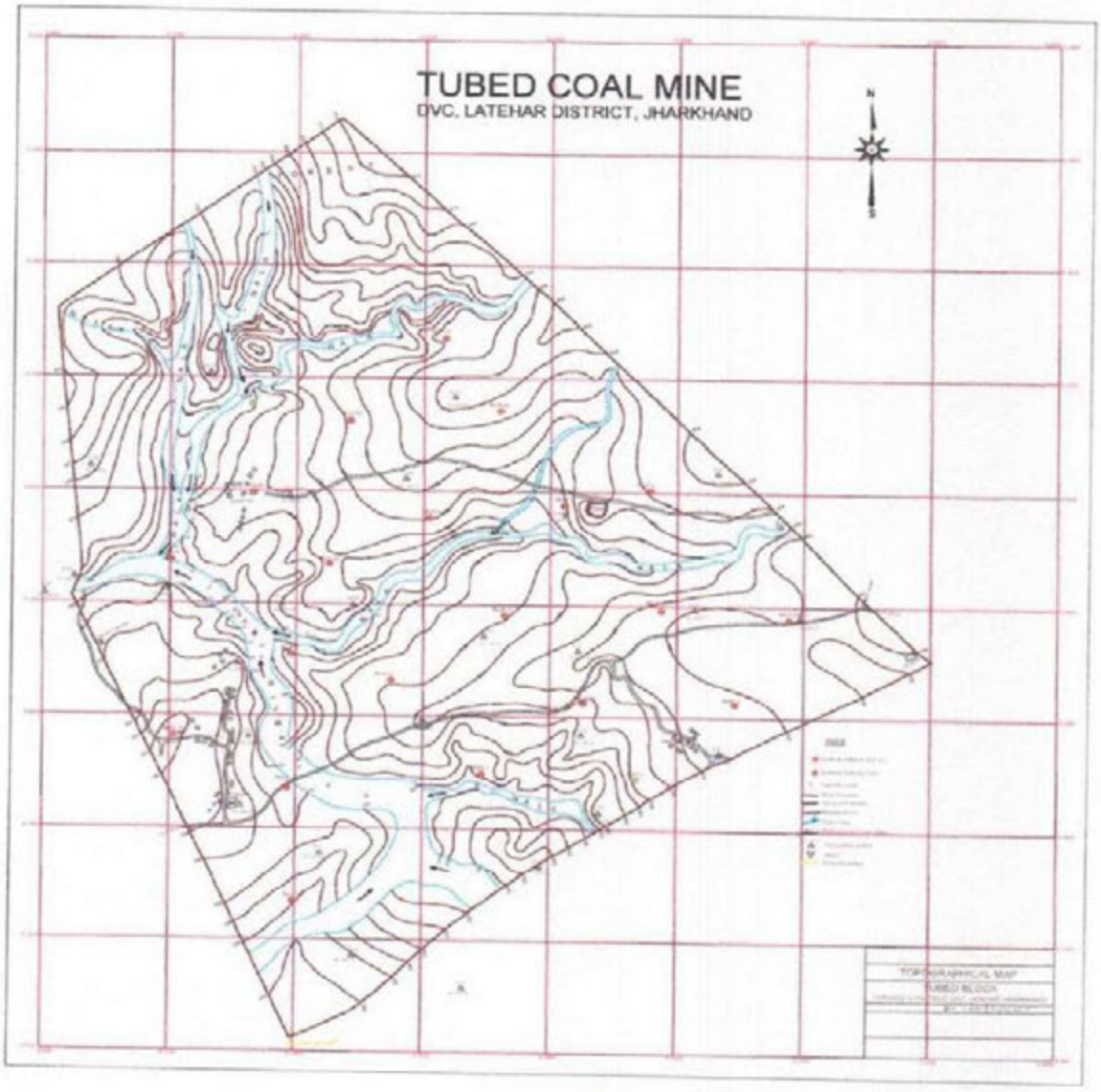
Damodar Valley Corporation

Tubed Coal Mine

Under the Latehar Forest Division

1. Introduction

The Tubed Coal Mine was allotted to DVC by the nominated authority, GOI, vide Order. No 103/04/2016/NA. Dt. 07th October, 2016 of the Coal Mines (special provision) Act, 2015 for captive use its own plants at different locations in West Bengal and Jharkhand.



2. Location of Tubed Coal Mine and Mining Lease area

Tubed Coal Mine covering an area of 4.6 Sq. Km is situated in Latehar District of Jharkhand State. The block forms a part of survey of India Toposheet No. 73 A/9 (OSM No. F45A9) (1:50,000) between coordinates

Latitude (N) 23°48'20'' to 23°50'09''

Longitude (E) 84°34'09'' to 84°35'45''

Lease area of Tubed Coal Mine is 460 ha.

सुधीर मुखर्जी / Sudhir Mukherjee
उप मुख्य अभियंता (यां), ईन्धन
Dy. Chief Engineer (M), Fuel

3. Access

Tubed Coal Mine is well connected by fair weather road to district HQ. Latehar. Latehar is at a distance of about 12km from the Coal Block. National Highway 75 (Ranchi – Daltonganj) passes through Latehar. Latehar is at about 100km from Ranchi which is the Capital of Jharkhand State. A broad gauge railway line between Gomoh & Barwadih (loop line of East Central Railway) has Latehar as a railway Station.

4. Climate

As per annual temperature map of India (National Atlas), the block falls within the temperate zone having mean temperature of 22°C – 25°C. The summers & winters are extreme. According to rain fall data, the area falls in the zone of 1200mm to 1400 rainfall.

5. Physiography & Drainage

Tubed Coal Mine exhibits undulating topography. General slope is towards west. A prominent valley is located in SW part of the block along which Sukri River flows. The ground elevation (RL) varies from 386m in the north-west (near the river) to 412 m in north - east (high land area).

The drainage of the mine is mainly controlled Sukri River flowing in SW part of block. There are 3 East West flowing Nalas which drain to Sukri River. Besides, there is also a Nala located in the Northern part of the block which also joins Sukri River near Borehole MAT 10.

6.Present, Proposed & Post Mining Land Use in Proposed Lease Area

All Fig-in-hectares (ha)

Sl. No	Present Land Use		Proposed Land Use		Post Mining Land Use					
	Particular	Area	Particular	Area	Plantation	Agricultural	Water Body	Road for Public uses	Green Belt	Total
1	Agriculture	230	Quarry	350	208	138	4			350
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5	Habitation	1	Safety Barrier against Mine Boundary	6.7					6.7	6.7
6	Forest	162.4								
	Total	**460**		**460**	**288**	**143.30**	**12**	**8**	**8.7**	**460**

7. Objective of Scheme

In this scheme, considering the Topography and contours of the lease area of Tubed Coal Mines, emphasis has been given to arrest sliding down of excavated materials (both OB and Coal) along the contour by constructing check dams, retaining walls/toe walls at specified location in the mining lease. Locations are judiciously selected within the leasehold area and plans as mitigative measures have been prepared.

सुधीर मुखार्जी / Sudhir Mukherjee
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Dy. Chief Engineer (M), Fuel
तामोदर घाटी निगम, कोलकाता-54
Kolkata-54

8. The Salient features of the drainage management plan

i) The overall drainage planning has been done in such a manner which follows the existing pre mining & post mining drainage routing to the extent possible, maintaining the overall slope in the direction of pre mining flow direction so that run off distribution is not affected.

ii) Garland drains have been planned on the sides of external dumps and also along the boundary of the Leasehold area.

The garland drains will be routed through catch pits and settling tanks to settle out suspended solids in the storm water. The purified water will be discharged to natural water source.

iii) Grass and busses in drains hold back solid particles during the flow of water in the drain. Small stone barriers constructed across the drain will check water flow and arrest solid.

iv) Stone pitching will be made at suitable places to regulate the slope and hence water flow will not be obstructed.

v) Settling pits and drains shall be cleaned intermittently, especially during monsoon.

vi) Outer side of the cross-check dams on the drainage lines shall be reinforced with green cover of non-browsable species like Jatrophacurcas, Vitexnegundo, Gliridia maculate.

vii) The mining lease area has been traversed by Sukri river on the South side of the property over a distance of 1 km. For diversion a study report has been generated by CWPRS. On the basis of that report the water Resource Department has approved the proposal in principle. Embankment with required engineering parameter will be constructed above HFL against river Sukri before and after the diversion of the river to protect the mine from surface inundation during high flood.

9. Measure Proposed to be adopted

Structural Measure:

a) Construction of retaining wall: the proposed retaining wall will be constructed all around the over burden dump excepting the southern part which is facing to the active mining pit. The length of the retaining wall be 2445 m.

b) Construction of Toe wall: On the northern aspect, coal stockyard toe wall has to be constructed to prevent flow of coal dust. The length of the toe wall be 400m.

c) Continuance of excavation garland drain on the North, North east and North west aspect of dump be as per details given below. The Old Drain in and around the mining lease area has been silted which needs renovation over a length of 500m. Siltation pond at an interval of every 100 meter and/ or and every curvature will be provided with a dimension of 1 m3 which will scoured at an interval of every 15 day particularly during rains.

Garland drain to be renovated over500m L x 2.00m W x 1.00m H.

New Garland drain to be made over 2445m L x 2.00m W x1.000 m.H.

d) Check Dam : The garland drain will be connected to a check dam of dimension 10 meter x 4 mtx 3mt depth with a provision of spill way. The whole purpose is that the rain water passing through garland drain will ultimately be deposited in the check dam for a considerable period and the clean water will pass through the spill way to the natural drain. The silt deposited at the base check dam will be cleaned at a interval of every 15 days.

सुधीर मुखार्जी / Sudhir Mukherjee
उप मुख्य अभियंता (यां), ईंधन
Dy. Chief Engineer (M), Fuel

EXISTING DRAIN

10. Executive Agency

Damodar Valley Corporation, being the User Agency will execute the above works at the Project cost. To facilitate this, the user Agency shall establish its own Executive and Supervision cell along with required infrastructural facilities. In order to maintain the quality of the work, in house supervision through competent personnel shall be entrusted. The entire work shall be carried out in co-ordination with Forest Department (DFO, Latehar Division).

सुधीर मुखार्जी / Sudhir Mukherjee
उप मुख्य अभियंता (वां), ईंधन
Dy. Chief Engineer (M), Fuel
दामोदर घाटी निगम, कोलकाता-54
Kolkata-54

11. Requirement of Funds

The total cost of the construction of Check Dam, Retention / Toe Walls along the contour to arrest sliding down of the excavated material [condition xi (c)] will be **Rs.13436193/-**

Sl. No.	Description of the Work	Unit	Rate	Fund Required In Rs.
Structural Measures				
01	Retaining Wall for OB Dump	External Dump (Length 1630m)	2245 per m	3659350.00
02	Renovation to Garland drain	500m		350400.00
03	New construction of Garland drain	1630m	1833.60 per m	2988768.00
04	Construction of Toe wall coal stockyard	400m	2245 per m	898000.00
05	New construction of check dam	2	213068.00	426136.00
06	Construction of Settling Chamber	2	2556769.31	5113538.62
			Total	**13436192.62 Say 13436193/-**

Sudhir Mukherjee
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Damodar Valley Corporation,
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Kolkata- 700054

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उप मुख्य अभियंता (यां), ईंधन
Dy. Chief Engineer (M), Fuel
दामोदर घाटी निगम, कोलकाता-54
Damodar Valley Corpn., Kolkata-54

SCHEME FOR STABILIZE THE OVER BURDEN DUMPS BY APPROPRIATE GRADING/BENCHING SO AS TO ENSURE THAT, THE ANGLE OF REPOSE AT ANY GIVEN PLACE IS LESS THAN 28°

In Compliance with Condition No. xi (d) of Stage-I Forest Clearance vide letter F. No. 8-23/2019-FC, Dt. 13.11.2019 of Ministry of Environment, Forest & Climate Change

(FC Division),

Govt. of India, New Delhi

For

Diversion of 162.394 Ha of Forest Land In Latehar District

In Favour of Damodar Valley Corporation for

Tubed Coal Mine

सुधीर मुखर्जी / Sudhir Mukherjee
उप मुख्य अभियंता (खा), ईंधन
Dy. Chief Engineer (M), Fuel
दामोदर घाटी निगम, कोलकाता-54
Damodar Valley Corpn., Kolkata-54

Damodar Valley Corporation

Tubed Coal Mine

Under the Latehar Forest Division

1. Introduction

The Tubed Coal Mine was allotted to DVC by the nominated authority, GOI, vide Order. No 103/04/2016/NA. Dt. 07th October, 2016 of the Coal Mines (special provision) Act, 2015 for captive use its own plants at different locations in West Bengal and Jharkhand.

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Lease area of Tubed Coal Mine is 460 ha.

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4. Climate:

As per annual temperature map of India (National Atlas), the block falls within the temperate zone having mean temperature of 22°C – 25°C. The summers & winters are extreme. According to rain fall data, the area falls in the zone of 1200mm to 1400 rainfall.

5. Physiography & Drainage:

Tubed Coal Mine exhibits undulating topography. General slope is towards west. A prominent valley is located in SW part of the block along which Sukri River flows. The ground elevation (RL) varies from 386m in the north-west (near the river) to 412 m in north - east (high land area).

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6. Soil Type

The soil type in the study area is acidic i.e. pH below 7. The soil in the study area is having sufficient nitrates, high phosphorous and potassium and therefore moderately fertile. Soil structure is generally loose but well drained.

7. Mine Development Strategy

The gestation period required in this OCP before the commencement of the coal production is low. The quarry will be opened in the northern boundary where coal seam is in-cropped at shallow depth, an access trench road from surface to touch 380 m Floor Reduced Level (FRL)of Seam-II will be driven. Once the approach trench touches the floor of coal seam, production phase could be open by expending box cut. In the formation of Box Cut, OB Production would be much more than the production of coal. The excavation is proposed by shovel dumper combination. Over burden bench and coal bench will further be expended by HEMM along the strike of the seam.

First of all, the top soil would be removed with the help of small sized hydraulic shovel (2.8 / 1.9 m^3) in conjunction with heave duty trucks. Auxiliary HEMM like dozer with ripper may be used for stacking the Soil. This top soil will be stacked separately at top soil dump earmarked in the plan for its storage & reuse. After stripping top soil, benches will be formed in the OB / parting above coal Seam-II.

After box-cut the quarry face will be advancing along strike direction as well as towards dip.Schedule of mine development is such that the target of production will be achieved during the 5^{th} year of project life.

As soon as top OB bench reaches more than 15m in thickness, successive OB benches would be developed by deployment of hydraulic shovel in conjunction with 27 ton dumper for making OB bench of 15m height. The width of the OB bench would be kept at 35m in the working bench. After deducting cut-width of 15m the balance will become 20m which will be a non-working bench. This will become again working bench of 35m as soon as upper benches advanced by 15m. This operation will continue throughout the life of mine.

8. Schedule of Quantities

The Schedule of quantities has been estimated stage wise as per the sequential development of the open cast mine.

Year wise production plan of excavation along with coal production is given in the Table No. 1. Accordingly, peak stripping ratio is estimated to be 2.5 M^3 / te for entire working life of the quarry. The life of opencast project is estimated as 30 years for the rated output of 6MTY Coal including mine construction period and high wall mining.

Table- 1

Calendar Plan of Excavation

YEAR	COAL (Mtes)		OB +T.S.(Mm^3)		S.R(m^3/Te)	
	YRL	PROG	YRL	PROG	YRL	PROG
1ST	1.00	1.00	4.87	4.87	4.87	4.87
2nd	2.15	3.15	8.60	13.47	4.00	4.27
3rd	4.00	7.15	12.04	25.51	3.01	3.56
4th	5.00	12.15	15.00	40.51	3.00	3.33
5th	6.00	18.15	15.00	55.51	2.50	3.06
6th	6.00	24.15	15.00	70.51	2.50	2.92
7th	6.00	30.15	15.00	85.51	2.50	2.84
8th	6.00	36.15	15.00	100.51	2.50	2.78
9th	6.00	42.15	13.00	113.51	2.17	2.69
10th	6.00	48.15	13.00	126.51	2.17	2.62
11th	6.00	54.15	13.00	139.51	2.17	2.57
12th	6.00	60.15	13.00	152.51	2.17	2.53
13th	6.00	66.15	12.00	164.51	2.00	2.48
14th	6.00	72.15	12.00	176.51	2.00	2.45
15th	6.00	78.15	12.00	188.51	2.00	2.41
16th	6.00	84.15	12.00	200.51	2.00	2.38
17th	6.00	90.15	12.00	212.51	2.00	2.36
18th	6.00	96.15	12.00	224.51	2.00	2.33
19th	6.00	102.15	12.00	236.51	2.00	2.31
20th	6.00	108.15	12.00	248.51	2.00	2.29
21st	6.00	114.15	12.00	260.51	2.00	2.28
22nd	6.00	120.15	9.00	269.51	1.50	2.24
23rd	5.00	125.15	6.00	275.51	1.20	2.20
24th	3.00	128.15	3.00	278.51	1.00	2.17
25th	2.10	130.25	2.00	280.51	1.00	2.15
TOTAL	130.25		280.51		2.15	

Note:-

1. OB- Overburden
2. TS- Top Soil
3. SR- Stripping Ratio

9. Objective of the Plan

The objectives of the proposed plan are as follows:

i) One of the stipulation [Condition No. xi (d)] to "stabilize the over burden dumps by appropriate grading/ benching so as to ensure that, the angle of repose at any given place is less than 28^0 given by the Ministry of Environment & Forest and climate change, GOI vide their letter F. No. 8-20/2019-FC DL 13.11.2019 during approval of Stage I forest clearance

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ii) Proper Management and Stages of dumping overburden in the place space specified in the land use plan.

iii) To provide methodology and implement the proposed actions in time bound manner to prevent slope failures, thereby providing stable OB dump slopes.

iv) To stabilize of the over burden dumps by plantation in terraces.

v) To Prevent of overflow of eroded soils from the fines, OB dump, areas leading to siltation in the natural streams.

