

**BEFORE THE HON'BLE CENTRAL ELECTRICITY REGULATORY COMMISSION**  
**NEW DELHI**

**PETITION NO.....**

**For True up in petition no 386/MP/2023**

**IN THE MATTER OF** : Petition Under Section 62 and 79 (1) (a) of the Electricity Act, 2003 read with Chapter-III of the Central Electricity Regulatory Commission (Conduct of Business) Regulations, 2023 and Chapter-3, Regulation-13 (1a) of Central Electricity Regulatory Commission (Terms and Conditions of Tariff) (Second Amendment) Regulations, 2021 for revision of input price of coal of Talaipalli Coal Mine for the period from COD i.e. 01.10.2023 to 31.03.2024 after the truing up exercise

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## **Summary of Issues: Talaipalli Coal Mining Project (TLCMP)**

*(In compliance with CERC notice dated 07.06.2024)*

The major highlights of the TLCMP Truing up petition are as follows: -

The present petition is being filed under Section 62 and 79 (1) (a) of the Electricity Act, 2003 read with Chapter-III of the Central Electricity Regulatory Commission (Conduct of Business) Regulations, 2023 and Chapter-3, Regulation-13(1a) of Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019 and Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2021 (Second Amendment) for revision of tariff of TLCMP for the period from 01.10.2023 (COD of TLCMP) to 31.03.2024 after the truing up exercise based on actual expenditures as on 31.03.2024.

TLCMP is located at District Raigarh, Chhattisgarh (CG). TLCMP started commercial operation (COD) on 01.10.2023. The coal supplied from TLCMP is being used by its end use generating plant i.e. Lara Super Thermal Power Project (2x800 MW under commercial operation, 2x800 MW under execution, 1x800 MW proposed). Power from Lara is being supplied to various discoms (as per MoP allocation and respective PPAs) including Madhya Pradesh Power Management Company Limited (MPPMCL), Gujarat Urja Vikas Nigam Limited (GUVNL), Maharashtra State Electricity Distribution Company Limited (MSEDCL), Chhattisgarh State Power Distribution Company Limited (CSPDCL), Electricity Department of Goa (EDG), Dadra and Nagar Haveli and Daman and Diu Power Distribution Corporation Limited (DNHDDPDCL).

It is submitted that there was a delay of 22.5 months in declaring COD of the mine due to reasons beyond the reasonable control of the petitioner. Initial mine plan as prepared by a recognised qualified person (RQP can only prepare a mine plan and

they are recognised by MoC) and approved by the Ministry of Coal (MoC) was found faulty at the time of execution of mining and the same was referred to a third party for vetting on the direction of Delhi High Court. CMPDIL and IIT/ISM Dhanbad confirmed that there was fault in the initial approved mine plan and same has to be reworked. The mine plan had to be revised and put up for approval for MoC. The revised mine plan was approved by the MoC and then COD was declared. This process which was beyond the reasonable control of the petitioner resulted in delay of 22.5 months for COD of Talaipalli mine. The detailed reasons along with documentary evidence have been brought out in detail in the petition 386/MP/2023.

The input price of TLCMP for the period from 01.10.2023 (COD) to 31.03.2024 is yet to be determined by the Hon'ble Commission in Petition No. 386/MP/2023 (The petition is under consideration by the Hon'ble Commission). The capital cost claimed for determination of input price in petition no 386/MP/2023 included the actual capital cost as on COD of the mine i.e. 01.10.2023 and projected additional capital expenditure upto 31.03.2024.

The input price of TLCMP for the tariff period 2019-24 (i.e. COD 01.10.2023 to 31.03.2024) after the truing up exercise based on actual expenditures as on 31.03.2024 is annexed with the petition as per provisions of Regulation 13 of CERC Tariff Regulations 2019 and subsequent second amendment 2021.

The actual Additional Capital Expenditure on cash basis for the FY 2019-24 (i.e. COD 01.10.2023 to 31.03.2024) is Rs 76.81 Cr. The same has been depicted in Form 9 of the Appendix-I along with applicable regulations and justification for the claims. It is humbly requested to approve the actual Additional Capital expenditure during the period of 2019-24 (i.e. COD 01.10.2023 to 31.03.2024).

- The statutory charges for the period 2019-24 as levied by the state government/ central government is submitted in Form-16 of Appendix-I. The Hon'ble Commission may please allow the same under Regulation 36(A)(2).

In the light of above submission and as per the Petition being filed by the Petitioner for revision of input price of Talaipalli Coal Mine project, the Hon'ble Commission may please approve revised tariff for the tariff period 2019-24 as per provision of Regulation 13 of Tariff Regulations 2019 and its subsequent second amendment 2021.

**BEFORE THE CENTRAL ELECTRICITY REGULATORY COMMISSION**  
**NEW DELHI**

**PETITION NO.....**

**For True up in petition no. 386/MP/2023**

**IN THE MATTER OF** : Petition Under Section 62 and 79 (1) (a) of the Electricity Act, 2003 read with Chapter-III of the Central Electricity Regulatory Commission (Conduct of Business) Regulations, 2023 and Regulation-13 (1a) of Central Electricity Regulatory Commission (Terms and Conditions of Tariff) (Second Amendment) Regulations, 2021 for revision of input price of coal of Talaipalli Coal Mine from COD i.e. 01.10.2023 to 31.03.2024 after the truing up exercise

**AND**  
**IN THE MATTER OF**

**Petitioner:** : NTPC Ltd.  
NTPC Bhawan  
Core-7, Scope Complex  
7, Institutional Area, Lodhi Road  
New Delhi-110 003

**Respondents**

1. Madhya Pradesh Power Management Company Ltd.,  
Shakti Bhawan, Rampur,  
Jabalpur-482008
2. Maharashtra State Electricity Distribution Corporation Ltd.,  
Prakashgad, Bandra (East),  
Mumbai-400051
3. Gujarat Urja Vikas Nigam Ltd.,  
Vidyut Bhawan, Racecourse,  
Vadodara-390007
4. Chhattisgarh State Power Distribution Company Ltd.,  
P.O. Sundar Nagar,  
Danganiya, Raipur-492013

5. Electricity Department of Goa,  
Vidyut Bhawan, Panaji, Goa-403001

6. DNHDDPDCL  
1<sup>st</sup> and 2<sup>nd</sup> Floor, Vidyut Bhavan,  
Silvassa-396230, DNH, India

The Petitioner humbly states that:

- 1) The Petitioner herein NTPC Ltd. (hereinafter referred to as 'Petitioner' or 'NTPC'), is a Government of India Company within the meaning of the Companies Act, 1956. Further, it is a 'Generating Company' as defined under Section 2(28) of the Electricity Act, 2003.
- 2) The Petitioner is having integrated mines in different regions and places in the country. Talaipalli Coal Mine Project (hereinafter referred to as TLCMP) is one such integrated mine project located in the State of Chhattisgarh (C.G).
- 3) The coal supplied by TLCMP is to be used by the end user plant i.e. Lara Super Thermal Power Station (2x800 MW existing, 2x800 MW under execution, 800 MW proposed) of NTPC.
- 4) Section 62 of Electricity Act, 2003 provides for determination of tariff by the Appropriate Commission for supply of electricity by a generating company. The Hon'ble Commission, under Section 79(1)(a) of Electricity Act, 2003, is vested with the jurisdiction to regulate the tariff of the Generating Companies owned or controlled by the Central Government.
- 5) The Hon'ble Commission has notified the Central Electricity Regulatory Commission (Terms & Conditions of Tariff) Regulations, 2019 (hereinafter 'Tariff Regulations 2019) and Central Electricity Regulatory Commission (Terms & Conditions of Tariff) (Second Amendment) Regulations, 2021

which came into force from 1.4.2019 and 13.09.2021 respectively and specify the terms & conditions and methodology of tariff determination for the period from 01.04.2019 to 31.03.2024 under Section 62 & 79 of the Electricity Act, 2003.

- 6) Regulation 9 (4) of CERC (Terms & Conditions of Tariff) Regulations 2019 provides as under:

**"9. Application for determination of tariff:**

\*\*\*\*\*

*"(4) Where the generating company has the arrangement for supply of coal or lignite from an integrated mine(s) to one or more of its generating stations, the generating company shall file a petition for determination of the input price for determining the energy charge along with the tariff petitions for one or more generating stations in accordance with the provision of Chapter 9 of these regulations.*

- 7) Regulation 36 (1) of CERC (Terms & Conditions of Tariff) Regulations 2019 provides as under:

**"36. Input Price of coal and lignite for energy charges:**

*"(1) Where the generating company has the arrangement for supply of coal or lignite from the integrated mine(s) allocated to it, for use in one or more of its generating stations as end use, the energy charge component of tariff of the generating station shall be determined based on the input price of coal or lignite, as the case may be, from such integrated mines determined in accordance with these regulations"*

- 8) Regulation 9 (4) as per Central Electricity Regulatory Commission (Terms & Conditions of Tariff) (Second Amendment) Regulations, 2021 provides as under:

*"Provided that a generating company with integrated mine(s) shall file a petition for determination of input price of coal or lignite from the integrated mine(s) not later than 60 days from the date of commercial*



*operation of the integrated mine(s) or from the date of notification of these regulations, whichever is later and may also seek determination or revision of tariff of the concerned generating station(s) in accordance with these regulations."*

In accordance with the above, Petition No. 386/MP/2023 for determination and approval of input price of coal supplied from TLCMP was filed before the Hon'ble Commission based on the actual capital cost as on COD of TLCMP (i.e. 01.10.2023), and projected estimated additional capital expenditure for the period 01.10.2023 to 31.03.2024.

9) The said petition is under active consideration of the Hon'ble Commission and the order for approval of input price of coal for TLCMP for the period from 01.10.2023 to 31.3.2024 is yet to be issued by the CERC in Petition No. 386/MP/2023. The capital cost claimed for determination of input price also included the projected additional capital expenditure from 01.10.2023 to 31.03.2024.

10) Further, Chapter-3, Regulation 13 of the Tariff Regulations 2019 as amended after the second amendment provides as under:

***"(13) Truing up of tariff for the period 2019-24:***

.....

*"(1a) The input price of coal or lignite from the integrated mine(s) of the generating station(s) for the tariff period 2019-24 shall be trued up for:*

- a) the capital expenditure including additional capital expenditure incurred up to 31.3.2024, as allowed by the Commission;*
- b) the capital expenditure including additional capital expenditure incurred up to 31.3.2024, on account of Force Majeure and Change in Law, as admitted by the Commission."*
- c) The Operation and Maintenance expenses in accordance with provisions of Regulation 36I."*

*(2) The generating company or the transmission licensee, as the case may be, shall make an application, as per Annexure-I to these regulations, for carrying out truing up exercise in respect of the generating station or a unit thereof or the transmission system or an element thereof by 30.11.2024.*

- ....."
- 11) In line with the provisions as quoted above, the Petitioner is filing this petition for truing up the additional capital expenditure for the control period 2019-24, based on capital cost as on 01.10.2023 as per filed petition 386/MP/2023 and actual capital expenditure incurred during the tariff period from 01.10.2023 to 31.03.2024.
  - 12) The year-wise actual capital expenditure has been indicated and enclosed as part of **Appendix-I** herewith. In addition to the actual additional capital expenditure as above, discharge of liabilities during the period from 01.10.2023 to 31.03.2024 out of the liabilities excluded from capital cost for the works already allowed/ claimed have also been indicated.
  - 13) Further, in accordance with the provisions of the Regulation - 36G of Central Electricity Regulatory Commission (Terms and Conditions of Tariff) (Second Amendment) Regulations, 2021, for the purpose of computation of the Return on Equity, the base rate has been grossed up with the effective tax rate (MAT) applicable to NTPC at the end of respective financial years for the period 2019-24. The same is indicated in the Form-3A attached at Appendix-I.
  - 14) Further, in accordance with the provisions of the Regulation - 36J read with Regulation -34 of Tariff Regulations 2019, as amended, the rate of interest on working capital is considered at bank rate as on 1st April of each of the financial year during the tariff period of 2019-24. The same is indicated in the Form-J attached at Appendix-I.
  - 15) It is submitted that in case some of the loans allocated to this mine are refinanced by taking new loans with a lower rate of interest then as

per Regulation 61 (1) of Tariff Regulations 2019, the benefits of refinancing of loans have to be shared with the beneficiaries in the ratio of 50:50 (Beneficiaries: Generator). The same shall be duly applied by adjusting the rate of interest of new loans while computing the weighted average rate of interest. The adjustment in rate of interest for new loans has been done as illustrated below:

Rate of interest of existing loan: 8.000% (say)  
Rate of interest of new loan for refinancing of existing loan: 6.000% (say)  
Rate of interest of new loan considered for computing weighted average rate of interest: 7.000

- 16) Further, as mentioned above, since the main order in petition no 386/MP/2023 (COD petition) is still under consideration of the Hon'ble CERC, therefore in case of any specific direction from this Hon'ble Commission in petition no. 386/MP/2023 related to additional capitalization or any other aspect, the same shall be duly complied by amending the instant Truing up Petition.
- 17) It is submitted that in respect of the adjustment of the shortfall of overburden removal, the (Second Amendment) to CERC Tariff Regulations, 2019, provides as below:

***"36N. Adjustment on account of Shortfall of Overburden Removal (OB Adjustment): (1) The generating company shall remove overburden as specified in the Mining Plan.***

***(2) In case of shortfall of overburden removal during a year, the generating company shall be allowed to adjust such shortfall against excess of overburden removal, if any, during subsequent three years.***

***(3) In case of excess of overburden removal during a year, the generating company shall be allowed to carry forward such excess to adjust shortfall, if any, during subsequent three years.***

***(4) Where the shortfall of overburden removal of any year is not made good by the generating company in accordance with***

Clause (2) of this Regulation, the adjustment on account of shortfall of overburden removal (OB Adjustment) for that year shall be worked out as under:

**OB Adjustment = [Factor of adjustment for shortfall of overburden Removal during the year] x [Mining charge during the year + Operation and Maintenance expenses during the year]**

Where,

- 5) Factor of adjustment for shortfall of overburden removal during the year shall be computed as under:

**[(Actual quantity of coal or lignite extracted during the year x Annual Stripping Ratio as per Mining Plan) - (Actual quantity of overburden removed during the year / Annual Stripping Ratio as per Mine plan)] / (Annual Target Quantity);**

ii) Annual Stripping ratio is the ratio of volume of overburden to be removed for one unit of coal or lignite as specified in the Mining Plan.

iii) Mining charge is the charge per tonne of coal or lignite paid by the generating company to the Mine Developer and Operator engaged by the generating company for mining, wherever applicable.

iv) Mining charge and Operation and Maintenance expenses shall be in terms of Rupees per tonne corresponding to the Annual Target Quantity.

(5) The provisions of this Regulation regarding adjustment on account of shortfall of overburden removal shall not be applicable in case of the integrated mine(s) allocated through auction route under Coal Mines (Special Provisions) Act, 2015."

**[Emphasis Supplied]**

- 18) In this regard, it is pertinent to submit that Talaipalli coal mine was declared Commercially Operational ('CoD') on 01.10.2023 and the Instant Petition has been filed for determination of the input price of coal supplied from Talaipalli Coal mine from 01.10.2023 to 31.03.2024.

- 19) As quoted above, the Regulation 36N (OB Adjustment) provides for adjustment of shortfall of overburden (OB) removal during a year

against any excess overburden removed during the subsequent three years. Therefore, shortfall in overburden removal during FY 2023-24 has been allowed to be adjusted against any excess overburden removed up to FY 2026-27.

- 20) The actual coal and overburden production details vis-à-vis production schedule envisaged in the mining plan for FY 2023-24 are as under:

Year	Coal Production (MMT)		OB Removal (MCM)	
	Target as per Mine Plan	Actual Achieved	Target as per Mine Plan	Actual Achieved
2023-24	3.5	7.54	21.10	32.11

- 21) As can be seen from the table above, there is excess of overburden removal during FY 2023-24 compared to the quantity specified in mine plan. This excess overburden shall be adjusted against shortfall if any during the next three years i.e. 2024-25, 2025-26, 2026-27. The Hon'ble Commission may please allow the same.
- 22) The tariff calculation based on the above & other applicable provisions, are attached herewith in the formats provided in Appendix-I of the Tariff Regulations.
- 23) **Filing Fee:** It is submitted that Regulation 70 (1) of Tariff Regulations 2019 provides that the application fee and publication expenses may be allowed to be recovered directly from the beneficiaries at the discretion of the Hon'ble Commission. Accordingly, it is prayed that Hon'ble Commission may be pleased to allow recovery of filing fee directly from the beneficiaries.

- 24) It is submitted that the Petitioner has already paid the requisite filing fee through SAUDAMINI portal as per the provisions of the CERC (Payment of Fees) Regulations, 2012 as amended.
- 25) It is submitted the Petitioner has served the copy of the Petition on to the Respondents mentioned herein above and has posted the Petition on the company website i.e. [www.ntpc.co.in](http://www.ntpc.co.in).
- 26) The Petitioner undertakes to submit any further information or clarification which may be required by this Hon'ble Commission for adjudication of the present petition.

**Prayer**

In light of above submissions made, the Petitioner, therefore, prays that the Hon'ble Commission may be pleased to:

- i) Approve revised input price of coal of TLCMP for the tariff period 2019-24 as per provision of Regulation 13 of Tariff Regulations 2019 and subsequent second amendment of Tariff Regulation 2019.
- ii) Pass any other order as it may deem fit in the circumstances mentioned above.

**(Petitioner)**

Noida

Date: .....

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**Petitioner:** : NTPC Ltd.  
NTPC Bhawan  
Core-7, Scope Complex  
7, Institutional Area, Lodhi Road  
New Delhi-110 003



**Respondents:**

1. Madhya Pradesh Power Management Company Limited (MPPMCL)  
Shakti Bhawan, Vidyut Nagar  
Jabalpur - 482008  
and others

I, Sameer Kumar Aggarwal, Son of late Shri B K Aggarwal, aged about 51 years, working as Additional General Manager (Commercial) in the office of NTPC Limited, having its registered office at NTPC Bhawan, Scope Complex, Core-7, Lodhi Road, New Delhi- 110003 do hereby solemnly affirm and state as under:

1. That the deponent is the Additional General Manager (Commercial) of the Petitioner NTPC Ltd. and is well conversant with the facts and the circumstances of the case and therefore competent to swear this affidavit.
2. That the accompanying Petition under Section 62 and 79 (1) (a) of the Electricity Act, 2003, has been filed by my authorized representative under my



समीर अग्रवाल/SAMEER AGGARWAL  
अवर महाप्रबंधक (व्यावसायिक)  
Addl. General Manager (Commercial)  
एन टी पी सी लिमिटेड /NTPC LIMITED  
EOC, 4th Sector-24, Noida-201 301 (U.P.)

*SK Aggarwal*

instruction and the contents of the same are true and correct to the best of my knowledge and belief.

3. That the contents of Para No..... to..... as mentioned in the Petition are true and correct based on my personal knowledge, belief and records maintained in the office.
4. That the annexures annexed to the Petition are correct and true copies of the respective originals.
5. That the Deponent has not filed any other Petition or Appeal before any other forum or court of law with respect to the subject matter of the dispute.

*Sameer Aggarwal*

(Deponent)  
समीर अग्रवाल/SAMEER AGGARWAL  
अपर महाप्रबंधक (व्यावसायिक)  
Addl. General Manager (Commercial)  
एन टी सी सी लिमिटेड/NTPC LIMITED  
EOC, A-8A, Sector-24, Noida-201 301 (U.P.)

**Verification:**

Verified at Noida on this 23<sup>rd</sup> day of November 2024, that the contents of my above noted affidavit are true and correct to my knowledge and no part of it is false and nothing material has been concealed therefrom.

*Sameer Aggarwal*

(Deponent)  
समीर अग्रवाल/SAMEER AGGARWAL  
अपर महाप्रबंधक (व्यावसायिक)  
Addl. General Manager (Commercial)  
एन टी सी सी लिमिटेड/NTPC LIMITED  
EOC, A-8A, Sector-24, Noida-201 301 (U.P.)



ATTESTED  
✓  
YOGENDRA SINGH  
NOTARY NOIDA  
B NAGAR (U.P.) INDIA

123 NOV 2024



**Checklist of Main Tariff Forms and other information for tariff filing for  
Integrated Mine**

Form No.	Title of Tariff Filing Forms (Integrated Mine)	Tick
FORM- 1	Summary of Input Price	✓
FORM -1A	Summary of ROM Cost	✓
FORM -1B	Summary of Additional Charges	N/A
FORM -1C *	Summary of Mining Charges	✓
FORM-2	Statement showing claimed Capital Cost	✓
FORM-2A	Statement showing claimed Return on Equity	✓
FORM-2B	Statement showing claimed O&M cost	✓
FORM- 3	Mine Characteristics/Important Details as per Mine Plan	✓
FORM- 3A	Normative Parameters considered for Input Price computation	✓
FORM- 4	Details of Foreign loans	✓
FORM- 4A	Details of Foreign Equity	N/A
FORM-5	Abstract of Admitted Capital Cost for the existing Integrated Mine	N/A
FORM- 6	Financial Package up to date of commercial operation & up to Peak rated capacity	✓
FORM- 7	Details of Integrated Mine Specific Loans	N/A
FORM- 8	Details of Allocation of corporate loans to Integrated Mine	✓
FORM-9	Year wise Statement of Additional Capitalization after date of commercial operation up to/ beyond achieving Peak rated Capacity	✓
FORM- 10	Financing of Additional Capitalization	**
FORM- 11	Calculation of Depreciation	✓
FORM- 12	Statement of Depreciation	✓
FORM- 13	Calculation of Weighted Average Rate of Interest on Actual Loans	✓
FORM- 14	Draw Down Schedule for Calculation of IDC & Financing Charges	✓
FORM- 15	Non-Tariff Income	✓
FORM- 16	Details of Applicable Statutory Charges	✓
FORM-17	Details of Mine Closure expenses	✓
FORM- 18	Details for GCV Adjustment	✓

PART-IV List of Supporting Forms/ documents for tariff filing for Integrated Mine		
Form No.	Title of Tariff Filing Forms (Integrated Mine)	Tick
FORM-A	Abstract of Capital Cost Estimates and cost on date of commercial operation of the Integrated Mine	✓
FORM-B	Break-up of Capital Cost for New Integrated Mine	✓
FORM-C	Break-up of Construction/Supply/ Service Packages	✓
FORM -D	Details of Assets De-capitalized during the period	**
FORM -E	Reconciliation of Capitalization claimed vis-à-vis books of accounts	✓
FORM -F	Statement showing details of items/ assets/ works claimed under Exclusions	**
FORM-G	Statement of Capital cost	✓
FORM-H	Statement of Capital Works in Progress	✓
FORM-I	Calculation of Interest on Normative Loan	✓
FORM-J	Calculation of Interest on Working Capital	✓
FORM-K	Incidental Expenditure up to date of commencement of Production and up to Actual/anticipated date of commercial operation	NA
FORM-M	Actual cash expenditure	✓
FORM-N	Statement of Liability flow	✓
FORM-W *	ERV Charged to Revenue	✓
FORM-X *	Finance Charges - Unamortized Bond Expenses	✓
FORM-Y *	IDC Details	✓
FORM-Z *	FERV Summary	✓
* Additional Forms		
List of supporting documents for tariff filing for Integrated Mine		
S. No.	Information / Document	Tick
1	Certificate of incorporation, Certificate for Commencement of Business, Memorandum of Association, & Articles of Association ( For New Integrated Mine setup by a company making application for the first time to CERC)	NA
2	A. Mine wise and Corporate audited Balance Sheet and Profit & Loss Accounts with all the Schedules & annexures on date of commercial operation of the Mine for the new mine & for the relevant years. B. Mine wise and Corporate audited Balance Sheet and Profit & Loss Accounts with all the Schedules & annexures for the existing mine for relevant years.	✓
3	Copies of relevant loan Agreements	NA
4	Copies of the approval of Competent Authority for the Capital Cost and Financial package.	✓
5	Copies of the Equity participation agreements and necessary approval for the foreign equity.	NA
6	List of End use generating plant to whom supplies made/ to be made and quantity supplied/ to be supplied	NA
7	Integrated Mine shall submit copy of Cost Audit Report along with cost accounting records, cost details, statements, schedules etc. for the Integrated Mine and subsequently consolidated at Company level as submitted to the Govt of India from the date of commencement of production in case of a new mine or first two years i.e. 2019-20 and 2020-21 at the time of mid-term true-up in 2021-22 and for balance period of tariff period 2019-24 at the time of final true-up in 2024-25. In case of initial tariff filing the latest available Cost Audit Report should be furnished.	**
8	Any other relevant information. (Please specify)	NA
9	Reconciliation with Balance sheet of any actual capitalization or additional capitalization year on year basis duly audited	✓
10.	Integrated mine is maintaining the records to be submitted frequently to the Coal Controller Office. Copy of Same should be furnished to the Commission at the time of submission to CCO. Forms may be suitably modified to furnish relevant important information for input price determination	
** No decapitalization and exclusion for the period from 01.10.2013 to 31.03.2014.		

Summary of Input Price

**PART-IV  
FORM-1**

Name of the Petitioner: **NTPC Ltd**

Name of the Integrated Mine: **Talaipalli**

Place (Region/District/State): **WR/ Raigarh/ Chhattisgarh**

S. No.	Particulars	Unit	Existing 2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
1	2	3	4	5	6	7	8	9
1.1	ROM Cost as per Form-1A	Rs/Tonne	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	2531.78
1.2	Additional Charge as per Form-1B	Rs/Tonne						2531.78
	<b>Input Price</b>	<b>Rs/Tonne</b>						532.13
1.3	Statutory Charges as per Form-16	Rs/Tonne						3063.91
1.4	Total input price	Rs/Tonne						
1.5	GST @ 5%							
	<b>Total input price</b>	<b>Rs/Tonne</b>	<b>3063.91</b>					

**(Petitioner)**

Note: GST @5% and GST cess @Rs 400 per Ton shall be applicable in case coal is transferred to station having different GSTN.

**Summary of ROM Cost**

**PART-IV  
FORM- 1A**

Name of the Petitioner: NTPC Ltd

Name of the Integrated Mine: Talaipalli

Place (Region/District/State): WE/ Raigarh/ Chhattisgarh

S. No.	Particulars	Unit	Form Ref.	Existing 2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
1	2	3		4	5	6	7	8	9
1.1	Depreciation	Rs Lakh	Form-12	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	9,123.68
1.2	Interest on Loan	Rs Lakh	Form-I						10,032.73
1.3	Return on Equity	Rs Lakh	Form-2A						10,735.52
1.4	Interest on Working Capital	Rs Lakh	Form-J						1,066.41
1.5	O&M Expenses excluding mining charge	Rs Lakh	Form-2B						29,296.07
1.6	Mine closure expense	Rs Lakh	Form-17						1,040.84
1.0	<b>Total Annual Extraction Cost (Sum of above 1.1 to 1.6)</b>	Rs Lakh							61,295.25
2.0	Annual Target Quantity (ATQ) as per mine plan	Tonne	Form-3						35,00,000
3.0	Annual Extraction cost per tonne (1.0 in Rs/2.0)	Rs/Tonne							1,751.29
4.0	Mining Charge	Rs/Tonne	Form-1C *						780.49
5.0	ROM cost (3.0+4.0)	Rs/Tonne		2,531.78					
<b>(Petitioner)</b>									

NTPC Ltd

Talsipal Coal Mining Project

Auditor Certified Payment Made to MDO Including the Escalation Rate Considered, Adjustments made for FY 2023-24

4.3 PER ER 4.33 (Planned) / Actual ER

MONTH	Name of the MDO	Coal Production	OE Production	Delivered Quantity (DQ) in tonnes	Billed ER/tonne	ER/tonne as per mine plan	Base Mining Fee in Rs	MF/Net in Rs	MF(Net) in Rs on Billed ER	
Oct17	M/s PC Talsipal Group	-	15,21,294.20	3,59,844.27	4.54		820.00	552.25	334.17	
Nov17		-	13,50,280.00	3,21,832.42	4.54	4.25	820.00	552.25	334.17	
Dec17		-	12,38,835.20	2,78,518.21	4.54		820.00	552.25	334.17	
QUARTER-3		-	39,07,309.40	9,59,994.90						
Jan18		-	15,55,770.50	3,41,815.15	4.54		820.00	552.25	334.17	
Feb18		-	13,24,801.82	3,20,840.10	4.54	4.21	820.00	552.25	334.17	
Mar18		-	15,88,257.72	3,45,448.72	4.54		820.00	552.25	334.17	
QUARTER-4		-	38,78,740.18	11,09,001.89						
Total			-	76,87,229.20	21,70,287.29					

NTPC Ltd

Talsipal Coal Mining Project

Auditor Certified Payment Made to MDO Including the Escalation Rate Considered, Adjustments made for FY 2023-24

4.3 PER ER 4.33 (Planned) / Actual ER

MONTH	Name of the MDO	Coal Production	GE Production	Delivered Quantity (DQ) in tonnes	Billed Strip ratio	Strip Ratio as per mine plan	Base Mining Fee in Rs	MF(NR) in Rs	MF(NR) in Rs on Billed ER	
Oct23	TALSIPAL									
Nov23										
Dec23										
QUARTER-3										
Jan24										
Feb24						32.55	4.21			
March 24										
QUARTER-4			2,35,115.34	49,25,430.01	1,91,710.54			1,289.58	1,289.54	1,021.07
			2,35,115.34	49,25,430.01	1,91,710.54					
<b>Total</b>			2,35,115.34	49,25,430.01	1,91,710.54					

NTPC Ltd

Talaigali Coal Mining Project

Auditor Certified Payment Made to MDO Including the Escalation Rate Considered, Adjustments made for FY 2023-24

A.K PER SR 4.32 (Planned / Actual) SR

MONTH	Name of the MDO	Coal Production	OB Production	Delivered Quantity (DQ) in tonnes	Billed Strip ratio	Strip Ratio as per mine plan	Base Stripping Fee in Rs	MP/TK in Rs	MP/TK in Rs on Billed SR	
<b>FY COD</b>			1,22,22,149.88	22,47,247.91	0.18	4.33		388.92	1,023.88	
			1,35,28,148.88	23,47,247.91						
01/22	M/s KALINGA COMMERCIAL CORPORATION LTD		15,00,811.84	2,78,373.78	0.18				873.85	
02/22			15,55,870.25	2,41,482.53	0.15	1.12			912.89	
03/22			15,38,094.83	1,98,828.82	0.13				851.32	
QUARTER-1			45,94,776.92	8,18,685.03						
04/22			14,28,838.42	2,26,821.11	0.16				798.82	
05/22			13,88,835.22	2,24,888.78	0.16	1.13			798.88	
06/22			14,78,727.94	2,28,227.82	0.15				873.73	
QUARTER-2			42,96,391.58	6,80,937.61						
										1/Natio Adjustment
										1/Natio Adjustment
									1/Natio Adjustment	
<b>Total</b>			1,35,28,148.88	46,18,274.15	0.37	4.33		808.81	894.52	
Stripping Ratio provision Post COD										
Weighted average MDO price Post COD considering Mine Stripping Ratio										

<b>NTPC Ltd</b> <b>Talsipali Coal Mining Project</b> <b>Auditor Certified Payment Made to I</b> <b>A &amp; PER SR 4.33 (Planned) / Actual SR</b>									
MONTH	Name of the WCO	MF(Nes) in Rs. on Mine plan SR	Escalated Mining Fee (Qty * MF Net)	Total Mining Fee (Qty * MF Net) Paid on Billed SR	Total Mining Fee (Qty * MF Net) Paid including DIT on Planned SR	Cumulative Shipping Ratio Achieved upto Quarter (Delivered Coal)	Cumulative MF(Nes) upto Quarter	Actual Amount Retained / Short paid on actual SR	
Oct11	H & PC Feed to Vessels	51.85	22,48,09,544.00	21,70,07,808.00	22,21,24,282.00			2,56,71,122.00	
Nov11		51.85	22,71,17,532.00	22,08,71,812.00	22,71,23,866.00	0.71	255.51	2,87,14,866.00	
Dec11		51.85	22,05,58,824.00	21,05,48,794.00	22,05,48,813.00			3,07,51,179.00	
QUARTER-3				67,24,86,900.00	64,84,28,414.00	76,98,13,961.00			8,51,37,167.00
Jan12		51.85	22,48,58,508.00	22,45,68,328.00	22,50,78,672.00			2,71,87,187.00	
Feb12		51.85	27,39,24,588.00	27,18,48,774.00	27,39,21,771.00	0.74	252.74	2,99,56,958.00	
Mar12		51.85	22,11,26,600.00	22,11,75,184.00	22,24,29,887.00			1,77,82,587.00	
QUARTER-4				71,79,19,700.00	71,87,26,744.00	88,11,25,946.00			8,59,49,827.00
<b>Total</b>				<b>1,41,08,81,200.00</b>	<b>1,38,13,83,407.00</b>	<b>1,77,52,42,003.00</b>			<b>19,92,74,287.00</b>



<b>NTPC Ltd</b> <b>Talsipali Coal Mining Project</b> <b>Auditor Certified Payment Made to I</b> <b>A &amp; PER SR 4.33 (Planned) / Actual SR</b>									
MONTH	Name of the WCO	MF(Nes) in Rs. on Mine plan SR	Escalated Mining Fee (Q <sub>1</sub> * MF-Ne)	Total Mining Fee (Q <sub>1</sub> * MF-Nes) Paid on Billed SR	Total Mining Fee (Q <sub>1</sub> * MF-Nes) Paid including DIT on Planned SR	Cummulative Shipping Ratio Achieved upto Quarter (Delivered Coal)	Cummulative MF(Nes) upto Quarter	Actual Amount Retained / Short paid on actual SR	
Oct11	100 YRS 1000								
Nov11									
Dec11									
QUARTER-3									
Jan12									
Feb12							2.78	882.78	
Mar12		289.23	22,42,54,700.00	(2,71,87,234.00)	17,18,82,052.00			22,87,52,052.00	
QUARTER-4		289.23	22,42,54,700.00	(2,71,87,234.00)	17,18,82,052.00			22,87,52,052.00	
<b>Total</b>				<b>22,42,54,700.00</b>	<b>(2,71,87,234.00)</b>	<b>17,18,82,052.00</b>	<b>2.78</b>	<b>882.78</b>	

NTPC Ltd  
Taleipali Coal Mining Project  
Auditor Certified Payment Made to /

A & PER BR 4.22 (Planned) / Actual - BR

MONTH	Name of the MOO	MT (Net) in Rs of Mine plan BR	Total Mining Fee (Qty * MT Net) Paid on Billed BR	B/R Profit/Loss	
Pre COG	M + KANDISA COALBERCHS CORPORATION LTD	1,34,82,37,200.75	1,40,84,48,791.00	-57,12,11,589.27	
		1,94,88,19,800.75	1,49,84,48,581.00	-51,18,56,589.27	
Jan11			11,11,47,271.00	-	
Feb11			12,28,97,429.00	-	
Mar11			12,43,63,112.00	-	
QUARTER-4			-	57,78,80,308.00	-
Apr11				11,19,23,172.00	-
May11				12,41,47,112.00	-
Jun11				11,91,28,127.00	-
QUARTER-4				74,12,32,542.00	-
				4,61,17,384.00	
				51,19,381.00	
				21,18,11,871.00	
<b>Total</b>			<b>1,21,84,92,494.25</b>	<b>271,26,62,422.70</b>	<b>-44,58,11,966.55</b>
				<b>25,12,61,937.25</b>	
				<b>781.49</b>	

**Statement showing claimed capital cost**PART-IV  
FORM-2

Name of the Petitioner: NTPC Ltd

Name of the Integrated Mine: Talaipalli

Amount in Rs Lakhs

S. No.	Particulars	2019-20	2020-21	2021-22	2022-23	2023-24 (01.10.2023- 31.03.2024)
1	2	3	4	5	6	7
1	Opening Capital Cost					2,07,106.60
2	Add: Addition during the year/period					1,519.22
3	Less: De-capitalization during the year/period					-
4	Add: Discharges of Liability during the year/ period	NA	NA	NA	NA	6,161.88
5	<b>Closing Capital Cost (1+2-3+4)</b>					2,14,787.71
6	<b>Average Capital Cost</b>					2,10,947.16

(Petitioner)

**Statement showing claimed Return on Equity****PART-IV  
FORM-2A**

Name of the Petitioner: NTPC Ltd

Name of the Integrated Mine: Talaipalli

Amount in Rs Lakhs

Sr	Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
1	2	3	4	5	6	7
<b>Return on Equity</b>						
1	Opening Equity					62,131.98
2	Add: Increase in equity due to addition during the year / period					455.77
3	Less: Decrease due to De-capitalization during the year / period					-
4	Add: Increase due to discharges during the year / period					1,848.57
5	<b>Closing Equity (1+2-3+4)</b>	Not Applicable	Not Applicable	Not Applicable	Not Applicable	64,436.31
6	Average Equity					63,284.15
7	Rate of ROE (Pre Tax)					16.964
8	Total ROE					10,735.52

(Petitioner)

**Statement showing claimed O&M cost**

**PART-IV  
FORM-2B**

Name of the Petitioner: NTPC Ltd

Name of the Integrated Mine: Talaipalli

Amount in Rs Lakhs

Sl No	Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
1	2	3	4	5		7
1	Opening Capital Cost					
2	Add: Addition during the year/period					
3	Less: De-capitalization during the year/period					
4	Add: Discharges of Liability during the year/period					
5	<b>Closing Capital Cost (1+2-3+4)</b>	NA	NA	NA	NA	
6	Average Capital Cost :					
7	Actual Annual O&M in terms of Regulation 361					28,057.35
8	Actual Annual Charge of Agency(ies) Other Than MDO* :					-
	- Loading cost					1,066.61
	- CIMFR sampling cost					172.12
9	<b>Total Actual annual O&amp;M</b>					<b>29,296.07</b>

**(Petitioner)**

\*Actual O&M figures has been annualised for 2023-24

DETAILS OF OPERATION AND MAINTENANCE EXPENSES		
Name of the Particular: NTPC Ltd		
Name of the Integrated Mine: Talaspalli		
(Amount in Rs.)		
Sl. No.	Items	₹ 2023-24 (Oct 23 to Mar 24)
1	Consumption of stores & spares	
2	Repairs & maintenance	5,94,11,547.28
3	Insurance	13,00,823.00
4	Security	4,34,27,062.51
5	Administrative Expenses	
5.1	Rent	5,17,480.00
5.2	Electricity charges	3,19,78,248.88
5.3	Travel expenses	1,54,79,333.21
5.4	Communication expenses	3,12,11,827.57
5.5	Advertisement and publicity	11,28,420.00
5.6	Boardroom	28,82,828.21
	<b>Subtotal (Administrative Expenses)</b>	<b>6,53,65,532.88</b>
6.1.1	Salaries, Wages & allowances	23,68,98,127.30
6.1.2	Pension	1,29,00,478.50
6.1.3	Gratuities	41,89,823.89
6.1.4	Provident Fund	1,94,00,314.20
6.1.5	Leave Encashment	1,78,02,240.00
6.1.6	Annual grat. leave	4,09,40,808.71
6.2	Staff welfare expenses:	
6.2.1	Medical expenses	1,04,73,338.30
6.2.2	Uniform/Uniforms & safety equipment	1,01,70,000.00
6.2.3	Canteen expenses	45,82,333.51
6.2.4	Other staff welfare expenses	1,12,71,487.57
	<b>Subtotal (Staff welfare Expenses)</b>	<b>4,65,98,969.38</b>
6.3	Lease time also transferred to Div. of Mining	-18,79,37,883.30
6.4	Lease. Room. for employment agreement	-47,78,523.80
	<b>Sub total (Employee Cost)</b>	<b>29,59,90,290.88</b>
7	Provisions	
7.1	Provision for Rehabilitation Cost	21,86,24,892.00
7.2	Reserve in Field cost	7,24,830.00
8	Concrete Office expenses allocation	5,91,06,032.00
9	Others	
9.1	Rates & Taxes	38,00,861.38
9.2	Training & recruitment expenses	5,44,204.00
9.3	Guest house expenses	1,62,80,829.59
9.4	Professional Charges	5,23,48,820.33
9.5	Legal expenses	5,23,93,377.00
9.6	EDF fine & other charges	17,77,892.74
9.7	Printing & Stationery	10,78,794.50

Loading and Sampling charges

Sl No	Description	Vendor	Amount in Rs
1	Loading of coal from wagon and transport with at initial rail station using loading point of TLCDM, Raigarh CO.	TRIPATI ROAD-CARRIER	1,02,59,031.44
2	Provision for calibration and stamping of 10 metric tonnage 1000 F and 2 no load test of TLCDM	DUSTAL WEIGHING SYSTEMS PVT LTD	1,00,500.00
3	Coal Sampling, Deposition at NTPC Talaspalli	GOYECOA INSPECTION INDIA PRIVATE	7,71,488.48
4	Coal Sampling & Analysis by M's CMFR	Central Institute of Mining & Fuel research	78,33,472.63
	<b>Total</b>		<b>1,11,33,592.55</b>

**DETAILS OF OPERATION AND MAINTENANCE EXPENSES**

Name of the Partner: NTPC Ltd

Name of the Integrated Mine: Talaspall

0 8	Hiring of vehicle	3,00,00,000.00
0 00	Transportation	-
0 10	Hire charges & Operating cost -Construction Equipment	-
0 11	Plant lease rent	-
0 12	Fuel/ oil/ Expense	88,260.00
0 13	CPA Expenses	55,00,000.00
0 14	* Misc expenses	68,67,88,400.00
		-
	*(Break up of Misc.)	-
0 14.1	Furnishing Expenses	3,00,000.00
0 14.2	Hire charge-Off shore	-
0 14.3	Maintenance expenses	1,80,000.00
0 14.4	Bank/LO charges	1,49,00,000.00
0 14.5	Books & Periodicals	87,480.00
0 14.6	Other Lease Hire/Off	88,01,44,000.00
0 14.7	Oil/ Fuel/ Exp	22,88,000.00
0 14.8	Misc expenses	87,78,888.00
		-
10	Less: Other org. maintenance/ Dep. of Mining	-18,79,08,998.71
11	<b>Total to 10</b>	<b>1,40,38,67,888.79</b>
12	Revenue / Receipts	-
13	Net Expenses	1,40,38,67,888.79
13A	Net loss/gain in foreign currency transactions & translations	-
14	Capital assets consumed	-
	<b>Total O&amp;M Cost</b>	<b>1,40,38,67,888.79</b>

Mine Characteristics/Important Details as per Approved Mine Plan dated (26/09/2023)			PART- IV FORM-3
Name of the Petitioner: NTPC Ltd			
Name of the Integrated Mine: Talaipalli			
Sr No	Parameters	Values	
1	Mining plan/Mine closure plan Revision number and date of revision, if any	1st Modification/26.09.2023	
2	Peak rated Capacity	25 MTPA	
3	Year in which proposed to be achieved	2037-38	
4	Mineable reserves	631.56 MMT	
5	Mining area land - Acquired/ Leased	2119.4 Ha	
6	If Leased - Period and terms of lease	Till Mine life	
7	Mining Block Area	2119.4 Ha	
8	Type of Mining	Opencast	
9	Method of Mining	Drilling & Blasting, Shovel - Dumper for Overburden and Surface Miner for Coal	
10	Mine life in Years	31	
11	Scheduled date of commercial operation as per investment approval	Not mentioned	
12	Distance of Loading Point from mine end	Loading through Silo into Dedicated MGR system within mine	
13	Gross Calorific value (GCV in Kcal/Kg) of coal as per Geological Report, Range, Mean	Range : 2834 to 7198 Kcal/Kg (UG to G1) Average : 4548 Kcal/Kg (G10)	
14	Specific gravity of coal (Avg)	1.62	
15	Main Equipments	Overburden : a) Hyd Backhoe or Shovel - 20 cum b) Hyd Backhoe or Shovel - 10 cum c) Rear Dumper - 200 T d) Rear Dumper - 100 T Coal : a) Surface Miner - 3SM b) FE Loader - 5 cum c) Coalbody Dumper - 60 T	
16	Other Important Parameters as deemed necessary	NA	
<b>CALENDER PRODUCTION PROGRAMME DURING THIS TARIFF PERIOD</b>			
Production Year/s	Coal Production (Mt)	OB Removal (Mm <sup>3</sup> )	Stripping Ratio (m <sup>3</sup> /t)
2023-24	3.50	21.10	6.03
<b>ACTUAL PRODUCTION ACHIEVED DURING THIS TARIFF PERIOD</b>			
Production Year/s	Coal Production (Mt)	OB Removal (Mm <sup>3</sup> )	Stripping Ratio (m <sup>3</sup> /t)
2023-24	7.54	32.11	4.26
(Petitioner)			



**Normative parameters considered for Input Price computations**PART-IV  
FORM-3A

Name of the Petitioner : NTPC Ltd

Name of the Integrated Mine : Talaipalli

Particulars	Unit	Existing 2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
1	2	3	4	5	6	7	8
Base Rate of Return on Equity	%	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	14
Effective Tax Rate	%						17.472
Input Cost of Coal for WC	in days						7
Consumption of stores and spares % of O&M	%						15
One Month O&M Expenses	Rs lakh						2441.34
Rate of Interest on Working Capital	%						12.00

(Petitioner)

Form-4

## DETAILS OF FOREIGN LOANS

(Details only in respect of loans applicable to the project under petition)

NTPC LIMITED

Name of the company  
Name of the Power Station

Exchange Rate as on	31-03-2010	USD = Rs.	89.77	EUR = Rs.	78.84	JPY = Rs.	0.8343
Exchange Rate as on	31-03-2020	USD = Rs.	76.06	EUR = Rs.	84.43	JPY = Rs.	0.7089
Exchange Rate as on	31-03-2021	USD = Rs.	74.06	EUR = Rs.	87.28	JPY = Rs.	0.6730
Exchange Rate as on	31-03-2022	USD = Rs.	76.33	EUR = Rs.	85.76	JPY = Rs.	0.6280
Exchange Rate as on	31-03-2023	USD = Rs.	82.74	EUR = Rs.	90.87	JPY = Rs.	0.6263
Exchange Rate as on	31-03-2024	USD = Rs.	83.95	EUR = Rs.	91.51	JPY = Rs.	0.6576

5.44%

(Amount in Lacs)

(Amount in Lacs)

(Amount in Lacs)

Financial Year (Starting from COD)	2019-20 (01.04.2019 to 31.03.2020)				2020-21 (01.04.2020 to 31.03.2021)				2021-22 (01.04.2021 to 31.03.2022)			
	1	2	3	4	1	2	3	4	1	2	3	4
Euro Loan I Draw I	Date	Amount (FC)	Ex. Rate	Amount (INR)	Date	Amount (FC)	Ex. Rate	Amount (INR)	Date	Amount (FC)	Ex. Rate	Amount (INR)
Currency 1 JPY												
At the date of draw				-					07-08-2021	27	89.19625	2,376.00
Loan repayment upto previous period												
Net loan at the Beginning of the period				-					07-08-2021	27	89.19625	2,376.00
Schedule repayment date of principal												
Scheduled payment date of interest				-								
Withholding tax including surcharge on interest				-								
Schedule repayment date of principal												
Scheduled payment date of interest				-					06-12-2021	0.13	84.68	10.88
Withholding tax including surcharge on interest				-					06-12-2021	0.00	83.63	0.16
Schedule repayment date of principal												
Scheduled payment date of interest				-								
Withholding tax including surcharge on interest				-								
									31-03-2022			91.64
At the end of Financial year			0.00	-					31-03-2022	26.64	85.76	2,284.46

10.50%

(Amount in Lacs)

(Amount in Lacs)

(Amount in Lacs)

Financial Year (Starting from COD)	2019-20 (01.04.2019 to 31.03.2020)				2020-21 (01.04.2020 to 31.03.2021)				2021-22 (01.04.2021 to 31.03.2022)			
	1	2	3	4	1	2	3	4	1	2	3	4
Euro Loan I Draw II	Date	Amount (FC)	Ex. Rate	Amount (INR)	Date	Amount (FC)	Ex. Rate	Amount (INR)	Date	Amount (FC)	Ex. Rate	Amount (INR)
Currency 1 JPY												
At the date of draw				-					11-08-2021	80	87.30897	7,472.00
Loan repayment upto previous period												
Net loan at the Beginning of the period				-					11-08-2021	80	87.30897	7,472.00
Schedule repayment date of principal												
Scheduled payment date of interest				-								
Withholding tax including surcharge on interest				-								
Schedule repayment date of principal												
Scheduled payment date of interest				-					06-12-2021	0.26	84.88	22.42
Withholding tax including surcharge on interest				-					06-12-2021	0.00	83.63	0.32
Schedule repayment date of principal												
Scheduled payment date of interest				-								
Withholding tax including surcharge on interest				-								
									31-03-2022			132.66
At the end of Financial year			0.00	-					31-03-2022	85.58	85.76	7,339.44

6.43%				(Amount in Lacs)				(Amount in Lacs)				(Amount in Lacs)			
Financial Year (Starting from COD)	2019-20 (01.04.2019 to 31.03.2020)				2020-21 (01.04.2020 to 31.03.2021)				2021-22 (01.04.2021 to 31.03.2022)						
1	2	3	4	1	2	3	4	1	2	3	4				
	Date	Amount (FC)	Ex. Rate	Amount (INR)	Date	Amount (FC)	Ex. Rate	Amount (INR)	Date	Amount (FC)	Ex. Rate	Amount (INR)			
Euro Loan I Draw III															
Currency 1 JPY															
At the date of draw				-					21-09-2021	54	88.44403	4,700.00			
Loan repayment upto previous period															
Net loan at the Beginning of the period				-					21-09-2021	54	88.44403	4,700.00			
Schedule repayment date of principal															
Scheduled payment date of interest				-											
Withholding tax including surcharge on interest				-											
Schedule repayment date of principal															
Scheduled payment date of interest				-					08-12-2021	0.11	84.66	9.25			
Withholding tax including surcharge on interest				-					08-12-2021	0.00	83.03	0.15			
Schedule repayment date of principal															
Scheduled payment date of interest				-											
Withholding tax including surcharge on interest				-											
									31-03-2022			37.10			
At the end of Financial year			0.00	-					31-03-2022	54.37	65.7%	4,662.81			

3.41%				(Amount in Lacs)				(Amount in Lacs)				(Amount in Lacs)			
Financial Year (Starting from COD)	2019-20 (01.04.2019 to 31.03.2020)				2020-21 (01.04.2020 to 31.03.2021)				2021-22 (01.04.2021 to 31.03.2022)						
1	2	3	4	1	2	3	4	1	2	3	4				
	Date	Amount (FC)	Ex. Rate	Amount (INR)	Date	Amount (FC)	Ex. Rate	Amount (INR)	Date	Amount (FC)	Ex. Rate	Amount (INR)			
USD 750M Draw I															
Currency 1 JPY															
At the date of draw				-											
Loan repayment upto previous period															
Net loan at the Beginning of the period				-											
Schedule repayment date of principal															
Scheduled payment date of interest				-											
Withholding tax including surcharge on interest				-											
Schedule repayment date of principal															
Scheduled payment date of interest				-											
Withholding tax including surcharge on interest				-											
Schedule repayment date of principal															
Scheduled payment date of interest				-											
Withholding tax including surcharge on interest				-											
At the end of Financial year			0.00	-											

3.28%				(Amount in Lacs)				(Amount in Lacs)				(Amount in Lacs)			
Financial Year (Starting from COD)	2019-20 (01.04.2019 to 31.03.2020)				2020-21 (01.04.2020 to 31.03.2021)				2021-22 (01.04.2021 to 31.03.2022)						
1	2	3	4	1	2	3	4	1	2	3	4				
	Date	Amount (FC)	Ex. Rate	Amount (INR)	Date	Amount (FC)	Ex. Rate	Amount (INR)	Date	Amount (FC)	Ex. Rate	Amount (INR)			
USD 750M Draw II															
Currency 1 JPY															
At the date of draw				-											
Loan repayment upto previous period															
Net loan at the Beginning of the period				-											

Schedule repayment date of principal												
Scheduled payment date of interest				-								
Withholding tax including surcharge on interest				-								
Schedule repayment date of principal												
Scheduled payment date of interest				-								
Withholding tax including surcharge on interest				-								
Schedule repayment date of principal												
Scheduled payment date of interest				-								
Withholding tax including surcharge on interest				-								
At the end of Financial year			0.00	-								

0.15% (Amount in Lacs)

(Amount in Lacs)

(Amount in Lacs)

Financial Year (Starting from COD)	2019-20 (01.04.2019 to 31.03.2020)				2020-21 (01.04.2020 to 31.03.2021)				2021-22 (01.04.2021 to 31.03.2022)			
	1	2	3	4	1	2	3	4	1	2	3	4
USD 750M Drawl III	Date	Amount (FC)	Ex. Rate	Amount (INR)	Date	Amount (FC)	Ex. Rate	Amount (INR)	Date	Amount (FC)	Ex. Rate	Amount (INR)
Currency 1 JPY												
At the date of drawl				-								
Loan repayment upto previous period												
Net loan at the Beginning of the period				-								
Schedule repayment date of principal												
Scheduled payment date of interest				-								
Withholding tax including surcharge on interest				-								
Schedule repayment date of principal												
Scheduled payment date of interest				-								
Withholding tax including surcharge on interest				-								
Schedule repayment date of principal												
Scheduled payment date of interest				-								
Withholding tax including surcharge on interest				-								
At the end of Financial year			0.00	-								

1.94% (Amount in Lacs)

(Amount in Lacs)

(Amount in Lacs)

Financial Year (Starting from COD)	2019-20 (01.04.2019 to 31.03.2020)				2020-21 (01.04.2020 to 31.03.2021)				2021-22 (01.04.2021 to 31.03.2022)			
	1	2	3	4	1	2	3	4	1	2	3	4
USD 750M Drawl IV	Date	Amount (FC)	Ex. Rate	Amount (INR)	Date	Amount (FC)	Ex. Rate	Amount (INR)	Date	Amount (FC)	Ex. Rate	Amount (INR)
Currency 1 JPY												
At the date of drawl				-								
Loan repayment upto previous period												
Net loan at the Beginning of the period				-								
Schedule repayment date of principal												
Scheduled payment date of interest				-								
Withholding tax including surcharge on interest				-								
Schedule repayment date of principal												
Scheduled payment date of interest				-								
Withholding tax including surcharge on interest				-								
Schedule repayment date of principal												
Scheduled payment date of interest				-								
Withholding tax including surcharge on interest				-								
At the end of Financial year			0.00	-								

0.85% (Amount in Lacs)

(Amount in Lacs)

(Amount in Lacs)

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Financial Year (Starting from COD)	2019-20 (01.04.2019 to 31.03.2020)				2020-21 (01.04.2020 to 31.03.2021)				2021-22 (01.04.2021 to 31.03.2022)			
	1	2	3	4	1	2	3	4	1	2	3	4
USD 750M Drawl V	Date	Amount (FC)	Ex. Rate	Amount (INR)	Date	Amount (FC)	Ex. Rate	Amount (INR)	Date	Amount (FC)	Ex. Rate	Amount (INR)
Currency 1 JPY												
At the date of drawl				-								
Loan repayment upto previous period												
Net loan at the Beginning of the period				-								
Schedule repayment date of principal												
Scheduled payment date of interest				-								
Withholding tax including surcharge on interest				-								
Schedule repayment date of principal												
Scheduled payment date of interest				-								
Withholding tax including surcharge on interest				-								
Schedule repayment date of principal												
Scheduled payment date of interest				-								
Withholding tax including surcharge on interest				-								
At the end of Financial year			0.00	-								

3.04% (Amount in Lacs)

(Amount in Lacs)

(Amount in Lacs)

Financial Year (Starting from COD)	2019-20 (01.04.2019 to 31.03.2020)				2020-21 (01.04.2020 to 31.03.2021)				2021-22 (01.04.2021 to 31.03.2022)			
	1	2	3	4	1	2	3	4	1	2	3	4
USD 750M Drawl VI	Date	Amount (FC)	Ex. Rate	Amount (INR)	Date	Amount (FC)	Ex. Rate	Amount (INR)	Date	Amount (FC)	Ex. Rate	Amount (INR)
Currency 1 JPY												
At the date of drawl				-								
Loan repayment upto previous period												
Net loan at the Beginning of the period				-								
Schedule repayment date of principal												
Scheduled payment date of interest				-								
Withholding tax including surcharge on interest				-								
Schedule repayment date of principal												
Scheduled payment date of interest				-								
Withholding tax including surcharge on interest				-								
Schedule repayment date of principal												
Scheduled payment date of interest				-								
Withholding tax including surcharge on interest				-								
At the end of Financial year			0.00	-								

1.03% (Amount in Lacs)

(Amount in Lacs)

(Amount in Lacs)

Financial Year (Starting from COD)	2019-20 (01.04.2019 to 31.03.2020)				2020-21 (01.04.2020 to 31.03.2021)				2021-22 (01.04.2021 to 31.03.2022)			
	1	2	3	4	1	2	3	4	1	2	3	4
JPY Equ. \$400 Million Drawl I	Date	Amount (FC)	Ex. Rate	Amount (INR)	Date	Amount (FC)	Ex. Rate	Amount (INR)	Date	Amount (FC)	Ex. Rate	Amount (INR)
Currency 1 JPY												
At the date of drawl				-								
Loan repayment upto previous period												
Net loan at the Beginning of the period				-								
Schedule repayment date of principal												
Scheduled payment date of interest				-								
Withholding tax including surcharge on interest				-								
Schedule repayment date of principal												
Scheduled payment date of interest				-								
Withholding tax including surcharge on interest				-								
Schedule repayment date of principal												
Scheduled payment date of interest				-								

Withholding tax including surcharge on interest				-								
ERV					31-03-2021			-	31-03-2022			-
At the end of Financial year			0.00	-	31-03-2021	-	0.67	-	31-03-2022	-	0.63	-

Financial Year (Starting from COD)	0.11% (Amount in Lacs)				(Amount in Lacs)				(Amount in Lacs)			
	2019-20 (01.04.2019 to 31.03.2020)				2020-21 (01.04.2020 to 31.03.2021)				2021-22 (01.04.2021 to 31.03.2022)			
	1	2	3	4	1	2	3	4	1	2	3	4
JPY Equ. \$400 Million Draw II	Date	Amount (FC)	Ex. Rate	Amount (INR)	Date	Amount (FC)	Ex. Rate	Amount (INR)	Date	Amount (FC)	Ex. Rate	Amount (INR)
Currency 1 JPY												
At the date of draw				-								
Loan repayment upto previous period												
Net loan at the Beginning of the period				-								
Schedule repayment date of principal												
Scheduled payment date of interest				-								
Withholding tax including surcharge on interest				-								
Schedule repayment date of principal												
Scheduled payment date of interest				-								
Withholding tax including surcharge on interest				-								
Schedule repayment date of principal												
Scheduled payment date of interest				-								
Withholding tax including surcharge on interest				-								
ERV					31-03-2021			-	31-03-2022			-
At the end of Financial year			0.00	-	31-03-2021	-	0.67	-	31-03-2022	-	0.63	-

Financial Year (Starting from COD)	0.00% (Amount in Lacs)				(Amount in Lacs)				(Amount in Lacs)			
	2019-20 (01.04.2019 to 31.03.2020)				2020-21 (01.04.2020 to 31.03.2021)				2021-22 (01.04.2021 to 31.03.2022)			
	1	2	3	4	1	2	3	4	1	2	3	4
JPY Equ. \$400 Million Draw III	Date	Amount (FC)	Ex. Rate	Amount (INR)	Date	Amount (FC)	Ex. Rate	Amount (INR)	Date	Amount (FC)	Ex. Rate	Amount (INR)
Currency 1 JPY												
At the date of draw				-								
Loan repayment upto previous period												
Net loan at the Beginning of the period				-								
Schedule repayment date of principal												
Scheduled payment date of interest				-								
Withholding tax including surcharge on interest				-								
Schedule repayment date of principal												
Scheduled payment date of interest				-								
Withholding tax including surcharge on interest				-								
Schedule repayment date of principal												
Scheduled payment date of interest				-								
Withholding tax including surcharge on interest				-								
ERV					31-03-2021			-	31-03-2022			-
At the end of Financial year			0.00	-	31-03-2021	-	0.67	-	31-03-2022	-	0.63	-

Financial Year (Starting from COD)	0.48% (Amount in Lacs)				(Amount in Lacs)				(Amount in Lacs)			
	2019-20 (01.04.2019 to 31.03.2020)				2020-21 (01.04.2020 to 31.03.2021)				2021-22 (01.04.2021 to 31.03.2022)			
	1	2	3	4	1	2	3	4	1	2	3	4
JPY Equ. \$400 Million Draw IV	Date	Amount (FC)	Ex. Rate	Amount (INR)	Date	Amount (FC)	Ex. Rate	Amount (INR)	Date	Amount (FC)	Ex. Rate	Amount (INR)
Currency 1 JPY												
At the date of draw				-								

Loan repayment upto previous period												
Net loan at the Beginning of the period				-								
Schedule repayment date of principal												
Scheduled payment date of interest				-								
Withholding tax including surcharge on interest				-								
Schedule repayment date of principal												
Scheduled payment date of interest				-								
Withholding tax including surcharge on interest				-								
Schedule repayment date of principal												
Scheduled payment date of interest				-								
Withholding tax including surcharge on interest				-								
ERV					31-03-2021			-	31-03-2022			-
At the end of Financial year			0.00	-	31-03-2021	-	0.67	-	31-03-2022	-	0.63	-

Form-4

Name of the company \_\_\_\_\_  
 Name of the Power Station \_\_\_\_\_  
 Exchange Rate as on \_\_\_\_\_  
 Exchange Rate as on \_\_\_\_\_  
 Exchange Rate as on \_\_\_\_\_  
 Exchange Rate as on \_\_\_\_\_  
 Exchange Rate as on \_\_\_\_\_

(Amount in Lacs)

(Amount in Lacs)

Financial Year (Starting from COO)	2022-23 (01.04.2022 to 31.03.2023)				2023-24 (01.04.2023 to 31.03.2024)			
	1	2	3	4	1	2	3	4
Euro Loan I Draw I	Date	Amount (FC)	Ex. Rate	Amount (INR)	Date	Amount (FC)	Ex. Rate	Amount (INR)
<b>Currency 1 JPY</b>								
At the date of draw	01-04-2022	26.64	85.76	2,284.45	01-04-2023	26.64	90.87	2,420.58
Loan repayment upto previous period								
Net loan at the Beginning of the period	01-04-2022	26.64	85.76	2,284.45	01-04-2023	26.64	90.87	2,420.58
Schedule repayment date of principal								
Scheduled payment date of interest	06-06-2022	0.13	82.86	10.58	06-06-2023	0.45	88.86	40.07
Withholding tax including surcharge on interest	06-06-2022	0.00	82.82	0.19	06-06-2023	0.01	88.12	0.71
Schedule repayment date of principal								
Scheduled payment date of interest	06-12-2022	0.13	85.46	10.99	06-12-2023	0.63	90.80	57.30
Withholding tax including surcharge on interest	06-12-2022	0.00	84.32	0.19	06-12-2023	0.01	89.87	1.01
Schedule repayment date of principal								
Scheduled payment date of interest								
Withholding tax including surcharge on interest								
	31-03-2023			136.12	31-03-2024			17.05
<b>At the end of Financial year</b>	31-03-2023	<b>26.64</b>	<b>90.87</b>	<b>2,420.58</b>	31-03-2024	<b>26.64</b>	<b>91.51</b>	<b>2,437.63</b>

(Amount in Lacs)

(Amount in Lacs)

Financial Year (Starting from COO)	2022-23 (01.04.2022 to 31.03.2023)				2023-24 (01.04.2023 to 31.03.2024)			
	1	2	3	4	1	2	3	4
Euro Loan I Draw I	Date	Amount (FC)	Ex. Rate	Amount (INR)	Date	Amount (FC)	Ex. Rate	Amount (INR)
<b>Currency 1 JPY</b>								
At the date of draw	01-04-2022	85.58	87.31	7,472.00	01-04-2023	85.58	90.87	7,776.76
Loan repayment upto previous period								
Net loan at the Beginning of the period	01-04-2022	85.58	87.31	7,472.00	01-04-2023	85.58	90.87	7,776.76
Schedule repayment date of principal								
Scheduled payment date of interest	06-06-2022	0.41	82.66	33.98	06-06-2023	1.45	88.66	128.73
Withholding tax including surcharge on interest	06-06-2022	0.01	82.82	0.60	06-06-2023	0.03	88.12	2.27
Schedule repayment date of principal								
Scheduled payment date of interest	06-12-2022	0.41	85.46	35.32	06-12-2023	2.04	90.80	184.38
Withholding tax including surcharge on interest	06-12-2022	0.01	84.32	0.61	06-12-2023	0.04	89.87	3.24
Schedule repayment date of principal								
Scheduled payment date of interest								
Withholding tax including surcharge on interest								
	31-03-2023			304.76	31-03-2024			54.77
<b>At the end of Financial year</b>	31-03-2023	<b>85.58</b>	<b>90.87</b>	<b>7,776.76</b>	31-03-2024	<b>85.58</b>	<b>91.51</b>	<b>7,831.93</b>



(Amount in Lacs)					(Amount in Lacs)			
Financial Year (Starting from COO)	2022-23 (01.04.2022 to 31.03.2023)				2023-24 (01.04.2023 to 31.03.2024)			
1	2	3	4	1	2	3	4	
Euro Loan I Drawl III	Date	Amount (FC)	Ex. Rate	Amount (INR)	Date	Amount (FC)	Ex. Rate	Amount (INR)
Currency 1 JPY								
At the date of drawl	01-04-2022	54.37	85.75	4,662.81	01-04-2023	54.37	80.87	4,940.64
Loan repayment upto previous period								
Net loan at the Beginning of the period	01-04-2022	54.37	85.75	4,662.81	01-04-2023	54.37	80.87	4,940.64
Schedule repayment date of principal								
Scheduled payment date of interest	08-08-2022	0.26	82.66	21.58	08-08-2023	0.92	88.88	81.78
Withholding tax including surcharge on interest	06-08-2022	0.00	82.82	0.37	06-08-2023	0.02	88.12	1.44
Schedule repayment date of principal								
Scheduled payment date of interest	06-12-2022	0.26	85.46	22.44	06-12-2023	1.29	90.60	117.14
Withholding tax including surcharge on interest	06-12-2022	0.00	84.32	0.38	06-12-2023	0.02	88.57	2.06
Schedule repayment date of principal								
Scheduled payment date of interest								
Withholding tax including surcharge on interest								
At the end of Financial year	31-03-2023			277.33	31-03-2024			34.80
	31-03-2023	54.37	90.87	4,940.64	31-03-2024	54.37	91.31	4,975.44

(Amount in Lacs)					(Amount in Lacs)			
Financial Year (Starting from COO)	2022-23 (01.04.2022 to 31.03.2023)				2023-24 (01.04.2023 to 31.03.2024)			
1	2	3	4	1	2	3	4	
USD 750M Drawl I	Date	Amount (FC)	Ex. Rate	Amount (INR)	Date	Amount (FC)	Ex. Rate	Amount (INR)
Currency 1 JPY								
At the date of drawl	25-04-2022	34	76.16	2,600.00	01-04-2023	34.14	82.74	2,824.53
Loan repayment upto previous period								
Net loan at the Beginning of the period	25-04-2022	34	76.16	2,600.00	01-04-2023	34.14	82.74	2,824.53
Schedule repayment date of principal								
Scheduled payment date of interest	25-07-2022	0.18	80.02	14.63	25-04-2023	0.98	82.15	80.30
Withholding tax including surcharge on interest	25-07-2022	0.00	79.81	0.11	25-04-2023	0.01	81.72	0.61
Schedule repayment date of principal								
Scheduled payment date of interest	25-10-2022	0.32	83.14	26.91	25-10-2023	1.09	83.19	90.33
Withholding tax including surcharge on interest	25-10-2022	0.00	82.65	0.20	25-10-2023	0.01	82.78	0.68
Schedule repayment date of principal								
Scheduled payment date of interest								
Withholding tax including surcharge on interest								
At the end of Financial year	31-03-2023			224.53	31-03-2024			41.31
	31-03-2023	34.14	82.74	2,824.53	31-03-2024	34.14	83.95	2,865.83

(Amount in Lacs)					(Amount in Lacs)			
Financial Year (Starting from COO)	2022-23 (01.04.2022 to 31.03.2023)				2023-24 (01.04.2023 to 31.03.2024)			
1	2	3	4	1	2	3	4	
USD 750M Drawl II	Date	Amount (FC)	Ex. Rate	Amount (INR)	Date	Amount (FC)	Ex. Rate	Amount (INR)
Currency 1 JPY								
At the date of drawl	28-07-2022	33	79.87	2,600.00	01-04-2023	32.65	82.74	2,693.28
Loan repayment upto previous period								
Net loan at the Beginning of the period	28-07-2022	33	79.87	2,600.00	01-04-2023	32.65	82.74	2,693.28

Schedule repayment date of principal								
Scheduled payment date of interest					26-04-2023	0.03	82.15	78.57
Withholding tax including surcharge on interest					25-04-2023	0.01	81.72	0.58
Schedule repayment date of principal								
Scheduled payment date of interest	25-10-2022	0.30	83.14	24.78	26-10-2023	1.04	83.10	58.13
Withholding tax including surcharge on interest	25-10-2022	0.00	82.55	0.19	25-10-2023	0.01	82.78	0.65
Schedule repayment date of principal								
Scheduled payment date of interest								
Withholding tax including surcharge on interest								
	31-03-2023			93.28	31-03-2024			39.39
<b>At the end of Financial year</b>	31-03-2023	32.55	82.74	2,683.28	31-03-2024	32.55	83.95	2,732.67

(Amount in Laos)

(Amount in Laos)

Financial Year (Starting from COD)	2022-23 (01.04.2022 to 31.03.2023)				2023-24 (01.04.2023 to 31.03.2024)			
	1	2	3	4	1	2	3	4
USD 750M Drawl III	Date	Amount (FC)	Ex. Rate	Amount (INR)	Date	Amount (FC)	Ex. Rate	Amount (INR)
Currency 1 JPY								
At the date of drawl	28-09-2022	4	81.58	300.00	01-04-2023	3.68	82.74	304.28
Loan repayment upto previous period								
Net loan at the Beginning of the period	25-09-2022	4	81.58	300.00	01-04-2023	3.68	82.74	304.28
Schedule repayment date of principal								
Scheduled payment date of interest					26-04-2023	0.11	82.15	8.85
Withholding tax including surcharge on interest					25-04-2023	0.00	81.72	0.97
Schedule repayment date of principal								
Scheduled payment date of interest	25-10-2022	0.01	83.14	0.95	25-10-2023	0.12	83.19	9.73
Withholding tax including surcharge on interest	25-10-2022	0.00	82.55	0.01	25-10-2023	0.00	82.78	0.07
Schedule repayment date of principal								
Scheduled payment date of interest								
Withholding tax including surcharge on interest								
	31-03-2023			4.28	31-03-2024			4.43
<b>At the end of Financial year</b>	31-03-2023	3.68	82.74	304.28	31-03-2024	3.68	83.95	308.73

(Amount in Laos)

(Amount in Laos)

Financial Year (Starting from COD)	2022-23 (01.04.2022 to 31.03.2023)				2023-24 (01.04.2023 to 31.03.2024)			
	1	2	3	4	1	2	3	4
USD 750M Drawl IV	Date	Amount (FC)	Ex. Rate	Amount (INR)	Date	Amount (FC)	Ex. Rate	Amount (INR)
Currency 1 JPY								
At the date of drawl	09-11-2022	19	82.46	1,600.00	01-04-2023	19.40	82.74	1,605.39
Loan repayment upto previous period								
Net loan at the Beginning of the period	09-11-2022	19	82.46	1,600.00	01-04-2023	19.40	82.74	1,605.39
Schedule repayment date of principal								
Scheduled payment date of interest					26-04-2023	0.51	82.15	42.20
Withholding tax including surcharge on interest					25-04-2023	0.00	81.72	0.32
Schedule repayment date of principal								
Scheduled payment date of interest					26-10-2023	0.82	83.19	61.34
Withholding tax including surcharge on interest					25-10-2023	0.00	82.78	0.38
Schedule repayment date of principal								
Scheduled payment date of interest								
Withholding tax including surcharge on interest								
	31-03-2023			5.39	31-03-2024			23.48
<b>At the end of Financial year</b>	31-03-2023	19.40	82.74	1,605.39	31-03-2024	19.40	83.95	1,628.67

(Amount in Laos)

(Amount in Laos)

Financial Year (Starting from COO)	2022-23 (01.04.2022 to 31.03.2023)				2023-24 (01.04.2023 to 31.03.2024)			
	1	2	3	4	1	2	3	4
USD 750M Drawl V	Date	Amount (FC)	Ex. Rate	Amount (INR)	Date	Amount (FC)	Ex. Rate	Amount (INR)
Currency 1 JPY								
At the date of drawl	23-12-2022	8	82.74	700.00	01-04-2023	8.46	82.74	700.03
Loan repayment upto previous period								
Net loan at the Beginning of the period	23-12-2022	8	82.74	700.00	01-04-2023	8.46	82.74	700.03
Schedule repayment date of principal								
Scheduled payment date of interest					25-04-2023	0.17	82.15	13.71
Withholding tax including surcharge on interest					25-04-2023	0.00	81.72	0.10
Schedule repayment date of principal								
Scheduled payment date of interest					25-10-2023	0.27	83.10	22.36
Withholding tax including surcharge on interest					25-10-2023	0.00	82.78	0.17
Schedule repayment date of principal								
Scheduled payment date of interest								
Withholding tax including surcharge on interest								
	31-03-2023			0.03	31-03-2024			10.24
At the end of Financial year	31-03-2023	8.46	82.74	700.03	31-03-2024	8.46	83.95	710.27

(Amount in Lacs)

(Amount in Lacs)

Financial Year (Starting from COO)	2022-23 (01.04.2022 to 31.03.2023)				2023-24 (01.04.2023 to 31.03.2024)			
	1	2	3	4	1	2	3	4
USD 750M Drawl VI	Date	Amount (FC)	Ex. Rate	Amount (INR)	Date	Amount (FC)	Ex. Rate	Amount (INR)
Currency 1 JPY								
At the date of drawl	08-02-2023	38	82.44	3,000.00	01-04-2023	36.39	82.74	3,010.88
Loan repayment upto previous period								
Net loan at the Beginning of the period	08-02-2023	38	82.44	3,000.00	01-04-2023	36.39	82.74	3,010.88
Schedule repayment date of principal								
Scheduled payment date of interest					25-04-2023	0.45	82.15	36.90
Withholding tax including surcharge on interest					25-04-2023	0.00	81.72	0.28
Schedule repayment date of principal								
Scheduled payment date of interest					25-10-2023	1.16	83.10	96.29
Withholding tax including surcharge on interest					25-10-2023	0.01	82.78	0.73
Schedule repayment date of principal								
Scheduled payment date of interest								
Withholding tax including surcharge on interest								
	31-03-2023			10.88	31-03-2024			44.03
At the end of Financial year	31-03-2023	36.39	82.74	3,010.88	31-03-2024	36.39	83.95	3,054.91

(Amount in Lacs)

(Amount in Lacs)

Financial Year (Starting from COO)	2022-23 (01.04.2022 to 31.03.2023)				2023-24 (01.04.2023 to 31.03.2024)			
	1	2	3	4	1	2	3	4
JPY Equ. \$400 Million Drawl I	Date	Amount (FC)	Ex. Rate	Amount (INR)	Date	Amount (FC)	Ex. Rate	Amount (INR)
Currency 1 JPY								
At the date of drawl					15-05-2023	2.210	0.61	1,350.00
Loan repayment upto previous period								
Net loan at the Beginning of the period					15-05-2023	2,208.87	0.61	1,350.00
Schedule repayment date of principal								
Scheduled payment date of interest								
Withholding tax including surcharge on interest								
Schedule repayment date of principal								
Scheduled payment date of interest					15-11-2023	13.37	0.65	7.37
Withholding tax including surcharge on interest								
Schedule repayment date of principal								
Scheduled payment date of interest								

Withholding tax including surcharge on interest									
ERV					31-03-2024				117.89
At the end of Financial year					31-03-2024	2,208.67	0.56		1,232.11

(Amount in Lacs)

(Amount in Lacs)

Financial Year (Starting from COD)	2022-23 (01.04.2022 to 31.03.2023)				2023-24 (01.04.2023 to 31.03.2024)			
	1	2	3	4	1	2	3	4
JPY Equ. \$400 Million Drawl II	Date	Amount (FC)	Ex. Rate	Amount (INR)	Date	Amount (FC)	Ex. Rate	Amount (INR)
Currency 1 JPY								
At the date of drawl					24-07-2023	8,493	0.59	5,000.00
Loan repayment upto previous period								
Net loan at the Beginning of the period					24-07-2023	8,492.83	0.59	5,000.00
Schedule repayment date of principal								
Scheduled payment date of interest								
Withholding tax including surcharge on interest								
Schedule repayment date of principal								
Scheduled payment date of interest					15-11-2023	31.83	0.55	17.56
Withholding tax including surcharge on interest								
Schedule repayment date of principal								
Scheduled payment date of interest								
Withholding tax including surcharge on interest								
ERV					31-03-2024			284.34
At the end of Financial year					31-03-2024	8,492.93	0.56	4,735.66

(Amount in Lacs)

(Amount in Lacs)

Financial Year (Starting from COD)	2022-23 (01.04.2022 to 31.03.2023)				2023-24 (01.04.2023 to 31.03.2024)			
	1	2	3	4	1	2	3	4
JPY Equ. \$400 Million Drawl III	Date	Amount (FC)	Ex. Rate	Amount (INR)	Date	Amount (FC)	Ex. Rate	Amount (INR)
Currency 1 JPY								
At the date of drawl					25-09-2023	-	0.56	-
Loan repayment upto previous period								
Net loan at the Beginning of the period					25-09-2023	-	0.56	-
Schedule repayment date of principal								
Scheduled payment date of interest								
Withholding tax including surcharge on interest								
Schedule repayment date of principal								
Scheduled payment date of interest					15-11-2023	-	0.56	-
Withholding tax including surcharge on interest								
Schedule repayment date of principal								
Scheduled payment date of interest								
Withholding tax including surcharge on interest								
ERV					31-03-2024			-
At the end of Financial year					31-03-2024	-	0.56	-

(Amount in Lacs)

(Amount in Lacs)

Financial Year (Starting from COD)	2022-23 (01.04.2022 to 31.03.2023)				2023-24 (01.04.2023 to 31.03.2024)			
	1	2	3	4	1	2	3	4
JPY Equ. \$400 Million Drawl IV	Date	Amount (FC)	Ex. Rate	Amount (INR)	Date	Amount (FC)	Ex. Rate	Amount (INR)
Currency 1 JPY								
At the date of drawl					22-12-2023	891	0.56	400.00

Loan repayment upto previous period								
Net loan at the Beginning of the period					22-12-2023	901	0.58	400.00
Schedule repayment date of principal								
Scheduled payment date of interest								
Withholding tax including surcharge on interest								
Schedule repayment date of principal								
Scheduled payment date of interest								
Withholding tax including surcharge on interest								
Schedule repayment date of principal								
Scheduled payment date of interest								
Withholding tax including surcharge on interest								
ERV					31-03-2024		-	14.67
At the end of Financial year					31-03-2024	691.06	0.56	385.33

**Statement of Financial Position of Project Finance Trusts as Consolidated at June 30, 2019**

FORM 4

Page 8

FINANCIAL NO.:

BT NO. 2019000762

(2019)

DEBIT

Unsecured Loan from AIG BANK		
Source of Loan:	AIG BANK	
Country:	USA	
Amount of Loan:	25,000,000,000	
Total Drawn amount:	5,000,000,000	
Date of Draw:	11/27/2019	
Interest Type:	Floating	
Fixed Interest Rate:		
Rate Rate of Floating Interest:	3000001-5.00%	
Margin of Floating Interest:	-	
Are there any Caps/Floor:	Yes	
Frequency of Int. Payment:	MONTHLY	
If Applicable, specify Cap/Floor:		
Maturity Period:	2 Years	
Maximum effective term:	11/27/2019	
Repayment Period (inc. Maturity):	12 Years	
Repayment Frequency:	5 Years (5 years) instalment	
Repayment Type:	AVG	
First Repayment Date:	11/27/2021	
Swap Exchange Rate:	USD/SGD	
Date of Swap Exchange Rate:	N/A	
Project Code	Project Name	Amount
	SGD-1	50,000,000,000
	SGD-2/SGD-3	2,280,000,000,000
	SGD-4/SGD-5	24,000,000,000
	SGD-6/SGD-7/SGD-8	30,000,000,000
	<b>SGD-9</b>	<b>1,250,000,000,000</b>
	<b>Total Allocated Amount:</b>	<b>1,336,000,000,000</b>

Form 8		
FINANCIAL NO		
BY NO 00000070	10000	00007
Allocated Loan from AIB BANK		
Source of Loan	AIB BANK	
Currency	EUR	
Amount of Loan	33,00,00,000	
Total Drawn amount	4,00,00,000	
Date of Draw	18/04/2022	
Interest Type	Floting	
Fixed Interest Rate		
Base Rate of Floting Interest	7.45%	
Margin of Floting Interest	-	
Are Interest Caps Used	NO	
Frequency of Int. Payment	MONTHLY	
If Above is (yes, specify) Caps Used		
Maturity Period	5 Years	
Maturity at Draw Date	18/04/2027	
Repayment Period (No Structure)	12 Years	
Repayment Frequency	6 Years (Yearly) Instalment	
Repayment Type	AVD	
First Repayment Date	11/07/2022	
Base Exchange Rate	EUR/USD	
Date of Base Exchange Rate	N/A	
Project Code	Project Name	Amount
	EU/HAUKBOCAR/2019/W	33,00,00,000
	THRU P&I CDAL W/RE	4,00,00,000
	RENDAM CDAL W/RE	3,60,00,000
	Total Allocated Amount	4,00,00,000
Loan Allocated to LAMA via 1 01/06/2021		
TRANSFERRED TO LAMA ON 1/7/2022		

Form X		
(MARCH 2024)		
BP NO (SUBSIDY)	10000	00000
BORROWER (see form ADD-BOR-01)		
Source of Loan:	AUB BANK @	
Country:	IN	
Amount of Loan:	5,00,00,00,000	
Total Drawn amount:	5,43,00,00,000	
Date of Draw:	24.08.2023	
Interest Type:	Floating	
Fixed Interest Rate:		
Base Rate, if Floating Interest:	8.25%	
Margin, if Floating Interest:	-	
Are there any Cap/Floor:	No	
Frequency of Int. Payment:	MONTHLY	
If Floor is (yes, specify Cap/Floor):		
Maturity Period:	0 Year	
Maturity effective from:	24.08.2023	
Repayment Period (inc. Maturity):	18 Years	
Repayment Frequency:	12 Years' TANDY (TANDEM)	
Repayment Type:	AUG	
First Repayment Date:	24.08.2024	
Base Exchange Rate:	INR/USD	
Date of Base Exchange Rate:	N/A	
Project Code	Project Name	Amount
	DAV, PULI	28,00,00,000.00
	SHANTARA	1,00,00,000.00
	TELANGANA DDA, MINE	18,00,00,000.00
	TELANGANA DDA, MINE	22,00,00,000.00
	TELANGANA VERHUGARE	25,00,00,000.00
	TELANGANA	5,00,00,000.00
	<b>Total Allocated Amount:</b>	<b>5,43,00,00,000</b>



Form 8		
HOA/POE NO.		
SP No. Subpart	100000	00000
Interest Loan from ABB BANK Ltd		
Source of Loan	ABB BANK Ltd	
Currency	USD	
Amount of Loan	\$ 25,000,000	
Total Drawn amount	\$ 25,000,000	
Date of Draw	28.08.2023	
Interest Type	Floating	
Fixed Interest Rate		
Base Rate of Floating Interest	8.25%	
Margin of Floating Interest	-	
Are there any Caps/Floors	YES	
Frequency of HC Payment	MONTHLY	
If Applicable, specify Cap/Floor		
Maximum Period	3 Years	
Maximum Effective Date	28.08.2023	
Repayment Period (No. Installments)	18 Years	
Repayment Frequency	12 yearly Yearly Installment	
Repayment Type	AVS	
First Repayment Date	24.08.2024	
Base Swap Rate	5.25%	
Date of Base Swap Rate	N/A	
Project Code	Project Name	Amount
	TRULIFLEX DDAU 11182	\$ 25,000,000.00
Total Allocated Amount		\$ 25,000,000

Form 9		
(BRANCH NO)		
BT NO 00001371	100001	00001
Allocated Loan from AIB BANK-IR		
Source of Loan	AIB BANK-IR	
Currency	USD	
Amount of Loan	10,00,00,000	
Total Drawn amount	10,00,00,000	
Date of Draw	20-10-20	
Interest Type	Floating	
Fixed Interest Rate		
Base Rate (if Floating Interest)	5.00%	
Margin (if Floating Interest)	-	
Are Interest Caps Fixed	YES	
Frequency of Int. Payment	MONTHLY	
If Above is (Yes/No) Caps Fixed		
Maturity Period	5 Years	
Maturity at Par or Not	NO	
Redemption Period (No Structure)	10 Years	
Redemption Frequency	10 Years Intermittent	
Redemption Type	AVG	
First Redemption Date	20.10.2024	
Base Exchange Rate	1:100	
Date of Base Exchange Rate	N/A	
Project Code	Project Name	Amount
	TKANDA-I	10,00,00,000.00
	NSDF-02	14,00,00,000.00
	ITTS-01/04	8,00,00,000.00
	BAKH-I	2,50,00,000.00
	NORTH PARADISE	10,00,00,000.00
	LAMA	2,50,00,000.00
	SADAFRIVA	4,50,00,000.00
	DAR-PALLI	1,94,00,000.00
	SHARON	1,19,00,000.00
	TELANGANA	1,50,00,000.00
	BRINDAB	5,40,00,000.00
	CHATT BANGLA	5,00,00,000.00
	TAPCHIA VISHUJAG	10,90,00,000.00
	TKANDA	10,00,00,000.00
	Total Allocated Amount	10,00,00,000

Form 9		(FRANCHISE NO.)	
BP NO. 0000012X		100001	
000001			
Checked Loan From Bank of Baroda V			
Source of Loan:	Bank of Baroda V		
Currency:	INR		
Amount of Loan:	20000000.000		
Total Check amount:	20000000.000		
Date of Issue:	2023-08-01		
Interest Type:	Floating		
Fixed Interest Rate:			
Base Rate / Floating Interest:	1.12%		
Margin / Floating Interest:	5%		
Are there any Cap/Floor:	No		
Frequency of Payment:	Monthly		
If Above is yes, specify Cap/Floor:			
Maturity Period:	2 Years		
Maturity effective from:	20-04-23		
Repayment Period (No. Installment):	18 Years		
Repayment Frequency:	12 Years		
Repayment Type:	AVG		
First Repayment Date:	11/11/2023		
Base Exchange Rate:	INR/USD		
Date of Base Exchange Rate:			
Project Code	Project Name	Amount	
	FARDIAI TISHNUGARH	20000000.00	
	DARUBALLI	20000000.00	
	VAISHNABAI	20000000.00	
	<b>TALPALLI COL. 0002</b>	<b>20000000.00</b>	
	NORTH KARANPURA STREET	20000000.00	
	KANADJUDAI RUDAYNG SOLAR	20000000.00	
	KANADJUDAI RS (70 MW)	20000000.00	
	KURAVI SOLAR RS 200W	20000000.00	
	NETAR SOLAR (200W)	20000000.00	
	DEVHOI SOLAR (200 MW)	20000000.00	
	DEVHOI SOLAR (200 MW)	20000000.00	
	STYANARUDAI SOLAR (200MW)	20000000.00	
	<b>Total Released Amount</b>	<b>200000000.00</b>	

Form 8		
FRANCHISE NO.		
BP NO. 000000121	10000	00000
Unlevered Loan from Bank Of India V A		
Source of Loan:	Bank Of India V A	
Contract:	N/A	
Amount of Loan:	11,00,10,00,000	
Total Drawn amount:	1,44,00,000	
Date of Draw:	08.05.2021	
Interest Type:	Floating	
Fixed Interest Rate:		
Base Rate, if Floating Interest:	5.55%	
Margin, if Floating interest:	N/A	
Are there any Cap/Floor:	N/A	
Frequency of Int. Payment:	Monthly	
If there is any, specify Cap/Floor:		
Maturity Period:	2 Years	
Maturity effective from:	08.05.2021	
Repayment Period (if Maturity):	15 Years	
Repayment Frequency:	Yearly	
Repayment Type:	A/G	
First Repayment Date:	08.05.2025	
Swap Exchange Rate:	N/A	
Date of Swap Exchange Rate:		
Project Code	Project Name	Amount
	NAI, A/Prj_01	1,44,00,000.00
	Total Allocated Amount	1,44,00,000

Form 8		
(FINANCIAL HQ)		
BY HQ (00000000)	CLASS	0000
Allocated Loan from NDC Bank Ltd. v		
Source of Loan	NDC Bank Ltd. v	
Currency	USD	
Amount of Loan	20,000,000.00	
Total Drawn amount	20,000,000.00	
Date of Draw	01/11/2018	
Interest Type	Flating	
Fixed Interest Fee		
Base Rate of Flating Interest	5.0%	
Margin of Flating Interest	0%	
Are Interest Caps Used	Yes	
Frequency of Int. Payment	MONTHLY	
First Date of Int. Payment		
Maximum Period	5 Years	
Maximum Maturity Date	01/11/2023	
Repayment Period (No Structure)	15 Years	
Repayment Frequency	5 Years instalment	
Repayment Type	AVG	
First Repayment Date	01/12/2024	
Base Exchange Rate	USD	
Date of Base Exchange Rate	N/A	
Project Code	Project Name	Amount
	LARA	20,000,000.00
	2018/SA/001/1/18	10,000,000.00
	2018/SA/001/1/18	10,000,000.00
	2018/SA/001/1/18	75,000,000.00
	2018/SA/001/1/18	75,000,000.00
	2018/SA/001/1/18	75,000,000.00
	<b>Total Allocated Amount</b>	<b>20,000,000.00</b>

Form B		
FRANCHE NO.		
BP (in thousands)	FRANCHE NO.	GROUP
(Unlevered Loans from MDC Bank Ltd. YR)		
Source of Loan:	MDC Bank Ltd. YR	
Currency:	INR	
Amount of Loan:	54,00,00,000	
Total Drawn amount:	5,88,00,00,000	
Date of draw:	11/08/2014	
Interest Type:	Floating	
Fixed Interest Rate:		
Base Rate of Floating Interest:	5.40%	
Margin of Floating Interest:	Nil	
Are there any Caps/Floor:	Yes	
Frequency of Int. Payment:	MONTHLY	
If Above is not specify Caps/Floor:		
Amortization Period:	5 Years	
Amortization effective from:	11/08/2014	
Repayment Period (No Amortization):	10 Years	
Repayment Frequency:	5 Years/ Half yearly	
Repayment Type:	AVD	
End Repayment Date:	11/08/2020	
Base Swap Rate:	6.0000	
Date of Base Swap Rate:	N/A	
Fixed Code	Fixed Name	Amount
	BP/IS/IGADN	5,21,00,00,000
	LARA	25,00,00,000
	TOPOLAN VISHVIGAS	18,00,00,000
	SARH	38,00,00,000
	SADAPYKKA	20,00,00,000
	CHETT SAKATHI ONE	18,00,00,000
	SARUNALI	20,00,00,000
	DULANDA ONE	18,00,00,000
	TRULATA ONE	38,00,00,000
	<b>Total Allocated Amount</b>	<b>5,88,00,00,000</b>

Form 8		
HOA/POE NO.		
SP NO	SP/NO/SP	SP/NO
Housing Loan from RDC Bank Ltd. VN		
Source of Loan	RDC Bank Ltd. VN	
Currency	VN	
Amount of Loan	24.00.000.000	
Coll. Pledge amount	0.00.000.000	
Date of Coll.	11/02/2020	
Interest Type	Floating	
Fixed Interest Rate		
Base Rate of Floating Interest	7.00%	
Margin of Floating Interest	0%	
Are there any Coll. Pledge	Yes	
Frequency of MC Payment	MONTHLY	
Is there a pre-emptive Coll. Pledge		
Maximum Period	8 Years	
Maximum Effective Year	11/02/2020	
Repayment Period (No Pre-emptive)	12 Years	
Repayment Frequency	6 Years Interval	
Repayment Type	AVS	
First Repayment Date	11/02/2020	
Base Exchange Rate	24,728	
Date of Base Exchange Rate	N/A	
Project Code	Project Name	Amount
	SAGE I	30.000.000
	SAGE VI (THUNG HOA)	30.000.000
	NORTH CALANGUA	20.000.000
	DAKIDALLI	22.000.000
	SAGE III	20.000.000
	SAGE VIII	1.250.000.000
	DCLA/CA CIB	1.000.000.000
	DCLA/CA CIB	20.000.000
	<b>Total Allocated Amount</b>	<b>5.950.000.000</b>

