



तेनुघाट विद्युत निगम लिमिटेड  
( झारखण्ड सरकार का उपक्रम )  
**TENUGHAT VIDYUT NIGAM LTD.**  
(A Govt. of Jharkhand Undertaking)  
CIN U40101JH1987SGC013153

**मुख्यालय:**

जुप्पी भवन परिसर, ए.बी.डी. एरिया,  
स्मार्ट सिटी, धुर्वा, राँची-834004,  
झारखण्ड | फोन: 095728 25552

**Head Quarter:**

JUPMI Building Premises in ABD Area,  
Smart City, Dhurwa, Ranchi-834004,  
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पत्रांक/Ref.: 733/25-26

दिनांक/Date: 26.08.25

**Name of Project:** Diversion of Forest Land for the Development of Rajbar E&D Coal mines – 564.90 Ha. in the State of Jharkhand by TVNL.

**File No.** FP/JH/MIN/48598/2020.

**Date of Proposal :** 10.09.2020.

**Muck Disposal Plan**


Waste management in open pit mining is an important and basic activity. In the instant mine, a high ratio of 1:5.04 has been estimated. The total quantity of OB to be excavated in the project is 2119 Mbcm. In first 4 years of operation, the total Overburden excavated will be dumped in temporary dump yard. Backfilling starts from 5<sup>th</sup> year itself and up to 22<sup>nd</sup> year of the mine life, part of the excavated waste rock is proposed to be accommodated as temporary dump in the proposed excavation area itself. The temporary dump covers an area of 410 ha. From 23<sup>rd</sup> year onwards the total quantity of Overburden will be dumped in Back filling area till the end of the project, in addition rehandling of temporary dump will continue till 39<sup>th</sup> year.

The temporary dump is planned to be located beyond estimated quarry advance till 22<sup>nd</sup> year. This would minimize cost of re handling during 23<sup>rd</sup> year to 39<sup>th</sup> year as mine void area would be adjacent to temporary dumps.

Each deck of internal waste dump is planned to be of 30m height and berm width has been planned to be 25 m. Thus overall slope of dump has been planned at 24.8° while the slope of individual dump bench would be at 37° i.e. natural angle of repose of waste rocks.

**Phased Programme of Dumping**

The phased programme of waste removal, showing its disposal as temporary dumping and internal dumping is given in the table hereafter. The table also shows rehandling of temporary dumps for its internal backfilling.

  
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Elect. Suptd. Engineer  
T.V.N.L. Ranchi  
26 AUG 2025



Plant : Tenughat Thermal Power Station, Lalpania, Dist.: Bokaro - 829149 (Jharkhand)  
Coal Mine Project : Kinamar, Opp. City Hospital, Main Road, Latehar, Pin-829206