10. Stabilisation of waste Dump:

The following methodologies will be adopted for stabilization of waste dump and preventing erosion and sedimentation of solid waste.

i) In the land use plan non-coal bearing area over 63 ha within the mining lease area has been year marked for OB dumping.

ii) The waste dumping will be done in a planned manner layer by layer maintaining a maximum bench height of 30 m and bench width of 45m to maintain an overall slope angle28° from the horizontal.

iii) The bench slope has to be terraced and green cover has to be wrapped to consolidate bench slope.

iv) It is planned to have retaining wall all along the toe of the waste dump to prevent possible flow of solid waste from the dump.

v) It is also planned to have garland drains all along the retaining wall to regulate the water discharge from the waste dump.

vi) Progressive high density plantation is envisaged over the dump to protect soil erosion.

vii) Ultimately at the conceptual stage the overburden will be backfilled in to the mining pit, covered by top soil and biologically reclaimed.

Present, Proposed & Post Mining Land Use in Proposed Lease Area

All Fig-in-hectares (ha)

Sl No	Present Land Use		Proposed Land Use		Post Mining Land Use					
	Particular	Area	Particular	Area	Plantation	Agricultural	Water Body	Road for Public uses	Green Belt	Total
1	Agriculture	230	Quarry	350	208	138	4			350
2	Waste land	39	External Dump	63	63					63
3	Nala & River	22	Infrastructure Facility	11.3		5.3		4	2	11.3
4	Road	5.6	Embankment, Nala & Road	29	17		8	4		29
5	Habitation	1	Safety Barrier against Mine Boundary	6.7					6.7	6.7
6	Forest	1034								
	Total									

Sudhir Mukherjee

11. Salient features of waste dump Management:

a) All the waste dumping site and coal stacking site are proposed to be surrounded by retaining wall and Garland drains.

b) All the waste dumping is proposed to be done by terracing method, Terraces are proposed to be made in all dumps. The height of the terrace will varying from 20m to 30mwith slope varying from 28^0 to 37.5^0.The width of the terrace will vary from 30mto 45m.

c) All the terraces are proposed to be made inwardly sloping. A soil bund is proposed to be made at the edge of each terrace. At the toe of each terrace, a small channel is proposed to be made. All this above arrangement will help the rain water to go inside the dump instead flowing through the surface of the dump.

d) All the garland drains at that toe of the dumps are proposed to be connected with settling tanks which will ultimately allow the settling of silt from the water in it and silt free water will ultimately go out of the lease hold.

e) All the dead slope of the dumps are proposed to be covered with plantation.

12. Proposed Methodology:

A. Biological Measures:

a) The overburden dump will be covered by top soil.

b) Terrace of 30m H and 45m W will be done.

c) Construction of retaining wall and garland land has already been included in the scheme for condition no. xi (c).Therefore repetition of the same has not been made here.

d) Indigenous species like Palash (Butea Monosperma), Amla (Emblica Officinalis), Neem (Azadirachta Indica), Jamun (Syzygium Cumini), Sehejana (Moringa Oleifera), Karanj (Pongamia Pinnata), Babul (Acacia Nilotica), Khair (Acacia Catechu), Ber (Zyzyphus Jujube), Imli (Tamarindus Indicus), Peepal (Ficus Religiosa), Bargad (Ficus Benghalensis), Kulu or Kadava (Sterculia Urens), Roheda (Tecomella Undulata) etc. will be planted on the terraces @ 1600 per hacter. Over approximately23.2ha. in block model at a spacing of2.5 m^2. On the upper slopes of the OB dump grass seeding will be done over an area 36 ha using seeds of Stylosanthes hamata, Muhlenbergia montana etc. Lower slope of the dump around 5.6 ha will be covered by vetiver plantation to prevent soil erosion.

B. Structural Measure:

a) Particularly on the OB dump slope where there is likelihood of formation of Gullies due to rain, it is proposed to construct loose boulder check dams of dimension 4.20m x3mx 1.5m alternatively over 200m to prevent soil erosion.

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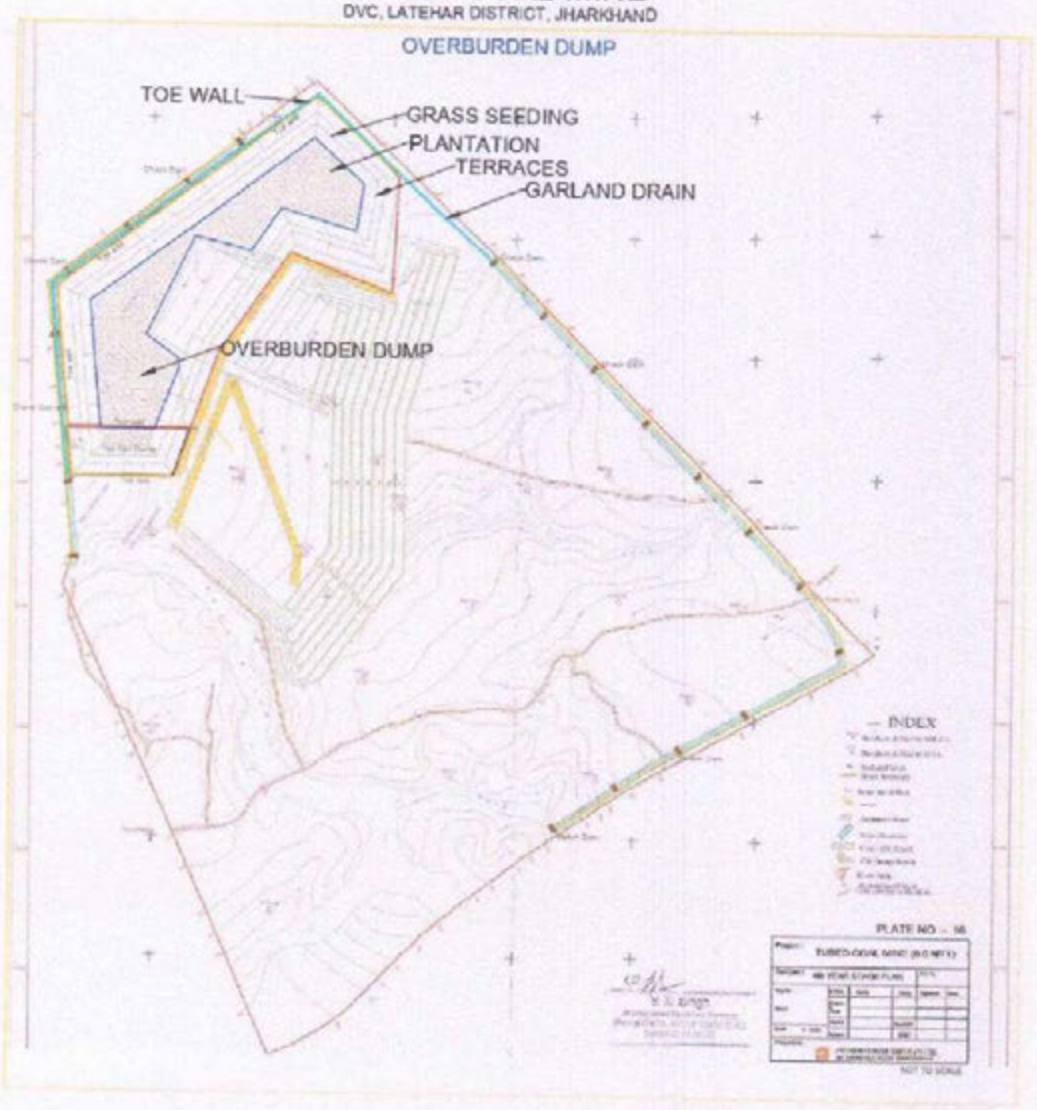
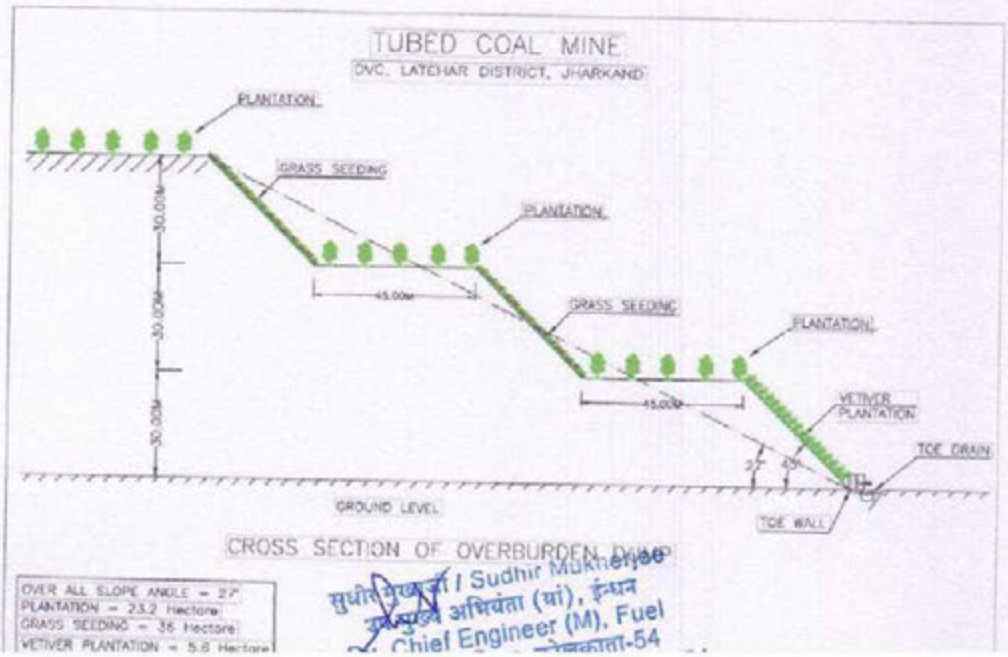
TUBED COAL MINE

DVC, LATEHAR DISTRICT, JHARKHAND





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13. Executive Agency

Damodar Valley Corporation, being the User Agency will execute the above works at the Project cost. To facilitate this, the User Agency will establish its own Executive and Supervision cell along with required infrastructural facilities. In order to maintain the quality of the work, in house supervision through competent personnel will be entrusted. The entire work shall be carried out in co-ordination with ForestDepartment (DFO, Latehar Division).

14. Requirement of Funds

The total cost for stabilization of Over Burden Dumps by appropriate grading / benches[condition xi (d)]will be **Rs. 4406889/-**

TOTAL COST OF THE PROJECT

Sl. No.	Description of the Work	Unit	Rate	Fund Required in Rs.
Biological Measures				
01.	Block Plantation	23.2 ha	133071/-	3087247.20
02.	Grass seeding	36 ha	22624/-	814464.00
Structural Measures				
03.	Loose Boulder Structure (4.26m x 3m x 1.5m)	8 nos.	8207/-	65656.00
04.	Staggered Contour Trench over 41.54 ha	20.77 ha	10650/-	221200.50
05.	Vetiver Plantation over the slope of the overburden dump	5.6 ha	38986/-	218321.60
Total				**4406889.30 Say 4406889/-**

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Scheme for Strict Adherence to the prescribed Top Soil Management

In Compliance with Condition No. xi (e) of Stage-I Forest Clearance vide letter F. No. 8-23/2019-FC, Dt. 13.11.2019 of Ministry of Environment, Forest & Climate Change (FC Division), Govt. of India, New Delhi

For

Diversion of 162.394 Ha of Forest Land In Latehar District In Favour of Damodar Valley Corporation for Tubed Coal Mine

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Damodar Valley Corporation

Tubed Coal Mine
Under the Latehar Forest Division

1. INTRODUCTION

The Tubed Coal Mine was allotted to DVC by the nominated authority, GOI, vide Order. No 103/04/2016/NA. Dt. 07th October, 2016 of the Coal Mines (special provision) Act, 2015 for captive use its own plants at different locations in West Bengal and Jharkhand.

2. LOCATION OF TUBED COAL MINE AND MINING LEASE AREA

Tubed Coal Mine covering an area of 4.6 Sq. Km is situated in Latehar District of Jharkhand State. The block forms a part of survey of India Toposheet No. 73 A/9 (OSM No. F45A9) (1:50,000) between coordinates

Latitude (N) 23°48'20'' to 23°50'09''

Longitude (E) 84°34'09'' to 84°35'45''

Lease area of Tubed Coal Mine is 460 ha.

3. ACCESS

Tubed Coal Mine is well connected by fair weather road to district HQ. Latehar. Latehar is at a distance of about 12km from the Coal Block. National Highway 75 (Ranchi – Daltonganj) passess through Latehar. Latehar is at about 100km from Ranchi which is the Capital of Jharkhand State. A broad gauge railway line between Gomoh & Barwadih (loop line of East Central Railway) has Latehar as a railway Station.

4. CLIMATE

As per annual temperature map of India (National Atlas), the block falls within the temperate zone having mean temperature of 22°C – 25°C. The summers & winters are extreme. According to rain fall data, the area falls in the zone of 1200mm to 1400 rainfall.

5. PHYSIOGRAPHY & DRAINAGE

Tubed Coal Mine exhibits undulating topography. General slope is towards west. A prominent valley is located in SW part of the block along which Sukri River flows. The ground elevation (RL) varies from 386m in the north-west (near the river) to 412 m in north - east (high land area).

The drainage of the mine is mainly controlled by Sukri River flowing in SW part of block. There are 3 East West flowing Nalas which drain to Sukri River. Besides, there is also a Nala located in the Northern part of the block which also joins Sukri River near Bore Hole MAT 10.

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6. PLAN FOR TOP SOIL MANAGEMENT:

There is a veneer of alluvium as top soil in this mine which will be very carefully collected and preserved in the top soil stockyard over an area of 6.1 ha demarcated in the West of the mine. This Topsoil management Plan provides description of the soil stripping and stockpiling procedures to minimize top soil degradation and maximize availability of suitable soil for future reclamation within the Mining lease. Topsoil is to be stripped in areas proposed to be disturbed including the proposed mining on virgin forest land, non-forest land and infrastructure areas (including roads). A comprehensive top soil management plan has been prepared keeping in the view of conservation, regeneration and afforestation in and around the top soil to be stored.

In the non-mineralized area there exist very thin layers of top soil say 0.5cm, which is very difficult to slice down and stored separately for use during future reclamation. However, grass seed will be sown over this area to prevent erosion of the top soil. The thickness of top soil in this mine is of average 2 m thick.

Soil pH plays an important role in the availability of nutrients on the contrary the microbial activities are also depended on pH. The soil sample collected from the mining lease area tested and the pH appears to the neutral.

Typical Picture of Soil Conservation Dump

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7. OBJECTIVES

The objectives of top soil management are to:

1. Provide sufficient stable topsoil material for reclamation work of dumps, back filled areas end degraded lands;
2. Identify soil resources and stripping guidelines & optimize the recovery of topsoil resource;
3. Identify surface areas requiring stripping (to minimize over clearing);
4. Manage topsoil reserves so as to not degrade the resources;
5. Identify stockpile locations and dimensions;

8. MANAGEMENT PLAN FOR TOP SOIL GENERATED FROM MINING

The top soil inside the Mining Lease area is of 2 meter thick in average. Whatever top soil is available that is to be excavated during the development of the mine pit. Precautionary measures will be taken so that this valuable resource is not wasted, this excavated top-soil will be utilized for covering the over burden dump over which concurrent plantation works is envisaged in the mine as per this plan. Some of the top soil which will be generated during the mining operation from one to four year will be stored temporarily in a demarcated area of approximately 6.1hawithin the Mining lease, until it can be used for plantation works / dump reclamation. Minimum storage time shall be attempted to avoid nutrient loss. A combination of check dams, diversion ditches and garland drain etc. shall be constructed around the Top Soil stack yard to minimize soil erosion and loss.

During the current diversion period, a total of 460.00 hectares virgin area is going to be disturbed for mining and allied activities.

9. METHODOLOGY

In accordance with the above objective of providing sufficient stable soil material for rehabilitation and to optimize soil recovery, the following strategies have been adopted:

1. Topsoil stockpiles are to be located outside quarry areas but within the mining lease area;
2. Stripping off the topsoil by dozers rather than scrapers to minimize structural degradation;
3. Construction of stockpiles with a "rough" surface condition to reduce erosion hazard,
4. Improve drainage and promote re-vegetation by sowing of grass seeds on the trapezoidal surface;
5. To utilize stripped top soil as soon as possible for reclamation of mined-out area in phased manner in accordance with the final mine closure plan.

10. MANAGEMENT PLAN OF EXCAVATED TOP-SOIL

To minimize the detrimental effects of long-term storage of topsoil in stockpiles, the following procedures will be implemented prior to any soil stripping activities, the following will be ensured:

1. Appropriate delineation of areas to be stripped/mined; an area of 6.1ha has been demarcated for storage of top soil in lease area. The perimeter of this top soil stock pile is 1088.76 meter.

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2. Appropriate delineation of the above suitable Topsoil stockpile areas.
3. The topsoil stripping and stockpiling will be completed using conventional earth-moving equipment such as bulldozers, graders and dumpers. In areas where the topsoil is relatively thin, the topsoil watt be removed in such a way to minimize mixing of topsoil and sub soils.
4. Stockpiles will have sediment control measures such as toe/retaining wall.
5. Following stockpiling, samples of the topsoil will be collected for analysis and test for pH, nitrogen, and organic content to establish an initial nutrient composition of the topsoil.
6. Permanent measures include establishment of vegetation and broadcasting sowing of grass seeds over the surface the top soil will be ensured to prevent erosion.
7. Re-spreading of topsoil will be undertaken in those areas requiring reclamation, to approximate pre-plantation thickness of approximately 2- 3 cm by manual means, or as required.

11. PLAN FOR CONSERVATION OF TOP SOIL FROM BARREN LANDS

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, enhance in-situ moisture conservation for enrichment of water table for more availability of water so that the top soil is conserved for supporting the growth of forests.

12. METHODS

The top soil will be collected and stored preferably at one place and the top surface will be sown with grass seeds so that a mat of grass turf is made over the surface of the top soil and the side slope will be covered by vetiver plantation. This method will prevent erosion of the top soil by rain water and/or weathering conditions like blow of wind. At the base of the top soil storage place will be provided with a retaining wall of length 915m and 1.4 m height.

13. INSPECTION, MONITORING AND EVALUATION

For successful implementation of the above management and conservation measures, intensive inspection and technical guidance from concerned technical wing is required. Sufficient fuel/ conveyance charges for technical experts will be provided by the user agency for proper execution of these programme. Infrastructural facilities like GIS software along with GPS equipment, Research & Development woks, will be provided by the user agency for the above post implementation monitoring.