FRANCHISE NO		
BT NO 000000001	00001	00001
Unallocated Loan from HMC Bank Ltd. (A)		
Source of Loan	HMC Bank Ltd. (A)	
Currency	INR	
Amount of Loan	50,00,00,000	
Total Drawn amount	5,00,00,000	
Date of Draw	01/06/2024	
Interest Type	Floating	
Fixed Interest Rate		
Base Rate, if Floating Interest	8.20%	
Margin, if Floating Interest	Nil	
Are Interest Caps Fixed	Yes	
Frequency of Mt. Payment	MONTHLY	
If Above is (Yes, specify) Caps Fixed		
Maturity Period	5 Years	
Maturity Effective Date	01/06/2029	
Repayment Period (No Structure)	12 Years	
Repayment Frequency	12 Years instalment	
Repayment Type	AVG	
First Repayment Date	01/06/2024	
Base Swap Rate	5.75%	
Date of Base Swap Rate	N/A	
Project Code	Project Name	Amount
	SARAI	87,88,00,000
	RAJIVAN VENTURE	26,48,00,000
	RAJIV SAREKON DVB	49,00,00,000
	JARAI	26,48,00,000
	SHARARA	20,28,00,000
	DAKSHI	20,00,00,000
	THAKRA LOCAL WARE	18,00,00,000
	SARAI	20,00,00,000
	KUNDUR SOLAR 140MW	20,00,00,000
	JETALE SOLAR	5,00,00,000
	ERENDAR	18,00,00,000
	CHATTI SARAI DVB	15,48,00,000
	<b>Total Allocated Amount</b>	<b>5,00,00,00,000</b>



Form 8		FINANCIAL NO.	
SP NO	Subcategory	Amount	Amount
Operational Loan from NHTC Bank Ltd. (F)			
Source of Loan	MUD Bank Ltd. (F)		
Currency	USD		
Amount of Loan	20,00,00,000		
Cost of Loan amount	2.80,00,00,000		
Date of issue	11.08.2023		
Interest Type	Floating		
Fixed Interest Rate			
Base Rate of Floating Interest	8.25%		
Margin of Floating Interest	0%		
Are there any Caps/Floors	Yes		
Frequency of HC Payment	MONTHLY		
If Applicable, specify Caps/Floors			
Maximum Period	3 Years		
Maximum Effective Term	11.08.2024		
Repayment Period (No. Installments)	18 Years		
Repayment Frequency	12 yearly installments		
Repayment Type	AVS		
First Repayment Date	20.08.2024		
Base Exchange Rate	80.724		
Date of Base Exchange Rate	N/A		
Project Cost	Project Name	Amount	
	BART	75,00,00,000	
	SHAKHARA	30,00,00,000	
	NORTH GAZALPURKA	45,00,00,000	
	TELANGANA	55,00,00,000	
	<b>TOTAL</b>	<b>2,30,00,00,000</b>	
Total Allocated Amount			2,30,00,00,000

Form 8		
(MARCHE 2021)		
BP NO 000000001	10000	00000
Unsecured Loan From RMC Bank Ltd. 10		
Source of Loan:	RMC Bank Ltd. 10	
Country:	USA	
Amount of Loan:	50,000,000.000	
Total Drawn amount:	1,500,000,000	
Date of issue:	28.08.2020	
Interest Type:	Floating	
Fixed Interest Rate:		
Base Rate of Floating Interest:	5.50%	
Margin of Floating Interest:	5%	
Are there any Cap/Floor:	NO	
Frequency of Int. Payment:	MONTHLY	
If there is any special Cap/Floor:		
Maturity Period:	5 Years	
Maximum effective date:	28.08.2021	
Repayment Period (inc. Moratorium):	10 Years	
Repayment Frequency:	12 Yearsly Instalment	
Repayment Type:	AVG	
First Repayment Date:	21.08.2024	
Base Exchange Rate:	USD/INR	
Date of Base Exchange Rate:	N/A	
Project Code	Project Name	Amount
	SARH	50,000,000
	ADBS SAR	20,000,000
	NAVAGULCHALI & S&P	25,000,000
	TALUKA: DDA, MINE	20,000,000
	KIRINDAR	15,000,000
	Total Allocated Amount	1,500,000,000

Form B		
FINANCIAL STATEMENT		
SP No. Subcategory	Amount	Balance
Borrowings from NDFC Bank Ltd. (B)		
Source of loan	NDFC Bank Ltd. (B)	
Currency	INR	
Amount of loan	50,00,00,000	
Cost of loan amount	5.00,00,00,000	
Date of issue	12.11.2020	
Interest type	Floating	
Fixed Interest Rate		
Base Rate of Floating Interest	8.50%	
Margin of Floating Interest	0%	
Are there any Caps/Floors	Yes	
Frequency of HC Payment	MONTHLY	
Is there a pre-emptive Cap/Floor		
Maximum Period	3 Years	
Maximum effective term	12.11.2020	
Repayment Period (No Pre-emptive)	12 Years	
Repayment Frequency	12 Years Interest	
Repayment Type	AVS	
First Repayment Date	01.08.2024	
Base Exchange Rate	INR/USD	
Date of Base Exchange Rate	N/A	
Project Cost	Project Name	Amount
	SARAI	1,78,00,00,000.00
	BARAUNHA	28,00,00,000.00
	SOLAPUR	20,00,00,000.00
	TPPS R&M	1,00,00,000.00
	BHADRALI R&M	18,00,00,000.00
	KORGA R&M	18,00,00,000.00
	RAJESHWAR (L & S) R&M	42,80,00,000.00
	MOHAYACHAL R&M	18,00,00,000.00
	KARAKHA R&M	12,00,00,000.00
	UNDHAPUR R&M	18,00,00,000.00
	BIHARLI R&M	18,00,00,000.00
	BARONKEND R&M	1,80,00,000.00
	CHORIGAS R&M	2,00,00,000.00
	PERUR R&M	11,80,00,000.00
	KAMALGADN R&M	18,00,00,000.00
	SIMHADRI R&M	1,80,00,000.00
	CHATTI (BAROTI) CHS	28,00,00,000.00
	TALERA (COAL) CHS	18,00,00,000.00
	KIRANDEARI	18,00,00,000.00
	<b>Total Allocated Amount</b>	<b>1,00,00,00,000</b>

Form 9		
FRANCHISE NO.:		00000
BY MD NUMBER(S):		00000
Borrowed from MDCC Bank Ltd. &		
Source of Loan:	MDCC BANK LTD. &	
Currency:	USD	
Amount of Loan:	20,000,000.00	
Total Drawn amount:	5,000,000.00	
Date of issue:	24-11-2021	
Interest Type:	Floating	
Fixed Interest Rate:		
Rate Rate of Floating Interest:	5.42%	
Margin of Floating Interest:	NIL	
Are there any Cap/Floor:	NIL	
Frequency of Int. Payment:	MONTHLY	
If Repaid (pls. specify Cash/ Term):		
Maximum Period:	3 YEARS	
Maximum effective from:	24-11-2021	
Repayment Period (inc. Maximum):	3 YEARS	
Repayment Frequency:	12 YEARS instalment	
Repayment Type:	E/E	
First Repayment Date:	24-11-2022	
Base Exchange Rate:	E/USD	
Date of Base Exchange Rate:	N/A	
Project Code	Project Name	Amount
	NORTH SARAWAK	24,000,000.00
	SAUNGAN	3,000,000.00
	TELANGANA	25,000,000.00
	LARA	20,000,000.00
	SAKAWAKA	20,000,000.00
	SARUPAJU	17,000,000.00
	TAJONG	22,000,000.00
	SARAWAK	20,000,000.00
	SINGAPORE	25,000,000.00
	KORSA R&M	22,000,000.00
	RAJASLEKHA & R&M	40,000,000.00
	INDONESIA R&M	7,000,000.00
	BRASSIA R&M	20,000,000.00
	LIKHANAP R&M	4,000,000.00
	BEHND R&M	22,000,000.00
	SAHLEKOR R&M	3,000,000.00
	CHITTY SARAWAK	3,000,000.00
	OLANGA OOL SITE	25,000,000.00
	TRAPUL OOL SITE	25,000,000.00
	URENDAR	3,000,000.00
	SARAWAK	3,000,000.00
	MOUDAY AGO	3,000,000.00
	Total Allocated Amount:	2,000,000,000

Form X		
(MARCH 2021)		
MP NO 20082101	10000	00000
Unsecured Loan from MDC Bank Ltd. S		
Source of Loan:	MDC Bank Ltd. S	
Currency:	USD	
Amount of Loan:	50,000,000.00	
Total Drawn amount:	50,000,000.00	
Date of issue:	22/03/2021	
Interest Type:	Floating	
Fixed Interest Rate:		
Base Rate of Floating Interest:	5.52%	
Margin of Floating Interest:	0%	
Are there any Caps/Floors:	Yes	
Frequency of Int. Payment:	MONTHLY	
If Fixed (yes, specify Caps/Floors):		
Maturity Period:	5 Years	
Maximum effective from:	24/11/2021	
Repayment Period (inc. Maturity):	10 Years	
Repayment Frequency:	12 Years, Installment	
Repayment Type:	AVG	
First Repayment Date:	24/11/2022	
Base Exchange Rate:	USD/INR	
Date of Base Exchange Rate:	N/A	
Project Code	Project Name	Amount
	INDIA0001	50,00,00,000.00
	UARA	40,00,00,000.00
	CHANDIGARH	10,00,00,000.00
	DARJILING	1,00,00,000.00
	TRIPURA	40,00,00,000.00
	SHARADIA	10,00,00,000.00
	CHANDIGARH, INDIA	10,00,00,000.00
	CHANDIGARH	10,00,00,000.00
	TELANGANA	50,00,00,000.00
	NORTH GUJARAT	1,00,00,000.00
	Total Allocated Amount:	5,00,00,000.00

Form 8		
(FINANCIAL HQ)		
BY HQ DESIGNATION	(2000)	(2000)
(Allocated Loan from NDFC Bank Ltd. B)		
Source of Loan	NDFC Bank Ltd. B)	
Currency	INR	
Amount of Loan	10,00,00,000	
Total Drawn amount	10,00,00,000	
Date of Draw	20-10-00	
Interest Type	Floating	
Fixed Interest Rate		
Base Rate of Floating Interest	7.75%	
Margin of Floating Interest	0%	
Are Interest Caps/ Floors	Yes	
Frequency of Mt. Payment	MONTHLY	
If Above is (Yes/No) Caps/Floors		
Maturity Period	5 Years	
Maturity Grace Period	14.07.2005	
Repayment Period (No Structure)	15 Years	
Repayment Frequency	12 Years instalment	
Repayment Type	AVG	
First Repayment Date	14.07.2007	
Base Exchange Rate	50.250	
Date of Base Exchange Rate	N/A	
Project Code	Project Name	Amount
	SARNH	5,00,00,000.00
	RAJH SARASWATI DUB	1,75,00,000.00
	NORTH SQUARE FLOTHI (SARN)	28,00,000.00
	SHIBSALLI & I FGD	28,79,00,000.00
	SHARANAR	18,00,00,000.00
	NORTH SQUARE FLOTHI (SARNW)	20,00,00,000.00
	RAMAGUNDSAMH & I FGD	20,08,00,000.00
	<b>TALASHI, ODA, VIND</b>	<b>20,00,00,000.00</b>
	STRE PHASE-I & I FGD	27,88,00,000.00
	BARASALI & I FGD	28,78,00,000.00
	VINDRACHALI & I FGD	28,79,00,000.00
	TRE (SARASWATI)	20,00,00,000.00
	OLANGA ODA, VIND	20,00,00,000.00
	CHANDIGARH & I FGD	3,88,00,000.00
	NORTH SQUARE FLOTHI (SARNH)	3,00,00,000.00
	UNDHANAR & I FGD	8,88,00,000.00
	SHRINAGAR & I FGD	8,00,00,000.00
	SARASWATI & I FGD	7,88,00,000.00
	KHARID & I FGD	8,88,00,000.00
	SHARON FGD	8,88,00,000.00
	KORSA & I FGD	8,58,00,000.00
	SARY FGD	8,07,00,000.00
	SHOG-400	4,74,00,000.00
	SARFALI FGD	4,80,00,000.00
	LARA FGD	8,88,00,000.00
	MOUJALI FGD	8,58,00,000.00
	SARASWATI FGD	8,08,00,000.00
	NORTH CHANDIGARH FGD	2,43,00,000.00
	INDOLA FGD	2,07,00,000.00
	SARNH FGD	2,18,00,000.00
	SHALPUR FGD	2,17,00,000.00
	TALODA FGD	2,08,00,000.00
	RAMAGUNDSAMH FGD	21,00,000.00
	<b>Total Allocated Amount</b>	<b>10,00,00,000.00</b>

Form B		
Foreign Tax Credit		
OMB No. 1545-0047		
EFFECTIVE DATE		
2018-01-01		
Foreign Tax Credit from 1042-B		
Source of Cash	1042-B	
Currency	USD	
Amount of Loan	20,000,000.00	
Total Credit Amount	5,000,000.00	
Date of Issue		
Interest Type	Floating	
Over Interest Rate		
Base Rate, if Floating Interest	000001.00%	
Margin, if Floating Interest	0%	
Rate Index, if Cash Flow	LIBOR	
Frequency of Payment	MONTHLY	
Is Above a Cash Flow Cash Flow		
Maximum Period	5 Years	
Maximum Maturity Date	31/12/2023	
Redemption Period (if Applicable)	18 Months	
Redemption Frequency	5 Years, Interest	
Redemption Type	N/A	
First Redemption Date	18/12/2023	
Base Exchange Rate	0.7524	
Date of Base Exchange Rate	N/A	
Project Code	Project Name	Amount
	TALMARA COAL 1012	5,000,000.00
Total Allocated Amount		5,000,000.00

Form 8		
(FRANCHISE NO)		
BT NO 0000000004	(0000)	000000
Specialized Loan from SBC/WB		
Source of Loan:	SBC/WB	
Currency:	USD	
Amount of Loan:	50,000,000.00	
Total Drawn amount:	5,000,000.00	
Date of Draw:	08/08/2017	
Interest Type:	Fixed	
Fixed Interest Rate:		
Base Rate, if Floating Interest:	7.00%	
Margin, if Floating Interest:	0%	
Are there any Caps/Floors:	Yes	
Frequency of Mt. Payment:	MONTHLY	
If Above is yes, specify Caps/Floors:		
Maturity Period:	5 Years	
Maturity at Actual Term:	26/08/2022	
Repayment Period (incl. Grace Period):	10 years	
Repayment Frequency:	2 Years - Installment	
Repayment Type:	AVG	
First Repayment Date:	11/02/2018	
Base Exchange Rate:	5,000	
Date of Base Exchange Rate:	N/A	
Project Code	Project Name	Amount
	MOGDA	7,150,000.00
	PAKISTAN RAILWAY CORP.	22,710,000.00
	TALASHI COLLEGE	14,000,000.00
	RCHDA-0	21,250,000.00
	NCITP-0	18,210,000.00
	HRMMD-0	42,700,000.00
	DHRMMD-0	48,040,000.00
	KCSITP-0	49,240,000.00
	<b>Total Allocated Amount</b>	<b>200,000,000.00</b>



Form 8		FRANCHE NO.
BP 402 (REVISED 04/11)		438881
Unallocated Loan from SCLM		
Source of Loan:	SCLM	
Currency:	US	
Amount of Loan:	50,000,000.00	
Total Cash amount:	1,000,000,000.00	
Date of Draw:	31/12/2017	
Interest Type:	Floating	
Fixed Interest Rate:		
Base Rate, if Floating Interest:	7.5%	
Margin, if Floating Interest:	Nil	
Are there any Caps/Floor:	Yes	
Frequency of Int. Payment:	MONTHLY	
If Floor is set, specify Caps/Floor:		
Maximum Repay:	5 Years	
Maximum Repay from:	31/12/2017	
Repayment Period (No Prepayment):	10 Years	
Repayment Frequency:	5 Years/ Instalment	
Repayment Type:	AVG	
End Repayment Date:	31/12/2024	
Base Swap Rate:	6.00%	
Cost of Base Swap Rate:	N/A	
Project Code	Project Name	Amount
	WILLIAMS	2,500,000,000.00
	PANJAB BRAWARUM CRIS	88,000,000.00
	TALKHALLI COAL MINE	10,000,000.00
Total Allocated Amount		2,608,000,000.00

Form V		
FRANCHISE NO.:		
BY MO. 9800001042	(19999)	000000
Unallocated Loan From KICDA		
Source of Loan	KICDA	
Currency	USD	
Amount of Loan	20,000,000.00	
Total Drawn amount	2,771,210,000.00	
Date of Draw	15-02-2021	
Interest Type	Floating	
Fixed Interest Rate		
Base Rate of Floating Interest	3.00%	
Margin of Floating Interest	0%	
Are there any Collateral	Yes	
Frequency of Int. Payment	Monthly	
If there is (yes, specify Collateral)		
Maturity Period	2 Years	
Maturity effective from	03-02-2021	
Repayment Period (no Maturity)	18 Months	
Repayment Frequency	12 Yearly Installment	
Repayment Type	E/E	
First Repayment Date	03-12-2024	
Base Exchange Rate	K/USD	
Date of Base Exchange Rate	N/A	
Project Code	Project Name	Amount
	THOC	2,000,000,000.00
	NAEPCC	2,750,000,000.00
	BLHAIR SOLAR 140MW	20,000,000.00
	BLHAIR SOLAR 80MW	4,000,000.00
	KURATA SOLAR 210MW	18,000,000.00
	STEAR SOLAR	8,000,000.00
	DEVIOT SOLAR	20,000,000.00
	SAMRU CHURU	47,000,000.00
	KORSA-RAJ	3,500,000.00
	RAMASUNDARA-RAJ	10,000,000.00
	USTPA RAJ	20,000,000.00
	CHATTIBARATI	20,000,000.00
	DULAHGA ONE	8,500,000.00
	TALPURA	20,000,000.00
Total Allocated Amount		2,771,210,000.00
Loan Allocated to SAHA on 15/02/2021		

Form X (MARCH 2012)		
BP NO 200801262	10000	00001
<b>Unsecured Loan from Industrial Bank</b>		
Source of Loan :	Industrial Bank	
Currency :	USD	
Amount of Loan :	10,000,000,000	
Total Draw amount :	0,000,000,000	
Date of Drawal :	15/11/2012	
Interest Type :	FLUATING	
Rate of Interest :	8.00%	
Margin of Floating Interest :	0.00%	
Are there any Collateral :	YES	
Frequency of Int. Payment :	MONTHLY	
if there is (pls. specify Collateral) :		
Maturity Period :	2 Years	
Maturity date from :	15/11/12	
Repayment Period (the Maturity) :	14 Years	
Repayment Frequency :	12 Equal annual installments	
Repayment Type :	A/R	
First Repayment Date :	15/11/12	
Base Exchange Rate :	N/A	
Date of Base Exchange Rate :	N/A	
Project Code :	Project Name	Amount
	PT. HARJO PULP & PAPER (PUB)	10,000,000,000
	NORTH GARANSURUKA	10,000,000,000
	DEWIKOT SOLAR (PUB)	10,000,000,000
	SAMBUNG (PUB) SOLAR 230	3,000,000,000
	PATHEGARAH (PUB) (P)	10,000,000,000
	KAJANG SOLAR (PUB)	3,000,000,000
	SARANGANI (PUB) (P)	3,000,000,000
	SINGARALLI (P&I)	10,000,000,000
	KORBA (P&I)	10,000,000,000
	PAVADUNDAV (I & P&I)	10,000,000,000
	VINDYACHAL (P&I)	11,000,000,000
	BARAKKA (P&I)	7,000,000,000
	CHATE BARANG DUB	10,000,000,000
	TALATAU COAL MINE	10,000,000,000
	KURENDAN	4,000,000,000
	<b>Total Approved Amount :</b>	<b>100,000,000,000</b>

Form 8		
(FRANCHISE NO.)		
BP NO. (00000007)	(0000)	00000
Unsecured Loan from Foreign National Bank-08		
Source of Loan	Foreign National Bank-08	
Country	USA	
Amount of Loan	50,00,00,000	
Total Drawn amount	5,00,00,000	
Date of Draw	18.05.2018	
Interest Type	Floating	
Fixed Interest Rate		
Rate Rate of Floating Interest	5.00%	
Margin of Floating Interest	0.00%	
Are there any Caps/Floor	No	
Frequency of Int. Payment	MONTHLY	
If there is cap, specify Cap/Floor		
Maturity Period	2 Years	
Maturity effective from	12.05.2019	
Repayment Period (No. Installment)	12 Years	
Repayment Frequency	2 Years Installment	
Repayment Type	AVG	
First Repayment Date	01.02.2022	
Base Exchange Rate	N/PA	
Date of Base Exchange Rate	N/A	
Project Code	Project Name	Amount
	SAHJ	50,00,00,000.00
	SC/AF/9	50,00,00,000.00
	DAIDA	50,00,00,000.00
	THAKRAJI	50,00,00,000.00
	SHRPAULI R&M	50,00,00,000.00
	SHRADDH R&M	50,00,00,000.00
	SHKHO R&M	50,00,00,000.00
	SHRI. GAG R&M	50,00,00,000.00
	ICRBA R&M	50,00,00,000.00
	SAVABHINDAV R&M	50,00,00,000.00
	SHRINATHAN R&M	50,00,00,000.00
	LICHAMAR R&M	50,00,00,000.00
	Total Allocated Amount	5,00,00,000.00

Form 8		
FINANCIAL HQ		
BT NO 00000001	100001	000001
Investment Loan		Cost/Drawn/Retained/Reck/Pr
Source of Loan	Capital Return/Reserve	
Currency	USD	
Amount of Loan	20,00,00,00,000	
Total Drawn amount	20,00,00,00,000	
Date of Draw	01.01.2018	
Interest Type	Simple	
Fixed Interest Fee		
Base Rate (Floating Interest)	5.00%	
Margin (Floating Interest)	0.00%	
Fixed Interest Cap/Floor	%	
Frequency of No. Payment	MONTHLY	
If Above is (as specified) Cap/Floor		
Maturity Period	5 Years	
Maturity Effective Date	31.12.2022	
Repayment Period (No. Installment)	12 Years	
Repayment Frequency	Quarterly	
Repayment Type	AVG	
First Repayment Date	14.02.2018	
Base Exchange Rate	6.5596	
Date of Base Exchange Rate	N/A	
Project Code	Project Name	Amount
	LINCHANK STPP IV	20,00,00,000,000
	TADGA	20,00,00,000,000
	NOTRA	20,00,00,000,000
	DADR/ DAD/ KAN	20,00,00,000,000
	KORRAH	20,00,00,000,000
	BIFAYE	27,50,00,000,000
	SRABALI	8,00,00,000,000
	GHALGANDH	27,50,00,000,000
	BARH	1,00,00,00,000,000
	BARH	2,00,00,000,000
	NORTH GAZALPUR	1,00,00,00,000,000
	CHITRA	8,00,00,000,000
	TAPCHVA VISHVAGAD	20,00,00,000,000
	RAJY BARIWADI	1,00,00,00,000,000
	CHATT BARIWADI	20,00,00,000,000
	SONHGANDH	20,00,00,000,000
	GLOW	20,00,00,000,000
	JARA	1,00,00,00,000,000
	GHADGARA	2,00,00,00,000,000
	CHALUPALI	2,00,00,00,000,000
	SHARGONH	20,00,00,000,000
	CHALUPUR SOLEH	27,00,00,000,000
	THALAPUR/ DDA/ SHIBH	20,00,00,000,000
	<b>Total Allocated Amount</b>	<b>30,00,00,00,000,000</b>
Scan Attached to LAMA with 31.03.2018		

Form B		
FRANCHISE NO.		
BP (U.S. Dollars)	420001	00004
Unsecured Loan From Foreign National Bank(s)		
Source of Loan:	HDFC National Bank (I)	
Country:	IN	
Amount of Loan:	24,00,00,000	
Total Drawn amount:	4,00,00,000	
Date of Draw:	14.07.2021	
Interest Type:	Floating	
Fixed Interest Rate:		
Base Rate of Floating Interest:	5.75%	
Margin of Floating Interest:	2.00%	
Are there any Caps/Floors:	YES	
Frequency of Int. Payment:	MONTHLY	
If Above is not specify Caps/Floors:		
Amortization Period:	5 Years	
Amortization Effective from:	14.07.2021	
Repayment Period (No Amortization):	10 Years	
Repayment Frequency:	12. Month payments	
Repayment Type:	AVD	
First Repayment Date:	21.08.2024	
Base Exchange Rate:	INR/USD	
Date of Base Exchange Rate:	N/A	
Project Cost	Project Name	Amount
	BARN	85,00,000,000
	TOPOLIAN Vishu/Gate	28,00,000,000
	NORTH GARAHANUKA	1,00,00,000,000
	DELHI	18,00,000,000
	RAVIVARI	20,00,000,000
	TELANGANA	35,00,000,000
	SARAIWALI	40,00,000,000
	DELHI LOCAL WARE	80,00,000,000
	<b>Total Allocated Amount</b>	<b>4,00,00,000,000</b>

Form B		
(MARCH 2021)		
BP NO 20200221	10000	0000
<b>Overdraft Loan from SBM</b>		
Source of Loan:	SBM	
Currency:	USD	
Amount of Loan:	20,000,000.00	
Total Drawn amount:	5,000,000.00	
Date of Drawal:	20/08/2018	
Interest Type:	Floating	
Fixed Interest Rate:	-----	
Base Rate, if Floating Interest:	1.00%	
Margin, if Floating Interest:	1.00%	
Are there any Cap/Floor:	No	
Frequency of Int. Payment:	Monthly	
if Floor & /or Cap/Floor:		
Maturity Period:	5 Years	
Maturity effective from:	20/08/2018	
Repayment Period (no Maturity):	10 Years	
Repayment Frequency:	5 Yearly (Arithmetic)	
Repayment Type:	AVG	
First Repayment Date:	31/03/2021	
Base Exchange Rate:	USD/IDR	
Date of Base Exchange Rate:	N/A	
<b>Project Code</b>	<b>Project Name</b>	<b>Amount</b>
	BARU	80,000,000
	DUPON VERINGGAR	20,000,000
	BONGSARAD	8,000,000
	TANOK II	10,000,000
	BAMBAJ	20,000,000
	TELANGANA	40,000,000
	WALZAR	1,000,000,000
	BHOLA SCA-R/FY	28,000,000
	BOJAL WIND	5,000,000
	PALEH BARU/ADH CME	1,800,000,000
	CHATTI BARU/ CUP	9,000,000
	DULANGA COAL, WIND	10,000,000
	TELARAJI COAL, WIND	1,000,000,000
	<b>Total Allocated Amount</b>	<b>5,300,000,000.00</b>

Form 8		
FRANCHISE NO.		
SP No. Subproject	Value	
Disbursed Loan from BPRM		
Source of Loan	SDFI	
Currency	USD	
Amount of Loan	\$2,02,00,000	
Cost (Disb. amount)	40,77,02,094	
Date of Disb.	22.08.2016	
Interest Type	Floating	
Fixed Interest Rate	-----	
Base Rate of Floating Interest	8.00%	
Margin of Floating Interest	0.00%	
Are there any Cap/Floor	No	
Frequency of Payment	Monthly	
If Applicable, specify Cap/Floor	-----	
Gratuation Period	3 Years	
Gratuation effective from	22.08.2016	
Repayment Period (No Gratuation)	12 Years	
Repayment Frequency	5 Years Installments	
Repayment Type	E/F	
Est. Repayment Due	11,02,000	
Base Exchange Rate	80.758	
Date of Base Exchange Rate	N/A	
Project Code	Project Name	Amount
	TALUKARA CO-OP, URSB	40,77,02,094
Total Allocated Amount		40,77,02,094



Form X		
(FUNDING)		
BP NO 00000001	10000	00000
<b>FINANCIAL AID FROM SBA</b>		
Source of Loan:	SBA	
Country:	US	
Amount of Loan:	40,000,000.00	
Total Drawn amount:	40,000,000.00	
Date of Draw:	01/28/2018	
Interest Type:	FLORING	
Fixed Interest Rate:		
Base Rate, if Floating Interest:	7.00%	
Margin, if Floating Interest:	0.00%	
Are there any Cap? Floor:	NO	
Frequency of Int. Payment:	Monthly	
If there is any cap? floor?		
Maturity Period:	5 Years	
Maturity effective from:	01/28/2018	
Repayment Period (no Maturity):	18 Years	
Repayment Frequency:	3 Years (Quarterly)	
Repayment Type:	AVG	
First Repayment Date:	01/15/2024	
Base Charge Rate:	0.00%	
Date of Base Charge Rate:	N/A	
Project Code:	Project Name:	Amount
	SAKCHIN (SAR) COB	70,000,000
	CHATTI (SAR) COB	18,000,000
	DOLAR (COB) VEG	30,000,000
	TALARA (COB) VEG	1,000,000
	<b>Total Allocated Amount</b>	<b>128,000,000.00</b>
Loan Allocated to SARA as of 01/28/2018		

Form X (MARCH 2012)		
BP NO 000000001	100001	000002
<b>Overpriced Loan from SB&amp;G</b>		
Source of Loan:	SB&G	
Country:	USA	
Amount of Loan:	50,000,000,000	
Total Drawn amount:	5,000,000,000	
Date of Drawal:	18-10-2018	
Interest Type:	Floating	
Fixed Interest Rate:		
Base Rate, if Floating Interest:	5.00%	
Margin, if Floating Interest:	0.00%	
Are there any Caps/Floor:	No	
Frequency of Int. Payment:	Monthly	
If Floor is (yes, specify Caps/Floor):		
Maturity Period:	5 Years	
Maturity effective from:	18-10-2018	
Redemption Period (inc. Maturity):	10 Years	
Redemption Frequency:	5 Yearly (Arithmetic)	
Redemption Type:	AMC	
First Redemption Date:	01-10-2023	
Base Exchange Rate:	\$/INR	
Date of Base Exchange Rate:	N/A	
<b>Project Code</b>	<b>Project Name</b>	<b>Amount</b>
	NORTH AARABURJA	90,00,00,000
	DARUPALLI	1,00,00,00,000
	CHARGONE	1,00,00,00,000
	TALANGANA	80,00,00,000
	DULANGA COAL MINE	20,00,00,000
	<b>TALANGA COAL MINE</b>	<b>70,00,00,000</b>
	<b>Total Allocated Amount</b>	<b>4,26,00,00,000</b>

Form B		
FINANCIAL YEAR		
SP No. Subcategory	100000	00000
Disbursed Loan from SRFs		
Source of Loan	SRF	
Currency	INR	
Amount of Loan	80.00.00.000	
Cost (Direct Amount)	8.00.00.00.000	
Date of Order	22/11/2018	
Interest Type	Floating	
Fixed Interest Rate		
Base Rate of Floating Interest	8.00%	
Margin of Floating Interest	0.00%	
Are there any Caps/Floors	Yes	
Frequency of HC Payment	Monthly	
If Applicable, specify Caps/Floors		
Maximum Period	3 Years	
Maximum Effective Year	22/11/2018	
Repayment Period (No. Installments)	12 Years	
Repayment Frequency	6 Years Installments	
Repayment Type	AVS	
First Repayment Date	01/10/2020	
Base Exchange Rate	INR/USD	
Date of Base Exchange Rate	N/A	
Project Code	Project Name	Amount
	SARAI	40.00.00.000
	TAPDAR KISHOUGARH	11.00.00.000
	BONGAGACH	11.00.00.000
	BOLAFUR	20.00.00.000
	LARA	80.00.00.000
	SADARIARA	88.00.00.000
	KIRTH KRAIPURA	38.00.00.000
	CHURALLI	40.00.00.000
	TANDLA	10.00.00.000
	CHARGING	18.00.00.000
	TELANGARA	78.00.00.000
	TELANGARA COKUMBE	7.00.00.000
	RAMANJANDARI & RAM	28.00.00.000
	SHYTYCHAL RAM	14.00.00.000
	FARAKA RAM	10.00.00.000
	KHALGACH RAM	10.00.00.000
	KHARDOLE	2.00.00.00.000
	TELANGARA	1.00.00.00.000
	<b>Total Allocated Amount</b>	<b>800.00.00.000.00</b>

Form B		
FRANCHE NO.		
BP (N° Nationalité)	FRANCHE	UNITE
<b>Contracted Loan from BSI-MI</b>		
Source of Loan:	BSEMI	
Currency:	US\$	
Amount of Loan:	45,00,00,000	
Total Drawn amount:	7,00,00,000	
Date of Drawal:	11/07/2014	
Interest Type:	Floating	
Fixed Interest Rate:	---	
Base Rate if Floating Interest:	3.25%	
Margin if Floating Interest:	Nil	
Are there any Caps/Floors:	Yes	
Frequency of Int. Payment:	Monthly	
If Above is not specify Caps/Floors:		
Maturity Period:	5 Years	
Maturity effective from:	11/07/2014	
Repayment Period (No. Installments):	18 Years	
Repayment Frequency:	5 Years/Installments	
Repayment Type:	AVD	
First Repayment Date:	21/07/2018	
Base Exchange Rate:	Rupees	
Date of Base Exchange Rate:	N/A	
Project Code	Project Name	Amount
	BARNH	1,00,00,000.00
	TARCI(AH) (S)HU(G)ARH	18,00,00,000.00
	BONGA(G)ADH	28,00,00,000.00
	SOLAPUR	40,00,00,000.00
	GADAR(G)ARA	20,00,00,000.00
	DARU(P)ALLU	20,00,00,000.00
	TANZAR	20,00,00,000.00
	KHARGONE	20,00,00,000.00
	TELH(G)ARA	10,00,00,000.00
	CHATTI(G)ARATU	18,00,00,000.00
	DULANGA	20,00,00,000.00
	TALARA(L)	20,00,00,000.00
	KOPR(P)CC	28,00,00,000.00
<b>Total Allocated Amount</b>		<b>7,00,00,000.00</b>

Form X		
(MARCH 2012)		
MP NO 200802741	10000	00000
Unsecured Loan From SDF/SS		
Source of Loan:	SDF/SS	
Currency:	INR	
Amount of Loan:	50,00,00,000	
Total Drawn amount:	50,00,00,000	
Date of Drawal:	28.02.2012	
Interest Type:	Floating	
Fixed Interest Rate:	---	
Base Rate, if Floating Interest:	5.25%	
Margin, if Floating Interest:	0%	
Are there any Cap/Floor:	No	
Frequency of Int. Payment:	Monthly	
If there is any, specify Cap/Floor:		
Maturity Period:	5 Years	
Maximum effective term:	28.02.2017	
Repayment Period (inc. Moratorium):	15 Years	
Repayment Frequency:	5 Yearly (Stepdown)	
Repayment Type:	A/C	
First Repayment Due:	31.03.2018	
Base Exchange Rate:	N/A	
Date of Base Exchange Rate:	N/A	
Project Code	Project Name	Amount
	BARN	40,00,00,000.00
	LUCHAR STPD II	1,00,00,000.00
	LARA	50,00,000.00
	NORTH CHANPURA	30,00,00,000.00
	SADARIARA	50,00,00,000.00
	SARIPALLI	41,00,00,000.00
	TAJARA	30,00,00,000.00
	CHARGONG	80,00,00,000.00
	TELANGANA	80,00,00,000.00
	CHATTISGARH	3,00,00,000.00
	DULAHGA	10,00,00,000.00
	<b>SIKAR</b>	<b>10,00,00,000.00</b>
	NCRS-PSC	4,00,00,000.00
	<b>Total Allocated Amount</b>	<b>3,00,00,00,000.00</b>

Form 8		
(FINANCE NO)		
BT NO (0000000)	(0000)	00000
Unsecured Loan from SBCBS		
Source of Loan	SBCBS	
Currency	INR	
Amount of Loan	30,00,00,000	
Total Drawn amount	3,00,00,000	
Date of Drawal	24.03.2024	
Interest Type	Compd	
Fixed Interest Rate		
Base Rate, if Floating Interest	7.45%	
Margin, if Floating Interest	Nil	
Are Interest Caps/ Foor	Yes	
Frequency of Int. Payment	Monthly	
If Above is (Yes, specify) Caps/Foor		
Maturity Period	4 Years	
Maturity @ India Top	24.03.2028	
Repayment Period (No Structure)	12 Years	
Repayment Frequency	12 Years Installments	
Repayment Type	AVG	
First Repayment Date	24.03.2024	
Base Exchange Rate	5.7500	
Date of Base Exchange Rate	N/A	
Project Code	Project Name	Amount
	BILHAIR SOLAR 140MW	23,00,00,000.00
	BILHAIR SOLAR 85MW	4,00,00,000.00
	ALRAHA SOLAR 200MW	18,00,00,000.00
	JETWAR SOLAR	8,00,00,000.00
	DEVIOT SOLAR	23,00,00,000.00
	SAIBHUJI (2X) SOLAR	47,00,00,000.00
	KORGA RM	8,00,00,000.00
	KALIAJUNDAJI RM	10,00,00,000.00
	TRIPHACHAL RM	20,00,00,000.00
	CHATTI SARATI, CHB	20,00,00,000.00
	DOLARGH COAL, VNS	8,00,00,000.00
	TALERA COAL, VNS	30,00,00,000.00
Total Allocated Amount		2,84,00,00,000.00

Form B		
BRANCH NO:		
BR NO: 0000000000	100000	000000
Unsecured loan from UCU BANK IV		
Source of Loan	UCU BANK IV	
Currency	USD	
Amount of Loan	10,000,000,000	
Total Drawn amount	0,000,000,000	
Date of Drawn	00-01-2000	
Interest Type	Floating	
Fixed Interest Rate		
Base Rate of Floating interest	7.45%	
Margin of Floating interest	0%	
Are there any Collateral	NO	
Frequency of the Payment	MONTHLY	
If there is (yes, specify Collateral)		
Maturity Period	2 Years	
Maturity effective from	00-Jan-00	
Repayment Period (the Maturity)	12 Years	
Repayment Frequency	12 Years	
Repayment Type	AVG	
First Repayment Date	11-11-2000	
Base Exchange Rate	0.0000	
Date of Base Exchange Rate	N/A	
Project Code	Project Name	Amount
	BARU	1,000,000,000.00
	UDRTN BARAY PURA	50,000,000.00
	PAPUNAN/SEKILUAS	37,000,000.00
	SAJAHAN	1,000,000,000.00
	PELUPUKAN	10,000,000,000.00
	<b>SALURAN/CONL MIRA</b>	<b>6,940,000,000.00</b>
	CHATTI BARAT	4,110,000,000.00
	BARU	87,000,000.00
	<b>Total Allocated Amount</b>	<b>1,940,000,000.00</b>





Form 8		
FRANCHISE NO.:		
87 MI 88888888	18888	00000
Unsecured loan from UCU BANK JV		
Source of Loan	UCU BANK JV	
Currency	USD	
Amount of Loan	10,000,000.00	
Total Draw amount	0.00	
Date of Draw	20-01-2020	
Interest Type	Floating	
Fixed Interest Rate		
Base Rate if Floating interest	1.75%	
Margin if Floating interest	NIL	
Are there any Collateral	NIL	
Frequency of its Payment	MONTHLY	
If there is (yes, specify Capital Cost)		
Maximum Period	2 Years	
Maximum advance from	01-Jan-00	
Repayment Period (the Maximum)	12 Years	
Repayment Frequency	12 Years	
Repayment Type	AVG	
First Repayment Date	11/11/2020	
Base Exchange Rate	N/A	
Date of Base Exchange Rate	N/A	
Project Code	Project Name	Amount
	TELUKANGA (2480000)	2000000
	ATA SOLAR (20119)	8000000
	1000 SOLAR F.C.T. (24519)	4000000
	1000 SOLAR F.C.T. (24519)	4000000
	1000 SOLAR F.C.T. (2481)	2000000
	<b>TAJAHU, 2200, 10/12</b>	<b>4000000</b>
	SARH	8000000
	TAJAHU VERINGKAS	2000000
	<b>Total Allocated Amount</b>	<b>20,000,000.00</b>

Form B		
(ISSUANCE NO)		
BT NO 0000000001	000001	000004
Issued/Used From Value Date		
Source of Loan	State Govt	
Currency	INR	
Amount of Loan	5,00,00,00,000	
Total Drawn amount	50,00,00,000	
Date of Draw	0	
Interest Type	Fixed	
Fixed Interest Rate	7.50%	
Base Rate of Floating Interest	000004.75%	
Margin of Floating Interest	0%	
Are Interest Caps Fixed	0%	
Frequency of Int. Payment	MONTHLY	
If Above is (as specified) Caps/Floor		
Maturity Period	5 Years	
Maturity Effective Date	12/11/2011	
Repayment Period (No. Installments)	10 Years	
Repayment Frequency	10 Years	
Repayment Type	Amort	
First Repayment Date	14/12/2009	
Base Exchange Rate	50/100	
Date of Base Exchange Rate	N/A	
Project Code	Project Name	Amount
	GADARWARA	20,00,00,000
	JADHARWARA	20,00,00,000
	SARJAPUJI	20,00,00,000
	INDRANAGAR	10,00,00,000
	TALAJARU DDAU MINE	10,00,00,000
Total Allocated Amount		80,00,00,000

Form 8		(FICHE NO)	
N° NO 8080144		00001	
Vos données de l'opération		00001	
Source of loan	WORLD BANK INT. BK.		
Currency	EUR		
Amount of loan	80,000,000,000		
Total credit amount	80,000,000,000		
Date of issue	15-06-22		
Interest type	Fixed		
Fixed interest rate			
Swap Rate / Floating Interest	4.55%		
Margin / Floating Interest	0%		
Are there any fees?	NO		
Frequency of int. Payment	MONTHLY		
Is there a fee, cash, Cash Fee?			
Interest Period	3 Years		
Interest start date	15-06-22		
Payment Period (in Months)	36		
Payment Frequency	12 times a year		
Payment type	AG		
End Payment Date	15-06-25		
Swap Exchange Rate	0.958		
Date of Swap Exchange Rate	N/A		
Project Code	Project Name	Amount	
	SINGRAJAH S. FGD	17000000	49213
	UNDANGI S & MFGD	10000000	49213
	PAJAJI	20000000	49213
	KORBA FGD	30000000	49213
	WIDYATACHALAN FGD	10000000	49213
	SPATI (2000 MW) FGD	30000000	49213
	SPATI (2000 MW) FGD	10000000	49213
	STOK STAGE 2 FGD	10000000	49213
	BAP I	15000000	49213
	TAPYAN (2000 MW) FGD	24000000	49213
	BAP I FGD	10000000	49213
	UGETH KARAU FGD	50000000	49213
	RAMAJUDAM FGD	30000000	49213
	RAMAJUDAM (1000 MW)	10000000	49213
	WOLDA FGD	30000000	49213
	MUDA FGD	30000000	49213
	BOLAPUR FGD	10000000	49213
	KUOD FGD	10000000	49213
	LARA	10000000	49213
	LARA STAGE 1 FGD (10)	50000000	49213
	SARAYARA	10000000	49213
	RAJIBI (2000 MW)	12000000	49213
	KHARONG	20000000	49213
	TELANGANA	42000000	49213
	TALLAPALLE	10000000	49213
	KARUNIA	10000000	49213
	KARUNIA COE	50000000	49213
	UNDELGAR	20000000	49213
Total Allocated Amount		800,000,000,000	

Form X		FRANCHISE NO.	
ST NO. 282001847		100001	
REGISTRATION LEASING FROM MFC BANK, LLC, ET AL			
Source of Loan	Bank/Secured by		
Current	Y/N		
Amount of Loan	\$0.00000000		
Total Drawn Amount	\$0.00000000		
Date of Draw	1/10/2022		
Interest Type	Fixed		
Fixed Interest Rate			
Base Rate of Floating Interest	7.00%		
Margin of Floating Interest	0%		
Are there any Cap/Floor	Y/N		
Frequency of Mt. Payment	MONTHLY		
If there is any equity Cap/Floor:			
Maximum Percent	5.00%		
Maximum Effective Date	12/31/2022		
Requirement Period (No Maximum):			
Requirement Period	12.00%		
Requirement Preference	1.00% (MARKED)		
Requirement Type	AVG		
First Requirement Date	12/31/2021		
Base Exchange Rate	0.00%		
Cap of Base Exchange Rate	N/A		
Franchise Code	Franchise Name	Amount	
	BARNHART BROWN	20000000	4021
	BURDAN VISHUGAR	10000000	4021
	DEPTH KARATHYGA	80000000	4021
	DADMAN DODDING	10000000	4021
	DEVI SIVA (SIVASIVA)	25000000	4021
	DEVI SIVA (SIVASIVA)	25000000	4021
	JARA STAGE-1 (SIVASIVA)	48000000	4021
	NOON SOLAR PLANT (SIVASIVA)	20000000	4021
	NOON SOLAR PLANT (SIVASIVA)	40000000	4021
	NOON SOLAR PLANT (SIVASIVA)	20000000	4021
	INDIA SOLAR	18000000	4021
	TALAPATI COAL MINE	80000000	4021
	BARAVAN	40000000	4021
	BRAND-1 FSD	40000000	4021
	BRAND-2 & 3 FSD	50000000	4021
	CHANDRANI & S FSD	40000000	4021
	INDUSTRIAL-1 FSD	78000000	4021
	INDUSTRIAL-2 FSD	80000000	4021
	SRATI-1 (SIVASIVA) FSD	18000000	4021
	SRATI-2 FSD	11000000	4021
	KORSA-1 & 2 FSD	10000000	4021
	BARN FSD	20000000	4021
	RAJAGUNDAN & 1 FSD	80000000	4021
	RAJAGUNDAN (SIVASIVA)	40000000	4021
	SRINIVAS & 1 FSD	40000000	4021
	SOLAR FSD	20000000	4021
	SOLAR FSD	40000000	4021
	SUDH FSD	10000000	4021
	SHRINIVAS & 1 FSD	20000000	4021
	PARAGAN & S FSD	11000000	4021
	SRINIVAS & S FSD	20000000	4021
	SRINIVAS & S FSD	80000000	4021
Total Allocated Amount		\$0.00000000	





Form 8		
FRANCHISE NO:		
BT NO 502001441	100001	00000
Disbursement Loan from DUC Bank Ltd. EE		
Source of Loan	DUC Bank Ltd. EE	
Currency	USD	
Amount of Loan	7,000,000.00	
Total Disbursement	7,000,000.00	
Date of Issue	11/10/2021	
Interest Type	Fixed	
Fixed Interest Rate	6.00%	
Base Rate of Floating Interest	1.00%	
Margin of Floating Interest	5%	
Are there any Cap/Floor	Yes	
Frequency of Int. Payment	MONTHLY	
Maturity Period (No. Months)		
Maturity Period	3 Years	
Maturity Effective from	11/10/2021	
Repayment Period (No. Months)		
Repayment Period	36 Months	
Repayment Frequency	12 Months Interval	
Repayment Type	AMORT	
First Repayment Date	11/10/2022	
Base Exchange Rate	2.00	
Date of Base Exchange Rate	N/A	
Disbursement Details		
Disbursement Date	Disbursement Name	Amount
	BAKHUJI (DUBUJI)	40,000,000.00
	KHOSI ANUSHU/GARH	30,000,000.00
	NORTH KARNAPURA (DUBUJI)	1,000,000.00
	RAVIRAJ (DUBUJI)	18,000,000.00
	NEAUGANA (DUBUJI)	20,000,000.00
	TRIPURA (DUBUJI)	5,000,000.00
	LARA STAGE-4 (DUBUJI)	5,000,000.00
	SOLAR K SOLAR (DUBUJI)	1,000,000.00
	WATA SOLAR (DUBUJI)	20,000,000.00
	INDIA SOLAR PLOT (DUBUJI)	20,000,000.00
	INDIA SOLAR PLOT (DUBUJI)	1,000,000.00
	INDIA SOLAR PLOT (DUBUJI)	20,000,000.00
	DHARWARA	20,000,000.00
	DHALPAUL	10,000,000.00
	TAKHAI	5,000,000.00
	BAKHUJI (DUBUJI)	4,000,000.00
	NARAYAN	10,000,000.00
	TEJAPAL (DUBUJI)	5,000,000.00
	KHOSI/GARH	20,000,000.00
	WIPANDI FGD	20,000,000.00
	WIPANDI F & H FGD	1,000,000.00
	WIPANDI FGD	1,000,000.00
	KORBA-1 & 2 FGD	6,000,000.00
	HOLDAI FGD	1,000,000.00
Total Allocated Amount		7,000,000,000.00

FORM-8							
Name of the Company		NTPC Limited					
Name of the Integrated Mine		Talaipalli Coal Mine					
Commercial Operation Date (COD)		01.10.2023					
							(Amount in Rs. Lakh)
Particulars							
Source of Loan - Bonds Series	67	69	73	74	75	76	78
Currency	INR	INR	INR	INR	INR	INR	INR
Amount of Loan sanctioned (In Lakh)	4,00,000	4,30,000	2,50,000	3,99,600	3,00,000	1,17,500	2,00,000
Amount of Gross Loan drawn upto COD (In Lakh)	4,00,000	4,30,000	2,50,000	3,99,600	3,00,000	1,17,500	2,00,000
Interest Type	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
Fixed Interest Rate, if applicable	8.30%	7.32%	6.43%	6.87%	6.69%	6.74%	7.44%
Base Rate, if Floating Interest	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Margin, if Floating Interest	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Are there any Caps/Floor	No	No	No	No	No	No	No
If above is yes,specify caps/floor	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Moratorium Period (In Years)	10	10	10	15 yrs 1 day	10	10 yrs 3 months 25 days	10
Moratorium effective from*	15-01-2019	17-07-2019	27-01-2021	20-04-2021	13-09-2021	20-12-2021	25-08-2022
Repayment Period	Bullet Repayment	Bullet Repayment	Bullet Repayment	Bullet Repayment	Bullet Repayment	Bullet Repayment	Bullet Repayment
Repayment effective from	15-01-2029	17-07-2029	27-01-2031	21-04-2036	13-09-2031	14-04-2032	25-08-2032
Repayment Frequency	Bullet Repayment	Bullet Repayment	Bullet Repayment	Bullet Repayment	Bullet Repayment	Bullet Repayment	Bullet Repayment
Repayment Instalment (In Lakh)	4,00,000	4,30,000	2,50,000	3,99,600	3,00,000	1,17,500	2,00,000
Base Exchange Rate	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Door to Door Maturity (In Years)	10	10	10	15 yrs 1 day	10	10 yrs 3 months 25 days	10
Name of the Projects	67	69	73	74	75	76	78
Anta Solar 90MW					650.00	200.00	900.00
Auraiya R&M			200.00				



FORM-B							
Name of the Company		NTPC Limited					
Name of the Integrated Mine		Talaipalli Coal Mine					
Commercial Operation Date (COD)		01.10.2023					
							(Amount in Rs. Lakh)
Particulars							
Auraiya Solar 20MW			400.00			425.00	
Auraiya Solar FS 20MW				150.00		2,000.00	586.00
Barauni-II				1,500.00	8,400.00		500.00
BARH I	65,957.14	84,200.00	51,100.00	32,900.00	42,800.00	11,050.00	4,511.00
BARH II	1,000.00	1,400.00					
BONGAIGAON	38,819.64	17,100.00					
CC - Jhabua Power							60,000.00
CC - NEEPCO		1,391.30	18,243.00	56,696.00	48,250.00	24,017.00	10,922.00
CC - THDC		2,608.70	34,207.00	1,06,304.00	90,470.00	45,033.00	20,478.00
CHATTI BARIATU CMB		3,000.00	825.00	200.00	1,350.00	600.00	211.00
DADRI GAS R&M				100.00	200.00		
DARLIPALLI		40,000.00	28,300.00	11,500.00	1,000.00		500.00
Dulanga Coal Mine		5,000.00	2,700.00	3,400.00	4,100.00		
FARAKKA R&M		1,000.00	1,700.00	1,600.00	1,550.00		
Farakka-I, II & III FGD				1,500.00	550.00		
Fatidabad R&M			100.00		700.00		
GADARWARA	25,900.00	47,600.00	19,000.00	7,500.00			
Gandhar 20MW				3,750.00	90.00	1,395.00	
KAHALGAON R&M			600.00	1,200.00	2,620.00		
Kahalgaon-I & II FGD				300.00			
Kawas Solar				2,800.00	5,250.00	4,050.00	800.00
Kayamkulam FS ( 22 MW)			170.00	2,000.00	2,195.00		100.00
Kayamkulam FS ( 70 MW)			1,830.00	2,850.00	1,925.00	4,830.00	
KHARGONE	36,500.00	13,500.00	3,000.00	2,000.00			500.00
Kirenderi Coal Mine			7,350.00		165.00	1,400.00	1,900.00
KOLDAM	8,598.21						
KORBA III	2,135.00						
KORBA R&M			2,300.00	1,350.00	4,050.00		2,200.00
Korba-I, II & III FGD				100.00			
KUDGI	10,000.00	21,500.00					
KUDGI-FGD		2,500.00		2,950.00	1,000.00		

FORM-B							
Name of the Company		NTPC Limited					
Name of the Integrated Mine		Talaipalli Coal Mine					
Commercial Operation Date (COD)		01.10.2023					
							(Amount in Rs. Lakh)
Particulars							
LARA	47,812.50	-10,600.00	1,700.00	14,000.00			
MAUDA I	715.00	6,000.00		500.00			
MAUDA II		29,000.00		100.00	2,200.00		
Nabinagar							5,664.00
NCPS-FGD		6,500.00			5,600.00		
NCTPP II	1,601.00						
NCTPP R&M				200.00			
Nokh Solar Plot-I(245 MW)							7,500.00
Nokh Solar Plot-II(245 MW)							7,500.00
Nokh Solar Plot-III(245 MW)							7,500.00
NORTH KARANPURA	55,900.00	-15,000.00	9,500.00	11,700.00	11,900.00	6,100.00	3,917.00
PAKRI BARWADIH CMB	21,521.00			20,000.00			41,800.00
RAMAGUNDAM R&M				3,300.00			
Ramagundam Floating Solar-100 MW			3,375.00	3,800.00	8,640.00	3,800.00	1,400.00
Ramagundam I & II R&M			4,200.00		8,985.00		1,800.00
RAMAGUNDAM SOLAR		1,000.00					
Ramagundam-I & II FGD					100.00		
Ramagundam-III (1x500 MW)				400.00			
RAMMAM	2,500.00	2,500.00	3,300.00	1,100.00	800.00	1,050.00	311.00
Rihand- I FGD					20.00		
Rihand- II & III FGD					130.00		
RIHAND III	4,270.00						
RIHAND R&M			1,200.00	2,000.00	6,275.00		2,400.00
Rihand Solar (20MW)				300.00	510.00		400.00
Simhadri Floating			1,875.00	3,050.00	525.00	1,350.00	
SIMHADRI II	4,804.00						
SIMHADRI R&M					200.00		
Simhadri-II & I (2x500 MW) & (2x500 MW) FGD				7,600.00	1,150.00		
Singrauli R&M		1,000.00	4,200.00	1,700.00	2,725.00		1,300.00
Singrauli-I & II FGD				8,700.00	150.00		
Sipat-I (3x660 MW) FGD				5,600.00	1,100.00		500.00

FORM-B							
Name of the Company		NTPC Limited					
Name of the Integrated Mine		Talaipalli Coal Mine					
Commercial Operation Date (COD)		01.10.2023					
							(Amount in Rs. Lakh)
Particulars							
SOLAPUR	25,200.00	21,500.00					
Solapur Solar					2,575.00	800.00	200.00
Solapur-FGD				2,700.00	3,450.00		
Talaipalli Coal Mine	4,900.00	11,500.00	19,400.00	4,800.00	2,160.00	2,600.00	856.00
TALCHER R&M			500.00				
TANDA II	12,500.00	17,000.00	9,500.00	16,700.00	1,000.00		
Tapovan Vishnugarh	15,062.50	16,600.00	6,200.00	8,000.00	1,500.00		166.00
TELANGANA		37,000.00	9,725.00	20,300.00	9,200.00	6,800.00	8,678.00
TSTPP R&M					640.00		700.00
TSTPS Stage-II & I FGD				9,700.00			
TTPS III	1,000.00						
Unchahar R&M			500.00	900.00	1,050.00		1,500.00
Unchahar-I, II & III-FGD				5,400.00	5,100.00		
UNCHAHAR IV	2,500.00	14,000.00					
Unchahar-IV-FGD				2,750.00	1,200.00		
VINDHYACHAL HYDRO	500.00						
VINDHYACHAL IV	4,804.00						
VINDHYACHAL R&M			2,800.00	1,450.00	2,900.00		1,800.00
VINDHYACHAL V	5,500.00						
Vindhychal-I & II FGD				200.00	900.00		
<b>Total</b>	<b>4,00,000.00</b>	<b>4,30,000.00</b>	<b>2,50,000.00</b>	<b>3,99,600.00</b>	<b>3,00,000.00</b>	<b>1,17,500.00</b>	<b>2,00,000.00</b>

Name of the Company	NTPC Ltd										Form I								
Name of the Power Station	Talaspalli CH																		
Particulars	15		16		17		18		19		20		21		22		23		
	EUR Loan I	EUR Loan II	EUR Loan III	USD 750 Million Drawl I	USD 750 Million Drawl II	USD 750 Million Drawl III	USD 750 Million Drawl IV	USD 750 Million Drawl V	USD 750 Million Drawl VI	JPY Eqn. \$400 Million Drawl I	JPY Eqn. \$400 Million Drawl II								
Source of Loan																			
Currency	EUR	EUR	EUR	USD	USD	USD	USD	USD	USD	JPY	JPY								
Amount of loan sanctioned	4,39,31,459	4,42,38,902	4,45,12,394	10,00,00,000	10,00,00,000	22,00,00,000	10,00,00,000	10,00,00,000	10,00,00,000	13,31,33,00,000	13,39,33,00,000								
Amount of Gross Loan drawn upto 30.09.2022	4,39,31,459	4,42,38,902	4,45,12,394	10,00,00,000	10,00,00,000	22,00,00,000	10,00,00,000	10,00,00,000	10,00,00,000	13,31,33,00,000	13,39,33,00,000								
Interest Type	Floating	Floating	Floating	Floating	Floating	Floating	Floating	Floating	Floating	Floating	Floating								
Fixed Interest Rate, if applicable	-	-	-	-	-	-	-	-	-	-	-								
Base Rate, if floating interest*	6 Month Euribor*	6 Month Euribor*	6 Month Euribor*	6 Month Term SOFR*	6 Month Term SOFR*	6 Month Term SOFR*	6 Month Term SOFR*	6 Month Term SOFR*	6 Month Term SOFR*	6 Month Compounded TOGA*	6 Month Compounded TOGA*								
Margn, if floating interest rate	0.95%	0.95%	0.95%	1.16933%	1.16933%	1.16933%	1.16933%	1.16933%	1.16933%	1.20000%	1.20000%								
Are there any Caps / Floor	No	No	No	No	No	No	No	No	No	No	No								
If above is Yes, specify Caps / Floor	-	-	-	-	-	-	-	-	-	-	-								
Maturity Period	-	-	-	4	4	4	4	4	4	4	4								
Maturity date effective from	14-Aug-2021	14-Aug-2021	14-Aug-2021	05-Oct-2022	05-Oct-2022	05-Oct-2022	05-Oct-2022	05-Oct-2022	05-Oct-2022	15-Mar-2023	15-Mar-2023								
Repayment period	Boiler payment	Boiler payment	Boiler payment	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly								
Repayment effective from	14-Aug-2021	14-Aug-2021	14-Aug-2021	05-Oct-2021	05-Oct-2021	05-Oct-2021	05-Oct-2021	05-Oct-2021	05-Oct-2021	05-Oct-2021	05-Oct-2021	15-May-21	15-May-21						
Repayment frequency	One Time	One Time	One Time	Seven times	Seven times	Seven times	Seven times	Seven times	Seven times	Seven times	Seven times								
Repayment installment	4,39,31,459	4,42,38,902	4,45,12,394	1,42,85,714	1,41,85,714	3,71,42,858	1,42,85,714	1,42,85,714	1,42,85,714	1,93,07,85,714	1,94,45,71,428								
Base Exchange Rate - 30.09.2021	89.2700	89.2700	89.2700	83.7800	83.7800	83.7800	83.7800	83.7800	83.7800	0.5654	0.5654								
Are foreign currency loans hedged	No	No	No	No	No	No	No	No	No	No	No								
If above is Yes, specify details	-	-	-	-	-	-	-	-	-	-	-								
Name of the Projects	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Vindhyachal IV							2.57%												
Signet I							10.82%												
Barh II							4.59%												
Koldam							6.42%												
Nobnagar								14.13%	6.04%	7.38%	3.15%	1.22%							
Talcher III							12.52%				3.88%	2.67%							
Signet-I FGD	4.80029%	2.93725%	0.13853%	3.54305%	1.48884%	0.28%			5.10%	1.09%	1.94%	1.34%							
Signet-II FGD						0.82392%			0.34%	0.24%	0.82%	1.71%							
Bangarpon																			
Tapovan Vishnupad	8.9922%	8.61955%	17.00043%	14.52209%	4.75747%	21.20%	2.72%	5.14%		8.09%	2.45%								
Rikand-III				0.59089%	0.37359%	0.15%	0.97%	0.18%	0.34%	1.63%	0.61%								
VSTPS-I & II		0.67883%				0.86%	1.46%	2.33%	6.79%	2.85%	2.45%								
VSTPS-III & IV						0.66%	0.85%	1.09%	2.91%	1.70%	4.02%								
Simbhahari-I&II	4.09030%	2.53887%	0.82228%		1.44602%	0.61%	2.38%	8.34%		0.94%	2.57%								
Miruda-I						4.02%													
Barh-I				7.02442%	21.54709%	11.89%	15.52%	6.17%	2.55%	5.81%	11.00%								
Barh-II FGD						2.09704%	0.17%	0.67%		0.12%	0.61%								
Kodaj																			
Lara			12.52458%	11.81673%		0.10%	5.34%	2.62%	2.42%	6.18%	7.34%								
Miruda-II		0.27195%																	
Solepur	1.6474%	0.69206%																	
Solepur FGD			0.75284%	0.45649%	0.31299%	0.20%		2.30%	0.18%	1.94%	0.72%								
Vindhyachal-V																			
Cedarwaz	6.1882%	4.67041%	2.49807%	3.12061%	0.75118%	0.25%	1.82%			3.63%	1.22%								
Kodaj (FGD)	2.2912%	3.22354%			0.73240%	0.34%	0.45%	1.09%	5.82%	0.48%	1.04%								
Singrauli-I&II	3.0702%	0.14956%		1.31288%	3.44291%	1.08%	3.58%	2.51%	7.16%	3.00%	2.08%								
Korba-I II&III				0.39089%	0.40889%	2.20%	3.09%	5.08%	8.25%	5.03%	2.08%								
North Kampanz		21.31881%	14.08741%	22.91143%	14.17454%	4.41%	11.25%	25.11%	10.19%	4.72%	2.45%								
Dudri-II																			

Name of the Company	NTDC Ltd										
Name of the Power Station	Talsipalli CM										
Particulars	Form 8										
	17	18	17	18	19	20	21			21	22
Ramagundam-I & II		0.07192%	0.06844%		0.44442%	1.27%	1.09%	1.37%	2.82%	0.37%	1.92%
Farakka-I,II&III					3.12991%	0.59%	1.09%	2.12%	3.30%	1.89%	0.12%
Kabalgan-1&II				0.78779%	0.28291%	0.48%	1.66%	1.38%	0.97%	1.54%	1.47%
Talcher STPS-1&II	2.1768%	1.90332%	0.34220%	0.39589%	0.71889%	1.18%	1.76%	1.51%	4.85%	1.17%	4.95%
Ucalohm-I, II &III	8.1840%				1.94000%	0.59%	2.21%	1.54%	2.67%	0.36%	2.46%
Daripah		17.55824%	1.05321%	4.92388%		1.18%	4.00%	1.21%	2.53%	0.48%	
Tanda II	14.7533%	8.28301%	4.92769%	2.94420%			4.72%	3.02%	1.18%	3.75%	1.22%
Ucalohm-IV	0.4088%					0.37%	0.12%				
Khosgaon			11.12432%	0.81900%		0.25%	1.83%	0.48%	4.00%	10.90%	3.06%
Banspan	1.2377%	1.24854%	2.38743%	2.42900%	2.37874%	0.39%	0.26%	1.11%	0.24%	1.45%	2.42%
Telangana	24.2958%	8.47731%	18.27355%	10.04429%	17.02479%	4.03%	4.85%	8.19%	3.88%	13.81%	7.84%
Bansan-II				1.37882%	1.79004%	0.25%	1.58%		2.43%	0.85%	
Anantpur Solar											
Mahabub Solar											
Bodhla Solar											
Pajmal Wind											
Dulanga Coal Mine	1.7411%	1.27411%	1.64739%	0.91900%	2.12834%	0.98%	0.34%	0.85%	0.24%		
Talsipalli Coal Mine	5.4439%	10.15834%	6.43338%	3.41374%	3.25711%	0.13%	1.94%	0.85%	3.68%	1.63%	8.11%
Chanti Barani CMB	0.1911%	1.48827%	1.09504%	0.59084%	1.00127%	0.48%	0.48%	2.42%	1.54%	0.85%	0.97%
Kirendri	7.6297%	1.64382%	1.50368%	3.54303%	1.25111%	2.16%	2.43%	4.47%	3.54%	2.54%	1.81%
Pekri Barwadih CMB											15.28%
Ramagundam-III FGD			0.06844%					0.80%	0.63%	0.42%	0.24%
NCCPS-FGD		1.08772%	0.20532%		0.25009%	0.10%					
Munda-I FGD					0.41841%	0.86%	1.00%	0.36%	0.55%	0.61%	1.16%
Munda-II FGD					0.20657%	0.29%	0.33%		0.24%	0.72%	0.72%
Rihandi-I FGD					1.87812%			0.67%	0.48%	0.36%	1.70%
Daripah (FGD)											
Unallocated											
Total	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%

Form-I	
Name of the Company	JITPC
Name of the Integrated Mine	Talapat
Particulars	
Source of Loan	JITPC Equ. \$400 Million Drawl IV
Currency	INR
Amount of loan sanctioned	14,21,65,00,000
Amount of Gross Loan drawn upto 31.03.2024	14,21,65,00,000
Interest Type	Floating
Fixed Interest Rate, if applicable	-
Base Rate, if floating interest*	9M Compounded TONA
Margin, if floating interest rate	1.20000%
Are there any Caps / Floor	No
If above is Yes, specify Caps / Floor	-
Maturity Period	4
Maturity effective from	31-Aug-2023
Repayment period	Yearly
Repayment effective from	31-Aug-2027
Repayment frequency	Seven times
Repayment instalment	3,01,66,42,837
Base Exchange Rate -	0.2188
Are foreign currency loan hedged	-
If above is Yes, specify details	-
Name of the Project	%
Beth-II FGD	1.09%
Moula-II FGD	2.54%
Benson-II	0.48%
Beth-I	9.21%
Chetti Sanku CMS	1.70%
Chiripali	5.33%
Farakka-LI&II FGD	3.39%
Gadawana	1.21%
Koladagoo-I&II FGD	3.03%
Khandari	4.48%
Katva-LI&II	2.30%
Rodgi (FGD)	1.08%
Lara	1.29%
Nalmsagar	6.08%
North Katarpura	2.91%
Parsi Barnali CMS	8.86%
Ramagundam-III FGD	0.97%
Ramagundam-I & II FGD	2.56%
Rubani-I FGD	4.42%
Rubani-II&III FGD	1.18%
Sankhar-I&II FGD	0.12%
Singrauli-I&II FGD	2.79%
Sipat-I	1.27%
Sipat-II FGD	0.87%
Solapur FGD	0.43%
Talapat Cool Mine	0.48%
Talcher STPS-I&II FGD	5.08%
Tando II	7.88%
Tyopota Vaidygarh	0.48%
Talimgan	7.88%
Uchhal-I, II &III FGD	1.08%
Vindhyachal-I &II FGD	4.42%
Vindhyachal-III &IV FGD	3.39%

Form-B	
Name of the Company	NTPC
Name of the Integrated Mine	Talaspalli
Particulars	
Notes:-	

**Talaipalli Coal Mine**

<b>Name of the Loan</b>	<b>From</b>	<b>To</b>	<b>Floating Rate of interest</b>	<b>Withholding Tax (WHT)</b>
Euro Loan I Drawl I*	06-06-2023	05-12-2023	4.67800%	1.77703%
Euro Loan I Drawl I*	06-12-2023	31-03-2024	4.89500%	1.77703%
Euro Loan I Drawl II*	06-06-2023	05-12-2023	4.67800%	1.743516%
Euro Loan I Drawl II*	06-12-2023	31-03-2024	4.89500%	1.743516%
Euro Loan I Drawl III*	06-06-2023	05-12-2023	4.67800%	1.743516%
Euro Loan I Drawl III*	06-12-2023	31-03-2024	4.89500%	1.743516%
USD 750 Million Drawl I	25-04-2023	24-10-2023	6.26834%	0
USD 750 Million Drawl I	25-10-2023	31-03-2024	6.61909%	0
USD 750 Million Drawl I	25-04-2023	24-10-2023	6.26834%	5.46000%
USD 750 Million Drawl I	25-10-2023	31-03-2024	6.53909%	5.46000%
USD 750 Million Drawl II	25-04-2023	24-10-2023	6.26834%	0
USD 750 Million Drawl II	25-10-2023	31-03-2024	6.61909%	0
USD 750 Million Drawl II	25-04-2023	24-10-2023	6.26834%	5.46000%
USD 750 Million Drawl II	25-10-2023	31-03-2024	6.53909%	5.46000%
USD 750 Million Drawl III	25-04-2023	24-10-2023	6.26834%	0
USD 750 Million Drawl III	25-10-2023	31-03-2024	6.61909%	0
USD 750 Million Drawl III	25-04-2023	24-10-2023	6.26834%	5.46000%
USD 750 Million Drawl III	25-10-2023	31-03-2024	6.53909%	5.46000%
USD 750 Million Drawl IV	25-04-2023	24-10-2023	6.26834%	0
USD 750 Million Drawl IV	25-10-2023	31-03-2024	6.61909%	0
USD 750 Million Drawl IV	25-04-2023	24-10-2023	6.26834%	5.46000%
USD 750 Million Drawl IV	25-10-2023	31-03-2024	6.53909%	5.46000%
USD 750 Million Drawl V	25-04-2023	24-10-2023	6.26834%	0
USD 750 Million Drawl V	25-10-2023	31-03-2024	6.61909%	0
USD 750 Million Drawl V	25-04-2023	24-10-2023	6.26834%	5.46000%
USD 750 Million Drawl V	25-10-2023	31-03-2024	6.53909%	5.46000%
USD 750 Million Drawl VI	25-04-2023	24-10-2023	6.26834%	0
USD 750 Million Drawl VI	25-10-2023	31-03-2024	6.61909%	0
USD 750 Million Drawl VI	25-04-2023	24-10-2023	6.26834%	5.46000%
USD 750 Million Drawl VI	25-10-2023	31-03-2024	6.53909%	5.46000%
JPY Equ. \$400 Million Drawl I	15-05-2023	14-11-2023	1.20000%	0
JPY Equ. \$400 Million Drawl I	15-11-2023	31-03-2024	1.21218%	0
JPY Equ. \$400 Million Drawl II	24-07-2023	14-11-2023	1.20000%	0
JPY Equ. \$400 Million Drawl II	15-11-2023	31-03-2024	1.21218%	0
JPY Equ. \$400 Million Drawl IV	22-12-2023	31-03-2024	1.21886%	0

\* without grossing up of Withholding tax



**Talaipalli Coal Mine**

<b>Name of the Loan</b>	<b>From</b>	<b>To</b>	<b>Floating Rate of interest</b>	<b>Applicability of Withholding Tax</b>
Euro Loan I Drawl I*	06-06-2023	05-12-2023	4.67800%	
Euro Loan I Drawl I*	06-12-2023	31-03-2024	4.89500%	
Euro Loan I Drawl II*	06-06-2023	05-12-2023	4.67800%	
Euro Loan I Drawl II*	06-12-2023	31-03-2024	4.89500%	
Euro Loan I Drawl III*	06-06-2023	05-12-2023	4.67800%	
Euro Loan I Drawl III*	06-12-2023	31-03-2024	4.89500%	
USD 750 Million Drawl I	25-04-2023	24-10-2023	6.26834%	
USD 750 Million Drawl I	25-10-2023	31-03-2024	6.61909%	
USD 750 Million Drawl I	25-04-2023	24-10-2023	6.26834%	100.00000%
USD 750 Million Drawl I	25-10-2023	31-03-2024	6.53909%	100.00000%
USD 750 Million Drawl II	25-04-2023	24-10-2023	6.26834%	
USD 750 Million Drawl II	25-10-2023	31-03-2024	6.61909%	
USD 750 Million Drawl II	25-04-2023	24-10-2023	6.26834%	100.00000%
USD 750 Million Drawl II	25-10-2023	31-03-2024	6.53909%	100.00000%
USD 750 Million Drawl III	25-04-2023	24-10-2023	6.26834%	
USD 750 Million Drawl III	25-10-2023	31-03-2024	6.61909%	
USD 750 Million Drawl III	25-04-2023	24-10-2023	6.26834%	100.00000%
USD 750 Million Drawl III	25-10-2023	31-03-2024	6.53909%	100.00000%
USD 750 Million Drawl IV	25-04-2023	24-10-2023	6.26834%	
USD 750 Million Drawl IV	25-10-2023	31-03-2024	6.61909%	
USD 750 Million Drawl IV	25-04-2023	24-10-2023	6.26834%	100.00000%
USD 750 Million Drawl IV	25-10-2023	31-03-2024	6.53909%	100.00000%
USD 750 Million Drawl V	25-04-2023	24-10-2023	6.26834%	
USD 750 Million Drawl V	25-10-2023	31-03-2024	6.61909%	
USD 750 Million Drawl V	25-04-2023	24-10-2023	6.26834%	100.00000%
USD 750 Million Drawl V	25-10-2023	31-03-2024	6.53909%	100.00000%
USD 750 Million Drawl VI	25-04-2023	24-10-2023	6.26834%	
USD 750 Million Drawl VI	25-10-2023	31-03-2024	6.61909%	
USD 750 Million Drawl VI	25-04-2023	24-10-2023	6.26834%	100.00000%
USD 750 Million Drawl VI	25-10-2023	31-03-2024	6.53909%	100.00000%
JPY Equ. \$400 Million Drawl I	15-05-2023	14-11-2023	1.20000%	
JPY Equ. \$400 Million Drawl I	15-11-2023	31-03-2024	1.21218%	
JPY Equ. \$400 Million Drawl II	24-07-2023	14-11-2023	1.20000%	
JPY Equ. \$400 Million Drawl II	15-11-2023	31-03-2024	1.21218%	
JPY Equ. \$400 Million Drawl IV	22-12-2023	31-03-2024	1.21886%	

\* without grossing up of Withholding tax

**Talaipalli Coal Mine**

Name of the Loan	From	To	Floating Rate of interest	Interest Basis	Interest rate (incl. WHT)
Euro Loan I Drawl I*	06-06-2023	05-12-2023	4.67800%	Act/360	4.761129%
Euro Loan I Drawl I*	06-12-2023	31-03-2024	4.89500%	Act/360	4.981985%
Euro Loan I Drawl II*	06-06-2023	05-12-2023	4.67800%	Act/360	4.759562%
Euro Loan I Drawl II*	06-12-2023	31-03-2024	4.89500%	Act/360	4.980345%
Euro Loan I Drawl III*	06-06-2023	05-12-2023	4.67800%	Act/360	4.759562%
Euro Loan I Drawl III*	06-12-2023	31-03-2024	4.89500%	Act/360	4.980345%
USD 750 Million Drawl I	25-04-2023	24-10-2023	6.26834%	Act/360	6.268340%
USD 750 Million Drawl I	25-10-2023	31-03-2024	6.61909%	Act/360	6.619090%
USD 750 Million Drawl I	25-04-2023	24-10-2023	6.26834%	Act/360	6.630358%
USD 750 Million Drawl I	25-10-2023	31-03-2024	6.53909%	Act/360	6.916744%
USD 750 Million Drawl II	25-04-2023	24-10-2023	6.26834%	Act/360	6.268340%
USD 750 Million Drawl II	25-10-2023	31-03-2024	6.61909%	Act/360	6.619090%
USD 750 Million Drawl II	25-04-2023	24-10-2023	6.26834%	Act/360	6.630358%
USD 750 Million Drawl II	25-10-2023	31-03-2024	6.53909%	Act/360	6.916744%
USD 750 Million Drawl III	25-04-2023	24-10-2023	6.26834%	Act/360	6.268340%
USD 750 Million Drawl III	25-10-2023	31-03-2024	6.61909%	Act/360	6.619090%
USD 750 Million Drawl III	25-04-2023	24-10-2023	6.26834%	Act/360	6.630358%
USD 750 Million Drawl III	25-10-2023	31-03-2024	6.53909%	Act/360	6.916744%
USD 750 Million Drawl IV	25-04-2023	24-10-2023	6.26834%	Act/360	6.268340%
USD 750 Million Drawl IV	25-10-2023	31-03-2024	6.61909%	Act/360	6.619090%
USD 750 Million Drawl IV	25-04-2023	24-10-2023	6.26834%	Act/360	6.630358%
USD 750 Million Drawl IV	25-10-2023	31-03-2024	6.53909%	Act/360	6.916744%
USD 750 Million Drawl V	25-04-2023	24-10-2023	6.26834%	Act/360	6.268340%
USD 750 Million Drawl V	25-10-2023	31-03-2024	6.61909%	Act/360	6.619090%
USD 750 Million Drawl V	25-04-2023	24-10-2023	6.26834%	Act/360	6.630358%
USD 750 Million Drawl V	25-10-2023	31-03-2024	6.53909%	Act/360	6.916744%
USD 750 Million Drawl VI	25-04-2023	24-10-2023	6.26834%	Act/360	6.268340%
USD 750 Million Drawl VI	25-10-2023	31-03-2024	6.61909%	Act/360	6.619090%
USD 750 Million Drawl VI	25-04-2023	24-10-2023	6.26834%	Act/360	6.630358%
USD 750 Million Drawl VI	25-10-2023	31-03-2024	6.53909%	Act/360	6.916744%
JPY Equ. \$400 Million Drawl I	15-05-2023	14-11-2023	1.20000%	Act/365	1.200000%
JPY Equ. \$400 Million Drawl I	15-11-2023	31-03-2024	1.21218%	Act/365	1.212180%
JPY Equ. \$400 Million Drawl II	24-07-2023	14-11-2023	1.20000%	Act/365	1.200000%
JPY Equ. \$400 Million Drawl II	15-11-2023	31-03-2024	1.21218%	Act/365	1.212180%
JPY Equ. \$400 Million Drawl IV	22-12-2023	31-03-2024	1.21886%	Act/365	1.218860%

\* without grossing up of Withholding tax

Talaipalli Coal Mine					From To
Name of the Loan	From	To	Floating Rate of interest	Loan Proportion	No of days
Euro Loan I Drawl I*	06-06-2023	05-12-2023	4.67800%	100%	66
Euro Loan I Drawl I*	06-12-2023	31-03-2024	4.89500%	100%	117
Euro Loan I Drawl II*	06-06-2023	05-12-2023	4.67800%	100%	66
Euro Loan I Drawl II*	06-12-2023	31-03-2024	4.89500%	100%	117
Euro Loan I Drawl III*	06-06-2023	05-12-2023	4.67800%	100%	66
Euro Loan I Drawl III*	06-12-2023	31-03-2024	4.89500%	100%	117
USD 750 Million Drawl I	25-04-2023	24-10-2023	6.26834%	87%	24
USD 750 Million Drawl I	25-10-2023	31-03-2024	6.61909%	87%	159
USD 750 Million Drawl I	25-04-2023	24-10-2023	6.26834%	13%	24
USD 750 Million Drawl I	25-10-2023	31-03-2024	6.53909%	13%	159
USD 750 Million Drawl II	25-04-2023	24-10-2023	6.26834%	87%	24
USD 750 Million Drawl II	25-10-2023	31-03-2024	6.61909%	87%	159
USD 750 Million Drawl II	25-04-2023	24-10-2023	6.26834%	13%	24
USD 750 Million Drawl II	25-10-2023	31-03-2024	6.53909%	13%	159
USD 750 Million Drawl III	25-04-2023	24-10-2023	6.26834%	87%	24
USD 750 Million Drawl III	25-10-2023	31-03-2024	6.61909%	87%	159
USD 750 Million Drawl III	25-04-2023	24-10-2023	6.26834%	13%	24
USD 750 Million Drawl III	25-10-2023	31-03-2024	6.53909%	13%	159
USD 750 Million Drawl IV	25-04-2023	24-10-2023	6.26834%	87%	24
USD 750 Million Drawl IV	25-10-2023	31-03-2024	6.61909%	87%	159
USD 750 Million Drawl IV	25-04-2023	24-10-2023	6.26834%	13%	24
USD 750 Million Drawl IV	25-10-2023	31-03-2024	6.53909%	13%	159
USD 750 Million Drawl V	25-04-2023	24-10-2023	6.26834%	87%	24
USD 750 Million Drawl V	25-10-2023	31-03-2024	6.61909%	87%	159
USD 750 Million Drawl V	25-04-2023	24-10-2023	6.26834%	13%	24
USD 750 Million Drawl V	25-10-2023	31-03-2024	6.53909%	13%	159
USD 750 Million Drawl VI	25-04-2023	24-10-2023	6.26834%	87%	24
USD 750 Million Drawl VI	25-10-2023	31-03-2024	6.61909%	87%	159
USD 750 Million Drawl VI	25-04-2023	24-10-2023	6.26834%	13%	24
USD 750 Million Drawl VI	25-10-2023	31-03-2024	6.53909%	13%	159
JPY Equ. \$400 Million Drawl I	15-05-2023	14-11-2023	1.20000%	100%	45
JPY Equ. \$400 Million Drawl I	15-11-2023	31-03-2024	1.21218%	100%	138
JPY Equ. \$400 Million Drawl II	24-07-2023	14-11-2023	1.20000%	100%	45
JPY Equ. \$400 Million Drawl II	15-11-2023	31-03-2024	1.21218%	100%	138
JPY Equ. \$400 Million Drawl IV	22-12-2023	31-03-2024	1.21886%	100%	101

\* without grossing up of Withholding tax

Talaipalli Coal Mine				01-10-2023 31-03-2024	
Name of the Loan	From	To	Floating Rate of interest	Product	WAVG rate
Euro Loan I Drawl I*	06-06-2023	05-12-2023	4.67800%	3.19472	
Euro Loan I Drawl I*	06-12-2023	31-03-2024	4.89500%	5.92607	4.98400%
Euro Loan I Drawl II*	06-06-2023	05-12-2023	4.67800%	3.19367	
Euro Loan I Drawl II*	06-12-2023	31-03-2024	4.89500%	5.92412	4.98240%
Euro Loan I Drawl III*	06-06-2023	05-12-2023	4.67800%	3.19367	
Euro Loan I Drawl III*	06-12-2023	31-03-2024	4.89500%	5.92412	4.98240%
USD 750 Million Drawl I	25-04-2023	24-10-2023	6.26834%	1.32555	
USD 750 Million Drawl I	25-10-2023	31-03-2024	6.61909%	9.27313	
USD 750 Million Drawl I	25-04-2023	24-10-2023	6.26834%	0.21571	
USD 750 Million Drawl I	25-10-2023	31-03-2024	6.53909%	1.49080	6.72410%
USD 750 Million Drawl II	25-04-2023	24-10-2023	6.26834%	1.32555	
USD 750 Million Drawl II	25-10-2023	31-03-2024	6.61909%	9.27313	
USD 750 Million Drawl II	25-04-2023	24-10-2023	6.26834%	0.21571	
USD 750 Million Drawl II	25-10-2023	31-03-2024	6.53909%	1.49080	6.72410%
USD 750 Million Drawl III	25-04-2023	24-10-2023	6.26834%	1.32555	
USD 750 Million Drawl III	25-10-2023	31-03-2024	6.61909%	9.27313	
USD 750 Million Drawl III	25-04-2023	24-10-2023	6.26834%	0.21571	
USD 750 Million Drawl III	25-10-2023	31-03-2024	6.53909%	1.49080	6.72410%
USD 750 Million Drawl IV	25-04-2023	24-10-2023	6.26834%	1.32555	
USD 750 Million Drawl IV	25-10-2023	31-03-2024	6.61909%	9.27313	
USD 750 Million Drawl IV	25-04-2023	24-10-2023	6.26834%	0.21571	
USD 750 Million Drawl IV	25-10-2023	31-03-2024	6.53909%	1.49080	6.72410%
USD 750 Million Drawl V	25-04-2023	24-10-2023	6.26834%	1.32555	
USD 750 Million Drawl V	25-10-2023	31-03-2024	6.61909%	9.27313	
USD 750 Million Drawl V	25-04-2023	24-10-2023	6.26834%	0.21571	
USD 750 Million Drawl V	25-10-2023	31-03-2024	6.53909%	1.49080	6.72410%
USD 750 Million Drawl VI	25-04-2023	24-10-2023	6.26834%	1.32555	
USD 750 Million Drawl VI	25-10-2023	31-03-2024	6.61909%	9.27313	
USD 750 Million Drawl VI	25-04-2023	24-10-2023	6.26834%	0.21571	
USD 750 Million Drawl VI	25-10-2023	31-03-2024	6.53909%	1.49080	6.72410%
JPY Equ. \$400 Million Drawl I	15-05-2023	14-11-2023	1.20000%	0.54148	
JPY Equ. \$400 Million Drawl I	15-11-2023	31-03-2024	1.21218%	1.67739	1.21250%
JPY Equ. \$400 Million Drawl II	24-07-2023	14-11-2023	1.20000%	0.54148	
JPY Equ. \$400 Million Drawl II	15-11-2023	31-03-2024	1.21218%	1.67739	1.21250%
JPY Equ. \$400 Million Drawl IV	22-12-2023	31-03-2024	1.21886%	1.23442	1.22220%

\* without grossing up of Withholding tax

Name of the Company		NTPC LTD		
Name of the Integrated Mine		TALAIPALLI COAL MINE		
Name of the Bank	Drawl Amount	Drawl Date	Interest Details	
			w.e.f.	Rt
Axis Bank-II	1,00,00,00,000.00	11-07-2019	11-Jul-19	8.30%
Axis Bank-II	10,00,00,000.00	15-04-2020	11-Aug-19	8.25%
			11-Sep-19	6.20%
			11-Oct-19	8.10%
			11-Nov-19	6.00%
			11-Dec-19	7.90%
			11-Jan-20	7.80%
			30-Jan-20	7.60%
			28-Feb-20	7.45%
			28-Apr-20	8.70%
			26-May-20	6.30%
Axis Bank-III	13,50,00,000.00	24-08-2020	24-Aug-20	6.30%
Axis Bank-III	40,00,00,000.00	28-09-2020	24-May-22	6.70%
			24-Jun-22	7.20%
			24-Aug-22	7.70%
			24-Oct-22	8.20%
			01-Nov-22	7.70%
			01-Jan-23	8.05%
			01-Mar-23	8.30%
Axis Bank-IV	53,50,00,000.00	29-03-2023	29-Mar-23	8.00%
Bank of Baroda-II	6,00,00,000.00	11-11-2022	11-Nov-22	7.10%
			11-Dec-22	7.35%
			11-Jan-23	7.50%
			11-Feb-23	7.85%
			11-Mar-23	7.90%
			11-May-23	7.95%
			11-Sep-23	8.00%
			01-Oct-23	8.00%
			11-Feb-24	8.05%
			31-Mar-24	8.05%
Bank of India-V-A	1,44,00,000.00	30-03-2023	30-Mar-23	8.15%
			01-Apr-23	8.00%
HDFC Bank Limited-V	10,00,00,000.00	02-07-2018	02-Jul-18	8.10%
			25-Sep-18	8.30%
			29-Dec-18	8.45%

Name of the Company		NTPC LTD			
Name of the Integrated Mine		TALAIPALLI COAL MINE			
Name of the Bank	Drawl Amount	Drawl Date	Interest Details		
			w.e.f.	RcOt	
			25-Jun-19	8.40%	
			29-Jul-19	8.30%	
			29-Aug-19	8.20%	
			29-Sep-19	8.10%	
			29-Oct-19	8.00%	
			01-Dec-19	7.85%	
			01-Mar-20	7.45%	
			01-Jun-20	6.30%	
			24-Dec-20	5.95%	
HDFC Bank Limited-VII	30,00,00,000.00	11-06-2019	11-Jun-19	8.40%	
HDFC Bank Limited-VII	30,00,00,000.00	11-02-2020	29-Jul-19	8.30%	
			29-Aug-19	8.20%	
			29-Sep-19	8.10%	
			29-Oct-19	8.00%	
			01-Dec-19	7.85%	
			11-Feb-20	7.50%	
			01-Mar-20	7.45%	
			01-Jun-20	6.30%	
			24-Dec-20	5.95%	
			24-May-22	6.35%	
			24-Jun-22	6.85%	
			24-Aug-22	7.35%	
			24-Oct-22	7.85%	
			24-Dec-22	8.20%	
			01-Jan-23	7.85%	
			01-Mar-23	8.01%	
			01-Jun-23	7.95%	
HDFC-IX	15,00,00,000.00	30-06-2020	30-Jun-20	6.30%	
HDFC-IX	50,00,00,000.00	13-08-2020	24-Dec-20	5.95%	
HDFC-IX	20,00,00,000.00	28-09-2020			
HDFC-IX	75,00,00,000.00	18-11-2020			
HDFC-X	25,00,00,000.00	21-03-2022	21-Mar-22	5.83%	
HDFC-X	15,00,00,000.00	02-06-2022	24-May-22	6.23%	
			24-Aug-22	7.23%	
			24-Nov-22	7.73%	
			24-Feb-23	8.20%	
			01-Mar-23	8.01%	
			01-Jun-23	7.95%	
HDFC Bank Limited-XI	20,00,00,000.00	01-09-2023	01-Sep-23	7.74%	

Name of the Company		NTPC LTD		
Name of the Integrated Mine		TALAIPALLI COAL MINE		
Name of the Bank	Drawl Amount	Drawl Date	Interest Details	
			w.e.f.	RdI
			11-Sep-23	7.80%
			01-Oct-23	7.80%
			11-Oct-23	7.77%
			11-Nov-23	7.92%
			11-Dec-23	7.97%
			11-Jan-24	7.89%
			11-Feb-24	7.67%
			11-Mar-24	7.84%
			31-Mar-24	7.64%
ICICI-IV	5,00,00,00,000.00	01-04-2017	01-Apr-17	7.90%
ICICI-IV			02-Dec-17	7.85%
ICICI-IV			02-Mar-18	8.00%
ICICI-IV			02-Jun-18	8.10%
			02-Sep-18	8.35%
			02-Dec-18	8.60%
ICICI-VI	34,00,00,000.00	25-09-2017	02-Dec-17	7.90%
ICICI-VI	16,00,00,000.00	21-12-2017	11-Dec-17	7.85%
			11-Mar-18	8.00%
			11-Jun-18	8.10%
			11-Sep-18	8.35%
			11-Dec-18	8.60%
ICICI Bank-VII	20,00,00,000.00	05-03-2021	05-Mar-21	8.00%
			30-Mar-21	8.24%
Industrial Bank	13,00,00,000.00	15-07-2022	15-Jul-22	8.82%
			15-Oct-22	7.87%
			15-Jan-23	8.00%
			15-Apr-23	8.10%
			15-Jul-23	8.15%
			20-Sep-23	8.00%
			01-Oct-23	8.00%
			20-Dec-23	8.05%
			31-Mar-24	
Punjab National Bank III	50,00,00,000.00	13-08-2018	13-Aug-18	8.06%
			01-Nov-18	8.30%
			04-May-19	8.20%
			04-Aug-19	8.05%