**Table No. – 1**  
**Dumping Schedule (Figure in Mbcm)**

Years	Temporary Dump		Rehandling		Internal Dump		Total	
	Annual Waste in Mbcm	Cum Waste in Mbcm	Annual Waste in Mbcm	Cum Waste in Mbcm	Annual Waste in Mbcm	Cum Waste in Mbcm	Annual Waste in Mbcm	Cum Waste in Mbcm
1	2	3	4	5	6	7	8	9
<u>Y-1</u>	5.5	5.5					5.5	5.5
Y-2	11	16.5					11	16.5
<u>Y-3</u>	22	38.5					22	38.5
Y-4	38.5	77					38.5	77
<u>Y-5</u>	19	96			25	25	44	121
Y-6	10	106			34	59	44	165
Y-7	10	116			40	99	50	215
Y-8	10	126			45	144	55	270
Y-9	10	136			45	189	55	325
<u>Y-10</u>	10	146			44	233	54	379
Y-11	7	153			45	278	52	431
Y-12	7	160			45	323	52	483
Y-13	7	167			45	368	52	535
Y-14	7	174			45	413	52	587
<u>Y-15</u>	7	181			45	458	52	639
Y-16	7	188			45	503	52	691
Y-17	7	195			45	548	52	743
Y-18	7	202			45	593	52	795
Y-19	7	209			45	638	52	847
<u>Y-20</u>	5	214			47	685	52	899
Y-21	9	223			41	726	50	949
Y-22	6	229			44	770	50	999
Y-23			5	5	50	825	50	1049
Y-24			7	12	50	882	50	1099
<u>Y-25</u>			10	22	50	942	50	1149
Y-26			10	32	50	1002	50	1199
Y-27			12	44	50	1064	50	1249
Y-28			12	56	50	1126	50	1299
Y-29			14	70	50	1190	50	1349
<u>Y-30</u>			14	84	50	1254	50	1399
Y-31			16	100	50	1320	50	1449
Y-32			16	116	50	1386	50	1499
Y-33			18	134	50	1454	50	1549
Y-34			18	152	50	1522	50	1599
<u>Y-35</u>			16	168	50	1588	50	1649
Y-36			16	184	50	1654	50	1699
Y-37			16	200	50	1720	50	1749
Y-38			16	216	50	1786	50	1799
Y-39			13	229	47	1846	47	1846
<u>Y-40</u>					47	1893	47	1893
Y-41					47	1940	47	1940

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*Longman*



Years	Temporary Dump		Rehandling		Internal Dump		Total	
	Annual Waste in Mbcm	Cum Waste in Mbcm	Annual Waste in Mbcm	Cum Waste in Mbcm	Annual Waste in Mbcm	Cum Waste in Mbcm	Annual Waste in Mbcm	Cum Waste in Mbcm
Y-42					45	1985	45	1985
Y-43					40	2025	40	2025
Y-44					40	2065	40	2065
<u>Y-45</u>					26	2091	26	2091
Y-46					16	2107	16	2107
Y-47					10	2117	10	2117
<u>Y-48</u>					2	2119	2	2119

### Temporary Dump

**Table No. – 2**  
**Details of Temporary Dump**

Peak Height (m)	No of decks	Height of each deck (m)	Quantity of Waste in the dump (Mbcm)	Spread Area in ha
90 agl	3	30	229	410

### Management of Temporary Waste Dump

The temporary dump, generated from 1<sup>st</sup> year to 22<sup>nd</sup> year would accumulates to about 229 Mbcm. It would be rehandled from 23<sup>rd</sup> year. This waste covers about 410 ha of land. All this 410 ha of land would be grassed with perennial green grasses to make it environmentally compatible. Greening would be completed in stage of 6<sup>th</sup> – 10<sup>th</sup> year; 11<sup>th</sup> year to 20<sup>th</sup> year and 21<sup>st</sup> to 23<sup>rd</sup> year with area of 100 ha, 250 ha and 60 ha in three stages.

### Top Soil Storage & Spreading

A temporary space of 20 ha has been earmarked at North-West region of coal bearing area beside temporary dump for temporary storage of about 2.2 Mm<sup>3</sup> of top soil. After 30<sup>th</sup> year stage the place of storage of top soil has been changed to ground level (450 m R.L.) backfill over an area of 20 ha. Stage wise spreading of top soil has been given hereafter. Table no. 3 provide stage wise breakup of rock waste and top soil. Table no. 4 provides further detail of generation and spreading of top soil for all the stages and post mining period also.