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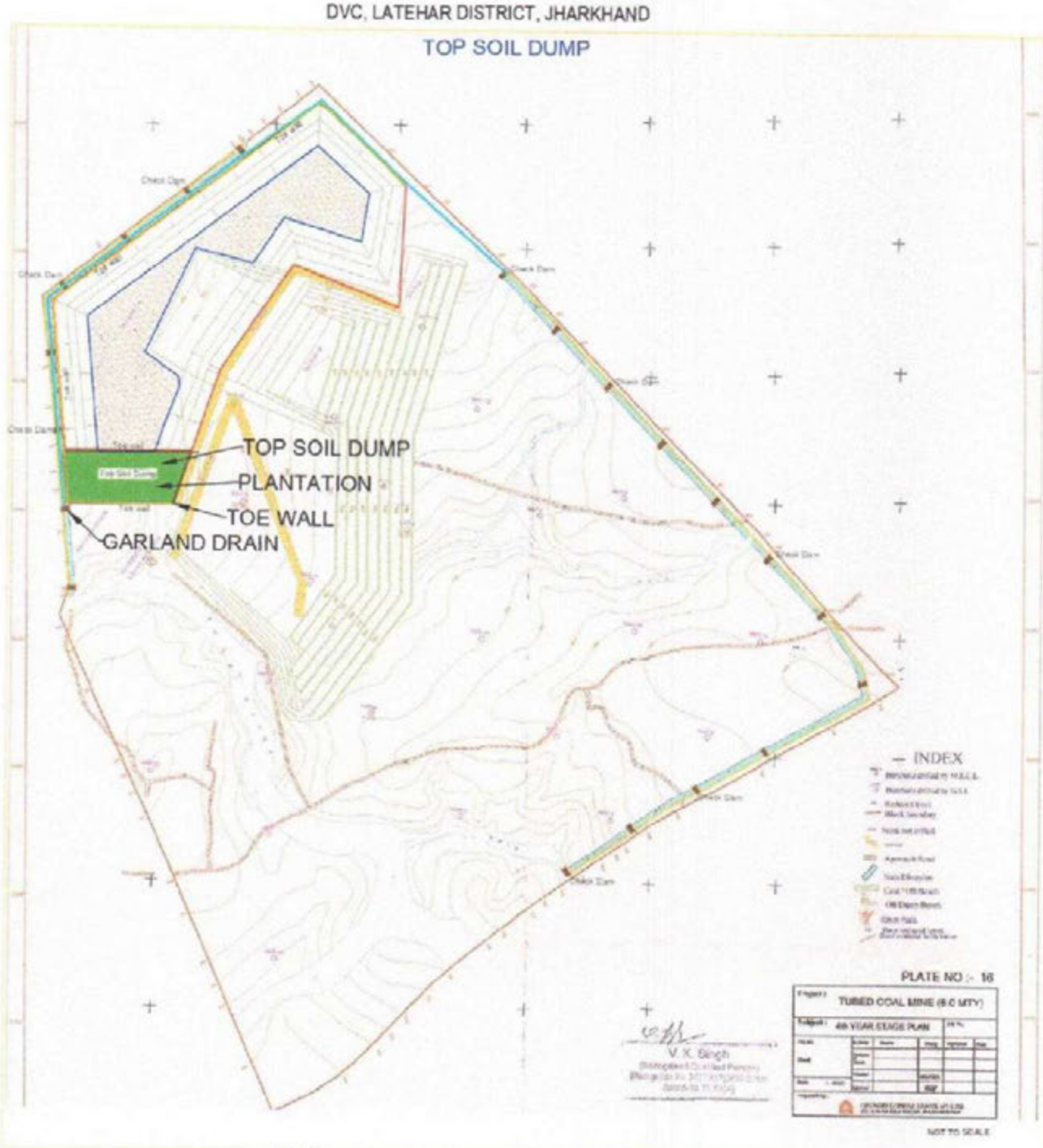
TUBED COAL MINE

DVC, LATEHAR DISTRICT, JHARKHAND

TOP SOIL DUMP



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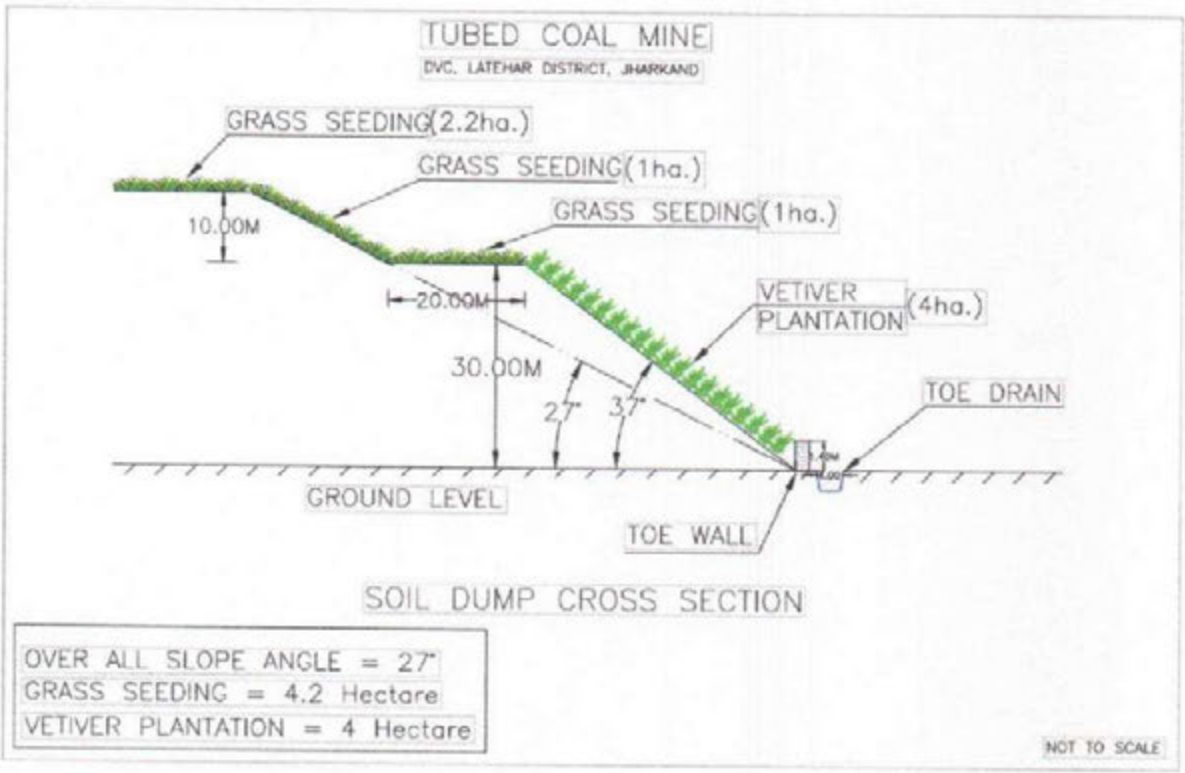

14. MEASURES PROPOSED

a) Structural method:
   - A retaining wall over a perimeter of 915 m will be constructed all around the top Soil Storage area as shown in the land use plan of the coal mine.

b) Biological measure:
   - The surface of the top soil will be a trapezoidal shape. The surface needs to be covered by grassy cover in order to avoid erosion of soil. The total surface area will be 4.2ha.including the slope area of the top bench.

15. EXECUTING AGENCY

In all the cases, the work will be executed by the User Agency having specialized departments headed by qualified persons with outsourced man and machinery as and where required, to facilitate this, the user agency will establish it's 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 through close coordination with the District Forest Department (DFO, Latehar)

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16. REQUIREMENT OF FUNDS

The total cost of Top Soil management [condition no. xi (e)] will be **Rs. 3160327/-**

TOTAL COST OF THE SCHEME

Item of work	Qty.	Rate	Cost in Rs.
Construction of Retaining wall	915 m	2245/- per rm	2054175.00
Cost of Turfing of Grass on the surface	4.2 ha	22624/- per ha.	950208.00
Vetiver Plantation	4 ha	38986/- per ha.	155944.00
		Total	**3160327.00**

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No. HQ/Mining/Tubed/FC/193(XIII) Dated: 13.02.2020

Annexure- XIII

UNDERTAKING

TUBED COAL MINE

This is to certify that, Damodar Valley Corporation (DVC), a corporation constituted under DVC Act, 1948 (Act. No. XIV of 1948), undertake and ensure that no labour camp will be established on the forest land and DVC will 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. This is in connection of the fulfilment of Condition No. xiii of the Stage-I Clearance, for diversion of 162.394 ha forest land in Latehar Forest Division, Dist. Latehar, Jharkhand.

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No. HQ/Mining/Tubed/FC/193(XIV) Dated: 13.02.2020

Annexure- XIV

UNDERTAKING

TUBED COAL MINE

This is to certify that, Damodar Valley Corporation (DVC), a corporation constituted under DVC Act, 1948 (Act. No. XIV of 1948), undertake and ensure that the layout plan of the proposal will not be changed without the prior approval of the Central Government. This is in connection of the fulfilment of Condition No. xiv of the Stage-I Clearance, for diversion of 162.394 ha forest land in Latehar Forest Division, Dist. Latehar, Jharkhand.

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No. HQ/Mining/Tubed/FC/193(XV) Dated: 13.02.2020

Annexure- XV

UNDERTAKING

TUBED COAL MINE

This is to certify that, Damodar Valley Corporation (DVC), a corporation constituted under DVC Act, 1948 (Act. No. XIV of 1948), undertake and ensure that the forest land will not be used for any purpose other than that specified in the proposal. This is in connection of the fulfilment of Condition No. xv of the Stage-I Clearance, for diversion of 162.394 ha forest land in Latehar Forest Division, Dist. Latehar, Jharkhand.

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No. HQ/Mining/Tubed/FC/193(XVI) Dated: 13.02.2020

Annexure- XVI

UNDERTAKING

TUBED COAL MINE

This is to certify that, Damodar Valley Corporation (DVC), a corporation constituted under DVC Act, 1948 (Act. No. XIV of 1948), undertake and ensure that the forest land proposed to be diverted under no circumstances will be transferred to any other agency, department or person without prior approval of the Central Government. This is in connection of the fulfilment of Condition No. xvi of the Stage-I Clearance, for diversion of 162.394 ha forest land in Latehar Forest Division, Dist. Latehar, Jharkhand.

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No. HQ/Mining/Tubed/FC/193(XVII) Dated: 13.02.2020

Annexure- XVII

UNDERTAKING

TUBED COAL MINE

This is to certify that, Damodar Valley Corporation (DVC), a corporation constituted under DVC Act, 1948 (Act. No. XIV of 1948), undertake and ensure that no damage to the flora and fauna of the adjoining area will be caused during implementation of the project. This is in connection of the fulfilment of Condition No. xvii of the Stage-I Clearance, for diversion of 162.394 ha forest land in Latehar Forest Division, Dist. Latehar, Jharkhand.

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No. HQ/Mining/Tubed/FC/193(XVII) Dated: 13.02.2020

Annexure- XVIII

UNDERTAKING

TUBED COAL MINE

This is to certify that, Damodar Valley Corporation (DVC), a corporation constituted under DVC Act, 1948 (Act. No. XIV of 1948), undertake to explore the possibility of translocation of maximum number of trees identified to be felled and will ensure that any tree felling will be done only when it is unavoidable and that too under strict supervision of the State Forest Department. This is in connection of the fulfilment of Condition No. xviii of the Stage-I Clearance, for diversion of 162.394 ha forest land in Latehar Forest Division, Dist. Latehar, Jharkhand.

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150 YEARS OF CELEBRATING THE MAHATMA

No. HQ/Mining/Tubed/FC/193(XIX) Dated: 13.02.2020

Annexure- XIX

UNDERTAKING

TUBED COAL MINE

This is to certify that, Damodar Valley Corporation (DVC), a corporation constituted under DVC Act, 1948 (Act. No. XIV of 1948), undertake to submit CAT plan for the catchment of Sukri River to the appropriate authority. This is in connection of the fulfilment of Condition No. xix of the Stage-I Clearance, for diversion of 162.394 ha forest land in Latehar Forest Division, Dist. Latehar, Jharkhand.

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Preparation of Catchment Area Treatment Plan for Tubed Coal Mine, Latehar, Jharkhand

for

Tubed Coal Mines

of

Damodar Valley Corporation

Prepared by

Asok Adak, Ph.D.

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Contents

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PREFACE

M/s Damodar Valley Corporation (DVC) has proposed to carry out mining operations in Tubed Coal Block for its captive consumption. The coal is proposed to be catered from Tubed Coal Block by open cast mining operations. The coal block is located near village Tubed Dist. Latehar, Jharkhand. A stream namely, River Sukri, a tributary of Auranga River originates near village Kuramu Dist Latehar. It flows in Westward direction and passes through the Tubed coal block. The diversion of river Sukri and its tributaries is planned by M/s DVC along the boundary of the coal block to carry out coal extraction and mining activities. It is a well-established fact that reservoirs formed by diversion structures on rivers are subjected to sedimentation. The process of sedimentation embodies the sequential processes of erosion, entrainment, transportation, deposition and compaction of sediment. The study of erosion and sediment yield from catchments is of utmost importance as the deposition of sediment in reservoir reduces its capacity and thus affects the water availability for the designated use. The eroded sediment from catchment when deposited on streambeds and banks causes braiding of river reach. The removal of top fertile soil from catchment adversely affects the agricultural production. Thus, a well-designed Catchment Area Treatment (CAT) Plan is essential to ameliorate the above-mentioned adverse process of soil erosion.

Department of Civil Engineering, Indian Institute of Engineering Science and Technology, Shibpur has prepared the proposal for Catchment Area Treatment Plan for the coal mining project. In this study, widely used and easy to use 'silt yield index' (SYI) method has been used. This method considers sedimentation as product of erosivity, morphometry and delivery ratio of a particular catchment. Various thematic maps of the catchment area have been used in preparation of the catchment area treatment (CAT) plan. Geographic Information System (GIS) has been used to store, analyze and display various spatial data. The various data layers of the catchment area used for the study are as follows: Catchment area map, Land use classification map, Slope map, Soil map. Soil loss has been calculated using Revised Universal Soil Loss Equation (RUSLE) model.

The treatment measures are to be taken up in the areas which are prone to very severe and severe erosion in all the sub-watersheds falling in different priority categories. Therefore, an area of 2238 hectare will be taken up for treatment. The total Cost of the CAT will be approximately Rs 11 crores 69 lakhs.

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1. Project Background

The Auranga Coalfield is the Eastern most part of the North Koel Vally of Gondwana basin. It is about 8 km West of North Karanpura Coalfiled, which is Western most part of Damodar Valley of Gondwana Basin. Auranga Coalfield covers an area of 250 sq km and located in Latehar district of Jharkhand State. Tubed Coal Block is one of the identified non-CIL blocks and lies in the northern part of Auranga Coalfield. The net geological reservoir of coal is 189.8228 million tonnes and the extractable reserve is 130.254 (OC) + 9.4 (Highwall) million tonnes.

2. Objective and Scope of the Work

The objective of the work is to prepare a proposal for catchment area treatment plan for Tubed Coal Mine, Latehar, Jharkhand with the following scopes of work.

1. To understand the erosion characteristics of the terrain and
2. To suggest remedial measures to reduce the erosion rate.

3. Details of Study Area

3.1. Location

The Tubed Coal Block covering an area of 4.6 sq. km is situated in Latehar district of Jharkhand State. The latitude and longitude of the coal block is N23°48′20″ - N23°50′09″ and E84°34′09″ - E84°35′45″. The place is well connected by a fair-weather road to district HQ, Latehar. It is only 12 km. National Highway 75 (Ranchi-Daltonganj) passes through Latehar. The nearest railway station is Gomoh. The location of the coal block is shown in Figure 1.

3.2. Physiography, drainage and climate

The coal block exhibits undulating topography. General slope is towards west. A predominant valley is located in South-West part of the block along which Surki River flows. The ground elevation (RL) varies from 386 m in the North-West (near river) to 412 m in the North East (high land area).

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The drainage of the block is mainly controlled by Surki River flowing in South-West part of the block. There are 3 East West flowing nalahs which drain to Surki River. Besides, there is a nalah in the Northern part of the block which darins also in Surk River.

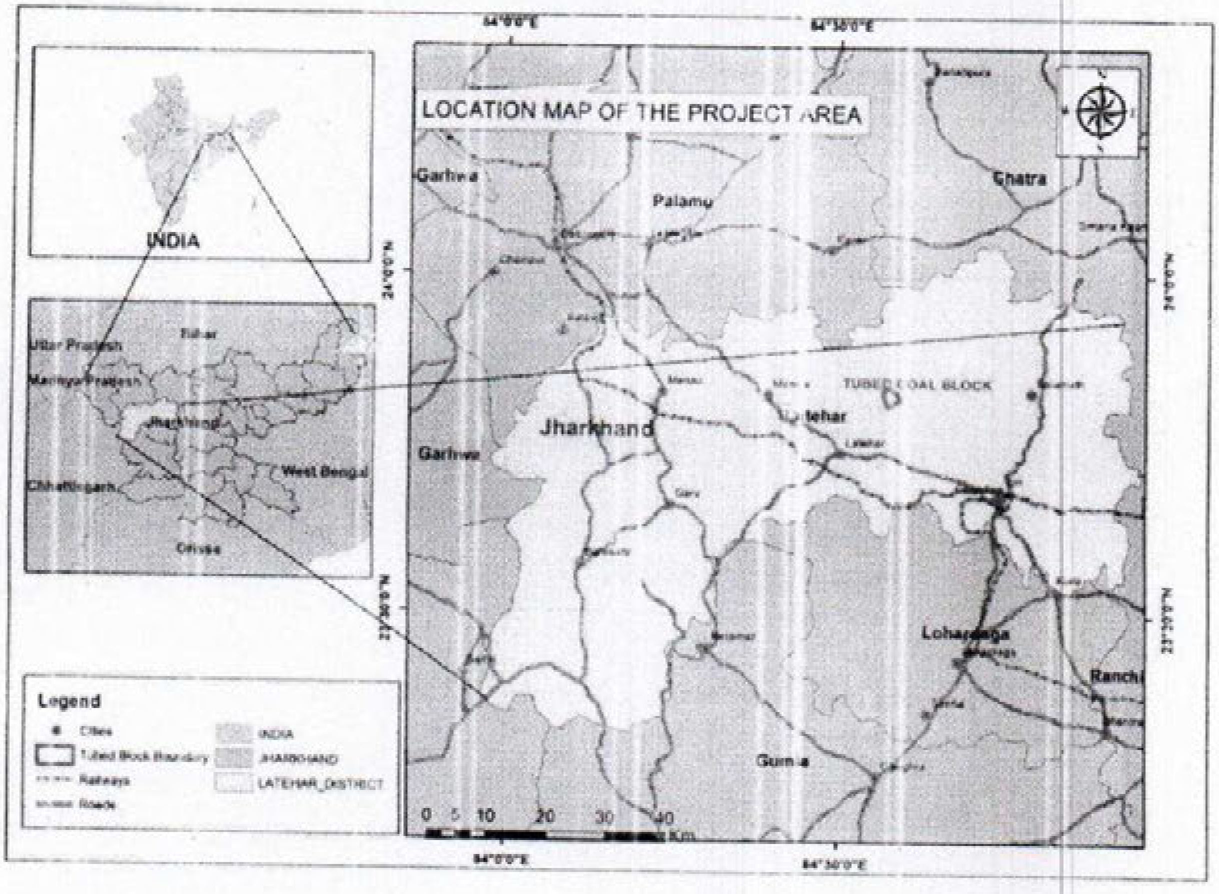

Figure 1: Location of the Tubed Coal Block

As per annual temperature map of India, the average daily temperature of the place is 22-25°C. The summer and winter are extreme. The annual rainfall is 1200-1400 mm.