Name of the Company		NTPC LTD		
Name of the Integrated Mine		TALAIPALLI COAL MINE		
Name of the Bank	Drawl Amount	Drawl Date	Interest Details	
			w.e.f.	RcI
			04-Nov-19	7.90%
			04-Feb-20	7.85%
			04-May-20	7.20%
			04-Jun-20	7.05%
			04-Aug-20	8.80%
			04-Nov-20	8.70%
			21-Dec-20	8.50%
			01-Apr-21	8.20%
			21-Sep-21	5.80%
			21-Jun-22	8.70%
			01-Sep-22	7.20%
			01-Oct-22	7.70%
			01-Jan-23	8.05%
			01-Mar-23	8.30%
			01-Apr-23	7.90%
PNB-IV	5,00,00,00,000.00	01-01-2019	01-Jan-19	8.80%
			04-Feb-19	8.30%
			04-May-19	8.20%
			04-Aug-19	8.05%
			01-Oct-19	8.05%
			04-Nov-19	7.90%
			04-Feb-20	7.85%
			04-May-20	7.20%
			04-Jun-20	7.05%
			04-Aug-20	8.80%
			04-Nov-20	8.70%
			21-Dec-20	8.50%
PNB-V	80,00,00,000.00	14-07-2021	14-Jul-21	5.70%
			21-Sep-21	5.80%
			21-Jun-22	6.70%
			01-Sep-22	7.20%
			01-Oct-22	7.70%
			01-Jan-23	8.05%
			01-Mar-23	8.30%
			01-Apr-23	7.80%
State Bank of India - IX	13,00,00,000.00	20-08-2018	20-Jun-18	7.85%
State Bank of India - IX	-40,77,11,718.18	31-03-2023	14-Aug-18	7.85%
			14-Nov-18	8.20%
			14-Feb-19	8.25%
			14-May-19	8.15%



Name of the Company		NTPC LTD		
Name of the Integrated Mine		TALAIPALLI COAL MINE		
Name of the Bank	Drawl Amount	Drawl Date	Interest Details	
			w.e.f.	RcI
			14-Aug-19	7.95%
			01-Oct-19	7.95%
			14-Nov-19	7.70%
			14-Feb-20	7.65%
			14-May-20	7.00%
			14-Aug-20	6.65%
			14-May-22	6.75%
			14-Aug-22	7.15%
			14-Nov-22	7.60%
			14-Feb-23	8.00%
			14-May-23	8.10%
			14-Aug-23	8.15%
			01-Oct-23	8.15%
			14-Feb-24	8.20%
			31-Mar-24	
State Bank of India - X	1,90,00,00,000.00	01-05-2018	01-May-18	7.85%
			25-Jun-18	7.95%
			25-Sep-18	8.15%
			25-Dec-18	8.25%
			25-Jun-19	8.15%
			25-Sep-19	7.85%
			25-Dec-19	7.70%
			25-Mar-20	7.50%
			25-Jun-20	6.75%
			25-Sep-20	6.65%
State Bank of India - XI	70,00,00,000.00	16-10-2018	16-Oct-18	6.30%
State Bank of India - XI	7,00,00,000.00	22-11-2018	11-Jan-19	8.35%
			11-Apr-19	8.30%
			11-Jul-19	8.20%
			11-Oct-19	7.85%
			11-Jan-20	7.75%
			01-Feb-20	7.70%
			11-Apr-20	7.15%
			11-Jul-20	6.65%
			11-Jul-22	7.06%
			11-Oct-22	7.35%
			11-Jan-23	8.00%
			11-Apr-23	8.10%
			01-Oct-23	8.10%
			11-Oct-23	8.15%
			11-Jan-24	8.20%
			31-Mar-24	

Name of the Company		NTPC LTD			
Name of the Integrated Mine		TALAIPALLI COAL MINE			
Name of the Bank	Drawl Amount	Drawl Date	Interest Details		
			w.e.f.	RdI	
State Bank of India - XII	80,00,00,000.00	11-02-2019	18-Feb-19	8.35%	
State Bank of India - XII	10,00,00,000.00	28-03-2019	11-May-19	8.25%	
			11-Aug-19	6.05%	
			11-Nov-19	7.80%	
			11-Jan-20	7.75%	
			01-Feb-20	7.70%	
			11-Apr-20	7.15%	
			11-Jul-20	6.65%	
			11-Jul-22	7.05%	
			11-Oct-22	7.35%	
			11-Jan-23	8.00%	
			11-Apr-23	8.10%	
			01-Oct-23	8.10%	
			11-Oct-23	8.15%	
			11-Jan-24	8.20%	
			31-Mar-24		
SBI-XII	20,00,00,000.00	24-03-2020	24-Mar-20	7.45%	
			24-Apr-20	7.10%	
			24-May-20	6.95%	
			24-Jun-20	6.70%	
			24-Jul-20	6.65%	
Vijaya Bank-VI	15,00,00,000.00	13-11-2017	13-Nov-17	7.90%	
			13-Aug-18	8.10%	
			13-Sep-18	6.15%	
			13-Oct-18	8.20%	
			13-Nov-18	6.25%	
			13-Jan-19	8.35%	
			13-Feb-19	8.40%	
			13-Apr-19	8.30%	
			13-May-19	8.35%	
			13-Jul-19	8.30%	
			13-Aug-19	8.15%	
			13-Sep-19	8.10%	
			13-Oct-19	6.05%	
			13-Nov-19	7.85%	
			13-Dec-19	7.65%	
			13-Jan-20	7.60%	
			13-Feb-20	7.65%	
			13-Apr-20	7.40%	
			13-May-20	7.35%	
			13-Jun-20	7.20%	
			13-Jul-20	7.15%	

Name of the Company		NTPC LTD		
Name of the Integrated Mine		TALAIPALLI COAL MINE		
Name of the Bank	Drawl Amount	Drawl Date	Interest Details	
			w.e.f.	Rt
UCO Bank-IV	8,94,00,000.00	02-02-2023	02-Feb-23	7.45%
	7,00,00,000.00	08-05-2023	11-Feb-23	7.70%
	40,00,00,000.00	02-06-2023		
12-10-2023				
Bank Loan	Interest Rate	Applicable from	Applicable upto	Number of Days
HDFC Bank Limited-XII.1.1	7.57%	13-Oct-23	12-Nov-23	31.00
	7.71%	13-Nov-23	12-Dec-23	30.00
	7.78%	13-Dec-23	12-Jan-24	31.00
	7.70%	13-Jan-24	12-Feb-24	31.00
	7.65%	13-Feb-24	12-Mar-24	29.00
	7.60%	13-Mar-24	31-Mar-24	19.00
				171.00
01-11-2023				
Bank Loan	Interest Rate	Applicable from	Applicable upto	Number of Days
HDFC Bank Limited-XII.1.2	7.57%	01-Nov-23	12-Nov-23	12.00
	7.71%	13-Nov-23	12-Dec-23	30.00
	7.78%	13-Dec-23	12-Jan-24	31.00
	7.70%	13-Jan-24	12-Feb-24	31.00
	7.65%	13-Feb-24	12-Mar-24	29.00
	7.60%	13-Mar-24	31-Mar-24	19.00
				152.00
01-12-2023				
Bank Loan	Interest Rate	Applicable from	Applicable upto	Number of Days

Name of the Company		NTPC LTD			
Name of the Integrated Mine		TALAIPALLI COAL MINE			
Name of the Bank	Drawl Amount	Drawl Date	Interest Details		
			w.e.f.	RoI	
HDFC Bank Finance XII D-3	7.71%	01-Dec-23	12-Dec-23	12.00	
	7.78%	13-Dec-23	12-Jan-24	31.00	
	7.70%	13-Jan-24	12-Feb-24	31.00	
	7.65%	13-Feb-24	12-Mar-24	20.00	
	7.60%	13-Mar-24	31-Mar-24	19.00	
				122.00	
Bank Loan	Interest Rate	Applicable from	Applicable upto	Number of Days	01-01-2024
HDFC Bank Finance XII D-4	7.78%	01-Jan-24	12-Jan-24	12.00	
	7.70%	13-Jan-24	12-Feb-24	31.00	
	7.65%	13-Feb-24	12-Mar-24	20.00	
	7.60%	13-Mar-24	31-Mar-24	19.00	
				91.00	
Bank Loan	Interest Rate	Applicable from	Applicable upto	Number of Days	01-02-2024
HDFC Bank Finance XII D-6	7.65%	01-Mar-24	12-Mar-24	12.00	
	7.60%	13-Mar-24	31-Mar-24	19.00	
				31.00	

Year wise Statement of Additional Capitalisation after date of Commercial operation up to breask achieving Peak rated Capacity:

Form IV  
Form-5

Name of the Petitioner : NTPC  
Name of the Integrated Mine : Talaspalli  
Date of Commercial Operation : 01.10.2013

Financial Year 2023-24

S. No.	Head of Work / Equipment	ACE Claimed (Actual)				Regulations under which claimed	Justification	Amount in Rs Lakhs Admitted/Cont by the Commission, if any
		Accrual basis	Un-discharged Liability included in column 3	Cash basis	IDC included in col. 4			
1	2	3	4	(5 = 3 - 4)	6	7	8	9
1	Land	208.05	54.31	153.74	-	36E(1)(e)	Expenditure towards land and even compensation as envisaged in Mine Plan, Chapter 4 before achieving peak rated capacity. The Hon'ble commission may be pleased to allow the same.	
2	Construction of Buildings	1,254.38	248.13	1006.25	11.84	36E(1)(e)	Expenditure incurred on construction of buildings/ infrastructure as envisaged in Mine Plan, Chapter 5 before achieving peak rated capacity. The Hon'ble commission may be pleased to allow the same.	
3	Railway Siding	1,909.54	81.18	1,828.36	65.04	36E(1)(e)	Expenditure incurred on Railway Sidings as per Mine Plan, Chapter 1 before achieving peak rated capacity. The Hon'ble Commission may please allow the same.	
4	Continuous emissions air quality monitoring station (CAQMS)	64.43	8.58	55.85	-	36E(1)(c)	Expenditure incurred towards Continuous emissions air quality monitoring station (CAQMS) as per Mine plan and direction of Chhattisgarh Environment Conservation Board (CSEB) in its concern to operate. Relevant documents regarding consent issued by CSEB is attached as Annexure-A.	
5	Electrical Installations	159.73	0.00	159.73	20.07	36E(1)(e)	Expenditure incurred on electrical installations as per Mine Plan, Chapter 3 before achieving peak rated capacity. The Hon'ble Commission may please allow the same.	
6	MBOAs: Pits & Machinery	-0.92	0.00	-0.92	-	36E(1)(a)	Expenditure incurred towards procurement of MBOAs as envisaged in mine plan before achieving peak rated capacity. The Hon'ble Commission may be pleased to allow the capitalization of the same.	
7	MBOAs: Other equipments	71.97	2.91	69.06	-			
8	MBOAs: EDP, W/P Machines & Secom. etc.	70.61	5.90	64.71	-			
9	MBOAs: Communication equipments	120.13	62.54	57.59	2.05			
10	MBOAs: Software	18.44	18.45	-0.01	-			
11	Barbed wire fencing (first phase) along the project boundary of south pit extension and west pit	14.68	4.48	10.20	0.18	36E(1)(a)	Expenditure incurred towards mine infrastructure works/boundary fencing by barbed wire as per mining plan, Chapter 8. The Hon'ble Commission may please allow the same.	
12	Road, Bridge & Culvert	39.88	2.54	37.34	0.73	36E(1)(a)	Expenditure incurred towards roads, bridges & culverts for development of Mine infrastructure as per Mine Plan, Chapter 3. The Hon'ble Commission may please allow the same.	
13	MDO (TEMPL) settlement amount	-5,882.09	0.00	-5,882.09	-	36E(1)(d)	This pertains to Cost adjustment related to payments made by MDO (Thermax Earth Movers Limited, TEMPL) as per reconciliation between NTPC and TEMPL.	
14	Area's Reserve Price upon COD	1,879.60	0.00	1,879.60	-	36E(1)(c) & Regulation 76	Area's payment was made to state authorities for fixed reserve price of coal supplied upon the date of COD in accordance with Coal Mines (Special Provisions) Act 2015 and Allocation Agreements for Talaspalli Mines. Reserve price is subject to escalation and the amount has arisen due to escalation in reserve price and paid for the period upon COD which has been paid to the state authorities after COD. It is submitted that since fixed reserve price is pass through and therefore the income was recognized as on COD but inadvertently expenditure was not recognized and therefore capital cost got reduced by this amount. The Hon'ble Commission may please allow the same. The fixed reserve price doc is attached as Annexure-B.	
<b>Total add cap</b>		<b>2,805.11</b>	<b>485.89</b>	<b>2,319.22</b>	<b>87.81</b>			
15	Liability Discharge			8,161.88		36E(1)(b)	Discharge of liabilities against claimed/admitted items (detail given in item N). The Hon'ble Commission may please allow the same.	
<b>Grand Total</b>		<b>2,805.11</b>	<b>485.89</b>	<b>2,319.22</b>	<b>87.81</b>			

Petitioner

Calculation of Depreciation

Name of the Petitioner : NTPC

Name of the Integrated Mine : Talaipalli

(Amount in Rs Lakh)

S. No.	Name of the Assets	Useful Life (Years)	Salvage Value (%)	Gross Block as on 01.10.2023 on Cash Basis	Gross Block as on 01.10.2023	Depreciation Amount	Addition (01.10.2023-31.03.2024)	Gross Block as on 31.03.2024	Depreciation Amount
1	2	3	4	5	6	7	8	9	10
1	Free hold Land	999		1,649.84	1,649.84			1,649.84	-
2	Leasehold Land	30	0.00	436.34	436.34	14.54		436.34	14.54
3	Coal Bearing Land	31	0.00	76,178.92	1,02,830.07	3,317.10	208.03	1,03,038.10	3,323.81
4	Other Buildings	15	5.00	12,117.32	12,773.72	809.00	1,204.38	13,978.09	885.28
5	Temporary erection	1	0.00	36.32	37.12	37.12		37.12	37.12
6	Railway siding	15	5.00				3,909.34	3,909.34	247.59
7	Plant and machinery	15	5.00	301.23	563.81	35.71	63.51	627.32	39.73
8	Furniture and fixtures	15	5.00	638.90	638.90	40.46		638.90	40.46
9	Other Office Equipments	15	5.00	353.97	358.76	22.72	31.97	390.73	24.73
10	EDP, WP machines & SATCOM equipment	15	0.00	149.54	151.76	10.12	70.61	222.37	14.82
11	Vehicles including speedboats	10	5.00	-	-	-		-	-
12	Electrical installations	15	5.00	5,069.40	3,365.34	339.81	109.73	5,475.07	346.73
13	Communication equipment	15	5.00	106.64	107.94	6.84	320.05	427.99	27.11
14	Hospital equipment	15	5.00	89.81	90.15	5.71		90.15	5.71
15	Laboratory and workshop equipment	15	5.00	51.06	53.23	3.37		53.23	3.37
16	Roads, bridges, culverts, haltpads	25	5.00	3,582.01	3,749.68	142.49	59.88	3,809.56	144.76
17	Computer and Software	3	0.00	151.19	151.70	50.57	16.44	168.14	56.03
18	Mine development expenses	20	0.00	1,01,850.69	1,03,296.63	5,164.83	-3,988.81	99,307.82	4,965.39
	<b>TOTAL</b>			<b>2,02,763.19</b>	<b>2,32,254.99</b>	<b>10,000.38</b>	<b>2,005.12</b>	<b>2,34,260.11</b>	<b>10,177.25</b>
	<b>Weighted Average Rate of Depreciation %</b>					<b>4.31%</b>			<b>4.34%</b>

(Petitioner)

**Statement of Depreciation**

**PART- IV  
FORM- 12**

Name of the Petitioner : NTPC

Name of the Integrated Mine : Talaipalli

(Amount in Rs Lakh)

S. No.	Particulars	Existing 2018-19	2019-20	2020-21	2021-22	2022-23	2023-24 (01.10.2023- 31.03.2024)
1	2	3	4	5	6	7	8
1.	Opening Capital Cost						2,07,106.60
2.	Closing Capital Cost						2,14,787.71
3.	<b>Average Capital Cost</b>						2,10,947.16
4.	Freehold land						1,649.84
4A	Assets having zero salvage value						2,03,209.90
5.	Rate of depreciation						4.33%
6.	Depreciable value						2,08,992.94
7.	Balance useful life at the beginning of the period		NA	NA	NA	NA	31
8.	Remaining depreciable value						2,08,992.94
9.	<b>Depreciation (for the period)</b>						4,561.84
10.	<b>Depreciation (annualized)</b>						9,123.68
11.	Cumulative depreciation at the end of the period						4,561.84
12.	Less: Cumulative depreciation adjustment on account of de-capitalization						
13.	Net Cumulative depreciation at the end of the period						4,561.84

(Petitioner)

Form-13

Name of the Company :		NTPC Limited
Name of the Power Station:		TALAIPELLI COAL MINE
S.No.	Particulars	2023-24 (01.10.2023 to 31.03.2024)
	<b>Axis Bank-II</b>	
	Gross Drawl opening	11,000.00
	Cumulative repayment of drawl till prev yr	11000
	Net Loan opening	0.00
	Increase decrease due to FERV	
	Increase decrease due to ACE	
	Total	0.00
	Repayment of loan during the year	0
	Net loan closing	0.00
	Average net loan	0
	Rate of interest on loan	6.3000%
	Interest on loan	-
	<b>Axis Bank-III</b>	
	Gross Drawl opening	5,350.00
	Cumulative repayment of drawl till prev yr	5350
	Net Loan opening	0.00
	Increase decrease due to FERV	
	Increase decrease due to ACE	
	Total	0.00
	Repayment of loan during the year	0
	Net loan closing	0.00
	Average net loan	0
	Rate of interest on loan	8.3000%
	Interest on loan	-
<b>1</b>	<b>Axis Bank-IV</b>	
	Gross Drawl opening	5,350.00



Form-13		
Name of the Company :		NTPC Limited
Name of the Power Station:		TALAIPELLI COAL MINE
S.No.	Particulars	2023-24 (01.10.2023 to 31.03.2024)
	Cumulative repayment of drawl till prev yr	0
	Net Loan opening	5,350.00
	Increase decrease due to FERV	
	Increase decrease due to ACE	
	Total	5,350.00
	Repayment of loan during the year	535
	Net loan closing	4,815.00
	Average net loan	5,083
	Rate of interest on loan	8.0000%
	Interest on loan	407
<b>2</b>	<b>Bank of Baroda-II</b>	
	Gross Drawl opening	600.00
	Cumulative repayment of drawl till prev yr	0
	Net Loan opening	600.00
	Increase decrease due to FERV	
	Increase decrease due to ACE	
	Total	600.00
	Repayment of loan during the year	0
	Net loan closing	600.00
	Average net loan	600
	Rate of interest on loan	8.0137%
	Interest on loan	48
<b>3</b>	<b>Bank of India-V-A</b>	
	Gross Drawl opening	144.00
	Cumulative repayment of drawl till prev yr	0
	Net Loan opening	144.00
	Increase decrease due to FERV	
	Increase decrease due to ACE	
	Total	144.00

First (10) Annual Repayment on 29-03-2024

First (12) Annual Repayment on 11/12/2026

First (12) Annual Repayment on 05/03/2025

Form-13

Name of the Company :		NTPC Limited
Name of the Power Station:		TALAIPELLI COAL MINE
		<b>2023-24</b> <b>(01.10.2023 to 31.03.2024)</b>
<b>S.No.</b>	<b>Particulars</b>	
	Repayment of loan during the year	0
	Net loan closing	144.00
	Average net loan	144
	Rate of interest on loan	8.0000%
	Interest on loan	12
<b>1</b>	<b>HDFC Bank Limited-V</b>	
	Gross Drawl opening	1,000.00
	Cummulative repayment of drawl till prev yr	1000
	Net Loan opening	0.00
	Increase decrease due to FERV	
	Increase decrease due to ACE	
	Total	0.00
	Repayment of loan during the year	0
	Net loan closing	0.00
	Average net loan	0
	Rate of interest on loan	5.9500%
	Interest on loan	-
<b>4</b>	<b>HDFC Bank Limited-VII</b>	
	Gross Drawl opening	6,000.00
	Cummulative repayment of drawl till prev yr	0
	Net Loan opening	6,000.00
	Increase decrease due to FERV	
	Increase decrease due to ACE	
	Total	6,000.00
	Repayment of loan during the year	0
	Net loan closing	6,000.00
	Average net loan	6,000
	Rate of interest on loan	7.9500%
	Interest on loan	477

First (9) Annual Repayment on 11/6/2026

Form-13		
Name of the Company :		NTPC Limited
Name of the Power Station:		TALAIPELLI COAL MINE
		<b>2023-24</b>
<b>S.No.</b>	<b>Particulars</b>	<b>(01.10.2023 to 31.03.2024)</b>
<b>2</b>	<b>HDFC-IX</b>	
	Gross Drawl opening	16,000.00
	Cummulative repayment of drawl till prev yr	16000
	Net Loan opening	0.00
	Increase decrease due to FERV	
	Increase decrease due to ACE	
	Total	0.00
	Repayment of loan during the year	0
	Net loan closing	0.00
	Average net loan	0
	Rate of interest on loan	5.9500%
	Interest on loan	-
<b>5</b>	<b>HDFC-X</b>	
	Gross Drawl opening	4,100.00
	Cummulative repayment of drawl till prev yr	0
	Net Loan opening	4,100.00
	Increase decrease due to FERV	
	Increase decrease due to ACE	
	Total	4,100.00
	Repayment of loan during the year	0
	Net loan closing	4,100.00
	Average net loan	4,100
	Rate of interest on loan	7.9500%
	Interest on loan	326
<b>6</b>	<b>HDFC Bank Limited-XI</b>	
	Gross Drawl opening	2,000.00
	Cummulative repayment of drawl till prev yr	0
	Net Loan opening	2,000.00

First (12) Annual Repayment on 24/11/2025

First (12) Annual Repayment on 14/07/2027

Form-13

Name of the Company :		NTPC Limited
Name of the Power Station:		TALAIPELLI COAL MINE
<b>S.No.</b>	<b>Particulars</b>	<b>2023-24 (01.10.2023 to 31.03.2024)</b>
	Increase decrease due to FERV	
	Increase decrease due to ACE	
	Total	2,000.00
	Repayment of loan during the year	0
	Net loan closing	2,000.00
	Average net loan	2,000
	Rate of interest on loan	7.8426%
	Interest on loan	157
	<b>ICICI-IV</b>	
	Gross Drawl opening	50000
	Cummulative repayment of drawl till prev yr	50000
	Net Loan opening	0.00
	Increase decrease due to FERV	
	Increase decrease due to ACE	
	Total	0.00
	Repayment of loan during the year	0
	Net loan closing	0.00
	Average net loan	0
	Rate of interest on loan	8.6000%
	Interest on loan	-
	<b>ICICI-VI</b>	
	Gross Drawl opening	4900
	Cummulative repayment of drawl till prev yr	4900
	Net Loan opening	0.00
	Increase decrease due to FERV	

Form-13

Name of the Company		NTPC Limited
Name of the Power Station:		TALAIPELLI COAL MINE
		<b>2023-24</b>
<b>S.No.</b>	<b>Particulars</b>	<b>(01.10.2023 to 31.03.2024)</b>
	Increase decrease due to ACE	
	Total	0.00
	Repayment of loan during the year	0
	Net loan closing	0.00
	Average net loan	0
	Rate of interest on loan	8.6000%
	Interest on loan	-
	<b>HDFC Bank Limited-XII D-1</b>	
	Gross Drawl opening	-
	Cummulative repayment of drawl till prev yr	0
	Net Loan opening	0.00
	Increase decrease due to FERV	
	Increase decrease due to ACE	1600
	Total	1600
	Repayment of loan during the year	0
	Net loan closing	1600
	Average net loan	800
	Rate of interest on loan	7.6731%
	Interest on loan	61
<b>7</b>	<b>HDFC Bank Limited-XII D-2</b>	
	Gross Drawl opening	0
	Cummulative repayment of drawl till prev yr	0
	Net Loan opening	0
	Increase decrease due to FERV	
	Increase decrease due to ACE	2000
	Total	2000
	Repayment of loan during the year	0

13-10-2023

01-11-2023

Form-13

Name of the Company :		NTPC Limited
Name of the Power Station:		TALAIPELLI COAL MINE
		<b>2023-24</b> <b>(01.10.2023 to 31.03.2024)</b>
<b>S.No.</b>	<b>Particulars</b>	
	Net loan closing	2000
	Average net loan	1000
	Rate of interest on loan	7.6860%
	Interest on loan	77
<b>8</b>	<b>HDFC Bank Limited-XII D-3</b>	
	Gross Drawl opening	0
	Cummulative repayment of drawl till prev yr	0
	Net Loan opening	0
	Increase decrease due to FERV	
	Increase decrease due to ACE	2200
	Total	2200
	Repayment of loan during the year	0
	Net loan closing	2200
	Average net loan	1100
	Rate of interest on loan	7.6939%
	Interest on loan	85
<b>9</b>	<b>HDFC Bank Limited-XII D-4</b>	
	Gross Drawl opening	0
	Cummulative repayment of drawl till prev yr	0
	Net Loan opening	0
	Increase decrease due to FERV	
	Increase decrease due to ACE	2000
	Total	2000
	Repayment of loan during the year	0
	Net loan closing	2000
	Average net loan	1000
	Rate of interest on loan	7.6737%
	Interest on loan	77

01-12-2023

01-01-2024

Form-13

Name of the Company :		NTPC Limited
Name of the Power Station:		TALAIPELLI COAL MINE
		<b>2023-24</b>
<b>S.No.</b>	<b>Particulars</b>	<b>(01.10.2023 to 31.03.2024)</b>
<b>10</b>	<b>HDFC Bank Limited-XII -6</b>	
	Gross Drawl opening	0
	Cummulative repayment of drawl till prev yr	0
	Net Loan opening	0
	Increase decrease due to FERV	
	Increase decrease due to ACE	800
	Total	800.00
	Repayment of loan during the year	0
	Net loan closing	800.00
	Average net loan	400
	Rate of interest on loan	7.6194%
	Interest on loan	30
	<b>ICICI-VII</b>	
	Gross Drawl opening	2,000.00
	Cummulative repayment of drawl till prev yr	2000
	Net Loan opening	0.00
	Increase decrease due to FERV	
	Increase decrease due to ACE	
	Total	0.00
	Repayment of loan during the year	0
	Net loan closing	0.00
	Average net loan	0
	Rate of interest on loan	6.2400%
	Interest on loan	-
<b>7</b>	<b>Indusind Bank</b>	
	Gross Drawl opening	1,300.00
	Cummulative repayment of drawl till prev yr	0
	Net Loan opening	1,300.00
	Increase decrease due to FERV	

01.03.2024

First (12) Annual Repayment on 15/7/2026

Form-13

Name of the Company :		NTPC Limited
Name of the Power Station:		TALAIPELLI COAL MINE
<b>S.No.</b>	<b>Particulars</b>	<b>2023-24 (01.10.2023 to 31.03.2024)</b>
	Increase decrease due to ACE	
	Total	1,300.00
	Repayment of loan during the year	0
	Net loan closing	1,300.00
	Average net loan	1,300
	Rate of interest on loan	8.0281%
	Interest on loan	104
<b>8</b>	<b>Punjab National Bank III</b>	
	Gross Drawl opening	5,000.00
	Cummulative repayment of drawl till prev yr	1111
	Net Loan opening	3,888.89
	Increase decrease due to FERV	
	Increase decrease due to ACE	
	Total	3,888.89
	Repayment of loan during the year	556
	Net loan closing	3,333.33
	Average net loan	3,611
	Rate of interest on loan	7.9000%
	Interest on loan	285
<b>1</b>	<b>PNB-IV</b>	
	Gross Drawl opening	50,000.00
	Cummulative repayment of drawl till prev yr	50,000
	Net Loan opening	0.00
	Increase decrease due to FERV	
	Increase decrease due to ACE	
	Total	0.00
	Repayment of loan during the year	-
	Net loan closing	0.00
	Average net loan	0

First (9) Annual Repayment on 01/02/2022



Form-13		
Name of the Company :		NTPC Limited
Name of the Power Station:		TALAIPELLI COAL MINE
S.No.	Particulars	2023-24 (01.10.2023 to 31.03.2024)
	Rate of interest on loan	6.5000%
	Interest on loan	-
<b>9</b>	<b>PNB-V</b>	
	Gross Drawl opening	6,000.00
	Cummulative repayment of drawl till prev yr	-
	Net Loan opening	6,000.00
	Increase decrease due to FERV	
	Increase decrease due to ACE	
	Total	6,000.00
	Repayment of loan during the year	500
	Net loan closing	5,500.00
	Average net loan	5,750
	Rate of interest on loan	7.9000%
	Interest on loan	454
<b>10</b>	<b>State Bank of India - IX</b>	
	Gross Drawl opening	5,377.83
	Cummulative repayment of drawl till prev yr	433
	Net Loan opening	4,944.50
	Increase decrease due to FERV	
	Increase decrease due to ACE	
	Total	4,944.50
	Repayment of loan during the year	0
	Net loan closing	4,944.50
	Average net loan	4,944
	Rate of interest on loan	8.1628%
	Interest on loan	404
<b>1</b>	<b>State Bank of India - X</b>	
	Gross Drawl opening	19,000.00

First (12) Annual Repayment on 27/03/2024

First (9) Annual Repayment on 31/03/2021

Form-13		
Name of the Company :		NTPC Limited
Name of the Power Station:		TALAIPELLI COAL MINE
S.No.	Particulars	2023-24 (01.10.2023 to 31.03.2024)
	Cumulative repayment of drawl till prev yr	19000
	Net Loan opening	0.00
	Increase decrease due to FERV	
	Increase decrease due to ACE	
	Total	0.00
	Repayment of loan during the year	0
	Net loan closing	0.00
	Average net loan	0
	Rate of interest on loan	6.6500%
	Interest on loan	-
<b>11</b>	<b>State Bank of India - XI</b>	
	Gross Drawl opening	7,700.00
	Cumulative repayment of drawl till prev yr	1711
	Net Loan opening	5,988.91
	Increase decrease due to FERV	
	Increase decrease due to ACE	
	Total	5,988.91
	Repayment of loan during the year	0
	Net loan closing	5,988.91
	Average net loan	5,989
	Rate of interest on loan	8.1694%
	Interest on loan	489
<b>12</b>	<b>State Bank of India - XII</b>	
	Gross Drawl opening	9,000.00
	Cumulative repayment of drawl till prev yr	0
	Net Loan opening	9,000.00
	Increase decrease due to FERV	
	Increase decrease due to ACE	
	Total	9,000.00

First (9)Annual Repayment on 01/10/2022

First (9)Annual Repayment on 31/03/2026

Form-13

Name of the Company :		NTPC Limited
Name of the Power Station:		TALAIPELLI COAL MINE
<b>S.No.</b>	<b>Particulars</b>	<b>2023-24 (01.10.2023 to 31.03.2024)</b>
	Repayment of loan during the year	0
	Net loan closing	9,000.00
	Average net loan	9,000
	Rate of interest on loan	8.1694%
	Interest on loan	735
<b>1</b>	<b>State Bank of India - XIII</b>	
	Gross Drawl opening	2,000.00
	Cummulative repayment of drawl till prev yr	2000
	Net Loan opening	0.00
	Increase decrease due to FERV	
	Increase decrease due to ACE	
	Total	0.00
	Repayment of loan during the year	0
	Net loan closing	0.00
	Average net loan	0
	Rate of interest on loan	6.6500%
	Interest on loan	-
<b>13</b>	<b>UCO Bank-IV</b>	
	Gross Drawl opening	5,394.00
	Cummulative repayment of drawl till prev yr	0
	Net Loan opening	5,394.00
	Increase decrease due to FERV	
	Increase decrease due to ACE	
	Total	5,394.00
	Repayment of loan during the year	0
	Net loan closing	5,394.00
	Average net loan	5,394
	Rate of interest on loan	7.7000%
	Interest on loan	415

First (9) Annual Repayment on 31/03/2026

Form-13

Name of the Company :		NTPC Limited
Name of the Power Station:		TALAIPELLI COAL MINE
		<b>2023-24</b>
<b>S.No.</b>	<b>Particulars</b>	<b>(01.10.2023 to 31.03.2024)</b>
	<b>Vijaya Bank-VI</b>	
	Gross Drawl opening	1,500.00
	Cumulative repayment of drawl till prev yr	1500
	Net Loan opening	0.00
	Increase decrease due to FERV	
	Increase decrease due to ACE	
	Total	0.00
	Repayment of loan during the year	0
	Net loan closing	0.00
	Average net loan	0
	Rate of interest on loan	7.1500%
	Interest on loan	-
	<b>Bonds Series - 67</b>	
	Gross Drawl opening	4,900.00
	Cumulative repayment of drawl till prev yr	0
	Net Loan opening	4,900.00
	Increase decrease due to FERV	
	Increase decrease due to ACE	
	Total	4,900.00
	Repayment of loan during the year	0
	Net loan closing	4,900.00
	Average net loan	4,900
	Rate of interest on loan	8.3300%
	Interest on loan	408
	<b>Bonds Series - 69</b>	
	Gross Drawl opening	11,500.00
	Cumulative repayment of drawl till prev yr	0

Form-13

Name of the Company :		NTPC Limited
Name of the Power Station:		TALAIPELLI COAL MINE
<b>2023-24</b>		
<b>(01.10.2023 to 31.03.2024)</b>		
<b>S.No.</b>	<b>Particulars</b>	
	Net Loan opening	11,500.00
	Increase decrease due to FERV	
	Increase decrease due to ACE	
	Total	11,500.00
	Repayment of loan during the year	0
	Net loan closing	11,500.00
	Average net loan	11,500
	Rate of interest on loan	7.3500%
	Interest on loan	845
<b>Bonds Series - 73</b>		
	Gross Drawl opening	19,400.00
	Cummulative repayment of drawl till prev yr	0
	Net Loan opening	19,400.00
	Increase decrease due to FERV	
	Increase decrease due to ACE	
	Total	19,400.00
	Repayment of loan during the year	0
	Net loan closing	19,400.00
	Average net loan	19,400
	Rate of interest on loan	6.4600%
	Interest on loan	1,253
<b>Bonds Series - 74</b>		
	Gross Drawl opening	4,800.00
	Cummulative repayment of drawl till prev yr	0
	Net Loan opening	4,800.00
	Increase decrease due to FERV	
	Increase decrease due to ACE	
	Total	4,800.00

Form-13

Name of the Company :		NTPC Limited
Name of the Power Station:		TALAIPELLI COAL MINE
<b>S.No.</b>	<b>Particulars</b>	<b>2023-24 (01.10.2023 to 31.03.2024)</b>
	Repayment of loan during the year	0
	Net loan closing	4,800.00
	Average net loan	4,800
	Rate of interest on loan	6.9000%
	Interest on loan	331
	<b>Bonds Series - 75</b>	
	Gross Drawl opening	2,160.00
	Cummulative repayment of drawl till prev yr.	0
	Net Loan opening	2,160.00
	Increase decrease due to FERV	
	Increase decrease due to ACE	
	Total	2,160.00
	Repayment of loan during the year	0
	Net loan closing	2,160.00
	Average net loan	2,160
	Rate of interest on loan	6.7200%
	Interest on loan	145
	<b>Bonds Series - 76</b>	
	Gross Drawl opening	2,600.00
	Cummulative repayment of drawl till prev yr.	0
	Net Loan opening	2,600.00
	Increase decrease due to FERV	
	Increase decrease due to ACE	
	Total	2,600.00
	Repayment of loan during the year	0
	Net loan closing	2,600.00
	Average net loan	2,600
	Rate of interest on loan	6.7700%

Form-13

Name of the Company :		NTPC Limited
Name of the Power Station:		TALAIPELLI COAL MINE
<b>S.No.</b>	<b>Particulars</b>	<b>2023-24 (01.10.2023 to 31.03.2024)</b>
	Interest on loan	176
	<b>Bonds Series - 78</b>	
	Gross Drawl opening	856.00
	Cummulative repayment of drawl till prev yr	0
	Net Loan opening	856.00
	Increase decrease due to FERV	
	Increase decrease due to ACE	
	Total	856.00
	Repayment of loan during the year	0
	Net loan closing	856.00
	Average net loan	856
	Rate of interest on loan	7.4700%
	Interest on loan	64
	<b>Euro Loan I</b>	
	Gross Drawl opening	2,377.96
	Cummulative repayment of drawl till prev yr	-
	Net Loan opening	2,377.96
	Increase decrease due to FERV	-
	Increase decrease due to ACE	-
	Total	2,377.96
	Repayment of loan during the year	-
	Net loan closing	2,377.96
	Average net loan	2,378
	Rate of interest on loan	4.9840%
	Interest on loan	119
	<b>Euro Loan II</b>	
	Gross Drawl opening	7,639.83

Form-13

Name of the Company :		NTPC Limited
Name of the Power Station:		TALAIPELLI COAL MINE
<b>S.No.</b>	<b>Particulars</b>	<b>2023-24 (01.10.2023 to 31.03.2024)</b>
	Cumulative repayment of drawl till prev yr	-
	Net Loan opening	7,639.83
	Increase decrease due to FERV	-
	Increase decrease due to ACE	-
	Total	7,639.83
	Repayment of loan during the year	-
	Net loan closing	7,639.83
	Average net loan	7,640
	Rate of interest on loan	4.9824%
	Interest on loan	381
	<b>Euro Loan III</b>	
	Gross Drawl opening	4,853.65
	Cumulative repayment of drawl till prev yr	-
	Net Loan opening	4,853.65
	Increase decrease due to FERV	-
	Increase decrease due to ACE	-
	Total	4,853.65
	Repayment of loan during the year	-
	Net loan closing	4,853.65
	Average net loan	4,854
	Rate of interest on loan	4.9824%
	Interest on loan	242
	<b>USD 750 Million Drawl I</b>	
	Gross Drawl opening	2,859.35
	Cumulative repayment of drawl till prev yr	-
	Net Loan opening	2,859.35
	Increase decrease due to FERV	-
	Increase decrease due to ACE	-
	Total	2,859.35



Name of the Company :		NTPC Limited
Name of the Power Station:		TALAIPELLI COAL MINE
<b>S.No.</b>	<b>Particulars</b>	<b>2023-24 (01.10.2023 to 31.03.2024)</b>
	Repayment of loan during the year	-
	Net loan closing	2,859.35
	Average net loan	2,859
	Rate of interest on loan	6.7241%
	Interest on loan	192
	<b>USD 750 Million Drawl II</b>	
	Gross Drawl opening	2,726.48
	Cummulative repayment of drawl till prev yr	-
	Net Loan opening	2,726.48
	Increase decrease due to FERV	-
	Increase decrease due to ACE	-
	Total	2,726.48
	Repayment of loan during the year	-
	Net loan closing	2,726.48
	Average net loan	2,726
	Rate of interest on loan	6.7241%
	Interest on loan	183
	<b>USD 750 Million Drawl III</b>	
	Gross Drawl opening	308.03
	Cummulative repayment of drawl till prev yr	-
	Net Loan opening	308.03
	Increase decrease due to FERV	-
	Increase decrease due to ACE	-
	Total	308.03
	Repayment of loan during the year	-
	Net loan closing	308.03
	Average net loan	308
	Rate of interest on loan	6.7241%
	Interest on loan	21

Form-13

Name of the Company :		NTPC Limited
Name of the Power Station:		TALAIPELLI COAL MINE
		<b>2023-24</b>
<b>S.No.</b>	<b>Particulars</b>	<b>(01.10.2023 to 31.03.2024)</b>
	<b>USD 750 Million Drawl IV</b>	
	Gross Drawl opening	1,625.18
	Cummulative repayment of drawl till prev yr	-
	Net Loan opening	1,625.18
	Increase decrease due to FERV	-
	Increase decrease due to ACE	-
	Total	1,625.18
	Repayment of loan during the year	-
	Net loan closing	1,625.18
	Average net loan	1,625
	Rate of interest on loan	6.7241%
	Interest on loan	109
	<b>USD 750 Million Drawl V</b>	
	Gross Drawl opening	708.66
	Cummulative repayment of drawl till prev yr	-
	Net Loan opening	708.66
	Increase decrease due to FERV	-
	Increase decrease due to ACE	-
	Total	708.66
	Repayment of loan during the year	-
	Net loan closing	708.66
	Average net loan	709
	Rate of interest on loan	6.7241%
	Interest on loan	48
	<b>USD 750 Million Drawl VI</b>	
	Gross Drawl opening	3,047.99
	Cummulative repayment of drawl till prev yr	-
	Net Loan opening	3,047.99

Name of the Company :		NTPC Limited
Name of the Power Station:		TALAIPELLI COAL MINE
<b>S.No.</b>	<b>Particulars</b>	<b>2023-24 (01.10.2023 to 31.03.2024)</b>
	Increase decrease due to FERV	-
	Increase decrease due to ACE	-
	Total	3,047.99
	Repayment of loan during the year	-
	Net loan closing	3,047.99
	Average net loan	3,048
	Rate of interest on loan	6.7241%
	Interest on loan	205
	<b>JPY Equ. \$400 Million Drawl I</b>	
	Gross Drawl opening	1,245.37
	Cummulative repayment of drawl till prev yr	-
	Net Loan opening	1,245.37
	Increase decrease due to FERV	-
	Increase decrease due to ACE	-
	Total	1,245.37
	Repayment of loan during the year	-
	Net loan closing	1,245.37
	Average net loan	1,245
	Rate of interest on loan	1.2125%
	Interest on loan	15
	<b>JPY Equ. \$400 Million Drawl II</b>	
	Gross Drawl opening	4,786.62
	Cummulative repayment of drawl till prev yr	-
	Net Loan opening	4,786.62
	Increase decrease due to FERV	-
	Increase decrease due to ACE	-
	Total	4,786.62
	Repayment of loan during the year	-

Form-13		
Name of the Company :		NTPC Limited
Name of the Power Station:		TALAIPELLI COAL MINE
		<b>2023-24</b> <b>(01.10.2023 to 31.03.2024)</b>
S.No.	Particulars	
	Net loan closing	4,786.62
	Average net loan	4,787
	Rate of interest on loan	1.2125%
	Interest on loan	58
	<b>JPY Equ. \$400 Million Drawl IV</b>	
	Gross Drawl opening	-
	Cummulative repayment of drawl till prev yr	-
	Net Loan opening	-
	Increase decrease due to FERV	-
	Increase decrease due to ACE	400.00
	Total	400.00
	Repayment of loan during the year	-
	Net loan closing	400.00
	Average net loan	200
	Rate of interest on loan	1.2222%
	Interest on loan	2
	Gross Drawl opening	2,99,110.95
	Cummulative repayment of drawl till prev yr	1,66,005.53
	Net Loan opening	1,33,105.41
	Increase decrease due to FERV	0.00
	Increase decrease due to ACE	9,000.00
	Total	1,42,105.41
	Repayment of loan during the year	1,590.56
	Net loan closing	1,40,514.85
	Average net loan	1,36,810.14
	Rate of interest on loan	6.9009%
	Interest on loan	9,441.18

22-12-2023

Name of the Petitioner : NTPC Ltd.

Non-Taxiff Income

Name of the Integrated Mine - Talaspalli Coal Mining Project

S. No.	Parameters	Existing 2018-19	2019-20	2020-21	2021-22	2022-23	2023-24 (01.10.2023- 31.03.2024)
1.	Income from sale of washery rejects, if and as applicable	NA					-
2.	Profit from supply of coal to CIL or merchant sale of coal, if and as applicable.						-
3.	Income from rent of land or buildings						-
4.	Income from sale of scrap						-
5.	Income from advertisements						-
6.	Others *						-
	Total*						

\*No non taxiff income for 2023-24 period.

(Petitioner)

Details of Applicable Statutory Charges

PART-IV  
FORM-16

Name of the Petitioner : NTPC

Name of the Integrated Mine : Talaipalli

			(Amount in Rs)				
Particulars	Applicable Rate	Quantity	Amount (2019-20)	Amount (2020-21)	Amount (2021-22)	Amount (2022-23)	Amount (2023-24) (01.10.2023-31.03.2024)
<b>Grade</b>							<b>G13</b>
Royalty	% of Input Price (CIL Basic Rate)	14%					115.78
GST under Reverse Charge Mechanism	% of Royalty	18%					20.84
District Mineral Foundation (DMF)	% of Royalty	10%					11.58
GST under Reverse Charge Mechanism	% of DMF	18%					2.08
National Mineral Exploration Trust (NMET)	% of Royalty	2%					2.32
GST under Reverse Charge Mechanism	% of NMET	18%					0.42
Mineral Transit Cess (Forest Cess)	Rs per tonne	19.32					19.32
GST under Reverse Charge Mechanism	% of Forest Cess	18%					3.48
CG Vikas Upkar	Rs per tonne	11.25	NA	NA	NA	NA	11.25
GST under Reverse Charge Mechanism	% of CG Vikas Upkar	18%					2.03
CG Paryavaran Upkar	Rs per tonne	11.25					11.25
GST under Reverse Charge Mechanism	% of Paryavaran Upkar	18%					2.03
Reserve Price (with escalation)	Rs per tonne	133.14					133.14
GST under Reverse Charge Mechanism	% Reserve Price	18%					23.97
GST on MDO price	% of Mining Charges	18%					172.66
<b>Total</b>							<b>532.13</b>

(Petitioner)

**Details of Mine Closure Expenses**

PART- IV  
FORM-17

Name of the Petitioner : NTPC

Name of the Integrated Mine : Talaipalli

Amount in Rs Lakhs

1. Amount Deposited in Escrow Account prior to date of Commercial Operation (Rs)	PV	2,190.86
2. Life of Mine over which amount is to be recovered (Yrs)	n	31
3. Borrowing Rate per year (%)	r	6.90%
4. Amount recoverable per Year (Rs)	$P = PV \times r / [1 - (1+r)^{-n}]$	71.46

**5. Deposit after the date of Commercial operation - when mine closure is in scope of Generating Company itself**

Production Year No. (1)	Amount of Deposit in Escrow account (2)	Date of Deposit in Escrow account (3)	Interest Earned/Accrued in Escrow account (4)	Amount received from Escrow account towards Mine closure (5)	Admissible Mine closure expense (6)
3	921.70				921.70
4					
5					
6					

**6. Deposit after the date of Commercial operation - when mine closure is in scope of Mine Developer & Operator (MDO)**

Production Year No. (1)	Amount of Deposit in Escrow account (2)	Date of Deposit in Escrow account (3)	Borrowing cost at weighted average rate of interest of actual loan (4)	Interest Earned/Accrued in Escrow account (5)	Amount received from Escrow account towards Mine closure (6)	Adjustment to be made in Input price as a part of Mine closure expense (7)
3	921.70		63.61	15.92	0	47.69
4						
5						
6						

Petitioner

<u>Details for GCV Adjustment*</u>					PART-IV FORM-15
Name of the Petitioner: NTPC Ltd	2019-20	2020-21	2021-22	2022-23	2023-24
Name of the Integrated Mine: Talaiyalli					
1. Declared GCV of Coal (Kcal/Kg)	NA				G13
2. Weighted Average GCV of Coal extracted in the year as reported to COO (Kcal/Kg)	NA				G13
					(Petitioner)
* (i) The Coal Controller (CCO) declares the sentwise quality of coal in terms of the grade and Petitioner is reporting the composite grade of the coal extracted to the CCO (ii) Communication in respect of Declared Grade of Coal in respective years is Attached as Annexure - (iii) The grades mentioned above are as declared/achieved					



**Reconciliation of capitalization claimed vis-à-vis books of accounts****PART-IV****Form-E**

Name of the Petitioner: NTPC Ltd

Name of the Integrated Mine: Talaipalli

(Amount in Rs. Lakh)

S. No.	Particulars	2023-24 (COD- 1.10.23 to 31.3.24)
1	2	4
1	Closing Gross Block as per IND AS	2,40,749.67
2	Less: Ind-AS Adjustments	-6,489.55
3	Closing Gross Block as per I GAAP	2,34,260.11
4	Opening Gross Block as per IND AS	2,43,259.33
5	Add/Less: Adjustments	-11,004.33
6	Opening Gross Block as per I GAAP	2,32,254.99
7	<b>Total Additions as per books (G = 3 - 6)</b>	<b>2,005.12</b>
8	Less: Additions pertaining to other Mines(give Mine wise breakup)	
8.1	Add : Adjustment towards Mine Closure cost	
9	<b>Net Additions pertaining to instant Mine</b>	<b>2,005.12</b>
10	Less: Exclusions (items not allowable / notclaimed)	-
11	<b>Net Additional Capital Expenditure Claimed (on accrual basis) (I GAAP)</b>	<b>2,005.12</b>
12	<b>Less: Un-discharged Liabilities</b>	<b>485.89</b>
13	<b>Add: Discharges of un-discharged liabilities, corresponding to admitted assets/works</b>	<b>6,161.88</b>
14	<b>Net Additional Capital Expenditure Claimed (on cash basis)</b>	<b>7,681.11</b>

## Statement of Capital cost

PART-IV  
FORM- G

Name of the Petitioner: NTPC Ltd

Name of the Integrated Mine: Talaspalli

(Amount in Rs. Lakh)

S. No.	Particulars	2023-24 (COD 01.10.2023 to 31.03.2024)		
		Accrual Basis	Un-discharged Liabilities	Cash Basis
A	a) Opening Gross Block Amount as per books (Indian GAAP)	2,32,254.99	29,491.51	2,02,763.48
	b) Amount of IDC in A(a) above	30,106.20	-	30,106.20
	c) Amount of FC in A(a) above	179.73	-	179.73
	d) Amount of FERV in A(a) above	-	-	-
	e) Amount of Hedging Cost in A(a) above	-	-	-
	f) Amount of IEDC in A(a) above	-	-	-
B	a) Addition in Gross Block Amount during the period (Direct purchases) (Indian GAAP)	326.74	79.06	248.08
	b) Amount of IDC in B(a) above	-	-	-
	c) Amount of FC in B(a) above	-	-	-
	d) Amount of FERV in B(a) above	-	-	-
	e) Amount of Hedging Cost in B(a) above	-	-	-
	f) Amount of IEDC in B(a) above	-	-	-
C	a) Addition in Gross Block Amount during the period (Transferred from CWIP) (Indian GAAP)	7,562.07	407.83	7,154.24
	b) Amount of IDC in C(a) above	97.92	-	97.92
	c) Amount of FC in C(a) above	-	-	-
	d) Amount of FERV in C(a) above	-	-	-
	e) Amount of Hedging Cost in C(a) above	-	-	-
	f) Amount of IEDC in C(a) above	-	-	-
D	a) Deletion in Gross Block Amount during the period (Indian GAAP)	5,883.09	-	5,883.09
	b) Amount of IDC in D(a) above	-	-	-
	c) Amount of FC in D(a) above	-	-	-
	d) Amount of FERV in D(a) above	-	-	-
	e) Amount of Hedging Cost in D(a) above	-	-	-
	f) Amount of IEDC in D(a) above	-	-	-
E	a) Closing Gross Block Amount as per books (Indian GAAP)	2,34,260.11	23,815.82	2,10,444.30
	b) Amount of IDC in E(a) above	30,204.13	-	30,204.13
	c) Amount of FC in E(a) above	179.73	-	179.73
	d) Amount of FERV in E(a) above	-	-	-
	e) Amount of Hedging Cost in E(a) above	-	-	-
	f) Amount of IEDC in E(a) above	-	-	-

(Petitioner)

**Statement of Capital Works in Progress**

Name of the Petitioner: NTPC Ltd  
Name of the Integrated Mine: Talaipalli

**PART- IV  
FORM- H**

(Amount in Rs. Lakh)

S. No.	Particulars	2023-24 (COD-01.10.2023 to 31.03.2024)		
		Accrual Basis	Un-discharged Liabilities	Cash Basis
A	a) Opening CWIP as per books (Indian GAAP)	1,483.05	1,313.64	169.41
	b) Amount of IDC in A(a) above	33.74	-	33.74
	c) Amount of FC in A(a) above			
	d) Amount of FERV in A(a) above			
	e) Amount of Hedging Cost in A(a) above			
	f) Amount of IEDC in A(a) above			
B	a) Addition in CWIP during the period(Indian GAAP)	6,293.88	407.83	5,886.05
	b) Amount of IDC in B(a) above	66.66		66.66
	c) Amount of FC in B(a) above			
	d) Amount of FERV in B(a) above			
	e) Amount of Hedging Cost in B(a) above			
	f) Amount of IEDC in B(a) above			
C	a) Transferred to Gross Block Amount during the period (Indian GAAP)	7,562.07	407.83	7,154.24
	b) Amount of IDC in C(a) above	97.92		97.92
	c) Amount of FC in C(a) above			
	d) Amount of FERV in C(a) above			
	e) Amount of Hedging Cost in C(a) above			
	f) Amount of IEDC in C(a) above			
D	a) Closing CWIP as per books (Indian GAAP)	214.86	206.96	7.89
	b) Amount of IDC in E(a) above	2.45		2.45
	c) Amount of FC in E(a) above			
	d) Amount of FERV in E(a) above			
	e) Amount of Hedging Cost in E(a) above			
	f) Amount of IEDC in E(a) above			

(Petitioner)

**Calculation of Interest on Normative Loan**PART- IV  
FORM- I

Name of the Petitioner : NTPC

Name of the Integrated Mine : Talaipalli

(Amount in Rs Lakh)

S. No.	Particulars	Existing 2018-19	2019-20	2020-21	2021-22	2022-23	2023-24 (01.10.2023- 31.03.2024)
1	2	3	4	5	6	7	8
1	Gross Normative loan – Opening						1,44,974.62
2	Cumulative repayment of Normative loan up to previous year						-
3	Net Normative loan – Opening						1,44,974.62
4	Add: Increase due to addition during the year						1,063.46
5	Less: Decrease due to de-capitalisation during the year						-
6	Add: Increase due to discharges during the year / period		NA	NA	NA	NA	4,313.32
6A	Less: repayment during the period						4,561.84
7	Net Normative loan - Closing						1,45,789.56
8	Average Normative loan						1,45,382.09
9	Weighted average rate of interest						6.9009%
10	Interest on Loan						10,032.73

(Petitioner)

**Calculation of Interest on Working Capital**

**PART- IV  
FORM- J**

Name of the Petitioner : NTPC

Name of the Integrated Mine : Talaipalli

(Amount in Rs Lakh)

S. No.	Particulars	Existing 2018-19	2019-20	2020-21	2021-22	2022-23	2023-24 (01.10.2023-31.03.2024)
1	2	3	4	5	6	7	8
1	Input Cost of Coal Stock for 7 days of Production corresponding to ATQ for the relevant year						2050.98
2	Consumption of stores and spare including explosives, lubricants and fuels (@ 15%) of O&M expenses excluding mining charge of MDO or annual charge of any agency other than MDO		NA	NA	NA	NA	4394.41
3	One Month O & M Expenses excluding mining charge of MDO or annual charge of any agency other than MDO						2441.34
4	Total Working Capital						8886.73
5	Rate of Interest						12.00
6	Interest on Working Capital						1066.41

**(Petitioner)**

Statement of Liability Flow								PART-IV FORM-N
Name of the Promisor : NTPC								
Name of the Integrated Mine : Talaspali								
								Amount in Rs Lakhs
Party	Asset / Work	Year of actual capitalization	Original Liability in case date of commercial operation is prior to 31.3.2019	Liability as on CoD 01.10.2023	Addition during the year 2023-24 (01.10.2023-31.03.2024)	Discharge during the year 2023-24 (01.10.2023-31.03.2024)	Reversal during the year 2023-24 (01.10.2023-31.03.2024)	Net Liability at end of the year 31.03.2024
4200051190 : SARTTECH INTL	Procurement of TGA for establishment of Coal lab at Talaspali	21.10.2023		0.32				0.32
4200051799 : N R ENTERPRISE	Procurement of Coal Lab equipments for Talaspali Coal Mining Project	21.10.2023		1.94				1.94
4200051900 : Allied Commercial Agencies Pvt Ltd	Procurement of outdoor type chargeover Switch board and Distribution	21.10.2023		0.18				0.18
4200051931 : ADHUNIK SWITCHGEAR PVT LTD	Procurement of electrical items for Talaspali CMF	21.10.2023		0.28				0.28
4200056414 : TEMPSERS INSTRUMENTS (I) PVT LTD	Regulating case of GaMPC no: GEMC-111637787023907 dt: 27.06.2022 for	21.10.2023		0.19				0.19
4200056526 : GANPATI CASTINGS	Procurement of Flange pipes of diameter 60mm 24 nos each 1.5m length and	21.10.2023		0.12		0.12		-
4200057300 : PARTH ENERGY SYSTEMS PVT LTD	Procurement of Dewatering pump along with accessories for Talaspali	21.10.2023		0.93				0.93
4200053633 : ARYA TECH PORTABLE CASIN	Design, Supply and Installation of Taps of porta Office	21.10.2023		0.79		0.79		-
4200059041 : GREEN DHARA	Procurement of 1000 GPM Pump for dewatering of mine to deal with water	21.10.2023		0.20				0.20
4200059181 : SHIVPRIYA INDUSTRIES	Supply and installation of Prefab toilet (4 nos) and graffiti security	21.10.2023		0.54				0.54
4200059194 : ELTECS INDIA	Procurement of LED Flood light TLCMP	21.10.2023		0.13				0.13
4200059400 : PYROTRONICS INDIA PRIVATE LIMITED	Procurement of Digital Electromagnetic flow meter	21.10.2023		0.04		0.04		-
4200059407 : ARROW PC NETWORK PRIVATE LIMITED	Procurement of UPS for various locations of TLOMP	21.10.2023		0.77				0.77
4200059490 : HARBISON GENERATORS PRIVATE LIMITED	Regulating case of GaMPC no: GEMC-111637792149997 dt: 18.07.2023 for	21.10.2023		0.58				0.58
4200081868 : A N EXPLAME FIRE PROTECTION PVT LTD	Procurement of CO2 Fire Extinguisher for store room at 112 KV	21.10.2023		0.10		0.10		-
4600010076 : SATYA FABRICATE	Providing Courier service between TLCMP, Raigarh (C.G.) to NTPC Scope	21.10.2023		0.34		0.34		-
4600021912 : UTILITY POWERTECH LIMITED	Deployment of oil-buc suspension for LA at TLCMP Gharghoda Dist. Raigarh	21.10.2023		0.04		0.04		-
4600059766 : SHASTRI ASSOCIATES	OVERHAULING OF DG SET MAKE-MAHINDRA POWEROL (02 Nos.) of YALAIKALLI COAL	21.10.2023		0.17		0.17		-
4600049424 : SMRI SHYAM TECHNIC	Supply, Installation and Commissioning of two nos. of fully electronic	21.10.2023		3.32				3.32
4600049933 : GOVAL MEDICO	Procurement of ECG MACHINE	21.10.2023		0.04				0.04
4600049964 : YORCO SALES PVT LTD	Procurement of AUTOCLAVE	21.10.2023		0.02		0.02		-
4600050408 : DEEPEE ELECTRONICS	Procurement of "All-In-One Computer"	21.10.2023		0.59		0.59		-
4600050420 : GOVAL MEDICO	Procurement of Oxygen concentrator system	21.10.2023		0.02				0.02
4600050614 : DEEPA ENTERPRISES	PROCUREMENT OF AUTOMATED EXTERNAL DEPIKILLATOR (AED) FOR STABILISATION	21.10.2023		0.04				0.04
4600051442 : KASILA INSTRUMENTS	Supply installation and commissioning 10KW solar power plant	21.10.2023		1.70				1.70
4600052261 : KATAN TRADERS	Procurement of steel slabs for talasliha office Raigarh under	21.10.2023		0.13		0.13		-
4600054581 : KADWIN TECH LABS	Procurement of 10 Nos Network Switches	21.10.2023		0.14				0.14
4600057207 : EBIE SOLUTIONS PVT LTD	Procurement of walkie talkie communication system for Talaspali Coal	21.10.2023		0.17		0.02		0.14

Statement of Liability Flow								PART-IV FORM-N
Name of the Promoter / NTPC								
Name of the Integrated Mine : Talapalli								
								Amount in Rs Lakhs
Party	Asset / Work	Year of actual capitalization	Original Liability in case date of commercial operation is prior to 31.3.2019	Liability as on CoD 01.10.2023	Addition during the year 2023-24 (01.10.2023-31.03.2024)	Discharge during the year 2023-24 (01.10.2023-31.03.2024)	Reversal during the year 2023-24 (01.10.2023-31.03.2024)	Net Liability at end of the year 31.03.2024
4600018366 : USVA MEDICO INSTRUMENTS	Supply of Physiotherapy equipments	21.10.2023		0.23				0.23
4600060791 : LOKHIT JAN MALVAN SEVA SAMITI	Supply and installation of 1 No. 2 HP Brimserella Pump including	21.10.2023		1.92		1.92		-
4600061925 : FORTUNA IMPEX PVT LTD	SUPPLY, INSTALLATION, COMMISSIONING &<-><-> AMC OF BIOMETRIC SYSTEM WITH	21.10.2023		1.88				1.88
4600061747 : CACTUS PROFILES PVT LTD	Supply, installation of Profile Security gates at Talapalli Coal	21.10.2023		1.52		1.52		-
4600062178 : R K NURSEY	FOR SUPPLY, PLANTATION, MAINTENANCE OF INDOOR PLANTS, TREES	21.10.2023		0.47				0.47
4600065154 : EWIIT INFOTECH PRIVATE LIMITED	Procurement of ONE number of 65 inch TV and ONE number of 43 inch TV	21.10.2023		0.03				0.03
4600066926 : E S POWER SOLUTIONS LLP	Procurement of 02 number of 10KVA ONLINE UPS for Talapalli Coal Mining	21.10.2023		0.14				0.14
4600069146 : GRAND ISLAM FITNESS PVT LTD	Regularising case of GoM PO no. GEMC-51166771075624 dt. 11.03.2022 for	21.10.2023		0.55		0.55		-
4600065546 : VEDANTA ELECTROCALLS PVT. LTD	Procurement of 48 nos of LED TV 43 inch	21.10.2023		0.29				0.29
4600070320 : AQUA INDIA	Regularising case of GoM PO no. GEMC-511657729913922 dt. 24.04.2022 for	21.10.2023		0.04				0.04
4600070324 : ONYMERGE SOLUTION LLP	Regularising case of GoM PO no. GEMC-51165778570927 dt. 24.04.2022 for	21.10.2023		0.02				0.02
4600070887 : BUCKET MARKETING	Regularising case of GoM PO no. GEMC-511657735067424 dt. 01.06.2022 for	21.10.2023		0.18				0.18
4600070787 : Proglity Technologies Pvt. Ltd.	Procurement of Video Conferencing System for Substation-Conference room	21.10.2023		0.26				0.26
4600071131 : SOURASH ENGINEERS & GRAPHICS INDIA	Supply and installation of 03 nos of LED Displays for Talapalli CMP.	21.10.2023		0.36				0.36
4600071748 : E SQUARE SYSTEM & TECHNOLOGIES	Regularising case of GoM PO no. GEMC-51165771945377 dt. 01.12.2022 for	21.10.2023		0.77				0.77
4600072931 : TRINIYA ENGINEERING LLP	Regularising case of GoM PO no. GEMC-511657703560303 dt. 22.12.2022 for	21.10.2023		0.51				0.51
4600073017 : K2 INFOSYS	Procurement of IP camera and WiFi Access Point for NTPC TALAPALLI	21.10.2023		0.49				0.49
4600073497 : E SQUARE SYSTEM & TECHNOLOGIES	Regularising case of GoM PO no. GEMC-51165778109834 dt. 15.02.2023 for	21.10.2023		0.20				0.20
4600073571 : UNTRWAY INFOCOM	Procurement of Fibre Splicing Machine for PB, DL and TLMCP	21.10.2023		0.02				0.02
4600073571 : AIRWAYYA TECHNOLOGIES AND	Procurement of OTDR for PB, DL and TLMCP	21.10.2023		0.03				0.03
4600073687 : MITTAL AGENCIES	Regularising case of GoM PO no. GEMC-511657738297186 dt. 02.02.2023 for	21.10.2023		0.24				0.24
0000027694 : LARSEN & TOUBRO LTD	Supply SSU Items Currency (INR), Package:CS-7014-204-9, Project:DCAL	21.10.2023		133.49				133.49
0000019143 : LARSEN & TOUBRO LTD	132-53-0.415 KV SUB STATION FOR TLMCP	21.10.2023		71.90				71.90
0000029875 : LARSEN & TOUBRO LTD	132-33-0.415 KV SUB STATION FOR TLMCP	21.10.2023		2.77				2.77
0000019420 : LARSEN & TOUBRO LTD	Maintenance spares PO for 132 kV S v of TLMCP	21.10.2023		0.73				0.73
0000023728 : SHALMAR CORP. LTD	TLMCP Trenching Contract : Site service PO	21.10.2023		291.02		106.82		184.20

Statement of Liability Flow								PART-IV FORM-N
Name of the Promoter / NTPC								
Name of the Integrated Mine : Talaspali								
								Amount in Rs Lakhs
Party	Asset / Work	Year of actual capitalization	Original Liability in case date of commercial operation is prior to 31.3.2019	Liability as on CoD 01.10.2023	Addition during the year 2023-24 (01.10.2023-31.03.2024)	Discharge during the year 2023-24 (01.10.2023-31.03.2024)	Reversal during the year 2023-24 (01.10.2023-31.03.2024)	Net Liability at end of the year 31.03.2024
550003355 : STANDARD INFRA TECH INDIA PVT LTD	Construction of Admin Office Building (Composite Works i.e. CIVIL,	21.10.2023		129.18		16.73		112.45
550003341 : CENTRAL MINE PLANNING & DESIGN	Appointment of M/s. CMPDIL, as an external agency for carrying out	21.10.2023		46.52				46.52
550003349 : S.S. CHHATWAL AND COMPANY	Commencement of mining operation for overburden removal, coal extraction	21.10.2023		47.33		16.33		30.99
550003331 : ITRI BALAH CONSTRUCTION	Construction additional foundations and associated works for	21.10.2023		7.40				7.40
550003479 : SHALIMAR CORP. LTD	TLCMP Township Contract : Site service PO	21.10.2023		112.76		66.54		46.22
550003434 : SHALIMAR CORP. LTD	TLCMP Township Contract : Site service PO	21.10.2023		38.07		42.76		3.29
550003574 : SHALIMAR CORP. LTD	Construction of Boundary Wall for Township Land for Talaspali Coal	21.10.2023		2.11		0.77		1.34
550003387 : ASH CONSTRUCTIONS & HARDWARE	Water supply arrangement from borewell to overhead tanks in 131 Ko	21.10.2023		0.08				0.08
550003448 : SHANTI ENGINEERING PVT LTD	Construction of Road for Section B for Coal Extraction and Section C for	21.10.2023		141.38		22.39		118.99
550003637 : SUNIL KUMAR AGRAWAL LLP	Maintenance of PMSEV Roads in Coal Block and construction of approach	21.10.2023		1.29				1.29
550003678 : INDUTECH SOLUTIONS AND MANUFACTURE	Design, Supply and Installation of Taps of Bulkheads type ports	21.10.2023		4.73				4.73
550003634 : SHALIMAR CORP. LTD	TLCMP Township Contract : Site service PO	21.10.2023		7.40	5.68			13.08
550003718 : AVUSH CONSTRUCTION	VARIOUS DEVELOPMENTAL WORKS & COAL CRUSHER SHED & COAL SAMPLING	21.10.2023		8.40				8.40
550003734 : ASH CONSTRUCTIONS & HARDWARE	Annual rate contract for installation of MS tubular piles, laying of	21.10.2023		1.34		1.34		-
550003810 : SURYA ROUSHI LTD	Supply and installation of street lights on coal evacuation and other	21.10.2023		14.19				14.19
550003830 : SHRI RAM CONSTRUCTIONS	Drilling and Installation of Efflux (13) numbers of borewell for TLCMP	21.10.2023		2.20				2.20
550003939 : KIRAN MITAN KALYAN KANETHI	Construction, transportation and erection of RCC pillars along	21.10.2023		0.58				0.58
5500040394 : WEIGH TRACK	Supply and installation of one set-two fully electronic pit less road	21.10.2023		10.07		10.07		-
5500040943 : ASH CONSTRUCTIONS & HARDWARE	Barbed wire fencing first phase (FEM) along the project boundary of work	21.10.2023		4.20	4.43			8.63
5500040974 : TEJAS CONSTRUCTION	Construction of Fibre pipe culvert on the coal transportation route for	21.10.2023		0.50	2.54			3.04
5500040979 : RAJESH KUMAR AGRAWAL	Township peripheral road(900m) along with Drain (outside boundary wall)	21.10.2023		24.80				24.80
5500041830 : RADHEY DECOB	Construction of various civil works at NTPC TLCMP	21.10.2023		3.07				3.07
5500041831 : ASH CONSTRUCTIONS & HARDWARE	Procurement, filtration and erection of machinery at portable magazine	21.10.2023		0.12		0.12		-
5500041811 : A J E SUPPLIER	Supply and installation works of the 15mm x 15mm x 15mm truss for	21.10.2023		0.74				0.74
5500041813 : BHARAT CONSTRUCTION	Construction of two nos. of Permanent Explosive Magazine and associated	21.10.2023		7.50	242.43			249.93



**Statement of Liability Flow**

**PART-IV  
FORM-N**

Name of the Promoter / NTPC

Name of the Integrated Mine : Talaspali

Amount in ₹ Lakh

Party	Asset / Work	Year of actual capitalization	Original Liability in case date of commercial operation is prior to 31.3.2019	Liability as on CoD 01.10.2023	Addition during the year 2023-24 (01.10.2023-31.03.2024)	Discharge during the year 2023-24 (01.10.2023-31.03.2024)	Reversals during the year 2023-24 (01.10.2023-31.03.2024)	Net Liability at end of the year 31.03.2024
5500041945 : E SQUARE SYSTEM & TECHNOLOGIES	Supply and installation of CCTV items for Southpit extension, Wazipit	24.10.2022		0.14				0.14
5500042100 : DIGITAL WEIGHING SYSTEMS PVT LTD	Supply, installation, Commissioning of Pitless Electronic weighing	24.10.2022		14.56		13.44		1.42
5500042170 : APPLIED RESEARCH INTERNATIONAL	Supply and installation of Simulator for HEMM for Talaspali Coal Mining	24.10.2022		230.91		229.87		1.02
5500042730 : ABHI CONSTRUCTIONS & HARDWARE	Civil works for simulator installation TLCHP	24.10.2022		7.12		4.59		2.53
5500079638 : KHEAN MITAN KALYAN SAMITI	Repair of kutchra road at Village Talaspali Under CD-COR activity of	24.10.2022		1.01		1.01		-
5500150 : Mine and MDO Lift	Mine and MDO Lift	24.10.2022		384.28		384.28		-
5500155 : Reserve price	Reserve price	24.10.2022		436.90		436.90		-
CBA Land : CBA Land	CBA Land	24.10.2022		26,651.15	54.82	4,227.57		22,478.40
5500041940 : RITES LTD	Wharf Wall in MDR Bulb Area at NTPC Talaspali	24.02.2024			81.19			81.19
5500043396 : WEIGH TRACE	WEIGH BRIDGE IS 1456 CAP-1000MT(2 Nos) for west pit	24.02.2024						-
5500043345 : ENVTA INDIA PRIVATE LIMITED	CONTINUOUS AMBIENT AIR QUALITY MONITORING STATION	24.02.2024			8.58			8.58
4500060020 : PROTECK CORPORATION (OPC) PVT. LTD.	BIO-WASTE COMPOSTING MACHINE/MEDIUM	31.03.2024			8.28			8.28
4500060200 : DRFOYGEN TECHNOLOGY SOLUTIONS	Surveillance Drone for telegraphy	31.03.2024			1.22			1.22
4600076338 : ADISOPT TECHNOLOGIES PVT LTD	BUCK SAFETY W/ STANDARD FEATURES	31.03.2024			8.08			8.08
4600076894 : PEAKMOUNT STAR PRIVATE LIMITED	WATER COOLER/1-90L	24.02.2024			1.33			1.33
4600077141 : EASCOMM COMMUNICATION SYSTEMS	FIREWALL SOFTWARE	31.03.2024			8.58			8.58
4600012373 : THOUGHTFUL INFOTECH PVT LTD	A1015A16GB RAM ITS SSD,32B"	24.02.2024			3.54			3.54
4600075999 : COSAL TELECOM LTD	Supply & installation of IP based EAPRS system	24.02.2024			59.15			59.15
5500041792 : UNYDE SYSTEMS PRIVATE LIMITED	People and Machinery Tracking System	31.03.2024			5.79			5.79
4600077494 : AUTOCAD INDIA PVT LTD	AutoCAD software MS742284013	31.03.2024			16.43			16.43
	<b>Total</b>			<b>29,481.81</b>	<b>485.89</b>	<b>6,161.85</b>	<b>-</b>	<b>23,812.85</b>

(Continue)



**CHHATTISGARH ENVIRONMENT CONSERVATION BOARD**  
**Paryavas Bhawan, North Block, Sector - 19,**  
**Nava Raipur Atal Nagar, District - Raipur (C.G.)**  
**e-mail - hocecb@gmail.com**

No. **4701/TS/CECB/2021** Nava Raipur Atal Nagar, Raipur, Dated **28/09/2021**

To,

General Manager,  
M/s N.T.P.C. Limited,  
Talaipalli Coal Mining Project,  
Lailunga Road, Gharghoda,  
**District - Raigarh - 496111 (C.G.)**

Sub: - Renewal of the consent of the Board under section 25 of the Water (Prevention and Control of Pollution) Act, 1974 and under section 21 of the Air (Prevention and Control of Pollution) Act, 1981.

- Ref: -
1. Consent of the Board issued under section 25/26 of the Water (Prevention and Control of Pollution) Act, 1974 vide letter no. 6237/TS/CECB/2016 Raipur, dated: 17/03/2016 and under section 21 of the Air (Prevention and Control of Pollution) Act, 1981 vide letter no. 6239/TS/CECB/2016 Raipur, dated: 17/03/2016 for Open Cast Coal Mine - 18.0 MTPA and Underground Coal Mine - 0.72 MTPA.
  2. Consent of the Board issued under section 25/26 of the Water (Prevention and Control of Pollution) Act, 1974 and under section 21 of the Air (Prevention and Control of Pollution) Act, 1981 vide letter no. 6825/TS/CECB/2020 Nava Raipur Atal Nagar, Raipur, dated: 03/11/2020 for Open Cast Coal Mine - 18.0 MTPA and Underground Coal Mine - 0.72 MTPA.
  3. Extension of the validity of Consent of the Board issued under section 25/26 of the Water (Prevention and Control of Pollution) Act, 1974 and under section 21 of the Air (Prevention and Control of Pollution) Act, 1981 vide letter no. 9138/TS/CECB/2021 Nava Raipur Atal Nagar, Raipur, dated: 20/01/2021 for Open Cast Coal Mine - 18.0 MTPA and Underground Coal Mine - 0.72 MTPA.
  4. Your online application no. 7971300, dated 23/08/2021 and subsequent correspondence ending dated 04/09/2021.

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With reference to your above application, consents under section 25 of the Water (Prevention and Control of Pollution) Act, 1974 and under section 21 of the Air (Prevention and Control of Pollution) Act, 1981 are hereby renewed for a period of **one year from 01/11/2021 to 31/10/2022**, subject to the fulfillment of the terms and conditions incorporated in the water and air consent letter no. **6825/TS/CECB/2020 Nava Raipur Atal Nagar, Raipur, dated: 03/11/2020** and subsequent

renewal(s)/amendment(s) issued by the Board and additional conditions mentioned below.

This renewal of consent is valid for production capacity of: -

<b>S.No.</b>	<b>Product</b>	<b>Production Capacity</b>
1.	Open Cast Coal Mine	18.0 Million Tonnes per Annum (Eighteen point Zero Million Tonnes per Annum)
2.	Underground Coal Mine	0.72 Million Tonnes per Annum (Zero point Seven Two Million Tonnes per Annum)

### **Additional Conditions**

#### **A. Water (Prevention and Control of Pollution) Act, 1974**

1. Mine management shall comply with conditions stipulated in Environmental Clearance amendment letter dated 06/11/2019 issued by MoEF&CC, New Delhi.
2. Mine management shall operate and maintain effluent treatment system regularly to meet prescribed standards all the time. No effluent shall be discharged outside of the mine premises in any circumstances; hence zero discharge condition outside of the mine premises shall be maintained all the time.
3. Mine management shall execute the works within specified time period as per action plan submitted along with bank guarantee vide letter dated 19/12/2020. In case the Mine management fails to implement above works in the stipulated time period, the bank guarantee may be forfeited.
4. Mine water after proper treatment shall be used for drinking and agriculture purposes. Mine management shall also ensure availability of drinking water in nearby villages.
5. Mine management shall install effluent quality monitoring system (EQMS) at outlet of ETP within six months.
6. Mine management shall comply with the provisions of notification issued by MoEF & CC (as amended up to date) regarding utilization of fly ash in stowing & mine back filling.
7. Mine management shall transport the coal in properly covered vehicles to avoid dust emission during transportation. Mine management shall also ensure use of mechanically covered vehicles for transportation of coal before 12/07/2023.
8. Mine management shall comply with the provision of Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016. (as amended up to date)
9. All the solid waste industrial and domestic shall be disposed off in environment friendly manner as per rule.
10. All the internal roads shall made pucca. Roads shall be cleaned regularly. Dust, muck and sludge collected from roads shall be disposed properly.

11. Extensive tree plantation shall be carried out in the open areas available within and around the plant premises in during monsoon season. Fruit bearing species like mango, tamarind, guava etc. shall be given preference in this regard.
12. This renewal of consent is being issued under the "Scheme of Auto-Renewal of Consent" of the Board issued vide office order no. 5937 dated 29/01/2018 as per self certificate submitted by authorized signatory Mr. S.K.Ray, General Manager of M/s N.T.P.C. Limited, Talaipalli Coal Mining Project, Lailunga Road, Gharghoda, District - Raigarh (C.G.).
13. Chhattisgarh Environment Conservation Board reserves the rights to revoke the consent / renewal of consent at any time for any violation/non-compliance.
14. In case, if the capital investment is increased by such amount that the total investment exceeds the range for which renewal fees has been paid, the industry shall have to pay the difference amount of renewal fees for the corresponding block years.
15. In case, the prescribed fee payable is amended in future, the industry shall be liable to pay the difference amount for corresponding block years.

#### **B. Air (Prevention and Control of Pollution) Act, 1981**

1. Mine management shall comply with conditions stipulated in Environmental Clearance amendment letter dated 06/11/2019 issued by MoEF&CC, New Delhi.
2. Mine management shall operate and maintain the air pollution control equipments properly. Mine management shall ensure the emission quality meets the standards prescribed by the Board.
3. Mine management shall execute the works within specified time period as per action plan submitted along with bank guarantee vide letter dated 19/12/2020. In case the mine management fails to implement above works in the stipulated time period, the bank guarantee may be forfeited.
4. Ambient air quality within mine area shall be kept within latest prescribed standards.
5. Mine management shall establish 03 number Continuous Ambient Air Quality Monitoring Station within six months time at lease boundary towards village, habitation, dispatch area etc.
6. Calibration and data validation shall be carried out of all CAAQMS and availability of real time data should be ensured in CECB/CPCB server.
7. Mine management shall comply with the provision of Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016. (as amended up to date)
8. All the solid waste industrial and domestic shall be disposed off in environment friendly manner.
9. All the internal roads shall made pucca. Roads shall be cleaned regularly. Dust, muck and sludge collected from roads shall be disposed properly.

10. Mine management shall comply the provisions of notification issued by MoEF & CC (as amended up to date) regarding utilization of fly ash in stowing & mine back filling.
11. Mine management shall transport the coal in properly covered vehicles to avoid dust emission during transportation. Mine management shall also ensure use of mechanically covered vehicles for transportation of coal before 12/07/2023.
12. Extensive tree plantation shall be carried out in the open areas available within and around the plant premises in during monsoon season. Fruit bearing species like mango, tamarind, guava etc. shall be given preference in this regard.
13. This renewal of consent is being issued under the "Scheme of Auto-Renewal of Consent" of the Board issued vide office order no. 5937 dated 29/01/2018 as per self certificate submitted by authorized signatory Mr. S.K.Ray, General Manager of M/s N.T.P.C. Limited, Talaipalli Coal Mining Project, Lailunga Road, Gharghoda, District - Raigarh (C.G.).
14. Chhattisgarh Environment Conservation Board reserves the rights to revoke the consent / renewal of consent at any time for any violation/non-compliance.
15. In case, if the capital investment is increased by such amount that the total investment exceeds the range for which renewal fees has been paid, the industry shall have to pay the difference amount of renewal fees for the corresponding block years.
16. In case, the prescribed fee payable is amended in future, the industry shall be liable to pay the difference amount for corresponding block years.

**Member Secretary**

Chhattisgarh Environment Conservation Board  
Nava Raipur Atal Nagar, Raipur (C.G.)

Endt. No. **4702/TS/CECB/ 2021** Nava Raipur Atal Nagar, Raipur, Dated **28/09/2021**

Copy to: - Regional Officer, Regional Office, Chhattisgarh Environment Conservation Board, Raigarh (C.G.). Please ensure compliance and report, if any condition/conditions are violated by the Mine Management.

**Sd/-**

**Member Secretary**

Chhattisgarh Environment Conservation Board  
Nava Raipur Atal Nagar, Raipur (C.G.)

File No NA-103/31/2015-NA  
Government of India/भारत सरकार  
Ministry of Coal/कोयला मंत्रालय  
Office of Nominated Authority / नामनिर्दिष्ट प्राधिकारी का कार्यालय

R.No. 120, F-Wing, Shastri Bhawan,  
New Delhi, Date : 04.10.2023

To.

The Chairman cum Managing Director,  
NTPC Limited, NTPC Bhawan,  
Scope Complex, 7, Institutional Area,  
Lodhi Road, New Delhi-110003.

Subject : Escalation of Reserve Price for Talaiipalli coal mine allocated to M/s NTPC under the Coal Mines (Special Provisions) Act, 2015.

Sir,

The undersigned is directed to inform that as per clause 9.2 of Coal Block Development and Production Agreement (CBDPA), reserve price will be subjected to annual escalation based on a pre-specified formula stipulated in the relevant Standard Bidding Document for Design, Build, Finance, Own, and Operate (DBFOO). The provisions for escalating the reserve price for mines allocated to the Power sector under the CM (SP) Act 2015 are as under:-

- (a) The Reserve Price for mines allotted to the Power sector is fixed at Rs. 100 per tonne of coal.
- (b) The pricing for auctioned mines comprises a Fixed Rate of Rs. 100 per tonne of coal, alongside the Bid Price, which represents the final price offered by the Bidder in reverse bidding.
- (c) As specified in Clause 9.2.1 of the CMDPA, the Reserve Price will be increase annually corresponding to the percentage rise in the Reference Index, as per the pre-specified formula. This escalation is applicable after the issuance of the Allotment Order/Vesting Order.
- (d) Clause 22.2.3b of the DBFOO document further clarifies that the cost of Fuel procured from Coal Mine/Blocks will increase annually at a compounded growth rate of 2%. This increase is based on a formula that factors in fluctuations in the Wholesale Price Index (WPI) between specific dates.

2. Adhering to the instructions stipulated in Clause 9.2.1 of the CMDPA and Clause 22.2.3b of the DBFOO document, the escalation of the Reserve Price has been carried out with consideration to the following factors:-

- The Wholesale Price Index (WPI) of all commodities is adopted for coal mines allocated to the Power sector under the CM(SP) Act, 2015.
- For the first year of production, the Reserve Price is escalated to reflect a 60% increase in the Wholesale Price Index (WPI) [Reference Index].
- For subsequent financial years, an annual compounded rate of 2% is applied, in addition to the escalation needed to reflect the 60% WPI change.

- For calculating the escalation in the following financial year, the escalated price from the immediately preceding year is taken into account.
- The Reserve Price/FPO (Fixed Price Offer) shall increase on a year-on-year basis according to the percentage change in the Reference Index. It is important to clarify that, for the purpose of escalation in subsequent financial years, the escalated Reserve Price/FPO of the immediately preceding year is considered. The formulas for the escalation of Reserve Price for mines allocated to the Power sector under the CM(SP) Act, 2015, are as follows:

**(a) Formula for the first year of production:**

Escalated Price for the 1st year = Reserve price/FPO \* (1 + ((Percentage change in WPI / 100) \* 0.6))

**(b) Formula for subsequent years:**

Escalated Price from the 2nd year onwards = Escalated Reserve Price/FPO of the Previous year \* (1 + 0.02) \* (1 + ((Percentage change in WPI / 100) \* 0.6))

3. Considering the above and in accordance with Clause 9.2.1 of the CMDPA, the Monthly Payment for coal extracted from the mines will be subject to an annual escalation, based on the Wholesale Price Index (WPI) (the "Reference Index"). The Monthly Payment will increase by the percentage growth in the WPI on a year-on-year basis. Accordingly, the escalated Reserve Price applicable for FY 2019-20, 2020-21, 2021-22, 2022-23 & 2023 for the coal mine, is tabulated as below:-

Name of Mine	Talaipalli	Allottee	Vesting order date: 08-09-2015	PRC 18 MT/Annum
SL No	Escalated Reserve Price Applicable for FY	Applicable WPI (Base Year 2011-12) for the month of march of Previous FY	Calculation of reserve price	
			WPI (Change in % WPI from preceding year)	Escalated Reserve price (Reserve price of preceding year)
A	B	C	F= (Change in WPI from preceding year year/ WPI of previous year *100)	G=(Escalated Reserve Price/FPO of Previous year *(1+0.02) *(1+ ((Percentage change in WPI /100)*0.6))
Vesting Year	2016-17	107.70		100.00
0	2017-18	113.20		Not in Production
0	2018-19	116.30		Not in Production
1	2019-20	119.90	11.33	106.80
2	2020-21	120.40	0.42	109.21
3	2021-22	129.90	7.89	116.66
4	2022-23	148.90	14.63	129.44
5	2023-24	151.00	1.41	133.14

5. M/s NTPC is requested to make monthly payments including arrears of previous years to State Govt. accordingly. However, M/s NTPC may be allowed to make the payments of arrears through four equal installments over a course of year.

Yours faithfully,



(Manish Uniyal)

Under Secretary to the Govt. of India

Tel: 011-23384106

Copy to:-

1. Shri Amitabh Jain, Chief Secretary, Government of Chhattisgarh, Mahanadi Bhawan, Mantralaya, Naya Raipur-49200
2. Shri Anurag Diwan, Joint Director, Mineral Resource Department, Government of Chhattisgarh, Indravati Bhawan, Block-4, Second Floor, Naya Raipur-49200





# भारत का राजपत्र

## The Gazette of India

असाधारण  
EXTRAORDINARY

भाग ११—खण्ड ३—उप-खण्ड (१)  
PART 11—Section 3—Sub-section (1)

प्रधिकार से प्रकाशित  
PUBLISHED BY AUTHORITY

सं. ६४५ नई दिल्ली, सोमवार, अक्टूबर २०, २०१५/भाद्रपद २८, १९१७  
No. 645 NEW DELHI, TUESDAY, OCTOBER 20, 2015/ASVINA 28, 1937

सौधमा संस्थान

अधिसूचना

नई दिल्ली, २० अक्टूबर, २०१५

**सा.का.वि. ७९२(अ).—**केन्द्रीय सरकार, वात और खनिज (विकास और विनियमन) अधिनियम, १९५७ (१९५७ का ६७) की धारा ९ (ख) की उप-धारा (५) और (६) द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए, स-न-पट्टा जमवा पूर्वोक्त अनुसूचि-गार-खनिज पट्टा धारक द्वारा, स्वाभिन्न के अतिरिक्त, उम दिने, जिसमें उनमें संश्लेषण की जाती है, में संबंधित राज्य सरकार द्वारा अधिसूचना द्वारा स्थापित किए गए संस्थान में संदाय किए जाने वाली रकम निर्दिष्ट करने वाले विस्तारित नियम बनाती है, अर्थात्—

१. **संश्लेषण नाम और आदेश.**—(१) इन नियमों का संश्लेषण नाम वात और खनिज (विना खनिज संस्थान में संश्लेषण) नियम, २०१५ है।

(२) ये नियम राजपत्र में अपने प्रकाशन की तारीख से प्रवृत्त हुए माने जाएंगे।

२. **विना खनिज संस्थान को अधिसूचना की जाने वाली रकम.**—यन्त्रक खनिज पट्टा जमवा पूर्वोक्त अनुसूचि-गार-खनिज पट्टा धारक, स्वाभिन्न के अतिरिक्त, उम दिने, जिसमें उनमें संश्लेषण की जाती है, के विना खनिज संस्थान में विस्तारित दर दर रकम का संदाय करेगा—

(क) १२ जनवरी, २०१५ से प्रथम उमके परमाणु प्रदान किया गया, स्वाभिन्न, खनिज पट्टा जमवा पूर्वोक्त अनुसूचि-गार-खनिज पट्टा के संबंध में वात और खनिज (विकास और विनियमन) अधिनियम, १९५७ (१९५७ का ६७) (जिसमें इसमें इसके अंतर्गत उक्त अधिनियम कहा गया है) की धारा अनुसूची के संबंध में संदाय किए गए स्वाभिन्न का उम अतिरिक्त, और

- (घ) 12 जनवरी, 2015 से पहले प्रदान किए गए खान पट्टी के संबंध में उक्त अधिनियम की दमनी अनुसूची के संबंध में संशोधन किए गए स्वामित्व या जीम प्रतिशत। द्वितीय अनुसूची के अनुसूचित अंश की जाने वाली न्यूनतम या जीम प्रतिशत।

3. **किये जाने वाले अधिदाय की शर्तें।**—नियम 2 में निर्धारित दर पर संचालित राजि का नुस्खान बिना यनित संस्थान की स्थापना के संबंध में राज्य सरकार द्वारा उक्त अधिनियम की धारा 9 (ग) (1) के अंतर्गत जारी अधिसूचना की तारीख से अथवा उन नियमों के 31.03.15 की तारीख से, इनमें से जो भी बाद में हो किया जाएगा।

[सं. नं. 11033/3/2015-सो. 1]

आर. पी. गुप्ता, संयुक्त सचिव

**टिप्पणी।** खान निगम भारत के राजगम, प्रशासन, के भाग- 11- खंड - 10, उप बंड (1) में दिनांक 17.09.2015 की अधिसूचना संख्या सा.सा.नि. 715(अ) द्वारा प्रकाशित किया गया था।

## MINISTRY OF COAL

### NOTIFICATION

New Delhi, the 30th October, 2015

**G.S.R. 792(F).**—In exercise of the powers conferred by sub-sections (5) and (6) of Section 9B of the Mines and Minerals (Development and Regulation) Act, 1957 (67 of 1957), the Central Government hereby makes the following rules in (a) of coal and lignite and sand for stowing specifying the amount to be paid by holder of a mining lease or a prospecting licence-cum-mining lease, in addition to the royalty, to the District Mineral Foundation of the district established by the concerned State Government by notification, in which the mining operations are carried on, namely:—

1. **Short title and commencement.**—(1) These rules may be called as the Mines and Minerals (Contribution to District Mineral Foundation) Rules, 2015.

(2) These rules shall be deemed to have come into force on the date of their publication in the official Gazette.

2. **Amount of contribution to be made to District Mineral Foundation.**—Every holder of a mining lease or a prospecting licence-cum-mining lease in respect of coal and lignite and sand for stowing shall, in addition to the royalty, pay to the District Mineral Foundation of the district in which the mining operation are carried on, an amount at the rate of—

- ten per cent of the royalty paid in terms of the second schedule to the Mines and Minerals (Development and Regulation) Act, 1957 (67 of 1957) therein referred to as the said Act) in respect of mining lease or, as the case may be, prospecting licence-cum-mining lease granted on or after 12<sup>th</sup> January, 2015, and
- thirty per cent of the royalty paid in terms of the Second Schedule to the said Act in respect of mining lease granted before 12<sup>th</sup> January, 2015.

3. **Date from which contribution to be made.**—The amount calculated at the rate prescribed in rule 2 shall be paid from the date of notification issued under Section 9 B (1) of the Act by the State Government establishing District Mineral Foundation or the date of coming into force of these rules, whichever is later.

[F. No. 11033/3/2015-CA. II]

R. P. GUPTA, Jt. Secy.

**Note:**—The Principal rule was published in Gazette of India, Extraordinary, Part-II, Section 3, sub-section (1) vide notification number G.S.R. 715(F) dated 17.09.2015.

“बिजनेस पोस्ट के अन्तर्गत डाक मुक्त के पत्र प्रकाशन (विभा. डाक. टि.का.2) के प्रेषण हेतु अनुमत क्रमांक जी.2-22-छत्तीसगढ़ मजद / 38 वि. से. पि.का.ई. दिनांक 30-05-2015.”



पंजीयन क्रमांक  
“छत्तीसगढ़/पुन/09/2015-2015.”