**Table No. – 3**  
**Waste Management covering Top Soil Management (Figures in Mm<sup>3</sup>)**

Year/ Stage	Cumulative OB Removal			Temporary Dump (Cumulative)		Internal Dump/ Backfilling (Cumulative)		Embankment & Green Belt (Cumulative)	
	Top Soil	OB	Total Waste	OB	Top Soil	OB	Top Soil	OB	Top Soil
1 <sup>st</sup> Year	0.1	5.4	5.5	5.0	–	–	–	0.4	0.05
3 <sup>rd</sup> Year	0.4	38.1	38.5	38.15	0.25	–	–	–	0.10
5 <sup>th</sup> Year	0.6	120.4	121	96	0.45	25	–	–	–
10 <sup>th</sup> Year	1.8	377.2	379	146	1.45	232.8	0.2	–	–
15 <sup>th</sup> Year	2.1	636.9	639	181	1.58	457.5	0.5		

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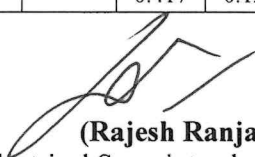
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Year/ Stage	Cumulative OB Removal			Temporary Dump (Cumulative)		Internal Dump/ Backfilling (Cumulative)		Embankment & Green Belt (Cumulative)	
	Top Soil	OB	Total Waste	OB	Top Soil	OB	Top Soil	OB	Top Soil
20 <sup>th</sup> Year	2.5	896.5	899	214	1.70	684.2	0.8	—	—
25 <sup>th</sup> Year	3.1	1145.9	1149	207	1.85	940.8	1.2		
30 <sup>th</sup> Year	3.7	1395.3	1399	84	2.00	1252.3	1.7	—	—
35 <sup>th</sup> Year	4.1	1644.9	1649	61	1.95	1585.8	2.2		
40 <sup>th</sup> Year	4.6	1888.4	1893	—	1.90	1890.0	2.7	—	—
45 <sup>th</sup> year	4.8	2086.2	2091	—	1.45	2087.7	3.3		
48 <sup>th</sup> Year	5.0	2114.0	2119	—	1.00	2114.0	4.0	—	—

Further detail of spreading of top soil alone is given hereafter:

**Table No. – 4**  
**Top Soil Management – (Including Action plan for Top Soil management)**

Top Soil Management (Including Action plan for Top Soil management)										
Year/ Stage	Top Soil Removal “Mm <sup>3</sup> ” (Cumulative)	Top Soil Used “Mm <sup>3</sup> ”								Total utilized Top Soil (Cumulative)
		Embankment		Spreading over the Backfilling Area in Sq. Km. (Cumulative)		Spreading over the OB Dump Area in Sq. Km.		Using for Green Belt Area (Cumulative)		
		Area (Sq. Km.)	Top Soil (Mm <sup>3</sup> )	Area (Sq. Km.)	Top Soil (Mm <sup>3</sup> )	Area (Sq. Km.)	Top Soil (Mm <sup>3</sup> )	Area (Sq. Km.)	Top Soil (Mm <sup>3</sup> )	
1 <sup>st</sup> Year	0.08	0.065	0.020					0.10	0.030	0.050
3 <sup>rd</sup> Year	0.384							0.317	0.0951	0.1151
5 <sup>th</sup> Year	0.612									0.1151
10 <sup>th</sup> Year	1.756			0.42	0.1768					0.2919
15 <sup>th</sup> Year	2.112			0.93	0.4248					0.5399
20 <sup>th</sup> Year	2.468			1.44	0.6728					0.7879
25 <sup>th</sup> Year	3.066			1.8055	1.1571					1.2722
30 <sup>th</sup> Year	3.664			2.171	1.6414					1.7565
35 <sup>th</sup> Year	4.108			3.5955	2.0876					2.2027
40 <sup>th</sup> Year	4.552			5.02	2.5338					2.6489
45 <sup>th</sup> Year	4.408			6.21	3.2485					3.3636
48 <sup>th</sup> Year	5.048			7.40	3.9632					4.0783
Post Mining			0.020	9.93	4.7878			0.417	0.1251	5.0480

  
**(Rajesh Ranjan)**  
 Electrical Superintendent Engineer

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 Elect. Suptd. Engineer  
 T.V.N.L. Ranchi

26 AUG 2025

Place : Ranchi  
Date : \_\_\_\_/\_\_\_\_/2025

Counter signed by :-



**Divisional Forest Officer**  
 Latehar Forest Division