3.3. Description of the catchment area

The catchment area of Surki River under the Tubed Coal Block is approximately 217.67 sq. km. The catchment area has been divided in 7 parts as shown in Figure 2.

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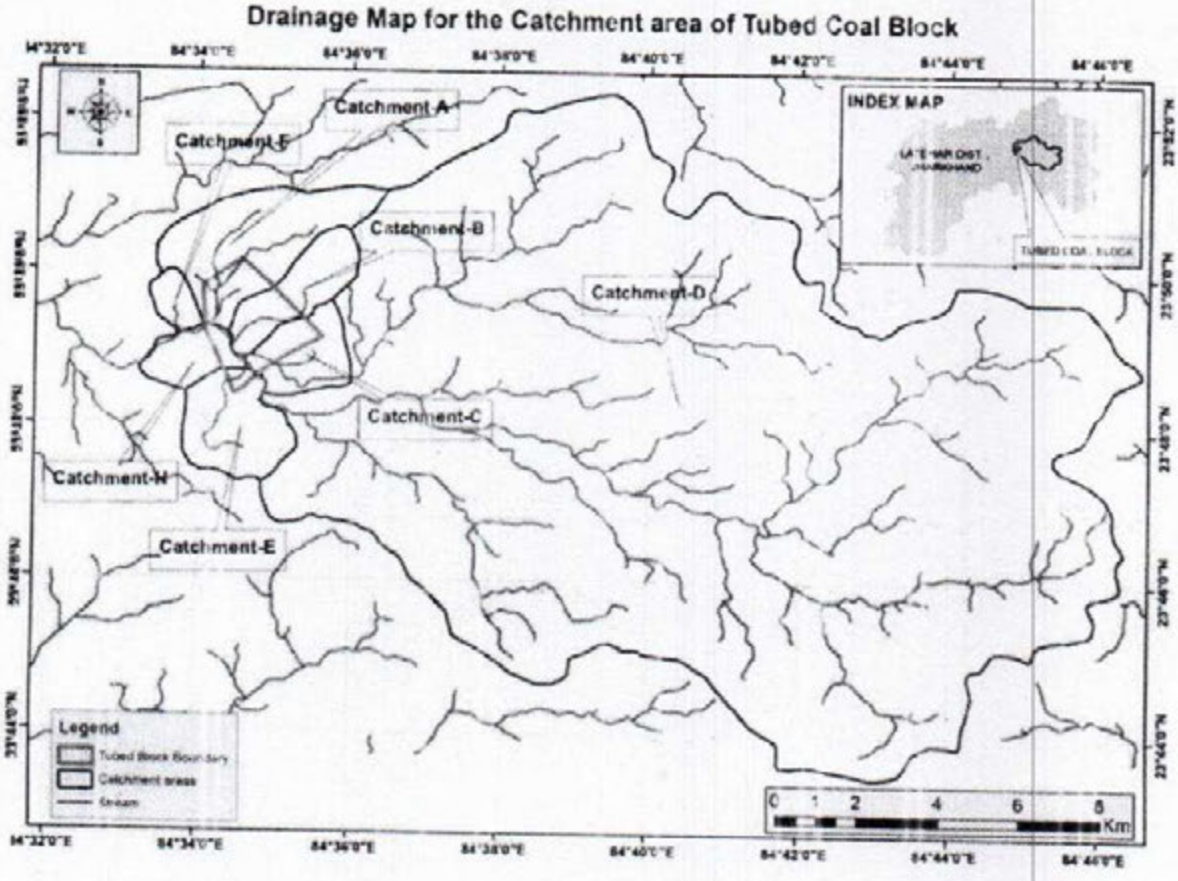

Figure 2: Catchment of Surki river under Tubed Coal Block

The details of each sub-catchment under consideration is given Table 1.

Table 1: Sub-catchments of the Surki river under Tubed Coal Block

Sl. No.	Catchment designation	Area (sq. km)
1	A	8.50
2	B	3.66
3	C	3.264
4	D	193.663
5	E	5.172
6	F	1.000
7	H	2.411

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In the present study, the soil erosion intensity and silt yield index (SYI) of the above catchment have been determined and the catchment treatment plan has been suggested

4. Methodology

In this study, widely used and easy to use 'silt yield index' (SYI) method has been used. This method considers sedimentation as product of erosivity, morphometry and delivery ratio of a particular catchment. The method was conceptualized by Soil and Land Use Survey of India (SLUSOI) as early as 1969 and has been operational since then to meet the requirements of prioritization of smaller hydrologic units within river valley project catchment areas. The terrain of the Tubed Coal Block has been subdivided into various sub-catchment (as shown in Figure 2) and the erodibility has been determined on relative basis. SYI provides a comparative erodibility criterion of catchment (low, moderate, high, etc.).

Various thematic maps of the catchment area have been used in preparation of the catchment area treatment (CAT) plan. Geographic Information System (GIS) has been used to store, analyze and display various spatial data. The various data layers of the catchment area used for the study are as follows:

- Catchment area map
- Land use classification map
- Slope map
- Soil map

The details of the map preparation, calculation of Soil Erosion Intensity and silt yield index have been discussed below.

4.1. Land use Classification Map

For the present study, land use or land cover maps prepared and has been supplied by the client in raw digital format and has been geo-referenced using Survey of India topographical sheets with the help of standard data preparation techniques in standard image processing software. The geo-referenced data was digitized for the different land use/ land cover classes. The classified land use map of the catchment area, considered for the study, is shown as Figure

3. The land use pattern of the catchment area is summarized in Table2. The land use/ land cover map of the catchment of Surki river under the Tubed Coal Block can be classified into six classes. Out of these four classes, the area of dense forest is the highest while area of River and Water bodies is least.

Table 2: Land use classification for the Surki river catchment under consideration

Sl.No.	Land use/ Landcover	Area (sq km)	Area (%)
1.	Dense Forest	25.5	11.7
2.	Open Forest	67.5	31.09
3.	Waste Land	33.87	15.5
4.	Settlement	31.3	14.37
5.	Agricultural Land	56.9	26.13
6.	River and Water Bodies	2.7	1.21
	Total	**217.67**	**100.00**

4.2 Slope Map

Digital Elevation Model (DEM) of the catchment area has been supplied by the client. The solpe map was generated using the elevation values. After marking the catchment area, all the contours on the topographical maps were derived. The output of the digitization procedure was the contours as well as points contours in form of x, y and z points. (x, y - location and z - their elevation). All this information was in real world co-ordinates (latitude, longitude and height in meters above mean sea level).A Digital Terrain Model (DTM) of the area was then prepared and it was used to derive slope map. The areas falling under various standard slope categories are shown in Table 3. The slope map is shown as Figure 4.

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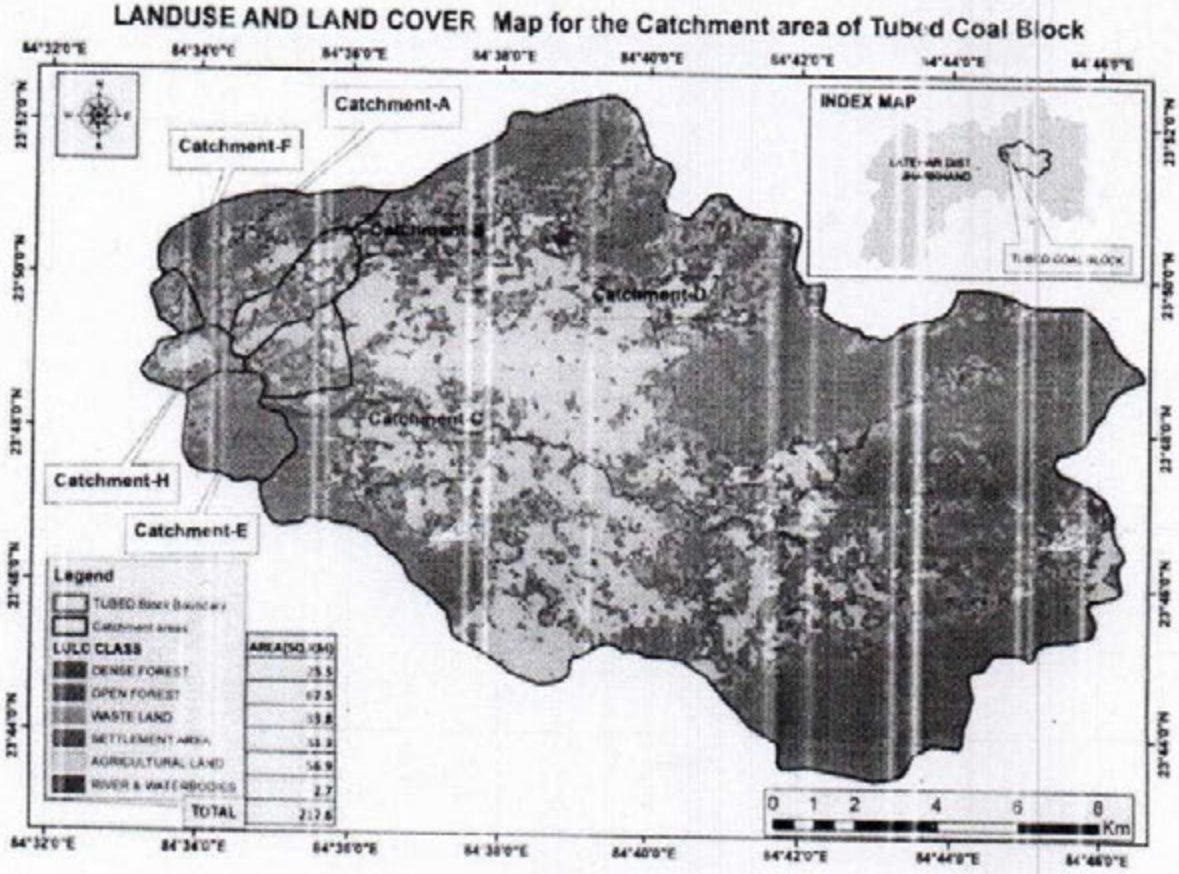

Figure 3: Land use map of Surki river catchment under Tubed Coal Block

Table 3: Areas falling under different slope categories of Surki river catchment

Slope (Degrees)	Slope Category	Area (sq km)	Area (%)
Upto 2	Gently Sloping	105.2476	48.37
2-8	Moderately Sloping	55.763	25.63
8-15	Strongly Sloping	25.9337	11.92
15-30	Moderately Steep	16.5986	7.63
30-45	Steep	10.2969	4.7
45-60	Very Steep	3.8237	1.76
Above 60	Extremely Steep	0.00062	0.0003
Total		**217.67**	**100.00**

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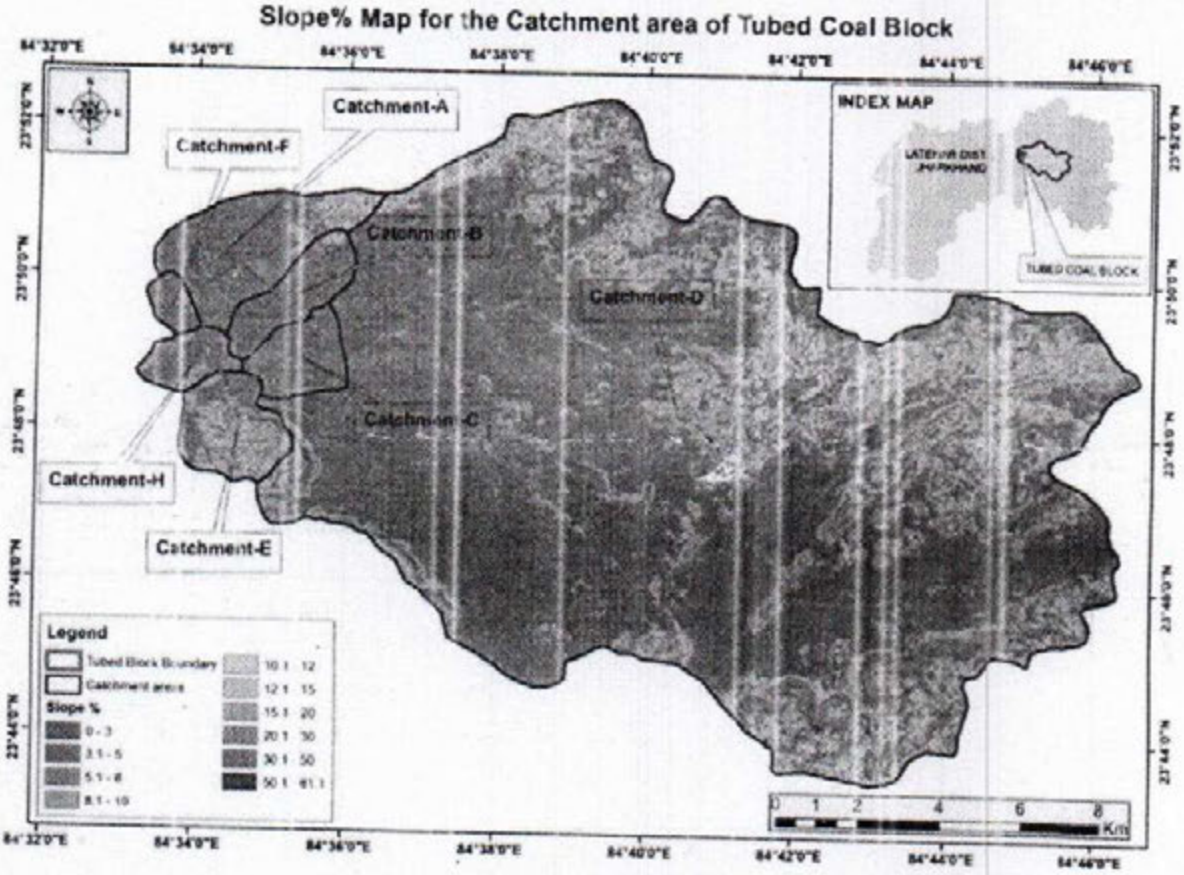

Figure 4: Slope map of Surki river catchment under Tubed Coal Block

4.3. Soil map

Digitized soil map has been supplied by the client. The soil map has been shown in **Figure 5**. The classes of soil are given in **Table 4**.

4.4. Rainfall intensity

The competent authority of Develecto Mining Limited supplied the monthly rainfall data of Latehar which are very close to the project site for the year 2006 to 2017. The rainfall data were collected from IMD, Pune. These data were analyzed to obtain average annual rainfall of the project site. The value was found to be 1029 mm/year. This rainfall value was used for the estimation of soil erosion.

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Table 4: Soil classes of Surki river catchment

Soil Types	Area (sq. km)	Area (%)
Loamy-Skeletal, Typic Haplustepts Very deep, reddish brown to yellowish red colour. Sandy clay loam to sandy clay subsoil texture and moderately drained.	0.912	0.42
Loamy-Skeletal, Typic Haplustalfs Very deep, dark reddish brown to yellowish red colour. Sandy clay loam to clay texture with subsoil orgillic horizon and moderately well drained.	18.113	8.32
Fine, Mixed, Uttic Paleustalfs Very deep imperfectly drained coarse loamy soil occurring on very gently sloping to undulating directed upland with loamy surface and moderate erosion	1.869	0.86
Fine Loamy Typic Haplustepts Very deep dark reddish brown to dark brown colour. Sandy clay subsoil texture and moderately well drained.	29.132	13.38
Mixed Fine loamy, Typic Ustarthents Loamy surface and moderate erosion associated with deep, moderately well drained loamy soil	103.3	47.46
Loamy-Skeletal, Uttic Haplustalfs Very deep dark brown to dark reddish brown colour loamy sand to sandy clay loam texture with subsoil orgillic horizon and imperfectly drained	64.342	29.56

4.5. Calculation of soil loss

Soil loss has been calculated using Revised Universal Soil Loss Equation (RUSLE) model. The model equation is given below. which is computed by the following equation:

$$A = R \times K \times LS \times C \times P$$

Where, A is soil loss (Tonnes/ha/year); R is rainfall &runoff erosivity factor (MJ/ha/mm/year), which depends upon the annual average rainfall in mm; K is erodibility factor (Tons/MJ/mm), which depends on the organic matter, texture permeability and profile structure of the soil; LS is

topographic factor (dimensionless), which depends upon flow accumulation and steepness and length of slope in the area; C is vegetation cover and crop management factor (dimensionless), which is the ratio of bare soil to vegetation and non- photosynthetic material; and P is support practice factor (dimensionless), which takes into account specific erosion control practices like contour bunding, bench terracing etc. This factor is taken as 1 for bare soil where no erosion control practice is taking place.The values of the R, K, LS, C and P of the catchment are shown in Figure 6-10. This calculation enables to produce soil erosion intensity mapping unit (EIMU) which will be used for calculation of silt yield index. EIMU is a composite expression of physiography, land use, and conservation practices adopted. While computing soil erosion intensity in a catchment all the factors (physiography, land use, and conservation practices) are already taken into consideration. Therefore, EIMUs are assumed as per the soil erosion intensity in the sub-catchment. The six classes of EIMUs have been used, which are mentioned in Table 5.