# छत्तीसगढ़ राजपत्र

(असाधारण)  
प्राधिकार से प्रकाशित

क्रमांक 649 ]

रायपुर, मंगलवार, दिनांक 15 अक्टूबर 2019 — अंकित 23, अंक 1941

राजस्व एवं आपदा प्रबंधन विभाग  
मंत्रालय, महानदी भवन, नया रायपुर अटल नगर

अटल नगर, दिनांक 15 अक्टूबर 2019

## अधिसूचना

क्रमांक एक 4-09/राज-1/2015. — छत्तीसगढ़ (आवास-विकास एवं पर्यावरण) उपकर अधिनियम, 2008 (अ. 7 सन् 2008) की धारा 8 की उप-धारा (1) द्वारा प्रदत्त शक्तियों को प्रयोग में लाते हुए, राज्य सरकार, एतद्वारा, छत्तीसगढ़ (आवास-विकास एवं पर्यावरण) उपकर अधिनियम, 2008 में निम्नलिखित और संशोधन करती है, अर्थात् :-

## संशोधन

उक्त नियमों की अनुसूची में-

अनुसूची-एक एवं दो के स्थान पर, निम्नलिखित प्रतिस्थापित किया जाये, अर्थात् :-

### अनुसूची-एक (नियम 4 देखिए)

स. अ.	भूमि का वर्गीकरण	विकास उपकर की दर
(1)	(2)	(3)
(1)	जोयले, लीह आयरस्क, जार्डम स्टोन, बास्पाईट तथा ओवलेमाईट खनिज प्रेमण पर 11.25 रुपये प्रतिघन सानि पट्टों के अंतर्गत आच्छादित भूमि पर।	
(2)	उपरोक्त (1) के अलावा खनि पट्टों के अंतर्गत आच्छादित भूमि पर।	वार्षिक देय राशियों की 11.25 प्रतिशत राशि।
(3)	उपरोक्त (1) तथा (2) के अंतर्गत आच्छादित भूमि के अलावा भूमि पर।	यथास्थिति, वार्षिक देय भू-राजस्व का भू-भाटक की राशि का 11.25 प्रतिशत।

अनुसूची-दो  
(नियम 4 देखिए)

स. क्र.	भूमि का वर्गीकरण	पर्यावरण उपकरण की दर
(1)	(2)	(3)
(1)	कोयले, लौह आयरन, लाइम स्टोन, बॉक्साइट तथा डोलोमाइट खनि पट्टों के अंतर्गत आच्छादित भूमि पर।	खनित प्रेषण पर 11.25 रुपये प्रतिटन।
(2)	उपरोक्त (1) के अलावा खनि पट्टों के अंतर्गत आच्छादित भूमि पर।	वार्षिक देय राश्वटी की 11.25 प्रतिशत राशि।
(3)	उपरोक्त (1) तथा (2) के अंतर्गत आच्छादित भूमि के अलावा भूमि पर।	समस्थिति, वार्षिक देय भू-राजस्व या भू-पट्टक की राशि का 11.25 प्रतिशत।

छत्तीसगढ़ के राज्यपाल के नाम से तथा आदेशानुसार,  
रीता यादव, उप-सचिव

Atal Nagar, the 15th October 2019

NOTIFICATION

No. F 4-09/Seven-1/2015. — In exercise of the powers conferred by sub-section (1) of Section 8 of the Chhattisgarh (Adhosaarashtra Vikas Evam Parivaran) Upkar Adhiniyam, 2005 (No. 7 of 2005), the State Government, hereby, makes the following further amendment in the Chhattisgarh (Adhosaarashtra Vikas Evam Parivaran) Upkar Niyam, 2005, namely :-

AMENDMENT

In Schedule of the said rules,-

For Schedule-I and II, the following shall be substituted, namely :-

\*SCHEDULE-I  
(See rule 4)

S. No.	Classification of Land	Rate of development cess
(1)	(2)	(3)
(1)	On land covered under Coal, Iron Ore, Lime Stone, Bauxite and Dolomite mining leases.	Rupees 11.25 on each tonne of dispatch of mineral.
(2)	On land covered under mining leases other than (1) above.	11.25 percent of the amount of royalty payable annually.
(3)	On land other than land covered under (1) and (2) above.	11.25 percent of the amount of land revenue or rent, as the case may be, payable annually.

SCHEDULE-II  
(See rule 4)

S. No.	Classification of Land	Rate of environment cess
(1)	(2)	(3)
(1)	On land covered under Coal, Iron Ore, Lime Stone, Bauxite and Dolomite mining leases.	Rupees 11.25 on each tonne of dispatch of mineral.
(2)	On land covered under mining leases other than (1) above.	11.25 percent of the amount of royalty payable annually.
(3)	On land other than land covered under (1) and (2) above.	11.25 percent of the amount of land revenue or rent, as the case may be, payable annually."

By order and in the name of the Governor of Chhattisgarh,  
RITA YADAV, Deputy Secretary.



# भारत का राजपत्र

## The Gazette of India

असाधारण

EXTRAORDINARY

भाग II—खण्ड 3—उप-खण्ड (i)

PART II—Section 3—Sub-section (i)

प्राधिकार से प्रकाशित

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NEW DELHI, WEDNESDAY, MARCH 7, 2018/PHALGUNA 16, 1939

ज्ञान मंत्रालय

अधिसूचना

नं० गि०सं० 7 वारं० 2018

**सा.का.नि. 208 (अ).—**केन्द्रीय सरकार, वान और पवित्र (निरुद्ध और विनियमन) अधिनियम, 1957 (1057 का 67) की धारा 9क की उप-धारा (2), उप-धारा (3) और उप-धारा (4) द्वारा उक्त अधिनियमों में संशोधन करने हेतु राष्ट्रीय पवित्र खोज स्वातंत्र्य विधायक, 2015 का मसौदा करने के लिए विनियमित विधायक बनाती है, अर्थात्—

- (1) इस विधायक का संश्लेष नाम राष्ट्रीय पवित्र खोज स्वातंत्र्य विधायक, 2018 है।  
(2) ये संशोधन से लागू होने से प्रारंभ हो जाएंगे।
- राष्ट्रीय पवित्र खोज स्वातंत्र्य विधायक, 2015 (जिसे इसमें इनके फलस्वरूप उक्त विधायक बंद किया है) के विधायक 6 के अधिनियम (2) के अन्तर्गत एक विनियमित विधायक बनाया जाएगा, अर्थात्—
  - (2) यह विधि भारत के लोक सेवा के अधीन आने वाली जागीरों को पर्यटन के लिए खोज करने तथा पर्यटन प्रशासन द्वारा प्रकाशित होगी।
  - (3) इस विधि में अधिनियम की धारा 9क की उप-धारा (4) के अन्तर्गत एक ही खोज प्रयोग करने पर पर्यटन-खोजकों के अधिकारों द्वारा देश को प्रतिष्ठा के बराबर स्वाभिमन्य का अनुमान समाविष्ट होगा।
  - (4) इस विधि का उद्देश्य अर्थात् उक्त अधिनियमों के अन्तर्गत खोज और संरक्षण विभागों के अन्तर्गत पवित्रों के लिए खोज और निरुद्ध करने के साथ विधायक 9 में तथा विनियमित विधायकों को इसमें के लिए किया जाएगा।
- इस विधायक के विधायक 7 के अन्तर्गत एक विनियमित विधायक बनाया जाएगा, अर्थात्—



(2) न्याय निधि का लेखा, भारत के निम्नलिखित और फल-लेखा अधिनियम के अन्तर्गत ऐसा अन्य केंद्रों के अन्तर्गत के मूल लेखा विवरण कार्यक्रम के आन्तरिक लेखा परीक्षा द्वारा भी उसकी लेखा परीक्षा की जायेगी।

[फा. नं. 11/8/2015-मात-1]

निम्नलिखित सूचना के अन्तर्गत जारी की जाती है।

**दिशानी :** राष्ट्रीय न्याय निधि का न्याय निधि, 2015. अधिसूचना संख्या मा. का. मि. 632 (अ), तारीख 14 अप्रैल, 2015 अथवा भारत के राजपत्र, असाधारण, भाग-2, पर 3, उप-खण्ड (i) में उल्लिखित नियमों के अन्तर्गत जारी की जाती है।

## MINISTRY OF MINES

### NOTIFICATION

New Delhi, the 7<sup>th</sup> March, 2018.

**G.S.R. 208(E).**—In exercise of the powers conferred by sub-sections (2), (3) and (4) of section 9C of the Mines and Minerals (Regulation and Development) Act, 1957 (67 of 1957), the Central Government hereby makes the following rules to amend the National Mineral Exploration Trust Rules, 2015, namely:—

1. (1) These rules may be called the National Mineral Exploration Trust (Amendment) Rules, 2018.  
(2) They shall come into force on the date of their publication in the Official Gazette.
2. In the National Mineral Exploration Trust Rules, 2015 (hereinafter referred to as the said rules), in rule 6, for sub-rule (2), the following sub-rule shall be substituted, namely:—
  - “(2) The Fund shall be opened under the Public Account of India which shall be a non-lapsable and non-interest bearing account and shall be administered by the Central Government.
  - (3) The Fund shall comprise of payment of two percent equivalent of royalty payable by the holders of the mining lease or prospective licence-cum-mining lease under sub-section (4) of the section 9C of the Act.
  - (4) The Fund shall be utilized for carrying out the objects and functions as specified in rule 9, including carrying out regional and detailed exploration for minerals under the scheme, namely, ‘Regional and detailed exploration and related activities under Fund’.
3. In the said rules, for rule 7, the following rules shall be substituted, namely:—
  - “7. Contribution to Fund— (1) The holder of mining lease or prospecting license-cum-mining lease shall, while making payment of royalty to the State Government, pay to the Trust a sum equivalent to two percent of the royalty under sub-section (4) of section 9C of the Act by depositing the same in the Public Account of the State under the Head booked for this purpose.
  - (2) The State Governments shall transfer the amount so collected in the Public Account of the State under sub-rule (1) to the Consolidated Fund of India.
  - (3) The accretions in the Consolidated Fund of India shall be periodically transferred to the Fund by the Central Government, after due appropriation made by Parliament by law, in the financial year.
  - (4) The responsibility of collecting and transferring the amount referred in sub-rule (1) to Consolidated Fund of India and maintaining necessary accounts in this behalf shall be that of the State Government and it shall transfer such receipts to the Consolidated Fund of India as early as possible and in any case, not later than the tenth day of the succeeding month in respect of the amount collected in any particular month.
  - (5) The State Government shall provide information regarding the amount collected under sub-rule (1) and the amount transferred to Consolidated Fund of India under sub-rule (2) to the Indian Bureau of Mines on a monthly basis.
  - (6) The Indian Bureau of Mines shall maintain an updated record of the amount transferred to the Consolidated Fund of India along with a database of royalty payments and provide such information to the Trust on a periodic basis.”
4. In the said rules, in rule 8, for sub-rule (2), the following sub-rule shall be substituted, namely:—



"(2) The bank account of the Trust shall be closed as soon as possible after the publication of this notification and till such closure, the bank account of the Trust shall continue to be operated through the Member-Secretary or any other Member of the Executive Committee or any other officer of the Central Government as may be authorized by the Executive Committee."

5. In the said rules, in rule 19, in sub-rule (1), for the words "at the beginning", the words "before the beginning" shall be substituted.

6. In the said rules, for rule 20, the following rule shall be substituted, namely:-

"20. Annual Budget.- (1) The Member Secretary of the Executive Committee shall, before the beginning of each financial year, cause preparation of an annual budget containing the details of the proposed income and expenditure on activities covered in the annual plan for that particular financial year, including the legal, administrative and other costs and expenditure proposed to be incurred by the Trust together with details of funding requirements in this regard, to be referred as the Annual Budget.

(2) Annual Budget provision shall also be made in the Demands for Grants of Central Government under appropriate Head for incurring expenditure under Fund and equivalent amount thereof shall be met from the Fund.

(3) After due appropriation of fund and receipt of sanction of the Competent Authority, the expenditure under the Fund shall be incurred from the relevant sub-major or minor heads and on the basis of the sanction issued by the Central Government, the Pay and Accounts Office of the Central Government shall make the payment as per the General Financial Rules, 2017."

7. In the said rules, for rule 21, the following rule shall be substituted, namely:-

"21. Approval of the Annual Plan and the Annual Budget.- (1) The annual plan and the annual budget shall be laid before the Governing Body for its approval thirty days before the beginning of each financial year.

(2) Any amendment in the annual plan or the annual budget subsequent to the approval of the Governing Body may be done with the approval of the Executive Committee and informed to the Governing Body in its next meeting."

8. In the said rules, for rule 24, the following rule shall be substituted, namely:-

"24. Maintenance and Audit of Accounts.- (1) The Pay and Accounts Office in the Central Government shall maintain a broadsheet of accretions to and payment from the Fund and effect reconciliation on monthly basis thereof with the concerned divisions and shall ensure that there are no adverse balances in the Fund at any point of time.

(2) The account of the Trust shall be subject to the audit by the Comptroller and Auditor General of India and also to audit by internal audit wing of the office of the Chief Controller of Accounts, in the Central Government."

[F. No. 11/8/2015-M.I]

NIRANJAN KUMAR SINGH, Jt. Secy.

**Note :** The National Mineral Exploration Trust Rules, 2015 were published in the Gazette of India, Extraordinary, part II, section 3, sub-section (i) vide notification number G.S.R. 632 (E), dated the 14<sup>th</sup> August, 2015.

No. 28019/1/2009-CA-II (Pl.III)  
Government of India  
Ministry of Coal

Shastri Bhavan, New Delhi  
dated: 16th May, 2012

**Subject :** Revision of royalty rates on coal and lignite.

The undersigned is directed to enclose herewith a notification No. 349 (E) dated 10<sup>th</sup> May, 2012 on the above subject for uploading in the Ministry's website, at the earliest

Action may be taken accordingly on URGENT basis.

*Alice Kujur*  
16/5/12  
(Alice Kujur)  
Under Secretary

**Encl : As above**

To,

Director (Technical),  
NIC Cell,  
Ministry of Coal,  
Shastri Bhavan,  
New Delhi.



# भारत का राजपत्र

## The Gazette of India

असाधारण  
EXTRAORDINARY

भाग II—खण्ड 3—उप-खण्ड (i)  
PART II—Section 3—Sub-section (i)

प्रधिकार से प्रकाशित  
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NEW DELHI, THURSDAY, MAY 10, 2012/VAISAKHA 20, 1934

कोयला मंत्रालय

अधिसूचना

नई दिल्ली, 10 मई, 2012

सा.का.नि. 349(अ).—केन्द्रीय सरकार एतद्वारा खान और खनिज (विकास और विनियमन) अधिनियम, 1957 (1957 का 67) की धारा 9 की उप-धारा (3) द्वारा प्रदात शक्तियों का प्रयोग करते हुए, उक्त अधिनियम की द्वितीय अनुसूची में आगे निम्नलिखित संशोधन करती है, अर्थात् :-

उक्त अधिनियम की द्वितीय अनुसूची में, मर्दे 11 और उससे संबंधित प्रविष्टियों के लिए निम्नलिखित मर्दे और प्रविष्टियां रखी जाएगी, अर्थात् :-

11. कोयला :

अ. पश्चिम बंगाल राज्य को छोड़कर सभी राज्यों, और संघ शासित प्रदेशों में उत्पादित कोयला।

(1) कोयले पर रॉयल्टी :

कोयले पर रॉयल्टी की दर करी, उपरोक्त तथा अन्य प्रकारों को छोड़कर बीजक में यथा प्रदर्शित कोयले के मूल्य पर यथामूल्य 14% (बीजक प्रतिशत) की दर से होगी।

(2) लिग्नाइट पर रॉयल्टी :

लिग्नाइट पर रॉयल्टी की दर केन्द्रीय विद्युत विनियामक आयोग (सीईआरसी) द्वारा यथाअभिपुष्ट लिग्नाइट के अंतरण मूल्य पर यथामूल्य 6% (छः प्रतिशत) की दर से

होगी और अन्य उपनोक्ताओं को बेचे गए लिग्नाइट के लिए रॉयल्टी करें, उपकरणों और अन्य प्रभागों को छोड़कर बीजक में यथाप्रदर्शित लिग्नाइट के मूल्य पर यथामूल्य 8% (छः प्रतिशत) की दर से होगी।

(3) कॅप्टिव खानों से उत्पादित कोयला और लिग्नाइट पर रॉयल्टी :

कॅप्टिव खानों से उत्पादित कोयला और लिग्नाइट पर रॉयल्टी की गणना करने के लिए कोयला और लिग्नाइट के मूल्य से तात्पर्य उस कॅप्टिव खान के निकटतम खानों के लिए कोयला अथवा लिग्नाइट के समान सकल कैलोरिफिक मूल्य (जीसीवी) के लिए कोल इंडिया लि. / सिंगरेनी कोलियरीज कंपनी लि. / नेगवेली लिग्नाइट कारपोरेशन द्वारा यथा अधिसूचित आरसीएम(एन आफ माइन) कोयला और लिग्नाइट का मूल पिटहेड मूल्य होगा।

यद्यपि कि वाणिज्यिक उपयोग के लिए सरकारी वितरण मार्ग के अंतर्गत आवंटित कोयला और लिग्नाइट खाफों से उत्पादित कोयला और लिग्नाइट के लिए संबंधित यथामूल्य रॉयल्टी संबंधित राज्य सरकारों द्वारा अधिसूचित मूल्य पर लागू होगा।

(4) उपकरण उद्ग्रहण के विरुद्ध रॉयल्टी का समायोजन:

पश्चिम बंगाल के अलावा जो राज्य कोयलाखारी भूमियों के लिए विशेष रूप से उपकरण अथवा अन्य कर लगाते हैं उनके लिए अनुमेय रॉयल्टी का समायोजन स्थानीय उपकरणों अथवा ऐसे करों से किया जाएगा ताकि समग्र राजस्व प्राप्ति को सीमित किया जा सके।

घ. पश्चिम बंगाल राज्य में उत्पादित कोयला :

समूह	कोयले का प्रकार	कोयले पर रॉयल्टी प्रति टन रूप में
समूह - I	इस्पात श्रेणी - I	कोयले पर प्रति टन
	इस्पात श्रेणी - II	
	बाहरी-I	
	सीपी आपूर्ति	
समूह - II	बाहरी-II	कोयले पर प्रति टन और पचास पैसे प्रति टन
	बाहरी-III	
	सीपी कोकिंग ग्रेड I	
	सीपी कोकिंग ग्रेड II	
	8701 एवं उससे अधिक जीसीवी (कि.कैलो./कि.ग्र.) वाला गैर-कोकिंग कोयला	
	6401-6700 जीसीवी (कि.कैलो./कि.ग्र.) वाला गैर-कोकिंग कोयला	
समूह - III	बाहरी-IV	कोयले पर प्रति टन और पचास पैसे प्रति टन
	5801-6100 जीसीवी (कि.कैलो./कि.ग्र.) वाला गैर-कोकिंग कोयला	

	5501-5800 जीसीपी (कि.किलो./कि.घा.) वाला गैर-कोकिंग कोयला	
	5201-5500 जीसीपी (कि.किलो./कि.घा.) वाला गैर-कोकिंग कोयला	
समूह - IV	4901-5200 जीसीपी (कि.किलो./कि.घा.) वाला गैर-कोकिंग कोयला	केवल चार स्लैब और तीस पैरी प्रति टन
	4801-4900 जीसीपी (कि.किलो./कि.घा.) वाला गैर-कोकिंग कोयला	
	4301-4800 जीसीपी (कि.किलो./कि.घा.) वाला गैर-कोकिंग कोयला	
समूह - V	4001-4300 जीसीपी (कि.किलो./कि.घा.) वाला गैर-कोकिंग कोयला	केवल दो स्लैब और पचास पैरी प्रति टन
	3701-4000 जीसीपी (कि.किलो./कि.घा.) वाला गैर-कोकिंग कोयला	
	3401-3700 जीसीपी (कि.किलो./कि.घा.) वाला गैर-कोकिंग कोयला	
	3101-3400 जीसीपी (कि.किलो./कि.घा.) वाला गैर-कोकिंग कोयला	
	3100 के बराबर अथवा उससे कम जीसीपी वाला गैर-कोकिंग	

#### स्पष्टीकरण :-

1. कोयला के श्रेणीकरण के प्रयोजन से, कोयले की प्रत्येक श्रेणी का विनिर्देशन कोलिगरी नियन्त्रण नियमावली, 2004 के नियम 3 के अधीन तथा निर्धारित होगा।
2. यह अधिसूचना सरकारी राजपत्र में इसके प्रकाशन की तारीख से लागू होगी।\*

[क्र. सं. 28019/1/2009-सीए-II]

दृ.के. भल्ला, संयुक्त सचिव

द्वितीय अनुसूची में पहली बार दिनांक 05 मई, 1987 के जीएसआर सं.458(ई) के माध्यम से संशोधन किया गया था और अंतिम संशोधन दिनांक 24 जनवरी, 2012 के जी.एस.आर.46(ई) के माध्यम से किया गया।

**MINISTRY OF COAL****NOTIFICATION**

New Delhi, the 10th May, 2012.

**G.S.R. 349(E).**—In exercise of the powers conferred by sub-section (3) of section 9 of the Mines and Minerals (Development and Regulation) Act, 1957 (67 of 1957), the Central Government hereby makes the following further amendment in the Second Schedule to the said Act, namely:—

In the Second Schedule to the said Act, for item (1) and the entries relating thereto, the following item and entries shall be substituted, namely:—

**"11. COAL :**

- A. Coal produced in all the States and Union territories except the State of West Bengal.

**(1) Royalty on Coal:**

The rate of royalty on coal shall be @ 14% (Fourteen percent.) ad-valorem on price of coal, as reflected in the invoice, excluding taxes, levies and other charges.

**(2) Royalty on Lignite:**

The rate of royalty on lignite shall be @ 6% (Six percent.) ad-valorem on transfer price of lignite, as ratified by the Central Electricity Regulatory Commission (CERC) and for lignite sold to other consumers, the royalty shall be @ 6% (Six percent.) ad-valorem on the price of lignite as reflected in the invoice, excluding taxes, levies and other charges.

**(3) Royalty on coal and lignite produced from captive mines:**

For calculating royalty on coal and lignite produced from captive mines, the price of coal and lignite shall mean the basic pithead price of Run of Mine (ROM) coal and lignite, as notified by the Coal India Ltd./Singareni Collieries Company Ltd./Neyveli Lignite Corporation, for similar Gross Calorific Value (GCV) of coal or lignite (or the mines), nearest to that captive mine.

Provided that for the coal and lignite produced from the coal and lignite blocks, allocated under the Government disposition route for commercial use, the respective ad-valorem royalty shall be applicable on the price notified by the respective State Governments.

**(4) Adjustment of royalty against levying of cess:**

For the States other than West Bengal, for the levy of cess or other taxes specific to coal bearing lands, the royalty allowed shall be adjusted for the local cesses or such taxes, so as to limit the overall revenue yield.

**B. Coal produced in the State of West Bengal:**

Group	Quality of Coal	Rate in Rupees per tonne
Group-I	Steel Gr-I	Seven rupees only per tonne
	Steel Gr-II	
	Washery-I	
	Direct Feed	
Group-II	Washery-II	Six rupees and fifty paise only per tonne
	Washery-III	
	Semi-Coking Gr-I	
	Semi-Coking Gr-II	
	Non-Coking Coal having GCV (Kcal/Kg) range of 6701 and above	
	Non-Coking Coal having GCV (Kcal/Kg) range of 6401-6700	
	Non-Coking Coal having GCV (Kcal/Kg) range of 6101-6400	
Group-III	Washery-IV	Five rupees and fifty paise only per tonne
	Non-Coking Coal having GCV (Kcal/Kg) range of 5801-6100	
	Non-Coking Coal having GCV (Kcal/Kg) range of 5501-5800	
	Non-Coking Coal having GCV (Kcal/Kg) range of 5201-5500	
Group-IV	Non-Coking Coal having GCV (Kcal/Kg) range of 4801-5200	Four rupees and thirty paise only per tonne
	Non-Coking Coal having GCV (Kcal/Kg) range of 4601-4800	
	Non-Coking Coal having GCV (Kcal/Kg) range of 4301-4600	
Group-V	Non-Coking Coal having GCV (Kcal/Kg) range of 4001-4300	Two rupees and fifty paise only per tonne
	Non-Coking Coal having GCV (Kcal/Kg) range of 3701-4000	
	Non-Coking Coal having GCV (Kcal/Kg) range of 3401-3700	
	Non-Coking Coal having GCV (Kcal/Kg) range of 3101-3400	
	Non-Coking Coal having GCV < 3100	

**Explanation:**

- For the purpose of grading of coal, the specification of each grade of the coal shall be as prescribed under rule 3 of the Colliery Control Rules, 2004.
- The Notification shall come into force on the date of its publication in the Official Gazette."

[F. No. 28019/1/2009-CA-II]

A. K. BHALLA, Jt. Secy.

The Second Schedule was first amended vide G.S.R. No. 458 (E) dated the 05<sup>th</sup> May, 1987 and last amended vide G.S.R. 46 (E), dated the 24<sup>th</sup> January, 2012.

1673 4/1/12 S

## **Mine Plan and Mine Closure Plan**

(First Modification/Revision)

**For**

### **Talaipalli**

MAND-RAIGARH Coal Field  
(Under Rule 22E of MCR 1960)  
Raigarh  
Chhattisgarh

Project area 2119.40 ha

**Rated Capacity 25 MTPA**

**Peak Capacity -37.5000MTPA**

Prepared By

**Central Mine Planning and Design Institute**

Contact No. - 8987788956

Email ID - rc.dutta@coalindia.in

APPLICANT

**NTPC LIMITED**

NTPC Bhawan, Scope Complex, 7, Institutional Area, Lodhi Road, New Delhi-110003



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## CHECKLIST

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Chapter-2	Exploration, Geology, Seam Sequence, Coal Quality and Reserve	
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Chapter-4	Safety Management	
Chapter-5	Infrastructure Facilities proposed and their Location	
Chapter-6	Land Requirement	
Chapter-7	Environment Management	
Chapter-8	Progressive & Final Mine Closure Plan	
Annexure	Copy of allotment order /Vesting order	
Annexure	<p>Certificate of Qualified person/ Accredited Mining Plan preparing agency (MPPA) if the project area is confined within the vested/allotted block boundary/existing mining lease and</p> <p>Where the project area extends beyond the block boundary, a certificate of Qualified person/ Accredited Mining Plan preparing agency (MPPA) should be supported with a certificate of State Government mines and Geology department must be attached, which should specify</p> <p>(a) intent of the state government for grant of lease beyond the vested geological boundary/existing mining lease (b) non-existence of Coal/ Lignite in the area beyond the vested/allotted geological block boundary/existing mining lease to rule out the issue of encroachment and use of coal bearing area (beyond the vested/allotted block boundary/existing mining lease) in the mining plan</p>	
Annexure	Approval of the Company Board	
Annexure	Copy of earlier approval of mining plan.	
Annexure	Plan / chart showing schedule of implementation of Mine closure activities (progressive and final closure) with duration of important activities	
Annexure	Expert-Review Report carried out by an Accredited Mining Plan Preparing Agency (MPPA)	
Annexure	Other document (if any)	
Plates	Location plan	
Plates	Plan certified by Qualified person/ Accredited Mining Plan preparing agency (MPPA) if the project area is confined within the vested/allotted block boundary/existing mining lease and where the project area extends beyond the block boundary, a Plan certified by Qualified person/ Accredited Mining Plan preparing agency (MPPA) should be supported with a plan with cardinal co-ordinates duly certified by the Mines and Geology Department of the concerned State Government. Plan in support of Annexure - II	
Plates	Printed copy of the KML file superimposed in the recent (not older than one year from the base date) dated satellite image duly certified by Accredited Agency should also be attached. Note: The soft copy of the KML file shall also be part of the Soft copy of the mining Plan.	
Plates	Cadastral plan showing approved block boundary vis-A-vis proposed/existing mining lease & Mine boundary, superimposed over it in distinct color, showing land use and infrastructure etc.	
Plates	Geological plan showing all the boreholes drilled and proposed to be drilled showing allotted block boundary and required lease area.	
Plates	Representative Graphic Litholog	
Plates	Surface Plan showing drainage system, Contour, preferably at 3m interval, location of BH (borehole)	
Plates	Conceptual plan showing infrastructure facilities including colony, boundary of mining area, mine entries, roads including road diversion alignment etc.	

Plates	Tentative land use plan showing land type (Govt., forest and tenancy land) with its data source.	✓
Plates	Floor contour plan and seam folio plan, iso-grade plan	✓
Plates	Cross-section showing coal/lignite seam(s)	✓
Plates	Plan showing existing and proposed surface layout(s)	✓
Plates	Plan showing total coal thickness and overburden thickness and stripping ratio (in case of opencast (OC) Mines)	✓
Plates	Final stage quarry plan showing haul road alignment (in case of OC Mines)	✓
Plates	Plan showing mode and location of entries and surface layouts (in case of underground (UG) Mines)	✗
Plates	Layout of the panel for each system (like Longwall, Continuous Miner, Bord & Pillar, road header etc.) should be given (in case of UG Mines)	✗
Plates	Layout of pillar extraction (in case of UG Mines)	✗
Plates	Support system (in case of UG Mines)	✗
Plates	Haulage and transport system (in case of UG Mines)	✗
Plates	Post mining land use plan	✓
Plates	Progressive mine closure plan/ stage plans	✓
Plates	Reclamation plan	✓

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**Chapter-1: Project Information**

**1.1 Introduction**

S.No	Parameters	Details
1.1.1	Name of the Coal/Lignite Block	Talaipalli
1.1.2	Name of the Coalfield/ Lignite Field	MAND-RAIGARH Coal Field
1.1.3	Base date of Mining Plan/ Mine Closure Plan	01/04/2023
1.1.4	Linked End Use Plant	LARA STPP
1.1.5	Distance of End Use Plant from the pit head of the project in Akotta	70
1.1.6	Mode of Coal Transport	BY RAIL

**1.2 Location, Topography & Communication:**

S.No	Parameters	Details
1.2.1	Location of coal deposit	District - Raigarh, State - Chhattisgarh
	State	Chhattisgarh
	District	Raigarh
1.2.2	Communication	Road from Raigarh town via Gharghora to Ambikapur (SH) at 25 Km. Raigarh Rail station on Howrah Bombay main railway line is 55 Km from the block. Nearest Airport is Jhansuguda at a distance of 100 Km
1.2.3	Availability of power supply & water etc.	Water from Kelo River, and Permanent Power is available from 132 KV / 33 KV NTPC Substation at Raikera village within block
1.2.4	Prominent physiographic features, drainage pattern, natural water courses, rainfall data, highest flood level	Kelo River is flowing through the south-eastern part of the present area, constitute the main drainage system. The main subsidiary stream channel draining the block from north-west to south-east joins the Kelo River at the extreme south-eastern part of the area. This subsidiary stream channel is fed by number of small tributaries rising from hills both from north and south. HFL for the Kelo river is 279 m. The monsoon period extends from mid-June to September with an average annual mean rainfall of 1620 mm
1.2.5	Important surface features within the project area and major diversion or shifting involved	No such important surface features with in the project There is no involvement of major diversion or shifting

**1.3 Details of the Allotment Agreement**

S.No	Parameters	Details
1.3.1	Name of the Allottee	NTPC LIMITED
1.3.2	Details of allotment/vesting Order	103/31/2015/NA
1.3.2(B)	Allocation/Vesting Order Date	2015-09-08
1.3.3	Name and address of the Applicant	NTPC Bhawan, Scope Complex, 7, Institutional Area, Lodhi Road, New Delhi-110003
1.3.4	Name of the previous Allottee of the Block	NTPC LIMITED
1.3.5	Starting date of the Mine as per CMDPA/CBDPA	01/05/2019
1.3.6	Rated capacity as per CMDPA/CBDPA	15.00
1.3.7	Production Schedule as per opening permission (meeting provisions of CMDPA if any)	AS PER CMDPA
1.3.8	End Use of Coal/ Lignite as per allotment order if any	LARA STPP
1.3.9	Cardinal points coordinates of the Block Boundary	Cardinal Points files data shown below

**Cardinal Points co-ordinates of the Block boundary :**

ANNEXURE-VIIIIC		
CARDINAL POINTS OF TALAIPALLI COAL BLOCK		
POINT NO	LONGITUDE (WGS84)	LATTITUDE (WGS84)
P-0	83° 29' 42.381" E	22° 14' 43.085" N
P-1	83° 29' 45.262" E	22° 14' 41.094" N
P-2	83° 29' 48.143" E	22° 14' 39.103" N
P-3	83° 29' 51.024" E	22° 14' 37.111" N
P-4	83° 29' 53.905" E	22° 14' 35.120" N
P-5	83° 29' 56.786" E	22° 14' 33.129" N
P-6	83° 29' 59.667" E	22° 14' 31.137" N
P-7	83° 30' 2.548" E	22° 14' 29.146" N
P-8	83° 30' 5.429" E	22° 14' 27.154" N
P-9	83° 30' 8.309" E	22° 14' 25.163" N
P-10	83° 30' 11.190" E	22° 14' 23.172" N
P-11	83° 30' 14.071" E	22° 14' 21.180" N
P-12	83° 30' 16.954" E	22° 14' 19.188" N
P-13	83° 30' 19.814" E	22° 14' 17.196" N
P-14	83° 30' 22.695" E	22° 14' 15.204" N
P-15	83° 30' 25.576" E	22° 14' 13.212" N
P-16	83° 30' 28.457" E	22° 14' 11.220" N
P-17	83° 30' 31.338" E	22° 14' 9.228" N
P-18	83° 30' 34.219" E	22° 14' 7.236" N
P-19	83° 30' 37.100" E	22° 14' 5.244" N
P-20	83° 30' 39.981" E	22° 14' 3.252" N
P-21	83° 29' 59.067" E	22° 14' 17.346" N
P-22	83° 29' 58.194" E	22° 14' 17.369" N
P-23	83° 29' 57.459" E	22° 14' 17.199" N
P-24	83° 29' 56.726" E	22° 14' 16.809" N
P-25	83° 29' 56.201" E	22° 14' 16.252" N
P-26	83° 29' 55.552" E	22° 14' 15.385" N
P-27	83° 29' 54.946" E	22° 14' 14.299" N
P-28	83° 29' 54.351" E	22° 14' 12.722" N
P-29	83° 29' 54.054" E	22° 14' 11.569" N
P-30	83° 29' 53.562" E	22° 14' 9.562" N
P-31	83° 29' 53.278" E	22° 14' 8.813" N
P-32	83° 29' 52.773" E	22° 14' 7.856" N
P-33	83° 29' 52.009" E	22° 14' 6.932" N
P-34	83° 29' 51.411" E	22° 14' 6.388" N
P-35	83° 29' 50.980" E	22° 14' 6.180" N
P-36	83° 29' 50.524" E	22° 14' 6.145" N
P-37	83° 29' 49.951" E	22° 14' 6.203" N
P-38	83° 29' 49.303" E	22° 14' 6.382" N
P-39	83° 29' 48.581" E	22° 14' 6.646" N
P-40	83° 29' 47.775" E	22° 14' 7.039" N
P-41	83° 29' 47.015" E	22° 14' 7.674" N
P-42	83° 29' 46.074" E	22° 14' 8.478" N
P-43	83° 29' 45.827" E	22° 14' 10.084" N
P-44	83° 29' 42.585" E	22° 14' 10.543" N
P-45	83° 29' 41.374" E	22° 14' 10.840" N
P-46	83° 29' 39.109" E	22° 14' 10.994" N
P-47	83° 29' 37.410" E	22° 14' 11.000" N
P-48	83° 29' 36.301" E	22° 14' 10.770" N
P-49	83° 29' 34.771" E	22° 14' 10.324" N
P-50	83° 29' 33.857" E	22° 14' 9.973" N
P-51	83° 29' 32.985" E	22° 14' 9.570" N
P-52	83° 29' 32.155" E	22° 14' 9.012" N
P-53	83° 29' 31.146" E	22° 14' 8.053" N
P-54	83° 29' 30.001" E	22° 14' 6.817" N
P-55	83° 29' 28.913" E	22° 14' 4.444" N
P-56	83° 29' 27.772" E	22° 14' 1.938" N
P-57	83° 29' 27.416" E	22° 14' 0.799" N
P-58	83° 29' 27.356" E	22° 14' 0.074" N
P-59	83° 29' 27.804" E	22° 13' 59.031" N
P-60	83° 29' 27.883" E	22° 13' 58.348" N
P-61	83° 29' 28.539" E	22° 13' 57.253" N
P-62	83° 29' 28.929" E	22° 13' 56.763" N
P-63	83° 29' 29.000" E	22° 13' 56.531" N
P-64	83° 29' 28.918" E	22° 13' 56.092" N
P-65	83° 29' 28.725" E	22° 13' 55.652" N



ANNEXURE-VIIIIC		
P-66	83° 29' 26.409" E	22° 13' 55.083" N
P-67	83° 29' 27.843" E	22° 13' 54.268" N
P-68	83° 29' 27.315" E	22° 13' 53.427" N
P-69	83° 29' 26.957" E	22° 13' 52.652" N
P-70	83° 29' 26.574" E	22° 13' 51.321" N
P-71	83° 29' 26.390" E	22° 13' 50.368" N
P-72	83° 29' 26.594" E	22° 13' 49.643" N
P-73	83° 29' 27.249" E	22° 13' 48.896" N
P-74	83° 29' 28.209" E	22° 13' 48.008" N
P-75	83° 29' 25.416" E	22° 13' 45.934" N
P-76	83° 29' 22.623" E	22° 13' 43.860" N
P-77	83° 29' 19.830" E	22° 13' 41.786" N
P-78	83° 29' 17.038" E	22° 13' 39.712" N
P-79	83° 29' 14.245" E	22° 13' 37.638" N
P-80	83° 29' 11.453" E	22° 13' 35.564" N
P-81	83° 29' 8.660" E	22° 13' 33.490" N
P-82	83° 29' 5.867" E	22° 13' 31.416" N
P-83	83° 29' 3.075" E	22° 13' 29.342" N
P-84	83° 29' 0.282" E	22° 13' 27.267" N
P-85	83° 28' 57.490" E	22° 13' 25.193" N
P-86	83° 28' 54.698" E	22° 13' 23.119" N
P-87	83° 28' 51.905" E	22° 13' 21.045" N
P-88	83° 28' 49.113" E	22° 13' 19.971" N
P-89	83° 28' 46.320" E	22° 13' 17.897" N
P-90	83° 28' 43.528" E	22° 13' 15.823" N
P-91	83° 28' 40.735" E	22° 13' 13.749" N
P-92	83° 28' 37.943" E	22° 13' 11.675" N
P-93	83° 28' 35.150" E	22° 13' 09.601" N
P-94	83° 28' 32.358" E	22° 13' 07.527" N
P-95	83° 28' 29.565" E	22° 13' 05.453" N
P-96	83° 28' 26.773" E	22° 13' 03.379" N
P-97	83° 28' 23.980" E	22° 13' 01.305" N
P-98	83° 28' 21.188" E	22° 13' 00.231" N
P-99	83° 28' 18.395" E	22° 13' 00.157" N
P-100	83° 28' 15.603" E	22° 13' 00.083" N
P-101	83° 28' 12.810" E	22° 13' 00.009" N
P-102	83° 27' 59.969" E	22° 13' 00.000" N
P-103	83° 27' 57.176" E	22° 13' 00.000" N
P-104	83° 27' 54.384" E	22° 13' 00.000" N
P-105	83° 27' 51.591" E	22° 13' 00.000" N
P-106	83° 27' 48.799" E	22° 13' 00.000" N
P-107	83° 27' 46.006" E	22° 13' 00.000" N
P-108	83° 27' 43.214" E	22° 13' 00.000" N
P-109	83° 27' 40.421" E	22° 13' 00.000" N
P-110	83° 27' 37.629" E	22° 13' 00.000" N
P-111	83° 27' 34.836" E	22° 13' 00.000" N
P-112	83° 27' 32.044" E	22° 13' 00.000" N
P-113	83° 27' 29.251" E	22° 13' 00.000" N
P-114	83° 27' 26.459" E	22° 13' 00.000" N
P-115	83° 27' 23.666" E	22° 13' 00.000" N
P-116	83° 27' 20.874" E	22° 13' 00.000" N
P-117	83° 27' 18.081" E	22° 13' 00.000" N
P-118	83° 27' 15.289" E	22° 13' 00.000" N
P-119	83° 26' 59.918" E	22° 13' 00.000" N
P-120	83° 26' 56.348" E	22° 13' 00.000" N
P-121	83° 26' 52.777" E	22° 13' 00.000" N
P-122	83° 26' 49.207" E	22° 13' 00.000" N
P-123	83° 26' 45.636" E	22° 13' 00.000" N
P-124	83° 26' 42.066" E	22° 13' 00.000" N
P-125	83° 26' 38.495" E	22° 13' 00.000" N
P-126	83° 26' 34.925" E	22° 13' 00.000" N
P-127	83° 26' 31.354" E	22° 13' 00.000" N
P-128	83° 26' 27.784" E	22° 13' 00.000" N
P-129	83° 26' 24.213" E	22° 13' 00.000" N
P-130	83° 26' 20.643" E	22° 13' 00.000" N
P-131	83° 26' 17.072" E	22° 13' 00.000" N
P-132	83° 26' 13.502" E	22° 13' 00.000" N
P-133	83° 26' 9.931" E	22° 13' 00.000" N

ANNEXURE-VIIIIC		
P-134	83° 26' 6.361" E	22° 13' 38.930" N
P-135	83° 26' 2.790" E	22° 13' 38.898" N
P-136	83° 25' 58.220" E	22° 13' 38.866" N
P-137	83° 25' 55.649" E	22° 13' 38.834" N
P-138	83° 25' 52.079" E	22° 13' 38.802" N
P-139	83° 25' 48.509" E	22° 13' 38.770" N
P-140	83° 25' 44.938" E	22° 13' 38.738" N
P-141	83° 25' 41.368" E	22° 13' 38.706" N
P-142	83° 25' 41.345" E	22° 13' 42.254" N
P-143	83° 25' 41.323" E	22° 13' 45.801" N
P-144	83° 25' 41.301" E	22° 13' 48.348" N
P-145	83° 25' 41.278" E	22° 13' 52.896" N
P-146	83° 25' 41.256" E	22° 13' 56.443" N
P-147	83° 25' 41.234" E	22° 13' 59.991" N
P-148	83° 25' 41.211" E	22° 14' 3.538" N
P-149	83° 25' 41.189" E	22° 14' 7.085" N
P-150	83° 25' 41.167" E	22° 14' 10.633" N
P-151	83° 25' 44.729" E	22° 14' 10.676" N
P-152	83° 25' 48.292" E	22° 14' 10.720" N
P-153	83° 25' 51.854" E	22° 14' 10.764" N
P-154	83° 25' 55.416" E	22° 14' 10.808" N
P-155	83° 25' 58.979" E	22° 14' 10.852" N
P-156	83° 26' 2.541" E	22° 14' 10.895" N
P-157	83° 26' 6.104" E	22° 14' 10.939" N
P-158	83° 26' 9.668" E	22° 14' 10.983" N
P-159	83° 26' 13.228" E	22° 14' 11.026" N
P-160	83° 26' 16.791" E	22° 14' 11.070" N
P-161	83° 26' 20.353" E	22° 14' 11.114" N
P-162	83° 26' 20.331" E	22° 14' 14.419" N
P-163	83° 26' 20.310" E	22° 14' 17.724" N
P-164	83° 26' 20.288" E	22° 14' 21.029" N
P-165	83° 26' 20.268" E	22° 14' 24.335" N
P-166	83° 26' 20.244" E	22° 14' 27.640" N
P-167	83° 26' 20.222" E	22° 14' 30.945" N
P-168	83° 26' 20.201" E	22° 14' 34.251" N
P-169	83° 26' 20.179" E	22° 14' 37.556" N
P-170	83° 26' 20.157" E	22° 14' 40.861" N
P-171	83° 26' 20.135" E	22° 14' 44.167" N
P-172	83° 26' 20.113" E	22° 14' 47.472" N
P-173	83° 26' 20.092" E	22° 14' 50.777" N
P-174	83° 26' 20.070" E	22° 14' 54.082" N
P-175	83° 26' 20.048" E	22° 14' 57.388" N
P-176	83° 26' 20.026" E	22° 15' 0.693" N
P-177	83° 26' 20.004" E	22° 15' 3.998" N
P-178	83° 26' 19.983" E	22° 15' 7.304" N
P-179	83° 26' 19.961" E	22° 15' 10.609" N
P-180	83° 26' 19.939" E	22° 15' 13.914" N
P-181	83° 26' 19.917" E	22° 15' 17.220" N
P-182	83° 26' 19.895" E	22° 15' 20.525" N
P-183	83° 26' 19.874" E	22° 15' 23.830" N
P-184	83° 26' 19.852" E	22° 15' 27.135" N
P-185	83° 26' 19.830" E	22° 15' 30.441" N
P-186	83° 26' 19.808" E	22° 15' 33.746" N
P-187	83° 26' 19.786" E	22° 15' 37.051" N
P-188	83° 26' 19.765" E	22° 15' 40.357" N
P-189	83° 26' 19.743" E	22° 15' 43.662" N
P-190	83° 26' 19.721" E	22° 15' 46.967" N
P-191	83° 26' 19.699" E	22° 15' 50.273" N
P-192	83° 26' 19.677" E	22° 15' 53.578" N
P-193	83° 26' 22.402" E	22° 15' 58.082" N
P-194	83° 26' 25.126" E	22° 15' 58.585" N
P-195	83° 26' 27.850" E	22° 16' 1.089" N
P-196	83° 26' 30.575" E	22° 16' 3.593" N
P-197	83° 26' 33.299" E	22° 16' 6.096" N
P-198	83° 26' 36.023" E	22° 16' 8.600" N
P-199	83° 26' 38.748" E	22° 16' 11.103" N
P-200	83° 26' 42.004" E	22° 16' 9.691" N
P-201	83° 26' 45.261" E	22° 16' 8.278" N

ANNEXURE-VIIIIC		
P-202	83° 26' 46.517" E	22° 16' 6.865" N
P-203	83° 26' 51.774" E	22° 16' 5.453" N
P-204	83° 26' 55.030" E	22° 16' 4.049" N
P-205	83° 26' 58.287" E	22° 16' 2.627" N
P-206	83° 27' 1.543" E	22° 16' 1.214" N
P-207	83° 27' 4.800" E	22° 15' 59.802" N
P-208	83° 27' 8.058" E	22° 15' 58.389" N
P-209	83° 27' 8.064" E	22° 15' 54.395" N
P-210	83° 27' 8.072" E	22° 15' 50.402" N
P-211	83° 27' 8.080" E	22° 15' 46.409" N
P-212	83° 27' 8.088" E	22° 15' 42.416" N
P-213	83° 27' 11.411" E	22° 15' 41.273" N
P-214	83° 27' 14.734" E	22° 15' 40.130" N
P-215	83° 27' 18.058" E	22° 15' 38.988" N
P-216	83° 27' 21.381" E	22° 15' 37.845" N
P-217	83° 27' 24.704" E	22° 15' 36.702" N
P-218	83° 27' 28.027" E	22° 15' 35.560" N
P-219	83° 27' 31.351" E	22° 15' 34.417" N
P-220	83° 27' 34.674" E	22° 15' 33.274" N
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P-226	83° 27' 54.613" E	22° 15' 26.418" N
P-227	83° 27' 57.936" E	22° 15' 25.275" N
P-228	83° 28' 1.259" E	22° 15' 24.132" N
P-229	83° 28' 4.582" E	22° 15' 22.989" N
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P-237	83° 28' 31.166" E	22° 15' 13.845" N
P-238	83° 28' 34.489" E	22° 15' 12.702" N
P-239	83° 28' 37.811" E	22° 15' 11.559" N
P-240	83° 28' 41.134" E	22° 15' 10.416" N
P-241	83° 28' 44.457" E	22° 15' 9.273" N
P-242	83° 28' 47.780" E	22° 15' 8.130" N
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P-248	83° 29' 7.718" E	22° 15' 1.272" N
P-249	83° 29' 11.041" E	22° 15' 0.129" N
P-250	83° 29' 14.364" E	22° 15' 0.000" N
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P-252	83° 29' 21.010" E	22° 15' 9.978" N
P-253	83° 29' 24.333" E	22° 15' 14.967" N
P-254	83° 29' 27.656" E	22° 14' 59.956" N
P-255	83° 29' 30.979" E	22° 14' 54.945" N
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P-260	83° 29' 47.594" E	22° 14' 29.890" N
P-261	83° 29' 50.917" E	22° 14' 24.879" N
P-262	83° 29' 54.240" E	22° 14' 19.868" N
NOTE: Boundary points are software generated from georeferenced block boundary of Talaipalli coal block.		

#### 1.4 Details of the Previous Approval of Mining Plan:

S.No	Parameters	Details																																																									
1.4.1	Date of approval:	31/03/2010																																																									
	Copy of earlier approval of mining plan Upload document	Annexure 4 : Document shown in annexure section.																																																									
1.4.2	Conditions: if any	<table border="1"> <thead> <tr> <th>S.No</th> <th>Conditions</th> <th>Compliance Status</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>The mining company shall take all necessary precaution regarding safety of mine workings, persons, deployed therein</td> <td>COMPLIED</td> </tr> <tr> <td>2</td> <td>Mining lease to be acquired shall not encroach into any other coal block</td> <td>COMPLIED</td> </tr> <tr> <td>3</td> <td>The approval of the mining plan is without prejudice to the requirement of approvals</td> <td>COMPLIED</td> </tr> </tbody> </table>	S.No	Conditions	Compliance Status	1	The mining company shall take all necessary precaution regarding safety of mine workings, persons, deployed therein	COMPLIED	2	Mining lease to be acquired shall not encroach into any other coal block	COMPLIED	3	The approval of the mining plan is without prejudice to the requirement of approvals	COMPLIED																																													
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1.4.3	Scheduled year of start of production	2012-13																																																									
1.4.4	Proposed year of achieving the targeted production	2016																																																									
1.4.5	Date of actual commencement of mining operations, if operations already started	15/10/2019																																																									
1.4.6	Likely date of mining operations, if operations not yet started & reasons for non-commencement of operations	Operational																																																									
1.4.7	Planned production and actual levels achieved in last 3 years (Coal in Mte, OB in MM3, SR in MM3/te)	<table border="1"> <thead> <tr> <th rowspan="3">Year</th> <th colspan="4">Planned</th> <th colspan="4">Actual</th> </tr> <tr> <th colspan="2">Coal "Mte"</th> <th rowspan="2">OB MM3</th> <th rowspan="2">SR M3</th> <th colspan="2">Coal "Mte"</th> <th rowspan="2">OB MM3</th> <th rowspan="2">SR M3</th> </tr> <tr> <th>UG</th> <th>OC</th> <th>UG</th> <th>OC</th> </tr> </thead> <tbody> <tr> <td>2019-20</td> <td></td> <td>1,500</td> <td>7,650</td> <td>5,100</td> <td>0,000</td> <td>0,190</td> <td>2,070</td> <td>10,890</td> </tr> <tr> <td>2020-21</td> <td>0,000</td> <td>4,000</td> <td>19,040</td> <td>4,760</td> <td>0,000</td> <td>0,810</td> <td>3,710</td> <td>4,580</td> </tr> <tr> <td>2021-22</td> <td>0,000</td> <td>8,000</td> <td>34,000</td> <td>4,250</td> <td>0,000</td> <td>0,410</td> <td>2,450</td> <td>5,980</td> </tr> <tr> <td>2022-23</td> <td>0,000</td> <td>13,000</td> <td>55,250</td> <td>4,250</td> <td>0,000</td> <td>2,000</td> <td>12,210</td> <td>6,110</td> </tr> </tbody> </table>	Year	Planned				Actual				Coal "Mte"		OB MM3	SR M3	Coal "Mte"		OB MM3	SR M3	UG	OC	UG	OC	2019-20		1,500	7,650	5,100	0,000	0,190	2,070	10,890	2020-21	0,000	4,000	19,040	4,760	0,000	0,810	3,710	4,580	2021-22	0,000	8,000	34,000	4,250	0,000	0,410	2,450	5,980	2022-23	0,000	13,000	55,250	4,250	0,000	2,000	12,210	6,110
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1.4.9	Reasons for difference between the planned and actual production levels	MDO contract ran into legal dispute and subsequently contract was terminated on 4th July 2019. However, mining operation was started on a small patch in Oct 2019 contractually in the area beyond the disputed MDO contract by appointing an agency																																																									

#### 1.5 PARAMETERS OF APPROVED MINING PLAN VIS-À-VIS PROPOSED MINING PLAN

S.No	Block Area	Approved Mining Plan	Proposed Mining Plan
1.5.1	Geological Block Area HA	2113	2119.4000
1.5.2	Geological Block Area Projected HA	2113	2119.40
1.5.3	Lease area HA	2113	2119.4000
1.5.4	Project area HA	2113	2119.4000
1.5.5	Life of the Project Yrs	54	31
1.5.6	Minimum and Maximum Depth of working	70-404	30-340
1.5.7	Geological Block Area yet to be projected "Ha"	0.00	0.00
1.5.8	Production Target MTP	16	25.0000
1.5.9	Seams Available As per GR	XLA, XLB, XTOP, XBOT, IXL2, IX L1, IX, VIII, VII, VITOP, VIMID, VIBOT, VTOP, VMID, VBOT, IVTOP, IVMID, IVL, IVBOT, III L, III, II L3, II L2, II L1, II, II L1	X-LA, X-LB, X-TOP, X-BOT, IX-L2, IX-L1, IX, VIII, VII, VI-TOP, VI-MID, VI-BOT, V-TOP, V-MID, V-BOT, IV-TOP, IV-MID, IV-L, IV-BOT, III L, III, II L3, II L2, II L1, II, II L1

1.5.10	Seams not considered for Mining with Reasons				S. No	Seams	Reason
					1	III L	In this proposed Mining Plan Seams from X-LA upto IV-BOT has been considered for opencast mining due to lack of dumping space Seam III L to Seam II L will be considered for UG mining after exhaustion of OC mine. Seam I is not workable
					2	III	In this proposed Mining Plan Seams from X-LA upto IV-BOT has been considered for opencast mining due to lack of dumping space Seam III L to Seam II L will be considered for UG mining after exhaustion of OC mine. Seam I is not workable
					3	II L3	In this proposed Mining Plan Seams from X-LA upto IV-BOT has been considered for opencast mining due to lack of dumping space Seam III L to Seam II L will be considered for UG mining after exhaustion of OC mine. Seam I is not workable
					4	II L2	In this proposed Mining Plan Seams from X-LA upto IV-BOT has been considered for opencast mining due to lack of dumping space Seam III L to Seam II L will be considered for UG mining after exhaustion of OC mine. Seam I is not workable
					5	II L1	In this proposed Mining Plan Seams from X-LA upto IV-BOT has been considered for opencast mining due to lack of dumping space Seam III L to Seam II L will be considered for UG mining after exhaustion of OC mine. Seam I is not workable

			6	II	In this proposed Mining Plan Seams from X-LA upto IV-BOT has been considered for opencast mining due to lack of dumping space. Seam III L to Seam II L will be considered for UG mining after exhaustion of OC mine. Seam I is not workable
			7	II L	In this proposed Mining Plan Seams from X-LA upto IV-BOT has been considered for opencast mining due to lack of dumping space Seam III L to Seam II L will be considered for UG mining after exhaustion of OC mine. Seam I is not workable
			8	I	In this proposed Mining Plan Seams from X-LA upto IV-BOT has been considered for opencast mining due to lack of dumping space Seam III L to Seam II L will be considered for UG mining after exhaustion of OC mine. Seam I is not workable
1.5.11	Gross Geological Reserve Mte	1400.57	1407.94		
1.5.12	Net Geological Reserve Mte	1260.52	1267.1450		
1.5.13	Blocked Reserve Mte	396.25	406.7376		
1.5.14	Minable Reserve Mte	905.65	664.7999		
1.5.15	Extractable Reserve Mte	851.25	631.5597		
1.5.16	% of Extraction/ recovery	68.32%	49.8410%		
1.5.17	Reserve Depleted (till the base date) Reserves Mte	3.41	3.4100		
1.5.18	Balance Extractable Reserve Mte	857.84	628.1600		
1.5.19	Average Grade	F	4214.0000		
1.5.20	OB in MM3	3777.07	2714.1300		
1.5.21	SR M3/te	4.48	4.3206		
1.5.22	Mining Technology	OC Shovel Dumper and Surface Miner UG Continuous Miner and Shuttle Car	OC Shovel Dumper and Surface Miner UG to be planned later		
1.5.23	Coal Beneficiation envisaged				
1.5.24	Handling of Rejects	NOT APPLICABLE	NOT APPLICABLE		
1.5.25		Land use pattern * Ha			
1	Excavation Area	2079.56	1839.8500		
2	Top Soil Dump		0.0000		
3	External Dump		0.0000		
4	Safety Zone	33.44	29.1000		
5	Other Use		19.7300		
6	Infrastructure area		189.6000		
7	Green Belt		17.1600		
8	Undisturbed Area		23.9800		
	Total	2113.0000	2119.4000		

1.5.26	Reasons for revision	<p>M/s TEMPL was appointed as MDO on 26.08.2020 by NTPC for development and operation of Talaipalli Coal Block. Post award of the contract, a dispute developed between M/s TEMPL and NTPC wherein TEMPL claimed that as per their calculations 404.5 MT of coal cant be extracted at a stripping ratio of 4.30 cum/tonne as specified in the approved Mining Plan. In view of M/s TEMPL, the stripping ratio should be around 4.92 to 5.25 Cum/t. Along with this, the issue of accommodation of excess OB in the designated dump area including temporary external dump and unfeasibility of 100 backfilling by re-handling of temporary external dump as per approved mining plan was raised by M/s TEMPL. Subsequently, M/s TEMPL chose to rescind the contract 04.05.21 and filed a Commercial Civil Suit before Honble Delhi High Court. Subsequent to few hearings and submissions made by both the Parties, NTPC and TEMPL jointly approached CMPDIL for technical solution. CMPDIL suggested for modification of Mining plan is necessary for start of mining operations. Meanwhile, NTPC terminated the contract on 08.03.22 For floating of fresh NIT, as per CMPDIL's suggestion, modification of Mining plan is necessary.</p>
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**Chapter-2: Exploration, Geology, Seam Sequence, Coal Quality and Reserve**

2.1 Details of the block:

S No	Parameters	Details	
2.1.1	Particulars of adjacent blocks: North, South, East, West	North	Unexplored
		East	Palma
		South	Unexplored and Dipside of Barod-Bijari Block
		West	Chintapani Extension Block and Dipside of Barod-Bijari Block
2.1.2	Location of the Block:	Talaipalli Coal Block is located in the eastern part of Mand-Raigarh coalfield, District Raigarh, State Chhattisgarh Latitude 22° 13' 20" N to 22° 16' 12" N Longitude 83° 25' 40" E to 83° 30' 16" E Talaipalli Block is covered by Survey of India top sheet No. 64N/7 N/6 (RF 150060)	
	State	Chhattisgarh	
	District	Raigarh	
2.1.3	Area of the Block "Ha"	2119.40	
2.1.4	Area of the geological block projectized in "Ha" (Area of the geological block considered for liquidation of coal reserve)	2119.40	
2.1.5	Balance area yet to be projectized "Ha"	0	
2.1.6	Likely Reserve in the area yet to be projectized "Mie"	193.61	
2.1.7	Cardinal Point Co-ordinates of the non-coal/lignite bearing area/existing mining lease outside the allotted Geological Coal/Lignite block	The Geological Block area and the Project area are same Project area doesnt contain any area outside the block boundary	
	(Duly certified in line with para 1.9 of the Guideline, if fresh minning lease required)	Cardinal Points files data shown below	
2.1.8	Certificate of Qualified person/ Accredited Mining Plan preparing agency (MPPA) if the project area is confined within the vested/allotted block boundary/existing mining lease and Cardinal Points Co-ordinates of the Proposed area outside the non-coal/lignite bearing area outside the allotted Geological Coal/Lignite block	Annexure 2A	Document shown in annexure section
		Annexure 2B	Document shown in annexure section
		The Project area, Lease area and geological block area in Ha shall also be envisaged.	The Geological Block area, lease area and the Project area are same i.e. 2119.40 Ha. Project area doesnt contain any area outside the block boundary.
2.1.9	KML file of the Proposed lease area, Project Area and geological block	File attached in Plates section below.	
2.1.10	Whether the proposed project area is confined within the allotted block boundary/existing mining lease; if not, the reason for deviation from allotted block boundary, may be given.	Yes. The proposed project area is confined within the allotted block boundary	
2.1.11	If the project area extends outside the allotted block boundary/existing mining lease, confirmation about non-occurrence of coal/lignite in the area under reference needs to be furnished	NA	
2.1.12(1)	Year of Starting	2019	
2.1.12(2)	Type of the Project	OPERATING	

**(Duly certified in line with para 1.9 of the Guideline, if fresh minning lease required) :**

Document not found



S.No	Parameters	Details																																					
2.2.1	Regional geological set up of the area, local geology, structure, stratigraphic sequence, characteristics of the litho-logical units (coal seams /partings/overburden).	<p>Mand-Raigarh Coalfield lies in the drainage basin of Mahanadi. It represents a part of the south-eastern periphery of a vast cauldron of sedimentary terrain, known as Son-Mahanadi Gondwana Master Basin. Mand-Raigarh Coalfield along with Ib-Himgiri coalfield towards south-east and Korba-Hasdo towards west and north-west constitute the large NW-SE trending asymmetrical synformal master basin. The extensive occurrences of Barakar and Supra-Barakar rocks amidst isolated Talchir outcrops spanned between latitudes N21° 45' to 22° 42' and longitudes E83° 01' to 83° 30' 44', constitutes Mand-Raigarh Coalfield. It is situated between Ib-River Coalfield in the southeast and Korba Coalfield in the northwest with more or less similar stratigraphic and tectonic setting. The coal measures in the Mand-Raigarh basin are exposed in three well defined patches due to erosion of the overlying Kamthi rocks along the drainage of the prominent rivers.</p> <p>The Mand-Raigarh Coalfield is an asymmetrical basin with an approximately NW-SE axis. It is a part of Ib-Mand-Korba master basin lying within the Mahanadi graben. It displays a typical half-graben configuration, with the southern boundary marked by a major NW-SE zone of faulting coinciding with the trend of the Mahanadi graben and the northern boundary not faulted over the major part. The beds dip at low angle 5° – 7° towards south-west. In the southern limb, the strike is approximately NW-SE with minor variations and the beds dip towards north-east.</p> <p>The General Stratigraphic sequence is furnished below:</p> <table border="1"> <thead> <tr> <th>Age</th> <th>Formation</th> <th>Thickness (m)</th> <th>Lithology</th> </tr> <tr> <th>1</th> <th>2</th> <th>3</th> <th>4</th> </tr> </thead> <tbody> <tr> <td>Recent to subrecent</td> <td></td> <td></td> <td>Alluvial soil pebbly to bouldary bed with silty clay band, laterite etc.</td> </tr> <tr> <td>Cretaceous to Eocene</td> <td>Deccan Traps</td> <td></td> <td>Basalt flows &amp; dolerite dykes</td> </tr> <tr> <td>Lower to Middle Triassic</td> <td>Kamthi</td> <td>2851</td> <td>Poorly sorted, frequently ferruginous, coarse to very coarse grained, locally graded to pebbly, mega cross bedded sandstone containing brownish grey to buff coloured clay clasts. A fossiliferous red claystone to siltstone bed occurs at the base.</td> </tr> <tr> <td rowspan="4">Upper Permian to Lower Permian</td> <td>Raniganj</td> <td>180</td> <td>Mostly fine to medium grained, grayish white, micaceous sandstone and siltstone with claystone, shale, minor coarse grained sandstone and two coal seams of inferior grade.</td> </tr> <tr> <td>Barakar</td> <td>300</td> <td>Dominantly grey claystone/gray shale with siltstone and iron stone bands; interbedded sequence of fine to medium grained sandstone and shale.</td> </tr> <tr> <td>Barakar</td> <td>425 - 800</td> <td>Medium to coarse and very coarse grained even gritty, sandstone at the lower part followed upward by fine to medium grained assemblage with grey claystone/shale which become predominant towards the upper part, number of coal seams and carbonaceous shale.</td> </tr> <tr> <td>Karharbari(?)</td> <td>23</td> <td>Mottled at places carbonaceous sandstone, frequently associated with pebbles of quartzite granite etc. of various shapes and sizes.</td> </tr> <tr> <td>Upper Carboniferous to lowermost Permian</td> <td>Talchir</td> <td>150+</td> <td>Very fine to fine grained sandstone with siltstone and shale, occasionally greenish in nature, at places with matrix based variegated poly-mictic conglomerate.</td> </tr> </tbody> </table>	Age	Formation	Thickness (m)	Lithology	1	2	3	4	Recent to subrecent			Alluvial soil pebbly to bouldary bed with silty clay band, laterite etc.	Cretaceous to Eocene	Deccan Traps		Basalt flows & dolerite dykes	Lower to Middle Triassic	Kamthi	2851	Poorly sorted, frequently ferruginous, coarse to very coarse grained, locally graded to pebbly, mega cross bedded sandstone containing brownish grey to buff coloured clay clasts. 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2.2.2	Local geology, Structure, Stratigraphic sequence, Characteristics of the litho-logical units (coal seams /partings/overburden)																																						

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Talaipalli Block is located in the eastern part of Mand-Raigarh Coalfield. Major part of Talaipalli block is covered by the rocks of Barakar formations. Barren measure occurs in the southern part of the block. However a small patch of Barren Measure is also noticed in the north western part of the block.

The geological succession is given below:

Formation	Thickness (m)	Lithology
Recent	0.50 – 18.00	Soil, alluvium
Barren Measures	15.80 – 143.00	Shale, fine to medium grained sandstone, and intercalation of shale and sandstone, carbonaceous shale and thin coal bands Fine, medium and coarse grained felspathic, grey sandstone, micaceous and laminated at places. Grey shale, fire clay, intercalation of shale and sandstone and carbonaceous shales with coal seams Khakke greenish shales & sandstone, occasional pebbly
Barakars	30.00 – 596.00	
Talchir	1.00 – 54.30	
Basement		Metamorphics

The general strike of the bed is NW-SE in the major part of the block which swings to almost east – west in the north-western and western part of the block. The dip of beds varies from 4 to 8 towards South-west.

The block does not show major tectonic disturbances. A total of 12 numbers of faults have been deciphered from the subsurface data with throw varying from 0-150m. Out of 12, three faults namely fault F1-F1, F4-F4 and F8-F8 are major faults. Most of the faults are restricted to the northern part of the block. Barren Measure Formation is preserved in a limited area in the north-western part of the block. Remaining area is structurally free except two relatively minor faults.

The sequence of Coal seams is given below:

S. No.	Coal Seams	Thickness of Coal Seam (m)		Thickness of Parting (m)		Dominant Thickness (m)
		Minimum	Maximum	Minimum	Maximum	
1	X LA	0.2	1.06			0.50-0.90
	Parting			5.41	11.9	6.0-9.5
2	X LB	0.3	1.28			0.50-0.90
	Parting			3.37	14.89	4.0-6.0
3	X Top	0.4	1.6			1.00-1.15
	Parting			0.7	3	1.0-2.0
4	X Bot	1.6	5.1			3.5-6.0
	Parting			2.3	20.15	3.5-16.5
5	X L2	1.2	2.55			1.2-2.0
	Parting			13.59	21.54	17.0-16.5
6	X L1	0.35	1.55			1.2-2.0
	Parting			5.65	11.67	6.0-8.0
7	X	0.96	6.96			3.5-6.0
	Parting			6.3	16.15	9.0-12.0
8	VIII	2.06	6.64			4.0-6.5
	Parting			17.66	42.01	20.0-26.0
9	VII	0.1	3.9			0.50-1.0
	Parting			1.08	17.44	4.0-14.0
10	VI Top	0.37	3.42			1.2-2.0
	Parting			0.58	3.25	0.5-1.8
11	VI Mid	3.09	10.01			5.0-8.0
	Parting			0.95	5.98	1.0-2.0
12	VI Bot	0.48	1.75			0.50-1.0
	Parting			2.8	23.46	14.0-21.0
13	V Top	0.5	3.09			0.50-1.50
	Parting			9.09	18.94	11.5-16.5
14	V Mid	0.15	3.73			0.50-2.50
	Parting			4.55	15.95	0.50-12.0
15	V Bot	0.3	5.4			0.50-2.0
	Parting			15.16	14	17.0-23.0
	IV Top	0.54	5.78			2.5-5.0
					187	

	Parting			5.3	20.13	6.0-10.0
17	IV Mid	0.99	7.24			3.5-7.0
	Parting			0.75	6.95	3.5-6.5
18	IV L	0.23	4.99			0.50-2.0
	Parting			0.7	4.55	0.50-2.0
19	IV Bot	0.55	5.67			1.5-3.5
	Parting			8.05	21.54	14.0-17.0
20	III L	0.1	3.25			0.50-1.5
	Parting			24.57	44.55	33.0-39.0
21	III	0.68	5.97			2.0-6.5
	Parting			31.1	55.99	33.0-61.0
22	II L3	0.5	3.09			<0.90
	Parting			13.39	40.9	29.0-38.0
23	II L2	0.07	2.68			<0.90
	Parting			5	60.39	35
24	II L1	0.05	1.54			<0.90
	Parting			1.27	20.59	3.0-14.0
25	II	0.13	5.92			1.5-2.5
	Parting			0.37	3.89	0.50-2.0
26	II L	0.05	2.45			<0.90
	Parting			Around 35.0 m		
27	I	0.22	0.55			27
2.2.3	Geological Block Area 'Ha'		2119.40			
2.2.4	Status of Exploration of the block					
Detail exploration in the block was carried out since 2006-09. A total of 117 number of boreholes were drilled by GSI & MECL which were considered for preparation of the Geological Report. Total meterage considered for preparation of Geological Report is 45269.30 m.						
2.2.5	Area covered by 'detailed' exploration within the block (sq. km)		21.194			
2.2.6	Whether entire area has been covered by a detailed exploration.		Yes The entire proposed lease area has been explored			
2.2.7	No. of boreholes drilled within the block.		117			
2.2.8	Whether any further exploration/study is required or suggested and time frame in which it is to be completed		No			
2.2.9	Year wise future programme of exploration.		NA			
2.2.10	Overall borehole density within the block (no / sq. km) approx.		5.52			
2.2.11	No of Seams available as per GR (Geological Report)		X-LA X-LB X-TOP X-BOT IX-L2 IX-L1 IX VIII VII VI-TOP VI-MID VI-BOT V-TOP V-MID V-BOT IV-TOP IV-MID IV-L IV-BOT III L III II L3 II L2 II L1 II L1			
2.2.12	Seams not considered for Mining with Reasons		In this proposed Mining Plan Seams from X-LA upto IV-BOT has been considered for opencast mining. Further below seams cannot be mined by OC method due to lack of dumping space. Seam III L to Seam II L will be considered for UG mining after exhaustion of OC mine. Seam I is not workable			
2.2.13	Dip of the Seam		The general strike is NW-SE with south-westerly dip of 4-8 deg.			

#### 2.2.14 Seam wise thickness, depth and reserve

Seam	Thickness Range 'm'	Depth Range 'm'	Net Geological Res 'Mte'	Block Reserve Below 'Mte'				Min Res 'Mte'		Mining Losses	Ext Res 'Mte'			As on base date 'Mte'				Res on (For seams not considered for mining)		
				High wall/Batter	Nala/River/Road	Barrier	Un-economic	Total Block	UG		OC	UG	OC	High wall	Depletion of Reserve				Balance Reserve	
															UG	OC	High wall		UG	OC
X-LA	0.20-1.05	21.40-165.78	3.537			3.4333	3.4333	0.1037	0.0052		0.0985				0.00	0.10	0.1			
Parting	5.41-11.90						0.0000								0.00	0.00				
X-LB	0.30-1.28	14.52-177.58	4.8500	0.0837	0.0839	4.4053	4.5729	0.2771	0.0139		0.2632				0.00	0.26	0.26			
Parting	3.37-14.89						0.0000								0.00	0.00				

X-TOP	0.40-1.60	10.97-187.19	14.1260	1.6241	0.7455	4.7536		7.1232		7.0028	0.3501		6.6527			0.0599	0.00	6.59	6.59
Parting	0.70-3.00							0.0000								0.00	0.00		
X-BOT	1.60-6.10	12.28-192.93	80.4090	8.9134	10.0448	5.8303		24.7885		55.6205	2.7810		52.8394			0.6842	0.00	52.16	52.16
Parting	2.30-20.15							0.0000								0.00	0.00		
IX-L2	1.20-2.55	10.78-225.31	28.9590	3.3499	3.7316	2.2589		8.3404		19.6185	0.9809		18.6378			0.2614	0.00	18.38	18.38
Parting	13.59-21.54							0.0000								0.00	0.00		
IX-L1	0.38-1.85	10.78-225.31	29.2930	4.4773	3.4069	1.8731		9.5573		19.7357	0.9868		18.7489			0.2535	0.00	18.50	18.5
Parting	5.65-11.87							0.0000								0.00	0.00		
IX	0.96-6.96	11.87-238.02	102.3310	14.4822	10.2044	5.4623		30.1489		72.1821	3.6091		68.5730			1.0043	0.00	67.57	67.57
Parting	6.30-16.15							0.0000								0.00	0.00		
VIII	2.06-6.64	7.95-256.47	128.2510	20.0172	12.4646	9.1594		41.6412		66.6098	4.3305		62.2793			1.1467	0.00	81.13	81.13
Parting	17.68-42.01							0.0000								0.00	0.00		
VII	0.10-3.90	58.20-270.08	15.8490	5.0414	5.1484	2.1133		12.3031		3.5459	0.1773		3.3686				0.00	3.37	3.37
Parting	1.08-17.44							0.0000								0.00	0.00		
VI-TOP	0.37-3.42	12.08-312.32	34.2940	5.7560	4.3446	4.8167		14.7173		19.5767	0.9788		18.5978				0.00	18.80	18.6
Parting	0.56-3.25							0.0000								0.00	0.00		
VI-MID	3.09-10.01	9.96-321.49	180.9160	33.8405	15.2906	15.5950		64.7261		116.1899	5.8095		110.3804				0.00	110.38	110.38
Parting	0.85-5.98							0.0000								0.00	0.00		
VI-BOT	0.46-1.75	12.43-328.50	10.9360	1.3703	0.1460	5.0924		6.6087		4.3273	0.2164		4.1109				0.00	4.11	4.11
Parting	2.80-23.45							0.0000								0.00	0.00		
V-TOP	0.50-3.09	12.44-347.15	17.0110	4.4889	2.4842	2.6138		9.5869		7.4241	0.3712		7.0529				0.00	7.05	7.05
Parting	9.09-18.94							0.0000								0.00	0.00		
V-MID	0.15-3.73	15.57-360.80	36.1570	9.3193	2.6841	5.5884		17.5918		18.5651	0.9283		17.6369				0.00	17.64	17.64
Parting	4.55-15.95							0.0000								0.00	0.00		

V-BOT	0.30-5.40	22.96-377.90	42.2010	8.9308	2.7183	6.6342		18.2833		23.9177	1.1959		22.7218					0.00	22.72		22.72	
Parting	15.16-30.14							0.0000										0.00	0.00			
IV-TOP	0.54-5.78	10.87-405.19	93.8220	25.1159	2.2913	10.5820		37.9892		55.8328	2.7916		53.0411					0.00	53.04		53.04	
Parting	5.30-20.13							0.0000										0.00	0.00			
IV-MID	0.99-7.24	19.55-425.07	145.4770	35.7954	12.6738	10.6022		59.0714		86.4055	4.3203		82.0852					0.00	82.09		82.09	
Parting	0.75-6.95							0.0000										0.00	0.00			
IV-L	0.23-4.99	23.28-400.11	31.1310	5.5926	0.4445	5.2905		11.3276		19.8034	0.9902		18.8132					0.00	18.81		18.81	
Parting	0.70-4.55							0.0000										0.00	0.00			
IV-BOT	0.55-5.67	28.39-402.70	73.9880	17.6626	4.3560	3.9081		25.9267		48.0613	2.4013		45.6583					0.00	45.66		45.66	
Parting	8.05-21.54							0.0000										0.00	0.00			
III L	0.10-3.25	42.78-421.12	33.043					0.0000										0.00	0.00			In this proposed Mining Plan Seams from X-LA upto IV-BOT has been considered for open cast mining due to lack of dumping space. Seam III L to Seam II L will be considered for UG mining after exhaustion of OC mine. Seam I is not workable.

Parting 24.5 7- 44.5 5						0.00 00												0.00	0.00	
III	0.66- 5.97	80.1 1- 466. 90	80.0 45			0.00 00												0.00	0.00	In this proposed Mining Plan Seams from X-LA upto IV-BOT has been considered for open cast mining due to lack of dumping space. Seam III L to Seam II L will be considered for UG mining after exhaustion of OC mine. Seam I is not workable.
Parting 31.1 0- 55.9 9						0.00 00												0.00	0.00	

II L3	0.50- 3.09	115. 66- 520. 84	17.9 58					0.00 00											0.00	0.00			In this pro- posed Minin- g Plan Sea- ms from X-LA upto IV- BOT has been consi- dere- d for open cast minin- g due to lack of dum- ping spac- e Sea- m III L to Sea- m II L will be consi- dere- d for UG minin- g after exha- ustion of OC mine. Sea- m I is not work- able
Parting	13.3 9- 40.9 0							0.00 00											0.00	0.00			



II L2	0.07- 2.66	129- 88- 549- 50	6.41 4					0.00 00								0.00	0.00					In this prop osed Minin g Plan Sea ms from X-LA upto IV- BOT has been consi dere d for open cast minin g due to lack of dum ping spac e Sea m III L to Sea m II L will be consi dere d for UG minin g after exha ustio n of OC mine. Sea m I is not work able
Parti ng	5.00- 60.3 9							0.00 00								0.00	0.00					



II	0.13- 5.92	193- 41- 591- 16	42.7 810					0.00 00								0.00	0.00			In this proposed Mining Plan Seams from X-LA upto IV-BOT has been considered for open cast mining due to lack of dumping space. Seam III L to Seam II L will be considered for UG mining after exhaustion of OC mine. Seam I is not workable.
Parting	0.37- 3.89							0.00 00								0.00	0.00			

II.L	0 05- 2-45	241 50- 592 44	4 39 30						0.00 00								0.00	0.00			In this proposed Minimum of Plan Seams from X-LA upto IV-BOT has been considered for open cast mining due to lack of dumping space. Seam III L to Seam II L will be considered for UG mining after exhaustion of OC mine. Seam I is not workable.
Parting	35.0 0								0.00 00								0.00	0.00			

1	0.22-0.55	326.35-481.72	0.00					0.0000							0.00	0.00			In this proposed Mining Plan Seams from X-LA upto IV-BOT has been considered for open cast mining due to lack of dumping space. Seam III to Seam II L will be considered for UG mining after exhaustion of OC mine. Seam I is not workable.
Total		1267.1450	205.8615	93.2635	109.6126		408.7378	664.7999	33.2383	631.5597			3.4100		628.1497		628.1497		

S.No	Parameters	Details
2.2.15	Methodology of reserves estimation (also mention if any software package has been used).	

Basic assumptions and considerations for reserve estimations are listed below. Minex Package has been utilized for resource estimation

- i. The isochores: isograde and the floor contours, Iso-OB, Iso depth lines have been generated by Minex Software.
  - ii. The open cast reserves have been estimated on the basis of 1-100 thickness for the seams from seam XLA to IV Bottom, where all the carbonaceous bands and obvious bands individually or collectively upto 1m. thickness have been included in the seam & >1m bands have been excluded.
  - iii. The reserves have been estimated on 1-30 thickness for the seams from III L to II L as underground reserve.
  - iv) Reserves are not estimated for BCS, & IP seam thicknesses.
- v) The opencast reserves are estimated for 1 m and above seam thickness & at 1 m thickness interval. For underground reserves estimation minimum workable thickness has been considered as 0.50m, 0.90, 1.2, 1.50 m thickness and onward at 0.50 m thickness interval. The highly disturbed zone between fault F8, F9, F4, F7 and F5 area, the reserve have been estimated in indicated category for all the seams.
- vi) Iso-overburden & Iso-quarry lines are generated through model upto the floor of seam-IV Bottom. The Iso-overburden lines are compared with combined coal thickness to generated C: OB lines, sub sector wise.
- vii) A 60 m barrier zone is left for Kelo River and its tributary as nala.
- viii) All volumes of coal are estimated by Minex Software Model and reserves are estimated as:  
 Gross Reserves = Area X Thickness X Sp. Gravity of Coal
- ix) A 10% deduction has been made from the gross proved reserves to arrive at the net-in-situ proved reserves available in the block for open cast potential and underground area where as 100% gross reserves are considered for indicated category.

2.2.16	Average GCV 'KCal/kg'	
4214 Kcal/kg		
2.2.17	Gross Geological Reserve of the block 'Mte'	1407.94
2.2.18	Net Geological Reserve of the block 'Mte'	1267.1450
2.2.19	Minable Reserve of the block 'Mte'	664.7999
2.2.20	Blocked Reserve 'Mte'	408.7378
2.2.21	Corresponding extractable reserve of the block 'Mte'	631.5597
2.2.22	Percentage of Extraction	49.841
2.2.23	Reserve already depleted (Base date of Mining Plan)	3.41
2.2.24	Balance Reserve (as on Base Date)	628.1497

### Chapter-3: Mining

#### 3.1 Mining Method

S No	Parameters	Details
3.1.1	Existing method of mining if the mine is under operation	OPENCAST MINING
3.1.2	Proposed method of mining with justification on suitability of method of mining	

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## PROPOSED METHOD OF MINING

Considering the geo-mining characteristics of the block, dumping space constraints and for conservation of resource, it is proposed to extract the coal reserves upto Seam IV BOT using open cast mining Method because of following reasons –

- i. Occurrence of multiple seam with a significant number having low thickness between 0.5m-1.5m. Also, some seams are thick and are above 5m in thickness. Coal loss in such seam conditions can be minimized by opencast mining method.
- ii. The existence of very low cover for entry to bottom-most seam considered (Seam-IV BOT) in the eastern part of the block makes opencast mining an obvious choice.

The deposit has therefore been proposed for mining by opencast method up to the Seam IV BOT Floor due to constraint of space for dumping. Seam below IV BOT shall be considered for UG mining after exhaustion of OC mine.

## CHOICE OF TECHNOLOGY

The operational factors include-

- Multi-Seam operation involving 19 seams horizons-
- Effective seam thickness varying from 1.00 to 9.00 m with majority of seams having less effective thickness varying from 1.00 to 2.50m.
- Mild seam gradient.
- OB with varying parting thickness

Based on the above factors surface miner has been considered for extraction of coal as surface miner eliminates blasting in coal.

As removal of overburden with varying parting thickness requires flexible operation, shovel-dumper combination with conventional system of mining i.e. inclined slicing has been considered for removal of overburden.

For a rated capacity of 25.0 Mtpy, it is proposed to deploy 10-12 cum Hydraulic Shovel/backhoe and 20-22 Cum Hydraulic shovel/backhoe with 100T and 200T Rear Dumper respectively for OB. For Coal, Surface Miner with Front End Loader and 60T Dumper shall be deployed.

## PIT FORMULAION STRATEGY:

The mine boundary for the pit has been delineated taking into consideration block boundary, surface features, strip ratio and external dump space required for continuity of mining. Considering the above, the pit is formulated with maximum possible external OB dump on the dip side within the block to be re-handled later and internal dumping in the decoaled area. Pit optimization has been done considering constraint on space availability for dumping of waste.

The pit boundary has been fixed leaving safety barrier, conveyor corridor along the eastern, southern and western boundary. Also, the infrastructural facilities (MGR, Silos, workshop etc) is proposed to be located in the south-west corner of the block.

The proposed Pit has been formulated considering Seam IV as base seam. Seam IV has been taken as the base seam for the pit since going upto Seam III which is only 4-4.5m thick and is 50-60m below seam IV increases the OB handling to such an extent that dumping space availability becomes a constraint and mine will have to end abruptly mining only ~277 Mt of Coal. So, Opencast mining for the Talapaki coal block has been proposed upto Seam IV as suggested above to maximize the recovery of coal.

Considering the above quarry surface within the block has been delineated as follow:

North	East	South	West
50m from Block boundary, foothill of the Tolge Hill in NVW and leaving area for UG infrastructure in north near BH MNRT-92.	60m from edge of Kelo river and 50m from Block boundary	50m from block boundary	50m from Block boundary and leaving area for infrastructure in south-west

## RATED CAPACITY:

Revised Mining Plan for Talapaki Coal Block has been prepared for a rated/peak capacity of 25.0 Mtpy of Coal from Opencast mine. This output is considered based on thickness of multiple coal seams (19 No. of Coal Horizons for OCP) and strike length of ~5 Km)

## BASIC PROJECT AND MINE PARAMETERS:

The basic project parameters is given below:

Sl. No.	Parameters	Unit	Value
1	Maximum depth	m	340
2	Usual strike length: along the Mine Floor along the Mine Surface	m m	4800 5300
4	Usual dip rise length: on the Mine Floor on the Mine Surface	m m	2500 3200
6	Area: On the Mine Floor On the Mine	ha ha	1301.10 1839.85

**SEQUENCE OF MINING:**

The block has NW-SE strike of around 5 km. Opencast mining for the Talaipalli coal block has been proposed upto Seam IV as suggested above to maximize the recovery of coal and effective dump management. It has been proposed to mine maximum area in the block with due consideration to space required within the block for external dumping and infrastructures.

To ensure availability of adequate quantity of coal and early reaching of target capacity, a two-entry scenario has been envisaged: one on the north eastern side and the other on the north-western side. Seam IV will be accessed from both the side which will form the base of the quarry. Then working front of both the quarry will advance towards south and towards each other eventually merging into a single quarry with full strike length after about 9-10 years.

In the initial years, simultaneous working of mechanized opencast mine and the projected belowground mine may pose operational problems due to massive production from the opencast unit. As such, it is considered prudent to start underground mine work after exhaustion of opencast workings.

OB will be transported through flank roads to Internal OB dumps and temporary external OB dumps in dip side. Coal is proposed to be transported through ramps and flank roads. Coal from both pit in initial years and also after merger of the pit will be transported to mobile coal handling arrangement at the surface in both eastern and western side and thereafter to Coal dispatch center by surface conveyors.

The mining operation in the block is continuing in the southern part of the block since October 2019 through outsourcing means upto seam VIII. This south pit is projected to extract 2.81 Mt of coal by the end of FY 2022-23. This pit will extend for another 3 years after FY 2022-23. The projected coal production and OB removal from this south pit and its extension is given below:

Year	Calendar Year	Existing South Pit and its extension	
		Coal (Mte)	OB (Mcum)
Upto Base Yr FY 2022-23	Upto Base Yr FY 2022-23	2.81	16.01
1	2023-24	1.50	11.10
2	2024-25	2.03	11.77
3	2025-26	1.50	5.91
<b>Total</b>		<b>7.82</b>	<b>44.80</b>

Moreover, the work for mining operation through outsourcing means in the north-western side has already been awarded for 5 years upto Seam VIII. The pit will be opened in the north west side as per the proposed mine entry and the mine will produce about 14.69 Mt of coal with 46.63 Mcum of OB removal in the 5 years out of which 0.60 Mt of coal is projected to be extracted in 2022-23. The OB will be dumped south of the proposed western pit near the pit and will have to be re-handled to proposed temporary external dump in the southern part of the block after 5 years.

The proposed coal production and OB removal from the eastern and western pit for first 5 years of operation is given below:

Year	Calendar Year	West Pit		East Pit		Total Coal (Mt)	Total OB (Mcum)
		Coal (Mt)	OB (Mcum)	Coal (Mt)	OB (Mcum)		
Upto Base Yr FY 2022-23		0.60	4.43			0.60	4.43
1	2023-24	1.02	8.29	0.98	3.71	2.00	10.00
2	2024-25	2.03	9.50	1.97	9.50	4.00	18.00
3	2025-26	4.01	10.94	1.99	11.08	6.00	22.00
4	2026-27	4.00	11.02	5.00	23.98	9.00	35.00
5	2027-28	3.03	5.44	11.37	50.13	14.40	55.57
<b>Total</b>		<b>14.69</b>	<b>46.63</b>	<b>21.31</b>	<b>98.37</b>	<b>36.00</b>	<b>145.00</b>

The average lead for OB dumping works out to be around 3.5-4 km. However, in initial 10 years, the lead for external dumps would be around 5-6 Km and lead for internal dumps will be around 3.5-4 km.

The average lead for coal would be around 3.5-4 km. However in initial years, the lead would be around 2.5-3 km.

The lead estimation is tentative and may be estimated each year in the yearly operation plan.

**MINING SYSTEM PARAMETERS :**

Elements of mining system have been determined in accordance with the parameters of excavation, transport equipment and parameters of drilling and blasting. However, the space constraint for dumping the OB has been the most important factor taken into consideration for designing the mining system, since the mining system plays an important role for determining the void created for internal dump.

**Top OB and thick partings:**

Bench height : 10-15 m with 20cum electric-hydraulic shovel/backhoe

Bench width : Working-40-45m, Non-working- 25m

Bench slope : 70 deg

**Parting between seams:**

Bench height : as per inter-burden thickness with 10-12 cum electric-hydraulic shovel/ backhoe

Bench width : Working- 40-45m, Non-working- 25m

Bench slope : 70 deg

**Coal:**

Bench height : Seam height with Surface Miner

Bench width : 40-45m

slope : 70 deg

**Dump:**  
 Bench height : 30m  
 Bench width : 30m  
 Bench slope : 37 deg

**WASTE DISPOSAL STRATEGY :**

It is envisaged that initially for 3 years, all the OB generated will be dumped externally from both the eastern and western pit. This temporary external dump is proposed to be located in the southern side of the block. Once sufficient void is created after 3 years of operation, internal dumping will start in eastern pit while in the Western pit, internal dumping can be started only from 8th year of operation once the base seam is reached.

The external dumping will continue till 13th year and thereafter from 14th year, this external dump (the OB part) will have to be re-handled back into the quarry void for smooth mine advancement. However, re-handling of 3.73 Mcum/year of Top Soil for spreading over internal dump will start from 10th year only.

Out of the total OB of 2734.58 Mcum, it is estimated that 533.53 Mcum (~19.5%) will be required to be temporarily dumped externally. This 533.53 Mcum will be re-handled back into the quarry after sufficient space is available for accommodation of waste from 14th year and will be re-handled upto 25th year. The lead for re-handling would be around 3.5 km. The Strip ratio for the project including re-handling will be 5.17 cum/t.

The height of the temporary external dump is proposed to be around 120m above ground level upto an RL of +420m and final height of the internal dump is proposed to be 120m above ground level upto an RL of +420m. This will ensure optimization of the life of the mine to extract maximum mineable coal. Slope stability study will be imperative to determine final dump height and final dump slope as per regulation no. 106, CMR 2017, and DGMS Circular no. 3, 2020. Slope stability analysis for proposed dumps in the mining plan has been carried out and the factor of safety for dump height upto 120m from OGL was modelled using the cross sections and the material properties collected from the field. The analysis indicates a factor of safety in the range of 1.25-1.50 for various cases.

Overall slope of dump works out to be 23-24.