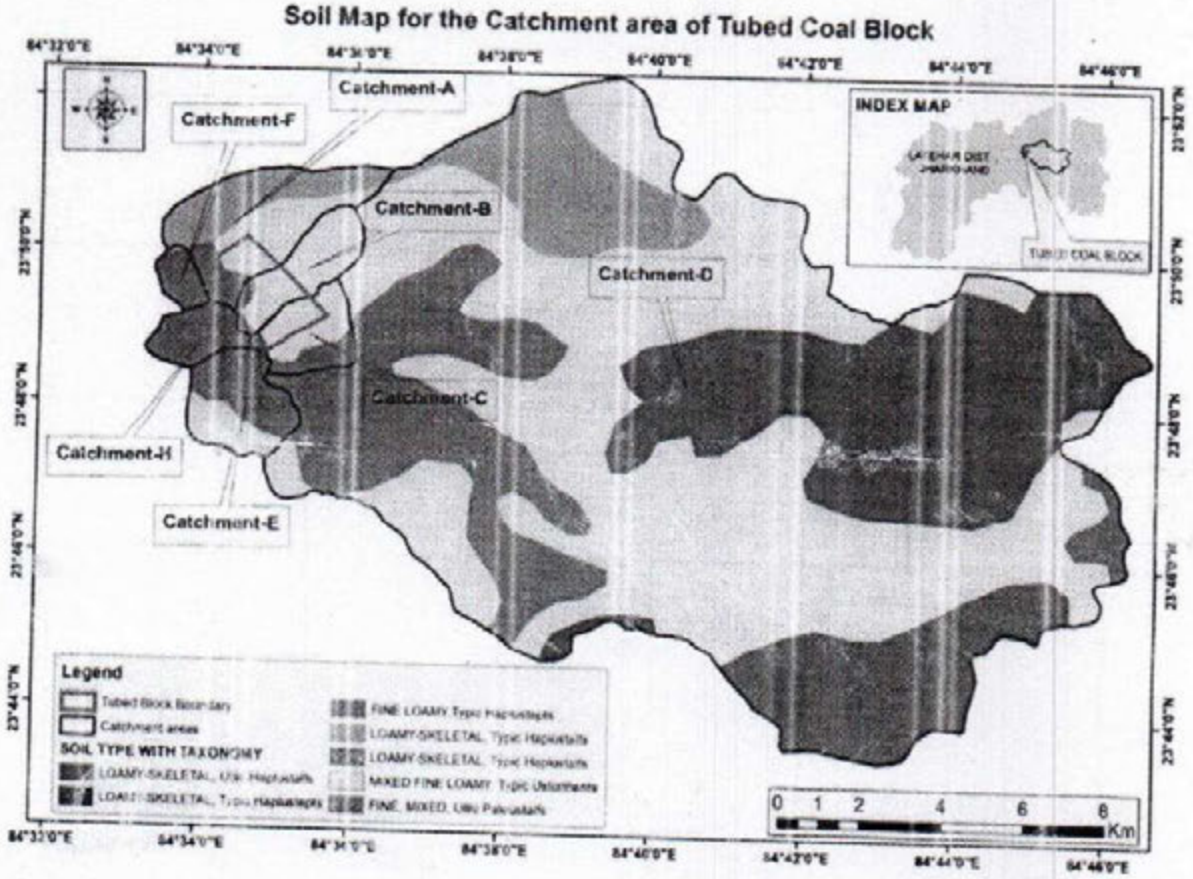

Figure 5: Soil map of Surki river catchment under Tubed Coal Block

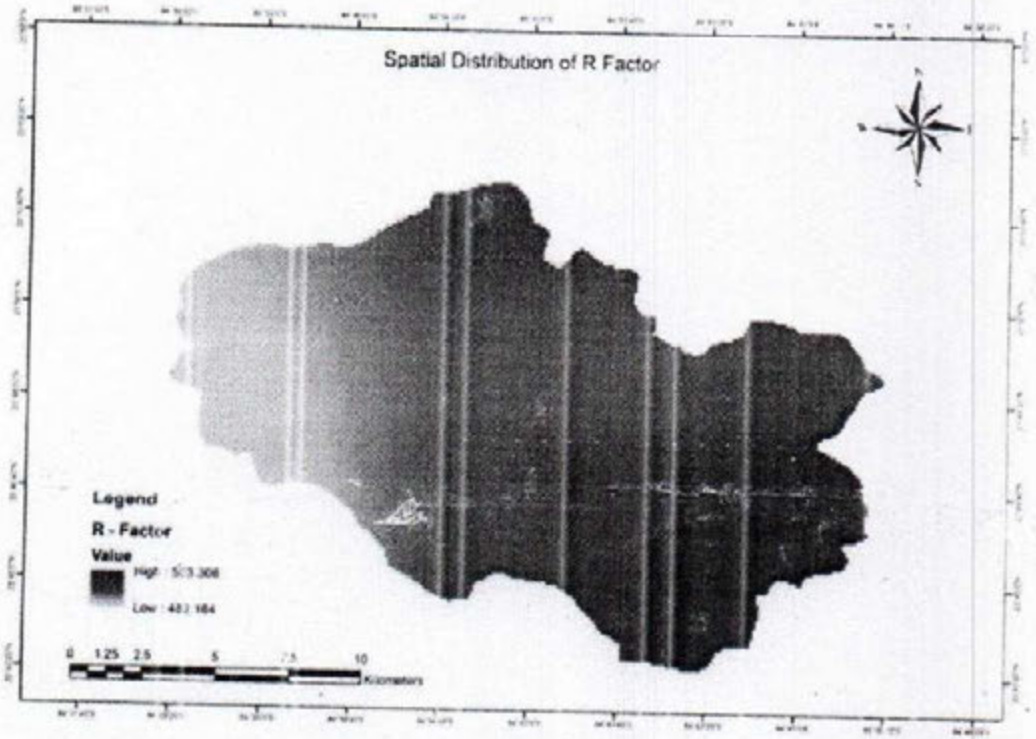

Figure 6: R factor for the Surki river catchment under Tubed Coal Block

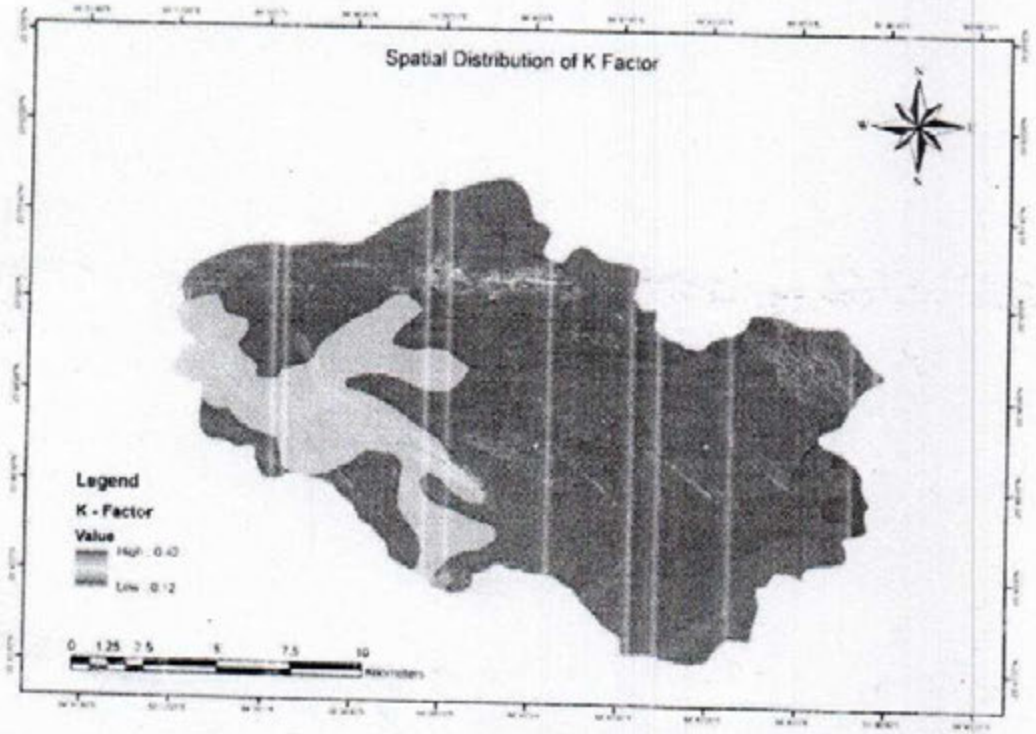

Figure 7: K factor for the Surki river catchment under Tubed Coal Block

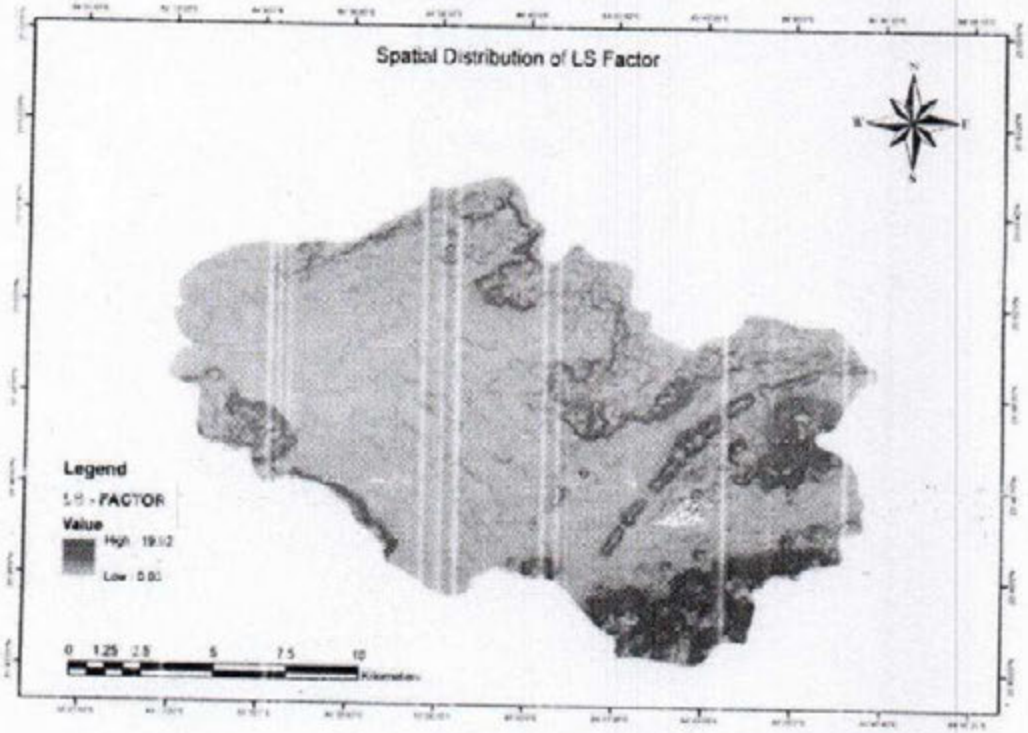

Figure 8: LS factor for the Surki river catchment under Tubed Coal Block

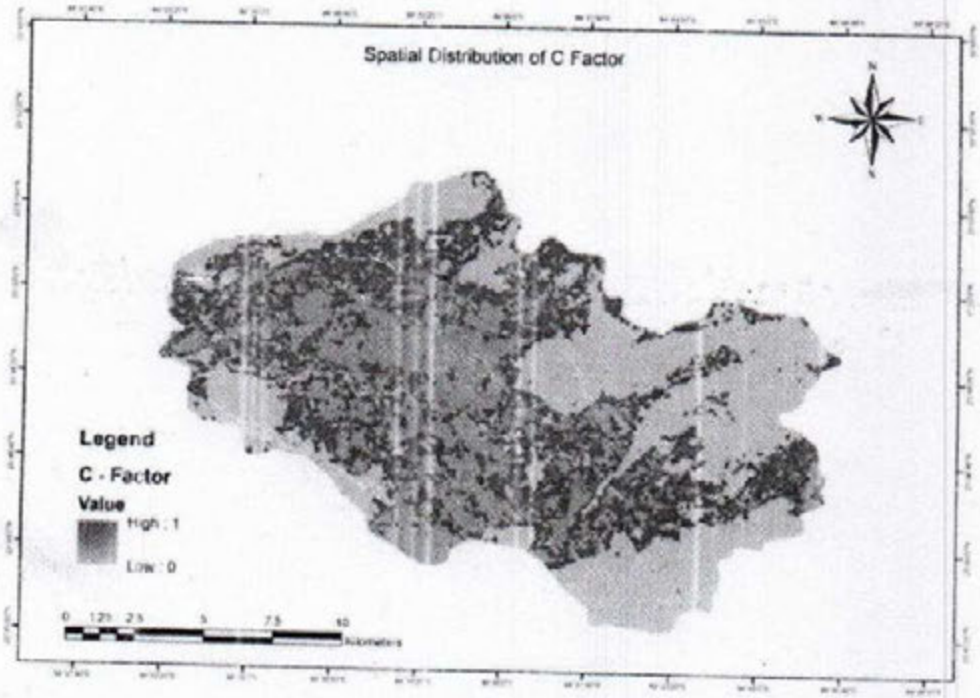

Figure 9: C factor for the Surki river catchment under Tubed Coal Block

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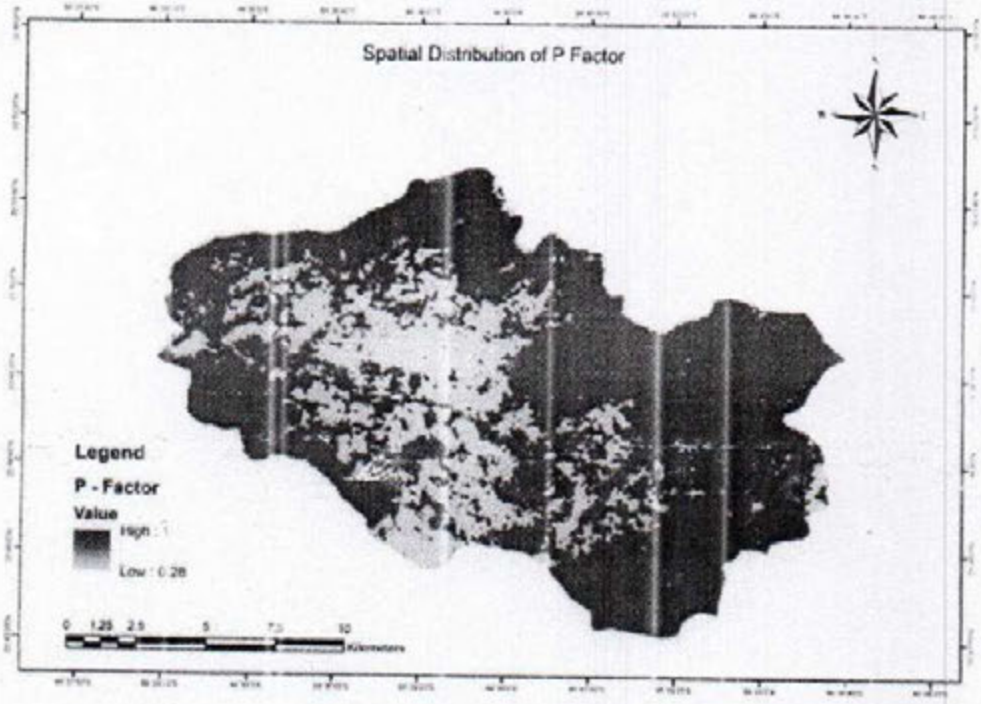

Figure 10: P factor for the Surki river catchment under Tubed Coal Block

Table 5: EIMU classification

EIMU code	Soil erosion intensity
1	Very Severe
2	Severe
3	Moderate
4	Low
5	VeryLow
6	Negligible/ Slight

4.5. Calculation of silt yield index (SYI)

The SYI conceptualizes sediment delivery into the water body as a multiplicative function of potential soil detachment representing the erosivity factor (weightage value) and transportability of the detached material (delivery ratio value).

Silt yield index (SYI) was calculated using following empirical formula:

$$SYI = \frac{\sum A_i W_i D_i}{A_w} \times 100$$

Where, i = 1 to n

Ai = area of i^{th} unit (EIMU)

Wi = weightage value of i^{th} unit

N = No. of mapping unit

Aw = total area od catchment

Di = Delivery ratio

Delivery ratios are assigned to all erosion intensity units depending upon their distance from the nearest stream. The criteria adopted for assigning the delivery ratio are as follows:

Table 6: Delivery ration

Nearest Stream	Delivery ratio
0 - 0.9 km	1.00
1.0 - 2.0 km	0.95
2.1 - 5.0 km	0.90
5.1 - 15.0 km	0.80
15.1 - 30.0 km	0.70

Weightage values are assigned to the erosion intensity unit depending upon the soil erosion intensity and delivery ratio in a sub-watershed. Higher the soil erosion intensity and delivery ratio in the sub-watershed higher is the weightage value assigned to the erosion mapping unit. The weightage value assigned to erosion mapping unit in a sub- watershed range from 11-19. The SYI values for classification of various categories of erosion intensity rates are given in Table 7.

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Table 7: Criteria for erosion intensity rate

Priority categories	SYI Values
Very high	> 1300
High	1200-1299
Medium	1100-1199
Low	1000-1099
Very Low	<1000

5. Estimate of soil erosion

A thematic map for soil erosion of the catchment area has been prepared using RUSLE model mentioned in the previous sections. The catchment was then demarcated into different soil erosion intensity classes based upon the extent of soil loss (see Table 8 & 9and Figure 11& 12).

Table 8: Soil loss ranges for Surki river catchment area

Sl.No.	Soil loss in tons/hectare/annum	Soil Erosion Intensity	Area (ha)	Area (%)
1	1-5	Slight	15150.96	69.60
2	5-10	Very Low	1113.46	5.15
3	10-20	Low	1488.03	6.83
4	20-40	Moderate	1776.15	8.15
5	40-80	Severe	1636.732	7.51
6	>80	Very Severe	601.6525	2.76
		Total	**21767**	**100**

Table 9: Sub-watershed wise area under each EIMU class

Sub-Watershed	A	B	C	D	E	F	H	TOTAL
EIMU Code	Area (ha)							
1	59.6061	33.3836	15.5428	459.539	12.3143	11.7647	9.50147	601.6525
2	72.6705	31.6662	14.5400	1312.97	143.667	24.4008	36.8182	1636.732
3	91.4505	25.7909	12.5345	1444.27	155.981	8.71459	37.4120	1776.15
4	66.1383	16.9780	7.0193	1312.97	53.3619	5.44662	26.1290	1488.043
5	52.2574	30.4618	10.0276	984.727	8.20952	9.36819	18.4091	1113.46
6	507.877	227.719	266.735	13851.8	143.667	40.3050	112.83	15150.96
TOTAL	850	366	326.4	19366.3	517.2	100	241.1	21767

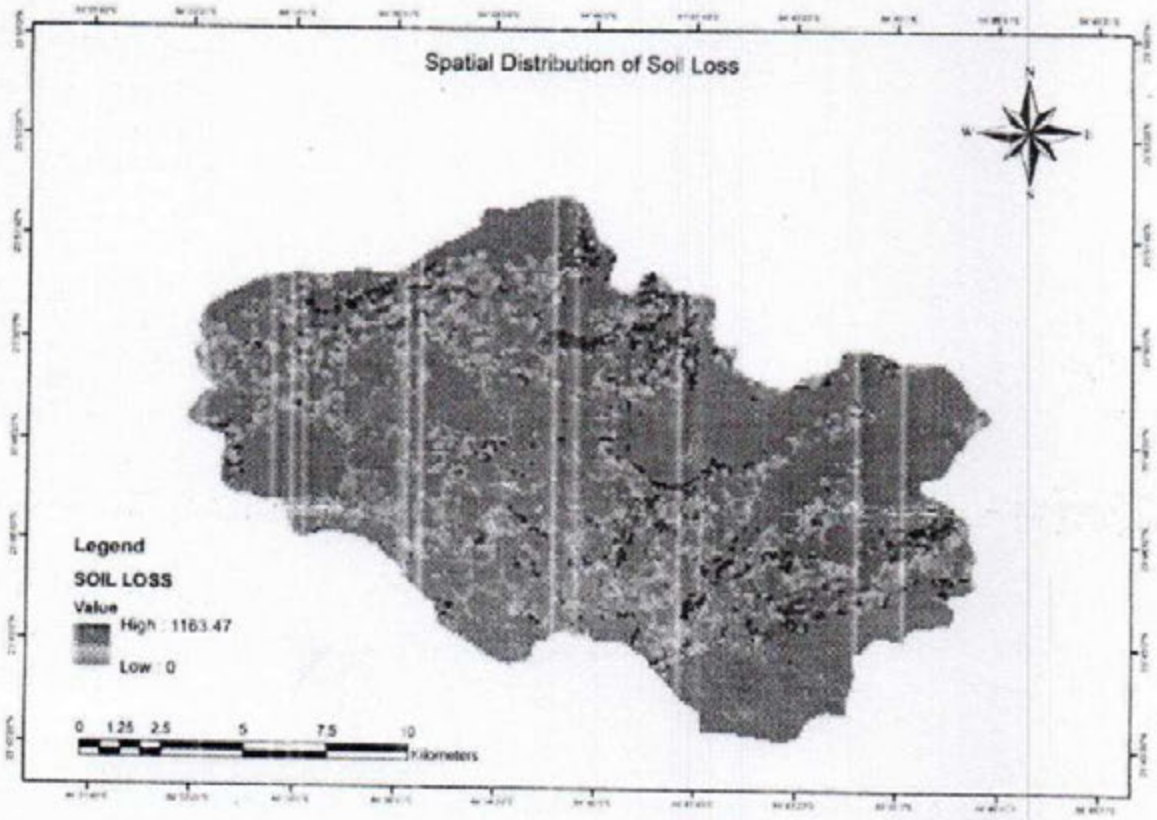

Figure 11: Soil loss map of Surki river catchment area under Tubed Coal Block

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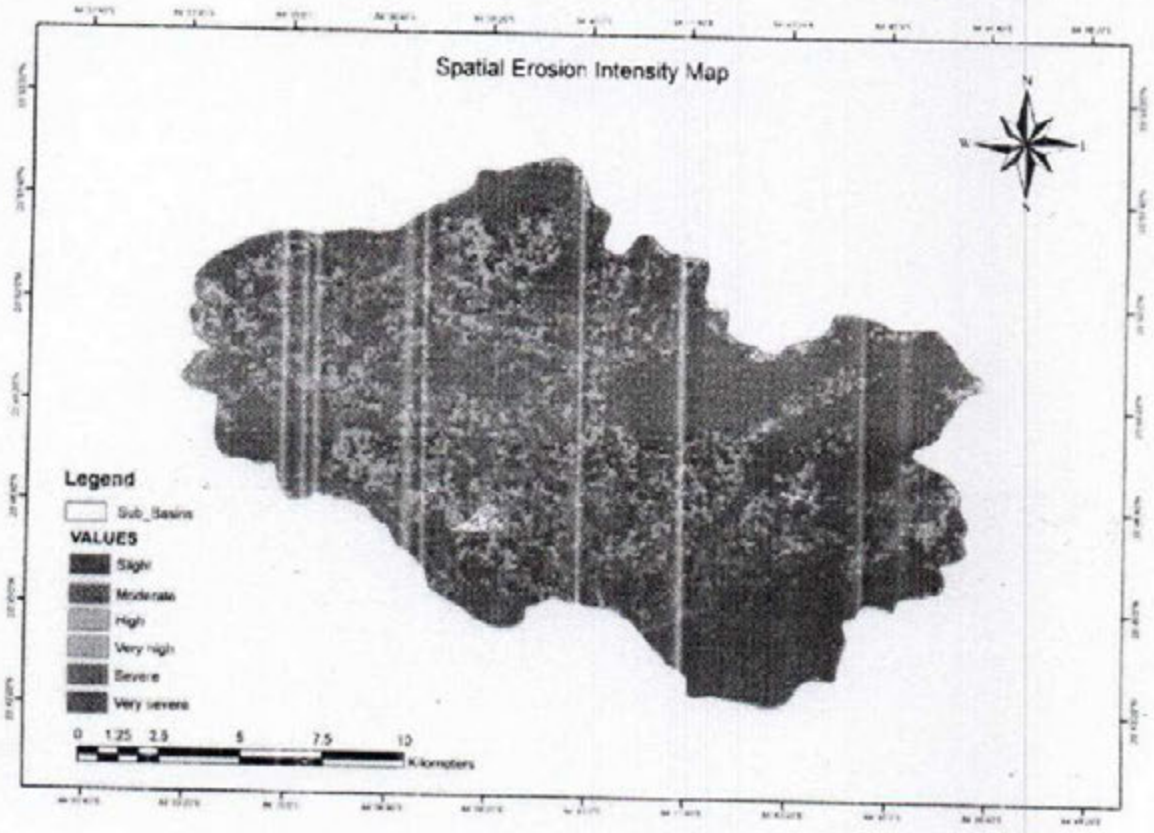

Figure 12: Soil erosion intensity map of Surki river catchment area under Tubed Coal Block

6. Estimation of soil loss using silt yield index (SYI) method

The SYI index as per erosion category of various sub-watersheds in the catchment area has been estimated and given in **Table 10**.

The erosion category of various sub-watersheds in the catchment area as per the SYI index are shown in the table mentioned above. The objective of the SYI method is to prioritize sub-watershed in a catchment area for treatment. The sub-watersheds with high and medium priority category in the catchment are required to be treated on priority basis; however, the area under severe and very severe soil erosion category in all the sub-watersheds need to be taken up for treatment measures. Thus, the prioritization will help in understanding which sub-watershed to be taken for priority during the 10 year CAT plan

comprising of 4 years of implementation and 6 years of maintenance.

Hence, under the CAT plan implementation, the sub-watersheds would be treated as per the priority defined in **Table 11.**

Table 10: SYI Index as per Erosion Category of Sub-Watersheds

Sub-Watershed	EIMU	EIMU Area (ha) (EA)	Weightage factor (WF)	Silt Yield (SY) = EA * (WF)	Delivery Ratio (DR)	SYI = (SY*DR*100)/SA
A	1	59.60615	18	1072.91	0.9	1281
	2	72.67051	17	1235.4		
	3	91.45053	16	1463.21		
	4	66.13833	15	992.075		
	5	52.25744	14	731.604		
	6	507.877	13	6602.4		
Total		**850**		**12097.6**		**1281**

Sub-Watershed	EIMU	EIMU Area (ha) (EA)	Weightage factor (WF)	Silt Yield (SY) = EA * (WF)	Delivery Ratio (DR)	SYI = (SY*DR*100)/SA
B	1	33.38366	16	534.139	0.9	1097
	2	31.66627	15	474.994		
	3	25.79099	14	361.074		
	4	16.97806	13	220.715		
	5	30.46108	12	365.533		
	6	227.7199	11	2504.92		
Total		**366**		**4461.37**		**1097**

Sub-Watershed	EIMU	EIMU Area (ha) (EA)	Weightage factor (WF)	Silt Yield (SY) = EA * (WF)	Delivery Ratio (DR)	SYI = (SY*DR*100)/SA
C	1	15.54286	18	279.771	0.9	1224
	2	14.54009	17	247.182		
	3	12.53456	16	200.553		
	4	7.019355	15	105.29		
	5	10.02765	14	140.387		
	6	266.7355	13	3467.56		
Total		**326.4**		**4440.74**		**1224**

Sub-Watershed	EIMU	EIMU Area (ha) (EA)	Weightage factor (WF)	Silt Yield (SY) = EA * (WF)	Delivery Ratio (DR)	SYI = (SY*DR*100)/SA
D	1	459.5393	17	7812.17	0.9	1152
	2	1312.969	16	21007.5		
	3	1444.266	15	21664		
	4	1312.969	14	18381.6		
	5	984.7271	13	12801.5		
	6	13851.83	12	166222		
Total		**19366.3**		**247889**		**1152**

Sub-Watershed	EIMU	EIMU Area (ha) (EA)	Weightage factor (WF)	Silt Yield (SY) = EA * (WF)	Delivery Ratio (DR)	SYI = (SY*DR*100)/SA
	1	12.31429	15	184.714		

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E	2	143.6667	14	2011.33	0.9	1112
	3	155.981	13	2027.75		
	4	53.3619	12	640.343		
	5	8.209524	11	90.3048		
	6	143.6667	10	1436.67		
Total		**517.2**		**6391.11**		**1112**

Sub-Watershed	**EIMU**	**EIMU Area (ha) (EA)**	**Weightage factor (WF)**	**Silt Yield (SY) = EA * (WF)**	**Delivery Ratio (DR)**	**SYI = (SY*DR*100)/SA**
F	1	11.76471	17	200	0.9	1262
	2	24.40087	16	390.414		
	3	8.714597	15	130.719		
	4	5.446623	14	76.2527		
	5	9.368192	13	121.786		
	6	40.30501	12	483.66		
Total		**100**		**1402.83**		**1262**

Sub-Watershed	**EIMU**	**EIMU Area (ha) (EA)**	**Weightage factor (WF)**	**Silt Yield (SY) = EA * (WF)**	**Delivery Ratio (DR)**	**SYI = (SY*DR*100)/SA**
H	1	9.501478	15	142.522	0.9	1040
	2	36.81823	14	515.455		
	3	37.41207	13	486.357		
	4	26.12906	12	313.549		
	5	18.40911	11	202.5		
	6	112.83	10	1128.3		

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Total		**241.1**		**2788.68**		**1040**

Table 11: Erosion Intensity Categorization as per SYI Classification

Sub-watershed	SYI	Priority Number
High		
A	1280	1
F	1262	2
C	1224	3
Medium		
D	1152	4
E	1112	5
Low		
B	1097	6
H	1040	7

7. Treatable area

The treatment measures are to be taken up in the areas which are prone to Very Severe and Severe erosion in all the sub-watersheds falling in different priority categories (Table 12). Therefore, under the Catchment Area Treatment plan an area of 2238 hectare will be taken up for treatment.

Table 12: Sub-watershed wise area under Severe and Very Severe Erosion Category

Sub-Watershed	Erosion Intensity Category		Total (ha)
	Very Severe (ha)	Severe (ha)	
A	59.61	72.67	132.28
B	11.76	24.4	36.16
C	9.5	36.8	46.3
D	459.53	1312.97	1772.5
E	15.54	14.54	30.08
F	12.31	143.67	155.98

H	33.38	31.67	65.05
Total	601.63	1636.72	2238.35

8. Catchment treatment plan

8.1. Treatment measure

Watershed management is the optimal use of soil and water resources within a given geographical area so as to enable sustainable production. It implies changes in land use, vegetative cover, and other structural and non-structural action that are taken in a watershed to achieve specific watershed management objectives. The overall objectives of watershed management programme are to:

- increase infiltration into soil;
- control excessive runoff;
- Manage & utilize runoff for useful purpose.

Following Engineering and Biological measures have been suggested for the catchment area treatment.

1. Engineering measures

- Step drain
- Angle iron barbed wire fencing
- Stone masonry
- Check dams

2. Biological measures

- Development of nurseries
- Plantation/afforestation
- Pasture development
- Social forestry

The basis of site selection for different biological and engineering treatment measures under CAT are given in Table 13.

Table13: Basis for selection of catchment area treatment measures

Treatment measure	Basis for selection
Social forestry, fuel wood and fodder grass development	Near settlements to control tree felling
Contour Bunding	Control of soil erosion from agricultural fields.
Pasture Development	Open canopy, barren land, degraded surface
Afforestation	Open canopy, degraded surface, high soil erosion, gentle to moderate slope
Barbed wire fencing	In the vicinity of afforestation work to protect it from grazing etc.
Step drain	To check soil erosion in small streams, steps with concrete base are prepared in sloppy area where silt erosion in the stream and bank erosion is high due to turbidity of current.
Nursery	Centrally located points for better supervision of proposed afforestation, minimize cost of transportation of seedling and ensure better survival.

The various measures suggested for catchment area treatment are mentioned in Table 14, expenses of which have to be borne by the project proponents.

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Table 14: Sub-Watershed wise details of various treatment measures

Sl. No.	Sub-Watershed	Afforestation (Ha)	Gap Plantation (Ha)	Check Dams (Nos)	Brushwood Check bunds (Nos)	Contour Bunding (Nos)
1	A	29	65	5	25	5
2	B	5	17	3	25	5
3	C	4	22	2	10	5
4	D	229	885	40	400	70
5	E	7	14	3	20	5
6	F	6	77	2	10	5
7	H	16	31	5	10	5
Total		**300**	**1118**	**60**	**500**	**100**

8.2. Year-wise Phasing of Treatment Measures

The year-wise detail of all biological as well as engineering treatment measures required in different sub-watersheds is given in **Table 15**. First year is kept or earmarked for nursery development so that the biological treatment activities are smoothly undertaken.

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Table 15: Year-wise Physical and financial details of various treatment measures

S. No.	Treatment Measures	I Year		II Year		III Year		IV Year		Total	
		Phy.	Fin. (Rs)	Phy.	Fin. (Rs)	Phy.	Fin. (Rs)	Phy.	Fin. (Rs)	Phy.	Fin. (Rs)
1	Afforestation (Ha)			200	20000000	50	5000000	50	5000000	300	30000000
2	Gap Plantation (Ha)			618	30900000	250	12500000	250	12500000	1118	55900000
3	Brushwood Check Dams (Nos.)			300	3000000	100	1000000	100	1000000	500	5000000
4	Check Dams (Nos.)			30	6000000	15	3000000	15	3000000	60	12000000
5	Contour Bunding (Nos.)			50	1750000	30	1050000	20	700000	100	3500000
TOTAL				1198	61650000	445	22550000	435	22200000	2078	106400000

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8.3. Cost Estimates

The estimated cost required for Catchment Area Treatment is **Rs. 1169 lakh**. The details are given in **Table 16**.

Table 16: Estimated cost of CAT Plan Implementation

S. No.	Item	Amount (Rs.)
1	Biological Measures	8,59,00,000.00
2	Maintenance cost for 6 years including watch & ward @ Rs. 5.00 lakh per year	30,00,000.00
3	Nursery Development	25,00,000.00
	Sub-Total I (1 - 3)	**9,14,00,000.00**
4	Engineering Measures	2,05,00,000.00
5	Silt Observation Units	50,00,000.00
	Sub-total II (4-5)	**2,55,00,000.00**
	Total I + II	**11,69,00,000.00**

9. References

1. Mining Plan of Tubed Coal Mines Limited (2009), V.K.Singh, Geomin Consultants (Pvt.) Ltd.

2. Soil Erosion Jharkhand (2014), Technical Bulletin, NBSSS Publ 159, National Bureau of Soil Survey and Land Use Planning.

3. Engineering Hydrology by K. Subramanya, Tata McGraw-Hill Publishing Company Limited, 2009.

4. Assessment of soil erosion by RUSLE model using remote sensing and GIS - A case study of Nethravathi Basin (2016), B.P. Ganasri, H. Ramesh, Geoscience Frontiers, Volume 7 , page 953 -961.

5. Fundamental Study on Assessment of Soil Erosion by the USLE Method at Rehabilitation Area in Indonesian Coal Mine (2015), Naoya Inoue, Akihiro Hamanaka et al. Earth Science Research, Vol. 4,No. 1,

6. Jha, V. C., and Kapat, S. (2009). Rill and Gully Erosion Risk of Lateritic Terrain in South-Western Birbhum District, West Bengal, India. Soc. Nat., 21(2), 141-158.

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7. Saha, S. K. (2003). Water and wind induced soil erosion assessment and monitoring using remote sensing and GIS. Satellite remote sensing and GIS applications in agricultural meteorology, 315.

8. Jain, S. K., Kumar, S., and Varghese, J. (2001). Estimation of soil erosion for a Himalayan watershed using GIS technique. Water Resources Management, 15(1), 41-54.