The waste disposal schedule is given below:

Year	Temporary External Dump (Mcum)		Internal Dump (Mcum)		Embankment	Total OB (Mcum)		Rehandling to Internal Dump (Mcum)	
	Progressive	Cumulative	Progressive	Cumulative		Progressive	Cumulative	Progressive	Cumulative
Upto Base Yr FY 2022-23	20.44	20.44				20.44	20.44		
1	20.88	41.32	0.00	0.00	0.22	21.10	41.55		
2	29.77	71.10	0.00	0.00		29.77	71.52		
3	27.91	99.01	0.00	0.00		27.91	99.23		
4	22.23	121.24	12.77	12.77		35.00	134.23		
5	26.77	147.01	29.80	42.57		55.57	139.80		
6	58.80	205.81	41.20	83.77		100.00	209.80		
7	63.58	269.39	46.92	130.69		110.50	400.30		
8	63.58	332.97	46.92	177.62		110.50	510.80		
9	63.58	396.54	46.92	224.54		110.50	621.30		
10	63.58	460.12	46.92	271.46		110.50	731.80	3.73	3.73
11	24.46	484.61	66.01	337.47		110.50	842.30	3.73	7.47
12	24.46	509.07	77.54	435.01		102.00	944.30	3.73	11.20
13	24.46	533.53	77.54	512.55		102.00	1046.30	3.73	14.93
14			102.00	614.55		102.00	1148.30	16.43	31.36
15			102.00	716.55		102.00	1250.30	37.18	68.54
16			102.00	818.55		102.00	1352.30	42.10	110.64
17			102.00	920.55		102.00	1454.30	47.02	157.66
18			102.00	1022.55		102.00	1556.30	47.02	204.67
19			102.00	1124.55		102.00	1658.30	47.02	251.69
20			102.00	1226.55		102.00	1760.30	47.02	298.70
21			100.00	1328.55		100.00	1860.30	47.02	345.72
22			100.00	1428.55		100.00	1960.30	47.02	392.73
23			100.00	1528.55		100.00	2060.30	47.02	439.75
24			100.00	1628.55		100.00	2160.30	47.02	486.76
25			100.00	1728.55		100.00	2260.30	46.77	533.53
26			100.00	1828.55		100.00	2360.30		
27			100.00	1928.55		100.00	2460.30		
28			100.00	2028.55		100.00	2560.30		
29			100.00	2128.55		100.00	2660.30		
30			50.00	2178.55		50.00	2710.30		
31			24.28	2200.83		24.28	2734.58		

Total	533.53	2260.83	0.22	2754.58	533.53
3.1.3	Coal production capacity proposed MTPA	25.0000			
3.1.4	Justification for optimization Coal production capacity				
Considering the geo-mining condition, cumulative thickness of coal seams (~40m) and strike length of 5 Km, the production capacity of 25 Mtpy is justified					
3.1.5	Calendar year from which the production will start	2023-24			
3.1.6	Year of Achieving rated production	2037-38			

### 3.1.7 Tentative Coal production Plan MT

Year		Coal Production Schedule			OB: MM3	SR
Year of Operation	Calendar Year	UG	OC	Total		
1	2023-24	0.00	3.50	3.5000	21.10	6.0286
2	2024-25	0.00	6.03	6.0300	29.77	4.9370
3	2025-26	0.00	7.58	7.5800	27.91	3.6821
4	2026-27	0.00	9.00	9.0000	35.00	3.8889
5	2027-28	0.00	14.40	14.4000	55.57	3.8590
6	2028-29	0.00	18.00	18.0000	100.00	5.5556
7	2029-30	0.00	22.00	22.0000	110.50	5.0227
8	2030-31	0.00	22.00	22.0000	110.50	5.0227
9	2031-32	0.00	22.00	22.0000	110.50	5.0227
10	2032-33	0.00	22.00	22.0000	110.50	5.0227
11	2033-34	0.00	22.00	22.0000	110.50	5.0227
12	2034-35	0.00	22.00	22.0000	102.00	4.6364
13	2035-36	0.00	22.00	22.0000	102.00	4.6364
14	2036-37	0.00	22.00	22.0000	102.00	4.6364
15	2037-38	0.00	25.00	25.0000	102.00	4.0800
16	2038-39	0.00	25.00	25.0000	102.00	4.0800
17	2039-40	0.00	25.00	25.0000	102.00	4.0800
18	2040-41	0.00	25.00	25.0000	102.00	4.0800
19	2041-42	0.00	25.00	25.0000	102.00	4.0800
20	2042-43	0.00	25.00	25.0000	102.00	4.0800
21	2043-44	0.00	25.00	25.0000	100.00	4.0000
22	2044-45	0.00	25.00	25.0000	100.00	4.0000
23	2045-46	0.00	25.00	25.0000	100.00	4.0000
24	2046-47	0.00	25.00	25.0000	100.00	4.0000
25	2047-48	0.00	25.00	25.0000	100.00	4.0000
26	2048-49	0.00	25.00	25.0000	100.00	4.0000
27	2049-50	0.00	25.00	25.0000	100.00	4.0000
28	2050-51	0.00	25.00	25.0000	100.00	4.0000
29	2051-52	0.00	25.00	25.0000	100.00	4.0000
30	2052-53	0.00	12.00	12.0000	50.00	4.1667
31	2053-54	0.00	6.6397	6.6397	24.28	3.6568

Note: Calendar Plan/Production Plan for the entire life of the mine.

3.1.8	Rated Capacity Mtpa	By OC : 25.00 By UG : 0.00 Overall : 25.0000
3.1.9	Life of the mine: Years	By OC : 31 By UG : 0 Overall : 31
3.1.10	Whether the proposed external OB dump site is coal/ lignite bearing. If so, whether coal/lignite below waste disposal area is extractable	As the block area is surrounded by coal bearing blocks on all sides, there is no availability of any land for external dumping outside the block area. Hence the proposed external OB dump is planned on the dip side within the block on coal bearing area. However, the external dump is temporary and will be re-handled back to in-pit dump from 14th year and coal will be extracted.

3.1.11	Whether the proposed external OB dump site is coal/ lignite bearing. If so, whether coal/lignite below waste disposal area is extractable	The proposed external OB dump is temporary and will be re-handled back and coal will be extracted. Infrastructure is planned on the south-west corner of the block and coal below the infrastructure will be mined out by UG method after exhaustion of OC mine.				
3.1.12	Results of any investigation carried out for scientific mining conservation of minerals and protection of environment, future proposals	The Hydrogeological study report is and Slope stability report is enclosed as Annexure-VIID and Annexure-VIIIG respectively.				
3.1.13	Type of Equipment/ HEMM proposed	S.No	Type of Equipment	Capacity	Unit	Population
		1	Hyd Backhoe or Shovel	20	Cubic Meter	15
		2	Hyd Backhoe or Shovel	10	Cubic Meter	15
		3	Surface Miner	3	SM	9
		4	FE Loader	6	Cubic Meter	14
		5	Rear Dumper	200	ton	144
		6	Rear Dumper	100	ton	177
		7	Rear Dumper Coal Body	60	ton	60
		8	Drill	250	mm	23
		9	Dozer with Ripper	850	Horsepower (HP)	4
		10	Crawler Dozer	410	Horsepower (HP)	28
		11	Wheel Dozer	450	Horsepower (HP)	10
		12	Diesel hydraulic backhoe	2	Cubic Meter	4
		13	Water Sprinkler	70	KL	10
		14	Mobile Dust supression cannon	10	no	10
		15	Motor Grader	280	Horsepower (HP)	8
		16	Fire Tender	2	no	2
		17	Vibratory Compactor	25	ton	4
		18	Diesel Bowser	9	KL	4
		19	Crane	10	ton	4
		20	Crane	25	ton	4
		21	Crane	50	ton	1
		22	Tyre Handler	4	no	4
		23	Fork Lift	4	no	4
		24	Maintenance Van	2	no	2
		25	Farm Tractor	4	no	4
		26	Tipping Truck	25	ton	4
3.1.14	Upload Require Document	OC : NA UG : NA				

## Chapter-4: Safety Management

### 4.1 Safety Management

S.No	Parameters	Details
4.1.1	Major Risks and uncertainties to the project viz. Proximity to river, adjacent working, geo-mining disturbances, slope stability and remedial measures suggested. It should also include proposed overall slope of the quarry and OB dump, dump height, strata control, fire and spontaneous heating, gas monitoring, disaster management, danger from inrush of water etc.	

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Areas of concern	Remedial measures
Safety Management Plan	For complying with Reg. 104 of CMR 2017, exercise shall be done to identify, assess and record the hazards of health and safety of the persons employed in the mine after consulting the Safety Committee and Internal Safety Organisation (ISO). Based on the above, Safety Management Plan (SMP) shall be formulated for overall management for developing and implementing the safety policy of the company. SMP shall contain, <i>inter alia</i> , plan to implement the policy, principal hazard management, standard operating procedure (SOP), monitor, evaluate and review the plan
Failure of OB/Coal Benches	Bench height of maximum 15.00 meters matching with the maximum reach of the digging and loading equipment has been proposed. This reduces chances of accidents due to fall of loose materials. In coal surface miner will be used for extraction. This a safe operational environment avoiding blasting with very safe and stable benches. All DGMS guidelines and regulations shall be strictly adhered to.
Failure of Dump slopes	The internal and external Dumps have been benched at 30 meters height. Overall slope has been proposed to 23-24degrees leaving 30 meters wide berm between two successive benches. This will reduce the chances of OB dump slope failure and subsequent damages. The dumps once sterile should be stabilized by bio reclamation. The overall dump height shall be +120 m from the original ground level. A slope stability study as per DGMS guidelines has already been carried out and attached as Annexure. All DGMS guidelines and regulations shall be strictly adhered to.
Flooding of the mine	The pumping capacity has been proposed based on single day maximum rainfall data of past ten years and the mine water discharge. For surface inundation an embankment of around 2.5 km length and 7.0 meters height has been proposed all along the Kelo River and garland drains along the quarry surface boundary. All required precaution against inundation would be taken care of and Standing order for withdrawal of persons in case of apprehended danger shall be framed and implemented.
Blasting in OB benches	Blasting shall be carried out under the direct supervision of statutory personnel and as per the permissions and regulations of DGMS.
Fire in coal benches/stockyard	Spontaneous heating of coal will be controlled by continuous and regular movement of coal benches. In case any bench is idle it should be properly dressed and properly cleaned from coal dust and fines at the time of stoppage.
Accidents due to lack of proper space of movement in Mine.	Workers around shovel, dozer, dumper, drill and cranes must be warned to keep out of blind area so that operator may be able to see them clearly. Audio visual alarms are used for pre warning of persons around this machine. To overcome shortage of space if any, strict discipline will have to be inculcated among workmen and supervisors. At any given point of time, multiple benches will be worked together which will distribute the major producing HEMM at safer distances.
Disaster Management	The Mine will prepare a DMP (Disaster Management Plan) as per guideline. This plan is to be vetted by DGMS. This is to be prepared and submitted for approval by DGMS just after opening the Mine. It is to be stated that in case of any disaster DGMS is the first organization which is to be first informed. The emergency plan for Disaster management is executed under the guidance of best grade of the industry and the senior officers of the regulator, the Directorate General of Mines Safety, GOI
4.1.2	A Commitment from the Company Board that entire mining operation will be carried out as per the Statutory provision given under Mines Act 1952, Coal Mine Regulation 2017 and wherever specific permission will be required the company will approach the concerned authorities. Attached as Annexure-III

## Chapter-5: Infrastructure Facilities proposed and their Location

### 5. Infrastructure Facilities

S.No	Parameters	Details		
5.1	Mine infrastructure required	S.No	Infrastructure to be retain to be public use	Infrastructure to be dismantle/reclaimed
		1	Substation required for public use	Coal Handling Plant
		2	Overhead Electrical Transmission Lines	All buildings and their sewer system, other than those required for public use
		3	Water tanks and water pipelines	All structural sheds including workshop, store
		4	Roads constructed to serve the mine facilities	All surface haul roads and other roads except the roads to be used for society
		5	Any buildings required for public use	All power lines, telephone lines, poles, cables and conductors, including Sub-Station transformers, etc. not required for public use
5.2	Power supply & illumination	<p>Talaipalli coal block, having substantial coal reserve, is located in Raigarh district, Chhattisgarh. This block has been allotted to NTPC for necessary development and mining operations consisting of coal mining operation covering opencast mines, coal handling and dispatch arrangement as per requirement. Coal mining operation will require deployment of a number of large coal mining equipment and other auxiliary installations like dewatering pumps, coal handling plant, workshop, residential complex etc.</p> <p>It is estimated that total power demand for Talaipalli OCP, for a planned production capacity of 25 MTY mining, will be around 28MVA. Considering the load of HEMM, CHP, Pumping, and other common loads envisaged for the project, two nos. of 2X16 MVA 33/6.6kV substation has been envisaged for fulfilling the power requirement of the project.</p> <p>To cater this load, it is envisaged to draw four nos of 33kV feeder from existing 132/33kV NTPC substation at Raikera Village within the block. It is envisaged that each proposed 33/6.6 kV substation to be installed for mining operation will have provision for 2 nos. incoming 33 kV feeders and required nos. of outgoing 6.6 kV feeders as per requirement.</p> <p>The transformers for the substation have been selected considering maximum demand of the project at overall power factor of 0.98, and 100 % stand-by transformation capacity. The transformers of the substation shall be provided with NGR to limit the neutral current as required by statutory provisions. 33 kV VCBs shall be used for primary control of the 33/6.6 kV transformers and incoming 33 kV feeders. Necessary CTs and PTs shall also be provided. Outdoor type 6.6 kV VCBs will be used for secondary control of transformers, control of 6.6 kV outgoing feeders, bus-coupler and capacitor bank control. Necessary protections against over current, short circuit and earth fault for all incoming and outgoing circuit breakers and transformers has also been envisaged. To maintain power factor at 0.98, capacitor bank of suitable capacity with automatic power factor correction relay shall be provided. Necessary provision of automatic fire protection of transformers along with portable fire extinguishers has been envisaged for fire protection in the substations. Provision of fire hydrant system for firefighting of outdoor yard. These substations shall be installed near the quarry at suitable location for supply of power to different equipment of the project.</p> <p>Illumination of the mine (external illumination) shall be done with LED luminaries, fixed on pole, fixed towers and mobile towers. Indoor illumination also will be done with LED fixtures.</p>		
5.3	Drainage & Pumping : Assessment of Volume of Water for Pumping, Pumping Capacity and Pump Selection			



The sources of water accumulation inside the quarry area are from following sources:

- Rain water falling directly within the excavated area
  - Inflow of rain water from back filled area
  - Inflow of rain water from area beyond excavation
  - Seepage of water from Strata/ Ground water
- The pumping system has been designed to dewater the in-flow of water due to precipitation falling within the active pit limit during the monsoon season to enable the mining activity to continue round the year.
  - The planning of de-watering of the mine has been done in such a way that as far as possible the working faces and haul roads remain dry. The layout of the quarry provides suitable gradient along the quarry floors and the benches to facilitate self-drainage of water to the lowest level of the quarry.
  - The rain water intake to the opencast mine is non-uniform during the year. The maximum rain water intake will be during the period of about four months i.e. June to September in a year. During dry season, say October to May, seepage from strata is expected to be moderate and the same can be dealt by running a few number of pumps provided for monsoon pumping. During this period repair and overhauling of the pumps will be done by rotation.
  - Pumping capacity has been designed so that the volume of water accumulated in the mine on the day of maximum rainfall can be pumped out within 5 days with 20 hours of working. The assessment has been made for maximum daily precipitation (rainfall) from collected from nearby area which comes to 160 mm and life of the mines of 31 years.

**Pumping capacity and pump selection:**

Volume of rain water entering to the mine and accumulating in the quarry (make of water) has been assessed on the basis of the following formula:

$$Q = \{(A1-A3) \times h \times n1\} + \{A2 \times h \times n2\} + \{A3 \times h \times n3\} \text{ m}^3/\text{day}$$

- Where: A1 = Mined out area in m<sup>2</sup>  
 A2 = Area beyond excavation in m<sup>2</sup>  
 A3 = Internal Dump area in m<sup>2</sup>  
 h = Maximum precipitation/ rainfall in a day in m  
 The run off co-efficient (n) has been considered as below:

- For mined out area (n1) : 0.60  
 For area beyond excavation (n2): 0.10  
 For internal dumped area (n3) : 0.10

Considering 10% seepage from strata the total water accumulation will be:  
 Q1 = 1.1 Q.

- Total make of water comes out to be 4,82,967 cum. (Final Year)

Above volume of water will be dewatered in 5 days at the rate of 20 hours pumping per day.

Pumping capacity per hour thus worked out: 4830 Cum/hr

**Pump selection:**

	Items	QTY.
1	Main Pump : 810 m <sup>3</sup> /hr (225 lps), 100 m head, 400 kW	2 Nos. (1 working + 1 standby)
2	Main Pump : 810 m <sup>3</sup> /hr (225 lps), 250m head, 800 kW	5 Nos. (4 working + 1 standby)
3	Main Pump : 810 m <sup>3</sup> /hr (225 lps), 350m head, 1200 kW	2 Nos. (2 working)
4	Pump : 137 m <sup>3</sup> /hr. (38 lps), 60 m head, 37 kW	06 Nos.
5	Face Pump, 54 m <sup>3</sup> /hr. (15 lps), 60m head, 22.5 kW	10 Nos.
4	Electrical Slurry pump, 101 m <sup>3</sup> /hr. (28 lps), 28m head, 37 kW	08 Nos.
	Diesel Pumps, 288 m <sup>3</sup> /hr (80 lps), 170m head	03 Nos.
	Pipe fittings, bends, armoured suction delivery hoses etc.	LS

5.4	Coal Handling Arrangement. Brief detail of the CHP/ Mode of Dispatch. Coal quality and Coal staking and handling arrangement	<p>CHP/Mode of DespatchA full-fledged coal handling plant of 25.0 Mtpa capacity at surface for Taraipalli OCP has been proposed for handling of entire coal. As per requirement suggested by NTPC, 2 streams of conveyor in each side of mine has been provided considering 1 stream as standby/It has been planned to produce coal by blast free technique i.e. through surface miners of (-) 100 mm size. As such further crushing of coal has not been envisaged. For designing CHP, 330 working days in a year and three shifts in a day having 6 effective hours in each shift, suitable nominal system capacity has been envisaged considering other parameters for entire coal handling plant. However, wagon loading will be round the clock. Possibility of In-pit crushing conveying system was also explored, but due to space constraint for internal and external dumping and other mining parameters, in-pit crushing conveying system were not found feasible. Suitable receiving arrangement through Reclaim feeder/ Chain feeder/Truck receiving station has been proposed for receiving of coal in the mine pit. It may be finalised at later stage according to mine condition and space availability in the mine quarry. These receiving arrangement for coal have been proposed inside the mine quarry to minimize the truck/dumper movements. The receiving pit/ station may be shifted as per the mine advancement and requirement during mine operation. Two streams of identical conveyors of suitable capacity and required belt width has been envisaged for collecting coal from truck receiving hopper for onward conveying. Coal from bunker has been proposed to feed 2 nos. of suitable capacity silo with RLS System. Storage arrangement One number of over ground RDC Bunkers, is proposed for storing coal through tripper conveyor of required belt width. Handling arrangement Coal from bunker will be reclaimed through suitable capacity plough feeders and fed to proposed silo through two nos of belt conveyors. The coal will be loaded in to railway wagons through Rapid load out system having pre-weigh hopper envisaged with loading Silo. The loading conveyors will discharge coal into proposed 2 nos. of Silos with RLS system. There is provision of feeding coal from reclaim conveyor to either Silo 1 or Silo 2. Silo will be located on rail lines. The tentative location of the silo has been provided by NTPC in proposed railway siding for loading of coal into railway wagons. Each silo shall facility of wagon loading with the help of 2 nos. RLS with pre-weigh hoppers. However, only one set of RLS with Pre-weigh hopper of each silo will be operational at a time. Facility of OHE system below the silo is also been considered to facilitate loading the coal through electric loco. The CHP has been provided with all the necessary facilities like Firefighting system, Dust suppression system, communication systems, belt weighers, magnetic separators, sampling systems, safety switches, necessary control system etc. The proposed Silos locations has been provided by NTPC, on the railway siding under-construction by NTPC. Necessary sound and dust proof arrangement for conveyors passing through administration building shall be envisaged.</p>
5.5	Coal washing and the proposed handling/ disposal of rejects	Not Envisaged

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**Chapter-6: Land Requirement**

**6.1 Land requirement**

S No	Parameters	Details		
6.1.1	Total Land requirement for the mine in "Ha". Indicative source of data.			
Total Land Requirement- 2119.40 Ha. Source of data is Cadastral Plan.				
Break up of pre-mining land type (indicative) and source of data.	S.No	Land Type	Existing/pre-Mining Use	Area
	1	Forest Land	Jungle-Jhari	360.81
	2	Private Land	Agriculture	1197.94
	3	Private Land	Water Bodies	2.96
	4	Government Land	Township	43.12
	5	Government Land	Grazing	59.86
	6	Government Land	Barren	47.13
	7	Government Land	Water Bodies	21.96
	8	Government Land	Road & others	36.33
9	Forest Land	Protected	349.29	

**6.1.2 During mining Land use details:**

Type	Land use (Proposed)	Land Use (End of Life)	Land Use (Post Closure)						
			Agricultural land	Plantation	Water Body	Public/Comp any Use	Forest Land (Returned)	Undisturbed	Total
Excavation Area	1839.85								
Backfilled Area		1579.90		1277.02	302.88				1579.9000
Excavated Void		259.95			259.95				259.9500
Without Plantation									
Top Soil Dump									
External Dump									
Safety Zone	29.10	29.10		29.10					29.1000
Haul Road between quarries									
Road diversion									
Diversion Or Below River Or Nala Or Canal									
Settling Pond									
Road And Infrastructure Area	189.60	189.60		189.60		20.00			189.6000
Rationalization Area									
Garland Drains	19.73	19.73		19.73					19.7300
Embankment									
Green Belt	17.16	17.16		17.16					17.1600
Water Reservoir Near Pit									
UG Entry									

Undisturbed OR Mining Right For UG	23.96	23.96						23.96	23.9600
Resettlement									
Pit Head Power Plant									
Water Harvesting									

S No	Parameters	Details
6.1.3	Surface features over the block area	Forest cover is found in the south eastern part of the block. Small land patches having forest cover are available in central part of the block. Remaining part of the area is mostly cultivated land. Cultivation and collection of forest products are the main occupation of the people of the area. The main subsidiary stream channel draining the block from north-west to south-east joins the Kelo River at the extreme south-eastern part of the area.
6.1.4	No. of villages/Houses to be shifted	6 Villages
6.1.5	Population to be affected by the project	2187 PAFs
6.1.6	Proposed Rehabilitation programme	As per approved RR Policy of Govt. of Chhattisgarh and NTPC.

## 6.2 DETAILS OF LEASE

S.No	Parameters	Details
6.2.1	Status of Lease	
Not Applicable for the land acquired under Coal Bearing Areas (Acquisition & Development) Act, 1957. Letter from Ministry of Coal to Govt. of Chhattisgarh is attached as Annexure- VIII.		
6.2.2	Existing Lease Area 'Ha'	2119.40
6.2.3	Period for which Mining Lease has been granted/is to be renewed/ is to be applied for.	Life of the Mine (31 years)
6.2.4	Date of expiry of earlier Mining Lease, if any.	Not Applicable
6.2.5	Whether the lease boundary/ required boundary is same as mentioned in the allotment order.	Yes
6.2.6	Lease Area (applied/ required) as per the Mining Plan under consideration (Ha)	2119.40
6.2.7	Whether the applied lease area falls within the allotted block.	Yes
6.2.8	Area (Ha) of lease which falls outside the delineated Block Boundary/Existing Mining Lease.	Nil
6.2.8	Area (Ha) of lease which falls outside the delineated Block Boundary/Existing Mining Lease.	Nil
6.2.9	Details of outside area:	Not Applicable
	Whether forms part of any other coal block.	NA.
	Whether it contains any coal/lignite reserves.	NA.
	Purpose for which it is required, e.g. roads/ OB dumps/ service buildings/ colony/ safety zone/ others (specify).	NA.
6.2.10	Whether some part(s) of the allotted block has not been applied for mining lease	Not Applicable
	Total area in Ha of such part(s).	Nil
	Total reserves in such part(s). (MT)	Nil
	Brief reasoning for leaving such part(s).	NA.

## Chapter-7: Environment Mangement

### 7. Environment Mangement

S.No	Parameters	Details
7.1	Commitment from the project proponent that the company will comply Environment and Forest Condition stipulated in the respective clearances	Attached as Annexure-III

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**Chapter-8: Progressive & Final Mine Closure Plan**

**8.1.1 Land Degradation and restoration Schedule**

Tentative Land Degradation and Technical Reclamation (Commulative Area Ha)									
Year/Stage		Land Degraded				Technically Reclaimed Area			
(Life of the mine plus post closure period)		Excav	Dump (Extn + Top Soil)	Infra/others	Total	Backfill	Dump (Extn + Top Soil)	Others	Total
Up to Base year	2023	53.86	49.00	109.48	53.8600				
Y-1	2023-24	93.65	224.93	255.59	574.1700				
Y-3	2025-26	223.19	339.88	255.59	818.6600			17.16	17.1600
Y-5	2027-28	356.51	441.74	255.59	1053.8400			17.16	17.1600
Y-10	2032-33	838.21	622.47	255.59	1716.2700	115.00		17.16	132.1500
Y-15	2037-38	1104.13	582.81	255.59	1942.5300	267.00		17.16	284.1600
Y-20	2042-43	1442.36	320.80	255.59	2018.7500	553.00		17.16	570.1600
Y-25	2047-48	1722.68		255.59	1978.2700	779.00		17.16	796.1600
Y-30	2052-53	1839.85		255.59	2095.4400	1044.00		17.16	1081.1600
Y-31	2053-54	1839.85		255.59	2095.4400	1100.00		17.16	1117.1600
<b>Post Closure</b>									
Y-34	2056-57	1839.85		255.59	2095.44	1579.90		515.54	2095.44

**8.1.2 Tentative Biological Reclamation (Cumulative in "Ha")**

Year/Stage		Biologically Reclaimed Area					Forest land (Return)	Un Disturbed/ To be left for Public/com Use	Total
(Life of the mine plus post closure period)		Agriculture	Plantation	Water Body	Public/ Company Use	Total			
Up to Base year	2023								
Y-1	2023-24						23.96	23.9600	
Y-3	2025-26						23.96	23.9600	
Y-5	2027-28						23.96	23.9600	
Y-10	2032-33		59.00			59.0000	23.96	82.9600	
Y-15	2037-38		220.00			220.0000	23.96	243.9600	
Y-20	2042-43		505.00			505.0000	23.96	528.9600	
Y-25	2047-48		727.00			727.0000	23.96	750.9600	
Y-30	2052-53		940.00			940.0000	23.96	963.9600	
Y-31	2053-54		985.00			985.0000	23.96	1008.9600	
<b>Post Closure</b>									
Y-34	2056-57		1512.61	562.83	20.00	2095.44	23.96	2119.40	

S No	Parameters	Details
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8.2	<b>Post Closure Water Quality management</b>  (Existing water bodies available in the lease hold area. Measures to be taken for protection of the same including control of erosion, sedimentation, siltation, water.	The proposed mining area is not dissecting any natural water stream. The storm water and ground water intersected during mining operations will be the source of water accumulation within the mining pit. Accumulated mine pit water during the active mining period will be pumped while post mining operation, there will be accumulated water in the left out voids. An area of about 562.83 ha of land will be converted to waterbody at the end of mine life. This area cannot be backfilled, however will technically reclaimed by converting into water body. In post closure phase, Routine Environmental Monitoring (REM) of the water accumulated shall be fortnightly sampled and analyzed to monitor development of acidity or toxicity in the water at least for 3 years. As post mine period, most of the broken areas will be backfilled and left out water bodies will be much less, development of toxic water is not anticipated. The pH of the accumulated water is thus expected to be within a narrow range near the neutral value. The accumulated water will be utilized for the local community for agriculture and other uses. Regular monitoring of the water quality will be carried out as per the CPCB norms. Once the mine is closed, outside water shall be prevented to enter into the mined out pit which in turn will reduce the TDS and other solvents. The pit water will be utilized for agricultural use, supply as drinking water after treatment and for pisciculture. As such the area falls under arid climatic horizon and this water body will add life to the area by supplying water for agriculture and drinking. Effluent Treatment Plant (ETP) and Sewerage Treatment Plant (STP) should be maintained atleast for 3-5 years. Regular monitoring of the water quality will be carried out as per the CPCB norms. Water quality analysis shall be carried out as per CPCB Water Quality Monitoring 2017 guideline.
8.3	<b>Post Closure Air Quality management.</b>	The post closure activities will be restricted to limited operation only in the following areas: 1. Dismantling of temporary infrastructures. 2. Dismantling of electrical infrastructures. 3. Regular maintenance works in the dumping ground. 4. Post plantation care. 5. Maintenance of the main haul road. 6. Cleaning of suture drains and garland drains. Most of the activities does not generate continuous dust generation, except the dismantling works which will be restricted to the limited zones compared to the whole project area. Water sprinkling will be continued before the vehicle movement. Routine Environmental Monitoring (REM) of the air quality shall be monitored as per latest CPCB guidelines atleast for 3-5 years. Occasionally dust may be generated from the uncovered areas of the dumps. Regular sprinkling arrangements will be done till the areas are stabilised. Quarterly Air quality Monitoring will be done as per NAAQ standard (CPCB) guideline 2009.

#### 8.4 Waste Management (Figures in MM3) (Tentative)

Year/Stage		OB Removal			External Dump		Internal Backfilling		Embankment	
(Life of the mine plus post closure period)		(Cumulative)			(Cumulative)		(Cumulative)		(Cumulative)	
		Top Soil	OB	Total	Top Soil	OB	Top Soil	OB	Top Soil	OB
Up to Base year	2023	1.72	18.72	20.44	1.72	18.72				
Y-1	2023-24	2.66	38.89	41.55	2.65	38.68			0.01	0.21
Y-3	2025-26	4.95	94.29	99.23	4.94	94.07			0.01	0.21
Y-5	2027-28	10.20	179.60	189.80	10.19	136.81		42.57	0.01	0.21
Y-10	2032-33	30.66	701.14	731.80	18.42	437.96	12.23	262.96	0.01	0.21
Y-15	2037-38	52.84	1197.46	1250.30		464.99	52.83	732.26	0.01	0.21
Y-20	2042-43	71.18	1689.12	1760.30		234.83	71.17	1454.09	0.01	0.21
Y-25	2047-48	85.32	2174.98	2260.30			85.31	2174.77	0.01	0.21
Y-30	2052-53	93.04	2617.26	2710.30			93.03	2617.05	0.01	0.21
Y-31	2053-54	93.13	2641.46	2734.58			93.12	2641.24	0.01	0.21
Post Closure										
Y-34	2056-57	93.13	2641.46	2734.58			93.12	2641.24	0.01	0.21

#### 8.5 Top Soil Management – (Including Action plan for Top Soil management) (Tentative)

Year/Stage		Top Soil Removal Plan	Top Soil Used			
(Life of the mine plus post closure period)			Spreading Over Embankment	Spreading Over Backfill area	Spreading Over External OB Dump area	Used in Green Belt area
Up to Base year	2023	1.72				
Y-1	2023-24	2.66	0.01			0.01
Y-3	2025-26	4.95	0.01			0.01
Y-5	2027-28	10.20	0.01			0.01
Y-10	2032-33	30.66	0.01	12.23		12.24
Y-15	2037-38	52.84	0.01	52.83		52.84
Y-20	2042-43	71.18	0.01	71.17		71.18
Y-25	2047-48	85.32	0.01	85.31		85.32
Y-30	2052-53	93.04	0.01	93.03		93.04
Y-31	2053-54	93.13	0.01	93.12		93.13
Post Closure						
Y-34	2056-57	93.13	0.01	93.12		93.13

S.No	Parameters	Details
8.6	Management of Coal Rejects	Since the project does not envisaged any washery, generation of rejects are not associated.
8.7	Restoration of Land used for Infrastructure	Survey for 3 monsoon seasons should be done then carry out compaction of the land before any infrastructure to be built over it. All infrastructures will be dismantled excluding the office and Vocational Training center which will be handed over to the state government.
8.8	Disposal of Mining Machinery	Mining machineries are to be deployed by Contracting agency. They will be taking out the machineries at the end of mine life and will utilize in their other projects. Scrapped machineries will be auctioned to the authorized agencies.
8.9	Safety & Security.	Thorough inspection of the mine and OB dump areas for assessing the left over closure jobs of already reclaimed internal dump areas. Inspection of infrastructure and water body area for their safe reclamation and abatement of any leftover dangers. Action required making drainage and any fire areas safe for future period. Making 2 meter high fencing wall against excavated void are to prevent inadvertent entry as per requirement. Making safe approach road from surface to left out pit bottom for future uses, as void becomes a water body. Completing the survey of total reclaimed areas like mined areas, internal dump, mine faces, quarry fencing and other areas to complete and update the Mine plans under Coal mine Regulation.

#### 8.10 Abandonment Cost and Financial Assurance.

##### 8.10.1 Abandonment Cost: Cost of Activities to be taken up for closure of the mine

Head	Activities	Unit	Quantity	Rate RS/Unit	Amount RS Cr
Progressive Closure	Water quality management	Ls			3.10
	Air quality management	Ls			3.10
	Waste Management	M CUM			
	Barbed wire fencing around dump	m			
	Barbed wire fencing around the pit	m	20000	1000	2.00
	Filling of Void - Rehanding of Crown dump	MM3			
	Top Soil Management	MM3	93.13	4000000	372.52
	Technical And Biological Reclamation of Mined out of land and OB Dump	Ha	2119.4	200000	42.39
	Plantation over virgin area including green belt	Ha	46.26	50000	0.23
	Manpower Cost and Supervision	LS			10.00
	Total wall around the dump	m	8000	6500	5.20
	Garland drain	m	20000	325	0.65
	Garland drain around the dump	m	5500	325	0.18
	Any other Activity				
Any other Activity - 2					
Dismantling of infrastructure & Disposal/ rehabilitation of mining Machinery	Dismantling of workshop	Ls			3.00
	Rehabilitation of the dismantled facilities	Ls			2.00
	Dismantling of pump and pipes/ other facilities	Ls			5.00
	Dismantling of stowing bunker, provisioning of pumps for borewell pumping arrangement				
	Dismantling of UG equipment				
	Rearranging water pipeline to dump top park/Agriculture land	Ls			2.00
	Dismantling of power lines	LS			2.00
	Any other Activity				
Safety and Security	Barbed wire fencing around dump				
	Barbed wire fencing around the pit	m			
	Barbed wire fencing with Masonary pillar				
	Concrete wall with Masonary pillars around the pit	m			
	Securing air shaft and installation of borewall pump				



	Securing of incline				
	Concrete wall fencing around the water body	M	6000	50000	30.00
	Boundary wall around the water body				
	Stabilisation (viz benching, pitching etc) of side walls of the water body	LS			5.00
	Toe wall around the dump				
	Garland Drain				
	Garland Drain around the dump				
	Drainage channel from main Ob dump				
	Any other Activity				
Technical and Biological Reclamation of mined out of land and OB Dump	Filling of Void	Ha			
	Top soil management	MM3			
	OB Rehandling for backfilling	MM3			
	Terracing, blanketing with soil and vegetation of External OB Dump	Ha			
	Paripharel road, gates, view point, cemented steps on bank	LS			1.00
	Expenditure on development of Agriculture land				
	Landscaping and Plantation	Ls	1512.61	100000	15.13
	Any other Activity				
Post Closure management and supervision	Power Cost	Ls			1.50
	Post mining water quality management	Ls			0.50
	Post mining air quality management	Ls			0.50
	Subsidence monitoring for 5 years	Ls			
	Waste management	Ls			
	Manpower Cost and supervision	Ls			
	Manpower Cost and supervision				3.00
Others	Enterprenuership development(vocational/skill development training for sustainable income of affected people)				3.60
	Golden Handshake/Retrenchment benefits to 100 employees of OC				5.00
	Golden Handshake/Retrenchment benefits to 200 employees of UG				
	Onetime financial grant to societies/ institutions/ organisations which is dependent upon the project				5.00
	Provide Jobs in other mines of company				
	Continuation of other services like running of school etc.				
	Any other Activity				
<b>Total</b>					<b>523.80</b>

8.10.2 Financial Assurance : Amount to be deposited in Escrow account as a security against the mine activities to be carried out for the closure of the mine

WPI as on	Apr-19	121.10
WPI as on base date	NOVEMBER 2022	152.1
Escalation rate of Closure cost		1.256
	UG	OC
Cost 'Rs. Crs/Ha	217	0.015
		0.09

Closure Cost "Rs. Crs/Ha"	0.019	0.113
Project Area "Ha"	0	2119.40
Amount to be deposited into Escrow Account "Rs. in Crs"	0	239.492
Amount already deposited into Escrow Account "Rs. in Crs"	0	17.80
Net Amount to be deposited into Escrow Account "Rs. in Crs"	0	221.692
Rate of compounding of Annual Closure Cost		5.00%
Balance Life of the project "In Yrs"	9	31
Annual Closure Cost "Rs. in Crs"	0	7.151
Amount to be deposited into Escrow Account after compounding @ of 5% "Rs. in Crs"		506.010

Amount to be deposited into Escrow

Year	OC	Year	UG	Total
1	7.151	1	0	7.151
2	7.509	2	0	7.509
3	7.884	3	0	7.884
4	8.278	4	0	8.278
5	8.692	5	0	8.692
6	9.127	6	0	9.127
7	9.583	7	0	9.583
8	10.062	8	0	10.062
9	10.565	9	0	10.565
10	11.094			11.094
11	11.648			11.648
12	12.231			12.231
13	12.842			12.842
14	13.484			13.484
15	14.158			14.158
16	14.866			14.866
17	15.61			15.61
18	16.39			16.39
19	17.21			17.21
20	18.07			18.07
21	18.974			18.974
22	19.922			19.922
23	20.919			20.919
24	21.964			21.964
25	23.063			23.063
26	24.216			24.216
27	25.427			25.427
28	26.698			26.698
29	28.033			28.033
30	29.434			29.434
31	30.906			30.906
Total	506.010		0.000	506.010

# Annexures

APPROVED

## Annexure 1A1

Annexure Order to Talaspalli Coal Mine

**Government of India**  
**Ministry of Coal**  
**On the Nominated Authority**

World Trade Tower, New Delhi

Office of the nominated authority constituted under section 6 of the Coal Mines (Special Provisions) Act, 2015.

**Allotment order under clause (c) of sub-rule (2) of rule 7 and sub-rule (1) of rule 13**

In re: **Talaspalli Coal Mine** (the "mine") particulars of which is specified in Annexure 1

Order no.: 105/31/2015/NA

Date: September 08, 2015

In favour of: **NTPC Limited** incorporated in India under the Companies Act, 1956 with corporate identity number L40101DL1973GC0207966, whose registered office is at NTPC House, Scope Complex, 2, Institutional Area, Lodhi Road, New Delhi-110003, India (the "Allottee")

For utilisation in: End Use Plant situated at Dist. Raigarh, Chhattisgarh, as more particularly described below (the "End Use Plant")

S. No.	Name of Specified End Use Plant	Address	Configuration	Capacity
1	Loss STP	Dist. Raigarh, Chhattisgarh	1 x 300 MW	4000 MW

<sup>1</sup>MW stands for Mega Watt

WHEREAS, the nominated authority has, in accordance with the provisions of the Coal Mines (Special Provisions) Act, 2015 (the "Act") and the Coal Mines (Special Provisions) Rules, 2014 (the "rules") conducted the allotment of the mine;

AND WHEREAS the allottee is eligible to receive this allotment order with respect to the mine as described in this allotment order, including, *inter-alia* -

(a) the coal bearing land acquired by the price allottee and the lands, in or adjacent to the coal mines used for coal mining operations acquired by the price allottee; and

(b) any existing mine infrastructure as defined in clause (i) of sub-section (1) of section 3 of the Act.



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AND WHEREAS the allottee was also the prior allottee of such Schedule I coal mine;

AND WHEREAS, the allottee has deposited the additional levy payable under sub-section (7) of section 5 of the Act on or prior to the due date specified under rule 18 of the rules;

AND WHEREAS the allottee has furnished a performance bank guarantee dated April 28, 2015 for an amount equal to INR 4,12,58,00,000 (Indian Rupees Four Hundred Twelve Crore Fifty Eight Lakh and Eighty Eight Thousand) issued by State Bank of India in accordance with the allotment document read with sub-section (6) and sub-section (12) of section 8 of the Act and sub-rule (4) rule 17 of the rules;

AND WHEREAS the allottee has entered into an Allotment Agreement dated March 30, 2015 (as amended) with the nominated authority in accordance with the provisions of sub-rule (3) of rule 11;

NOW, THE NOMINATED AUTHORITY DOES ORDER:

1. On and from September 08, 2015 ("allotment date") and in accordance with sub-section (4) of section 8 read with sub-section (12) section 8 of the Act, with respect to the mine, the following shall stand fully and absolutely transferred and vested in the allottee, namely:-

- (a) all the rights, title, interest and liabilities as were available to the prior allottee;
- (b) entitlement to a mining lease to be granted by the State Government with the terms and conditions of the Allotment Agreement forming a part of it on making an application;
- (c) all statutory licences, permits, permissions, approvals or consents as per rules, required to undertake coal mining operations in the mine, if already issued by the Central Government, to the prior allottee on the same terms and conditions as were applicable to the prior allottee, as listed in the Annexure 2;
- (d) entitlement to any statutory licence, permit, permission, approval or consent required to undertake coal mining operations in the mine, if already issued by the Central Government, to the prior allottee on making an application on the same terms and conditions as were applicable to the prior allottee, as listed in the Annexure 3;
- (e) entitlement to any statutory licence, permit, permission, approval or consent required to undertake coal mining operations in the mine, if already issued by the State Government, to the prior allottee on making an application on the same terms and conditions as were applicable to the prior allottee, as listed in the Annexure 4;
- (f) rights appurtenant to the approved mining plan of the prior allottee;
- (g) in the event the secured creditor elects to revise the facility arrangements and security interest, the Allottee shall continue the credit or banking facilities or other financing arrangements to which the prior allottee was a party in terms of clause (x) of sub-section (1) of section 12 of the Act;



2. The Allottee may seek any change in the terms and conditions attached to such licence, permit, permission, approval or consent by making an application in accordance with applicable laws;
3. This Allotment order is liable to be cancelled in accordance with the provisions of sub-rule (8) of rule 13.

  
A circular official stamp is partially visible behind the signature.

(By the concerned authority)

**Annexure**

**Annexure 1: Particulars of the mine**

**Part A – Description of the mine**

<b>Name of Coal Mine</b>	Talajpalli
<b>Latitude</b>	22°13'55" N to 22°16'08" N
<b>Longitude</b>	83°25'49" E to 83°30'22" E
<b>Coalfield</b>	Main Raigadh
<b>Villages</b>	Talajpalli, Bhichlana, Nayastampur, Kudarnocha, Raikera, Chouguda, Ajjagadh & Sachpadi
<b>Taluk/Taluka</b>	Gharguda
<b>District</b>	Raigadh
<b>State</b>	Chhattisgarh



**Part B – Description of Land in relation to the mine**

Type of Land: Yeshold Land for Mining as per Mining Lease

S.No.	Village	Khata No.	Date of Registration	Area (Hectares)
1	Raikara	18/1	02-Feb-15	1.767
2	Raikara	18/2	03-Feb-15	0.202
3	Raikara	20/1	02-Feb-15	0.680
4	Raikara	20/2	02-Feb-15	0.202
5	Raikara	20/5	02-Feb-15	0.405
6	Raikara	22/1	02-Feb-15	0.406
7	Raikara	22/2	02-Feb-15	0.089
8	Raikara	28/1	02-Feb-15	0.440
9	Raikara	29/1	02-Feb-15	0.107
10	Raikara	31	02-Feb-15	0.724
11	Raikara	32/1	02-Feb-15	1.582
12	Raikara	33/1	02-Feb-15	0.612
13	Raikara	36/1	02-Feb-15	0.447
14	Raikara	36/2	02-Feb-15	0.447
15	Raikara	36/3	02-Feb-15	0.447
16	Raikara	36/4	02-Feb-15	0.468
17	Raikara	38	02-Feb-15	0.255
18	Raikara	39/1	02-Feb-15	0.077
19	Raikara	39/2	02-Feb-15	0.557
20	Raikara	40/1	02-Feb-15	0.255
21	Raikara	40/2	02-Feb-15	0.162
22	Raikara	40/4	02-Feb-15	0.224
23	Raikara	40/5	02-Feb-15	0.284
24	Raikara	40/6	02-Feb-15	0.278
25	Raikara	40/7	02-Feb-15	0.277
26	Raikara	40/8	02-Feb-15	0.257
27	Raikara	41/1	02-Feb-15	0.543
28	Raikara	41/2	02-Feb-15	0.345
29	Raikara	41/3	02-Feb-15	0.332
30	Raikara	41/4	02-Feb-15	0.334
31	Raikara	42	02-Feb-15	0.348
32	Raikara	43	02-Feb-15	0.154
33	Raikara	45/2	02-Feb-15	0.182
34	Raikara	45/3	02-Feb-15	0.364
35	Raikara	45/4	02-Feb-15	0.364
36	Raikara	45/5	02-Feb-15	0.400
37	Raikara	45/7	02-Feb-15	0.078
38	Raikara	45/8	02-Feb-15	0.055
39	Raikara	45/9	02-Feb-15	0.040
40	Raikara	45/10	02-Feb-15	0.446
41	Raikara	45/11	02-Feb-15	0.303
42	Raikara	46	02-Feb-15	0.781
43	Raikara	47	02-Feb-15	0.907





S.No.	Village	Khata No.	Date of Registration	Area (Hectares)
44	Raikuru	49/2	02-Feb-15	0.412
45	Raikuru	50	02-Feb-15	0.445
46	Raikuru	52	02-Feb-15	0.218
47	Raikuru	55/2	02-Feb-15	0.304
48	Raikuru	54/2	02-Feb-15	0.611
49	Raikuru	55/1	02-Feb-15	0.971
50	Raikuru	55/2	02-Feb-15	0.198
51	Raikuru	57	02-Feb-15	0.297
52	Raikuru	58	02-Feb-15	0.121
53	Raikuru	60	02-Feb-15	0.700
54	Raikuru	63	02-Feb-15	1.655
55	Raikuru	64/1	02-Feb-15	0.488
56	Raikuru	64/2	02-Feb-15	0.121
57	Raikuru	65/1	02-Feb-15	0.392
58	Raikuru	67/1	02-Feb-15	2.614
59	Raikuru	67/2	02-Feb-15	0.575
60	Raikuru	68	02-Feb-15	0.259
61	Raikuru	69/1	02-Feb-15	0.397
62	Raikuru	69/2	02-Feb-15	0.202
63	Raikuru	70/4	02-Feb-15	0.282
64	Raikuru	73/4	02-Feb-15	0.870
65	Raikuru	74/2	02-Feb-15	0.032
66	Raikuru	74/3	02-Feb-15	0.032
67	Raikuru	74/4	02-Feb-15	0.037
68	Raikuru	75/1	02-Feb-15	0.165
69	Raikuru	79	02-Feb-15	0.206
70	Raikuru	80/1	02-Feb-15	0.166
71	Raikuru	80/2	02-Feb-15	0.178
72	Raikuru	80/4	02-Feb-15	0.040
73	Raikuru	80/5	02-Feb-15	0.089
74	Raikuru	81/1	02-Feb-15	0.222
75	Raikuru	81/6	02-Feb-15	0.065
76	Raikuru	81/7	02-Feb-15	0.154
77	Raikuru	82/1	02-Feb-15	0.248
78	Raikuru	83/2	02-Feb-15	0.179
79	Raikuru	83/6	02-Feb-15	0.065
80	Raikuru	83/9	02-Feb-15	0.186
81	Raikuru	85	02-Feb-15	0.530
82	Raikuru	86/1	02-Feb-15	0.097
83	Raikuru	86/2	02-Feb-15	0.498
84	Raikuru	87	02-Feb-15	0.291
85	Raikuru	91/4	02-Feb-15	0.486
86	Raikuru	92	02-Feb-15	0.563
87	Raikuru	93	02-Feb-15	0.182
88	Raikuru	94/2	02-Feb-15	0.577
89	Raikuru	94/3	02-Feb-15	0.417



S.No.	Village	Khata No.	Date of Registration	Area (Hectares)
90	Raikara	94/4	02-Feb-15	0.304
91	Raikara	94/5	02-Feb-15	0.526
92	Raikara	95/1	02-Feb-15	0.330
93	Raikara	95/2	02-Feb-15	0.330
94	Raikara	96	02-Feb-15	0.480
95	Raikara	97	02-Feb-15	0.299
96	Raikara	98	02-Feb-15	0.219
97	Raikara	100	02-Feb-15	0.644
98	Raikara	103/1	02-Feb-15	0.798
99	Raikara	103/2	02-Feb-15	0.542
100	Raikara	107/2	02-Feb-15	0.774
101	Raikara	107/4	02-Feb-15	0.202
102	Raikara	108/1	02-Feb-15	0.275
103	Raikara	108/2	02-Feb-15	0.263
104	Raikara	108/3	02-Feb-15	0.134
105	Raikara	108/4	02-Feb-15	0.539
106	Raikara	108/5	02-Feb-15	0.540
107	Raikara	108/6	02-Feb-15	0.230
108	Raikara	110	02-Feb-15	0.376
109	Raikara	111	02-Feb-15	0.368
110	Raikara	113/2	02-Feb-15	0.227
111	Raikara	114	02-Feb-15	0.732
112	Raikara	117	02-Feb-15	0.174
113	Raikara	118/1	02-Feb-15	0.194
114	Raikara	118/2	02-Feb-15	0.117
115	Raikara	119	02-Feb-15	1.145
116	Raikara	121/2	02-Feb-15	0.076
117	Raikara	122/1	02-Feb-15	0.119
118	Raikara	122/2	02-Feb-15	0.089
119	Raikara	122/4	02-Feb-15	0.118
120	Raikara	122/5	02-Feb-15	0.053
121	Raikara	122/6	02-Feb-15	0.069
122	Raikara	123/1	02-Feb-15	0.311
123	Raikara	125	02-Feb-15	0.138
124	Raikara	126/1	02-Feb-15	0.728
125	Raikara	136/1	02-Feb-15	0.101
126	Raikara	136/2	02-Feb-15	0.271
127	Raikara	139/3	02-Feb-15	0.417
128	Raikara	133	02-Feb-15	0.465
129	Raikara	137/2	02-Feb-15	0.089
130	Raikara	140	02-Feb-15	0.190
131	Raikara	142	02-Feb-15	0.405
132	Raikara	143	02-Feb-15	0.405
133	Raikara	145	02-Feb-15	0.729
134	Raikara	148/1	02-Feb-15	1.028
135	Raikara	148/2	02-Feb-15	0.643



S.No.	Village	Khata No.	Date of Registration	Area (Hectares)
136	Raikarn	146/2	02-Feb-15	0.093
137	Raikarn	150/1	02-Feb-15	0.635
138	Raikarn	150/3	02-Feb-15	0.162
139	Raikarn	152	02-Feb-15	0.352
140	Raikarn	154	02-Feb-15	0.304
141	Raikarn	156/1	02-Feb-15	0.205
142	Raikarn	156/2	02-Feb-15	0.206
143	Raikarn	156/3	02-Feb-15	0.206
144	Raikarn	156/4	02-Feb-15	0.110
145	Raikarn	156/6	02-Feb-15	0.121
146	Raikarn	157/1	02-Feb-15	0.668
147	Raikarn	157/2	02-Feb-15	1.019
148	Raikarn	161	02-Feb-15	0.084
149	Raikarn	163/2	02-Feb-15	0.013
150	Raikarn	166	02-Feb-15	0.259
151	Raikarn	168/1	02-Feb-15	1.783
152	Raikarn	169	02-Feb-15	1.226
153	Raikarn	170/1	02-Feb-15	0.802
154	Raikarn	171/1	02-Feb-15	0.327
155	Raikarn	171/2	02-Feb-15	2.324
156	Raikarn	171/3	02-Feb-15	0.717
157	Raikarn	171/4	02-Feb-15	0.384
158	Raikarn	171/5	02-Feb-15	0.790
159	Raikarn	171/6	02-Feb-15	0.174
160	Raikarn	171/7	02-Feb-15	0.633
161	Raikarn	171/9	02-Feb-15	0.518
162	Raikarn	171/10	02-Feb-15	0.364
163	Raikarn	171/11	02-Feb-15	0.304
164	Raikarn	171/12	02-Feb-15	0.688
165	Raikarn	171/13	02-Feb-15	0.403
166	Raikarn	171/14	02-Feb-15	0.101
167	Raikarn	172/1	02-Feb-15	0.089
168	Raikarn	172/2	02-Feb-15	0.202
169	Raikarn	172/3	02-Feb-15	0.069
170	Raikarn	172/4	02-Feb-15	0.069
171	Raikarn	173	02-Feb-15	2.754
172	Raikarn	175/1	02-Feb-15	0.330
173	Raikarn	177/1	02-Feb-15	0.417
174	Raikarn	177/2	02-Feb-15	0.420
175	Raikarn	178/1	02-Feb-15	1.214
176	Raikarn	178/2	02-Feb-15	0.800
177	Raikarn	178/3	02-Feb-15	1.864
178	Raikarn	178/5	02-Feb-15	1.214
179	Raikarn	179/1	02-Feb-15	0.302
180	Raikarn	179/2	02-Feb-15	1.790
181	Raikarn	179/3	02-Feb-15	1.284



S.No.	Village	Khata No.	Date of Registration	Area (Hectares)
182	Raikara	1794	02-Feb-15	1.794
183	Raikara	1795	02-Feb-15	1.794
184	Raikara	1797	02-Feb-15	0.809
185	Raikara	1811	02-Feb-15	0.804
186	Raikara	1812	02-Feb-15	0.243
187	Raikara	183	02-Feb-15	1.214
188	Raikara	1843	02-Feb-15	0.385
189	Raikara	1844	02-Feb-15	0.405
190	Raikara	190	02-Feb-15	0.995
191	Raikara	1932	02-Feb-15	0.278
192	Raikara	1933	02-Feb-15	0.130
193	Raikara	195	02-Feb-15	1.053
194	Raikara	196	02-Feb-15	1.948
195	Raikara	1922	02-Feb-15	0.526
196	Raikara	1981	02-Feb-15	0.629
197	Raikara	1982	02-Feb-15	0.629
198	Raikara	1983	02-Feb-15	0.629
199	Raikara	1984	02-Feb-15	0.630
200	Raikara	199	02-Feb-15	0.392
201	Raikara	201	02-Feb-15	0.393
202	Raikara	2042	02-Feb-15	0.110
203	Raikara	205	02-Feb-15	0.134
204	Raikara	2051	02-Feb-15	0.125
205	Raikara	2063	02-Feb-15	0.294
206	Raikara	207	02-Feb-15	0.806
207	Raikara	2081	02-Feb-15	0.295
208	Raikara	2082	02-Feb-15	0.119
209	Raikara	2083	02-Feb-15	0.372
210	Raikara	2085	02-Feb-15	0.267
211	Raikara	2092	02-Feb-15	0.607
212	Raikara	211	02-Feb-15	0.704
213	Raikara	2124	02-Feb-15	1.500
214	Raikara	213	02-Feb-15	0.729
215	Raikara	2142	02-Feb-15	0.959
216	Raikara	2151	02-Feb-15	0.134
217	Raikara	2152	02-Feb-15	0.134
218	Raikara	2153	02-Feb-15	0.134
219	Raikara	2155	02-Feb-15	0.271
220	Raikara	2172	02-Feb-15	0.667
221	Raikara	2173	02-Feb-15	0.324
222	Raikara	218	02-Feb-15	0.943
223	Raikara	2262	02-Feb-15	1.818
224	Raikara	224	02-Feb-15	1.543
225	Raikara	2251	02-Feb-15	1.399
226	Raikara	2252	02-Feb-15	1.598
227	Raikara	2281	02-Feb-15	0.270



S.No.	Village	Khata No.	Date of Registration	Area (Hectares)
228	Kaikara	233/1	02-Feb-15	1.048
229	Kaikara	233/2	02-Feb-15	0.362
230	Kaikara	236	02-Feb-15	0.484
231	Kaikara	237	02-Feb-15	0.405
232	Kaikara	238/1	02-Feb-15	0.182
233	Kaikara	238/2	02-Feb-15	0.210
234	Kaikara	239/1	02-Feb-15	0.449
235	Kaikara	240/1	02-Feb-15	0.587
236	Kaikara	240/4	02-Feb-15	0.364
237	Kaikara	241/1	02-Feb-15	0.517
238	Kaikara	241/3	02-Feb-15	0.378
239	Kaikara	241/6	02-Feb-15	0.061
240	Kaikara	242/1	02-Feb-15	1.610
241	Kaikara	244	02-Feb-15	0.113
242	Kaikara	245	02-Feb-15	0.809
243	Kaikara	247/1	02-Feb-15	0.098
244	Kaikara	248/1	02-Feb-15	0.403
245	Kaikara	248/3	02-Feb-15	0.135
246	Kaikara	248/4	02-Feb-15	0.135
247	Kaikara	251	02-Feb-15	0.190
248	Kaikara	252/2	02-Feb-15	0.802
249	Kaikara	253	02-Feb-15	0.878
250	Kaikara	254/2	02-Feb-15	1.436
251	Kaikara	254/4	02-Feb-15	0.377
252	Kaikara	254/5	02-Feb-15	0.377
253	Kaikara	255	02-Feb-15	0.766
254	Kaikara	256	02-Feb-15	1.340
255	Kaikara	259	02-Feb-15	0.847
256	Kaikara	261	02-Feb-15	0.154
257	Kaikara	264	02-Feb-15	1.052
258	Kaikara	265	02-Feb-15	1.275
259	Kaikara	266	02-Feb-15	0.551
260	Kaikara	267/1	02-Feb-15	1.998
261	Kaikara	267/2	02-Feb-15	2.347
262	Kaikara	268	02-Feb-15	0.802
263	Kaikara	270/3	02-Feb-15	0.341
264	Kaikara	270/5	02-Feb-15	0.405
265	Kaikara	272	02-Feb-15	0.360
266	Kaikara	273/1	02-Feb-15	0.194
267	Kaikara	273/3	02-Feb-15	0.194
268	Kaikara	274/4	02-Feb-15	0.061
269	Kaikara	277	02-Feb-15	0.202
270	Kaikara	280	02-Feb-15	0.849
271	Kaikara	281/1	02-Feb-15	0.264
272	Kaikara	281/2	02-Feb-15	0.286
273	Kaikara	282/2	02-Feb-15	0.266



S.No	Village	Khata No.	Date of Registration	Area (Hectares)
274	Raikara	282/4	02-Feb-15	0.182
275	Raikara	282/6	02-Feb-15	0.263
276	Raikara	283/1	02-Feb-15	0.368
277	Raikara	284/2	02-Feb-15	0.299
278	Raikara	284/3	02-Feb-15	0.283
279	Raikara	284/4	02-Feb-15	0.283
280	Raikara	284/5	02-Feb-15	0.283
281	Raikara	285	02-Feb-15	0.397
282	Raikara	286	02-Feb-15	1.310
283	Raikara	287/1	02-Feb-15	0.476
284	Raikara	288/1	02-Feb-15	0.385
285	Raikara	288/2	02-Feb-15	0.300
286	Raikara	289/1	02-Feb-15	0.277
287	Raikara	293/1	02-Feb-15	0.077
288	Raikara	294	02-Feb-15	0.555
289	Raikara	295/2	02-Feb-15	0.459
290	Raikara	297/1	02-Feb-15	0.081
291	Raikara	298/1	02-Feb-15	0.218
292	Raikara	300/2	02-Feb-15	0.101
293	Raikara	303/2	02-Feb-15	0.242
294	Raikara	303/3	02-Feb-15	0.053
295	Raikara	303/6	02-Feb-15	0.053
296	Raikara	303/7	02-Feb-15	0.053
297	Raikara	304/3	02-Feb-15	0.338
298	Raikara	308	02-Feb-15	0.591
299	Raikara	310/1	02-Feb-15	0.364
300	Raikara	310/2	02-Feb-15	0.176
301	Raikara	314/1	02-Feb-15	0.201
302	Raikara	314/2	02-Feb-15	0.064
303	Raikara	315	02-Feb-15	0.202
304	Raikara	316	02-Feb-15	0.166
305	Raikara	318	02-Feb-15	0.559
306	Raikara	319/2	02-Feb-15	0.093
307	Raikara	319/3	02-Feb-15	0.229
308	Raikara	319/4	02-Feb-15	0.361
309	Raikara	319/5	02-Feb-15	0.341
310	Raikara	319/6	02-Feb-15	0.182
311	Raikara	319/7	02-Feb-15	0.050
312	Raikara	319/8	02-Feb-15	0.101
313	Raikara	320	02-Feb-15	0.162
314	Raikara	321	02-Feb-15	0.142
315	Raikara	324	02-Feb-15	0.081
316	Raikara	325	02-Feb-15	0.362
317	Raikara	326	02-Feb-15	0.607
318	Raikara	327/2	02-Feb-15	0.415
319	Raikara	327/3	02-Feb-15	1.673



S.No	Village	Khata No.	Date of Registration	Area (Hectares)
320	Raikura	327/3	02-Feb-15	0.946
321	Raikura	328/1	02-Feb-15	0.825
322	Raikura	328/3	02-Feb-15	0.417
323	Raikura	328/4	02-Feb-15	0.409
324	Raikura	329	02-Feb-15	0.190
325	Raikura	331	02-Feb-15	0.563
326	Raikura	333/2	02-Feb-15	0.809
327	Raikura	333/3	02-Feb-15	0.262
328	Raikura	334	02-Feb-15	0.255
329	Raikura	335/1	02-Feb-15	0.534
330	Raikura	335/2	02-Feb-15	0.283
331	Raikura	337/1	02-Feb-15	0.029
332	Raikura	339/1	02-Feb-15	0.372
333	Raikura	339/10	02-Feb-15	0.310
334	Raikura	340	02-Feb-15	0.507
335	Raikura	341	02-Feb-15	1.238
336	Raikura	342/2	02-Feb-15	1.214
337	Raikura	342/3	02-Feb-15	1.416
338	Raikura	342/5	02-Feb-15	1.436
339	Raikura	342/6	02-Feb-15	1.410
340	Raikura	342/10	02-Feb-15	1.325
341	Raikura	342/11	02-Feb-15	1.022
342	Raikura	346/2	02-Feb-15	1.672
343	Raikura	346/5	02-Feb-15	0.202
344	Raikura	346/6	02-Feb-15	0.443
345	Raikura	354/5	02-Feb-15	0.749
346	Raikura	354/7	02-Feb-15	0.182
347	Raikura	364/2	02-Feb-15	0.890
348	Raikura	364/3	02-Feb-15	0.607
349	Raikura	375/3	02-Feb-15	0.809
350	Raikura	384/3	02-Feb-15	0.134
351	Raikura	395/2	02-Feb-15	0.850
352	Raikura	396	02-Feb-15	0.202
353	Raikura	398/1	02-Feb-15	0.170
354	Raikura	398/2	02-Feb-15	0.212
355	Raikura	398/3	02-Feb-15	0.704
356	Raikura	398/5	02-Feb-15	0.445
357	Raikura	398/6	02-Feb-15	0.260
358	Raikura	400/1	02-Feb-15	0.405
359	Raikura	403/4	02-Feb-15	0.241
360	Raikura	404	02-Feb-15	0.073
361	Raikura	405	02-Feb-15	0.590
362	Raikura	406/1	02-Feb-15	0.101
363	Raikura	406/2	02-Feb-15	0.227
364	Raikura	407/4	02-Feb-15	0.178
365	Raikura	409	02-Feb-15	0.805



S.No.	Village	Khata No.	Date of Registration	Area (Hectares)
366	Raikera	501	02-Feb-15	0.821
367	Raikera	505/1	02-Feb-15	0.116
368	Raikera	505/2	02-Feb-15	0.364
369	Raikera	505/3	02-Feb-15	0.405
370	Raikera	505/4	02-Feb-15	0.248
371	Raikera	505/11	02-Feb-15	0.243
372	Raikera	505/12	02-Feb-15	0.405
373	Raikera	505/13	02-Feb-15	0.202
374	Raikera	505/14	02-Feb-15	1.057
375	Raikera	506/1	02-Feb-15	0.961
376	Raikera	506/4	02-Feb-15	0.162
377	Raikera	515/18	02-Feb-15	0.036
378	Raikera	515/19	02-Feb-15	0.069
379	Raikera	515/20	02-Feb-15	0.016
380	Raikera	518/2	02-Feb-15	0.041
381	Raikera	518/3	02-Feb-15	0.052
382	Raikera	539/2	02-Feb-15	0.059
383	Raikera	540	02-Feb-15	0.251
384	Raikera	543/1	02-Feb-15	0.061
385	Raikera	450/2	02-Feb-15	0.230
386	Raikera	450/3	02-Feb-15	0.111
387	Talaspalli	2/12	02-Feb-15	0.080
388	Talaspalli	2/13	02-Feb-15	0.080
389	Talaspalli	6	02-Feb-15	1.088
390	Talaspalli	8/1	02-Feb-15	0.583
391	Talaspalli	8/4	02-Feb-15	0.160
392	Talaspalli	11/2	02-Feb-15	0.260
393	Talaspalli	11/3	02-Feb-15	0.402
394	Talaspalli	22/1	02-Feb-15	0.400
395	Talaspalli	22/2	02-Feb-15	0.425
396	Talaspalli	24/7	02-Feb-15	0.222
397	Talaspalli	26/2	02-Feb-15	0.226
398	Talaspalli	26/3	02-Feb-15	0.226
399	Talaspalli	26/4	02-Feb-15	0.089
400	Talaspalli	26/5	02-Feb-15	0.089
401	Talaspalli	26/8	02-Feb-15	0.060
402	Talaspalli	26/10	02-Feb-15	0.154
403	Talaspalli	26/11	02-Feb-15	0.202
404	Talaspalli	26/12	02-Feb-15	0.202
405	Talaspalli	26/13	02-Feb-15	0.069
406	Talaspalli	26/14	02-Feb-15	0.251
407	Talaspalli	26/15	02-Feb-15	0.166
408	Talaspalli	26/16	02-Feb-15	0.176
409	Talaspalli	26/17	02-Feb-15	0.251
410	Talaspalli	26/20	02-Feb-15	0.089
411	Talaspalli	26/21	02-Feb-15	0.089





S.No.	Village	Khata No.	Date of Registration	Area (Hectares)
412	Talagutti	2622	02-Feb-15	0.194
413	Talagutti	2623	02-Feb-15	0.081
414	Talagutti	2625	02-Feb-15	0.105
415	Talagutti	2626	02-Feb-15	0.085
416	Talagutti	2628	02-Feb-15	0.162
417	Talagutti	2631	02-Feb-15	0.174
418	Talagutti	2633	02-Feb-15	0.097
419	Talagutti	2635	02-Feb-15	0.436
420	Talagutti	2637	02-Feb-15	0.089
421	Talagutti	2638	02-Feb-15	0.069
422	Talagutti	2640	02-Feb-15	0.182
423	Talagutti	2641	02-Feb-15	0.182
424	Talagutti	2642	02-Feb-15	0.150
425	Talagutti	2643	02-Feb-15	0.150
426	Talagutti	2644	02-Feb-15	0.065
427	Talagutti	2645	02-Feb-15	0.081
428	Talagutti	2647	02-Feb-15	0.372
429	Talagutti	2648	02-Feb-15	0.077
430	Talagutti	2649	02-Feb-15	0.129
431	Talagutti	2650	02-Feb-15	0.093
432	Talagutti	2651	02-Feb-15	1.174
433	Talagutti	2652	02-Feb-15	0.142
434	Talagutti	2654	02-Feb-15	0.182
435	Talagutti	2655	02-Feb-15	0.182
436	Talagutti	2656	02-Feb-15	0.210
437	Talagutti	2657	02-Feb-15	0.182
438	Talagutti	2659	02-Feb-15	0.406
439	Talagutti	2660	02-Feb-15	0.784
440	Talagutti	2661	02-Feb-15	0.486
441	Talagutti	2663	02-Feb-15	0.150
442	Talagutti	2664	02-Feb-15	0.210
443	Talagutti	267	02-Feb-15	0.076
444	Talagutti	2812	02-Feb-15	0.405
445	Talagutti	301	02-Feb-15	0.337
446	Talagutti	302	02-Feb-15	0.337
447	Talagutti	303	02-Feb-15	0.358
448	Talagutti	315	02-Feb-15	0.182
449	Talagutti	321	02-Feb-15	0.068
450	Talagutti	324	02-Feb-15	0.068
451	Talagutti	325	02-Feb-15	0.060
452	Talagutti	337	02-Feb-15	0.202
453	Talagutti	39	02-Feb-15	0.380
454	Talagutti	401	02-Feb-15	1.563
455	Talagutti	404	02-Feb-15	1.019
456	Talagutti	405	02-Feb-15	1.744
457	Talagutti	406	02-Feb-15	0.243



S.No.	Village	Khata No.	Date of Registration	Area (Hectares)
438	Talaspalli	43/1	02-Feb-15	0.425
439	Talaspalli	43/2	02-Feb-15	0.162
440	Talaspalli	44	02-Feb-15	2.161
461	Talaspalli	42	02-Feb-15	1.228
462	Talaspalli	46	02-Feb-15	0.279
463	Talaspalli	48/2	02-Feb-15	0.202
464	Talaspalli	51/1	02-Feb-15	2.083
465	Talaspalli	51/2	02-Feb-15	1.334
466	Talaspalli	54	02-Feb-15	0.895
467	Talaspalli	56	02-Feb-15	0.433
468	Talaspalli	58/2	02-Feb-15	0.130
469	Talaspalli	59	02-Feb-15	0.200
470	Talaspalli	63/3	02-Feb-15	1.026
471	Talaspalli	65/2	02-Feb-15	0.081
472	Talaspalli	62/4	02-Feb-15	0.071
473	Talaspalli	65/6	02-Feb-15	0.071
474	Talaspalli	66/2	02-Feb-15	0.413
475	Talaspalli	70/1	02-Feb-15	0.559
476	Talaspalli	70/2	02-Feb-15	0.808
477	Talaspalli	70/3	02-Feb-15	0.102
478	Talaspalli	73/2	02-Feb-15	0.283
479	Talaspalli	76/1	02-Feb-15	0.243
480	Talaspalli	76/3	02-Feb-15	0.101
481	Talaspalli	82	02-Feb-15	0.061
482	Talaspalli	84	02-Feb-15	1.028
483	Talaspalli	86/2	02-Feb-15	0.809
484	Talaspalli	87/2	02-Feb-15	0.401
485	Talaspalli	87/3	02-Feb-15	0.212
486	Talaspalli	87/4	02-Feb-15	1.274
487	Talaspalli	87/5	02-Feb-15	0.380
488	Talaspalli	87/8	02-Feb-15	0.308
489	Talaspalli	87/10	02-Feb-15	0.882
490	Talaspalli	87/11	02-Feb-15	0.551
491	Talaspalli	87/12	02-Feb-15	0.214
492	Talaspalli	87/13	02-Feb-15	1.238
493	Talaspalli	87/14	02-Feb-15	0.186
494	Talaspalli	87/18	02-Feb-15	0.312
495	Talaspalli	87/20	02-Feb-15	0.170
496	Talaspalli	90/1	02-Feb-15	0.261
497	Talaspalli	91/2	02-Feb-15	0.258
498	Talaspalli	92/3	02-Feb-15	0.258
499	Talaspalli	93/4	02-Feb-15	0.239
500	Talaspalli	93/8	02-Feb-15	0.174
501	Talaspalli	93/9	02-Feb-15	0.081
502	Talaspalli	93/10	02-Feb-15	0.142
503	Talaspalli	93/12	02-Feb-15	0.142



S.No.	Village	Khata No.	Date of Registration	Area (Hectares)
504	Talaspalli	93/13	02-Feb-15	0.405
505	Talaspalli	97/1	02-Feb-15	0.162
506	Talaspalli	97/4	02-Feb-15	0.483
507	Talaspalli	97/5	02-Feb-15	0.297
508	Talaspalli	100	02-Feb-15	0.405
509	Talaspalli	101/1	02-Feb-15	0.169
510	Talaspalli	101/2	02-Feb-15	0.190
511	Talaspalli	101/4	02-Feb-15	0.541
512	Talaspalli	101/7	02-Feb-15	0.210
513	Talaspalli	101/8	02-Feb-15	0.525
514	Talaspalli	101/9	02-Feb-15	0.129
515	Talaspalli	101/10	02-Feb-15	0.210
516	Talaspalli	101/11	02-Feb-15	0.268
517	Talaspalli	101/12	02-Feb-15	0.281
518	Talaspalli	101/14	02-Feb-15	0.085
519	Talaspalli	101/15	02-Feb-15	0.115
520	Talaspalli	101/17	02-Feb-15	0.081
521	Talaspalli	101/18	02-Feb-15	0.115
522	Talaspalli	101/20	02-Feb-15	0.049
523	Talaspalli	101/22	02-Feb-15	0.032
524	Talaspalli	114/1	02-Feb-15	0.308
525	Talaspalli	116	02-Feb-15	3.003
526	Talaspalli	119/3	02-Feb-15	0.138
527	Talaspalli	119/4	02-Feb-15	0.546
528	Talaspalli	121/2	02-Feb-15	0.158
529	Talaspalli	121/3	02-Feb-15	0.060
530	Talaspalli	121/4	02-Feb-15	0.048
531	Talaspalli	121/6	02-Feb-15	0.280
532	Talaspalli	121/8	02-Feb-15	0.060
533	Talaspalli	121/12	02-Feb-15	0.032
534	Talaspalli	125	02-Feb-15	1.461
535	Talaspalli	126/3	02-Feb-15	0.251
536	Talaspalli	126/6	02-Feb-15	0.072
537	Talaspalli	126/7	02-Feb-15	0.291
538	Talaspalli	126/9	02-Feb-15	0.077
539	Talaspalli	126/11	02-Feb-15	0.774
540	Talaspalli	130/2	02-Feb-15	0.105
541	Talaspalli	130/3	02-Feb-15	0.145
542	Talaspalli	130/4	02-Feb-15	0.138
543	Talaspalli	130/5	02-Feb-15	0.182
544	Talaspalli	130/6	02-Feb-15	0.162
545	Talaspalli	130/8	02-Feb-15	0.087
546	Talaspalli	130/9	02-Feb-15	0.105
547	Talaspalli	130/11	02-Feb-15	0.182
548	Talaspalli	130/12	02-Feb-15	0.243
549	Talaspalli	130/13	02-Feb-15	0.292



S.No.	Village	Khata No.	Date of Registration	Area (Hectares)
550	Talaspalli	130/26	02-Feb-15	0.447
551	Talaspalli	131/1	02-Feb-15	0.093
552	Talaspalli	131/2	02-Feb-15	0.093
553	Talaspalli	131/4	02-Feb-15	0.070
554	Talaspalli	131/6	02-Feb-15	0.061
	<b>Total</b>			<b>241.465</b>

Note: Land Rights vested on NTPC Limited by virtue of Section 11 notification under CRA Act.

Type of Land: Leathold Land for Mining as per Mining Lease

Nature	Area (Hectares)
Government Land	-
Private Land	-
Forest Land	766.59



**Part C – Description of Mine Infrastructure, in relation to the mine**

**C1- Mine Infrastructure: Immovable Assets**

S.No.	Head of Assets	Description (Nature of Assets)
1	C/WIP - Railway Siding	Railway Siding ( Being Amount paid as Costal Charges)
2	Other Buildings	Office At Thakurpali Adm

**C2- Mine Infrastructure: Land for Compensatory Afforestation**

Type of Land: Freehold Land for Compensatory Afforestation

Nil

Type of Land: Leasehold Land for Compensatory Afforestation

Nature	Area (Hectares)
Government Land	-
Private Land	-
Forest Land	-

**C3- Mine Infrastructure: Resettlement and Rehabilitation Land**

Type of Land: Resettlement and Rehabilitation Freehold Land

Nil

Type of Land: Resettlement and Rehabilitation Leasehold Land

Nature	Area (Hectares)
Government Land	-
Private Land	-
Forest Land	-



Annexure 2: Particulars of statutory licenses, permits, permissions, approvals or consents issued by the Central Government which are being transferred along with this Allotment Order.

S. No	Statutory Clearance	Ministry/ Agency	Letter No.	Date
1.	Approval of Mining Plan and Mine Closure Plan Mining Plan (February, 2010)	Ministry of Coal	No.13016/28/2003-CA-1 (V/LIII)	31.03.2010



Annexure 3: Particulars of statutory licenses, permits, permissions, approvals or consents issued by the Central Government to be obtained on application by the Abbot.

S. No	Statutory Clearance	Ministry/ Agency	Letter No.	Date
1.	Opening of Excise Account	Ministry of Coal - CCO		03.04.2014
2.	Environment Clearance	Ministry of Environment and Forests	No. F-11015/279/2009-IA.II(M)	02.01.2013
3.	Forest Clearance - a) Stage 1	Ministry of Environment and Forests	F. No.B-18/2012-FC	05.11.2012
	b) Stage 2		F. No.B-18/2012-FC	28/29.01.2014



**Annexure 4: Particulars of statutory licenses, permits, permissions, approvals or consents issued by the State Government to be obtained on application by the Alibates.**

S. No	Statutory Clearance	Ministry/ Agency	Letter No.	Date
1.	Consent to establish	Chhattisgarh Environment Conservation Board	No. 6466/TS/CECB/2011 5	08.01.2013





## Annexure 2A

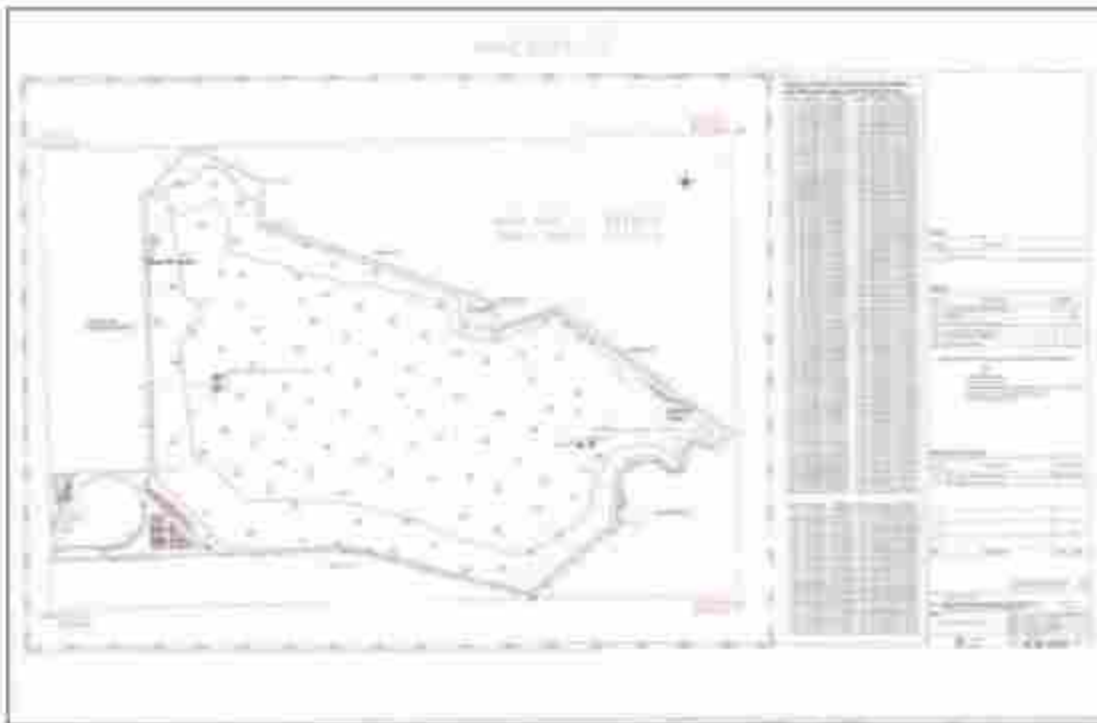
ANNEXURE-VIIIIC		
CARDINAL POINTS OF TALAIPALLI COAL BLOCK		
POINT NO	LONGITUDE (WGS84)	LATTITUDE (WGS84)
P-0	83° 29' 42.381" E	22° 14' 43.085" N
P-1	83° 29' 45.262" E	22° 14' 41.094" N
P-2	83° 29' 48.143" E	22° 14' 39.103" N
P-3	83° 29' 51.024" E	22° 14' 37.111" N
P-4	83° 29' 53.905" E	22° 14' 35.120" N
P-5	83° 29' 56.786" E	22° 14' 33.129" N
P-6	83° 29' 59.667" E	22° 14' 31.137" N
P-7	83° 30' 2.548" E	22° 14' 29.146" N
P-8	83° 30' 5.429" E	22° 14' 27.154" N
P-9	83° 30' 8.309" E	22° 14' 25.163" N
P-10	83° 30' 11.190" E	22° 14' 23.172" N
P-11	83° 30' 14.071" E	22° 14' 21.180" N
P-12	83° 30' 16.954" E	22° 14' 19.188" N
P-13	83° 30' 19.814" E	22° 14' 17.196" N
P-14	83° 30' 22.698" E	22° 14' 15.204" N
P-15	83° 30' 25.578" E	22° 14' 13.212" N
P-16	83° 30' 28.459" E	22° 14' 11.220" N
P-17	83° 30' 31.340" E	22° 14' 09.228" N
P-18	83° 30' 34.221" E	22° 14' 07.236" N
P-19	83° 30' 37.101" E	22° 14' 05.244" N
P-20	83° 30' 40.000" E	22° 14' 03.252" N
P-21	83° 29' 59.067" E	22° 14' 17.346" N
P-22	83° 29' 58.194" E	22° 14' 17.369" N
P-23	83° 29' 57.459" E	22° 14' 17.199" N
P-24	83° 29' 56.726" E	22° 14' 16.809" N
P-25	83° 29' 56.201" E	22° 14' 16.252" N
P-26	83° 29' 55.552" E	22° 14' 15.385" N
P-27	83° 29' 54.946" E	22° 14' 14.299" N
P-28	83° 29' 54.351" E	22° 14' 12.722" N
P-29	83° 29' 54.054" E	22° 14' 11.569" N
P-30	83° 29' 53.562" E	22° 14' 9.562" N
P-31	83° 29' 53.278" E	22° 14' 8.613" N
P-32	83° 29' 52.773" E	22° 14' 7.856" N
P-33	83° 29' 52.009" E	22° 14' 6.932" N
P-34	83° 29' 51.411" E	22° 14' 6.388" N
P-35	83° 29' 50.968" E	22° 14' 6.180" N
P-36	83° 29' 50.524" E	22° 14' 6.145" N
P-37	83° 29' 49.951" E	22° 14' 6.203" N
P-38	83° 29' 49.303" E	22° 14' 6.362" N
P-39	83° 29' 48.581" E	22° 14' 6.646" N
P-40	83° 29' 47.775" E	22° 14' 7.039" N
P-41	83° 29' 47.015" E	22° 14' 7.674" N
P-42	83° 29' 46.074" E	22° 14' 8.478" N
P-43	83° 29' 45.827" E	22° 14' 10.084" N
P-44	83° 29' 42.585" E	22° 14' 10.543" N
P-45	83° 29' 41.374" E	22° 14' 10.840" N
P-46	83° 29' 39.109" E	22° 14' 10.994" N
P-47	83° 29' 37.410" E	22° 14' 11.000" N
P-48	83° 29' 36.301" E	22° 14' 10.770" N
P-49	83° 29' 34.771" E	22° 14' 10.324" N
P-50	83° 29' 33.857" E	22° 14' 9.973" N
P-51	83° 29' 32.985" E	22° 14' 9.570" N
P-52	83° 29' 32.155" E	22° 14' 9.012" N
P-53	83° 29' 31.146" E	22° 14' 8.053" N
P-54	83° 29' 30.001" E	22° 14' 6.817" N
P-55	83° 29' 28.913" E	22° 14' 4.444" N
P-56	83° 29' 27.772" E	22° 14' 1.936" N
P-57	83° 29' 27.416" E	22° 14' 0.799" N
P-58	83° 29' 27.356" E	22° 14' 0.074" N
P-59	83° 29' 27.804" E	22° 13' 59.031" N
P-60	83° 29' 27.883" E	22° 13' 58.348" N
	83° 29' 26.539" E	22° 13' 57.253" N

ANNEXURE-VIIIIC		
P-62	83° 29' 28.929" E	22° 13' 56.763" N
P-63	83° 29' 29.000" E	22° 13' 56.531" N
P-64	83° 29' 28.918" E	22° 13' 56.092" N
P-65	83° 29' 28.725" E	22° 13' 55.652" N
P-66	83° 29' 28.409" E	22° 13' 55.083" N
P-67	83° 29' 27.843" E	22° 13' 54.268" N
P-68	83° 29' 27.315" E	22° 13' 53.427" N
P-69	83° 29' 26.957" E	22° 13' 52.652" N
P-70	83° 29' 26.574" E	22° 13' 51.321" N
P-71	83° 29' 26.390" E	22° 13' 50.368" N
P-72	83° 29' 26.594" E	22° 13' 49.643" N
P-73	83° 29' 27.249" E	22° 13' 48.896" N
P-74	83° 29' 28.209" E	22° 13' 48.008" N
P-75	83° 29' 25.416" E	22° 13' 45.934" N
P-76	83° 29' 22.623" E	22° 13' 43.860" N
P-77	83° 29' 19.830" E	22° 13' 41.786" N
P-78	83° 29' 17.038" E	22° 13' 39.712" N
P-79	83° 29' 14.245" E	22° 13' 37.638" N
P-80	83° 29' 11.453" E	22° 13' 35.564" N
P-81	83° 29' 8.660" E	22° 13' 33.490" N
P-82	83° 29' 5.867" E	22° 13' 31.416" N
P-83	83° 29' 3.075" E	22° 13' 29.342" N
P-84	83° 29' 0.282" E	22° 13' 27.267" N
P-85	83° 28' 57.490" E	22° 13' 25.193" N
P-86	83° 28' 54.698" E	22° 13' 23.119" N
P-87	83° 28' 51.905" E	22° 13' 21.045" N
P-88	83° 28' 48.443" E	22° 13' 21.936" N
P-89	83° 28' 44.980" E	22° 13' 22.827" N
P-90	83° 28' 41.518" E	22° 13' 23.718" N
P-91	83° 28' 38.056" E	22° 13' 24.609" N
P-92	83° 28' 34.593" E	22° 13' 25.499" N
P-93	83° 28' 31.131" E	22° 13' 26.390" N
P-94	83° 28' 27.668" E	22° 13' 27.281" N
P-95	83° 28' 24.206" E	22° 13' 28.172" N
P-96	83° 28' 20.744" E	22° 13' 29.063" N
P-97	83° 28' 17.281" E	22° 13' 29.953" N
P-98	83° 28' 13.819" E	22° 13' 30.844" N
P-99	83° 28' 10.356" E	22° 13' 31.735" N
P-100	83° 28' 6.894" E	22° 13' 32.625" N
P-101	83° 28' 3.431" E	22° 13' 33.516" N
P-102	83° 27' 59.969" E	22° 13' 34.407" N
P-103	83° 27' 56.506" E	22° 13' 35.297" N
P-104	83° 27' 53.044" E	22° 13' 36.188" N
P-105	83° 27' 49.581" E	22° 13' 37.079" N
P-106	83° 27' 46.119" E	22° 13' 37.969" N
P-107	83° 27' 42.656" E	22° 13' 38.860" N
P-108	83° 27' 39.193" E	22° 13' 39.750" N
P-109	83° 27' 35.731" E	22° 13' 39.719" N
P-110	83° 27' 32.052" E	22° 13' 39.688" N
P-111	83° 27' 28.482" E	22° 13' 39.656" N
P-112	83° 27' 24.911" E	22° 13' 39.625" N
P-113	83° 27' 21.341" E	22° 13' 39.594" N
P-114	83° 27' 17.771" E	22° 13' 39.562" N
P-115	83° 27' 14.200" E	22° 13' 39.531" N
P-116	83° 27' 10.630" E	22° 13' 39.499" N
P-117	83° 27' 7.059" E	22° 13' 39.468" N
P-118	83° 27' 3.489" E	22° 13' 39.436" N
P-119	83° 26' 59.918" E	22° 13' 39.405" N
P-120	83° 26' 56.348" E	22° 13' 39.373" N
P-121	83° 26' 52.777" E	22° 13' 39.342" N
P-122	83° 26' 49.207" E	22° 13' 39.310" N
P-123	83° 26' 45.636" E	22° 13' 39.279" N
P-124	83° 26' 42.066" E	22° 13' 39.247" N
P-125	83° 26' 38.495" E	22° 13' 39.215" N
P-126	83° 26' 34.925" E	22° 13' 39.184" N
P-127	83° 26' 31.354" E	22° 13' 39.152" N
P-128	83° 26' 27.784" E	22° 13' 39.120" N
P-129	83° 26' 24.213" E	22° 13' 39.089" N

ANNEXURE-VIIIIC		
P-130	83° 26' 20.643" E	22° 13' 39.057" N
P-131	83° 26' 17.072" E	22° 13' 39.925" N
P-132	83° 26' 13.502" E	22° 13' 38.993" N
P-133	83° 26' 9.931" E	22° 13' 38.962" N
P-134	83° 26' 6.361" E	22° 13' 38.930" N
P-135	83° 26' 2.790" E	22° 13' 38.898" N
P-136	83° 25' 59.220" E	22° 13' 38.866" N
P-137	83° 25' 55.649" E	22° 13' 38.834" N
P-138	83° 25' 52.079" E	22° 13' 38.802" N
P-139	83° 25' 48.509" E	22° 13' 38.770" N
P-140	83° 25' 44.938" E	22° 13' 38.738" N
P-141	83° 25' 41.368" E	22° 13' 38.706" N
P-142	83° 25' 41.345" E	22° 13' 42.254" N
P-143	83° 25' 41.323" E	22° 13' 45.801" N
P-144	83° 25' 41.301" E	22° 13' 49.348" N
P-145	83° 25' 41.278" E	22° 13' 52.896" N
P-146	83° 25' 41.256" E	22° 13' 56.443" N
P-147	83° 25' 41.234" E	22° 13' 59.991" N
P-148	83° 25' 41.211" E	22° 14' 3.538" N
P-149	83° 25' 41.189" E	22° 14' 7.085" N
P-150	83° 25' 41.167" E	22° 14' 10.633" N
P-151	83° 25' 44.729" E	22° 14' 10.676" N
P-152	83° 25' 48.292" E	22° 14' 10.720" N
P-153	83° 25' 51.854" E	22° 14' 10.764" N
P-154	83° 25' 55.416" E	22° 14' 10.808" N
P-155	83° 25' 58.979" E	22° 14' 10.852" N
P-156	83° 26' 2.541" E	22° 14' 10.895" N
P-157	83° 26' 6.104" E	22° 14' 10.939" N
P-158	83° 26' 9.668" E	22° 14' 10.983" N
P-159	83° 26' 13.232" E	22° 14' 11.026" N
P-160	83° 26' 16.791" E	22° 14' 11.070" N
P-161	83° 26' 20.353" E	22° 14' 11.114" N
P-162	83° 26' 20.331" E	22° 14' 14.419" N
P-163	83° 26' 20.310" E	22° 14' 17.724" N
P-164	83° 26' 20.288" E	22° 14' 21.029" N
P-165	83° 26' 20.266" E	22° 14' 24.335" N
P-166	83° 26' 20.244" E	22° 14' 27.640" N
P-167	83° 26' 20.222" E	22° 14' 30.945" N
P-168	83° 26' 20.201" E	22° 14' 34.251" N
P-169	83° 26' 20.179" E	22° 14' 37.556" N
P-170	83° 26' 20.157" E	22° 14' 40.861" N
P-171	83° 26' 20.135" E	22° 14' 44.167" N
P-172	83° 26' 20.113" E	22° 14' 47.472" N
P-173	83° 26' 20.092" E	22° 14' 50.777" N
P-174	83° 26' 20.070" E	22° 14' 54.082" N
P-175	83° 26' 20.048" E	22° 14' 57.388" N
P-176	83° 26' 20.026" E	22° 15' 0.693" N
P-177	83° 26' 20.004" E	22° 15' 3.998" N
P-178	83° 26' 19.983" E	22° 15' 7.304" N
P-179	83° 26' 19.961" E	22° 15' 10.609" N
P-180	83° 26' 19.939" E	22° 15' 13.914" N
P-181	83° 26' 19.917" E	22° 15' 17.220" N
P-182	83° 26' 19.895" E	22° 15' 20.525" N
P-183	83° 26' 19.874" E	22° 15' 23.830" N
P-184	83° 26' 19.852" E	22° 15' 27.135" N
P-185	83° 26' 19.830" E	22° 15' 30.441" N
P-186	83° 26' 19.808" E	22° 15' 33.746" N
P-187	83° 26' 19.786" E	22° 15' 37.051" N
P-188	83° 26' 19.765" E	22° 15' 40.357" N
P-189	83° 26' 19.743" E	22° 15' 43.662" N
P-190	83° 26' 19.721" E	22° 15' 46.967" N
P-191	83° 26' 19.699" E	22° 15' 50.273" N
P-192	83° 26' 19.677" E	22° 15' 53.578" N
P-193	83° 26' 22.402" E	22° 15' 56.882" N
P-194	83° 26' 25.126" E	22° 15' 58.585" N
P-195	83° 26' 27.850" E	22° 16' 1.089" N
P-196	83° 26' 30.575" E	22° 16' 3.593" N
P-197	83° 26' 33.299" E	22° 16' 6.096" N

ANNEXURE-VIIIIC		
P-198	83° 26' 36.023" E	22° 16' 8.600" N
P-199	83° 26' 38.748" E	22° 16' 11.103" N
P-200	83° 26' 42.004" E	22° 16' 9.691" N
P-201	83° 26' 45.261" E	22° 16' 8.278" N
P-202	83° 26' 48.517" E	22° 16' 6.865" N
P-203	83° 26' 51.774" E	22° 16' 5.453" N
P-204	83° 26' 55.030" E	22° 16' 4.040" N
P-205	83° 26' 58.287" E	22° 16' 2.627" N
P-206	83° 27' 1.543" E	22° 16' 1.214" N
P-207	83° 27' 4.800" E	22° 15' 59.802" N
P-208	83° 27' 8.058" E	22° 15' 58.389" N
P-209	83° 27' 8.064" E	22° 15' 54.395" N
P-210	83° 27' 8.072" E	22° 15' 50.402" N
P-211	83° 27' 8.080" E	22° 15' 46.409" N
P-212	83° 27' 8.088" E	22° 15' 42.416" N
P-213	83° 27' 11.411" E	22° 15' 41.273" N
P-214	83° 27' 14.734" E	22° 15' 40.130" N
P-215	83° 27' 18.058" E	22° 15' 38.988" N
P-216	83° 27' 21.381" E	22° 15' 37.845" N
P-217	83° 27' 24.704" E	22° 15' 36.702" N
P-218	83° 27' 28.027" E	22° 15' 35.559" N
P-219	83° 27' 31.351" E	22° 15' 34.417" N
P-220	83° 27' 34.674" E	22° 15' 33.274" N
P-221	83° 27' 37.997" E	22° 15' 32.132" N
P-222	83° 27' 41.320" E	22° 15' 30.989" N
P-223	83° 27' 44.643" E	22° 15' 29.846" N
P-224	83° 27' 47.966" E	22° 15' 28.703" N
P-225	83° 27' 51.289" E	22° 15' 27.561" N
P-226	83° 27' 54.613" E	22° 15' 26.418" N
P-227	83° 27' 57.936" E	22° 15' 25.275" N
P-228	83° 28' 1.259" E	22° 15' 24.132" N
P-229	83° 28' 4.582" E	22° 15' 22.989" N
P-230	83° 28' 7.905" E	22° 15' 21.846" N
P-231	83° 28' 11.228" E	22° 15' 20.703" N
P-232	83° 28' 14.551" E	22° 15' 19.560" N
P-233	83° 28' 17.874" E	22° 15' 18.417" N
P-234	83° 28' 21.197" E	22° 15' 17.274" N
P-235	83° 28' 24.520" E	22° 15' 16.131" N
P-236	83° 28' 27.843" E	22° 15' 14.988" N
P-237	83° 28' 31.166" E	22° 15' 13.845" N
P-238	83° 28' 34.489" E	22° 15' 12.702" N
P-239	83° 28' 37.811" E	22° 15' 11.559" N
P-240	83° 28' 41.134" E	22° 15' 10.416" N
P-241	83° 28' 44.457" E	22° 15' 9.273" N
P-242	83° 28' 47.780" E	22° 15' 8.130" N
P-243	83° 28' 51.103" E	22° 15' 6.987" N
P-244	83° 28' 54.426" E	22° 15' 5.844" N
P-245	83° 28' 57.749" E	22° 15' 4.701" N
P-246	83° 28' 61.072" E	22° 15' 3.558" N
P-247	83° 28' 64.395" E	22° 15' 2.415" N
P-248	83° 29' 1.408" E	22° 15' 1.272" N
P-249	83° 29' 4.920" E	22° 15' 0.129" N
P-250	83° 29' 7.007" E	22° 15' 6.980" N
P-251	83° 29' 10.688" E	22° 15' 4.989" N
P-252	83° 29' 13.570" E	22° 15' 2.998" N
P-253	83° 29' 16.451" E	22° 15' 1.006" N
P-254	83° 29' 19.332" E	22° 14' 59.015" N
P-255	83° 29' 22.213" E	22° 14' 57.024" N
P-256	83° 29' 25.095" E	22° 14' 55.033" N
P-257	83° 29' 27.976" E	22° 14' 53.042" N
P-258	83° 29' 30.857" E	22° 14' 51.050" N
P-259	83° 29' 33.738" E	22° 14' 49.059" N
P-260	83° 29' 36.619" E	22° 14' 47.068" N
P-261	83° 29' 39.500" E	22° 14' 45.077" N
P-262	83° 29' 42.381" E	22° 14' 43.085" N
NOTE: Boundary points are software generated from georeferenced block boundary of Talaiipalli coal block		

## Annexure 2B



APPROVE



Annexure 001

Subject: Approval of Mining Plan for extension of 10th Extension A of the Ministry of Coal (MOC) lease 2023235 and 10th Extension B of the Ministry of Coal (MOC) lease 2023235 for the 10th Extension A and 10th Extension B.