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No. HQ/Mining/Tubed/FC/193(XX) Dated: 13.02.2020

Annexure- XX

UNDERTAKING

TUBED COAL MINE

This is to certify that, Damodar Valley Corporation (DVC), a corporation constituted under DVC Act, 1948 (Act. No. XIV of 1948), undertake to deposit the cost towards Surveillance and Monitoring system for the forest hinterland of the project area as advised by the State Govt. This is in connection of the fulfilment of Condition No. xx of the Stage-I Clearance, for diversion of 162.394 ha forest land in Latehar Forest Division, Dist. Latehar, Jharkhand.

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Annexure- XXI

UNDERTAKING

TUBED COAL MINE

This is to certify that, Damodar Valley Corporation (DVC), a corporation constituted under DVC Act, 1948 (Act. No. XIV of 1948), undertake to explore the possibility of translocation of existing native trees from the project site work in consultation with State Forest Department. This is in connection of the fulfilment of Condition No. xxi of the Stage-I Clearance, for diversion of 162.394 ha forest land in Latehar Forest Division, Dist. Latehar, Jharkhand.

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Annexure- XXII

UNDERTAKING

TUBED COAL MINE

This is to certify that, Damodar Valley Corporation (DVC), a corporation constituted under DVC Act, 1948 (Act. No. XIV of 1948), undertake to submit the annual self -compliance report in respect of the conditions of Stage-I clearance to the State Government, concerned Regional Office and to this Ministry by the end of March every year regularly. This is in connection of the fulfilment of Condition No. xxii of the Stage-I Clearance, for diversion of 162.394 ha forest land in Latehar Forest Division, Dist. Latehar, Jharkhand.

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Annexure- XXIII

UNDERTAKING

TUBED COAL MINE

This is to certify that, Damodar Valley Corporation (DVC), a corporation constituted under DVC Act, 1948 (Act. No. XIV of 1948), undertake to comply all the provisions of the 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. This is in connection of the fulfilment of Condition No. xxiii of the Stage-I Clearance, for diversion of 162.394 ha forest land in Latehar Forest Division, Dist. Latehar, Jharkhand.

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Form - II

Anexxure - II

(for projects other than linear projects)

GOVT. OF JHARKHAND

OFFICE OF THE DEPUTY COMMISSIONER, LATEHAR

No 21

Dated 22.12.2018

TO WHOMSOEVER IT MAY CONCERN

In Compliance of the Ministry of Envoirment and Forest (MOEF), Govt. of India's letter no. 11- 9/98- FC (pt), dated 3rd August 2009 wherein the MOEF issued guidelines on submission of eviedences for having initiated and completed the process of settelement of rights under the Scheduled Tribes and Other Traditional Forest Dewellers (Recognition of Forest Rights) Act, 2006 ('FRA' for short) on the forest land proposed to be diverted for non-forest purposes, it is certified that **134.34 Acre (54.365 Hectare) of Forest Land** and **266.94 Acre (108.029 Hectare) of Jungle Jhari Land** proposed to be diverted in favour of **Damodar Valley Corporation for mining at Tubel Coal Mine** in Latehar District falls within jurisdiction of **Mangra, Tubed, Dihi, Dhobiyajharan & Ambajharan** villages in Latehar Tehsil. (Enclosure – Attached)

It is further certified that,

a) the complete process for identification and settlement of rights under the FRA has been carried out for the entire **134.34 Acre (54.365 Hectare) of Forest Land** and **266.94 Acre (108.029 Hectare) of Jungle Jhari Land Total- 401.28 Acre (162.394 Hectare)** area 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 annexure .... to annexure ....

b) the proposal for such diversion (with full details of the project and its implications, in vernacular/ local language) have been placed before each concerned Gram Sabha of forest-dwellers, who are eligible under the FRA;

c) the each of concerned Gram Sabha(s), has certified that all formalities/ processes 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. A copy of certificate issued by the gram sabha of Mangra, Tubed, Dihi, Dhobiyajharan & Ambajharan villages(s) is enclosed as annexure .... to annexure .....

d) the discussion and decisions on such proposals had taken pace only when there was a quorum of minimum 50% of the members of Gram Sabha 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 been 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) (e) of the FRA.

Encl :- As above

22/12/18

Deputy Commissioner.

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उप मुख्य अभियंता (यां), ईंधन

ग्रामवार भूमि की विवरणी :–

क्र0	अंचल	ग्राम	थाना सं0	खाता सं0	प्लॉट सं0	रकबा (एकड़ में)	
						वन भूमि	गैर–मजरूआ जंगल–झाड़ी भूमि
1	2	3	4	5	6	7	8
1	लातेहार	मंगरा	330	25	3	–	11.20
					6	–	7.99
					10	–	4.31
					13	–	6.37
					17	–	0.87
					19	–	0.30
					22	–	0.66
					28	0.70	1.23
					29	21.20	1.01
					76	–	1.66
					80	–	1.20
					योग :	**21.90**	**36.80**
2	लातेहार	तुबेद	333	30	6	8.40	0.08
					12	–	0.24
					17	13.70	4.53
					293	–	7.35
					467	–	15.00
					513	7.70	4.54
					536	–	10.80
					538	–	1.35
					545	–	1.74
					548	–	0.09
					552	–	0.56
					योग :–	**29.80**	**46.23**
3	लातेहार	डीही	334	91	14	2.91	0.01
					15	36.95	0.55
					22	–	4.03
					24	2.50	12.15
					25	8.60	11.40
					28	28.30	2.23
					29	0.16	–
					30	3.22	–
					योग :–	**82.64**	**30.37**
4	लातेहार	धोबियाझारन	336	43	3	–	1.43
					19	–	0.68
					24	–	5.32
					33	–	0.42
					35	–	0.14
					38	–	0.02
					40	–	0.06
					43	–	0.17
					46	–	0.41
					48	–	0.52

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4	लातेहार	धोबियाझारन	336	43	56	–	6.15
					62	–	1.07
					70	–	1.14
					79	–	0.03
					82	–	7.92
					103	–	1.80
					105	–	8.66
					167	–	1.70
					184	–	0.12
					196	–	0.09
					199	–	0.10
					205	–	0.23
					208	–	0.04
					213	–	0.04
					227	–	0.05
					229	–	0.09
					231	–	0.03
					232	–	0.02
					238	–	0.12
					291	–	10.50
					293	–	11.70
					352	–	9.46
					355	–	~~3.40~~ 3.40
					योग :–	–	77.28
5	लातेहार	अम्बाझारन	335	1	1	–	51.65
					2	–	11.60
					130	–	8.68
					134	–	4.33
					योग :–	–	76.26
						. 134.34 ए0	266.95 ए0
कुल योग :– 134.34+266.94 = 401.28 एकड़							

Deputy Commissioner,
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150 YEARS OF CELEBRATING THE MAHATMA

No. HQ/Mining/Tubed/FC/193(XXV) Dated: 13.02.2020

Annexure- XXV

UNDERTAKING

TUBED COAL MINE

This is to certify that, Damodar Valley Corporation (DVC), a corporation constituted under DVC Act, 1948 (Act. No. XIV of 1948), undertake that DVC will ensure compliance of any other condition that the concerned Regional Office of this Ministry may stipulate, from time to time, in the interest of conservation, protection and development of forests & wildlife; This is in connection of the fulfilment of Condition No. xxv of the Stage-I Clearance, for diversion of 162.394 ha forest land in Latehar Forest Division, Dist. Latehar, Jharkhand.

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Annexure- XXVI

UNDERTAKING
TUBED COAL MINE

This is to certify that, Damodar Valley Corporation (DVC), a corporation constituted under DVC Act, 1948 (Act. No. XIV of 1948), undertake that all the compliance reports will be uploaded on e-portal *(https://parivesh.nic.in/)*. This is in connection of the fulfilment of Condition No. xxvi of the Stage-I Clearance, for diversion of 162.394 ha forest land in Latehar Forest Division, Dist. Latehar, Jharkhand.

Sudhir Mukherjee
Dy. Chief Engineer (Mech), Mining
Damodar Valley Corporation,
D.V.C. Towers, V.I. P. Road,
Kolkata- 700054

DAMODAR VALLEY CORPORATION
D.V.C. TOWERS. V.I.P. ROAD
KOLKATA -700 054
Phone: (033) 6607-2338 email: sudhir.mukherjee@dvc.gov.in

No. HQ/Mining/Tubed/FC/193(XXVII)

Dated: 13.02.2020

Annexure- XXVII

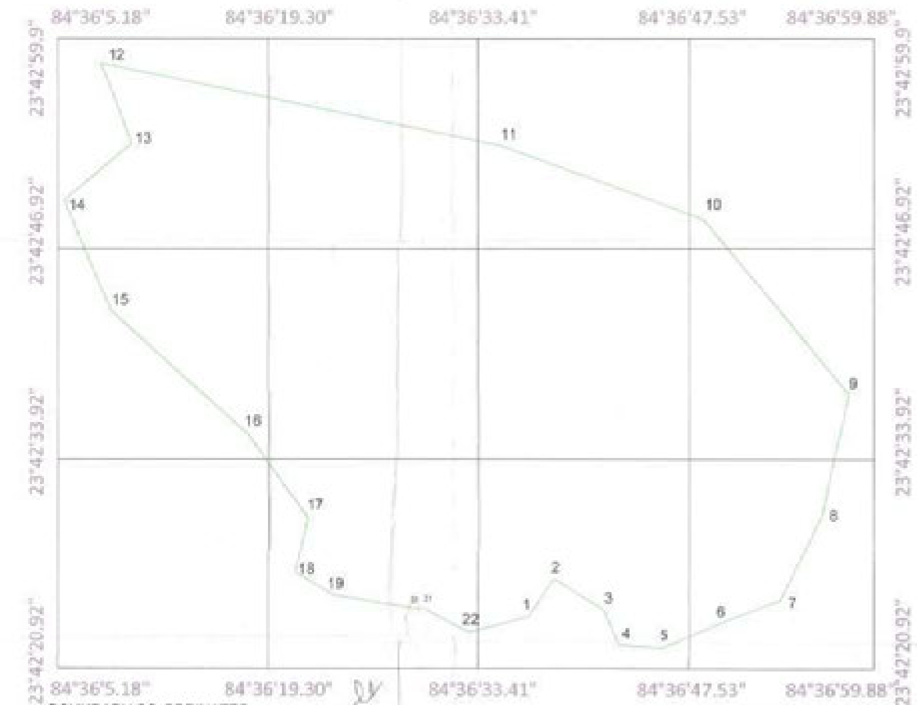
UNDERTAKING

TUBED COAL MINE

This is to certify that, Damodar Valley Corporation (DVC), a corporation constituted under DVC Act, 1948 (Act. No. XIV of 1948), undertake that DVC accepts that violation of any of the conditions of Stage-I Clearance will amount to violation of Forest (Conservation) Act, 1980 and action would be taken as prescribed in pare 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. This is in connection of the fulfilment of Condition No. xxvii of the Stage-I Clearance, for diversion of 162.394 ha forest land in Latehar Forest Division, Dist. Latehar, Jharkhand.

Sudhir Mukherjee
Dy. Chief Engineer (Mech), Mining
Damodar Valley Corporation,
D.V.C. Towers, V.I. P. Road,
Kolkata- 700054

DAMODAR VALLEY CORPORATION
TUBED COAL BLOCK
GEO-REFERENCE MAP SHOWING COMPENSATORY AFFORESTATION AREA.
VILLAGE - SIKNI.



BOUNDARY CO-ORDINATES

POINT	EASTING	NORTHING	LATITUDE	LONGITUDE
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Plot No.:- 442,443,441,440,434, 455,435,433,434,456

SCALE: 0 – 100 – 200 – 300 – 400 – 500 METER

Summarised Report of Plot Schedule						
Sl. No.	Mouza Name	District	Thana Name	Thana No.	Chadar No.	Total area
1	SIKNI	LATEHAR	LATEHAR	271	1	[illegible] Hectare

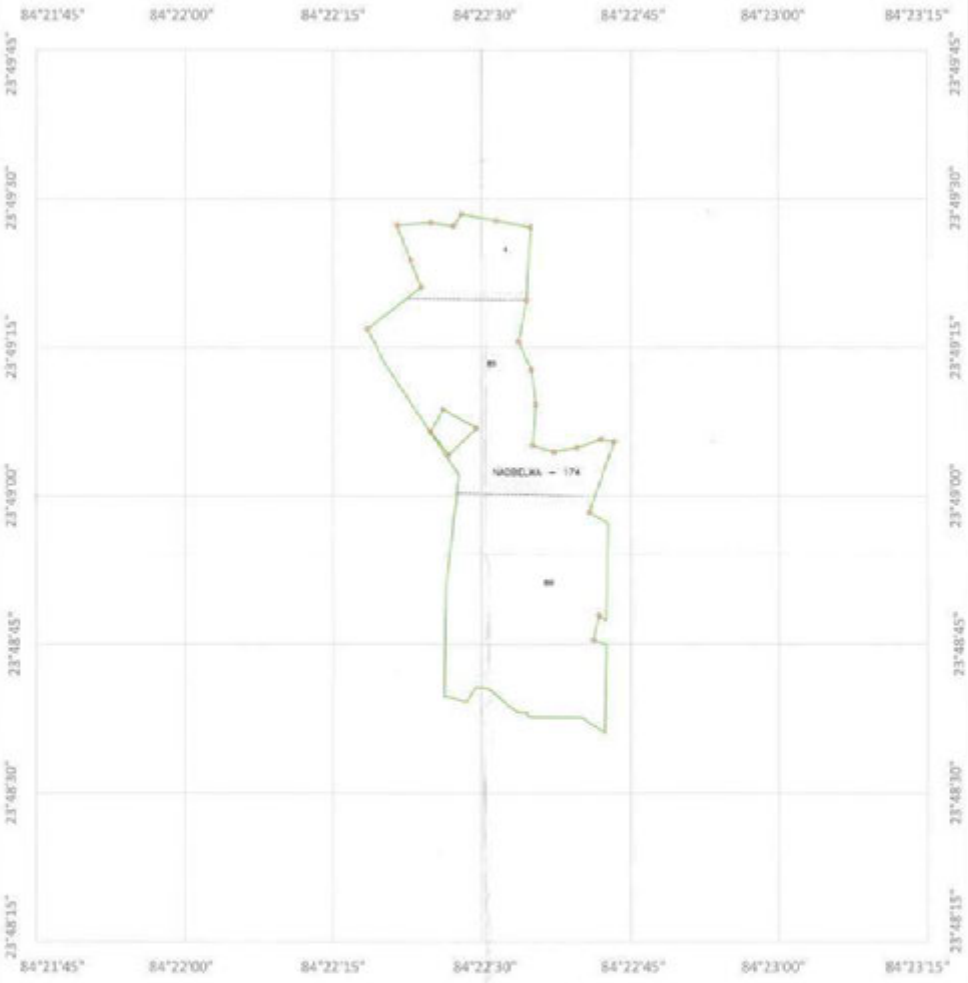
LEGEND	
○ 20	BLOCK BOUNDARY POINT
——	FOREST BOUNDARY

DAMODAR VALLEY CORPORATION
MINING SECTION
DVC TOWERS, VIP ROAD
KOLKATA - 700 054

Project: DAMODAR VALLEY CORPORATION
TUBED COAL BLOCK,
P.S. - LATEHAR, DISTRICT - LATEHAR,
JHARKHAND

SCALE: 1:3998 (1 cm= 39.93 m) | Date :- 05.02.2020
Drg No.: DVC/TUBED/CA/SIKNI/A | Rev.: 00

DAMODAR VALLEY CORPORATION
TUBED COAL BLOCK
GEO-REFERENCE MAP SHOWING COMPENSATORY AFFORESTATION AREA.
VILLAGE - NADBELWA.



500 400 300 200 100 0 500 Meter

LEGEND	
20	BLOCK BOUNDARY POINT
	FOREST BOUNDARY

Summarized Report of Plot Schedule

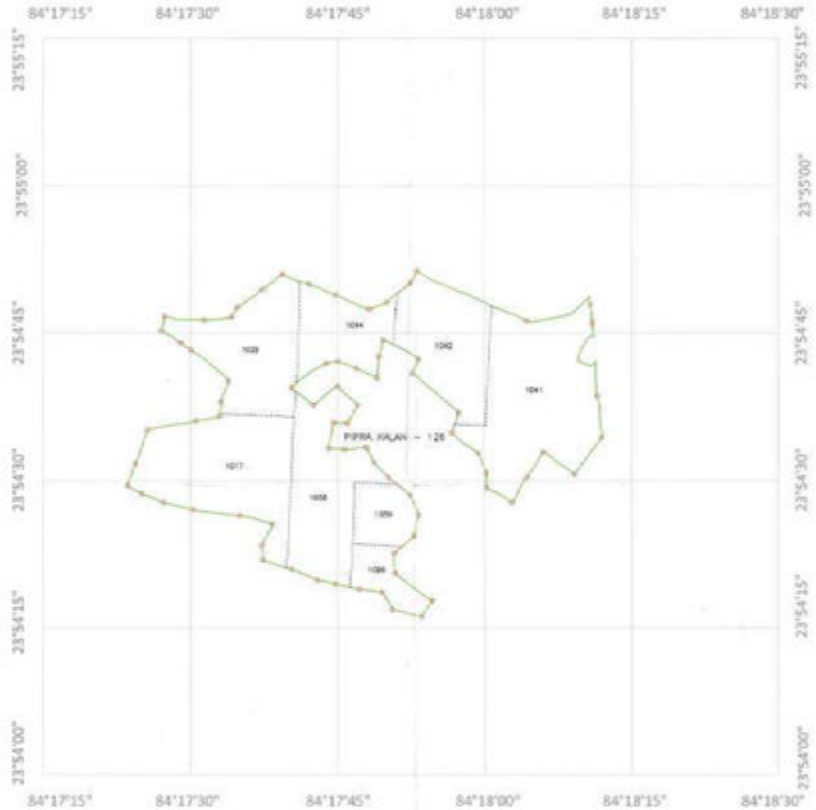
Sl. No.	Mouza Name	District	Thana Name	Thana No.	Chakla No.	Total area.
1	NADBELWA	LATEHAR	LATEHAR	174	1	50 Hectare.

DAMODAR VALLEY CORPORATION
MINING SECTION
DVC TOWERS, VIP ROAD
KOLKATA - 700 054

Project:- DAMODAR VALLEY CORPORATION
TUBED COAL BLOCK,
P.S. - LATEHAR, DISTRICT - LATEHAR,
JHARKHAND.