Reference: MOC/Mineral/2023/1000 (10th Extension A) and MOC/Mineral/2023/1000 (10th Extension B) dated 15.08.2023.

1. The Ministry of Coal (MOC) has approved the Mining Plan for extension of 10th Extension A of the Ministry of Coal (MOC) lease 2023235 and 10th Extension B of the Ministry of Coal (MOC) lease 2023235 for the 10th Extension A and 10th Extension B.

2. The Mining Plan for extension of 10th Extension A of the Ministry of Coal (MOC) lease 2023235 and 10th Extension B of the Ministry of Coal (MOC) lease 2023235 for the 10th Extension A and 10th Extension B is attached herewith for your information.

3. The Mining Plan for extension of 10th Extension A of the Ministry of Coal (MOC) lease 2023235 and 10th Extension B of the Ministry of Coal (MOC) lease 2023235 for the 10th Extension A and 10th Extension B is attached herewith for your information.

4. The Mining Plan for extension of 10th Extension A of the Ministry of Coal (MOC) lease 2023235 and 10th Extension B of the Ministry of Coal (MOC) lease 2023235 for the 10th Extension A and 10th Extension B is attached herewith for your information.

5. The Mining Plan for extension of 10th Extension A of the Ministry of Coal (MOC) lease 2023235 and 10th Extension B of the Ministry of Coal (MOC) lease 2023235 for the 10th Extension A and 10th Extension B is attached herewith for your information.

6. The Mining Plan for extension of 10th Extension A of the Ministry of Coal (MOC) lease 2023235 and 10th Extension B of the Ministry of Coal (MOC) lease 2023235 for the 10th Extension A and 10th Extension B is attached herewith for your information.

7. The Mining Plan for extension of 10th Extension A of the Ministry of Coal (MOC) lease 2023235 and 10th Extension B of the Ministry of Coal (MOC) lease 2023235 for the 10th Extension A and 10th Extension B is attached herewith for your information.

8. The Mining Plan for extension of 10th Extension A of the Ministry of Coal (MOC) lease 2023235 and 10th Extension B of the Ministry of Coal (MOC) lease 2023235 for the 10th Extension A and 10th Extension B is attached herewith for your information.

9. The Mining Plan for extension of 10th Extension A of the Ministry of Coal (MOC) lease 2023235 and 10th Extension B of the Ministry of Coal (MOC) lease 2023235 for the 10th Extension A and 10th Extension B is attached herewith for your information.

10. The Mining Plan for extension of 10th Extension A of the Ministry of Coal (MOC) lease 2023235 and 10th Extension B of the Ministry of Coal (MOC) lease 2023235 for the 10th Extension A and 10th Extension B is attached herewith for your information.

APPROVED

EXTRACTS FROM THE MINUTES OF 417<sup>th</sup> MEETING OF THE BOARD OF DIRECTORS HELD ON WEDNESDAY, 25<sup>th</sup> FEBRUARY 2015

Item No.417.2.13 Approval of Mining Plan & Mine Closure Plans of Coal Mining Projects of NTPC and nomination of "Owner" as per the Mines Act 1952 for Pakri-Barwadih and all other coal mining blocks allocated / to be re-allocated /to be formally allocated to NTPC.

XX	XX	XX	XX	XX	XX
XX	XX	XX	XX	XX	XX

The Board, after discussions, passed the following resolution:

Resolved that Regional Executive Director (Coal Mining) be and is hereby authorized to approve the Mining Plans/Mine Closure Plans, associated documents pertaining to these plans for Coal Mining Projects and any subsequent revision/updation thereof, to be submitted to Ministry of Coal or any statutory authority in connection with development of coal mine projects.

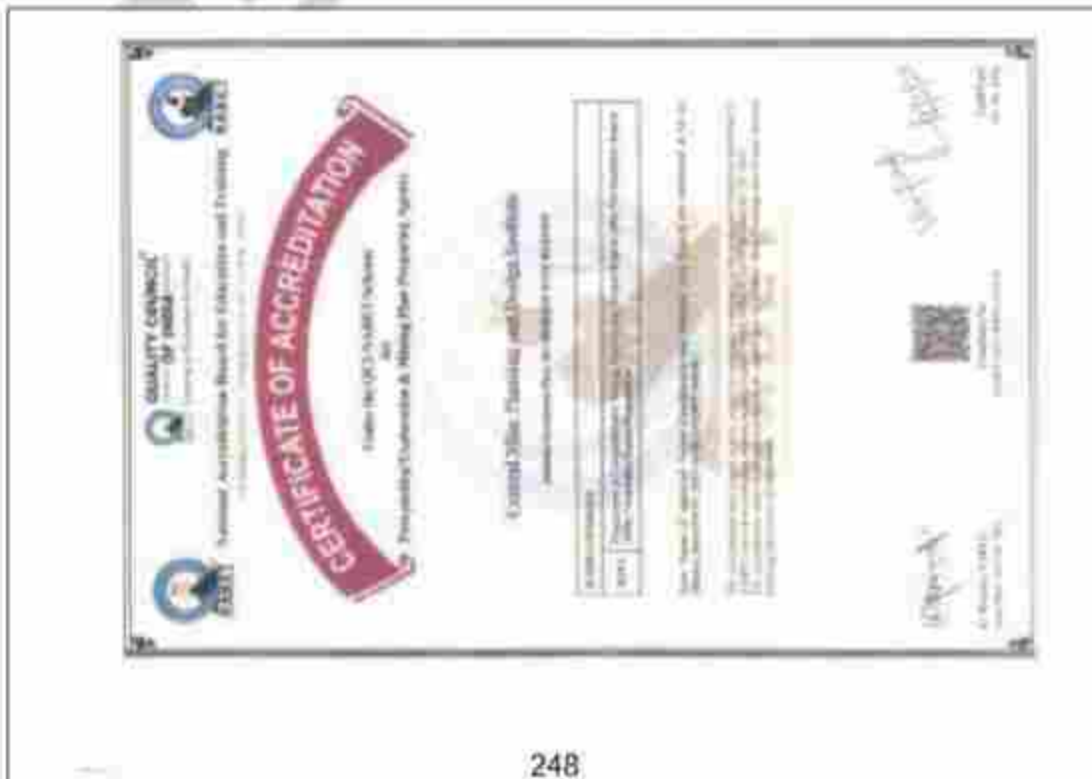
Further resolved that Shri Sharad Anand, Regional Executive Director (Coal Mining) be nominated as "Owner" as per the Mines Act, 1952 for Pakri-Barwadih and for all other coal mining blocks already allocated / to be re-allocated /to be formally allocated to NTPC.

\*\*\*\*

CERTIFIED TRUE COPY

  
Shri Sharad Anand, Regional Executive Director  
(Coal Mining) is hereby authorized to approve the Mining Plans/Mine Closure Plans, associated documents pertaining to these plans for Coal Mining Projects and any subsequent revision/updation thereof, to be submitted to Ministry of Coal or any statutory authority in connection with development of coal mine projects.

APPROVED





## Annexure 4

Annexure-IV

ES/1629/2003-CA-4 (Vol. III)  
Government of India,  
Ministry of Coal

New Delhi, the dated 31<sup>st</sup> March, 2010

To

Dy. General Manager (PE-MP&D),  
1<sup>st</sup> Floor, Engineering Office Complex,  
Sector-24, Noida-201301  
(U.P.)

**Subject:** Approval of Mining Plan (February, 2010) in respect of Talipalli Coal Block in Mand Raigarh, in the State of Chhattisgarh for captive mining of coal by M/s. NTPC Ltd.

Sir,

I am directed to refer to your letter No. CC/PPE/2010/5702 dated 10.11.2009 submitting therein Mining Plan (February, 2010) for Talipalli coal block in Mand Raigarh in the State of Chhattisgarh for captive mining of coal by M/s. National Thermal Power Corporation Ltd. to be read alongside allotment Company's letter dated 05/02/2010 and to say that the mining plan has been considered in this Ministry and the approval of the competent authority is hereby conveyed under Section 1 (2) (i) of the Mines & Minerals (Development & Regulation) Act, 1957 subject to the following conditions:-

- (i) The mining company shall take all necessary precautions regarding safety of mine workings, persons, employed therein.
  - (ii) Mining lease to be acquired shall not encroach on any other coal block.
  - (iii) The approval of mining plan is without prejudice to the requirement of approvals from competent/required authority under the relevant rules/regulations, etc.
2. Two copies of the approved Mining Plan duly signed by the competent authority are returned herewith with request that a copy of the approved mining plan be retained.

on the concerned State Government for necessary action and also a photocopy of the approved Mining Plan may be sent to the Coal Controller for monitoring the work.

Enclosure.

Yours faithfully,

(V. S. Singh)

Under Secretary to the Government of India

Copy to:

1. Under Secretary, CPAM Section, Ministry of Coal, for information and record.
2. The Coal Controller, 1-Central House Street, Kolkata.

# Annexure-5

Annexure-V

STATE OF GUJARAT

MINISTRY OF COAL AND MINES

STATE COAL MINES CORPORATION

Sl. No.	Name of the Mine	Category	Area (Ha)	Capacity (MT/Day)	Production (MT/Day)	Reserves (MT)	Life (Years)	Remarks
1	...	...	...	...	...	...	...	...
2	...	...	...	...	...	...	...	...
3	...	...	...	...	...	...	...	...
4	...	...	...	...	...	...	...	...
5	...	...	...	...	...	...	...	...
6	...	...	...	...	...	...	...	...
7	...	...	...	...	...	...	...	...
8	...	...	...	...	...	...	...	...
9	...	...	...	...	...	...	...	...
10	...	...	...	...	...	...	...	...
11	...	...	...	...	...	...	...	...
12	...	...	...	...	...	...	...	...
13	...	...	...	...	...	...	...	...
14	...	...	...	...	...	...	...	...
15	...	...	...	...	...	...	...	...
16	...	...	...	...	...	...	...	...
17	...	...	...	...	...	...	...	...
18	...	...	...	...	...	...	...	...
19	...	...	...	...	...	...	...	...
20	...	...	...	...	...	...	...	...
21	...	...	...	...	...	...	...	...
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APPROVED

## Annexure 6

 <b>bharatkosh.gov.in</b> Government of India Receipt Portal	
<b>RECEIPT</b>	
Transaction Ref.No: 1512220009288	Dated: Dec 15 2022 12:03PM
Received from <u>M/S. NTPC LIMITED</u> with Transaction Ref.No. <u>1512220009288</u>	
Dated <u>Dec 15 2022 12:03PM</u> the sum of <u>INR 550100 (Five Lakhs Fifty Thousand One Hundred Only)</u> through Internet based Online payment in the account of <u>Coal and Lignite, Application Processing fee- Mining Plan of NTPC Talajpalli.</u>	
Disclaimer:- This is a system generated electronic receipt, hence no physical signature is required for the purpose of authentication	
<i>Printed On: 15-12-2022 12:7:21</i>	
<b>Courtesy :- Controller General of Accounts</b>	

APPROVED

# Annexure 7

## TO WHOM IT MAY CONCERN

The Mining Plan & Mine Closure Plan of Tataipalli Coal Mine formulated by Mining Plan Preparing Agency-Central Mine Planning and Design Institute. OCI Number- NABET/APA-MPPA/IA/010 which was sent for expert review to Mining Plan Preparing Agency-MECON Limited. OCI Number- NABET/APA-MPPA/IA/015.

The Mining Plan & Mine Closure Plan of Tataipalli Coal Mine has been review from Technical and administrative angle and has found to be prepared in line with the guideline for formulation, processing, scrutiny and approval of Mining Plan and Mine Closure Plan circulated vide OM dated 29th May 2020. The subject mining plan is found to be in order and is recommended for consideration of the Approving Authority for approval.

Digital Signature

MECON Limited

Vivekananda Path, P.O.Doranda, Ranchi, Jharkhand, Pin 834002

NABET/APA-MPPA/IA/015

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APPROVED

## Additional Annexure-8

Annexure VIII

Nef-110152790009 - I.A.(M)  
Government of India  
Ministry of Environment & Forests

Parasuram Bhawan,  
C.O.O. Complex, Lodi Road New  
New Delhi - 110003,  
Date: 02 January, 2013

To

The General Manager,  
M/s NTPC,  
Engineering complex,  
A-8A, Sector-24,  
NOIDA - 201101.

Sub: Talaspalli Coalfield (OC at 18 MTPA capacity and UG at 8.72 MTPA capacity of a total project area of 2349.33 ha) of M/s NTPC located in villages Talaspalli, Bichinara, Nayamur, Kadarnaha, Rukera, Chotiguda, Ajgarh, & Salaspali, Tehsil Ghanghoda, district Raigarh, Chhattisgarh - Environmental Clearance - org.

Re:

This is with reference to letter No. CC/ES/7911/2009/GEN dated 25.09.2009 along with application for Terms of Reference (TOR) for a new Talaspalli Opencast-cum-Underground Coalmine and this Ministry's letter dated 23.11.2009 granting the TOR and your letter No. CC/ES/7911/2009/GEN dated 30.03.2011 for environmental clearance and subsequent letters dated 20.09.2011, 21.10.2011, and 22.02.2012 on the aforesaid subject. The Ministry of Environment & Forests has considered the application. It is noted that the proposal is for opening a new Talaspalli Opencast-cum-Underground Coalmine project of 18.72 MTPA production capacity in a total project area of 2349.33 ha located in Tehsil Ghanghoda in district Raigarh, Chhattisgarh. The mine is captive to the company's Lars Super Thermal Power Project (4000MW) located at a distance of 60km. There are no National Parks, WL Sanctuaries, Biosphere Reserves within the 10 km study area. There are 5 blocks of Reserve Forests (RFs) Silit, Rai, Tolgi East, Tolgi West, Doodingri Forest within 10 Km radius of study area. A number of endangered species such as elephant, bear and leopard are reported in the study area. The total project area of 2349.33 ha includes ML of an area of 2113 ha and an area of 236.33 ha of land outside the ML which is required for colony, R&R colony and MGR. The MGR route passes through an elephant migratory corridor. Of the total project area, 1320.99 ha is private land, 261.97 ha is Govt. land, 766.293 ha is Forestland. Forestry clearance has been obtained vide letter of the FC Division no. X-1/2012-FC dated 1<sup>st</sup> November, 2012. The break-up of land use for the project is given below:

S.No.	Particular	Private	Govt.	Forest	Total
1	Mine lease area	1200.99	202.00	710.10	2113
2	Colony	6.317	30.23	-	36.547
3	R&R Colony	-	19.22	-	19.22
4	MGR corridor	113.77	55.50	54.293	180.563
	<b>Total</b>	<b>1320.997</b>	<b>261.97</b>	<b>766.293</b>	<b>2349.35</b>

1.2 River Kato flows along the eastern boundary of the ML and falls into at 3.5 km. A number of first order/second order streams originate from the ML. Karna nala is a seasonal nala originating from the northern side of the block and passes through the block and joins River Kato. It is proposed to divert Karna nala flowing through the ML into a Channel (diversion canal) which would be constructed along the northern side of the block and ultimately join River Kato. A detailed Area Drainage Study comprising river flow characterization, flood frequency analysis, etc. has been carried out. Based on

the study, the diversion channel has been designed taking into consideration the realignment of the channel with the River to its original path. The Channel Diversion Plan has been submitted to the Flood & Irrigation Dept., Govt. of Chhattisgarh.

1.3 Of the total ML area, 2079.34 ha is for the mine, 26 ha is for infrastructure and an embankment proposed along Kaveri Kela and 7.66 ha is for green belt. It is proposed to leave a 60m wide forestland between River Kela and quarry area undisturbed due to safety reasons as a study carried out has indicated that the exposures of coal seams left out after mining is prone to catching fire. Grade of soil in E.G with ash content upto 52%. Mining technology for OC mining would be shovel-dumper and Road & Pillar and Continuous Miner for UG mine. There are 21 coal horizons and it would be unsafe to work the top seams by UG mining. The lower 4 seams are planned by UG mining. UG mining would commence 20 years after commencement of OC mining. The pitting between OC and UG mining is about 33m-37 m. Ultimate working depth is 494m bgl. The total estimated OB generation from the mine is 2777.07 Mm<sup>3</sup>, of which 264.52 Mm<sup>3</sup> of OB would be stored in external OB dump of 446 ha in northern side of 90m from ground level. During the initial years, 264.52 Mm<sup>3</sup> of OB would be temporarily accommodated in temporary external dumps of 60m-90m height in coal bearing area of 446 ha within the mine lease, which would be re-handled during the 5<sup>th</sup> year of mine operation when backfilling begins and continues upto 20<sup>th</sup> year and concurrent backfilling would implemented beyond 20<sup>th</sup> year and until 32<sup>nd</sup> year of mine operations. As a result, land acquisition of 446 ha of land for external OB dump is not required. At the post-mining stage, there would be no permanent external dump outside the coal block. In addition, 80 ha of an isolated patch of backfilled area raised to a height of 60m would be re-handled back into the mine void and the height of the internal dump would be match with nearby topography/ground level. Of the total ML area of 2079.34 ha, 1848.38 ha would be simultaneously backfilled and reclaimed with plantation and the balance 230.96 ha would be left as a void and final void depth of 60m by backfilling into the final pit void.

1.4 The total estimated water requirement of the project is 2380 m<sup>3</sup>/d, of which 750m<sup>3</sup>/d is for domestic use and 1640 m<sup>3</sup>/d is for the mine operation. A detailed hydrological study of the area has been carried out and the falls under "Safe Category" as far as ground water development is concerned. Water table is in the range of 6.10-7.20m bgl (pre-monsoon) and 2.9-12.1 m bgl (post-monsoon). Confined aquifer is at the depth of 200m. Water harvesting measures and monitoring of ground water and surface waters would be implemented.

1.5 A Conservation Plan for endangered wildlife of the area was drawn and submitted to the State Government. The Wildlife conservation plan includes provision for the safe passage/corridor for the elephants, creation of underpass along elevated MGR, with passageway for free movement of herds of elephants, reducing speeds of train in elephant passages, development of plantation of fodder, habitat restoration. A budgetary provision of Rs 5 crores has been made for wild life conservation. The Plan for afforestation has been submitted to Chhattisgarh State Forest Department as part of the diversion proposal of 1532 acres land in Damanjani ghat and Raipach at the cost of Rs 13.75 crores. An estimated 26, 727 TPD of coal would be transported through an MGR system of 180.54 ha of land upto Katarajing Railway siding to the linked Laxmi Super Thermal Power Station at a distance of 60km. The MGR would pass through an elephant migratory corridor. It is proposed to create underpass along MGR for the safe passage of elephants as overhead multiple tined conveyors covering such a long distance is not technologically feasible. However, adequate number of over/under passes would be constructed along the MGR route, visited/reported/inhabited by elephants in the area in consultation with PCLJ (WS), and at least 5 under/over passes shall be created particularly along the 7km stretch of the 70km MGR route, which forms a part of the elephant migratory corridor. In the rest of the route wherever required, similar under/overpasses shall be created. A detailed study has been initiated.

1.6 The project involves R&R of 1995 PAFs, which includes 655 land and homestead houses and 980 land losers. R&R Plan has been prepared after a detailed survey was carried out and after 10 VDAC meetings and Green Sabha and meetings with OC, for a total cost of Rs 677 crores, of which rehabilitation plan is for Rs 214 crores. CRP plan has been prepared for Rs 40 crores. Since the project falls in a notified tribal area, a Plan for Tribal Development for Rs 5 crores has been prepared. Capital cost for EMP is Rs 1018.80 lakhs with an annual recurring budget of Rs 5.46/T of coal. Public Hearing was held on 18.12.2018. Life of the OC mine is 52 years and UG mine is 30 years. Total capital cost of the project is Rs 6960 crores.

2. The Ministry of Environment & Forests hereby accords environmental clearance for the above mentioned Talajpali Coalmine (OC at 18 MTPA capacity and UG at 0.72 MTPA capacity of a total project area of 2349.35 ha) of M/s National Thermal Power Corporation

Dr. Subhash



(NTPC) Ltd. located in Tehsil Gharoada, district Raigarh, Chhattisgarh under the Environmental Impact Assessment Notification, 2006 and subsequent amendments thereon and Circulars there under subject to the compliance of the terms and conditions mentioned below:

**A. Specific Conditions**

- i. The maximum production capacity shall not exceed 18 MTPA for open-pit mining and 0.32 MTPA for underground mining.
- ii. The Plan for diversion of Karra nala shall be modified to include a major stream flowing through the ML towards the north side. The diversion channel shall be designed taking into consideration the realignment of the channel to join with River Kelo to its original path. Approval of the Flood & Irrigation Department, Govt. Of Chhattisgarh shall be obtained for plan for diversion of Karra Nala and the stream. The proposed embankment along the diverted channel shall be stabilized with plantation using a mix of native species. Stone pitching shall be done towards forest area.
- iii. Top soil of an estimated 25.33 Mn3 generated during initial 9 years shall be stacked properly within the mineralised area with proper slope at marked sites and shall be used concurrently for reclamation and development of green belt within a year of its generation.
- iv. During the initial 4 years of open-pit mining, an estimated 244.72 Mn3 of OS generated to be accommodated in temporary external dumps of 50m height in a coal bearing area of 446 ha within the mine lease, shall be re-handled during the 5<sup>th</sup> year of mine operation when backfilling begins. In addition, 30 ha of an isolated patch of ext. OS dump shall also be re-handled back into the mine void. At the post-mining stage, there shall be no permanent external dump outside the coal block.
- v. Reclamation of areas after re-handling of temporary external OS dumps and backfilled deviated voids and habitat restoration of the mined out area shall be carried out by developing a 3-tier native forest ecosystem using native species found in the pre-mining forest ecosystem. A nursery of native species found in pre-mining eco-system shall be developed for reclamation and for habitat re-vegetation. Afforestation plan shall also include reproduction of species on which the tribals are dependent for minor forest produce for their livelihoods.
- vi. Catch drains and siltation ponds of appropriate size shall be constructed to arrest silt and sediment flows from soil, OS and mineral dumps. The water so collected shall be utilised for watering the mine area, roads, green belt development, etc. The drains shall be regularly desilted and maintained properly.
- vii. Garland drains (size, gradient and length) and ramp capacity shall be designed keeping 30% safety margin over and above the peak rainfall and maximum discharge in the area adjoining the mine site. Sump capacity shall also be provided for adequate retention period to allow proper settling of silt material.
- viii. Dimension of the retaining wall at the toe of the dumps and OS benches within the mine to check run-off and siltation shall be based on the rainfall data.
- ix. No groundwater shall be used for the mine operations except for drinking purpose and during the initial years of mine operation. Any additional water requirement envisaged for mine operations shall be obtained from mine pit water, by recycle/reuse to the maximum extent and from rainwater harvesting measures.
- x. Regular monitoring of groundwater level and quality shall be carried out by establishing a network of existing wells and construction of new piezometers. The monitoring for quantity shall be done four times a year in pre-monsoon (May), monsoon (August), post-monsoon (November) and winter (January) seasons and for quality including TDS and TSS in May and in monsoon. Data thus collected shall be submitted to the Ministry of Environment & Forests and to the Central Pollution Control Board quarterly within one month of monitoring.
- xi. A Plan for recharging and monitoring of ground water in the impact zone and implemented in consultation with the State Ground Water Board, which includes creation of ponds and wells in impact zone and check dams in River Kelo, Pajhar Nadi in consultation with concerned Government Dept. A suitable scheme for supply of drinking water to 3 surrounding villages shall also be prepared in consultation with their Government, provisionally where village wells go dry in the impact zone.
- xii. ETP shall also be provided for workshop, and CHP Effluents shall be treated to conform to effluent

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prescribed standards, particularly for pH and TSS in case of discharge into any watercourse within or outside the lease.

- xiii. An STP shall be provided for the township/colony to treat the domestic effluents to prescribed standards and for their reuse in project activities and in development of green belt in the colony.
- xiv. Industrial wastewater (workshop and washwater) shall be properly collected, treated so as to conform to the standards prescribed under GSR 422 (U) dated 15<sup>th</sup> May 1993 and 21<sup>st</sup> December 1991 or as amended from time to time before discharge. Oil and grease trap shall be installed for treatment of workshop effluents.
- xv. No fly ash from the linked TPPs shall be used in backfilling of the decanted void without undertaking an environmental feasibility study and without prior approval of this Ministry under EIA Notification, 2006.
- xvi. Controlled blasting shall be practiced only during daytime with use of delay electric detonators. Drills shall be wet operated. The mitigative measures for control of ground vibrations and to arrest the fly rocks and boulders shall be implemented.
- xvii. Crushers at the CMP shall be operated with high efficiency bag filters, water sprinkling system shall be provided to check fugitive emissions from crushing operations, conveyor system, haulage roads, transfer points, etc. Hoppers of the coal crushing unit shall be fitted with high efficiency bag filters and mist spray water sprinkling system shall be installed and operated effectively at all times of operation to check fugitive emissions from crushing operations, transfer points, stockyards.
- xviii. All approach roads shall be black topped and swept regularly with mechanical sweepers and internal roads and major haul roads shall be black topped or cemented and provided with mobile and fixed type sprinklers. A 3-tier avenue plantation using local species shall be developed along the main roads, and approach roads to the mine. In addition, green belt shall be developed using local species all along the periphery of the site, along the areas such as crushing unit, and stockyards, which shall be properly maintained. Water sprinkling arrangements shall be established and functional during transfer and loading of coal.
- xix. A Conservation Plan for the endangered faunal species reported in the study area and for the medicinal plants found in and around the project area shall be implemented in consultation with the State Forest and Wildlife Departments. An in-situ conservatory of species found in the pre-mining original ecosystem and rare and endangered plant species including medicinal plants species found in the study area during pre-mining phase shall be established and species reintroduced during mine reclamation and habitat restoration. The Conservation Plan shall include conservation of areas within the project boundary to be left undisturbed as free passageways for the wildlife to reach the forests in the study area. The Conservation Plan shall also include activities of mine reclamation and wildlife habitat restoration of mined out areas within the core zone and project area using native species representative of the forest ecosystem during the pre-mining phase. Separate funds of Rs. 5 crores as capital costs shall be earmarked for implementation of the various activities under the Conservation Plan. The status of the Conservation Plan including expenditure (capital and revenue) shall be reported once a year as part of the monitoring report to this Ministry and to the MCEP Regional Office, Bhopal. The proponent shall also participate in the Regional Wildlife Conservation Plan (RWLCP) for the study area prepared by the State Wildlife Dept. and in addition to the above funds shall also contribute financially for implementation of the RWLCP. Habitat development/conservation measures along the migratory route/habitats of elephants found/visiting the area shall form a part of the Regional Action Plan.
- xx. The proponent shall ensure that the 70 km stretch of MGR which includes a part of the elephant migratory corridor provides safe passageway for the elephants, the number and locations of which shall be finalized after a detailed study in consultation with the State Forest and Wildlife Departments, Govt. of Chhattisgarh and inputs from Dr. Kamal Sahasrab, Professor and Chairman, Centre for Ecological Sciences, Indian Institute of Science, Bangalore. Adequate number of over/under passes shall be constructed along the MGR route, visited/reported/observed by elephants in the area in consultation with PCCF (W.), and about 5 under/over passes shall be created particularly along the 70 km stretch of the 70 km MGR route, which forms a part of the elephant migratory corridor. In the rest of the route wherever required, similar under/overpasses shall be created. The W. Plan shall include measures for awareness for conservation of wildlife, training to the drivers of MGR for use of steel, beam, the crackers to move animals away from railway tracks, avoiding use of MGR during time of maximum animal movement.



- xxx. An Environment Cell/Panel of experts consisting of WL expert, ecologist, sociologist and hydrology shall be created to oversee the implementation of the WL Conservation Plan and Plan for Rehabilitation-restoration. No such species shall be mined or reclamation and non-restoration of the mine.
- xxxi. Area brought under afforestation shall be not less than 1875.04 ha which includes backfilled area (1848.38 ha), which includes area reclaimed after re-handling of temporary external O&G dumps and topsoil dump, embankment (25 ha) along ML boundary, infrastructure area (2 ha), along roads, grass belt (7.66ha), and a well-protected amenity zone and an ecology outside the ML by planting native species in consultation with the local DFO/Agriculture Department. The density of the trees shall be around 2500 plants per ha.
- xxxii. A Progressive Mine Closure Plan shall be implemented by reclamation of 1848.38 ha of the total quarry area of 2179.54 ha by backfilling and reclamation and by afforestation, to create a 7-storey forest ecosystem, by planting native species in consultation with the local DFO/Agriculture Department/relevant commission. The density of the trees shall be around 2500 plants per ha. The buffer 230.96 ha shall be left as a water body of a max. depth of 0.6m which shall be gently sloped and the upper benches stabilized with grass and plantation.
- xxxiii. R&R Plan prepared for the 8 villages in the core zone - Talajpali, Bichimra, Nayaganj, Kishanota, Karkera, Chhapra, Ajgarh and Satepali with 635 land and homestead acres and 940 land acres shall be implemented within an agreed time-frame of 3-5 years and shall be not less than the terms and conditions approved by the State Government and shall not be inferior than that in the National R&R Policy and shall be completed within the agreed time-frame. R&R shall include specific income generation schemes and setting up of SHKs and cooperatives, and services and assistance under the Tribal Development Plan for the tribals being displaced and provision of assistance for the under-privileged sections. The provision also includes a Corpus Fund for the maintenance of the Rehabilitation site. The status of the implementation of the R&R Plan along with financial status of the activities undertaken shall be updated on the company website and updated at least once in a year.
- xxxiv. The Project cost shall include a Tribal Development Plan for a minimum cycle of Rs 10 acres. The activities for Tribal Development under CSR and R&R shall be dovetailed with the District Tribal Welfare Plan being prepared annually by the State Government which should be used to prepare and monitor the activities. Training/capacity development and skill development shall form an integral part of CSR and R&R Action Plan, wherein project affected youth are given training so as to enhance their skill for direct/indirect employment. A cell for outcasted persons of the society as per R&R Policy of Govt. of Chhattisgarh. A female social scientist shall also be included for implementation of R&R and CSR.
- xxxv. The proponent shall implement activities undertaken under CSR for neighbouring villages in the study area for the life of the project. The activities shall include establishing/strengthening of schools, roads, drainage and sanitation, community hall, drinking water in the villages and skill development of the local communities. The CSR Plan shall also include Tribal Welfare activities for the tribals and their skill development for alternate livelihood and addressing issues such as availability of women forest produce for the tribal/local communities. The details of the activities and expenditure made thereon in each of the villages taken up under CSR shall be displayed on the company's website and updated at least once in six months. The socio-economic development of the villages shall be monitored over the life of the project using indices such as the UNDP Human Development Index.
- xxxvi. For monitoring land use pattern and for post mining land use, a time series of land use maps, based on satellite imagery (in a scale of 1:5000) of the core zone and buffer zone, from the start of the project until end of mine life shall be prepared once in 3 years (for various particular years which is consistent in the time series), and the report submitted to MOEF and its Regional office at Bhopal.
- xxxvii. A Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment & Forests for approval 3 years in advance of final mine closure for approval. The Plan shall include habitat restoration of the project area consisting of a native forest ecosystem, using a mix of native species found in the pre-mining ecosystem in the study area.
- xxxviii. The approved Mining Plan shall be modified to integrate Specific Conditions No. (iv), (v) and (vi) and approval obtained prior to start of mining operations.

Signature



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## B. General Conditions

- i. No change in technology and scope of working shall be made without prior approval of the Ministry of Environment and Forests.
- ii. No change in the annual plan including quantity of mineral coal and waste being produced shall be made.
- iii. Four ambient air quality monitoring stations shall be established in the core area as well as in the buffer zone for monitoring  $PM_{10}$ ,  $PM_{2.5}$ ,  $SO_2$  and  $NO_2$ . Location of the stations shall be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation with the State Pollution Control Board. Monitoring of heavy metals such as Hg, As, Ni, Cd, Cr, in the particulate matter etc. shall be carried out at least once in six months.
- iv. Data on ambient air quality ( $PM_{10}$ ,  $PM_{2.5}$ ,  $SO_2$  and  $NO_2$ ) and heavy metals such as Hg, As, Ni, Cr, etc.) and other monitoring data shall be regularly submitted to the Ministry including its Regional Office at Bhopal and to the State Pollution Control Board and the Central Pollution Control Board once in six months. Random verification of samples through analysis from independent laboratories recognized under the EP Rules, 1986 shall be facilitated as part of the compliance report.
- v. Adequate measures shall be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in blasting and drilling operations, operation of HEMM, etc. shall be provided with ear plugs/muffs.
- vi. Industrial wastewater (workshop and wastewater from the mine) shall be properly collected and treated so as to conform to the standards including for heavy metals before discharge prescribed under (S.O. 422 (S) dated 19<sup>th</sup> May 1992) and 1<sup>st</sup> December 1993 or as amended from time to time. Oil and grease trap shall be installed before discharge of workshop effluents.
- vii. Vehicular emissions shall be kept under control and regularly monitored.
- viii. Monitoring of environmental quality parameters shall be carried out through establishment of adequate number and type of pollution monitoring and analysis equipment in consultation with the State Pollution Control Board and data got analysed through a laboratory recognized under EP Rules, 1986.
- ix. Personnel working in dusty areas shall wear protective respiratory device and they shall also be provided with adequate training and information on safety and health aspects.  
Occupational health surveillance programme of the workers shall be undertaken periodically to observe any contraindications due to exposure to dust and to take corrective measures, if needed.
- x. A separate environmental management cell with suitable qualified personnel shall be set up under the control of a Senior Executive, who will report directly to the Head of the company.
- xi. The funds earmarked for environmental protection measures shall be kept in separate account and shall not be diverted for other purpose. Year wise expenditure shall be reported to this Ministry and its Regional Office at Bhopal.
- xii. The Project authorities shall advertise at least in two local newspapers widely circulated around the project, one of which shall be in the vernacular language of the locality concerned within seven days of the clearance letter intimating that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and may also be seen at the website of the ministry of Environment & Forests at <http://mep.gov.in>
- xiii. A copy of the environmental clearance letter shall be marked to concerned Panchayat/Gik Panchayat, Municipal Corporation or Urban Local Body and local NGO, if any, from whom any suggestion/representation has been received while processing the proposal. A copy of the clearance letter shall also be displayed on the company's website.
- xiv. A copy of the clearance letter shall be displayed on the website of the concerned State Pollution Control Board. The EC letter shall also be displayed at the Regional Office, District Industry Centre and Collector's Office/Talukdar's Office for 30 days.

22/11/2022

22. The clearance letter shall be uploaded on the company's website. The compliance status of the stipulated EC conditions shall also be updated by the project authorities on their website and updated at least once every six months so as to bring the same to the public domain. The monitoring data of environmental quality parameters (air, water, noise and soil) and critical pollutants such as PM10, PM2.5, SO2 and NO<sub>x</sub> (ambient and stack if any) and critical water parameters shall also be displayed at the entrance of the project premises and mines office and in corporate office and on the company's website.
23. The project proponent shall submit its monthly reports on the status of compliance of the stipulated environmental clearance conditions (both in hard copy and in e-mail) to the respective Regional Office of the MOEF, the respective Zonal offices of CPCB and the SPCL.
24. The Regional Office of this Ministry located at Bhopal shall monitor compliance of the stipulated conditions. The Project authorities shall extend full cooperation to the office(s) of the Regional Office by furnishing the requisite data/information/monitoring reports.
25. The environmental statement for each financial year ending 31<sup>st</sup> March in Form-V is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be uploaded on the company's website along with the status of compliance of EC conditions and shall be sent to the respective Regional Offices of the MOEF by e-mail.
3. The Ministry or any other competent authority may stipulate any further condition for environmental protection.
4. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract the provisions of the Environment (Protection) Act, 1986.

3. The above conditions will be enforced *inter-alia*, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1986, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and Rules. The proponent shall ensure to undertake and provide for the costs incurred for taking up remedial measures in case of soil contamination, contamination of groundwater and surface water, and occupational and other diseases due to the mining operations.

  
 (Dr. Manoj Kumar)  
 Director

Copy to:

1. Secretary, Ministry of Coal, New Delhi.
2. DG (F) and Special Secretary, Ministry of Environment and Forests, New Delhi.
3. Secretary, Department of Environment & Forests, Government of Chhattisgarh, Secretariat, Raipur.
4. Principal Chief Conservator of Forests and CWLW, Govt. of Chhattisgarh, Raipur.
5. Chief Conservator of Forests, Regional office (RZ), Ministry of Environment & Forests, E-2240 Arora Colony, Bhopal - 462016.
6. Chairman, Chhattisgarh State Environment Conservation Board, 1-Tilak Nagar, Shiv Mandir Chowk, Main Road, Avanti Vihar, RAIPUR-Chhattisgarh - 492001.
7. Chairman, Central Pollution Control Board, CBI-com-Office Complex, East Arjun Nagar, New Delhi - 110032.
8. Member-Secretary, Central Ground Water Authority, Ministry of Water Resources, Connaught Road, Barakhili, A-2, W-3 Kirti Khandi Marg, New Delhi.
9. District Collector, Raipur, Government of Chhattisgarh.
10. Monitoring File. 11. Guard File. 12. Record File.

cc: none

HED, BMLD : For information please

  
 (Dr. Manoj Kumar)  
 Director

4/13

Government of India  
Ministry of Environment, Forest & Climate Change

India Prayogyan Bhawan  
Ajanta Road,  
Jor Bagh, New Delhi

No. J-11015-279(2008)-A-I(10) P.I. 100

Dated 26<sup>th</sup> October, 2015

To,  
The Managing Director,  
M/s NTPC Limited,  
NTPC Bhawan, Scope Complex  
7, Institutional Area, Conna Road  
New Delhi-110003  
Email: pathan@npsc.co.in

(F-2) (F-3)  
Sd/- (M-2)  
26/10/15

Sub: Revalidation/Transfer of Environmental Clearance of Talajpalli Coalmine (OC at 18 MTPA capacity and UG at 0.72 MTPA capacity) in a project area of 2349.35 ha) in villages Talajpalli, Bichinara, Nayarampur, Kudumaha, Raikera, Chotiguda, Ajjigarh, & Salaspak, Taluk Gharghunda, District Raigarh (Chhattisgarh) - reg.

The Ministry of Environment, Forest and Climate Change (MoEFCC), in accordance with the Environmental Impact Assessment (EIA) Notification, 2006 and subsequent amendments thereto has approved Environmental Clearance (EC) for Talajpalli Coalmine (OC at 18 MTPA capacity and UG at 0.72 MTPA capacity) in a project area of 2349.35 ha) in villages Talajpalli, Bichinara, Nayarampur, Kudumaha, Raikera, Chotiguda, Ajjigarh, & Salaspak, Taluk Gharghunda, District Raigarh (Chhattisgarh) to M/s National Thermal Power Corporation Limited subject to compliance of terms and conditions stipulated therein vide letter No. J-11015(279)(2008)-A.I (N) dated 2<sup>nd</sup> January, 2013.

WHEREAS the Hon'ble Supreme Court of India vide Judgment dated 20<sup>th</sup> August, 2014 read with the order dated 24<sup>th</sup> September, 2014 has directed the allocation of 734 coal blocks and issued directions with regard to such coal blocks wherein the Central Government in pursuance of the said directions has to take expeditious action to implement the said order.

Home Office, Government of India, New Delhi



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PAGE 1/1

WHEREAS in pursuance of the judgment and order of the Hon'ble Supreme Court, the competent authority has, in accordance with provisions of the Coal Mines (Special Provisions) Second Ordinance, 2014 and the Coal Mines (Special Provisions) Rules, 2014 conducted the auction of the mines.

WHEREAS Ministry of Coal (MOC) vide order No. 13010302015-CA-II dated 18<sup>th</sup> September, 2015 has informed that their Ministry has allotted 8 Coal Mines through allotment routes to 2 different allottees. MOC has requested this Ministry to facilitate transfer of the Environment Clearance and Forest Clearance of these blocks to the successful allottees.

WHEREAS Ministry of Coal vide Allotment Order (under clause (d) of sub-rule (7) of rule 7 and sub-rule (1) of rule 13 and Order No. 100/31/2015/NA dated 8<sup>th</sup> September, 2015 has allotted the Tataiipatti Coalmine (OC at 18 MTPA capacity and UG at 0.72 MTPA capacity) in a project area of 2349.35 ha) in villages Tataiipatti, Binhinara, Nayarampur, Kudumraha, Raikura, Chhatiguda, Ajjipatti, & Saktipatti, Tehsil Gharghoda, District Raigarh (Chhattisgarh) to M/s National Thermal Power Corporation Limited as the successful allottee.

WHEREAS vide Gazette Notification S.O. 211 (F) Notification dated 23.03.2015, MOC had made amendments to paragraph 11 in the General Notification N.O. 1533 (F) dated 14<sup>th</sup> September, 2006. Vide the said amendment, where an allocation of coal block is cancelled in any legal proceeding, or by the Government or any person with law, the environment clearance granted in respect of such coal block may be transferred, subject to the same validity period as was initially granted, to any legal person to whom such block is subsequently allocated, and in such case, obtaining of "no objection" from either the holder of environment clearance or from the regulatory authority concerned shall not be necessary and in reference shall be made to the Expert Appraisal Committee or the State Level Expert Appraisal Committee concerned.

WHEREAS in light of the MOC Allotment Order No. 100/31/2015/NA dated 8<sup>th</sup> September, 2015, transfer of EC may not be warranted as the successful allottee M/s National Thermal Power Corporation Limited is already in possession of EC Order No. J 11015/279/2005-I.A.II (II) dated 2<sup>nd</sup> January, 2013.

However, the said EC may be considered for revalidation in favour of M/s National Thermal Power Corporation Limited for Tataiipatti Coalmine (OC at 18 MTPA capacity and UG at 0.72 MTPA capacity) in a project area of 2349.35 ha) in villages Tataiipatti, Binhinara, Nayarampur, Kudumraha, Raikura, Chhatiguda, Ajjipatti, & Saktipatti, Tehsil Gharghoda, District Raigarh (Chhattisgarh) subject to the following conditions:

Head of office/Minister, Mines & MOC, Chhattisgarh

Page 7 of 11

- (i) Any change in scope of work will attract the provisions of the Environmental (Protection) Act, 1986 and Environmental Impact Assessment Notification 2006 in conjunction with the subsequent amendments/ordinance.
- (ii) All conditions stipulated in the EC order No. J 11016/27B/2009-14, H (M) dated 2<sup>nd</sup> January, 2013 shall remain unchanged.
- (iii) The stipules shall be taken, if any, for any act of violation of the EP Act, 1986 / EIA Notification 2006/subsequent amendments and circulars which it has inherited during the revocation period.
- (iv) Allottee shall be kept in compliance of all conditions, if any.

*P. R. Sakshari*  
 (P. R. Sakshari)  
 Scientist C

Copy to:

1. The Secretary, Ministry of Coal, Shastri Bhawan, New Delhi.
2. The Chief Conservator of Forests, Regional office (P2), Ministry of Environment & Forests, C-7/24 Anra Colony, Bhopal - 462010.
3. The Secretary, Department of Environment & Forests, Government of Chhattisgarh, Secretariat, Raipur.
4. The Member Secretary, Chhattisgarh State Environmental Conservation Board, 1, Hukh Nagar, New Mandir Udhak, Main Road, Acaadi Vihar, Raipur - Chhattisgarh - 492001.
5. The Member Secretary, Central Pollution Control Board, CRD-run Office Complex, East Arjan Nagar, Delhi - 110 032.
6. The Member Secretary, Central Ground Water Activity, Ministry of Water Resources, Gurgaon Road, Hauz Khas, A-2, W-3 Kashiaba Samiti Marg, New Delhi.
7. The Advisor, Coal India Limited, SCOPE Miner, Core-1, 4<sup>th</sup> Floor, Vikas Marg, Lodhi Road, New Delhi.
8. The District Collector, Raigarh, Government of Chhattisgarh.
9. Monitoring File - 10, Grant File - 11, Record File - 12, Notice Board.

*P. R. Sakshari*  
 (P. R. Sakshari)  
 Scientist C

10/12/2022, 10:10:10 AM

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J-11015/270/2019-IA.II (M)  
Government of India  
Ministry of Environment, Forest & Climate Change  
Impact Assessment Division

Indira Paryaveen Bhavan,  
Vayu Wing, 3<sup>rd</sup> Floor, Allau,  
Jor Bagh Road, New Delhi 110 003

Dated: 5<sup>th</sup> November, 2019

To:

Dr. Vijay Kumar- General Manager (Environment)  
M/s National Thermal Corporation Ltd.  
Engineering Office Complex,  
Sector 24, Noida - 201301 (UP).

Email: environment.ntcp@gmail.com

**Subj: Talaiipalli Coal Mining Project (OC at 18 MTPA capacity and UG at 0.72 MTPA Capacity) of M/s National Thermal Power Corporation Limited in mine lease area of 2349.35 ha, located in villages Talaiipalli, Bichinara, Nayarampur, Kudurmoha, Raikera, Chotiguda, Ajjigarh and Salehpalli, in Tehsil Gharghoda, District Raigarh (Chhattisgarh)- Amendment in Environmental Clearance-req.**

Sir,

This refers to your online proposal No. IA/CG/CMIN/114462/2019 dated 14<sup>th</sup> August, 2019, on the above mentioned subject.

2. The Ministry of Environment, Forest and Climate Change has granted environmental clearance on 2<sup>nd</sup> January, 2013 in favour of M/s National Thermal Power Corporation Limited for Talaiipalli Coal Mining Project (OC at 18 MTPA capacity and UG at 0.72 MTPA Capacity) in mine lease area of 2349.35 ha located in villages Talaiipalli, Bichinara, Nayarampur, Kudurmoha, Raikera, Chotiguda, Ajjigarh and Salehpalli, in Tehsil Gharghoda, District Raigarh (Chhattisgarh).

3. Subsequent to the location by Hon'ble Supreme Court of India judgment dated 25<sup>th</sup> August, 2014 read with order dated 24<sup>th</sup> September, 2014 and reallocation to M/s National Thermal Power Corporation Limited as the successful bidder by Ministry of Coal vide MOC Allotment Order No. 103/31/2015/NA dated 8<sup>th</sup> September, 2015, the LC was revalidated vide Ministry's letter dated 28<sup>th</sup> October, 2015.

4. The amendment in environmental clearance has been sought with respect to supply of coal from Talaiipalli Coal Mine Project to Lara STPP over a distance of 60.4 km as interim arrangement for a period of 24 months i.e. from January,



2020 to December, 2021 or till the commissioning of MGR, whichever is earlier. The amendment has been sought in the said EC with the General condition No. U(i) and B(ii) stipulated therein, as below:

B(i) No changes in technology and scope of working shall be made without prior approval of the Ministry of Environment and Forests

B(ii) No change in calendar plan including quantum of mineral coal and waste being produced shall be made

5. The proposal was considered by the Expert Appraisal Committee (EAC) in the Ministry for Thermal & Coal Mining Sector in its meeting held on 3-4 October, 2019. The EAC, after deliberations, has recommended for grant of permission for transportation of 2,575 MTPD of coal by road with 20 Tonne Tippers/ Dumpers (258 Tippers in and fro per day) from Talaipalli LMP to Larp STPP over a distance of 68.4 km as an interim arrangement for a period of 24 months i.e. from January, 2020 to December, 2021 or till the commissioning of MGR, whichever is earlier; and to start coal production from South Pit with a production capacity of 0.94 MTPA for two years subject to following conditions:

(i) Adequate dust suppression measures shall be taken along the transportator route.

(ii) The PP shall expedite the commissioning of MGR as early as possible

(iii) No transportation of coal by road is allowed after commencement of the MGR.

(iv) All the mitigation measures proposed in Traffic Impact Assessment study shall be complied.

6. Based on recommendations of the EAC, Ministry of Environment, Forest and Climate Change hereby accords approval for amendment in the environmental clearance dated 2<sup>nd</sup> January, 2013 and subsequent revalidation of EC dated 28<sup>th</sup> October, 2015, for the above said project, as recommended by the EAC and stated in para 5 above

7. All other terms and conditions stipulated in the environmental clearance dated 2<sup>nd</sup> January, 2013 and subsequent revalidation of EC dated 28<sup>th</sup> October, 2015, shall remain unchanged.

(Dr. R. S. Lall)  
Additional Director / Scientist 'E'

**Copy to:-**

1. The Secretary, Ministry of Coal, Shastri Bhawan, New Delhi
2. The Chief Conservator of Forests, Regional office (E2), Ministry of Environment & Forests, E-2/240 Arda Colony, Bhopal - 462016.

3. The Secretary, Department of Environment & Forests, Government of Chhattisgarh, Secretariat, Raipur
  4. The Member Secretary, Central Ground Water Authority, Ministry of Water Resources, Connaught Road Bazar, A-2, W-3 Kasturba Gandhi Marg, New Delhi
  5. The Member Secretary, Central Pollution Control Board, CBD-cum-Office Complex, East Arjun Nagar, Delhi - 110 032
  6. The Member Secretary, Chhattisgarh State Environment Conservation Board, 1- lilak Nagar, Shiv Mandir Chowk, Main Road, Awaranti Nagar, Raipur - Chhattisgarh - 492001
  7. The District Collector, Raigarh, Government of Chhattisgarh
- H. Monitoring File 10. Guard File 11. Record File 12. Notice Board

[Dr. R.B. Lal]  
Additional Director / Scientist 'E'

## Additional Annexure-9

Annexure VIII-B

F. No. S-182012-FC  
Government of India  
Ministry of Environment & Forests  
(FC Division)

Prakash Sharma,  
CCO Complex, Lodhi Road,  
New Delhi - 110018  
Date: 28<sup>th</sup> January, 2014

To: The Principal Secretary (Forests),  
Governor of Chhattisgarh,  
Raipur.

Sub: Direction of 706.293 ha of forest land for Tatapalli Coal Mining Project and construction of Railway Line, in favour of National Thermal Power Corporation (NTPC) in Raipur and Dhamrajiyark Forest Division, Chhattisgarh regarding.

1. I am directed to refer to the Govt. of Chhattisgarh letter no. F-5-20201 (1962 dated) 25<sup>th</sup> March, 2012 on above mentioned subject seeking prior approval of the Central Government under Section-2 of the Forest (Conservation) Act, 1980. After careful consideration of the proposal by the Forest Advisory Committee constituted under section-3 of the said Act, 'in-principle' approval was granted vide this Ministry's letter of even number dated 2.08.2012 subject to fulfillment of certain conditions prescribed therein. The State Government has furnished compliance report in respect of the conditions stipulated in the 'in-principle' approval and has requested the Central Government to grant final approval.

In this connection, I am directed to say that on the basis of the compliance report furnished by the State Government, vide letter no. (Din-Pradesh/Min) 314-337/100 dated 1.08.2013 and 24.12.2013 final approval of the Central Government is hereby granted under section-2 of the Forest (Conservation) Act, 1980 for diversion of 706.293 ha of forest land for Tatapalli Coal Mining Project and construction of Railway Line, in favour of National Thermal Power Corporation (NTPC) in Raipur and Dhamrajiyark Forest Division, Chhattisgarh subject to fulfillment of the following conditions:

- (i) Legal status of the diverted forest land shall remain unchanged;
- (ii) Compensatory afforestation over the degraded forest land, (total in extent to the forest land being diverted) shall be carried and maintained by the State Forest Department from the funds already realized from the User Agency;
- (iii) The User Agency shall pay the additional amount of NPV, if so determined, as per the final decision of the Hon'ble Supreme Court of India;
- (iv) The period of diversion of the said forest land under this approval shall be for a period commensurate with the period of the mining lease proposed to be granted under the Mines and Minerals (Development & Regulation) Act, 1957, or Rules framed there under, subject to a maximum period of 30 years.

- (vi) The user agency either himself or through the State Forest Department shall undertake pre-mining soil and moisture conservation activities to protect and regenerate the degraded open forest (having cover density less than 5-10), if any, located in the area within 100 m from outer periphery of the mining lease;
- (vii) The user agency shall undertake mining in a phased manner after taking due care for reclamation of the mined over area. The minimum 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 Mining 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 minimum reclamation plan are not being executed by the User Agency, the State Office or the Chief Conservator of Forests (Control) may direct that the mining activities shall remain suspended till such time, such reclamation activities are satisfactorily executed.
- (viii) The User Agency either himself or through the State Forest Department shall undertake fencing, protection and afforestation of the safety zone area (15 meters wide all along the outer boundary of the mining lease including cluster, as applicable, and such other areas as specified in the approved mining plan) in accordance with guidelines given by the user agency.
- (ix) The State Forest Department shall undertake afforestation on degraded forest land, and shall direct to plant in the area used for safety zone from the funds already collected from the user agency.
- (x) The boundary of safety zone shall be demarcated or posted at the project site, by erecting clear but high reinforced concrete pillars (posts), each inscribed with its serial number, forward and back heading and distance from pillar to pillar;
- (xi) In case of water ground stream, areas or sections shall be fenced and allocated from the funds to be provided by the user agency;
- (xii) The user agency shall ensure that at least part of its net recoveral therefrom shall be used for back filling;
- (xiii) The user agency shall have a social welfare department to help track of socio-economic conditions of all the project affected people;
- (xiv) The user agency shall undertake comprehensive greening in the surrounding villages;
- (xv) The user Agency shall implement the R & B Plan as per the R & B Policy of State Government in accordance with National R&B Policy, Government of India before the commencement of the project work and implementation. The said R & B Plan will be monitored by the State Government/Regional Office of MHP along with Institute for monitoring and reported observable activities.

- (vii) The user agency shall undertake the siting of the effluent lines and other water bodies located within five km from the mine lease boundary so as to mitigate the impact of activities of such waterbodies/bodies, wherever required.
- (viii) Following activities shall be undertaken by the User Agency as per the Plan of Rs. 250.72 lakhs and undertaking advertised by them in compliance with Plan:
  - (a) Appropriate mitigation measures to minimize soil erosion and churning of streams.
  - (b) Planting of adequate drought hardy grass species and sowing of seeds in the appropriate areas within the mining lease to control soil erosion.
  - (c) Conservation of check dams, intensive tree-planting along the tracks to avoid sliding during times of the increased rainfall.
  - (d) Stabilize the embankment slopes by appropriate grading/stoning to as to ensure that 100 metres of erosion at any given place is less than 25% and
  - (e) Strict adherence to the prescribed soil conservation.
- (ix) No buffer zone shall be established in the forest land.
- (x) The User Agency shall provide their privately owned facilities in the forests and the staff working in the site so as to avoid any damage and pressure on the nearby forest areas.
- (xi) The boundary of the proposed forest tract, mining lease and safety zone, as applicable, shall be demarcated on ground at the project site, by locating five km high reinforced concrete concrete pillars, each marked with its serial number, forward and back bearing and distance from other pillars.
- (xii) The layout plan of the proposal shall not be changed without the prior approval of the Central Government.
- (xiii) The forest land shall not be used for any purpose other than that specified in the proposal.
- (xiv) The forest tract proposed to be allotted shall under no circumstances be transferred to any other agency, department or person without prior approval of the Central Government.
- (xv) No change to the floor and base of the adjoining area shall be allowed.
- (xvi) Any tree felling shall be done only when it is inevitable and that too under strict supervision of the State Forest Department.
- (xvii) The user agency shall submit the annual self-compliance report in respect of the above conditions to the State Government and to the concerned Regional Office of the Ministry regularly.

- (ix) Any other condition that the concerned Regional Office of the Ministry may impose, from time to time, in the interest of sustainability, protection and development of forest & wildlife and
- (x) All other conditions stipulated in the Stage-I approval for which the user agency has submitted undertakings that it complied with.
- (xi) The User Agency and the State Government shall ensure compliance to provisions of the all Acts, Rules, Regulations and Guidelines, for the time being in force, or applicable to the project.

Your faithfully,

(Pritya Rajgopal)

To, Assistant Inspector General of Forests

Copy for record of information to:

1. The Principal Chief Conservator of Forests, Govt. of Chhattisgarh, Raipur
2. The Asst. PCCF (Control), Regional Office Bhopal, M.P.
3. The Forest Officer (FCA), Dist. Office PCCF, Govt. of Chhattisgarh, Raipur
4. The User Agency (MPC), Laxman, Talyapat and Mining Project, Laxman Road, Ghargharia, District Raigarh- 495 114, Chhattisgarh.
5. Monitoring Cell.
6. Genl. File.

(Pritya Rajgopal)

To, Assistant Inspector General of Forests

Dr. K. SURESH, IAS  
Secretary to Government  
Ministry of Government & Public  
Relations

Secretary to Government  
Public Works Department  
No. 100, 10th Cross,  
1st Stage, 5th Cross,  
Bangalore - 560 002

To  
The Principal Secretary (General)  
Department of Transportation  
Bangalore

Subject: Transfer of land to extent of 200.000 Sq. Meters (20 Hectares) for Transport and  
Storage in District of the National Thermal Power Corporation (NTPC) from the  
existing land owned by M/s. NTPC at extent 200 Hectares (200,000 Sq. Meters) in  
District of Bangalore and 200 Hectares (200,000 Sq. Meters) in District of  
Channarayana.

Re:

1. As per the letter of the Secretary to Government, Bangalore dated 12.08.2019 and 18.08.2019  
dated 12.08.2019 and 18.08.2019 regarding the transfer of land to extent of 200 Hectares (200,000  
Sq. Meters) in District of the National Thermal Power Corporation (NTPC) from the  
existing land owned by M/s. NTPC at extent 200 Hectares (200,000 Sq. Meters) in  
District of Bangalore and 200 Hectares (200,000 Sq. Meters) in District of  
Channarayana.

2. The Government of Karnataka has approved the transfer of land to extent of 200 Hectares (200,000  
Sq. Meters) in District of the National Thermal Power Corporation (NTPC) from the  
existing land owned by M/s. NTPC at extent 200 Hectares (200,000 Sq. Meters) in  
District of Bangalore and 200 Hectares (200,000 Sq. Meters) in District of  
Channarayana.

3. The Government of Karnataka has approved the transfer of land to extent of 200 Hectares (200,000  
Sq. Meters) in District of the National Thermal Power Corporation (NTPC) from the  
existing land owned by M/s. NTPC at extent 200 Hectares (200,000 Sq. Meters) in  
District of Bangalore and 200 Hectares (200,000 Sq. Meters) in District of  
Channarayana.

4. The Government of Karnataka has approved the transfer of land to extent of 200 Hectares (200,000  
Sq. Meters) in District of the National Thermal Power Corporation (NTPC) from the  
existing land owned by M/s. NTPC at extent 200 Hectares (200,000 Sq. Meters) in  
District of Bangalore and 200 Hectares (200,000 Sq. Meters) in District of  
Channarayana.

5. The Government of Karnataka has approved the transfer of land to extent of 200 Hectares (200,000  
Sq. Meters) in District of the National Thermal Power Corporation (NTPC) from the  
existing land owned by M/s. NTPC at extent 200 Hectares (200,000 Sq. Meters) in  
District of Bangalore and 200 Hectares (200,000 Sq. Meters) in District of  
Channarayana.

6. The Government of Karnataka has approved the transfer of land to extent of 200 Hectares (200,000  
Sq. Meters) in District of the National Thermal Power Corporation (NTPC) from the  
existing land owned by M/s. NTPC at extent 200 Hectares (200,000 Sq. Meters) in  
District of Bangalore and 200 Hectares (200,000 Sq. Meters) in District of  
Channarayana.

7. The Government of Karnataka has approved the transfer of land to extent of 200 Hectares (200,000  
Sq. Meters) in District of the National Thermal Power Corporation (NTPC) from the  
existing land owned by M/s. NTPC at extent 200 Hectares (200,000 Sq. Meters) in  
District of Bangalore and 200 Hectares (200,000 Sq. Meters) in District of  
Channarayana.

8. The Government of Karnataka has approved the transfer of land to extent of 200 Hectares (200,000  
Sq. Meters) in District of the National Thermal Power Corporation (NTPC) from the  
existing land owned by M/s. NTPC at extent 200 Hectares (200,000 Sq. Meters) in  
District of Bangalore and 200 Hectares (200,000 Sq. Meters) in District of  
Channarayana.

9. The Government of Karnataka has approved the transfer of land to extent of 200 Hectares (200,000  
Sq. Meters) in District of the National Thermal Power Corporation (NTPC) from the  
existing land owned by M/s. NTPC at extent 200 Hectares (200,000 Sq. Meters) in  
District of Bangalore and 200 Hectares (200,000 Sq. Meters) in District of  
Channarayana.

*(Signature)*  
24/12/2022

A







## Additional Annexure-10

### ANNEXURE-VIIC

#### CARDINAL POINTS OF TALAIPALLI COAL BLOCK

POINT NO	LONGITUDE (WGS84)	LATITUDE (WGS84)
P-0	83° 29' 42.381" E	22° 14' 43.083" N
P-1	83° 29' 45.263" E	22° 14' 43.094" N
P-2	83° 29' 48.143" E	22° 14' 38.103" N
P-3	83° 29' 51.024" E	22° 14' 37.111" N
P-4	83° 29' 53.905" E	22° 14' 35.120" N
P-5	83° 29' 56.786" E	22° 14' 33.129" N
P-6	83° 29' 59.667" E	22° 14' 31.137" N
P-7	83° 30' 2.548" E	22° 14' 29.146" N
P-8	83° 30' 5.429" E	22° 14' 27.154" N
P-9	83° 30' 8.309" E	22° 14' 25.163" N
P-10	83° 30' 11.190" E	22° 14' 23.172" N
P-11	83° 30' 14.071" E	22° 14' 21.180" N
P-12	83° 30' 16.954" E	22° 14' 19.188" N
P-13	83° 30' 19.834" E	22° 14' 17.190" N
P-14	83° 30' 22.715" E	22° 14' 15.191" N
P-15	83° 30' 25.598" E	22° 14' 13.193" N
P-16	83° 30' 28.481" E	22° 14' 11.194" N
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P-35	83° 29' 26.078" E	22° 14' 6.180" N
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P-67	83° 29' 27.849" E	22° 13' 54.168" N
P-68	83° 29' 27.315" E	22° 13' 53.427" N
P-69	83° 29' 26.957" E	22° 13' 52.652" N
P-70	83° 29' 26.574" E	22° 13' 51.921" N
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P-72	83° 29' 26.594" E	22° 13' 49.643" N
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P-74	83° 29' 28.209" E	22° 13' 48.008" N
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P-80	83° 29' 11.453" E	22° 13' 35.564" N
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P-140	83° 25' 45.095" E	22° 13' 36.246" N
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P-143	83° 25' 34.406" E	22° 13' 35.918" N
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P-145	83° 25' 27.280" E	22° 13' 35.699" N

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F-166	83° 26' 20.244" E	22° 14' 27.640" N
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F-168	83° 26' 20.201" E	22° 14' 34.251" N
F-169	83° 26' 20.179" E	22° 14' 37.556" N
F-170	83° 26' 20.157" E	22° 14' 40.861" N
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F-172	83° 26' 20.113" E	22° 14' 47.472" N
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F-174	83° 26' 20.070" E	22° 14' 54.082" N
F-175	83° 26' 20.048" E	22° 14' 57.388" N
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F-184	83° 26' 19.852" E	22° 15' 27.135" N
F-185	83° 26' 19.830" E	22° 15' 30.441" N
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F-194	83° 26' 19.633" E	22° 15' 60.187" N
F-195	83° 26' 19.611" E	22° 16' 3.089" N

P-196	83° 26' 30.575" E	22° 16' 1.593" N
P-197	83° 26' 33.298" E	22° 16' 6.096" N
P-198	83° 26' 36.023" E	22° 16' 8.600" N
P-199	83° 26' 38.748" E	22° 16' 11.103" N
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P-203	83° 26' 51.774" E	22° 16' 5.453" N
P-204	83° 26' 55.030" E	22° 16' 4.040" N
P-205	83° 26' 58.287" E	22° 16' 2.627" N
P-206	83° 27' 1.543" E	22° 16' 1.214" N
P-207	83° 27' 4.800" E	22° 15' 59.802" N
P-208	83° 27' 8.056" E	22° 15' 58.389" N
P-209	83° 27' 8.054" E	22° 15' 54.395" N
P-210	83° 27' 8.072" E	22° 15' 50.402" N
P-211	83° 27' 8.080" E	22° 15' 46.409" N
P-212	83° 27' 8.088" E	22° 15' 42.416" N
P-213	83° 27' 11.411" E	22° 15' 41.273" N
P-214	83° 27' 14.734" E	22° 15' 40.130" N
P-215	83° 27' 18.058" E	22° 15' 38.988" N
P-216	83° 27' 21.381" E	22° 15' 37.845" N
P-217	83° 27' 24.704" E	22° 15' 36.702" N
P-218	83° 27' 28.027" E	22° 15' 35.560" N
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P-223	83° 27' 44.643" E	22° 15' 29.846" N
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P-227	83° 27' 57.936" E	22° 15' 25.275" N
P-228	83° 28' 1.259" E	22° 15' 24.132" N
P-229	83° 28' 4.582" E	22° 15' 22.989" N
P-230	83° 28' 7.905" E	22° 15' 21.846" N
P-231	83° 28' 11.228" E	22° 15' 20.703" N
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P-235	83° 28' 24.520" E	22° 15' 16.131" N
P-236	83° 28' 27.843" E	22° 15' 14.988" N
P-237	83° 28' 31.166" E	22° 15' 13.845" N
P-238	83° 28' 34.489" E	22° 15' 12.702" N
P-239	83° 28' 37.811" E	22° 15' 11.559" N
P-240	83° 28' 41.134" E	22° 15' 10.416" N
P-241	83° 28' 44.457" E	22° 15' 9.273" N
P-242	83° 28' 47.780" E	22° 15' 8.130" N
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P-245	83° 28' 57.748" E	22° 15' 4.734" N

P-246	83° 28' 54.573" E	22° 15' 5.855" N
P-247	83° 28' 57.890" E	22° 15' 6.894" N
P-248	83° 29' 1.408" E	22° 15' 7.932" N
P-249	83° 29' 4.926" E	22° 15' 8.971" N
P-250	83° 29' 7.807" E	22° 15' 8.980" N
P-251	83° 29' 10.688" E	22° 15' 4.969" N
P-252	83° 29' 13.570" E	22° 15' 2.998" N
P-253	83° 29' 16.451" E	22° 15' 1.008" N
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P-258	83° 29' 30.857" E	22° 14' 51.050" N
P-259	83° 29' 33.738" E	22° 14' 49.059" N
P-260	83° 29' 36.619" E	22° 14' 47.068" N
P-261	83° 29' 39.500" E	22° 14' 45.077" N
P-262	83° 29' 42.381" E	22° 14' 43.085" N

NOTE: Boundary points are software generated from georeferenced block boundary of Talaipalli coal block

APPROVED

## Additional Annexure-11

Annexure VIII D

Hydrogeology of Area in & around 10 km. radius of Talaipalli  
Coal Mining Project of National Thermal Power Corporation  
Limited

At- Village Talaipalli, Block-Gharghoda, District- Raigarh,  
Chhattisgarh State

Prepared by  
Earth & Environment,  
Plot No. 652, Ekamra villa,  
IRC Village, Nayapalli, Bhubaneswar-751015



**Hydrogeology of Area in & around 10 km. radius of Talaipalli  
Coal Mining Project of National Thermal Power Corporation  
Limited**

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- 1 Surface Mining Plan

## CHAPTER-I

### INTRODUCTION

#### 1.1 GENERAL:

National Thermal Power Corporation (NTPC) Ltd. is the leading power generating listed company in the country under Ministry of Power, Govt of India, engaged in generation of Power with existing installed capacity of 43,128 MW (including 5,974 MW through JV) comprising of 38 NTPC Stations (17 Coal based stations, 7 combined cycle gas/liquid fuel based stations), 7 joint Venture stations (6 coal based and one gas based) and 7 renewable energy projects. NTPC is the largest power generating major in the country. It has also diversified into hydro power, coal mining, power equipment manufacturing, oil & gas exploration, power trading and distribution. With an increasing presence in the power value chain, NTPC is well on its way to become an integrated power major.

The existing power plants of NTPC are accorded long term coal linkages from CIL and Singareni Collieries Co. Ltd (SCCL). To meet the short term shortages, NTPC is also importing coal. Considering the gap in demand and existing linkages for coal, NTPC has decided to diversify into coal mining through backward integration and has been allotted coal mining blocks.

Talaiwalli coal mining block in the state of Chhattisgarh is one such block allotted to NTPC by Ministry of Coal (MoC), vide letter No. 13015/29/2003-CA-1, dated 25.01.2006, for meeting coal requirement for the proposed 4000 MW Lara Integrated Power Project to come up about 50 kms away from the coal block in Chhattisgarh State.

As per the directive of Ministry of Coal, NTPC Ltd, submitted a mining plan in Feb 2010 for Talaiwalli Coal Block in Mand, Raigarh in the state of Chhattisgarh. The Ministry of Coal vide their letter No. 13016/29/2003-CA-I (Vol.III), dated 31st March, 2010 has approved the mining capacity by Open Cast – 18.0 MTPA and 0.72 MTPA from Underground operations.

Environmental Clearance was accorded by the Ministry of Environment and Forest vide letter No.J-11015/276/2009-I A II (M) dt.02.01.2013 for the proposed Talaiwalli Coal Mine

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At-Village Talaiwalli, Block-Gharghoda, Raigarh District, Chhattisgarh State

Project (OpenCast at 18MTPA Capacity & Under Ground at 0.72 MTPA Capacity of a total project area of 2349.35ha.).

The entire coal produced from this block will be transported by Merry Go Round (MGR) rail system for a total length of approximately 60 km between the mine and the power plant.

## 1.2 BRIEF PROJECT PROFILE:

This coal block has Tolge Pahar in the north, Proposed Palma Coal Block (South Eastern Coalfields Ltd.), in the east, Silot Pahar in the south and proposed Chimpatapari Coal Block (South Eastern Coalfields Ltd.) in the West. Talaiipalli block is about 55 km away from Raigarh and is close to Tehsil Headquarters at Gharghoda situated on Raigarh-Ambikapur State Highway. The nearest railway station is Raigarh lying on the Mumbai-Howrah main line of SE railways.

Kalo River is flowing through the south-eastern part of the present area, and constitutes the main drainage system.

This coal block has coal seams/splits from XLA to III (26 split seams/sections) with gross geological reserves of 1400.56 Mt. of power grade coal of varying grades. Dip of seams is varying between 4° to 8°. Opencast coal mining has been proposed up to the basal seam III and the balance are considered for by below ground method of mining. Since opencast mining ensures much higher percentage of extraction of coal reserves, the proposed strategy is considered best from the point of view of coal conservation. The Opencast Mine will have maximum depth of 404 m. Below ground mining development is proposed to commence after about 20 yrs of start of opencast mining. Coal requirement for Linked Power Station has been indicated at about 16 MTPA, which is projected to be achieved in the Opencast Mine in the 5<sup>th</sup> year of coal production. The proposed opencast mine will have a life of 52 years, including the build-up period of the Project.

The total O.C mineable coal reserves have been estimated as 643.68 Mt at the corresponding OB of 3777.07 Min<sup>3</sup> at an average SR of 4.48 m<sup>3</sup>/t.

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At-Village Talaiipalli, Block-Gharghoda, Raigarh District, Chhattisgarh State

The capacity of underground mine to be worked through a pair of vertical shafts is assessed at 0.72 MTPA at 100% rated capacity or 0.60 MTPA at 85% level. The life of below ground mine will be 30 years including development period.

NTPC intends to mine the entire property in a scientific manner with due regard to the conditions laid out by Ministry of Environment & Forest and with full emphasis on Environmental conservation and safety.

### 1.3 LOCATION OF THE PROJECT:

Talaiipalli coal block mine lease area of 2113 ha is bounded by latitude 22° 13' 35" to 22° 16' 09" N and longitude 83° 25' 45" to 83° 30' 22" E. It is located in the eastern part of the Mand Raigarh coalfield and lies in Raigarh district of Chhattisgarh State. Talaiipalli block is covered by Survey of India topo sheet No. 64N7 &N8 (RF: 1:50000). The location map is shown in figure no. 1.1.

### 1.4 MINING METHODS

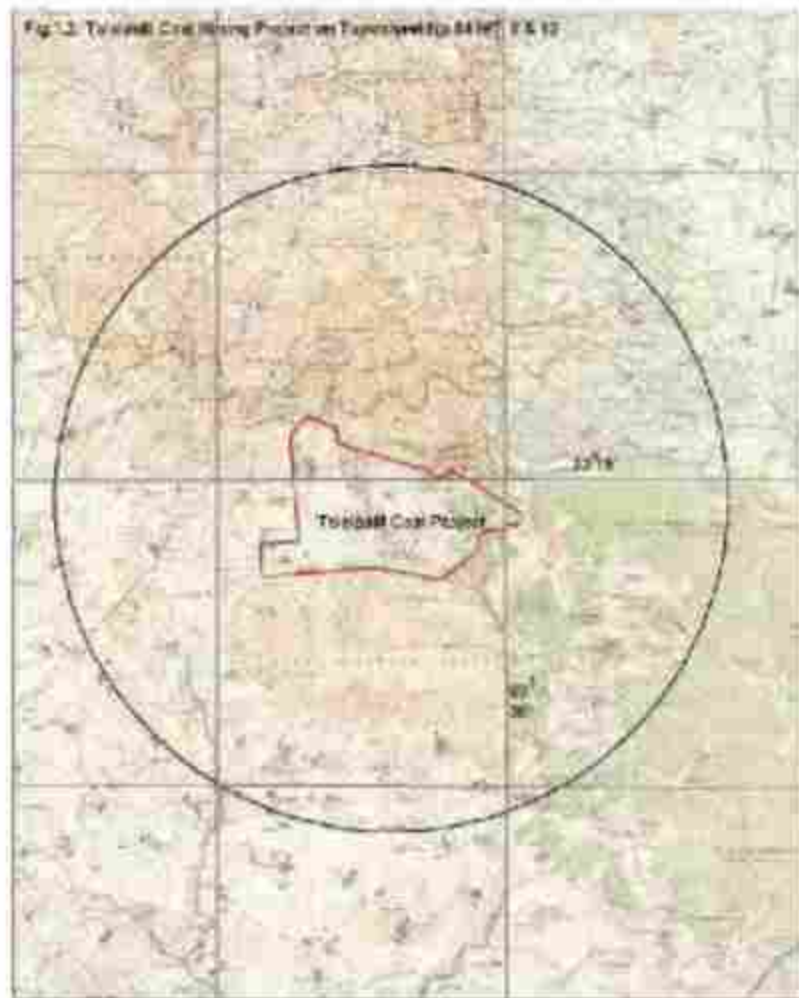
To ensure availability of adequate quantity of coal, it has been planned to commence mechanized mining operations by having two independent opencast mines at eastern & western extremities. Both the quarries would advance towards southwards as also towards each other to finally merge into one entity after about 30 years of mine operation. Internal dump will start once sufficient void space gets available from 5<sup>th</sup> year of mine operation. This de-coaled area can be used for internal dumping. Initially overburden will be placed as external dump within the mine property.

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At-Village Talapalli, Block-Gharghnda, Raigarh District, Chhattisgarh State



At-Village Talapalli, Block-Gharghonda, Raigarh District, Chhattisgarh State

After the Opencast mine is exhausted, underground mining will commence. It will be serviced by two vertical shafts. The coal production target is fixed at 0.60 Million Tonnes per annum from the Underground Mine and the expected life of the mine will be 34 years including construction period of 4 years. II Seam, which will be the main seam for UG mining with patches in other seams in the packet of UG mining seams, has general thickness of 0.50m to 2.50m. Two Continuous Miner districts will provide the production.

The mine parameters for opencast mine are given at Table No.1.1

Table 1.1: Opencast Mine Main Parameters

Sl. No.	Parameters	Unit	Value
1	Maximum depth	m	404
2	Maximum strike length:		
	along the Mine Floor	Km	6.02
	along the Mine Surface	Km	6.69
3	Minimum strike length:		
	along the Mine Floor	Km	0.75
	along the Mine Surface	Km	1.37
4	Maximum dip rise length:		
	on the Mine Floor	Km	4.12
	on the Mine Surface	Km	4.76
5	Minimum dip rise length:		
	on the Mine Floor	Km	2.60
	on the Mine Surface	Km	3.06
6	Area:		
	On the Mine Floor	ha	2027.79
	On the Mine Surface	ha	2079.34

#### 1.5 WATER REQUIREMENT:

The total water requirement for domestic and various industrial purpose for initial 5 years of mining operations is estimated to be 2300 m<sup>3</sup>/day. Out of this about 692 m<sup>3</sup>/day is expected to be recovered and reused and thus the net water requirement will be about 1698 m<sup>3</sup>/day with the following break up:

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At-Village Talapalli, Block-Gbarghnda, Raigarh District, Chhattisgarh State

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Table 1.2: Break-up of Water Requirement

All values in m<sup>3</sup>/dayEstimated Water Requirement for Initial Five Years of Mining Operation (m<sup>3</sup>/day)

Sl. No	Purpose	Source of Water	Total Water Requirement	Recycled Quantity	Use of recycled Water	Balance / Actual Water Requirement
<b>A DOMESTIC</b>						
1	Mines	Bore well	150	120	Dust suppression ,Green Belt Development etc.	30
2	Colony	Bore well/sump water	800	540	Dust suppression ,Green Belt Development etc.	60
<b>B INDUSTRIAL</b>						
1	Vehicle wash	Sump Water	40	32	Vehicle wash	8
2	Dust suppression & Green belt development	Sump Water	1600	0	Dust suppression ,Green Belt Development etc.	1600
<b>Total</b>			<b>2390</b>	<b>692</b>		<b>1698</b>
<i>Note: Recovery / Waste water generation of 80% from mines,90% from colony and 80 % from vehicle wash is considered.            Part of Bore well water shall be used for Industrial Purposes subject to adequacy of sump water availability.</i>						

**SOURCE OF WATER**

The principal source of water for the project is the pit de-watering water. Ground water is required for initial period during mining development and construction of infrastructure. Since the mining activities will intersect water table, mining quarry needs to be de-watered for safe mining. Based on the hydrological investigation, it is estimated that about 936 m<sup>3</sup>/day of water will have to be pumped out of the mine at the end of 1<sup>st</sup> year of mining and 1320 m<sup>3</sup>/day will be available at the end of 2<sup>nd</sup> year. Pit de-watering water will be used for dust suppression, fire fighting, vehicle washing, green belt creation, etc. and also for drinking and domestic uses after treatment if necessary. During the initial stage, pit de-watering water is not sufficient for the requirement. So requirement will be met from ground water source through bore wells. Use of ground water will be stopped once pit de-watering water is sufficient for the total requirement.

The water balance diagram is given in Figure no.1.3 shown below:

At-Village Talaiipalli, Block-Gbarghnda, Raigarh District, Chhattisgarh State

Figure No – 1.3



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## CHAPTER-2

### OBJECTIVE OF HYDROGEOLOGICAL SURVEY

#### 2.1 Objectives

The detail hydrogeological investigation of the buffer zone has been undertaken with the following objectives:

- i) To decipher the present hydrogeological scenario of the study area.
- ii) To decipher the aquifer geometry in the area
- iii) To evaluate the status of the ground water storage
- iv) To assess the hydraulic characteristics of the aquifer present in the area.
- v) To evaluate the status of ground water resource and its utilization and ground water budget.
- vi) To assess the hydro-chemical characteristics of ground water present in the area.
- vii) To quantify the volume of de-watering from the mining pit

#### 2.2 Methodology of Investigation

The geology of the area and subsurface conditions have been interpreted based on the exploratory data collected from different agencies, like Geological Survey of India, Central Ground Water Board, Govt. of India. Intensive well inventory of the area have been undertaken to establish the groundwater flow regimes. The hydrogeological properties of the aquifer existing in the study area have been evaluated through conducting aquifer performance test on representative wells. The pumping test conducted includes constant rate of pumping and observation of water level change at regular interval of time. The test data has been analyzed using standard computer added techniques. The ground water resource has been calculated as per the norms of GEC, 97 of Ministry of Water Resources, Govt. of India. Climate data of the area has been taken from the IMD.

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At-Village Talaiwalli, Block-Gharghoda, Raigarh District, Chhattisgarh State

### 2.3 Study Area & its Profile

The area under present study has been taken as a circular area of 10km. radius keeping Talapalli Coal Mining Project at the center here called as buffer zone. The study area falls under the Survey of India Topo-sheets No. 64 N/7,8,11 & 12. It is bounded by 22°09'17.98" to 22°22' 05.424" N. Latitudes and 83°22' 10.51" to 83° 33' 49.92" E. Longitudes. The index map of the study area is shown in fig.no.2.1.The total study area is 314sq.km.

The study area belongs to north-eastern part of Raigarh district in Chattisgarh state The study area falls in Gharghoda, Lailunga and Tamnar blocks of Raigarh district. The maximum area of the buffer zone lies in the Gharghoda block. The block-wise area of the study area is shown in table no.2.1.

The area is characterized by denudational hill ranges in the north with intervening valleys, plateaus in the south, rivers, nalas, reserved forest and water bodies. The surface elevation varies from 600m to 300m above M.S.L. The general surface gradient is from north to south. The major reserved forests in the area are Tolga west Reserved Forest, Silot RF, Rampur RF and Deodongri RF. The area is drained by river Kelo and its tributaries and other small streams. The river Kelo flows in the eastern part in north to south direction.

The area is underlain by rocks of the Gondwana Super Group and granite gneiss.

The study area is approachable by road from Gharghoda, the block head quarter. There exist a network of roads in the study area.

The area is sparsely populated with few isolated hamlets. The main hamlets are Raikera, Bhalumunda, Bajamura, Milupara, Hinjar, Palma, Manakachnar, Gondpara, Katharpali, Diyagon, Chhinkhol, Bhakura, Fhulikanda, Kurunkhol, Urba and Muskab etc.

Table 2.1: Block-wise area of the study Area

Sl.No.	Block	Area (in sq.km)
1	Gharghoda	160.23
2	Lailunga	122.4
3	Tamnar	31.37
	<b>Total</b>	<b>314.0</b>

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At-Village Talapalli, Block-Gharghoda, Raigarh District, Chhattisgarh State

**Landuse Pattern**

The total buffer zone area of all the rural villages as per the 2001 census data works out to 30233 Ha with the following classification:

	Area in Ha	In %
Forest land	3682.0	12.18
Irrigated land	534.0	1.77
Un-Irrigated land	16017.0	52.97
Cultivable waste Land	5926.0	19.60
Land not available for cultivation	4074.0	13.48
<b>Total</b>	<b>30233.0</b>	<b>100.00</b>

From the above it is seen that village Forest and un-irrigated land constitutes about 65.16% of the total buffer zone area.



A- Village Talipalli, Block-Charghoda, Raigarh District, Chhattisgarh State

## CHAPTER-3

### CLIMATE

The study area experiences a tropical climate with a hot and dry summer and pleasant winter intervened by south-west monsoon season. The summer season extends from March to middle of June followed by rainy season from mid-June to mid-October. The winter season extends from November till the end of February.

#### 3.2 Temperature

The temperature in the study area starts rising from March to May, which is the hottest month of the year with mean daily maximum temperature 43°C. However in 2005 June was the hottest month with a maximum temperature of 48°C. With the advent of monsoon, temperature starts reducing and the winter season starts from November. December is the coldest month of the year with mean daily maximum temperature of about 27°C and the temperature coming down to a minimum of about 6°C.

#### 3.3 Humidity and Wind

Humidity of the air is generally high during south-west monsoon period and low during winter months. The relative humidity varies from 26% to 84% throughout the year. The mean monthly potential evapo-transpiration value ranges from 4mm in December to 470mm in May.

Wind is generally light to moderate. Wind velocity increases during summer and south-west monsoon months. The mean annual wind speed is 3.3km/hr.

#### 3.4 Rainfall

The south-west monsoon is the principal source of precipitation in the study area. The average annual rainfall of the study area is 1185 mm (2004-2010). About 92% of the total rainfall is received during the period from June to September. July and August are the wettest months of the year.

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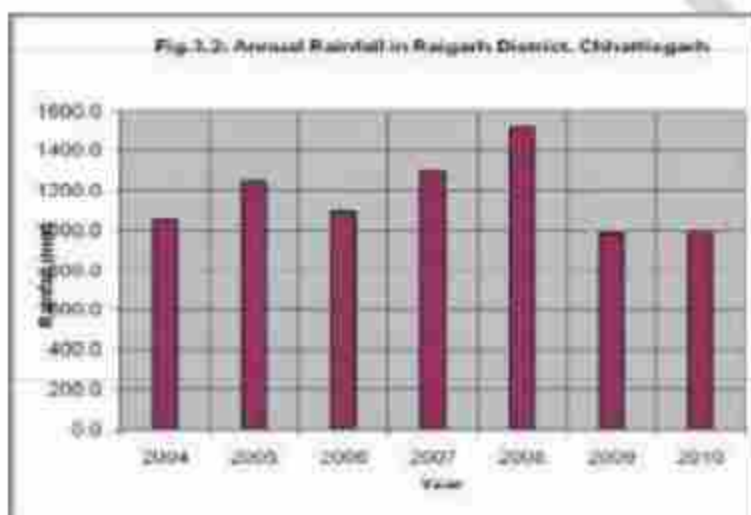
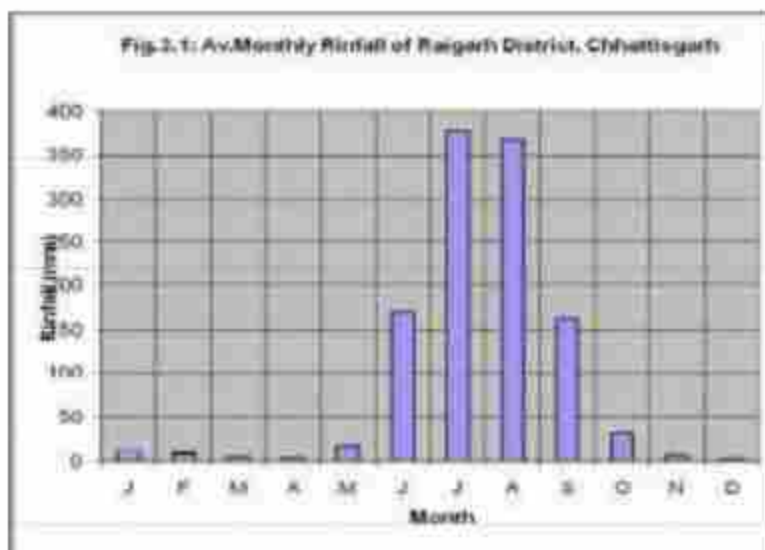
At-Village Talapalli, Block-Gbarghnda, Raigarh District, Chhattisgarh State

Table.3.1: Monthly Rainfall in Raigarh District, Chhattisgarh

Month/ Year	J	F	M	A	M	J	J	A	S	O	N	D	TOTAL
2004	18.8	0	0	0	0	168.5	289.2	474.8	61.9	36.6	0	0	1049.8
2005	37.5	8.2	0	0	0	277.1	427.6	310.4	121.6	64.4	0	0	1246.8
2006	0	0	0	0	91.2	117.5	308.2	430.6	110.2	26.1	6.3	0	1089.1
2007	0	35.2	17.2	0	29.6	233.1	342.3	318.2	239.5	40.1	38.6	0	1291.8
2008	22.4	21.3	27.8	31.5	2.3	258.7	298.1	586.5	261.5	5.8	0	0	1513.9
2009	0	0	0	0	0	15.3	650.4	194.8	92.2	25.5	0	0	978.2
2010	0	0	0	0	0	117.1	319.5	251.4	251.2	21.3	7.3	20.5	968.3
Ave	11.2	9.2	6.4	4.5	17.6	169.3	376.3	366.7	162.9	31.4	7.6	2.9	1165.4

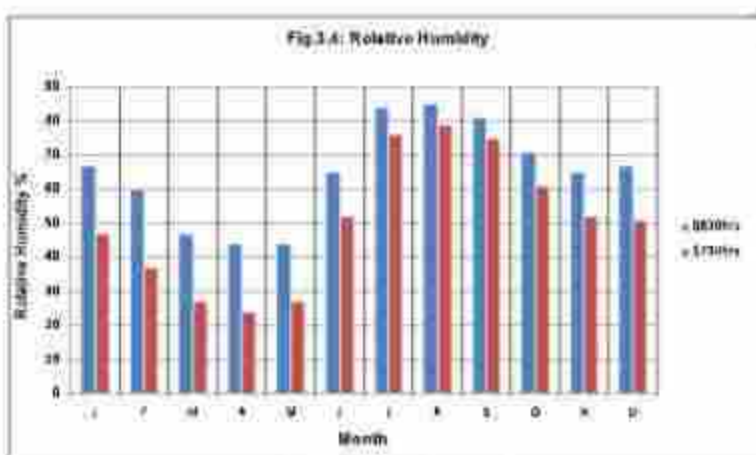
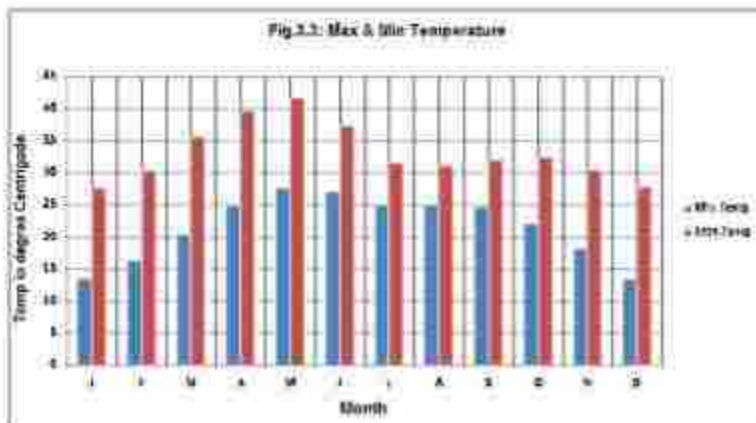
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept.	Oct.	Nov.	Dec.	Avg.
Avg. min. Temperature <sup>o</sup> C	13.59	16.31	20.37	24.89	27.86	27.15	25.13	25.13	24.70	22.13	18.17	13.45	21.65
Avg. max. temperature <sup>o</sup> C	27.67	30.32	35.59	39.71	41.69	37.41	31.66	31.15	32.96	32.54	30.57	27.94	33.84
Monthly avg. relative humidity %													
8.30 Hrs.	67	60	47	44	44	65	84	85	81	71	65	67	65
17.30 Hrs.	47	37	27	24	27	52	76	79	75	61	62	61	61





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At-Village Talapalli, Block-Gherghnda, Raigarh District, Chhattisgarh State



## CHAPTER-4

### HYDRO-GEOMORPHOLOGY

Geomorphic features control the occurrence and movement of ground water. Satellite remote sensing is being widely used for assessment of natural resources due to its synoptic coverage. A hydro-geomorphological map of 10km radius buffer zone of the project has been prepared through interpretation of remote sensing data along with field ground checking. The map shows presence of the following hydro-geomorphic units.

#### **Denudational Hill**

This is formed due to differential erosion and weathering so that a more resistant formation or intrusion stand as mountains or hills. More than two-third of the study area is covered with denudational hills. Entire northern part and south-central part is covered with the hills. Denudational hills with moderately-high slope facilitate surface run off and scope for ground water recharge in these area is poor.

#### **Plateau/Pediplain**

These are high land with flat surface. Entire south of the study area is covered with plateau/pediplain. Surface runoff is moderate and scope for ground water recharging is good.

#### **Valley Fill**

These constitute colluvial deposits of varying lithology. These are in fact broad depressions between mountains normally filled with colluvial deposits. Ground water potential of this unit is very good.

#### **Mesa**

These structural features occurs with few patches in south. Gondwana sandstone constitute the features. They have steep slope and hence surface runoff is high. Scope for ground water recharging is meager.

#### **Flood Plain**

Flood plain occurs all along the river Kalo. It is good source of ground water.

### **River**

Kelo is the major river flowing in a north to south direction. The river along with its tributaries is a good source of ground water recharging.

### **Water Body**

The area is dotted with numerous village ponds and a reservoirs. These are good sources of ground water recharging.

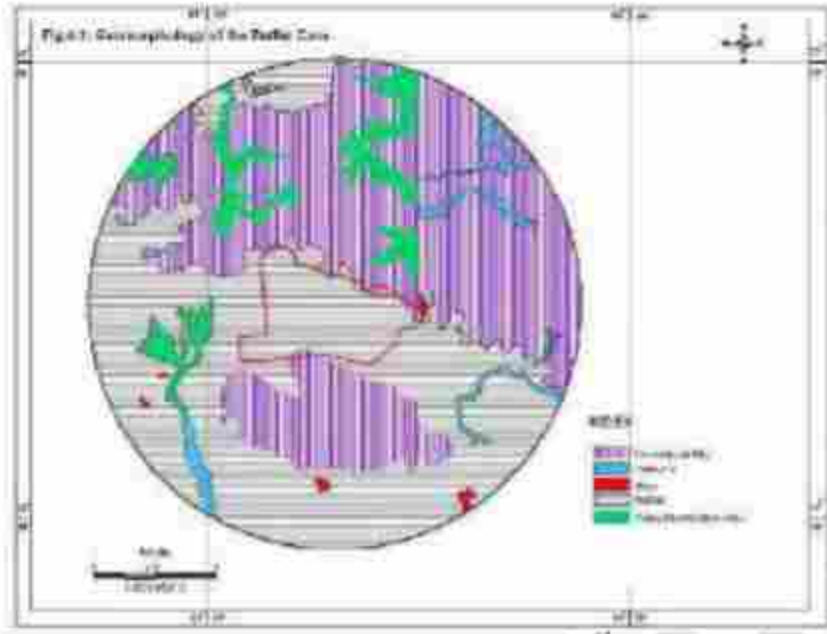
The geomorphic units are shown in fig.no.4.1.

### **DRAINAGE**

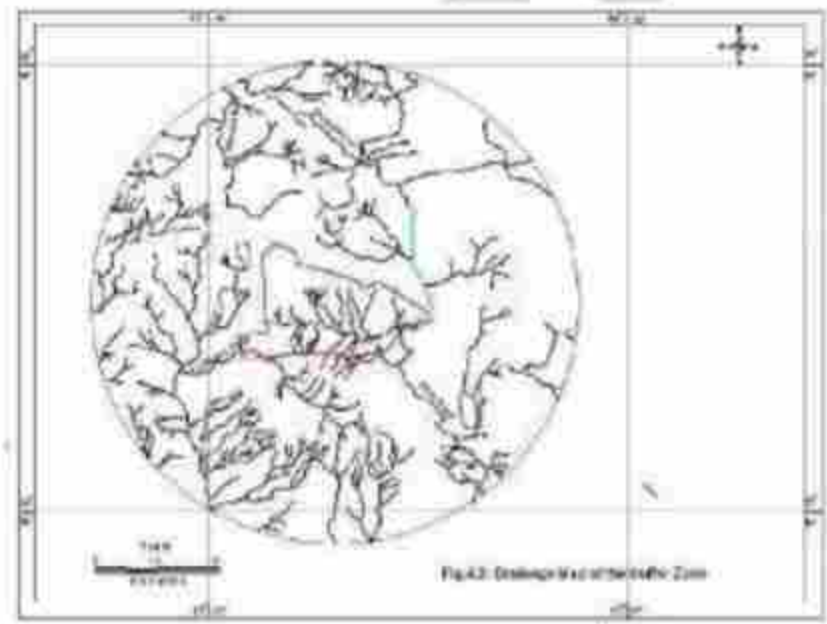
The drainage pattern of the area is controlled by underlying geological formation and structural features such as surface elevation, strike, folds, faults and lineaments. Kelo river is the main drainage in the area. The Kelo nadi flows in the north to south direction in eastern part of the study area. Tedpara, Jabanara nala, Mardeia nala and Khardhova nala are other streams flow in the study area.

The drainage lines exhibits in the buffer area are in suboendritic to subparallel pattern. Though the streams and rivers in the area are controlled by the lithology and structure, slope plays an important role in controlling the direction of flow. The drainage density varies throughout the area with high diversity in the hilly region and low drainage density in the plains. Some of the streams are perennial in nature. But the lower order channels are ephemeral.

The drainage in the area is shown in fig.no.4.2



A- Village Talipalli, Block-Changood, Raigan District, Chhattisgarh State



A- Village Talipalli, Block-Changood, Raigan District, Chhattisgarh State

## CHAPTER-5

## GEOLOGY

The buffer zone is covered with semi-consolidated formation of Gondwana Super Group underlain by crystalline rocks of Chhotanagpur Gneissic Complex. The generalized stratigraphic succession of the area is given below.

Table 5.1: Regional Stratigraphic Succession

Age	Group	Formation	Lithology
Quaternary	Recent to Subrecent		Alluvium-Clay, silt
Permian	Gondwana Super Group	Kamthi	Ferruginous sandstone, Clay, shale, grit
		Barakar	Sandstone, siltstone, shale with coal and fire clay
Proterozoic	Chhotanagpur Gneissic Complex		Granite gneiss, migmatites, composite gneiss

**Chhotanagpur Gneissic Complex:**

Gneissic complex occupies north-eastern part of the area. It is generally coarse and porphyritic and contains quartz, microcline, orthoclase, oligoclase, biotite, a little apatite and occasionally green hornblende. Tourmaline is frequently seen but abundant in the pegmatite phase.

**Gondwana Super Group****Barakar**

It consists of white to fawn coloured sandstones and grits with occasional conglomerates and beds of shale. It consists of much carbonaceous matter in the form of streaks, lentils and seams of coal. In several cases the coal seams are associated with beds of fire clay.

**Kamthi**

It comprises of red and grey argillaceous sandstones and conglomerates with interstratified shales. The beds contain patches and nodules of ferruginous material.

**Alluvium**

The unconsolidated formation of Quaternary age comprising alluvium, clay, silt, etc. in several isolated patches and near major river courses.

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The geology map of the study area is shown in fig.no.5.1.

### Geology of Talapalli Block

Talapalli Block is located in the eastern part of Mand-Raigarh Coalfield. The geology of the block is in conformity with the regional set up. Major part of Talapalli block is covered by the rocks of Barakar formations. Barren measure occurs in the southern part of the block. However a small patch of Barren Measure is also noticed in the north western part of the block. The geological succession evolved on the basis of exploration data generated in the block is given in the Table 5.2

Table No.5.2: Geological Succession in Talapalli Block.

Formation	Thickness (m)	Lithology
Recent	0.50 – 18.00	Soil, alluvium
Barren Measures	18.80 – 143.00	Shale, fine to medium grained sandstone, and intercalation of shale and sandstone, carbonaceous shale and thin coal bands
Barakars	30 – 596	Fine, medium and coarse grained feldspathic, grey sandstone, micaceous and laminated at places. Grey shale, fire clay, intercalation of shale and sandstone and carbonaceous shales with coal seams
Talchir	1.00 – 54.30	Khakoe, greenish shales & sandstone, occasional pebbly
Basement		Metamorphics

### DESCRIPTION OF FORMATION

**Metamorphics:** Precambrian metamorphic rock constitute the basement of the basin. These are composed of quartzite, mica-schist, granite gneiss and at places intruded by pegmatites or vein quartz. The metamorphics have been intersected in 7 boreholes (MNRT-53, 62, RT-6, 9, 12, 13 & 14). The thickness of metamorphics in boreholes varies from 1.00m (MNRT-62) to 9.90m (RT-9).

**Talchir Formation :** The rocks of Talchir formation are not exposed within the block boundary. It is encountered in boreholes RT-5,6,9,10,12,13 &14. The thickness of Talchir as intersected in boreholes varies from 1.20m (RT-12) to 54.30m (RT-10). Talchir formation consists of greyish white to greenish grey sandstone and shale, occasionally khakke in colour. At places it is embedded with pebbles of quartzite, mica-schist, granite gneiss and of pegmatite.

**Barakar Formation :** The major part of the block is covered with Barakar formation. Thickness of Barakar formation as intersected in borehole varies from 30 – 598 m. Barakar formation constitutes fine to coarse grained, white to grey feldspathic, micaceous sandstone, shale and carbonaceous shale with economic coal horizons. A total of 27 coal seams have been encountered in this formation besides a few local seams / bands.

**Barren Measure Formation :** This formation has occupied the southern part of the block. Besides a small patch of barren measure is preserved in the northern part of the block due to opposite dip of faults formation of graben. This formation is intersected in 15 boreholes with thickness varying from 18.80 m (MNRT-27) to 143.00 m (MNRT-24). Barren Measure Formation is represented by predominantly grey shale with minor sandstone and intercalation of sandstone and shale.

**Igneous Intrusives :** The block is free from any igneous intrusives.

**Soil & Alluvium :** Major part of the block is covered by a layer of soil and alluvium. The weathering has affected all the strata below soil to a varying extent. The thickness of soil ranges from 0.50m (MNRT-7, 8) to 18 m (MNRT-59). The depth of weathered zone varies from 6.00 m (MNRT-34) to 27.30 m (MNRT-5).

#### **Structure of the Block**

The Talaiipalli block is mostly covered with soil. Hence the structural interpretation is mainly based on the sub-surface data obtained during the course of exploratory drilling. The general strike of the bed is NW-SE in the major part of the block which swings to almost east – west in the north-western and western part of the block. The dip of beds varies from 4° to 8° towards South-west.



A total of 12 numbers of faults have been deciphered from the subsurface data out of which faults F1-F1, F4-F4 and F3-F3 are major faults. Most of the faults are restricted to the northern part of the block. Remaining area is structurally free except two relatively minor faults. All the faults as interpreted based on intersections in boreholes is detailed at Table 5.3:

Table- 5.3- Details of Faults

Fault No.	Location	Trend	Nature of fault	Throw	Remarks
F1-F1	Northern part passing near BH No. MNRT-24, B7, 22 & 35	East-West to ENE, NE-SW dipping northerly	Dip fault	20m – 85m	Throw of fault increases towards west due to abutment of fault F3, F2 and F5
F2-F2	Northern part passing through MNRT-30	Essentially east-west dipping northerly	Dip fault	0 – 10m	
F3-F3	Northern part passing through MNRT-22	Curvilinear dipping northerly	Dip fault	30-35 m	The throw of fault increases towards MNRT -43 due to the abutment of fault F3 with fault F4
F4-F4	Northern part near BH MNRT-31,24, 43 & 62	East-West dipping northerly	Dip fault	30-160m	The throw of fault increases due to abutment of fault F3, F5, F7, F8 & F9
F5-F5	Northern western part through BH MNRT-62	East-West	Strike fault	35 m	
F6-F6	Northern part passing through MNRT-31	WNE-ESE dipping westerly	Oblique fault	15 – 25 m	
F7-F7	Northern part passing through MNRT-11	NW - SE	Oblique fault	20 m	

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F8-F8	Northern part passing through MNRT-11 & 5	NW-SE	Oblique fault	80-105 m.	The cumulative throw of fault F7,F8 & F9 resulted in the reduction of 105m of strata in MNRT-5
F9-F9	Northern part passing through MNRT-101 RT-4 & MNRT-11	East – West to curvilinear	Strike/ Oblique fault	25m.	
F10-F10	Northern part passing through RT-7	NE-SW	Oblique-curvilinear	0-10 m.	
F11-F11	Southern part	NW-SE	Curvilinear	0 – 10 m.	
F12-F12	Southern part	NW-SE	Oblique	25 m.	

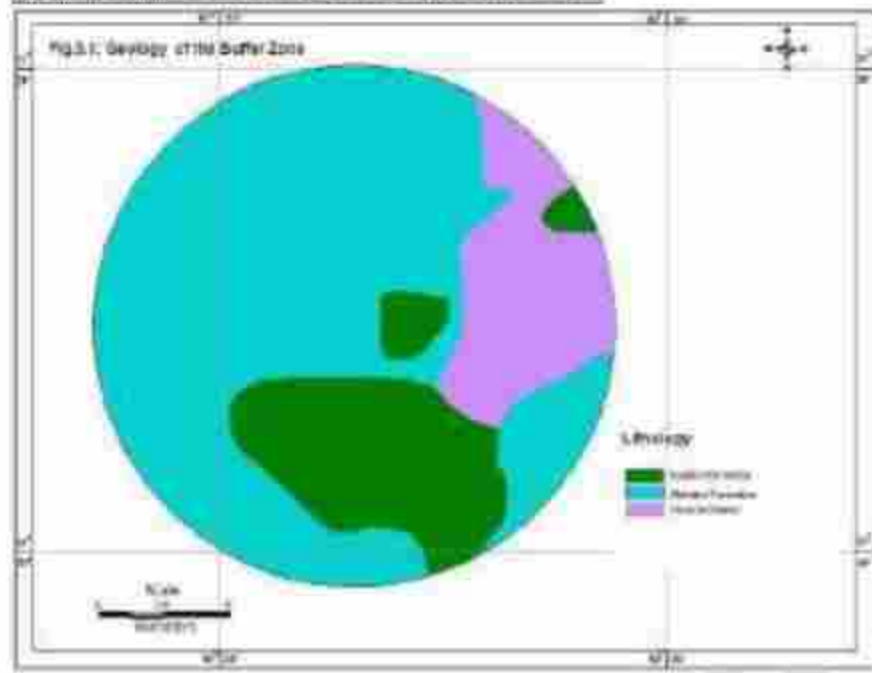
#### COAL SEAMS

Detailed exploration in Talaipalli Block has revealed the presence of coal bearing horizons belonging to Barakar Formations. These carbonaceous horizons could be distinctly demarcated as upper, middle and lower columns of Barakar formation. Altogether 26 workable coal seams are developed in the block. Besides these workable seams there are few non workable persistent bands occurring throughout the block. All the 26 seams are mainly composed of coal, shaly coal, carbonaceous shale and shale. The coal is dull in appearance high in moisture and is of non-coking type. The seams are not effected by any igneous intrusive.

Seam XLA is the top most seam in the block, developed persistently in the southern part of the block over a limited area. Seam-X has split into 4 major sections as X-LA, X-LB, X-Top and X Bottom. X Bottom seam underlies the X Top seam and is the thickest coal seam among X group of seam. Similarly seam-IX has 3 sections, (IX-L2, IX-L1 & IX) seam-VI has 3 sections, VI Top, VI Middle and VI Bottom, seam V has 3 splits as V Top, V Middle, V Bottom. Seam IV has 4 sections, IV Top, IV Middle, IV L & IV Bottom. Seam-III has two splits as seam III L and seam III. Whereas seam-II has 6 splits, sections as II L3, II L2, II L1, II and II L. Seam-I is poorly developed in the block and do not attain workable thickness.

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At-Village Talaipalli, Block-Gharghonda, Raigarh District, Chhattisgarh State



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## CHAPTER-6

### AQUIFER SYSTEM

The study area is covered with rocks of Proterozoic to Permian age with some small isolated pockets of Recent to Sub-recent alluvium. Based on the nature, the rocks are broadly grouped into 3 major aquifer systems i.e.

- (i) Hard Rock Aquifer System  
Comprising crystalline metamorphics of Chhotanagpur Gneissic Complex
- (ii) Soft Rocks: Comprising semi-consolidated crystalline rocks belonging to Gondwana Super Group
- (iii) Soft Rocks: younger alluvium

#### Aquifer Properties

**Hard Rock:** It comprises of crystalline metamorphics of Chhotanagpur Gneissic Complex. These are mainly composed of quartz mica schists and quartz with granite gneiss intruded by granite and dolerite. These rocks are devoid of primary porosity. Ground water occurs in secondary porosity in top weathered zone and in fractures in deeper zone. The top weathered mantle and shallow fractures mainly constitute the shallow aquifers. The thickness of weathered mantle varies from 5 to 20m bgl. The shallow fracture zone extend down to depth of 60m bgl. Ground water occurs under phreatic conditions. The shallow aquifers are being tapped through dug wells, dug cum borewells and shallow tubewells. Ground water occurs under confined to semi-confined conditions in deep fractures. Usually 3 to 4 sets of fractures are encountered upto depth of 100 to 150m. These aquifers are being tapped through tubewells.

**Soft Rocks-Semi-Consolidated :** Gondwana Group of rocks constitute semi-consolidated aquifer systems. Barakar and Kamthi formations constitute the Super Group. Ferruginous sandstone and clay form the Kamthi formation. Sandstone, shale and coal form the Barakar formation. Sandstone is subarkosic in composition, fine to coarse grained, poor to moderately sorted. The shale are generally black and carbonaceous. The rocks possess both primary & secondary porosity. Ground water in these formation occurs in phreatic, semi-confined & confined conditions. The top

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weathered zone followed by fractured zone provide sufficient water to wells. In Barakar formation fractured aquifer down to depth of 450m persists. The deeper fractured aquifers are more productive than shallow aquifers. Tubewells tapping aquifers beyond 200m produces good discharge.

The Transmissivity and storativity of Barakar formations range between 3 to 143  $m^2/day$  and  $1.72 \times 10^{-7}$  to  $7.86 \times 10^{-4}$  respectively.

#### **Soft Rocks Alluvium**

The alluvium in pockets are good potential aquifers in shallow zones and are developed through filter point wells.

#### PUMPING TEST

Aquifer characteristics are necessary in order to assess the ground water potential of the area. It is essential to know aquifer parameters such as yield, transmissivity and storativity etc. For this purpose two aquifer performance tests was conducted. Drawdown during recuperation was measured at interval. Residual Drawdown (RDD) and time were plotted on a semi-log paper and analyzed by applying Theis's Recovery formula mentioned below-

$$\text{Transmissivity (T)} = (2.30X Q) / (4 \pi \Delta S)$$

Where Q is the yield of well in m<sup>3</sup>/day recorded during pumping

ΔS is the drawdown for one log cycle

These data along with respective analysis and plotting of data on semi-log graph sheet are shown in fig no 6.1. Basic data of APT is given below:

#### AQUIFER PERFORMANCE TEST-1

Aquifer performance test was conducted in a well in Bichhinara village. The details are as below:

Formation	: Barakar Sandstone
Water level	: 3.6 m.bgl (below ground level)
MP (Measuring Point)	: 0.85m
Duration of pumping	: 100min
Discharge	: 2.1 lps
Δs	: 1.0 m

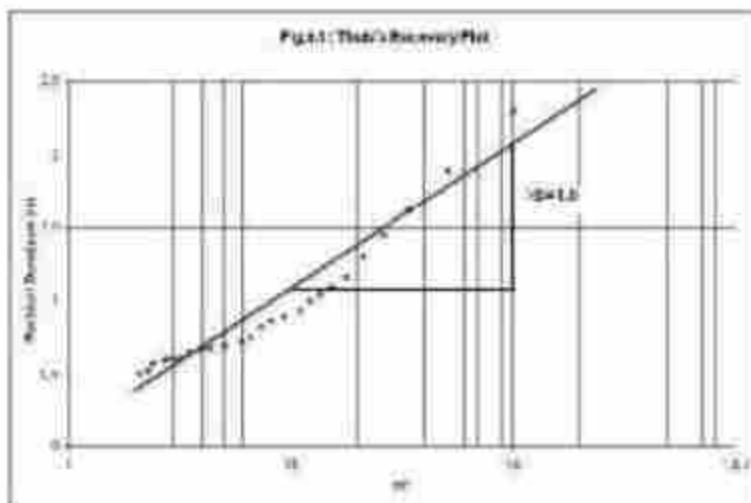
$$\begin{aligned}\text{Transmissivity} &= (2.30X Q) / (4 \pi \Delta S) \text{ m}^2/\text{day} \\ &= (2.3 \times 181.5) / (4 \times 3.1428 \times 1.0) \\ &= 33.25\end{aligned}$$

Table 6.1: Pumping Test Data of Well at Bichhinara

Time (minute) since pumping		WT	Depth to Water Level (m.bmp)	Residual Drawdown (m)
Started (t)	Stopped (t')			
101	1	101	8.95	2.3
102	2	91	8.54	1.89
103	3	34.3	6.27	1.62
104	4	26	6.1	1.45
105	5	21	5.85	1.3
106	8	17.7	5.81	1.16
107	7	15.3	5.74	1.09
108	8	13.5	5.69	1.04
109	9	12.1	5.65	1
110	10	11	5.58	0.93
112	12	9.3	5.54	0.89
114	14	8.1	5.51	0.86
116	16	7.3	5.47	0.82
118	18	6.6	5.4	0.76
120	20	6	5.37	0.72
125	25	5	5.34	0.69
130	30	4.3	5.33	0.68
135	35	3.9	5.32	0.67
140	40	3.5	5.3	0.65
145	45	3.2	5.26	0.61
150	50	3	5.25	0.6
155	55	2.8	5.25	0.6
160	60	2.7	5.24	0.59
170	70	2.4	5.22	0.57
180	80	2.3	5.17	0.52
190	90	2.1	5.15	0.5

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## CHAPTER-7

### WATER LEVEL REGIME

A total 20 nos. of observation wells were established in the study area. The water level of the wells were monitored during the pre & post-monsoon 2013. The location and details of the wells are given in the table no.7.1 & fig.7.1.

#### Pre-Monsoon, 2013 Depth to Water Level.

The pre-monsoon depth to water level varies in the range between 5.4m.bgl and 13.87m.bgl. Maximum water level was observed at Lauthanura which was 13.87m.bgl. The depth to water level contour map was prepared and shown in fig. 7.2. The map depicts that water level in major part of the area lies between 7 and 9mBGL. Water level is deep in the north & north-western part of the area which is in between 11 and 14m and shallow in the south and south-east part which lies between 5.5 to 9m BGL.

#### Post-Monsoon , 2013 Depth to Water Level

The post-monsoon depth to water level varies in the range between 3.6m.bgl and 8.3m.bgl. Maximum water level was observed at Raibera which was 3.3m.bgl. The depth to water level contour map was prepared and shown in fig.7.3. The map depicts that water level is shallow in the south-eastern part of the area and is deep in the north-west part of the area.

#### Water Level Fluctuation (Pre to Post-monsoon)

All the observation wells show rise in water level during post-monsoon period. The rise in water level is in the range of 1.2m. to 7.0m. Maximum rise in water level was observed at Chinotapani which was 7m. Fluctuation contour map was prepared and shown in fig.no.7.4. The map depicts that north-west part of the study area show maximum rise in water level in the range between 4 to 7m.

#### Water Table Elevation

Water table elevation map has been prepared and shown in fig no.7.5. The map depicts that water table elevation varies from 450m to 250mmsl.during post-monsoon,2013 Water table is at higher elevation in the north and gradually decline in the south. Ground water flow direction is from north to south.

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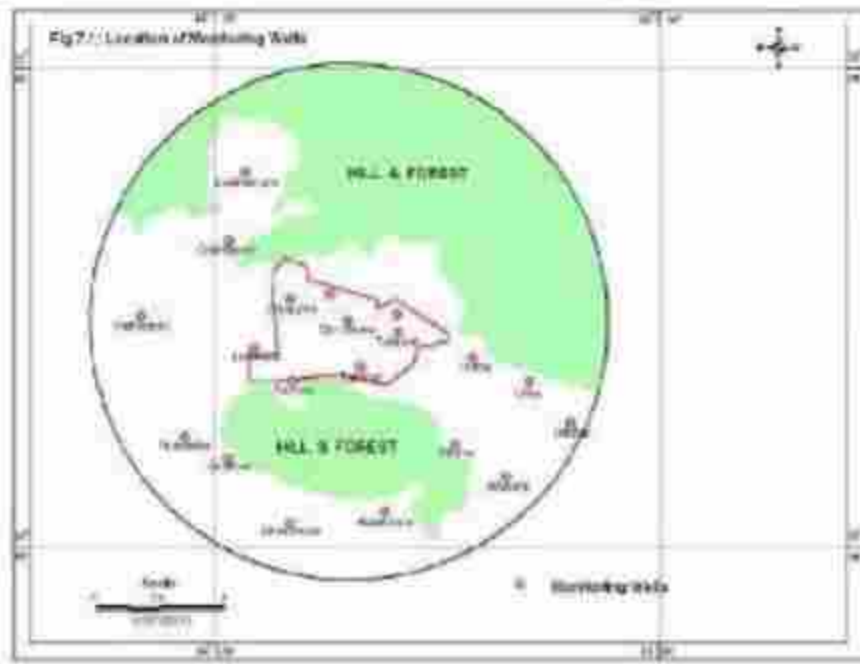
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Table No.7.1: Water Level Data of Monitoring Stations

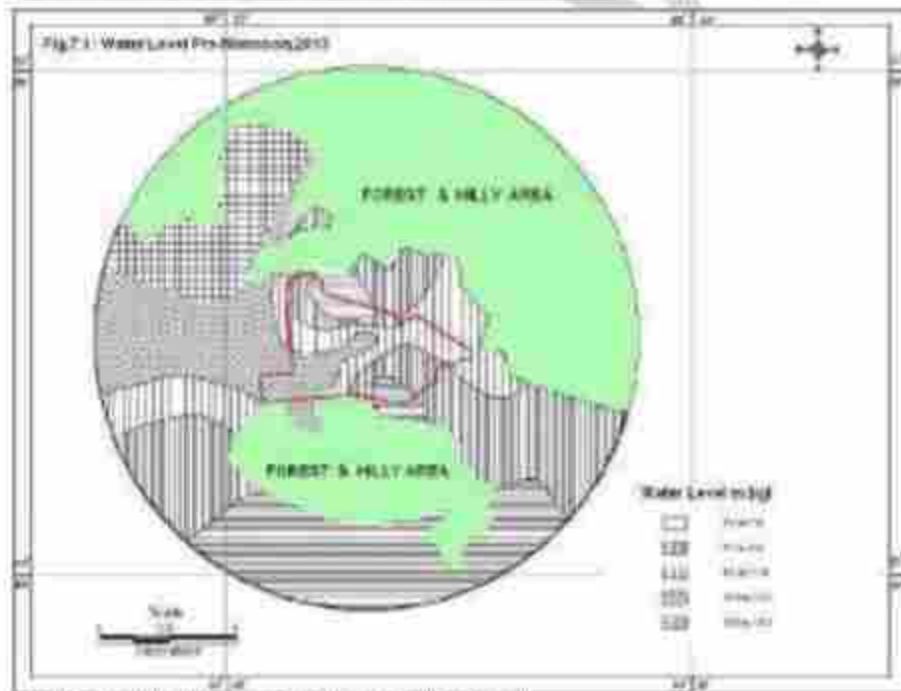
Sl. No	Well Location	Longitude	Latitude	Water Level, Pre-Nonsoon, 2013 (m.bgl)	Water Level, Post-Nonsoon, 2013 (m.bgl)	Water Level Fluctuation in m.
1	Sallepali	83.431	22.236	11.6	6.4	5.2
2	Chigurha	83.44453	22.263	8.6	6.54	2.06
3	Rakera	83.4457	22.2244	12.1	6.3	3.8
4	Bichhinara	83.466	22.2456	11.6	6.7	6.8
5	Ajigarh	83.4696	22.2646	6.4	4.3	1.7
6	Rampur	83.471	22.229	6.8	3.8	3
7	Kudhur Mauha	83.4847	22.2473	9.3	6.2	3.1
8	Kamanpali	83.5884	22.2469	12.36	7.89	4.47
9	Chintapani	83.4215	22.27286	13.42	6.38	7.04
10	Lathamura	83.428	22.297	13.87	7.21	6.66
11	Njandaha	83.40619	22.2097	7.9	4.93	2.97
12	Bhagamuda	83.4447	22.176	6.6	3.91	1.89
13	Balamura	83.48	22.179	6.2	4.21	1.99
14	Milupera	83.5266	22.191	8.78	4.17	2.81
15	Khara	83.5088	22.202	7.32	3.67	3.65
16	Hinjhar	83.55	22.2098	8.54	5.33	3.21
17	Urba	83.5346	22.2294	8.8	5.51	3.09
18	Palma	83.5135	22.2326	9.26	4.87	4.39
19	Talapali	83.48527	22.24096	8.63	6.87	3.86
20	Kerekhol	83.42082	22.19761	7.18	3.22	3.96

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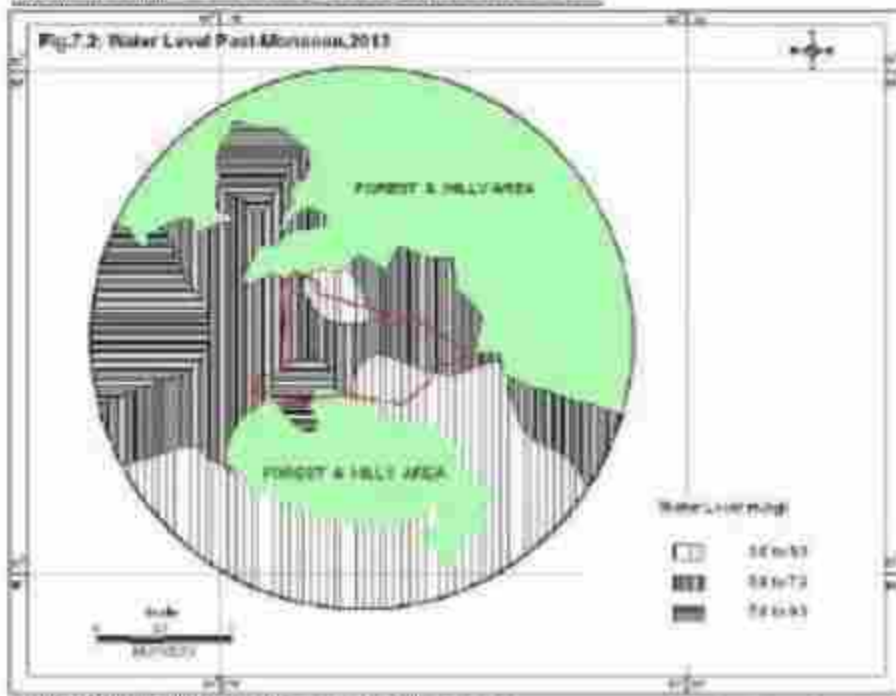
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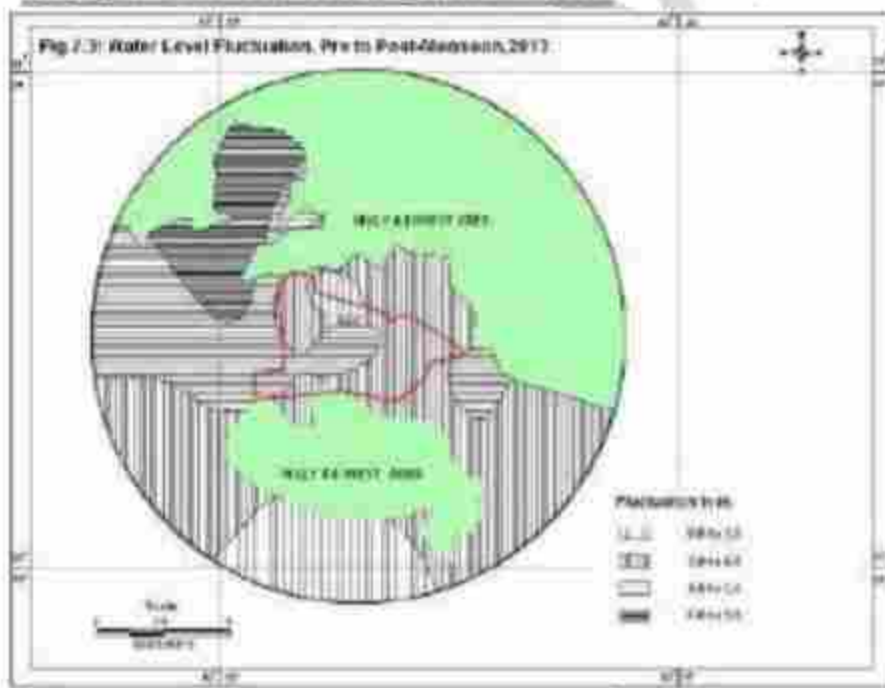
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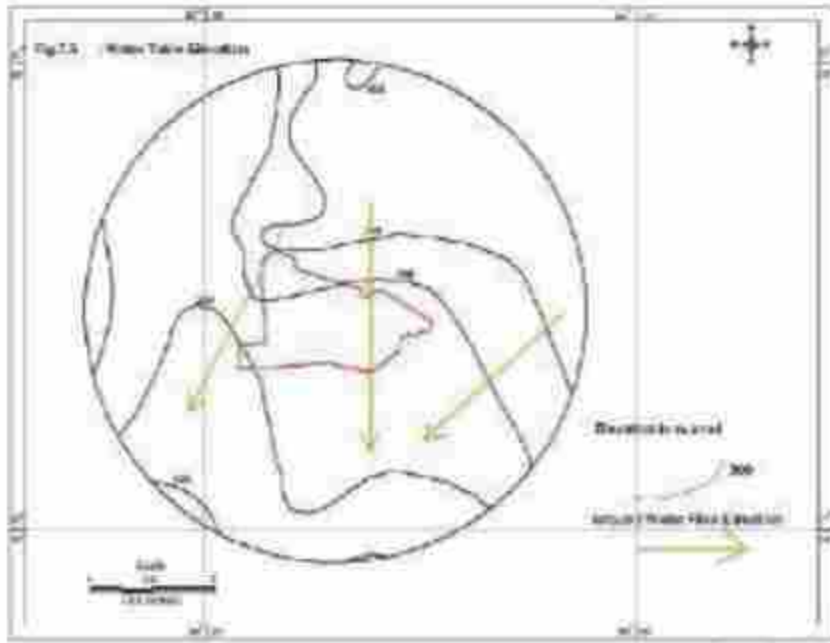
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## CHAPTER-8

### MINE DRAINAGE

#### De-watering in Open Cast Mines of Talalpalli Coal Mining Project

The Talalpalli Coal Mining Project spreads over an area of 2113 hectares of land. The surface elevation of mining lease area varies between 340m amsl and 280m amsl. Water Table elevation (based on the water level data of dug wells tapping phreatic aquifer & measured during post-monsoon,2013) surrounding the mines varies in between 325 and 280m amsl. The ground water flow direction is from north to south. The elevation map is shown in fig.8.1.

Fig.8.1: Water Table Elevation, Post-Monsoon, 2013 Surrounding Mines (m.amsl)



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The pit bottom at the end of the 1<sup>st</sup> year will be at 300mamsl. Hence mining activities will intersect water table during the first year of mining. The table below shows the year wise mining development.

The groundwater level must be pulled down to create dry conditions in the mining area so that the generally low strength aquifer sequence material can be safely excavated. Mine dewatering is usually undertaken for a variety of geo-technical (material strength considerations), mining and safety reasons also.

Table 8.1; Year Wise Development Of Various Stages Of Mining

Year	Top RL of Pit (m.amsl)	Bottom RL of Pit (m.amsl)	Depth of Pit in m.	Pit length in m.	Pit width in m.
Year-1	345	300	45	1260	214
Year-2	345	250	95	1457	618
Year-3	345	225	120	1457	1025
Year-4	345	175	170	1457	1260
Year-5	345	150	195	1457	1408
Conceptual Period	345	0	345	6303	287

The main objective is to find out the total volume of ground water which needs to be pumped out from the Pits for safe mining operations.

#### Ground water intersection

The groundwater inflow to a mining excavation is mainly a consequence of the interaction of groundwater system, hydrogeological characteristics of the rock mass and the mining geometry. The water inflow regime is determined by the incision of one or more aquifers by the mining exaction and the relative hydrogeological characteristics of the various aquifers.

The groundwater inflow in the vicinity of mining excavation can be estimated by using Darcy's equation for laminar flow through porous media.

$$Q = T \cdot i \cdot w$$

Where: Q is the flow in m<sup>3</sup>/day

T is the transmissivity in m<sup>2</sup>/day

i is the hydraulic gradient.

w is the width of the aquifer exposed

Transmissivity of the aquifer has been evaluated from the pumping test carried out and the transmissivity value is 33.25m<sup>2</sup>/day. The hydraulic gradient has been evaluated from the water table elevation map of the area and the gradient is 0.00955. The width of aquifer perpendicular to the flow direction is varying with the progress of mining of coal. The width of mining pit is perpendicular to the ground water flow direction. Hence in this case the width of coal block is the width of aquifer exposed. The table no.9.1 shows the progressive width of coal pit with progress of mining.

Putting all these values in the equation, the approximate volume of ground water ingress to the pit has been evaluated which needs to be pumped out from the pit for safe mining. The table no.9.2 shows the volume of ground water to be available for de-watering.

Table No.9.2: Approximate volume of mining de-watering water

Year of mining	Transmissivity (m <sup>2</sup> /day)	Hydraulic Gradient (i)	length(m)	Width (m)	Q (m <sup>3</sup> /day) from mining length faces	Q (m <sup>3</sup> /day) from mining width faces	Total Q m <sup>3</sup> /day
(1)	(2)	(3)	(4)	(5)	(6) 2x3x4x2(No. of faces)	(7) 2X3X3X2(No. of faces)	(8)
1	33.25	0.00955	1260	214	800	136	936
2			1457	618	925	392	1318
3			1457	1025	925	651	1576
4			1457	1260	925	800	1725
5			1457	1408	925	894	1819

The table 9.2 shows that 936 m<sup>3</sup>/day of pit water will be available at the end of first year of mining and 1320 m<sup>3</sup>/day will be available at the end of 2<sup>nd</sup> year. The quantity will increase with time with the progress of mining in increase of pit width. The evaluated volume of pit water is approximate. Once mining activity starts the volume will be re-evaluated periodically taking other methods.

#### USE OF PIT DE-WATERED WATER

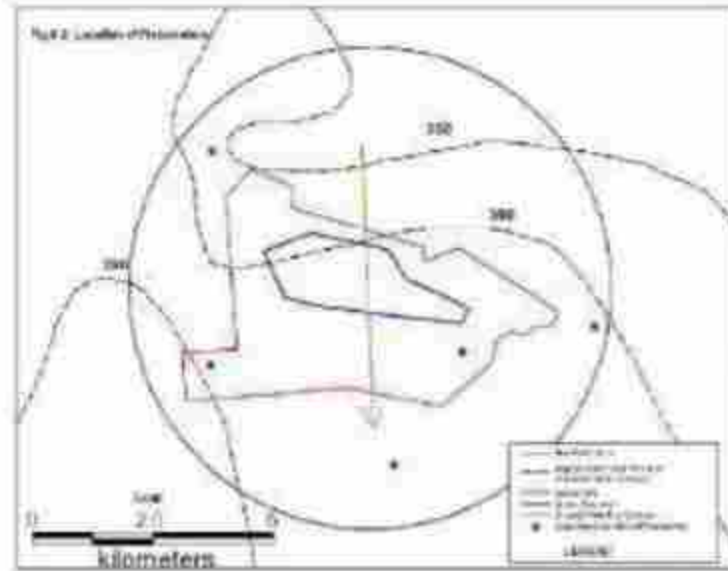
The pumped out pit water will be put to gainful uses. Mines requires water mainly for dust suppression, green belt development and for drinking and domestic uses for colony, drinking for mining site and uses in site office. Pit water will be used for dust



suppression and green belt development and will also be used for domestic and drinking purposes after treatment. Use of pit de-watering water is shown in water balance diagram in fig.no.1.3. Excess pit water will be recharged to ground water system at suitable locations.

#### **GROUND WATER REGIME MONITORING**

In order to find out the impact of mine de-watering, on the regional ground water regime monitoring of ground water will be carried out at regular interval. A well net work of observation wells will be established surrounding the quarry. For phreatic aquifer, water level will be measured through established dug wells. For deeper aquifer, Snos. of piezometers will be established in the area. The location of the piezometers is shown in fig.no.8.2.



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## CHAPTER-9

### GROUND WATER QUALITY

In order to assess the chemical quality of ground water in the buffer zone, six (6) nos. of water samples were collected and analyzed. The table 9.1 shows the quality of ground water in the area. Five water samples from streams were also collected and analyzed. The result is shown in fig.9.2.

A perusal of the table no.9.1 indicates, the distribution of various constituents vary greatly, in the area. Concentrations of the above parameters are well within the permissible limits as per the BIS standards.

pH of ground water samples varies from 6.52 to 8.26 indicating slightly acidic nature of the water. The maximum permissible limit for pH as prescribed by BIS (1991) in drinking water supply is 6.50 to 8.50. The ground water has pH values within prescribed limits and suitable for drinking purposes.

The results of chemical analysis of ground water samples indicate that there is less variation in conductivity in the area. The EC value of ground water varies between 154 and 470 micro-mhos/cm at 25°C. The range of electrical conductivity values shows that the ground water of the area is fresh.

The major sources of chloride in ground water are from rainwater, evaporite deposits and seepage from sewage and industrial effluents containing common salt. The chloride concentration in ground water varies from 8.2 to 39.5 mg/l indicating the quality of water within this aquifer is potable.

The main sources of nitrate in ground water are industrial wastes, sewage and animal wastes and agricultural sources. The nitrate concentration in shallow ground water has been recorded from 0.57 to 18.4mg/l. The nitrate concentration in ground water in the area is well within the permissible limit of 100mg/l as prescribed by BIS, 1991.

The fluoride concentration in the area lies between 0.21 to 1.24mg/l. The fluoride concentration is within the permissible limit as prescribed by BIS, 1991.

The ground water samples of the area show that water is fit for drinking as well as for domestic purposes.

Table 2.1: Chemical Quality of Ground Water

Sl.No	Parameters	Chhatigada	Saltipali	KayaRampar	Talipali	Atgarh	Palma	Limits (IS:10500)
<b>A. General &amp; Physical</b>								
1	Appearance	Clear	Turbid	Turbid	Turbid	Turbid	Turbid	
2	Colour(Triphen Unit)	<10	<10	<10	<10	<10	<10	15
3	Turbidity(TU)	<1	11	8	7	8	8	5
4	Electrical Conductivity@25°C	164	385	470	300	465	387	-
5	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
6	pH	6.67	8.24	7.21	6.67	6.79	6.88	6.5-8.5
<b>B. CHEMICAL - INORGANIC</b>								
7	Total Dissolved Solids	96	172	292	216	278	270	2000
8	Total Hardness (CaCO <sub>3</sub> )	74	122	126	118	182.4	188	600
9	Calcium Hardness	35	81.5	77.6	52.4	76	66.26	
10	Magnesium Hardness	39	41	48.4	64	106	52.7	
11	Magnesium	6.5	6.98	11.7	15.8	28	12.8	100
12	Calcium	14	33	31	31	38.4	23.5	200
13	Total Alkalinity	36.7	115	135	135	187	177	600
14	Chloride	19.3	8.7	38.5	11.8	11.1	21	1000
15	Sulphate	7.14	6.52	17.1	19	7	26.1	400
16	Fluoride	0.21	0.381	0.38	0.68	1.34	0.36	1.5
17	Nitrate	18.4	0.57	10.63	9.7	1.28	80.1	45
18	Manganese	BDL	0.221	0.568	0.352	0.194	0.07	3.2
19	Copper	BDL	BDL	BDL	BDL	BDL	BDL	1.5
20	Total Iron	0.025	0.057	0.872	0.833	0.878	0.977	1
21	Residual Chlorine	BDL	BDL	BDL	BDL	BDL	BDL	0.2

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22	Temperature	26	27	27	28	28	28	
23	Dissolved Oxygen	6.88	6.24	6.46	6.78	6.45	6.75	NA
24	Total Suspended Solids	BDL	25	48	44	54	62	NA
25	BOD	BDL	BDL	BDL	BDL	BDL	BDL	NA
26	COD	BDL	BDL	BDL	73	BDL	3	NA
27	Phosphate	1.32	2.1	1.8	0.4	1.4	6.67	NA
28	Sodium	9.672	1.2	6.4	20.28	8.8	15.88	NA
29	Potassium	13.1	BDL	90.1	13.587	BDL	25.3	NA
30	Reactive Silica	2.48	18.1	18.4	2.09	15.4	36.3	NA
31	Cl & Sulfate	3	BDL	BDL	BDL	BDL	4	NA
32	Phenolic Compounds	Absent	Absent	Absent	Absent	Absent	Absent	0.02

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Table 5.2: Quality of Surface Water

Sl.No	Parameters	Kris Nadi (up-stream)	Kain Nadi (down-stream)	Rampur (stream)	Fajhar Nadi (upstream)	Fajhar Nadi (downstream)	Limit IS:10500
1	A.General & Physical Appearance	Turbid	Turbid	Turbid	Slightly Turbid	Turbid	-
2	Cauphenen Limit	10	25	25	15	20	25
3	Turbidity (NTU)	32	30	24	5	6	10
4	Electrical Conductivity (µS/cm)	97.2	94	127	180	879	-
5	Colour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
6	pH	7.31	6.73	7.22	7.68	7.98	5.5-8.5
<b>B. CHEMICAL- INORGANIC</b>							
7	Total Dissolved Solids	64	64	88	125	550	2000
8	Total Hardness (CaCO <sub>3</sub> )	37	44.8	32	83.6	272	500
9	Calcium Hardness	29	25.1	22.3	36.3	146	-
10	Magnesium Hardness	8	19.4	9.7	27.3	126	-
11	Magnesium	1.8	4.71	2.3	6.81	32.8	100
12	Calcium	11.6	10	9.2	14.1	58.4	200
13	Total Alkalinity	27.1	40.2	50	82	194	500
14	Chloride	6.76	5.7	5.8	11	134	1000
15	Sulphate	4.3	2.28	8	21.4	4.3	400
16	Fluoride	0.25	0.33	0.26	0.355	0.577	1.5
17	Nitrate	2.76	2.93	5.44	3.67	0.423	45
18	Manganese	0.028	0.02	0.14	0.074	BDL	0.3
19	Copper	BDL	BDL	BDL	BDL	BDL	1.5

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20	Total Iron	0.785	0.907	0.8	0.248	0.173	1
21	Residual Chlorine	BDL	BDL	BDL	BDL	BDL	0.2
22	Temperature	28	28	27	27	28	-
23	Dissolved Oxygen	6.46	6.84	6.45	6.13	5.78	NA
24	Total Suspended Solids	220	218	215	8	94	NA
25	BOD	BDL	BDL	BDL	BDL	BDL	NA
26	COD	BDL	BDL	BDL	18	5	NA
27	Phosphate	2.7	2.5	2.1	2.43	2.8	NA
28	Sodium	2.2	5.9	8.2	5.438	7.9	NA
29	Potassium	BDL	BDL	BDL	2.104	2.1	NA
30	Reactive Silica	19.5	21.7	19.5	7.48	9.1	NA
31	Oil & Grease	BDL	BDL	BDL	BDL	BDL	NA
32	Phenolic Compounds	Absent	Absent	Absent	Absent	Absent	0.002

Note: Concentration are in mg/l, BDL: Below Detectable Level

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## CHAPTER-10

### DYNAMIC GROUND WATER RESOURCES

Rainfall is the principal source of ground water recharge in the study area/buffer zone. For estimation of ground water resources and stage of ground water development in the buffer zone, GEC (Ground Water Resource Estimation Committee, 1987) norms have been adopted and are described below.

#### A) Ground Water Recharge

##### a) Monsoon Ground Water Recharge

###### i) Based on Rainfall Infiltration Method

Total Area	: 314 sq.km
Area suitable for recharge	: 154 sq.km
Average Rainfall	: 1165 mm
Infiltration factor	: 20%
Annual Recharge	: 35.882 MCM

###### ii) Based on Water Table Fluctuation Method

Area suitable for recharge	: 154 sq.km
Mean water level fluctuation	: 3.00m
Specific yield	: 9%
Maximum Ground Water Recharge	: 41.58 MCM

The ground water resource estimated by Water table fluctuation method is more. Therefore as per the norms of GEC, resources by infiltration method is to be adopted.

##### b) Recharge through other sources

Recharge through other sources primarily constitutes recharge through surface water irrigation. Return recharge from surface water irrigation is estimated to be 30% of the applied water for irrigation. As per the district irrigation department, about 534 ha of land is irrigated in the study area. If the gross irrigation requirement is taken as 0.5 ham. As per the norms of Ground Water Resource Estimation Committee ( GEC,97), total applied water will work out to be 272 Ham. The return seepage will be 30% of 267 Ham i.e. 80.1 ham or 0.801 MCM.

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c) Hence annual ground water resources will be

$$35.852 \text{ MCM} - 0.801 \text{ MCM} \\ = 35.051 \text{ MCM}$$

#### B) Ground Water Draft

Ground water is mainly used for domestic, irrigation and industrial need. To estimate the ground water use, Census data of 2001 have been used for population and irrigated area.

##### Draft for Drinking Use

Population using ground water as drinking water	: 39241
Per Capita	: 70 lit/day
Annual Ground Water Use	: 1.019716 MCM

##### Irrigation Use

About 534 ha of land is being irrigated through ground water. Considering 50 cm/ha of ground water use, total ground water need for irrigation works out to be 2.67 MCM.

##### Industrial Use

In the study area there is no industry hence ground water requirement for industrial use has been taken to be zero.

##### Total Ground Water Utilization

$$1.019716 \text{ MCM} + 2.67 \text{ MCM} + 0 \text{ MCM} \\ = 3.68972 \text{ MCM}$$

##### Ground Water Balance

Annual Resources = 35.051 MCM

Annual Utilisation = 3.68972 MCM

Balance GW = 31.36128 MCM

##### Stage of Ground Water Development

The stage of ground water development in an area is taken as the ratio of Gross annual draft for all uses to the total utilizable ground water resource or net annual ground water availability.

Thus the stage of ground water development ( % ) in the buffer zone is

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At-Village Talaiwalli, Block-Gharghonda, Raigarh District, Chhattisgarh State

$$\begin{aligned} & \frac{\text{Net Ground Water Draft}}{\text{Net Ground Water Availability}} \times 100 \\ & = \frac{(3.68972/36.683) \times 100}{\phantom{=}} \\ & = 10.058 \% \end{aligned}$$

The unit of assessment as per GEC norms are categorized for ground water development based on two criteria.

- i. Stage of Development
- ii. Long term trend of pre & post monsoon water level

Since the buffer zone represents an area where stage of development is 10.058 % and there is no long term decline of pre & post monsoon water level, the area is categorized as safe.



## CHAPTER-11

### CONCLUSION

Talapalli Coal Mining Project of National Thermal Power Corporation Ltd is located in Gharghoda Block of Raigarh district, Chhattisgarh State. The mining lease area is spread over an area of 2113 hectares of land. The Mining Lease area falls in the Survey of India topo-sheet no. 84 N/7 & 8 and is bounded by North latitude 22° 13' 35" to 22° 16' 08" N and longitude 83° 25' 49" to 83° 30' 22" E.

The mining will be carried out through open cast methods with Shovel-dumper combination & Continuous Surface Miner.

The climate of the area is tropical monsoon climate with average annual rainfall of 1165mm with annual maximum and minimum temperature of 43°C and 6° C respectively.

The area is characterized by denudational hill ranges in the north with intervening valleys, plateaus in the south, rivers, talas, reserved forest and water bodies. The surface elevation varies from 600m to 300m above M.S.L. The general surface gradient is from north to south. The major reserved forests in the area are Tolga west Reserved Forest, Silot RF, Rampur RF and Deodongri RF. The area is drained by river Kelo and its tributaries and other small streams. The river Kelo flows in the eastern part in north to south direction.

The area is underlain by rocks of the Gondwana Super Group and granite gneiss.

The coalfield displays the complete sequence of Lower Gondwana rocks from Talchir to Kamthi.

The pre-monsoon depth to water level varies in the range between 5.4m.bgl and 13.87m.bgl. The post-monsoon depth to water level varies in the range between 3.8m.bgl and 5.3m.bgl. The stage of ground water development of the study area has been calculated to be 10.058%.

The ground water samples of the area show that water is fit for drinking as well as for domestic purposes.

The surface elevation of mining lease area varies between 340m.amsl and 280m.amsl. On an average depth to water table in the mining area lies at 325m.amsl. At the end of 1<sup>st</sup> year of mining activity the bottom will be 300m.amsl. So mining activities will intersect

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At-Village Talapalli, Block-Gharghoda, Raigarh District, Chhattisgarh State

water table. De-watering of mining pit is necessary for safe mining. The quantum of probable de-watering water available at the end of 1<sup>st</sup> year has been estimated to be 936 m<sup>3</sup>/day, 1320 m<sup>3</sup>/day at the end of 2<sup>nd</sup> year and 1619 at the 5<sup>th</sup> year of mining. The quantity will increase with progress of mining activity. The pit de-watering water will be used for dust suppression, green belt development and drinking and domestic uses etc. The excess de-watering water if any will be recharged to ground water system at hydrogeologically suitable place through recharging structures. The quantity of de-watering water will be assessed every year.





## Additional Annexure-13

### ANNEXURE-VIIF

#### NOTE ON UNDERGROUND MINING

#### 1.1 DISPOSITION OF SEAMS AND SELECTION OF MINING TECHNOLOGY

Mechanized opencast mining of various coal seams commencing from the topmost X seam to IV seam has been planned. The various coal seams/splits available below IV seam and the partings between various such horizons is detailed at Table 1.1.

Table – 1.1 – Thickness of Seams/Partings below III Seam

Coal Seams	Seam (m)		Parting (m)		Dominant Thickness (m)
	Minimum	Maximum	Minimum	Maximum	
III L	0.12	3.25			0.50-1.5
Parting			24.57	44.55	33.0-39.0
III	0.66	5.97			2.0-5.5
Parting			31.1	55.93	33.0-51.0
Parting			31.1	55.93	33.0-51.0
II L3	0.5	3.09			<0.90
Parting			13.39	40.9	28.0-38.0
II L2	0.67	2.68			<0.90
Parting			5	60.39	35
II L1	0.05	1.54			<0.90
Parting			1.27	20.59	3.0-14.0
II	0.13	5.92			0.50-2.50
Parting			0.37	3.89	0.50-2.0
II L	0.05	2.45			<0.90
Parting			Around 35.0 m		
I	0.22	0.55			-

From the above table, it is evident that Seam III L below Seam IV (the proposed quarry floor) has thickness varying from 0.12m to 3.25m although the seam has

not acquired workable thickness in the the mining area as the prevalent thickness in 83%of boreholes varies from 0.5m to 1.50m.

The seam below seam III is Seam II which has acquired workable thickness in the mining area (the prevalent seam thickness is 2.0 to 5.50 m in 86% of boreholes). The bottommost Seam IV has been planned to be worked by Opencast. The Final stage plan of the OC workings has proposed to fill the workings with OB upto a height of 120m above the surface height. A void has been proposed to be left in the OC workings and would normally be filled with water. The OB dumps of the OC workings are watercharged during rainy season. The parting between Seam III and Seam IV is less than 60m in most of the mining area. There would be dead load of the 120m high dump on the surface of the Underground workings. Considering the height of the dump, the depth of the Seam III workings (more than 250m in most of the area), the water filled void on the surface and water charged strata of OB on the surface of the mine during rainy season, the seam III has been considered to be unsafe to work by UG method.

Detailed study of the Geological Report has revealed that possibility of any belowground mining in Seam III1 and III does not exist due to poor development of the carbonaceous horizons. Seam II has developed working thickness in the block barring eastern side. Seam III2 & Seam III3 have attained workable thickness in north west and south west areas of the coal block in very small areas. The seam III2 and III3 have workable area at a depth higher than 500m in the south western side. These seams have developed workable thickness in a very small area in the North Western side at a depth higher than 300m. Accessing these areas from Seam II would involve thin seam driveage or driveage of drifts. This is considered to be non economical as the workable reserves are meagre.

The Seam Folio plans of Seam II indicate that this seam has the very good potential to be mined by underground mining operation as it has developed workable thickness for UG mining in the mining area on from the central to western portion. The prevalent workable thickness of the II Seam varies from

1.5 to 5m. The depth of the workings vary from 230m to greater than 600m in the dipmost portion of the mining area.

In CIL mines, Bord & Pillar method using SDL / LHD is in vogue. This is a semi mechanized technology and involves Blasting operations. The work force is well versed with the various operations. The manpower deployment in the working districts being high and the production to the tune of 100 tons per day with SDL and 150 tons per day with LHD machine is being achieved in Indian mines. Due to low productivity and high manpower deployment this technology, it would not be profitable to work by SDL/LHD.

The two prevalent methods for Mass production deployed in the Indian Mines are Continuous Miner Technology and Longwall technology.

Continuous Miner Technology on Bord & Pillar method is in operation in many mines of CIL. This technology is very flexible and the blasting operations cycle is also not used in this method. The shuttle car used in the CM package is a coal hauling machine is tyre mounted likely the LHDs being used in the CIL mines. The continuous Miner machine is available in wide cutting ranges. These days CM on hiring basis is being used in many mines of CIL and the production to the tune of 2000 tpd and more is being achieved in mines. In the hiring mode of CM technology, the district manpower is provided by the private party. The CM technology is deployable in mines upto a depth of around 400m .

CM technology is normally not deployed in high depth mines due to the consideration of load bearing capacity of max pillars size of 48m x 48m permitted by the Coal Mines Regulations. The geomining conditions of high depth and dead load of 120m of backfilled OB on surface do not permit the deployment of CM technology in this mine.

Powered Support Longwall (PSLW) technology is generally suitable where comparatively large area free from faults and geological disturbances available for deployment. Long panels can be made for final extraction, as the method is highly inflexible. The property should not have large and abrupt variation in seam thickness. Besides, as the method involves cutting/shearing (no blasting) and the

rate of extraction is very high, it ensures better percentage of extraction, ease of management and is safer. Longwall panels operate on "straight line" extraction method.

A number of Longwall faces have been operated in the mines of CIL, in collaboration with European Companies and even with Chinese collaboration. Till date the best results have been given by the Chinese packages. Longwall packages also require additional gate road drivage equipment. A provision of atleast two CM packages for winning the districts and main dip drivages be made. Two road headers would be required for gate road drivage of the mine. *Considering the high depth and the dead load of 120m OB on surface, the seam II has been proposed to be worked by Longwall technology.*

## 1.2 GEOLOGICAL RESERVES

The distribution of geological reserves in Seam II is given in Table-1.2.

Table-1.2 - Thickness-wise Geological Reserves

SN	Coal Seam	Thickness zone (m)	Geological Reserves (m.tes)
1	Seam II	1.2-1.5	2.21
		1.5-1.8	7.74
		>1.8	28.29
Total			38.24

The extractable reserves, excluding fault barriers, panel barriers and boundary barriers, are given at Table-1.3.

Table-1.3 - Extractable Reserves vis-à-vis Geological Reserves

SN	Coal Seam	Geological Reserves (M.T)	Extractable Reserves (M.T)
1	Seam II	38.24	28.25



### 1.3 MAIN MINE ENTRIES

Considering the availability of land as per the OC planning of higher seams, the only option suitable for the mine is working by two shafts. One of the shafts can shall be used as return airshaft and the coal handling and manwinding shall be carried from the other shaft. The depth of the shafts has been considered to be 245 m.

Though it is ideal to locate such mine openings around middle of the area considered for belowground workings, yet existence of opencast mining operations does not permit to have such a choice. Possibility of working by belowground method through two independent mine units, so as to get higher production capacity was also considered. It is found that sizeable coal reserves of opencast mine get blocked as also the opencast mine operations would be constrained by such planning. Therefore, only one belowground mine unit has been considered at this project.

### 1.4 MINE CAPACITY AND LIFE OF THE MINE

Use of one set of Longwall in average seam thickness of about 3.0m with provision of adequate gate/trunk transport is likely to produce on an average of about 1.7 MTPA. The two CMs having productivity of 0.5Mty are likely to produce 1 Mty per annum. The total extractable reserves are to the tune of 28.24 MT. The reserves for Longwall alongwith roadheaders drivage would last for around 10 years and those for CM would last for 12 years. The life of underground workings is expected to be 12 years from completion of Opencast workings. The sinking of shafts and construction of surface infrastructure are proposed to be carried out as parallel activity with OC workings.

## 1.5 MINE VENTILATION

The working belowground mines in Mand-Raigarh Coalfield are placed in Degree-I category of gassiness. It is, therefore, expected that the proposed underground mine workings at Talaipalli Coal block would also fall in same Degree-I of gassiness. However a scientific study for the purpose would be carried out. Accordingly, ventilation provisions in this are based on Degree-I gassiness. These provisions may need to be altered if any change in degree of gassiness is found on actual determination as required by statute.

Exhaust ventilation system is considered for the proposed mine with one of the shafts provided with a main mechanical ventilator with suitably designed air lock arrangements & evasee.

A PV300 or equivalent fan with 350 KW motor would be suitable for the mine.

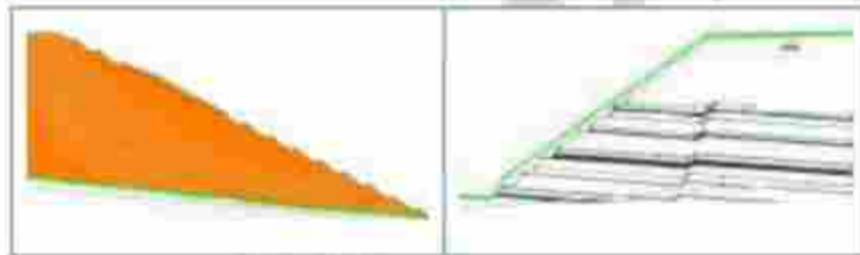


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ANNEXURE-VIII G

For Internal use of NMFC

**SCIENTIFIC STUDY OF PIT AND DUMP SLOPE  
STABILITY  
FOR  
TALAIPALLI COAL MINING PROJECT**



SEPTEMBER 2022

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## CHAPTER 1

### BACKGROUND

#### 1.1 INTRODUCTION

Talapalli coal mining block in the state of Chhattisgarh was initially allotted to NTPC by Ministry of Coal (MoC), vide letter no.13016/29-2003-CA-1, dated 25.01.2006, for meeting coal requirement for the proposed 4000MW Lara Integrated Power Project which is approximately 60 kms away from the coal block.

Talapalli Block lies in the eastern part of Mand-Raigarh Coalfield in the state of Chhattisgarh. At the time of allotment, the block was regionally explored by GSI by drilling 15 holes (6434.55m) and estimated coal reserves of 964.88 million tonnes of indicated category were assessed.

On receiving Letter of Award (LOA) from Ministry of Coal, NTPC Ltd issued Work order to MECL to carry out detailed exploration in the block. MECL drilled about 102 boreholes (39854.75 mtrs. of drilling) in approximately 20 sq. km. block area for which the Geological Report (GR) was submitted to NTPC on 29.09.08.

On receipt of GR, NTPC awarded the consultancy for preparation of Mining Plan and Feasibility Report for this block to Advance Coal Management & Marketing Pvt. Ltd. (ACMAM), New Delhi. The Mining Plan was prepared by ACMAM in 2009 for a rated capacity of 18.00 Mtpa based on the aforementioned GR which was later approved by the Ministry of Coal on 31.03.2010. Subsequently, all statutory clearances were obtained on the basis of the approved Mining Plan.

However, as a consequence to the Judgment of the Hon'ble Supreme Court in September 2014, the block allocation was cancelled which was later re-allotted to NTPC on 08.09.2015.

NTPC planned to develop and operate the mine through outsourcing by appointing a Mine Developer and Operator (MDO) with scope of works viz. overburden removal, extraction

of coal, construction of CHP & other fixed mine infrastructures, compliance of statutory obligations and other associated activities.

Meanwhile, all requisite statutory clearances and permissions were obtained from the respective statutory bodies. The major statutory clearances out of the above are furnished below:

Table 1-1: Major Statutory Clearances with Obtaining Date

Activity	Date of Achievement
Env. Clearance	02.01.13/13.11.15
Forest Clearance	St-I: 05.11.12; St-II: 29.01.14; 23.05.17(Rev)
Consent to Establish	06.01.15
Consent to Operate	17.03.16
Tripartite Escrow Agreement (Banker, CCO & NTPC)	15.05.14 & 04.09.17
DGMS Permission	19.01.18
Coal Controllers permission	31.01.18

### 1.2 NEED FOR THIS REPORT

M/s TEMPL was appointed as MDO on 26.08.2020 by NTPC for development and operation of Talaspalli Coal Block.

The Technical Feasibility Note on Talaspalli Coal Block was prepared by CMPDI and was submitted to NTPC and M/S TEMPL in September 2021. The approved Mining Plan was reviewed and it was found to be not feasible. CMPDI recommended revision of the Approved Mining Plan.

Against this backdrop, NTPC has awarded the consultancy service to CMPDI for Scientific Stability Analysis of proposed Pit and Dumps in the Mining Plan Talaspalli Coal Block which is being prepared by CMPDI.

### 1.3 SCOPE OF THE STUDY

The scientific stability analysis Report for the Pit & Dumps as per the mining plan includes the following

- Stability assessment of the proposed Dumps and Pits Slope designs' geometry in the Mining plan
- Suitable remedial measures for safe dump managements.
- Slope monitoring Technics to be adopted.

#### 1.4 BASE DOCUMENT

The mining plan prepared by CMPDIL is the base document

APPROVED



## CHAPTER 2

### PROJECT SITE INFORMATION

#### 2.1 LOCATION

Talapalli coal block having an area of 2115.5 ha is bounded by latitude  $22^{\circ} 13' 35''$  &  $22^{\circ} 16' 08''$  N and longitude  $83^{\circ} 25' 49''$  &  $83^{\circ} 30' 21''$  E. It is located in the eastern part of the Mand Raigarh coalfield and lies in Raigarh district of Chhattisgarh State. Talapalli block roughly forms a rectangle, the longer axis is NW-SE direction forming the length of the block, and the shorter axis NE-SW direction forming the width. The block boundary allocated to NTPC Ltd, was pillared by Boundary Pillars BP-1 to BP-55. The Kalo river forms the eastern boundary of the block and the boundary line passes through Naya Rampur & Raikera village in the south of Sajepalli, west of Chotiguda forming the western boundary. Ajjigarh and Kukur-Manha village forming the northern boundary.

Talapalli block is covered by Survey of India top sheet No. 64N7 & N 8 (RF 1:50000). The block is mostly covered by cultivated land while south-eastern part of the block has Reserve & protected forest cover. Talapalli, Kukur-Manha, Ajjigarh, Chotiguda, Bichhinara, Naya Rampur, Raikera and Sajepalli are numerous villages located within the block.

#### 2.2 COMMUNICATION

Talapalli block is about 55 km away from Raigarh township and is close to Tehsil Headquarters at Gharghoda which lies on Raigarh-Ambikapur State Highway. Talapalli village is situated in the block & it is about 20 km NE from Gharghoda and is connected with Gharghoda partly by all-weather Gharghoda-Lalunga road. Gharghoda is about 35 km North of Raigarh Railway Station which is on Howrah-Bombay Main Line of South Eastern Railway. A large part of the area of investigation is practically inaccessible during monsoon. The nearest railway station is Raigarh which is 55 km away from Talapalli block lying on the Mumbai-Howrah main line of SE railways.

### 2.3 PHYSIOGRAPHY AND DRAINAGE

The topography of Talapalli block is mostly covered by softer horizon and in general represents an undulating terrain bounded by Tolge Pahar in the north and Silot Pahar (580m) in the south. The general ground level elevation of the area varies between 280 m and 340m above MSL.

Kelo River is flowing through the south-eastern part of the present area, constitute the main drainage system. The main subsidiary stream channel draining the block from north-west to south-east joins the Kelo River at the extreme south-eastern part of the area. This subsidiary stream channel is fed by number of small tributaries rising from hills both from north and south.

### 2.4 CLIMATE

The area experiences a sub-tropical climate with very hot and dry summer. In the summer season from March to June, temperature rises to 45° C during the peak period. The monsoon period extends from mid-June to September with an average annual mean rainfall of 1620 mm. The winter season starts from November and continues upto February. During winter the temperature goes down to 18.6° C.

## CHAPTER 3

### GEOLOGY AND EXPLORATION

#### 3.1 GEOLOGY OF TALAIPALLI BLOCK

Talaipalli Block is located in the eastern part of Mand-Raigarh Coalfield. The geology of the block is in conformity with the regional set up. Major part of Talaipalli block is covered by the rocks of Barakar formations. Barren measure occurs in the southern part of the block. However a small patch of Barren Measure is also noticed in the north western part of the block.

The geological succession evolved on the basis of exploration data generated in the block is given in the Table 3-2 below:

Table 3.1: Geological Succession in Talaipalli Block

Formation	Thickness (m)	Lithology
Recent	0.50 – 18.00	Soil, alluvium
Barren Measures	18.50 – 143.00	Shale, fine to medium grained sandstone, and intercalation of shale and sandstone, carbonaceous shale and thin coal bands
Barakars	30 – 596	Fine, medium and coarse grained feldspathic, grey sandstone, micaceous and laminated at places. Grey shale, fire clay, intercalation of shale and sandstone and carbonaceous shales with coal seams
Talchir	1.00 – 54.30	Khakras, greenish shales & sandstone, occasional pebbly
Basement		Metamorphics

#### 3.1.1 DESCRIPTION OF FORMATION

- **Metamorphics:** Precambrian metamorphic rock constitute the basement of the basin. These are composed of quartzite, mica-schist, granite gneiss and at places intruded by pegmatites or vein quartz. The metamorphics have been intersected in

7 boreholes (MNRT-53, 62, RT-6, 9, 12, 13 & 14). The thickness of metamorphics in boreholes varies from 1.00m (MNRT-62) to 9.90m (RT-9).

- **Talchir Formation :** The rocks of Talchir formation are not exposed within the block boundary. It is encountered in boreholes RT-5,6,9,10,12,13 &14. The thickness of Talchir as intersected in boreholes varies from 1.20m (RT-12) to 54.30m (RT-10). Talchir formation consists of greyish white to greenish grey sandstone and shale, occasionally khakes in colour. At places it is embedded with pebbles of quartzite, mica-schist, granite gneiss and of pegmatite.
- **Barakar Formation :** The major part of the block is covered with Barakar formation. Thickness of Barakar formation as intersected in borehole varies from 30 – 596 m. Barakar formation constitute fine to coarse grained, white to grey feldspathic, micaceous sandstone, shale and carbonaceous shale with economic coal horizons. A total of 27 coal seams have been encountered in this formation besides a few local seams / bands.
- **Barren Measures Formation :** This formation has occupied the southern part of the block. Besides a small patch of barren measure is preserved in the northern part of the block due to opposite dip of faults formation of graben. This formation is intersected in 15 boreholes with thickness varying from 18.80 m (MNRT-27) to 143.00 m (MNRT-24). Barren Measures Formation is represented by predominantly grey shale with minor sandstone and intercalation of sandstone and shale.
- **Igneous Intrusives :** The block is free from any igneous intrusives.
- **Soil & Alluvium :** Major part of the block is covered by a layer of soil and alluvium. The weathering has affected all the strata below soil to a varying extent. The thickness of soil ranges from 0.50m (MNRT-7, 8) to 18 m (MNRT-59). The depth of weathered zone varies from 6.00 m (MNRT-34) to 27.30 m (MNRT-5).

### 3.1.2 STRUCTURE OF THE BLOCK

The general strike of the bed is NW-SE in the major part of the block which swings to almost east – west in the north-western and western part of the block. The dip of beds varies from 4° to 5° towards South-west.

The Geological Plan of the Talaiipalli Coal Block is given in Fig. 2-1 below:



Figure 3.1 Geological Plan of Talaspalli Coal Block

The block does not show major tectonic disturbances. A total of 12 numbers of faults have been deciphered from the subsurface data out of which three faults namely fault F1-F1, F4-F4 and F3-F3 are major faults. Most of the faults are restricted to the northern part of the block. The faults details are furnished in Table 2-2 below:

Table 2-2 Deciphered Faults

Fault No.	Location	Trend	Nature of fault	Throw
F1-F1	Northern part passing near BH No. MNRT-24, 87, 22 & 35	East-West to ENE, NE-SW dipping northerly	Dip fault	20m - 85 m
F2-F2	Northern part passing through MNRT-30	Essentially east-west dipping northerly	Dip fault	0 - 10m
F3-F3	Northern part passing through MNRT-22	Curvilinear dipping northerly.	Dip fault	30-35 m.

Fault No.	Location	Trend	Nature of fault	Throw
F4-F4	Northern part near BH MNRT-31, 24, 43 & 62	East-West dipping northerly	Dip fault	30 – 150 m
F5-F5	Northern western part through BH, MNRT-62	East-West	Strike fault	35 m
F6-F6	Northern part passing through MNRT-31	WNE-ESE dipping westerly	Oblique fault	15 – 23 m
F7-F7	Northern part passing through MNRT-11	NW – SE	Oblique fault	20 m
F8-F8	Northern part passing through MNRT-11 & 5	NW-SE	Oblique fault	60-105 m
F9-F9	Northern part passing through MNRT-101 RT-4 & MNRT-11	East – West to curvilinear	Strike Oblique Fault	25m
F10-F10	Northern part passing through RT-7	NE-SW	Oblique curvilinear	0-10 m
F11-F11	Southern part	NW-SE	Curvilinear	0 – 10 m
F12-F12	Southern part	NW-SE	Oblique	25 m

### 3.1.3 COAL SEAMS

A total of 27 Coal Seams have been encountered in Talapalli Block. The sequence of coal seams is given below:

Seam I is poorly developed in the block. Hence resource of this seam has not been assessed.

Out of the above, seams workable by opencast are from topmost X LA to IV BOT seam due to constraint of space for dumping. The remaining have underground potential. Seams viz. X L-D, X L-C, X LB, IX L1, VIII, VII, V Top, V L1, V Bottom, III, I L1 & I Bottom are poorly developed in the block. Hence resource of these seams has not been assessed.

The sequence of coal seams and parting is given Table 3-4 below:

Table F-1. Summary of Coal Reserves &amp; Proving

S. No.	Block Reference	Thickness of Coal Reserves (M)		Thickness of Proving Reserves (M)		Established Proving Reserves (M)
		Subsistence	Additional	Subsistence	Additional	
1	A-1A	10.2	3.28	3.84	3.43	26.95 (98.5%)
2	A-1B	10.9	3.33	3.87	3.46	27.00 (98.5%)
3	A-1C	11.6	3.38	4.02	3.61	27.05 (98.5%)
4	A-1D	12.3	3.43	4.17	3.76	27.10 (98.5%)
5	A-1E	13.0	3.48	4.32	3.91	27.15 (98.5%)
6	A-1F	13.7	3.53	4.47	4.06	27.20 (98.5%)
7	A-1G	14.4	3.58	4.62	4.21	27.25 (98.5%)
8	A-1H	15.1	3.63	4.77	4.36	27.30 (98.5%)
9	A-1I	15.8	3.68	4.92	4.51	27.35 (98.5%)
10	A-1J	16.5	3.73	5.07	4.66	27.40 (98.5%)
11	A-1K	17.2	3.78	5.22	4.81	27.45 (98.5%)
12	A-1L	17.9	3.83	5.37	4.96	27.50 (98.5%)
13	A-1M	18.6	3.88	5.52	5.11	27.55 (98.5%)
14	A-1N	19.3	3.93	5.67	5.26	27.60 (98.5%)
15	A-1O	20.0	3.98	5.82	5.41	27.65 (98.5%)
16	A-1P	20.7	4.03	5.97	5.56	27.70 (98.5%)
17	A-1Q	21.4	4.08	6.12	5.71	27.75 (98.5%)
18	A-1R	22.1	4.13	6.27	5.86	27.80 (98.5%)
19	A-1S	22.8	4.18	6.42	6.01	27.85 (98.5%)
20	A-1T	23.5	4.23	6.57	6.16	27.90 (98.5%)
21	A-1U	24.2	4.28	6.72	6.31	27.95 (98.5%)
22	A-1V	24.9	4.33	6.87	6.46	28.00 (98.5%)
23	A-1W	25.6	4.38	7.02	6.61	28.05 (98.5%)
24	A-1X	26.3	4.43	7.17	6.76	28.10 (98.5%)
25	A-1Y	27.0	4.48	7.32	6.91	28.15 (98.5%)
26	A-1Z	27.7	4.53	7.47	7.06	28.20 (98.5%)
27	A	28.4	4.58	7.62	7.21	28.25 (98.5%)
28	B-1A	10.2	3.28	3.84	3.43	26.95 (98.5%)
29	B-1B	10.9	3.33	3.87	3.46	27.00 (98.5%)
30	B-1C	11.6	3.38	4.02	3.61	27.05 (98.5%)
31	B-1D	12.3	3.43	4.17	3.76	27.10 (98.5%)
32	B-1E	13.0	3.48	4.32	3.91	27.15 (98.5%)
33	B-1F	13.7	3.53	4.47	4.06	27.20 (98.5%)
34	B-1G	14.4	3.58	4.62	4.21	27.25 (98.5%)
35	B-1H	15.1	3.63	4.77	4.36	27.30 (98.5%)
36	B-1I	15.8	3.68	4.92	4.51	27.35 (98.5%)
37	B-1J	16.5	3.73	5.07	4.66	27.40 (98.5%)
38	B-1K	17.2	3.78	5.22	4.81	27.45 (98.5%)
39	B-1L	17.9	3.83	5.37	4.96	27.50 (98.5%)
40	B-1M	18.6	3.88	5.52	5.11	27.55 (98.5%)
41	B-1N	19.3	3.93	5.67	5.26	27.60 (98.5%)
42	B-1O	20.0	3.98	5.82	5.41	27.65 (98.5%)
43	B-1P	20.7	4.03	5.97	5.56	27.70 (98.5%)
44	B-1Q	21.4	4.08	6.12	5.71	27.75 (98.5%)
45	B-1R	22.1	4.13	6.27	5.86	27.80 (98.5%)
46	B-1S	22.8	4.18	6.42	6.01	27.85 (98.5%)
47	B-1T	23.5	4.23	6.57	6.16	27.90 (98.5%)
48	B-1U	24.2	4.28	6.72	6.31	27.95 (98.5%)
49	B-1V	24.9	4.33	6.87	6.46	28.00 (98.5%)
50	B-1W	25.6	4.38	7.02	6.61	28.05 (98.5%)
51	B-1X	26.3	4.43	7.17	6.76	28.10 (98.5%)
52	B-1Y	27.0	4.48	7.32	6.91	28.15 (98.5%)
53	B-1Z	27.7	4.53	7.47	7.06	28.20 (98.5%)
54	B	28.4	4.58	7.62	7.21	28.25 (98.5%)
55	C-1A	10.2	3.28	3.84	3.43	26.95 (98.5%)
56	C-1B	10.9	3.33	3.87	3.46	27.00 (98.5%)
57	C-1C	11.6	3.38	4.02	3.61	27.05 (98.5%)
58	C-1D	12.3	3.43	4.17	3.76	27.10 (98.5%)
59	C-1E	13.0	3.48	4.32	3.91	27.15 (98.5%)
60	C-1F	13.7	3.53	4.47	4.06	27.20 (98.5%)
61	C-1G	14.4	3.58	4.62	4.21	27.25 (98.5%)
62	C-1H	15.1	3.63	4.77	4.36	27.30 (98.5%)
63	C-1I	15.8	3.68	4.92	4.51	27.35 (98.5%)
64	C-1J	16.5	3.73	5.07	4.66	27.40 (98.5%)
65	C-1K	17.2	3.78	5.22	4.81	27.45 (98.5%)
66	C-1L	17.9	3.83	5.37	4.96	27.50 (98.5%)
67	C-1M	18.6	3.88	5.52	5.11	27.55 (98.5%)
68	C-1N	19.3	3.93	5.67	5.26	27.60 (98.5%)
69	C-1O	20.0	3.98	5.82	5.41	27.65 (98.5%)
70	C-1P	20.7	4.03	5.97	5.56	27.70 (98.5%)
71	C-1Q	21.4	4.08	6.12	5.71	27.75 (98.5%)
72	C-1R	22.1	4.13	6.27	5.86	27.80 (98.5%)
73	C-1S	22.8	4.18	6.42	6.01	27.85 (98.5%)
74	C-1T	23.5	4.23	6.57	6.16	27.90 (98.5%)
75	C-1U	24.2	4.28	6.72	6.31	27.95 (98.5%)
76	C-1V	24.9	4.33	6.87	6.46	28.00 (98.5%)
77	C-1W	25.6	4.38	7.02	6.61	28.05 (98.5%)
78	C-1X	26.3	4.43	7.17	6.76	28.10 (98.5%)
79	C-1Y	27.0	4.48	7.32	6.91	28.15 (98.5%)
80	C-1Z	27.7	4.53	7.47	7.06	28.20 (98.5%)
81	C	28.4	4.58	7.62	7.21	28.25 (98.5%)

### 3.1.4 RESERVES

As per GR, a Net Geological Reserve of 1267.145 million tonnes of coal reserves including both opencast and underground reserves varying in grade from 'A' to 'G' have been established in the block. Out of this, 40.273 million tonnes of reserves fall in the indicated category and remaining 1226.867 million tonnes are proved reserves.

## CHAPTER 4

### METHOD OF MINING

#### 4.1 PROPOSED METHOD OF MINING

Considering the geo-mining characteristics of the block, dumping space constraints and for conservation of resource, it is proposed to extract the coal reserves upto Seam IV BOT using open cast mining Method because of following reasons –

i) Occurrence of multiple seam with a significant number having low thickness between 0.5m-1.5m. Also, some seams are thick and are above 5m in thickness. Coal loss in such seam conditions can be minimized by opencast mining method.

ii) The existence of very low cover for entry to bottom-most seam considered (Seam-IV BOT) in the eastern part of the block makes opencast mining an obvious choice.

The deposit has therefore been proposed for mining by opencast method up to the Seam IV BOT Floor. Seam below IV BOT shall be considered for UG mining after exhaustion of OC mine.

#### 4.2 CHOICE OF TECHNOLOGY

The operational factors include

- Multi-Seam operation involving 19 seams horizons
- Effective seam thickness varying from 1.00 to 9.00 m with majority of seams having less effective thickness varying from 1.00 to 2.50m.
- Mild seam gradient.
- OB with varying parting thickness

Based on the above factors surface miner has been considered for extraction of coal as surface miner eliminates blasting in coal. Blasting in comparatively less thick coal seams leads to higher contamination of extracted coal.



As removal of overburden with varying parting thickness requires flexible operation, shovel-dumper combination with conventional system of mining i.e. inclined slicing has been considered for removal of overburden.

For a rated capacity of 250 Mtpy, it is proposed to deploy 10-12 cum Hydraulic Shovel backhoe and 20-22 Cum Hydraulic shovel backhoe with 100T and 200T Rear Dumper respectively for OB. For thin parting lower size equipment shall be deployed. For Coal, Surface Miner with Front End Loader and 60T Dumper shall be deployed.

#### 4.3 CONSTRAINTS ON MINE DEVELOPMENT

The following constraints in opencast working of the deposit have been envisaged

- The block area being surrounded by coal bearing blocks and hills in all sides, availability of any land for external dumping, outside the block area appears remote.
- Kelo river flowing along the north-eastern side of the block
- Presence of about 08 villages (fully or partly) within the proposed mining area
- High initial Depth of base seam in the western side due to presence of several faults and high stripping ratio especially in the western side of the block requires huge amount of temporary external dump in the dip side which needs to be re-handled later.

#### 4.4 PIT DELINEATION; MINE BOUNDARY OPTIONS

As the block area is surrounded by coal bearing blocks on all sides and reserve forest, there is no availability of any land for external dumping outside the block area.

The mine boundary for the pit has been delineated taking into consideration block boundary, surface features, strip ratio and external dump space required for continuity of mining.

Considering the above, the pit is formulated with maximum possible external OB dump on the dip side within the block to be re-handled later and internal dumping in the detoiled area.

**Pit optimization has been done considering constraint on space availability for dumping of waste.**

The pit boundary has been fixed leaving safety barrier, conveyor corridor along the eastern, southern and western boundary. Also, the infrastructural facilities (MGR, Silos, workshop etc) is proposed to be located in the south-west corner of the block.

The proposed Pit has been formulated considering Seam IV as base seam. Seam IV has been taken as the base seam for the pit since going upto Seam III which is only 4-4.5m thick and is 50-60m below seam IV increases the OB handling to such an extent that dumping space availability becomes a constraint and mine will have to end abruptly mining only ~277 Mt of Coal. So, Opencast mining for the Talaspalli coal block has been proposed upto Seam IV as suggested above to maximise the recovery of coal.

Considering the above quarry surface within the block has been delineated as follow:

North	East	South	West
50m from Block boundary, foothill of the Tolge Hill in NW and leaving area for UG infrastructure in north near BHMNRT-92.	60m from edge of Kello river and 50m from Block boundary	50m from block boundary	50m from Block boundary and leaving area for infrastructure in south-west

#### 4.5 RATED CAPACITY:

Revised Mining Plan for Talaspalli Coal Block has been prepared for a rated capacity of 25.0 Mtpa of Coal from Opencast mine. This output is considered based on thickness of multiple coal seams (19 No. of Coal Horizons for OCP) and strike length of ~5 Km

#### 4.6 BASIC PROJECT AND MINE PARAMETERS:

The basic project parameters and mine parameters is given below:

Sl. No.	Parameters	Unit	Value
1	Net Geological Reserve	Mt	1287.145
2	Extractable Reserve by OC method	Mt	631.56
3	OB Volume	Mcum	2734.58
4	Stripping ratio	Cum/t	4.33
5	Target Capacity	Mtpa/year	25
6	Yearwise Mine life	Years	31

Sl No.	Parameters	Unit	Value
1	Minimum depth	m	345
2	Usual strike length: along the Mine Floor along the Mine Surface	m	4800
		m	5300
4	Usual dip rise length: on the Mine Floor on the Mine Surface	Km	2500
		Km	3200
6	Area: On the Mine Floor On the Mine Surface	ha	1301.10
		ha	1839.85

#### 4.7 SEQUENCE OF MINING:

The block has NW-SE strike of around 5 km. Opencast mining for the Talaspalli coal block has been proposed upto Seam IV as suggested above to maximize the recovery of coal and effective dump management. It has been proposed to mine maximum area in the block with due consideration to space required within the block for external dumping and infrastructures. The peak rated capacity for the block is proposed to be 25.00 Mtpy.

To ensure availability of adequate quantity of coal and early reaching of target capacity, a two-entry scenario has been envisaged: one on the north-eastern side and the other on the north-western side. Seam IV will be accessed from both the side which will form the base of the quarry. Then working front of both the quarry will advance towards south and towards each other eventually merging into a single quarry with full strike length after about 9-10 years.

In the initial years, simultaneous working of mechanized opencast mine and the projected belowground mine may pose operational problems due to massive production from the opencast unit. As such, it is considered prudent to start underground mine work after exhaustion of opencast workings.

OB will be transported through flank roads to temporary external OB dumps in dip side and Internal OB dumps. Coal is proposed to be transported through ramps and flank roads. Coal from both pit in initial years and also after merge of the pit will be transported to mobile coal handling

arrangement at the surface in both eastern and western side and thereafter to Coal dispatch center by surface conveyors.

It is proposed to use conventional method of mining viz. inclined slicing with excavators/ loaders loading coal and waste into Dumpers for hauling.

The mining operation in the block is continuing in the southern part of the block since October 2019 through outsourcing means upto seam VIII. This south pit is projected to extract 1.86 Mt of coal by the end of FY 2022-23. This pit will remain in operation for another 3 years after FY 2022-23. The projected coal production and OB removal from this south pit is given below:

Year	Calendar Year	Existing South Pit	
		Coal (Mtpa)	OB (Mtpum)
Upto Base Yr FY 2022-23	Upto Base Yr	2.81	16.01
1	2023-24	1.30	11.10
2	2024-25	2.03	11.77
3	2025-26	1.38	5.91
<b>Total</b>		<b>7.52</b>	<b>44.80</b>

Moreover, the work for mining operation through outsourcing means in the north-western side has already been awarded for 5 years upto Seam VIII. The pit will be opened in the north west side as per the proposed mine entry and the mine will produce about 14.60 Mt of coal with 46.63 Mtpum of OB removal in the 5 years. This OB will be dumped south of the proposed western pit near the pit and will have to be re-handled to proposed temporary external dump in the southern part of the block after 5 years.

The proposed coal production and OB removal from the eastern and western pit for first 5 years of operation is given below:

Year	Calendar Year	West Pit		East Pit		Total Coal (Mt)	Total OB (Mtpum)
		Coal (Mt)	OB (Mtpum)	Coal (Mt)	OB (Mtpum)		
Upto Base Yr FY 2022-23		0.90	4.13			0.90	4.43
1	2023-24	3.01	6.29	0.83	3.71	3.84	10.00
2	2024-25	2.03	8.30	1.87	8.90	3.90	17.20
3	2025-26	4.01	12.34	1.99	11.06	6.00	23.40
4	2026-27	4.00	11.72	3.20	13.88	7.20	25.60
5	2027-28	3.63	9.44	11.37	30.18	14.40	39.63
<b>Total</b>		<b>14.58</b>	<b>46.63</b>	<b>21.31</b>	<b>66.37</b>	<b>35.80</b>	<b>146.00</b>

#### 4.8 MINING SYSTEM PARAMETERS :

Elements of mining system have been determined in accordance with the parameters of excavation, transport equipment and parameters of drilling and blasting. However, the space constraint for dumping the OB has been the most important factor taken into consideration for designing the mining system, since the mining system plays an important role for determining the void created for internal dump.

##### Top OB and thick partings:

Bench height : 10-15 m with 20cum electric-hydraulic shovel/backhoe

Bench width : Working-40-45m, Non-working- 25m

Bench slope : 70 deg

##### Parting between seams:

Bench height : as per inter-burden thickness with 10-12 cum electric-hydraulic shovel/backhoe

Bench width : Working- 40-45m, Non-working- 25m

Bench slope : 70 deg

##### Coal:

Bench height : Seam height with Surface Miner

Bench width : 40-45m

Bench slope : 70 deg

##### Dump:

Bench height : 30m

Bench width : 30m

Bench slope : 37 deg

#### 4.9 WASTE DISPOSAL STRATEGY:

It is envisaged that initially for 3 years, all the OB generated will be dumped externally from both the eastern and western pit. This temporary external dump is proposed to be located in the southern side of the block. Once sufficient void is created after 3 years of operation, internal dumping will

start in eastern pit while in the Western pit, internal dumping can be started only from 8th year of operation once the base seam is reached.