Scale :- 1:3960 | Date :- 23.02.2018
Dwg. No.:-DVC/TUBED/CA/004 | Rev. :- 00

DAMODAR VALLEY CORPORATION
TUBED COAL BLOCK
GEO-REFERENCE MAP SHOWING COMPENSATORY AFFORESTATION AREA.
VILLAGE - PIPRA KALAN.



LEGEND	
200	BLOCK BOUNDARY POINT
	FOREST BOUNDARY

500 400 300 200 100 0 500 Metre

Summarized Report of Plot Schedule

Sl. No.	Mouza Name	District	Thana Name	Thana No.	Chadar No.	Total area.
1	PIPRA KALAN	LATEHAR	LATEHAR	126	1	50 Hectare.

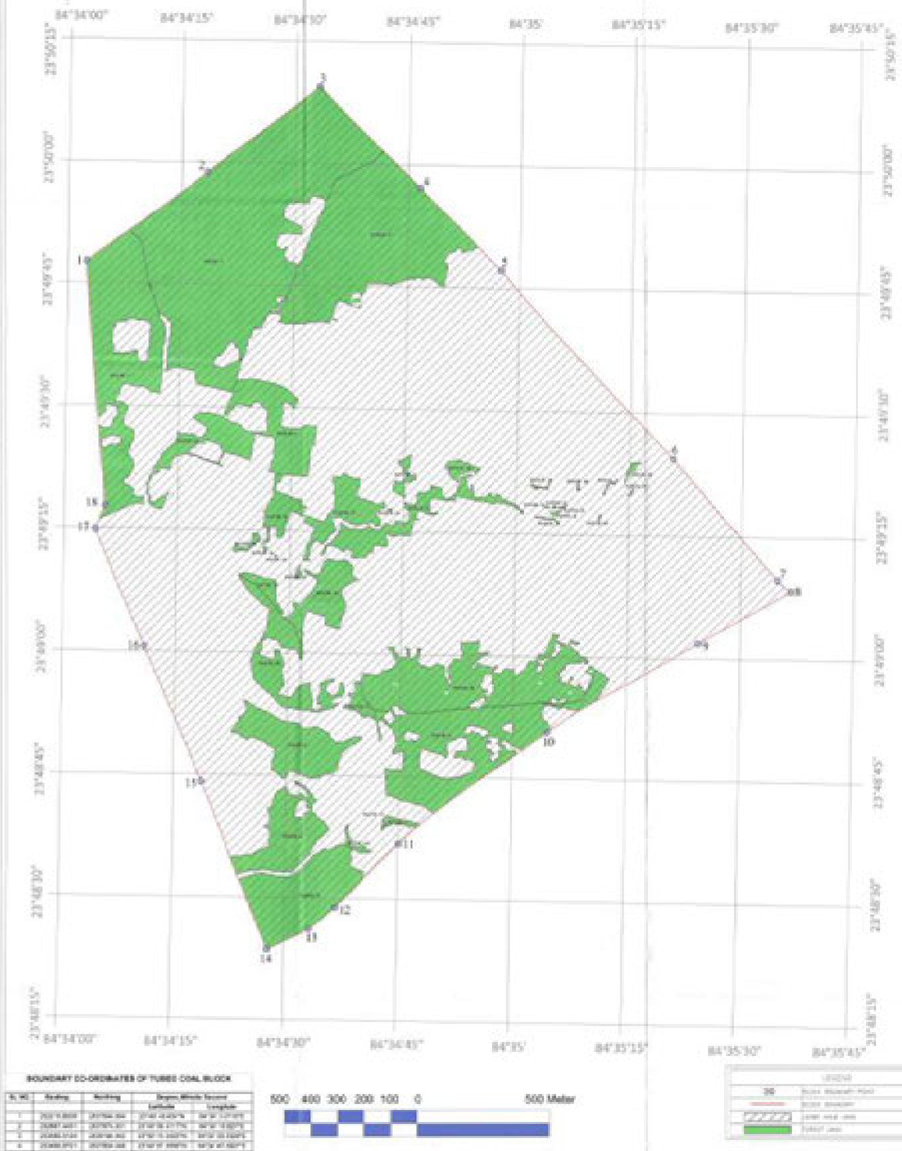
DAMODAR VALLEY CORPORATION
MINING SECTION
DVC TOWERS, VIP ROAD
KOLKATA - 700 054

Project: DAMODAR VALLEY CORPORATION
TUBED COAL BLOCK,
P.S. - LATEHAR, DISTRICT - LATEHAR,
JHARKHAND.

Scale : 1:3960 | Date :- 23.02.2018

Dwg. No.:-DVC/TUBCD/CA/005 | Rev. :- 00

DAMODAR VALLEY CORPORATION
TUBED COAL BLOCK
GEO-REFERENCED BOUNDARY MAP SHOWING THE FOREST AREA.



BOUNDARY CO-ORDINATES OF TUBED COAL BLOCK

SL NO.	Easting	Northing	Degree, Minute Second	
			Latitude	Longitude
1	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	[illegible]	[illegible]
5	[illegible]	[illegible]	[illegible]	[illegible]
6	[illegible]	[illegible]	[illegible]	[illegible]
7	[illegible]	[illegible]	[illegible]	[illegible]
8	[illegible]	[illegible]	[illegible]	[illegible]
9	[illegible]	[illegible]	[illegible]	[illegible]
10	[illegible]	[illegible]	[illegible]	[illegible]
11	[illegible]	[illegible]	[illegible]	[illegible]
12	[illegible]	[illegible]	[illegible]	[illegible]
13	[illegible]	[illegible]	[illegible]	[illegible]
14	[illegible]	[illegible]	[illegible]	[illegible]
15	[illegible]	[illegible]	[illegible]	[illegible]
16	[illegible]	[illegible]	[illegible]	[illegible]
17	[illegible]	[illegible]	[illegible]	[illegible]
18	[illegible]	[illegible]	[illegible]	[illegible]

ABSTRACT OF LAND SCHEDULE

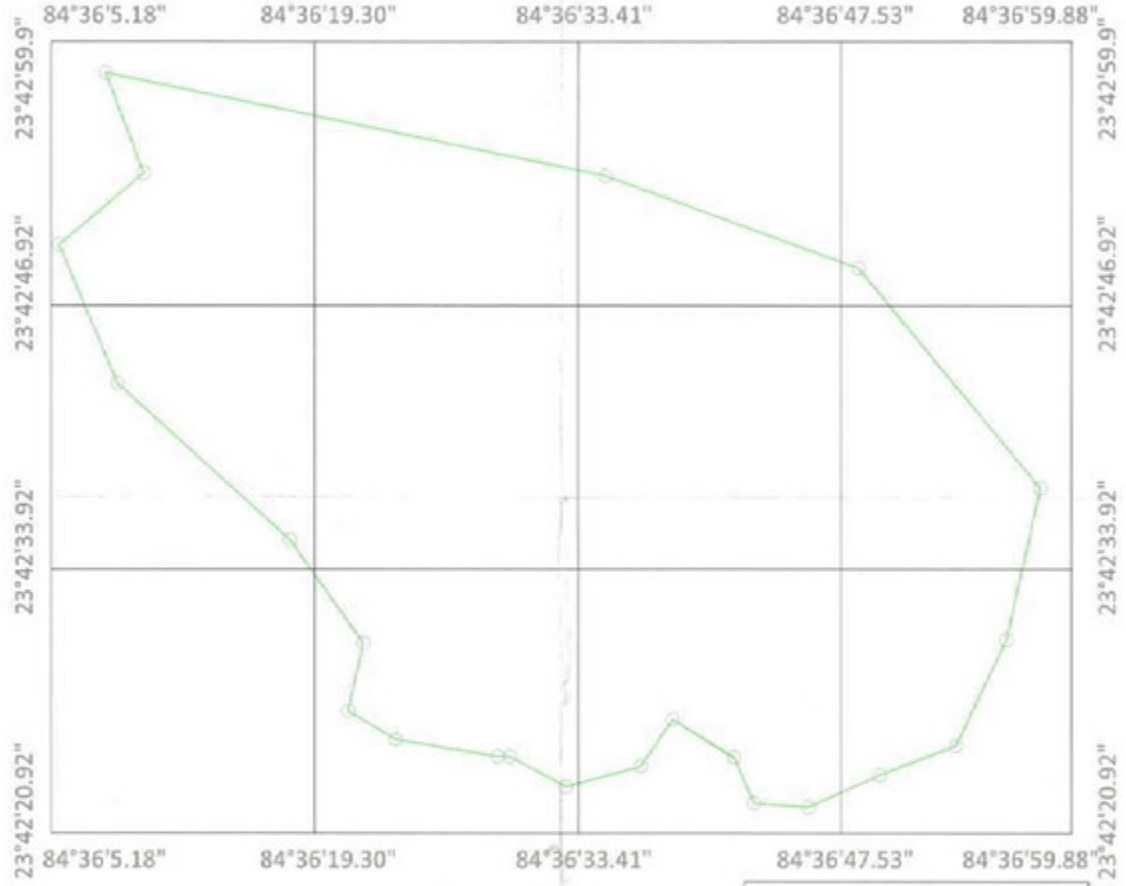
Sl. No.	Mouza Name	Thana No.	Thana	District	Total area (Acre)	Total area (Hectare)	Forest area (Acre)	Forest area (Hectare)
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	Tubed	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]
5	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]
6	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]
Total :-					[illegible]	[illegible]	[illegible]	[illegible]

LEGEND

DAMODAR VALLEY CORPORATION
MINING SECTION
DVC TOWERS, VIP ROAD
KOLKATA - 700 054

DAMODAR VALLEY CORPORATION
TUBED COAL BLOCK,
P.S. - LATEHAR, DISTRICT - LATEHAR,
JHARKHAND

DAMODAR VALLEY CORPORATION
TUBED COAL BLOCK
GEO-REFERENCE MAP SHOWING COMPENSATORY AFFORESTATION AREA.
VILLAGE - SIKNI.



LEGEND	
	BLOCK BOUNDARY

DAMODAR VALLEY CORPORATION
MINING SECTION
DVC TOWERS, VIP ROAD
KOLKATA - 700 054

Project :- DAMODAR VALLEY CORPORATION
TUBED COAL BLOCK,
P.S. - LATEHAR, DISTRICT - LATEHAR,
JHARKHAND.

SCALE : 1:5000 | Rev. - 00

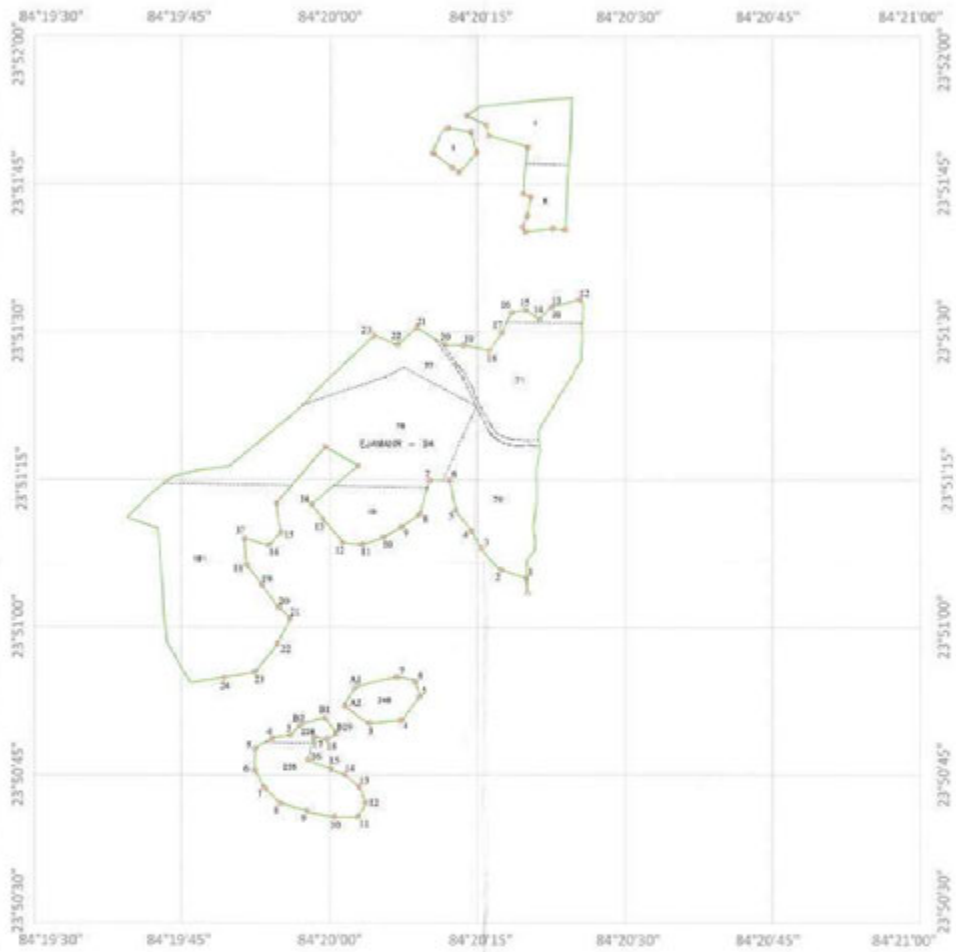
Dwg No. -/DVC/T/UBED/CA/SIKNI/001

DAMODAR VALLEY CORPORATION

TUBED COAL BLOCK

GEO-REFERENCE MAP SHOWING COMPENSATORY AFFORESTATION AREA.

VILLAGE - EJAMANR.



LEGEND	
20	BLOCK BOUNDARY POINT
	FOREST BOUNDARY

500 400 300 200 100 0 500 Meter

Summarized Report of Plot Schedule

Sl. No.	Mouza Name	District	Thana Name	Thana No.	Chadar No.	Total area.
1	EJAMANR	LATEHAR	LATEHAR	96	1	50 Hectare.

DAMODAR VALLEY CORPORATION
MINING SECTION
DVC TOWERS, VIP ROAD
KOLKATA - 700 054

Project : DAMODAR VALLEY CORPORATION
TUBED COAL BLOCK,
P.S. - LATEHAR, DISTRICT - LATEHAR,
JHARKHAND.

Scale : 1:3960 | Date :- 23.02.2018

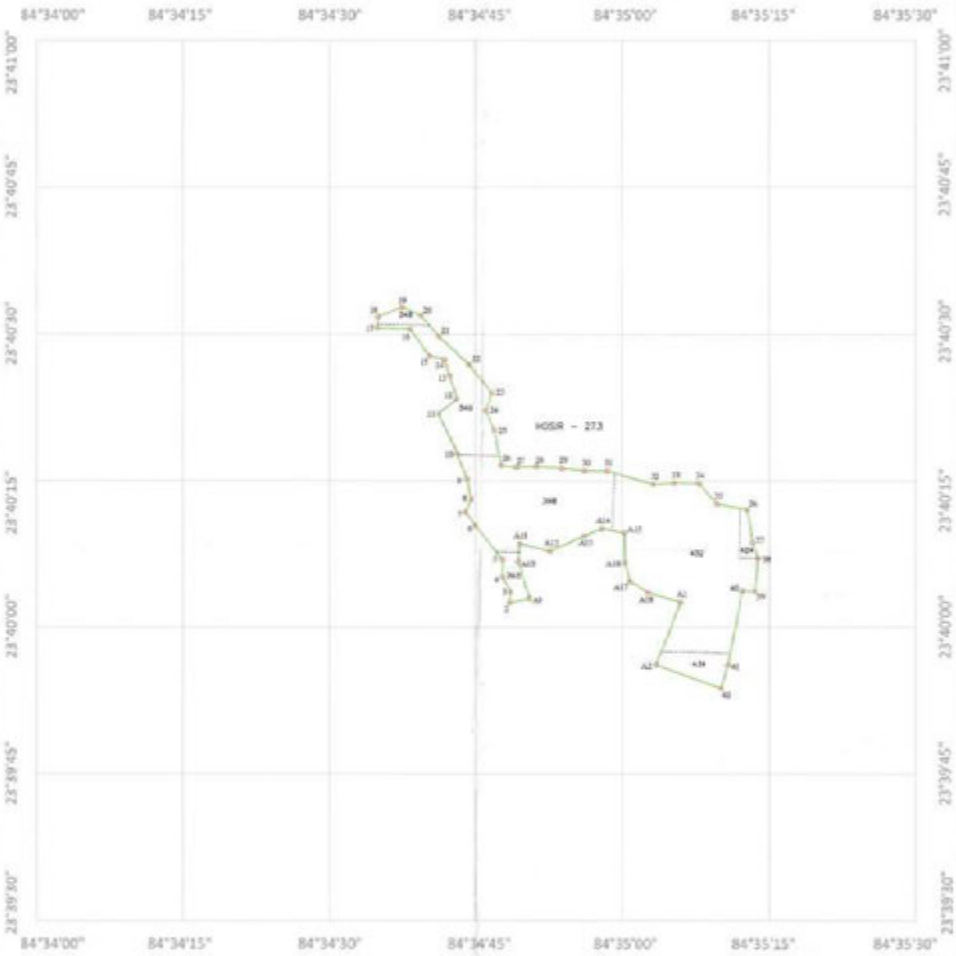
Dwg No.:-DVC/TUBED/CA/002 | Rev. :- 00

DAMODAR VALLEY CORPORATION

TUBED COAL BLOCK

GEO-REFERENCE MAP SHOWING COMPENSATORY AFFORESTATION AREA.

VILLAGE - HOSIR.



500 400 300 200 100 0 500 Meter

LEGEND	
20	BLOCK BOUNDARY POINT
	FOREST BOUNDARY

Summarized Report of Plot Schedule

Sl.No.	Mouza Name	District	Thana Name	Thana No.	Chakla No.	Total area.
1	HOSIR	LATEHAR	LATEHAR	273	1	50.491hectare.

DAMODAR VALLEY CORPORATION
MINING SECTION
DVC TOWERS, VIP ROAD
KOLKATA - 700 054

Project : DAMODAR VALLEY CORPORATION
TUBED COAL BLOCK,
P.S. - LATEHAR, DISTRICT - LATEHAR,
JHARKHAND.

Scale : 1:3960	Date :- 23.02.2015
Dwg No.:-DVC/TUBED/CA/005	Rev. :- 00