The external dumping will continue till 13th year and thereafter from 14th year, this external dump (the OB part) will have to be re-handled back into the quarry void for smooth mine advancement. However, re-handling of 3.73 Mcum/year of Top Soil for spreading over internal dump will start from 10th year only.

Out of the total OB of 2734.58 Mcum, it is estimated that 533.53 Mcum (~19.5%) will be required to be temporarily dumped externally. This 533.53 Mcum will be re-handled back into the quarry after sufficient space is available for accommodation of waste from 14th year and will be re-handled upto 25th year. The lead for re-handling would be around 3.3 km. The Strip ratio for the project including re-handling will be 5.17 cum/t.

The height of the temporary external dump is proposed to be around 120m above ground level upto an RL of +420m and final height of the internal dump is proposed to be 120m above ground level upto an RL of +420m. This will ensure optimization of the life of the mine to extract maximum mineable coal. However, a slope stability study will be imperative to determine final dump height and final dump slope as per regulation no. 106, CMR 2017, and DGMS Circular no. 5, 2020. Slope stability analysis for proposed dumps in the mining plan has been carried out and the factor of safety for dump height upto 120m from OGL was modelled using the cross sections and the material properties collected from the field. The analysis indicates a factor of safety in the range of 1.25-1.50 for various cases.

Shovel-dumper spoil dumps will be formed in benches of 30m and slope of individual dump bench will be 37°(equal to angle of natural repose of OB material). The width of berm between two adjacent benches will be 30 m. Overall slope of dump works out to be 23°- 24°. Top soil wherever available will be stacked separately which will be used up for spreading over the completed OB dumps. For the formation of dumps and leveling of dumps, dozers will be used.

The waste disposal schedule is given below:

No	Original Slope (Feet)		Current Slope (Feet)		Slope Ratio	100' St. Area		Sloping Capacity (Cubic Yards)	
	Progressive	Constant	Progressive	Constant		Progressive	Constant	Progressive	Constant
1	5.04	3.08			0.60	3.08	3.08		
2	5.08	4.12	3.08	3.08	0.60	3.08	4.12		
3	5.12	5.16	3.08	3.08	0.60	3.08	5.16		
4	5.16	6.20	3.08	3.08	0.60	3.08	6.20		
5	5.20	7.24	3.08	3.08	0.60	3.08	7.24		
6	5.24	8.28	3.08	3.08	0.60	3.08	8.28		
7	5.28	9.32	3.08	3.08	0.60	3.08	9.32		
8	5.32	10.36	3.08	3.08	0.60	3.08	10.36		
9	5.36	11.40	3.08	3.08	0.60	3.08	11.40		
10	5.40	12.44	3.08	3.08	0.60	3.08	12.44	3.0	3.0
11	5.44	13.48	3.08	3.08	0.60	3.08	13.48	3.0	3.0
12	5.48	14.52	3.08	3.08	0.60	3.08	14.52	3.0	3.0
13	5.52	15.56	3.08	3.08	0.60	3.08	15.56	3.0	3.0
14	5.56	16.60	3.08	3.08	0.60	3.08	16.60	3.0	3.0
15	5.60	17.64	3.08	3.08	0.60	3.08	17.64	3.0	3.0
16	5.64	18.68	3.08	3.08	0.60	3.08	18.68	3.0	3.0
17	5.68	19.72	3.08	3.08	0.60	3.08	19.72	3.0	3.0
18	5.72	20.76	3.08	3.08	0.60	3.08	20.76	3.0	3.0
19	5.76	21.80	3.08	3.08	0.60	3.08	21.80	3.0	3.0
20	5.80	22.84	3.08	3.08	0.60	3.08	22.84	3.0	3.0
21	5.84	23.88	3.08	3.08	0.60	3.08	23.88	3.0	3.0
22	5.88	24.92	3.08	3.08	0.60	3.08	24.92	3.0	3.0
23	5.92	25.96	3.08	3.08	0.60	3.08	25.96	3.0	3.0
24	5.96	27.00	3.08	3.08	0.60	3.08	27.00	3.0	3.0
25	6.00	28.04	3.08	3.08	0.60	3.08	28.04	3.0	3.0
26	6.04	29.08	3.08	3.08	0.60	3.08	29.08	3.0	3.0
27	6.08	30.12	3.08	3.08	0.60	3.08	30.12	3.0	3.0
28	6.12	31.16	3.08	3.08	0.60	3.08	31.16	3.0	3.0
29	6.16	32.20	3.08	3.08	0.60	3.08	32.20	3.0	3.0
30	6.20	33.24	3.08	3.08	0.60	3.08	33.24	3.0	3.0
31	6.24	34.28	3.08	3.08	0.60	3.08	34.28	3.0	3.0
32	6.28	35.32	3.08	3.08	0.60	3.08	35.32	3.0	3.0
33	6.32	36.36	3.08	3.08	0.60	3.08	36.36	3.0	3.0
34	6.36	37.40	3.08	3.08	0.60	3.08	37.40	3.0	3.0
35	6.40	38.44	3.08	3.08	0.60	3.08	38.44	3.0	3.0
36	6.44	39.48	3.08	3.08	0.60	3.08	39.48	3.0	3.0
37	6.48	40.52	3.08	3.08	0.60	3.08	40.52	3.0	3.0
38	6.52	41.56	3.08	3.08	0.60	3.08	41.56	3.0	3.0
39	6.56	42.60	3.08	3.08	0.60	3.08	42.60	3.0	3.0
40	6.60	43.64	3.08	3.08	0.60	3.08	43.64	3.0	3.0
41	6.64	44.68	3.08	3.08	0.60	3.08	44.68	3.0	3.0
42	6.68	45.72	3.08	3.08	0.60	3.08	45.72	3.0	3.0
43	6.72	46.76	3.08	3.08	0.60	3.08	46.76	3.0	3.0
44	6.76	47.80	3.08	3.08	0.60	3.08	47.80	3.0	3.0
45	6.80	48.84	3.08	3.08	0.60	3.08	48.84	3.0	3.0
46	6.84	49.88	3.08	3.08	0.60	3.08	49.88	3.0	3.0
47	6.88	50.92	3.08	3.08	0.60	3.08	50.92	3.0	3.0
48	6.92	51.96	3.08	3.08	0.60	3.08	51.96	3.0	3.0
49	6.96	53.00	3.08	3.08	0.60	3.08	53.00	3.0	3.0
50	7.00	54.04	3.08	3.08	0.60	3.08	54.04	3.0	3.0
51	7.04	55.08	3.08	3.08	0.60	3.08	55.08	3.0	3.0
52	7.08	56.12	3.08	3.08	0.60	3.08	56.12	3.0	3.0
53	7.12	57.16	3.08	3.08	0.60	3.08	57.16	3.0	3.0
54	7.16	58.20	3.08	3.08	0.60	3.08	58.20	3.0	3.0
55	7.20	59.24	3.08	3.08	0.60	3.08	59.24	3.0	3.0
56	7.24	60.28	3.08	3.08	0.60	3.08	60.28	3.0	3.0
57	7.28	61.32	3.08	3.08	0.60	3.08	61.32	3.0	3.0
58	7.32	62.36	3.08	3.08	0.60	3.08	62.36	3.0	3.0
59	7.36	63.40	3.08	3.08	0.60	3.08	63.40	3.0	3.0
60	7.40	64.44	3.08	3.08	0.60	3.08	64.44	3.0	3.0
61	7.44	65.48	3.08	3.08	0.60	3.08	65.48	3.0	3.0
62	7.48	66.52	3.08	3.08	0.60	3.08	66.52	3.0	3.0
63	7.52	67.56	3.08	3.08	0.60	3.08	67.56	3.0	3.0
64	7.56	68.60	3.08	3.08	0.60	3.08	68.60	3.0	3.0
65	7.60	69.64	3.08	3.08	0.60	3.08	69.64	3.0	3.0
66	7.64	70.68	3.08	3.08	0.60	3.08	70.68	3.0	3.0
67	7.68	71.72	3.08	3.08	0.60	3.08	71.72	3.0	3.0
68	7.72	72.76	3.08	3.08	0.60	3.08	72.76	3.0	3.0
69	7.76	73.80	3.08	3.08	0.60	3.08	73.80	3.0	3.0
70	7.80	74.84	3.08	3.08	0.60	3.08	74.84	3.0	3.0
71	7.84	75.88	3.08	3.08	0.60	3.08	75.88	3.0	3.0
72	7.88	76.92	3.08	3.08	0.60	3.08	76.92	3.0	3.0
73	7.92	77.96	3.08	3.08	0.60	3.08	77.96	3.0	3.0
74	7.96	79.00	3.08	3.08	0.60	3.08	79.00	3.0	3.0
75	8.00	80.04	3.08	3.08	0.60	3.08	80.04	3.0	3.0
76	8.04	81.08	3.08	3.08	0.60	3.08	81.08	3.0	3.0
77	8.08	82.12	3.08	3.08	0.60	3.08	82.12	3.0	3.0
78	8.12	83.16	3.08	3.08	0.60	3.08	83.16	3.0	3.0
79	8.16	84.20	3.08	3.08	0.60	3.08	84.20	3.0	3.0
80	8.20	85.24	3.08	3.08	0.60	3.08	85.24	3.0	3.0
81	8.24	86.28	3.08	3.08	0.60	3.08	86.28	3.0	3.0
82	8.28	87.32	3.08	3.08	0.60	3.08	87.32	3.0	3.0
83	8.32	88.36	3.08	3.08	0.60	3.08	88.36	3.0	3.0
84	8.36	89.40	3.08	3.08	0.60	3.08	89.40	3.0	3.0
85	8.40	90.44	3.08	3.08	0.60	3.08	90.44	3.0	3.0
86	8.44	91.48	3.08	3.08	0.60	3.08	91.48	3.0	3.0
87	8.48	92.52	3.08	3.08	0.60	3.08	92.52	3.0	3.0
88	8.52	93.56	3.08	3.08	0.60	3.08	93.56	3.0	3.0
89	8.56	94.60	3.08	3.08	0.60	3.08	94.60	3.0	3.0
90	8.60	95.64	3.08	3.08	0.60	3.08	95.64	3.0	3.0
91	8.64	96.68	3.08	3.08	0.60	3.08	96.68	3.0	3.0
92	8.68	97.72	3.08	3.08	0.60	3.08	97.72	3.0	3.0
93	8.72	98.76	3.08	3.08	0.60	3.08	98.76	3.0	3.0
94	8.76	99.80	3.08	3.08	0.60	3.08	99.80	3.0	3.0
95	8.80	100.84	3.08	3.08	0.60	3.08	100.84	3.0	3.0
96	8.84	101.88	3.08	3.08	0.60	3.08	101.88	3.0	3.0
97	8.88	102.92	3.08	3.08	0.60	3.08	102.92	3.0	3.0
98	8.92	103.96	3.08	3.08	0.60	3.08	103.96	3.0	3.0
99	8.96	105.00	3.08	3.08	0.60	3.08	105.00	3.0	3.0
100	9.00	106.04	3.08	3.08	0.60	3.08	106.04	3.0	3.0

#### 4.10 TYPE OF EQUIPMENT/ HEMM PROPOSED

Equipment	SIZE	No.
<b>OBK</b>		
Hyd Backhoe/Shovel	20-22 cum	15
Hyd Backhoe/Shovel	10-12 cum	15
Rear Dumper	200T	144
Rear Dumper	100T	177
RBH Drill	250 mm	23
Dozer with Ripper	850 HP	4
Dozer	410HP	24
<b>COAL</b>		
Surface Miner	3 My	9

FE Loader	6-7 cum	10
Rear Dumper (Coal Body)	60 T	60
DOZER(wheel)	450-460hp	10
<b>COMMON</b>		
Diesel Hydraulic Backhoe	1.5-2.0 cum	2
Water Sprinkler	70KL	10
Mobile Dust Suppressor Cannon		10
Mot. Grader	380HP	8
Fire Tender		2
Vibratory Compactor	25T	4
Diesel Bowser	9KL	4
Dozer	410 HP	2
Crane	10Ton	4
Crane	25Ton	4
Crane	50Ton	1
T Handler		4
F.E.L	5-6 cum	3
Fork Lifter		4
Maintenance Van		2
<b>RECLAMATION</b>		
Diesel Hydraulic Backhoe	1.5-2.0 cum	2
Farm Tractor		4
Dozer	410HP	2
Grader	380HP	2
Tipping Truck	25 T	4



## CHAPTER 5

### STABILITY ANALYSIS

#### 5.1 FACTORS GOVERNING THE SLOPE STABILITY

There are two main aspects of slope failure, and they are natural and manmade disturbances. The seismic activities of the earth's crust, rain, tornado, and geology come under the naturally occurring disturbance. The blasting, excavation is a manmade disturbance for slope instability. Following are the main factors that influence slope stability.

#### 5.2 PROPERTIES OF MATERIAL FORMING THE SLOPE

##### a. Shear strength parameters:-

This is the basic parameter that holds the key role to control the stability of the slope. All stability analysis involves knowledge of the shearing strength of the soil but it is most difficult to comprehend it accurately. The shearing resistance of soil comprises basically of the following components:

- The frictional resistance between the individual soil particles at their contact points.
- The cohesion between the surfaces of the soil particles, i.e. the structural resistance to displacements of the soil because of the interlocking of the particles.
- The shear strength in cohesion-less results from inter-granular friction alone, while in other soils, it results from both: internal friction as well as cohesion.
- The fundamental shear strength equation proposed by French engineer Coulomb is  $S=C + \sigma \tan(\Phi)$

##### b. Hydro-geological parameters:-

The effect of groundwater present within the rock mass surrounding an open pit can be detrimental to the stability of the slope (Hoek and Bray, 1981). Therefore, it is expedient to constantly monitor groundwater levels as well as pore pressure to assist in the assessment of slope stability (Ding, et al. 1998). Piezometers are important for monitoring the effectiveness of mine dewatering programs (Gizard and McHugh, 2000). Measurement or calculation of water pressure is an integral part of

site investigation for slope stability studies. Information on water pressures is essential for designing and maintaining safe slopes (Guzard, et al. 1998).

For hydrogeology study as part of PR, monitoring of profile of water table in and around active mining areas, through groundwater monitoring points, using dug wells/ Piezometers was carried out. The same is assumed to be representative of the hydrostatic condition of the mine bench for the current analysis.

For stability analysis of undisturbed material viz working faces and High wall phreatic line was assumed considering the groundwater level/ piezometric data for the Talapalli block as provided by the hydrogeology dept, CMPDI.

Hydrostatic pressure/ water level condition (above the ground) within the overburden dumps (recent/old) can't be directly measured as OB dumps are not stratified Geological Formation. Study of groundwater monitoring levels maybe not be directly required in case of stability of OB dumps as it will not intersect the groundwater table of the surrounding area. However, the rate of infiltration of rainwater may be increased due to loose OB dump material.

Groundwater level and phreatic surface assumptions, piezometric levels were based on the hydrological data of the hydrogeological study of Talapalli OCP.

## 5.2.1 GEOLOGY OF MINE PIT

The geology of the mine pit plays a vital role in determining the stability of the working pit. Understanding subsoil condition includes knowing seam alignment, type of material underneath. In addition to this, it is prudent to know various geological disturbances present in the mineable area.

### 5.2.1.1 SEISMIC FORCES

#### (a) Earthquake Effect

Earthquake experience by a structure depends on its dynamic characteristics and ground motions such that random motion of the ground, vibration intensity, magnitude of the earthquake, depth of focus, distance from the epicenter, and the strata on which the structure stands.

Seismic forces are considered as per Indian standard criteria for earthquake resistant design of structures (fifth revision) IS 1893:1984 (reprint 2002) in the following manner:-

Seismic force/coefficient  $a_h$  is calculated as per the above IS Code by following two methods and a higher value is taken for slope stability calculation

a) Seismic Coefficient Method

$$a_h = \beta I a_c$$

$\beta$  = Coefficient depending on the soil foundation system

$I$  = Factor depending upon the importance of structures

$a_c$  = basic horizontal seismic coefficient

b) Response Spectrum method

$$a_h = \beta I F_0 S_a/g$$

$F_0$  = Seismic zone factor for average acceleration spectra

$S_a/g$  = Average acceleration coefficient for appropriate natural period and damping of structure. Value taken from T- $S_a/g$  graph

$$T = 2.9 H (P/G)^{1/2}$$

$T$  = Natural period of vibration for earth fill structure

$H$  = Height,  $P$  = Mass density,  $G$  = modulus of rigidity.

Since Talzipalli OCP, is situated in Zone III expected Ground Acceleration for zone III due to the earthquake has been calculated as follows

I. Seismic Coefficient Method

$$a_h = \beta I a_0$$

Here

$$\beta = 1.0, \lambda = 1.5, c_0 = 0.04$$

$$\text{Hence, } \alpha_s = 0.06$$

## II. Response Spectrum method

$$\alpha_s = \beta I F_0 S_a/g$$

$$F_0 = 0.2$$

$S_a/g$  = Value taken from graph between the natural period of vibration versus average acceleration coefficient

The natural period of vibration  $T$  for earth fills structure will be calculated as follow

$$T = 2.9 H (1/(\rho/G))^{1/2}, H = 80m$$

$$\rho = 18000 \text{ N/m}^3$$

$$G = 15 \text{ MPa} \times 1000$$

$$\text{Hence, } T = 0.239 \text{ sec.}$$

$$\text{Now } \alpha_s = 1 * 1.5 * 0.2 * 0.16 = 0.048$$

Hence it was found that the value of horizontal acceleration from a seismic coefficient method is more than the value obtained from the response spectrum method. Hence the same value was considered for incorporating earthquake effect during stability analysis.

### (b) Blasting Effect

Blasting plays a devil's role towards the stability of Pit and Dump Slopes in Mines. Generally, a blast vibration wave of low frequency has a hostile impact on stability (Dowding and Gilbert 1988). Wong and Pang (1992) suggested the Pseudo-Static approach to evaluate the blasting effect on slopes.

Hoek et al (2002) introduced the Disturbance factor due to blasting, "D" applicable to rock slope. The value of D varies from "0" to "1" where "0" signifies the minimal effect of blasting where "1" means large scale blast having a significant effect on slopes.

The ground motion is directly influenced by scaled distance and a square root of the explosive. Microsecond-delayed blasts are used for the reduction of PPV of ground vibrations which are connected with the maximum charge weight detonated per delay. Peak particle velocity has been widely accepted as a criterion for evaluating the effect of blasting. Langford and Kilbstrom have suggested a predictor equation to calculate peak particle velocity. DGMIS has laid down accepted parameters in terms of PPV as shown in the table

Table 5.1 Permissible peak particle velocity (PPV) at the foundation level of structures in mining area in mm/sec:

TYPE OF STRUCTURES		Dominant excitation frequency (Hz)		
		< 8 Hz	8-25 Hz	> 25 Hz
A	Building structures not belonging to owner			
	(i) Domestic houses structures (Kuchha, Brick in cement)	5	10	15
	(ii) Industrial building (RCC) framed structures	10	20	25
	(iii) Object of historical importance and domestic structures	2	5	10
B	Building belonging to the owner with a limited span of life			
	(i) Domestic houses structures (Kuchha, Brick in cement)	10	15	25
	(ii) Industrial building (RCC) framed structures	15	25	50

### 5.3 CALCULATION OF FOS

The shear resistance of the sliding slope is assessed by an index called the factor of safety. The factor of safety gives a relatively static state of the studied slope about its mobilization. This also indicates the risk factor of failure briefly. This is a ratio of the shear resistance to shear forces developed at the sliding surface (mobilization force).

The factor of safety generally used is in the range of 1.2 to 1.5 for open-pit mines. Literature found to have categorized that slope is safe with a ratio more than the value of 1.20. Different agencies such as National Coal Board, UK, Appolonis Consulting Engineers, mine branch, Canada, GL Fisenko, Russia, etc have envisaged a factor of safety more than 1.10 in the design of slope stability is safe if appropriate seismic acceleration is considered and more than 1.20 if seismic acceleration is not considered.

As per DGMS Tech Circular, no-3 of Dt 16.01.2020 the suggested factor of safety are as follows:

- FoS greater than or equal to 1.3 for temporary slopes
- FoS is greater than or equal to 1.5 for permanent slopes.

This factor of safety could either be directly calculated based on the limit equilibrium method or indirectly by numerical modeling using. The factor of safety must be greater than 1 for a stable slope. Due to uncertainties involved in determining the properties of materials, leaving some parameters in simulation for simplification, and the presence of some external factors that are not considered for simulation, it is advisable to have a minimum factor of safety of slope as 1.5. Keeping the above discussion in mind, a factor of safety of 1.2 to 1.5 is considered as short-term stability, and a factor of safety of 1.5 and above are considered for long-term stability.

## 5.4 SOFTWARE

### 5.4.1 LIMIT EQUILIBRIUM METHOD

The conventional limit equilibrium method is used in many geotechnical practices to investigate the equilibrium condition and analyze the stability of slope with varying geotechnical data and geometry. The most common methods for limit equilibrium analysis are the method of slices. The soil mass above the assumed slip surface is divided into vertical slices for purpose of analysis. Several different methods of slices are available for analyzing the circular and non-circular conditions.

In the present study limit equilibrium method has been used to compute the factor of safety using the Bishop simplified method.

The Slope analysis of OB Dump Slopes in Talaspalli Coal Mine is performed by limit equilibrium method software namely GALENA. GALENA is best on Limit Equilibrium Method where the user assumes the failure plane with certain limits and GALENA detects the Failure plane with the least factor of safety within the range.

GALENA is powerful and accurate slope stability software and incorporates the Bishop Simplified method of analysis to determine the stability of slope. The Bishop method is used to determine the stability of slope of the circular failure surface. It analyses the multi-layer slopes with tension cracks, earthquake forces, water pressure, and surcharge if any within or above the slope including the piezotic surfaces and piezometric pressures.

### 5.5 CORRELATION OF STRENGTH PROPERTIES

It is generally difficult and expensive to sample and test large samples of the rock mass. Consequently, empirical methods of determining the friction angle and cohesion of rock masses are available in the literature (Duncan C. Wyllie et al.). In empirical methods also it is necessary to categorize the rock mass in terms of both the intact rock strength and the characteristics of the fractures/joints.

One of the methods is Strength Determination by Back Analysis of Failures. Probably the most reliable method of determining the strength of a rock mass is to back analyze a failed, or failing, slope. This procedure involves carrying out a stability analysis with the factor of safety set at 1.0 and using available information on the position of the rupture surface, the groundwater conditions at the time of failure, and any external forces such as foundation loads and earthquake motion, if applicable. In many cases, it may not be feasible to carry out a back analysis of a slope in geological conditions like those in which the new slope is to be excavated. In these circumstances, published results of rock mass shear strength can be used in the design. (Duncan C. Wyllie et al)

As an alternative to back analysis to determine the strength of fractured rock masses, an empirical method was developed by Hoek (1983) and Hoek and Brown (1983) in which the shear strength is represented as a curved envelope. This strength criterion was derived from the Griffith crack theory of rock fracture, as well as from observations of the behavior of rock masses in the laboratory and the field (Larsen 1973, Jaeger 1970).

The three parameters defining the curved strength envelope of the rock mass are the uniaxial strength of the intact rock, and two dimensionless constants  $m$  and  $a$ .

#### 5.6 SAMPLE COLLECTION FROM COAL THE COAL FILEDS

a field visit was made to Talaipalli OCP, for site reconnaissance and sample collection in the month of July 2022. The detailed site investigations were carried out. As South Pit is operational, OB material from the Active dump were collected based on litho log profile of the coal filed. Main materials contributing to the formation of the dump were collected. Samples were collected at different heights and with a defined spatial variation, to cover the randomness/heterogeneity of sample. Invariably, the number of samples collected per OB dump depend on the size and heterogeneity. The details of the sample collections pictures and number of samples collected from each location are presented below. Few tests such as field moisture content ( $w_{field}$ ) and sand replacement test for in situ unit weight ( $\gamma_{in situ}$ ) were performed at in situ site.







Fig.5.1 Showing sample collection, sample variation, and testing of materials.

### 5.7 INPUT PARAMETERS FOR STABILITY ANALYSIS.

The mixed material found in the interface of topsoil and coalmine overburden material is very complex in terms of both material type and its size distribution. The materials properties of these overburdened rocks or rock-soil mixture are most likely to change due to repeated exposure to weathering and particle crushing during the loading and hauling process. The crushed sandstone material being formed by similar kinds of sand grains during sedimentation possesses characteristics somewhat similar to that of sand, while the weak, weathered and crushed materials of shale tend to behave like a clay material formation when subjected to watery conditions.

Estimation of the key physic- mechanical properties of coal mine waste dumps were done considering laboratory studies (from available literature) on mixed earth rock observed in Indian coalmine waste dumps, where the properties of all major constituent materials are taken into consideration.

For high wall/working face material, each material profile is defined by referring to lithological data of the nearby borehole published in the geological report of the coalfield and using the rock lab software.

After correlating the test results from previous scientific study reports of the mine and with lithology data available from borehole along with site-specific literature review with judicial judgment values of shear strength parameters considered are given below:

#### 5.8 METHODOLOGY OF THE STUDY

The stability analysis was done by Limit Equilibrium Method (LEM) and the Finite Element Method (FEM). These methods have been used to assess the failure mechanism and to determine the factor of safety.

##### 5.8.1 GEOTECHNICAL ASSESSMENT OF DUMP MATERIAL

The mine is proposed to be worked by shovel-dumper combination. The stability of the slopes primarily depends on the strength properties of the dump material, orientation and geology of the dump foundation, infiltration of the rainfall, drainage, and groundwater condition within the slope. A Factor of Safety of 1.5 has been considered for the long-term stability of the dump slope. The angle of repose was 37°. The stability analyses were done to understand the condition of the proposed slopes.

The Overburden material has been assumed to be placed in the loose state which allows for any free water within the dump to drain out. Therefore, it has been considered that the dump foundation is free draining. Hence phreatic surface is considered in alignment with the dump base in the modeling for dump slopes.

##### 5.8.2 Geotechnical Characterization of OB Dump

Disturbed samples were collected appropriate to ground conditions and transported them to Geotechnical laboratory. Laboratory tests were conducted to determine the Index, Engineering properties and IS classification of soils. For determining shear parameters, Large Direct Shear test was carried out using 300mm×300mm size shear box.

Cohesion, which is a function of adhesive force between the particles is found to vary between 3kPa to 40kPa for the OB material. The Angle of internal friction is found to be varying between 32° to 35° for the OB material.

For rock mass from quarry . A software namely RocLab developed by Rocscience is used in this study which developed on Hoek-Brown strength criterion to derive shear strength values for a

rock mass using the available physic- mechanical properties in the geological report of Talaipalli Coal Block.

Table 5.2 Strength properties of the OB and Quarry material

Properties Type of Material	Cohesion (kPa)	Friction Angle (degree)	Unit weight kg/m <sup>3</sup>
Overburden Dump	5-40	32-35	1800
Coal	40-60	24	1700
Silt stone	70-80	25	2000
Sand stone	170-190	36	2400
Sandstone fine to medium grained- base	150	34	2200

#### 5.9 STABILITY ANALYSES

Figure 5.2 shows the overall view of Talaipalli OCP and Fig 5.3 & 5.4 shows cross-sections considered in the analysis. The sections along with the mine dumps, working faces have been taken in consultations with the mine planners for simulation of dump slope stability. Figure 5.5 to 5.20 below shows some of the the model and analysis results of pit and dump slope, carried out in this study.

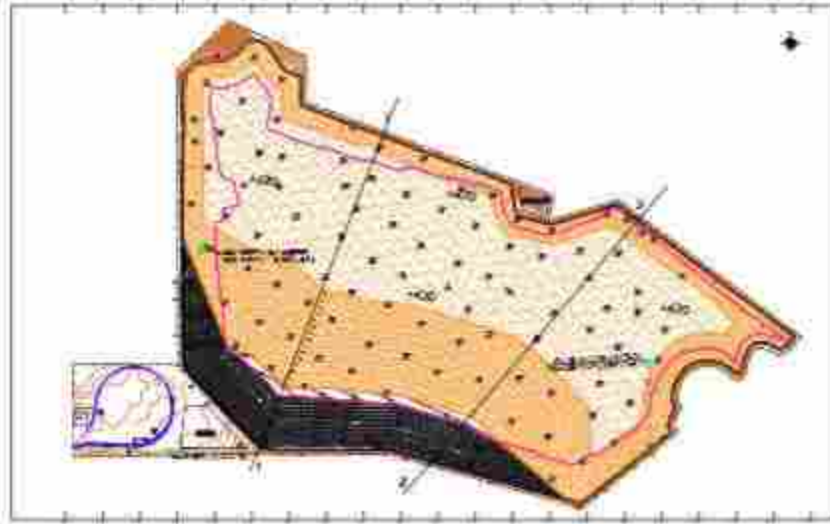


Fig. 1.1. Topographic map of the dump (Scale 1:500)

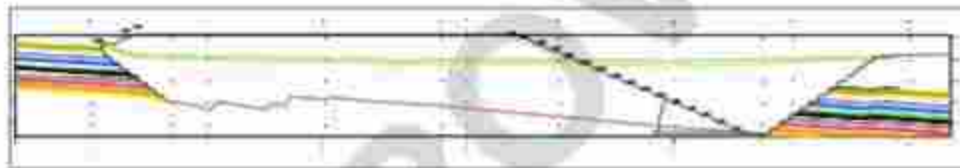


Fig. 1.2. Cross-section along line A-A

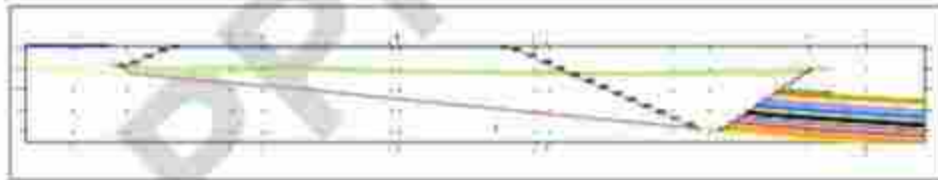


Fig. 1.3. Cross-section along line B-B

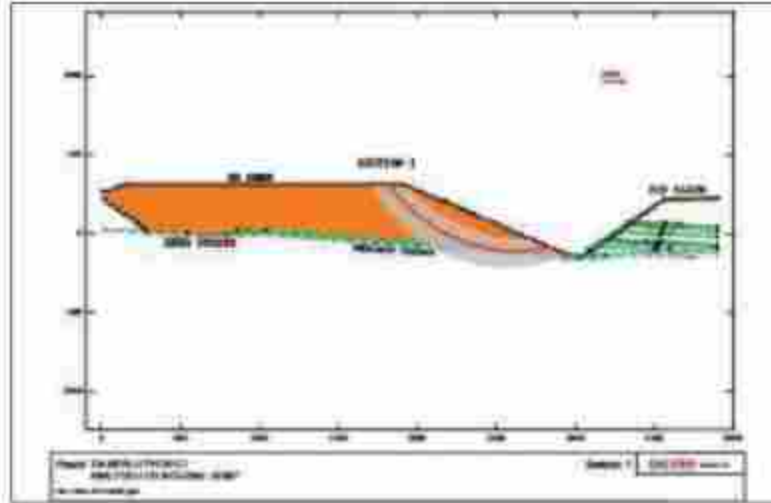


Fig. 7.7. Model for Section 1 along Final Dump Design Plan

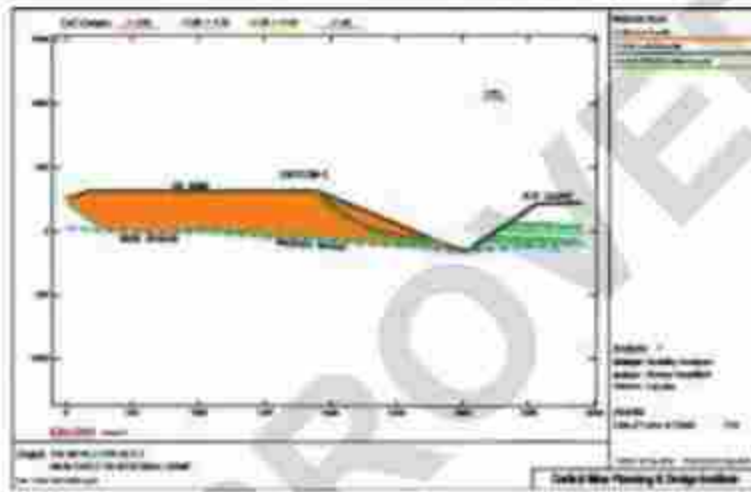


Fig. 7.8. Model for Section 2 along Final Dump Design Plan

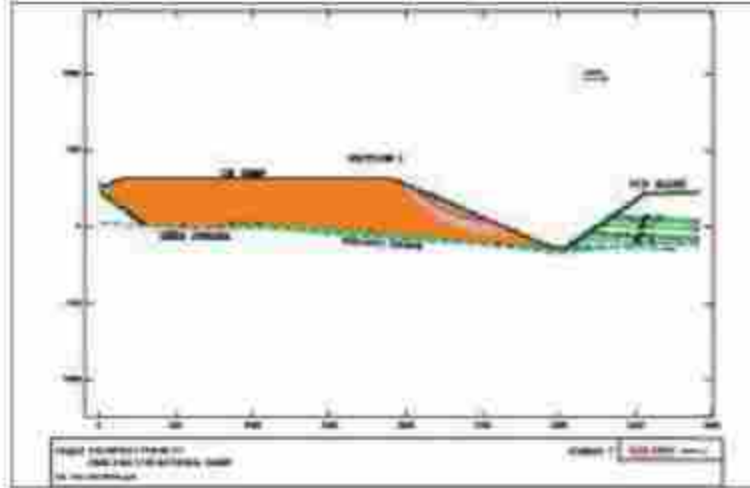


Fig: 5.7 Model 2 for Section 1 along Final stage Dump Plan

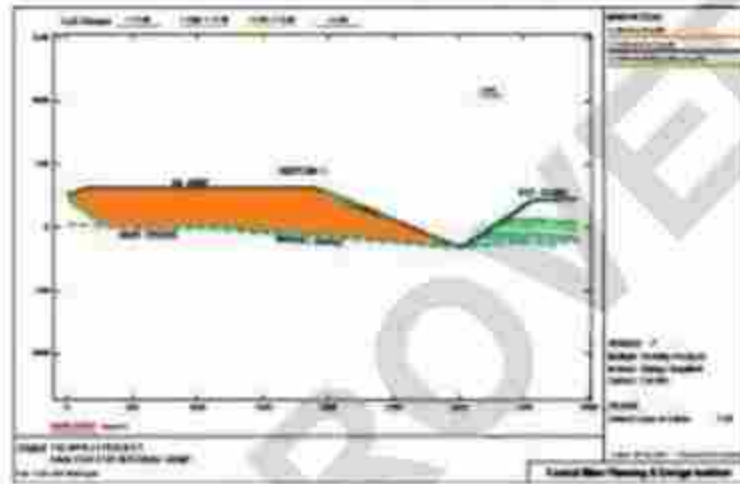


Fig: 5.8 Model 3 for Section 1 along Final stage Dump Plan

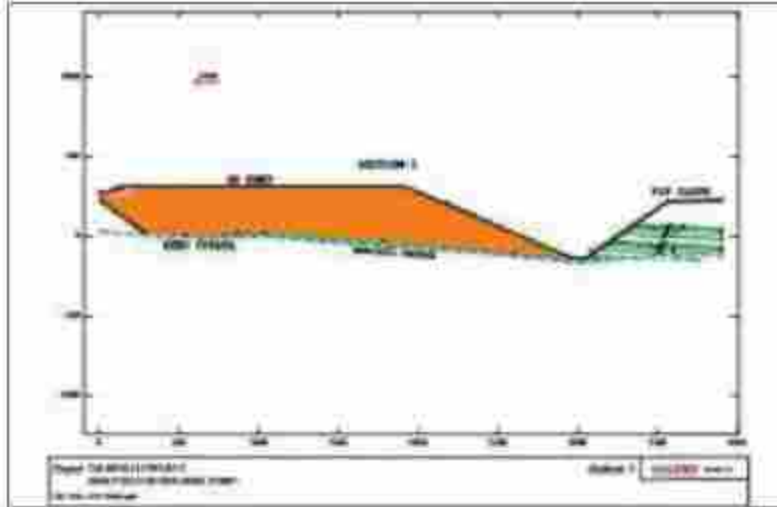


Fig. 3.7. Multi-Layer System -Yalong Pool (right) Dam-Plan

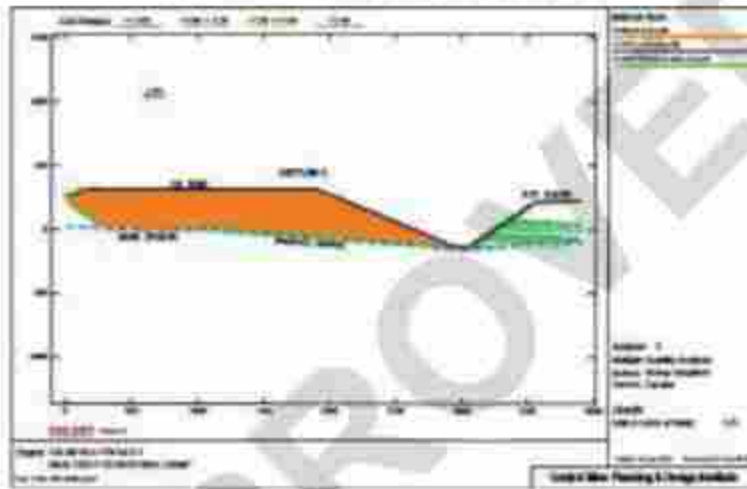


Fig. 3.8. Section of Multi-Layer System -Yalong Pool (right) Dam-Plan

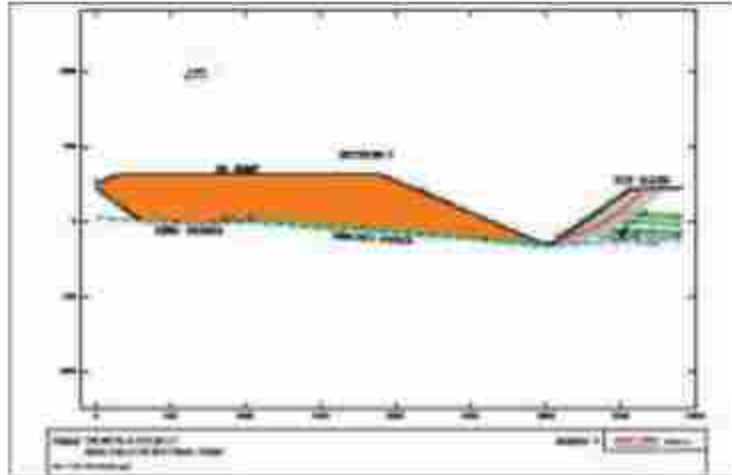


Fig. 111 Model 2 for Section of Talaspalli Coal Block Pit

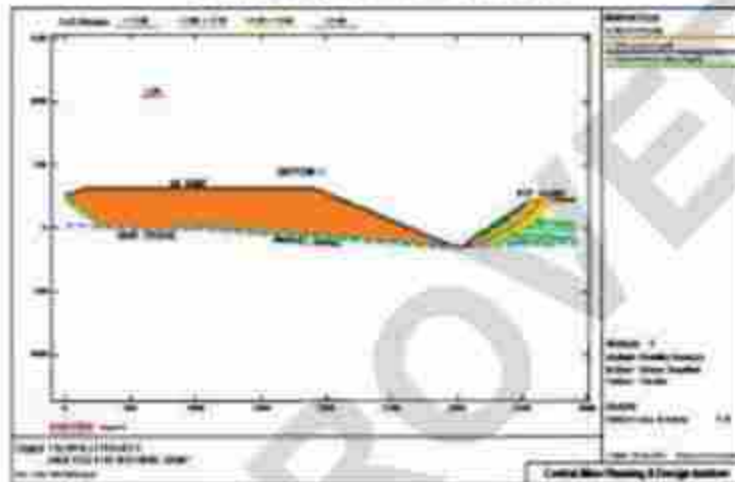


Fig. 112 Model 2 for Section of Talaspalli Coal Block Pit



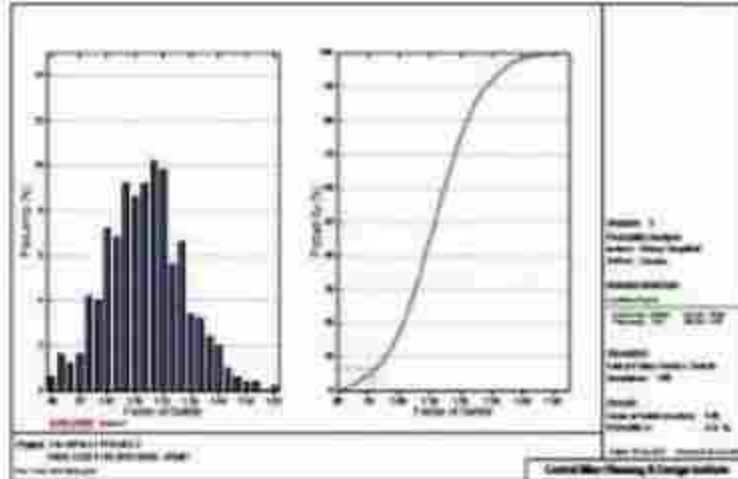


Fig. 5.13 Probabilistic analysis for Pit and Dump 7th

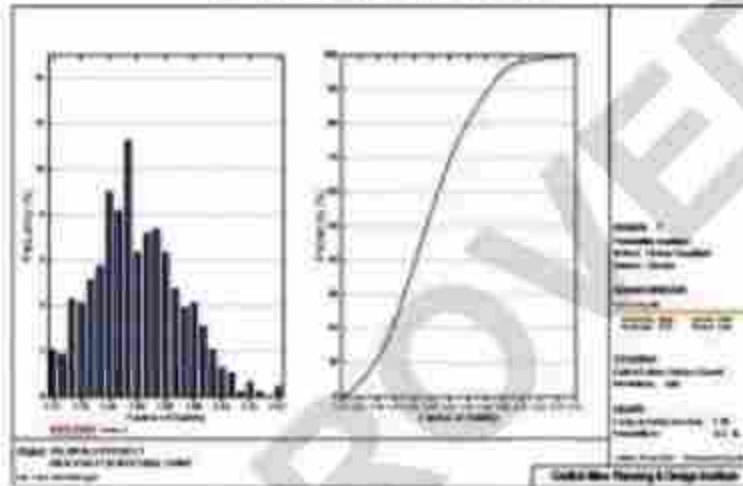


Fig. 5.14 Probabilistic analysis for Pit and Dump 8th

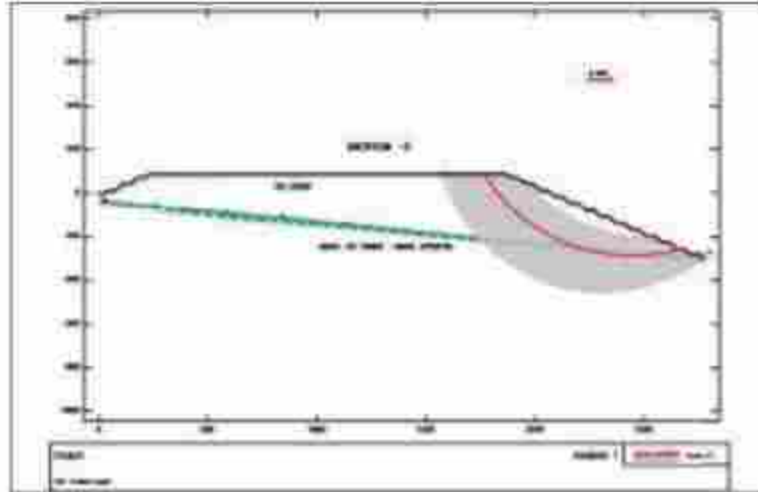


Fig. 3.13 MSA for Pit and Oumps along section 2

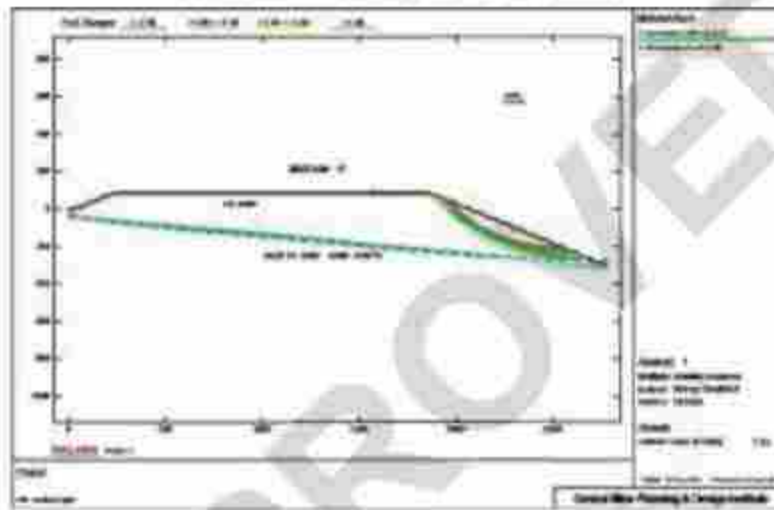


Fig. 3.14 Section of Block A for Four zone Oump along section 2

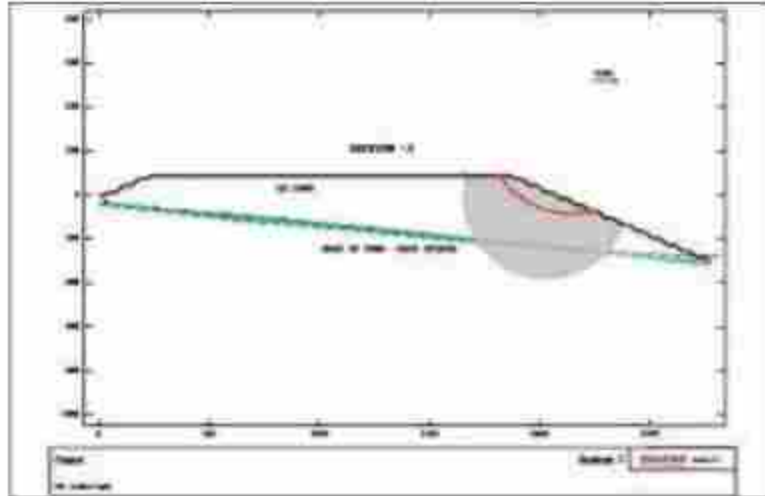


Fig. 5.17 Model 4 for Final stage Deep Planning section 2

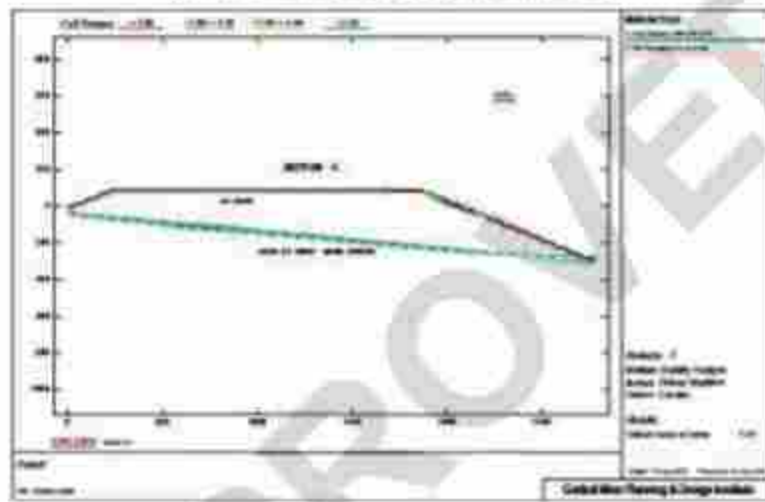


Fig. 5.18 Analysis for Model 4 for Final stage Deep Planning section 2

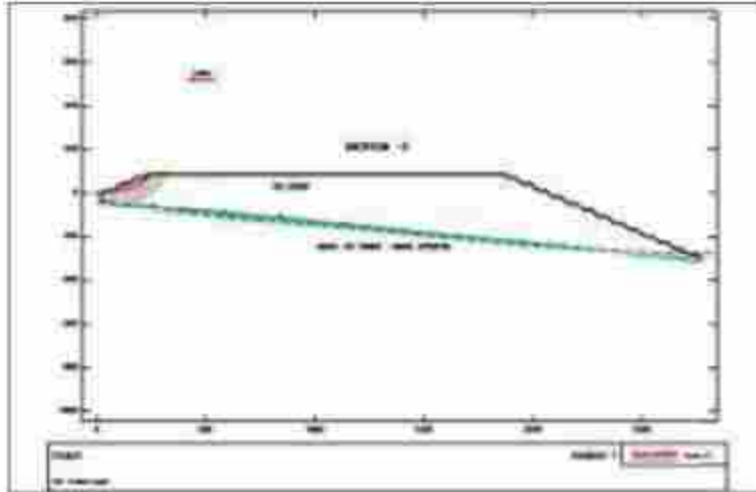


Fig. 1 (1) M2007 for Pit and Oumps Dump Plot along section 2

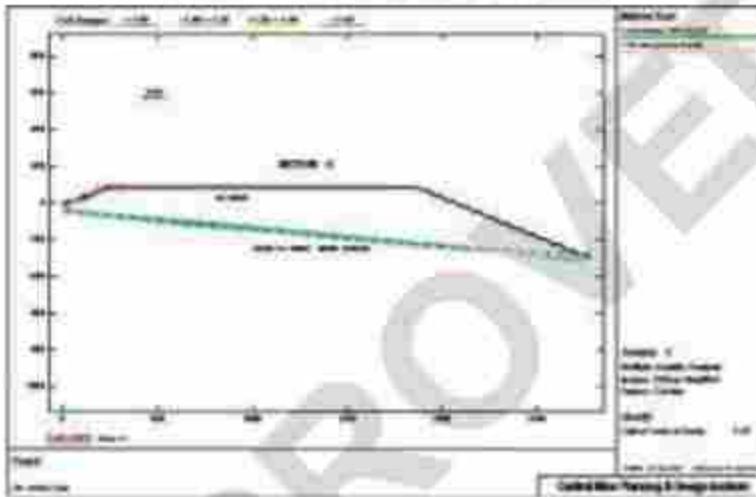


Fig. 2 (2) M2007 for Pit and Oumps Dump Plot along section 2

Table 5.1 Summary of Stability analysis results

S.No	Section	Analysis Description	FoS (Range)
<b>Final stage Dump sections</b>			
1	1-1	Final stage Internal dump section along 1-1 for whole benches	1.45-1.55
2		Final stage Internal dump section along 1-1 for intermediate benches	1.33 - 1.44
3	1-1	Final stage External dump along 1-1 (Left): top benches	1.25-1.32
4		Final stage External dump along 1-1 (Left): intermediate benches	1.30-1.33
5	2-2	Final stage Internal dump section along 2-2 for whole benches	1.44-1.33
6		Final stage Internal dump section along 2-2 for intermediate benches	1.36- 1.44
7	2-2	Final stage External dump along 2-2 (Left): top benches	1.30-1.44
8		Final stage External dump along 2-2 (Left): intermediate benches	1.45-1.50
<b>Ultimate Pit slope</b>			
17	1-1	Ultimate pit slope along section 1-1, analysis for whole benches	1.25 -1.31
18		Ultimate pit slope along section 1-1, analysis for intermediate benches	1.55-1.40
19	2-2	Ultimate pit slope along section 2-2 , analysis for whole benches	1.28-1.35
20		Ultimate pit slope along section 2-2 , analysis for intermediate benches	1.36-1.40

#### 5.10 CONCLUSIONS & RECOMMENDATIONS

The stability analysis for various sections of dump slopes, pit slopes in different conditions was carried out for Talapalli OCP. The factor of safety of 1.2 to 1.5 was taken as short term stability and Factor of safety >1.5 is for long term stability in this study. The conclusions and suggestions of the present study are summarized below. The factor of safety of proposed OB dumps varies from 1.25 to 1.55. This indicates that all the sections under consideration are stable for the short term and majority of the sections are stable for long term stability for the given conditions as indicated in the table above. The lowest FoS is observed observed is 1.25 for OB dump on section 1-1 left side. For the pit slopes the FoS varies from 1.25 to 1.40 , indicates a short term stability . From the analysis it can be inferred that the proposed dump geometry in the mining plan is clearly safe for short term stability for the given conditions. For the case of long stability, the FoS should be more than 1.5 as stipulated by DGMS. The current analysis was considered the Earthquake force in to consideration during the analysis. The analysis without considering earth quake force

results in a FoS of equivalent to 1.5 is resulted in different sections for pit and dumps slopes for the given conditions.

Considering the above analysis for current filed assessment and conditions the dump and pit geometry proposed in the mining plan can be considered safe.

#### 5.10.1 RECOMMENDATIONS

It is observed that the slopes are short-term stable at some sections this could be due to local concentration of stress. Therefore, during the rainy season, a proper drainage system should be adopted, and precautions should be taken for patchwork.

A few small-scale failures may subsequently cause a big failure. If two or three benches are made steeper at any level in any part/depth of the pit/dump, then it may initiate failures. Although the overall slope angle may be quite low, the steeper slope angles of the three benches may increase the stress at the toe of a relatively steeper part of the slope, which may cause failures. Two or three such small failures may cause a large failure. So, benching should be done properly from top to bottom.

Dump slopes do not fall without warning and may be managed through the design of dump sequencing, re-sloping of the selected areas. Proper monitoring of dump deformations should be carried out. While formation of dumps or after attaining 60m and 90 m of dump height from dump base, a detailed study for stability assessment of dump slopes should be carried out by any reputed agency. The same should be done for pit slopes as well and if any deformation or deviation from approved plan is observed it should be brought to the notice of reputed scientific agency for further assessment.

Any unfavourably oriented structural discontinuity may be present in the mining area, which was not reported in the geological report but exposed during ongoing excavation. It may create unsafe mining conditions. Mapping of such faults in fresh exposure of the pit shall help in detecting any impending failure along those detected weak planes.

In case there are multiple fault planes, the bench design should be such that they do not strike parallel to the fault plane.

Regular monitoring of the dump slopes is also being advised. It is recommended that a qualified person ensure that the dumps are constructed as specified by the design guidelines.

The bench geometry of the mine pit, the ultimate pit should strictly follow specifications as mentioned in the mining plan. In case of use of any other machinery the bench geometry will be guided by the maximum width of machinery & related DGMS guidelines.

Failure can occur at the local level even if the overall slope of the working pit is found to be safe flat, but if the individual benches are steeper and do not follow the specified criteria. Hence it is necessary to maintain proper bench geometry having adequate bench width & proper bench height for better stability. Bench geometries stipulated in regulation 106 of CMR 2017 should adhere wherever it is practically feasible for the existing and future planned slopes or slope re-profiling.

The presence of water causes negative consequences for pit stability. Garland drains are to be provided along the crest side for smooth passage of water. Benches are to be properly graded to inhibit the formation of sludge. Semi horizontal pipes may be inserted for draining out water wherever necessary.

While forming dumps as proposed in PR, the slope profile viz bench height and bench angle should be as indicated in PR or CMR 2017 guidelines. The minimum distance between any working patch from the toe of the internal OB dump should not be less than 100m.

For any new dumps, re-handled dumps which are comparatively newer and of less height, strict measures should be taken to maintain a tier system of dumping, where each tier should not exceed a height of 30 meters.

An assessment of the engineering and structural geology, strength properties, and related geotechnical controls was thoroughly carried out in this study. These recommendations are valid with a well-developed drainage system and controlled blasting to avoid any damage on the standing final bench slope mass. The final standing slope should be kept undamaged in-situ rock mass condition. If any deviation is observed or the remedial measures are not effective, then this slope angle must be corrected accordingly.

The operating bench width should never be less than double the bench height or as recommended in DCMR 2017. The unavoidable small-scale bench failures associated with weak sandstone weathered rock and intermittent clays could be arrested on these wide benches and large-scale slope failure can be avoided. The extra-wide bench will arrest the local bench failures and there would not be any operational problem. The exposure should be made within such an area, where the bottom could be touched within a maximum of one year. This patch should be backfilled immediately. Long-term exposure reduces the strength quickly in the weak rock mass and results in slope failure.

## 5.11 SLOPE MONITORING PROGRAMME

Monitoring is an indispensable way to safeguard loss of mine and machinery from slope failure. The monitoring methods are generally based on the displacement of slope mass. Every slope is subjected to movement. It is crucial to judge the change of displacement or velocity which may be critical. Many researchers have contributed to analyzing the displacement pattern in mine slopes.

### 5.11.1 VISUAL INSPECTION

A basic element of a slope monitoring program should be visual inspection by the mine geotechnical engineer and members of the engineering staff, combined with observations by all personnel working in the mine. This qualitative, but extremely important aspect of the program should be maintained throughout the life of the mine.

Visual Monitoring is the best practice when done vigilantly. Visual inspection of any cracks, seepage in high walls helps to spot any movement. The development of tension cracks and any change in them can be carefully observed. Visual monitoring also includes demarcating weak strata based on spontaneous combustion, weathered zone, or any deformation. A diligent visual survey always helps in taking preventive measures and/or safeguarding man and machinery.

### 5.11.2 CRACK MONITORING

Crack monitoring techniques typically consist of:

- Regular detailed mapping of location, depth, the width of cracks, rate of extension, and opening.
- Installation of targets on opposite sides of cracks to monitor rates of opening.



- Installation of surface (wireline) extensometers.
- Installation of picket lines or lines of targets that can be monitored using theodolites or precise levels to detect changes in alignment, location, or elevation along a given crack or the crest of the slope.

#### 5.11.3 MONITORING BY TOTAL STATION

These systems can be installed by mine survey personnel, generally with survey equipment in regular use at the mine. Monitoring stations or pillars are generally installed at places susceptible to displacement. It includes re-handled OB dumps, high wall, etc around the pit perimeter. This network should be tied to at least three stable reference stations well behind the pit crest. Monitoring points (prisms) are established at regular intervals on each wall of the pit and in areas identified from geotechnical investigations as more susceptible to instability.

#### 5.11.4 MONITORING BY SLOPE STABILITY RADAR (SSR)

Slope stability Radars are state of art instruments to detect slope instability and give early warning depending upon the threshold limit. Slope stability radar can remotely scan the pit slope and dump slope within a certain range in a vertical and horizontal direction depending upon its specification. A slope stability radar continuously scans the sloping wall within its range. SSR is so precise it can detect movement up to millimetres. Slope stability radar effectiveness is evident from the fact that it captures and stores the scanned image of the target area and any minute movement can be distinctively marked. Depending upon the critical velocities considering site-specific geo mining conditions a threshold limit can be set for slope stability radar to give out the early warning in case of undesirable movement. Slope stability radar waves can penetrate through rain, dust, and smoke to provide supreme accuracy in monitoring.

#### 5.11.5 RECOMMENDATION FOR SLOPE MONITORING

- A dedicated geotechnical cell should be formed at the project level which should undertake frequent visual inspection and all the relevant information should be recorded.
- RL measurement of monitoring stations should be thoroughly carried out. The monitoring work is to be supervised and verified by a senior survey officer.
- Visual inspection of any cracks should be done diligently. The widening of cracks should be measured by crack meters and recorded regularly.

- For necessary equipment installations to continuously monitor slope movement, suitable capital amount provisions are made in the KPR 2021.

#### 6.12 LIMITATIONS OF THE STUDY

- Soil is a very complex material. In nature, a heterogeneous type of soil is found which has different properties at different depths and places. Therefore, accurate soil properties cannot be derived in the laboratory by merely testing a few soil samples as it is difficult to simulate the field conditions.
- Judicious judgment based on a combination of theory and practical experience from the past studies shall help to arrive at the right conclusion during making the necessary assumptions for the study.
- In the geotechnical engineering field, many uncertain factors govern the stability analysis which depends on the assumptions made for the study. As a result, the factor of safety determined may vary to some extent from study to study. In the study, all normal failure conditions are checked for the determination of FoS with the best possible assumptions and judgment.

### 5.13 Annexure -1 : ROCKMASS PROPERTIES

#### Rock Mass properties using Rockdata

##### Silt Stone:

##### Hoek-Brown Classification

$\sigma_{ci}$  35 MPa

GSI 32

$m_i$  7

D 1

##### Hoek-Brown Criterion

$m_b$  0.0544086

$s$  1.19673e-005

$a$  0.519528

##### Failure Envelope Range

Application Slopes

$\sigma_3^{\text{max}}$  0.470468 MPa

Unit Weight 0.021 MN/m<sup>3</sup>

Slope Height 30 m

##### Mohr-Coulomb Fit

$c$  0.0704942 MPa

$\phi$  24.4415 degrees

##### Rock Mass Parameters

$\sigma_{gt}$  -0.00769832 MPa

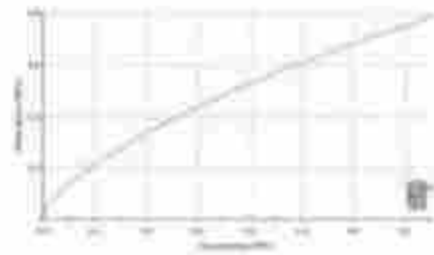
$\sigma_{gc}$  0.0970394 MPa

$\sigma_{gm}$  0.945213 MPa

$E_m$  1049.55 MPa

Stability Analysis for Pit and Oumps

Project Name: Talaspalli Coal Block  
Location: Talaspalli, Chhattisgarh  
Scale: 1:5000  
Date: 21/12/2022  
Prepared by: [Name]  
Checked by: [Name]



**FG-Sand stone:****Hoek-Brown Classification**

$\sigma_{ci}$  75 MPa  
 GSI 38  
 mi 15  
 D 1

**Hoek-Brown Criterion**

mb 0.178973  
 a 3.23305e-005  
 a 0.51302

**Failure Envelope Range**

Application Slopes  
 $\sigma_{3max}$  0.603714 MPa  
 Unit Weight 0.024 MN/m<sup>3</sup>  
 Slope Height 30 m

**Mohr-Coulomb Fit**

c 0.171414 MPa  
 phi 39.3616 degrees

**Rock Mass Parameters**

$\sigma_{igt}$  -0.0136322 MPa  
 $\sigma_{ige}$  0.373917 MPa  
 $\sigma_{icm}$  3.91305 MPa  
 Em 2170.2 MPa



Coal- shale :

Hoek-Brown Classification

siges 35 MPa  
 GSI 28  
 mi 6  
 D 1

Hoek-Brown Criterion

mb 0.0350459  
 s 6.14421e-006  
 a 0.525561

APPROVED

**Failure Envelope Range**

Application	Slopes	
siglmax	0.261795	MPa
Unit Weight	0.017	MN/m <sup>3</sup>
Slope Height	20	m

**Mohr-Coulomb Fit**

c	0.0395813	MPa
phi	24.5234	degrees

**Rock Mass Parameters**

sigt	-0.00613617	MPa
sigc	0.0638395	MPa
sigcm	0.716737	MPa
Em	833.689	MPa



**Base Rock - sandstone**

**Hoek-Brown Classification**

σ<sub>ci</sub>: 60 MPa  
 GSI: 40  
 m<sub>i</sub>: 13  
 D: 1



**Hoek-Brown Criterion**

mb 0.178929

a 4.53999e-005

a 0.511368

**Failure Envelope Range**

Application Slopes

sig3max 0.547216 MPa

Unit Weight 0.022 MN/m<sup>3</sup>

Slope Height 30 m

**Mohr-Coulomb Fit**

c 0.154202 MPa

phi 38.4268 degrees

**Rock Mass Parameters**

sig1 -0.0152239 MPa

sig2 0.560833 MPa

sigem 3.16561 MPa

Em 2177.94 MPa



APPROVED

## Additional Annexure-15

EC - 14 Raigarh/18  
Date - 13/3/18



### CHHATTISGARH ENVIRONMENT CONSERVATION BOARD

Commercial Complex, C.G. Housing Board Colony,  
Kabir Nagar, Raipur (C.G.) 492 000

No. ~~4237~~ /TS/CECB/20156

Raipur, dated: 13/3/2018

To,

General Manager,  
M/s N.T.P.C. Limited,  
Talaipali Coal Mining Project,  
Lailunga Road, Gharghoda,  
District - Raigarh - 496111 (C.G.)

Sub - Grant of consent under section 25/26 of the Water (Prevention and Control of Pollution) Act, 1974

- Ref -
1. Environmental Clearance issued by Ministry of Environment and Forests, Government of India vide letter no. J-11015/279/2009-IA, II (M) dated 02/01/2013.
  2. Permission to Establish issued by, Chhattisgarh Environment Conservation Board, Raipur, vide Letter No. 6465/TS/CECB/2015, Raipur, dated: 06/01/2015.
  3. Your application letter no. 5073/TL/2015/CTE/05, dated: 17/07/2015 and subsequent correspondence ending dated: 06/02/2016.

— DO —

With reference to your above application, consent is hereby granted for a period of one year from the first day of the month of commissioning of the plant subject to the fulfillment of the following terms and conditions:-

This consent is valid for following products & production capacity:-

S.No.	Product	Production Capacity
1.	Open Cast Coal Mine	18.0 Million Tonnes per Annum (Eighteen point Zero Million Tonnes per Annum)
2.	Underground Coal Mine	0.72 Million Tonnes per Annum (Zero point Seven Two Million Tonnes per Annum)

**Note :-**

1. This consent is granted initially only for the excavation of soil, which is a part of mining process as per the proposal submitted to the Board vide letter dated 27/01/2016. Industry shall intimate regarding installation of coal handling plant along with necessary pollution control equipments and obtain prior permission of the Board for its operation.

2- This consent is granted to the industry without prejudice to the court case pending in the Court of Law and in no way to be taken as a measure of proof that industry has not violated any related environmental laws at any time in the past. Hence whatsoever may be decision of Honble Court, shall be binding on the industry and this Board.

Please acknowledge the receipt of this letter.

For & on behalf of  
Chhattisgarh Environment Conservation Board  
  
**Member Secretary**  
Chhattisgarh Environment Conservation Board  
(2-Raipur (C.G.))

Encl. No. /TS/CECB/2016 Raipur, dated: \_\_\_/\_\_\_/2016  
Copy to -

1. Regional Officer, Regional Office, Chhattisgarh Environment Conservation Board, Raipur (C.G.). Please ensure compliance and report, if any condition/conditions are violated by the industry.
2. Cess Section, Chhattisgarh Environment Conservation Board, Raipur (C.G.).

  
**Member Secretary**  
Chhattisgarh Environment Conservation Board  
Raipur (C.G.)



## CHHATTISGARH ENVIRONMENT CONSERVATION BOARD

Commercial Complex, C.G. Housing Board Colony,  
Kabir Nagar, Raipur (C.G.)-492 050

### CONSENT LETTER

- No. JEE/Raipur/CECB/2016 Raipur, dated
- Sub: Consent to M/s N.T.P.C. Limited for the discharge of effluent under section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974.
- Ref: Applications Letter No. 5073/TL/2015/CTE-05, dated, 17/07/2015 and subsequent correspondence ending dated 27/01/2016 of M/s N.T.P.C. Limited. (Expiry Date \_\_\_\_\_)
1. With reference to the above application for consent to discharge of effluent into the natural water courses under the Water (Prevention & Control of Pollution) Act, 1974, here-in-after referred to as the Act, M/s N.T.P.C. Limited is authorized by the State Board to discharge its industrial and other effluents arising out of their premises into the local stream/river/well in accordance with the general and special conditions as mentioned in the Annexure.
  2. This consent shall be valid for a period of one year from the first day of the month of commissioning of the plant.

This consent is valid for following products & production capacity :-

S.No.	Product	Production Capacity
1.	Open Cast Coal Mine	18.0 Million Tonnes per Annum (Eighteen point Zero Million Tonnes per Annum)
2.	Underground Coal Mine	0.72 Million Tonnes per Annum (Zero point Seven Two Million Tonnes per Annum)

#### Note :-

1. This consent is granted initially only for the excavation of soil, which is a part of mining process as per the proposal submitted to the Board vide letter dated 27/01/2016. Industry shall intimate regarding installation of coal handling plant along with necessary pollution control equipments and obtain prior permission of the Board for its operation.
2. This consent is granted to the industry without prejudice to the court case pending in the Court of Law and in no way to be taken as a measure of proof that industry has not violated any related environmental laws at any time in the past. Hence whatsoever may be decision of Hon'ble Court, shall be binding on the industry and this Board.

Please acknowledge the receipt of this letter

For & on behalf of  
Chhattisgarh Environment Conservation Board

  
Member Secretary

Chhattisgarh Environment Conservation Board  
( ) Raipur (C.G.)

Seal  
Enclosure: Annexure

(I)  
**ANNEXURE**

**M/s Saripali Opencast Coal Mine**

**Location of Factory:** Bichchhinara, Kudumouha, Tilapali, Nayarampur, Raikera, Sarhepali, Chotiguda and Ajigarh, Tehsil - Gherghoda, District - Raigarh (C.G.)

**Vide consent no. / E/Raigarh/CECB/2016, dated: .....**

**A. GENERAL CONDITIONS: -**

1. All discharges authorized shall be consistent with terms and conditions of this Consent. Facility expansions, production increases or process modifications which result in new or increased discharges of pollutants must be reported by submission of a new Consent application or if such new or increased discharge does not violate the effluent limitations specified in the Consent, by submission to the Board details of such new or increased discharges of pollutants in which case the consent may be modified to specify effluent limitations for any pollutants not identified and limited here in the discharge of any pollutant more frequently than or at a level in excess of that identified and authorized by the Consent shall constitute a violation of the terms and conditions of the Consent.
2. After notice and opportunity for the hearing, this consent may be modified, suspended or revoked by the Board in whole or in part during its term for cause including, but not limited to the following -
  - (a) Violation of any terms and conditions of this Consent.
  - (b) Obtaining this Consent by misrepresentation or failure to disclose fully all relevant facts.
  - (c) A change in any condition that requires temporary or permanent reduction or elimination of the authorized discharge.
3. Notwithstanding para(2) above, if a toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established for a toxic pollutant which is present in the discharge authorized here in and such standard or prohibition is more stringent than any limitation upon such pollutant in this Consent the Consent shall be revised or modified in accordance with the toxic effluent

standard or prohibition that the Board may consider and the applicant shall be so notified.

4. The applicant shall allow the staff of Chhattisgarh Environment Conservation Board and/or their authorized representative, upon the Presentation of credentials
  - (a) To enter upon the applicant's premises where an effluent source is located or in which any records are required to be kept under the terms and conditions of this Consent;
  - (b) To have access to and copy at reasonable time any records required to be kept under the terms and conditions of this Consent;
  - (c) To inspect at reasonable time any monitoring equipment or monitoring method required in this Consent; or
  - (d) To sample at reasonable time any discharge of pollutants.
5. The applicant shall at all times maintain in good working order and operate as efficiently as possible all treatment or control facilities of system installed or used by him to achieve compliance with the terms and conditions of this Consent.
6. The issuance of this Consent does not convey any property rights in either real or personal property or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Central, State or local laws or regulation.
7. The Consent does not authorize or approve the construction of any physical structures or facilities or the undertaking of any work in any water course.
8. The specific effluent limitations and other pollution controls applicable to the discharge permitted here in are set forth below as specific conditions. Also set forth below are self-monitoring and reporting requirements. Unless otherwise specified, the applicant shall submit duplicate original copies of all reports to the Chhattisgarh Environment Conservation Board. Except for data determined to be confidential all such reports shall be available for public inspection at the office of the Chhattisgarh Environment Conservation Board. Knowingly making any false statement on any such report may result in the imposition of criminal penalties as provide for in section 42 of the Act.

**B. SPECIAL CONDITIONS:-**

1. Initial Effluent limitation during the period beginning on the effective date of this consent and lasting until one calendar year discharge from outfalls shall be limited and monitored by the applicant as specified below:-

(a) The following shall be limited by the applicant as specified

S.No	Effluent Characteristics	Discharge Limitation				Monitoring Requirements	
		Average Mg/l Kg/Day		Maximum Mg/l Kg/Day		Frequency of Measurement	Type of Sample

Daily/Weekly/Monthly/Tri-monthly

Grab/ 24 Hours Composite

In Addition to above discharge shall be limited and monitored as specified below

S.No	Effluent Characteristics	Discharge Limitation				Monitoring Requirements	
		Average Mg/l Kg/Day		Maximum Mg/l Kg/Day		Frequency of Measurement	Type of Sample

Daily/Weekly/Monthly/Tri-monthly

Grab/ 24 Hours Composite

For the purpose of this sub-section, the daily average discharge is the total discharge by weight during the calendar month divided by the number of days in month the production or commercial facility was operating for the purpose of the sub-section the daily maximum discharge means the total discharge by weight during any calendar day.



(b) The pH shall not be less than 5.5 or greater than 9.0

2. Final effluent Limitation: - During the period beginning from 1st day of month of commissioning of the plant and lasting until the date of expiration of this Consent, discharge from the outfalls shall be limited and monitored by the applicant as specified below:-

(a) The following shall be limited and monitored by the applicant as specified

Sl. No.	Effluent Characteristics	Discharge Limitation				Monitoring Requirements	
		Average		Maximum		Frequency of Measurement*	Type of Sample †
		Mgt	Kg/Day	Mgt	Kg/Day		
1	B.O.D	—	—	30	50.0	Monthly	24 hours Composite
2	C.O.D	—	—	250	500.0		
3	S.S	—	—	100	200.0		
	pH 5.5 to 9.0 Flow: 2000 Cum/Day (Industrial & Domestic)					Daily	Grab

\* Daily/Weekly/Monthly/Tri-monthly

† Grab/ 24 Hours Composite

Additional outfalls shall be monitored as follows:

- (i) Flow, Temperature and Total solids: One per month
- (ii) Grab Samples Maximum discharge temperature above upstream receiving water shall be in accordance with the standard of ISI at 40°C.
- (iii) Uniform as per ISI 2490 at 40°C.

The temperature shall be monitored once per month of each outfall. For the purpose of the sub-section the daily average is the total discharge by weight during calendar month divided by the number of days in month that the production or commercial facility was operating for the purpose of this sub-section, the daily maximum discharge means the total discharge by weight during any calendar day.

(b) The pH shall not be less than 5.5 or greater than 9.0 for outfalls. The samples are taken as monthly, grab samples.

3. Schedule of Compliance for effluent Limitation:- The applicant shall achieve compliance with the effluent limitation specified above for discharge from outfalls in accordance with the following schedule:

- (i) Report of Progress - To - Monthly
- (ii) Completion of final plans by \_\_\_\_\_
- (iii) Award of contract or other commitment of financing \_\_\_\_\_
- (iv) Commencement of construction by \_\_\_\_\_
- (v) Report of construction progress \_\_\_\_\_
- (vi) Completion of construction by \_\_\_\_\_
- (vii) Attainment of operational level by \_\_\_\_\_

*Please see on page no 11 to 15*

(b) The applicant shall submit to the Consent Issuing Authority the required report of progress or where a specific action is required in (a) above to be taken by a certain date a written notice of compliance or non-compliance with each of the above scheduled dates, post marked not later than 14 days following each elapsed date. Each notice of compliance shall include the following -

- (1) A short description of the non-compliance.
- (2) A description of any action taken or proposed by the applicant to comply with the elapsed scheduled requirement without further delay.
- (3) An estimate of any factor which tend to explain or mitigate the non-compliance, and
- (4) An estimate of the date, the applicant will comply with the elapsed scheduled requirement and assessment of the possibility that the applicant will meet the next scheduled requirement time.

4. Compilation of monitoring Data

- (a) Samples and measurements taken to meet the monitoring requirements specified above shall be representative of the volume and nature of monitored discharge.
- (b) Following promulgation of guidelines establishing test procedures for the analysis of pollutants, all sampling and analytical methods used to meet monitoring requirements specified above shall conform to such guidelines. Unless otherwise specified sampling and analytical methods shall conform to the latest edition of the Indian Standard

specifications and where it is not specified the guidelines as per standard methods for the examination of Water & Waste Water 13<sup>th</sup> Edition of the American Public Health Association, New York U.S.A. shall be used.

- (c) The applicant shall take samples and measurement to meet the monthly requirements specified above at the location indicated below:

**POINT OF SAMPLING**

- (i) Outfalls of waste
- (ii) 100 meters from point of confluence, down stream to river or lake

**5. Recording of Monitoring activities and Results:**

- (a) The applicant shall make and maintain records of all information resulting from monitoring activities by this Consent.
- (b) The applicant shall record for each measurement of sample taken pursuant to the requirements of this Consent the following information:
  - (1) The date, exact place and time of sampling
  - (2) The dates on which analysis was performed.
  - (3) Who performed the analysis?
  - (4) The analytical techniques or methods used and
  - (5) The result of all required analysis.
- (c) If applicant monitors any pollutant more frequently as is required by this Consent he shall include the results of such monitoring in the calculation and reporting of values required in the discharge monitoring reports, which may be prescribed by the Board, such increased frequency shall be indicated on the Discharge Monitoring Report form.
- (d) The applicant shall retain for a minimum of 3 years all records of monitoring activities and result including all records of calibration and maintenance of instrumentation and original strip chart regarding continuous monitoring instrumentation. The period of retention shall be the extent during the course of any unresolved litigation regarding the discharge of pollutants by the applicant or when requested by the Central or State Board.

**6. Reporting of Monitoring Results:**

- (a) Monitoring information required by this Consent shall be summarized and reported by submitting a Discharge Monitoring Report form duly filled in and signed, to the Board's office at the following address:

**CHHATTISGARH ENVIRONMENT CONSERVATION BOARD**  
Commercial Complex, C.D. Housing Board Colony,  
Kabil Nagar, Raipur (C.G.) 492 099

- (b) Each submitted Discharge Monitoring Report shall be signed as follows:

- (i) If submitted by Corporation by a Principal Executive Officer of at least the level of Vice-President or his duly authorized representative, if such representative is responsible for the overall operation of the facility from which the discharge described in the discharge Monitoring Report originates.
- (ii) If submitted by a partnership firm, by a general partner.
- (iii) If submitted by a sole proprietor, the proprietor.
- (iv) If submitted by a Municipal, State or Central Government or other public enterprises, by a Principal Executive Officer, ranking elected official commanding officer, or other duly authorized employee.

- (c) All information submitted on the Discharge Monitoring Form shall be based upon measurements and sampling carried out during the three previous calendar months. The first Discharge Monitoring Report shall be submitted for a period ending 60 days from issuance. Thereafter reporting period shall end on the last date of each month. The applicant shall submit a Discharge Monitoring Report post marked no later than 28th day of the month following each completed reporting period.

7. **Limitation of Discharge of Oil Hazardous Substance in harmful quantities.** The applicant shall not discharge oil in quantities defined as harmful in regulations. In addition the applicant shall not discharge hazardous substance into natural water course in quantities defined as harmful in regulations promulgated by the Board. Nothing in this Consent shall be deemed to preclude the institution of any legal action nor relieve the applicant from any

responsibilities, liabilities, or penalties to which the applicant is or may be subject to clauses.

8. **Limitation of visible Floating Solids and Foam:** During the period beginning date of issuance and lasting until the date of expiration of this Consent the applicant shall not discharge floating solids or visible foam.
9. **Disposal of Collected Solids:**
  - a) **Intake Water Treatment:** Solid Sludge's, dirt, silt or other pollutant separated from or resulting from treatment of intake or supply waters prior to use by the applicant shall be disposed off in such a manner as to prevent any pollutant from such materials from entering any such water. Any live fish or other animals collected or trapped as a result of intake water screening or treatment may be returned to water.
  - b) **Waste water Treatment:** Solid sludge's, filter backwash or other pollutant removed from or resulting from treatment or control of waste water shall be disposed of in such a manner as to prevent any pollutants from such materials from entering natural water.
10. **Non-compliance with Effluent Limitations:**
  - (a) If for any reason the applicant does not comply with or will be unable to comply with or will be unable to comply with any daily maximum effluent limitations specified in this Consent the applicant shall immediately notify the Consent issuing authority or his designee by telephone No. 0771-2443923/2443934 and provide the Consent issuing Authority with the following information in writing within 5 days of such notification:
    - i) Cause of non-compliance.
    - ii) A description of the non-complying discharge including its impact upon the receiving water.
    - iii) Anticipated time, of non compliance is expected to continue or if such condition has been corrected, the duration of non-compliance.
    - iv) Steps taken by the applicant to reduce and eliminate the non-complying discharge and.
    - v) Steps to be taken by the applicant to prevent recurrence of conditions of non compliance.
  - (b) The applicant shall take all responsible steps to minimize any adverse impact to natural waters resulting from non-

compliance with any effluent limitation specified in this Consent including such accelerated or additional monitoring as necessary to determine the nature and impact of the non-complying discharge.

- (d) Nothing in this Consent shall be construed to relieve the applicant from civil or criminal penalties for non-compliance, whether or not such non-compliance is due to factors beyond his control such as equipment break down, electric power failure, accident or natural disaster.

Limitation of Batch Discharge:

#### **SPECIAL CONDITIONS**

- 11. **Provision for Electric Power Failure:** The applicant shall either:
  - (a) No later than \_\_\_\_\_ certify in writing to the consent issuing authority that applicant has installed or provided for an alternative electric power source sufficient to operate all facilities utilized by the applicant to maintain compliance with the terms and conditions of the Consent or
  - (b) No later than 30 days after the effective date of his Consent, certify in writing to the consent issuing authority that upon the reduction, loss, or failure of one or more of the primary sources of electric power to any facilities utilized by the applicant to maintain compliance with the terms and conditions of his consent, the applicant shall halt, reduce or otherwise Control production and/or all discharges in order to maintain compliance with the terms & conditions of this Consent.
  
- 12. **Prohibition of By pass of Treatment Facilities:** The diversion or by-pass of any discharge from facility utilized by the applicant to maintain compliance with the terms and conditions of this Consent is prohibited except:
  - (i) Where unavoidable to prevent loss of life, severe property damage, or
  - (ii) Where excessive storm drainage or run off would damage any facilities necessary for compliance with the terms and conditions of this Consent. The applicant shall immediately notify the consent issuing authorities in writing of each such diversion or by-pass in accordance with the procedure specified above for reporting non-compliance.
  
- 13. **Spill Prevention and Containment Plan:** Within 90 days of the effective date of the Consent the applicant shall prepare and

submit to the consent issuing authority; a Spill Prevention, Containment and Countermeasure Plan for the facility covered by this Consent. Such plan shall include the following information and procedures relating to the prevention of spills and unauthorized discharges of oil and hazardous substances:

- (a) A description of a reporting system to be used to notify immediately persons responsible for management of a facility and appropriate State and Central authorities;
- (b) A description of equipment or facilities (including overall facility) for the prevention, containment of spills and unauthorized discharge;
- (c) A list of all oil and hazardous materials used processed or stored at the facility including the normal quantity maintained on the premises for each listed material;
- (d) A brief description of any spills or unauthorized discharge which occurred during the 36 months period preceding the effective date of this Consent and subsequent measures taken by the applicant or reduce the possibility of further spills or unauthorized discharges, and;
- (e) An implementation schedule for additional equipment or facilities which might be required for sub para (b) above but which are not yet operational.

### SPECIAL CONDITIONS

1. The mining lease area shall not exceed 2113 hectares.
2. Industry shall ensure continuous, proper and efficient working of industrial and domestic effluent and shall ensure that the treated effluent quality meet the standards prescribed by Board published in Gazette Notification dated 25.03.86. Industry shall provide adequate facility for proper treatment of industrial [mine water including acid mine water (if any) heavy vehicle washing/workshop/ coal handling plant waste water etc.] and domestic effluent generated due to capacity enhancement also. The major parameters of treated effluent shall be kept within the limits as follows:-

S. No.	Parameters	Limits
1.	pH	5.5 - 9.0
2.	Suspended Solids	100 Milligram per Liter
3.	BOD	30 Milligram per Liter
4.	COD	250 Milligram per Liter
5.	Oil and Grease	10 Milligram per Liter

Chhattisgarh Environment Conservation Board may further stipulate stringent limit depending upon environmental conditions.

3. Industry shall provide suitable arrangement of drains/pipe networks to ensure adequate flow for utilization of treated effluent inside the mining lease area. Treated waste waters/effluent shall be recycled for mine operations. The mine discharge water/domestic effluent after proper treatment shall be utilized in plantation, dust suppression, sprinkling on roads or other useful purposes. Industry shall also provide adequate arrangement for supply of treated mine water as maximum as possible to nearby villages for use of different purposes such as irrigation/ agriculture/drinking etc. Industry shall use treated mine water as maximum as possible and the concept of zero discharge shall be adapted to a maximum possible extent. In case of discharge of treated mine water into nalla/river, industry shall ensure the nalla/river un-affected with respect to its water quality and its designated use. Industry shall provide adequate scientific arrangement for ground water re-charging by using treated mine water.
4. Industry shall provide water metering arrangement for the measurement of water utilized and effluent generated.
5. Industry shall use mined out coal for its captive consumption to the Lara Super Thermal Power Project (4000 MW) located at a distance of 50 km. In this regard industry shall establish transportation of coal through MGR system of rail network.
6. Industry shall provide adequate number of influent and effluent quality monitoring stations/points in consultation with Chhattisgarh



Environment Conservation Board. Regular monitoring shall be carried out for relevant parameters. Regular monitoring of surface and ground water quality shall be undertaken around mine area to ascertain the change in the water quality, if any, due to leaching of contaminants from dump area/mine area. Result and data collected shall be analyzed to ascertain the status of water quality and findings shall be submitted to Chhattisgarh Environment Conservation Board.

7. Industry shall ensure continuous running of separate electric metering arrangements with time limiter for the running of pollution control devices. These arrangements shall be made in such a fashion that any non-functioning of pollution control devices shall immediately stop the electric/raw material supply to the production unit and shall remain tripped till the pollution control device/devices are made functional again.
8. Industry shall provide safe and scientific arrangement for handling, collection, storage, transportation and disposal of all solid wastes and over burden etc. Mining rock/boulders shall be used for road making and land filling. Industry shall obtain letter of authorization under Hazardous Wastes (Management and Handling) Rules, 1989 (as amended) from the Board (if required). Appropriate arrangement shall be provided as per law for collection/treatment/storage/ transportation / disposal of hazardous wastes.
9. All the slope of external dumps shall be maintained at a maximum of 28 degrees. Top soil shall be stacked properly in a dump with proper slope at earmarked site(s) with adequate measures and should be used for reclamation and rehabilitation of mined out area and for green belt development.
10. Backfilling of void (internal dump) shall be done and the mined out area shall be reclaimed to its original surface level. The monitoring of the safety of the internal backfill dump shall be done with the latest technologies and equipment as part of safety measures.
11. Industry shall take effective steps to check the soil erosion from over burden/waste material dumping areas etc. and causing silting problem in nearby nalla/river/pond during rainy season before onset of monsoon. Sufficient numbers of check dams of adequate capacity shall be constructed to prevent the same before onset of monsoon. Check dams and silt ponds of appropriate size shall be constructed to arrest silt and sediment flow from soil and coal/wastes/over burden dumps before onset of monsoon. The water/effluent so collected shall be utilized for watering the mine area, roads, green belt development etc. The drains shall be regularly desilted and maintained. Garland drain of appropriate size shall be constructed before onset of monsoon to collect surface run-offs from

the mining area, topsoil dumps, waste dumps etc. Garland drain (size, gradient & length) and sump capacity shall be designed keeping 50% safety margin over and above the peak sudden rainfall and maximum discharge in the area adjoining the mine site. Sump capacity shall also provide adequate retention period to allow proper setting of silt material. Plantation shall be taken up for soil stabilization along the slopes of the dump. Sedimentation pits shall be constructed at the corners of the garland drains. The surface run-off shall be de-silted through a series of check dams and drains before final disposal-use. Dimension of the retaining wall at the toe of dumps and over burden benches within the mine to check run-off and siltation should be based on the rain fall data

12. Regular monitoring of ground water level and quality shall be carried out by establishing a network of existing wells and constructing new piezometers at suitable locations at the proponent's cost in and around mine area. Regular monitoring of surface and ground water quality shall be carried out by establishing a network of stations at suitable locations in mine area/adjacent to mine area. The frequency of monitoring (quality and quantity) shall be four time a year - pre-monsoon (April/May), monsoon (August), post-monsoon (November) and winter (January) seasons. Data generated from groundwater regime monitoring will be submitted to Board on an annual basis.
13. Area brought under afforestation shall be not less than 1876.04 ha which includes, backfilled area (1048.38 ha), which includes area reclaimed after re-handling of temporary external OB dumps and topsoil dump, embankment (15 ha) along ML boundary, Infrastructure area (5 ha), along roads, green belt (7.68 ha) and in undisturbed areas/safety zone and in colony outside the ML by planting native species in consultation with the local DFO/Agriculture Department. The density of the trees shall be around 2500 plants per ha.
14. Industry shall adopt rain water harvesting technique in the mine area and residential area for recharge of ground water before onset of monsoon. Industry shall develop rainwater harvesting structures to harvest the rain water for utilization in the lean season as well as to recharge the ground water table before onset of monsoon. The mine authorities should meet water requirement of nearby village(s) in case the village wells go dry due to de-watering of the mine.
15. Industry shall ensure transportation of fly ash for back filling / beneficial uses by covered vehicles to prevent emission during transportation.
16. Industry shall establish an environmental management cell to carryout function relating to environmental management under the supervision of senior executive who would directly report to the head of

organization. A full-fledged laboratory with qualified technical / scientific staffs to monitor the influent, effluent, ground water, surface water, soil and ambient air quality etc. shall be provided.

17. Necessary fund shall be provided for implementation of above conditions for environmental safeguards. The funds earmarked for environmental protection measures shall be kept in separate account and not diverted for any other purpose.
18. Industry shall obtain statutory clearances/licenses from concerned Central/State Government Departments, Boards, Bodies and Corporations etc. Industry shall follow direction issued by Central/State Government, Central Pollution Control Board/Chhattisgarh Environment Conservation Board from time to time regarding control of water & air pollution and for environmental conservation.
19. The issuance of 'consent to operate' does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Central, State or local laws or regulations.
20. Any change in product, production/mining capacity, process, raw materials used, project profile (mining technology and scope of working) etc. shall be intimated to the Board and prior permission of the Board shall be obtained for the same.
21. Board may amend/cancel any of the conditions and add new conditions to be incorporated in the permission to establish and consent to operate and further stringent the emission/effluent limit as and when deemed necessary in the interest of environmental protection, change in the project profile or non-satisfactory implementation of the stipulated conditions etc.

This consent and the authorization to discharge shall expire after twelve months starting from the first day of the month of commissioning of the plant. The applicant shall not discharge after the date of expiration. The applicant shall submit such information forms and fees as required by the Board not later than 180 days prior to the date of expiry.

For & on behalf of  
Chhattisgarh Environment Conservation Board

  
**Member Secretary**  
Chhattisgarh Environment Conservation Board  
Raipur (C.G.)



National Thermal Power Corporation Ltd.

(A Public Sector Undertaking)

**TALAIPELLI COAL BLOCK**

MAND-RAIGARH COAL FIELD  
DISTRICT - RAIGARH, STATE - CHHATTISGARH

**EXPERT REVIEW REPORT  
ON  
MINING PLAN  
(INCLUDING MINE CLOSURE PLAN)  
(1<sup>ST</sup> MODIFICATION)**



MPPA Certificate No.: NABET/APA-MPPA/IA/015  
Issued Date: 30<sup>th</sup> March, 2022





**MECON LIMITED, RANCHI**

MEC/11/16/QTES/ERA/R-0

OCTOBER 2022

 <b>एनटीपीसी</b> <b>NTPC</b> <small>A Bharat Heavy Electricals Company</small>	<b>EXPERT REVIEW REPORT</b> <b>ON</b> <b>MINING PLAN (INCLUDING MINE CLOSURE PLAN)</b> <b>(1ST MODIFICATION) OF TALAIPALLI COAL BLOCK</b> <b>MAND-RAIGARH COAL FIELD</b> <b>DISTRICT- RAIGARH, STATE- CHHATTISGARH</b>	
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SL. No.	Description	Clause No.	Remarks of MECON
1.	Cover Page		Along with Rated Capacity, Peak capacity also to be mentioned separately.
2.	Cover Page		MPPA Cert. No. & Issuing Date to be mentioned.
3.	Index for List of Annexures		All Annexures to be checked as per Index.  Followings are missing at present –  Annexure 2: Certificate by OP/MPPA Annexure 3: Approval of the Company Board Annexure 6: Non-refundable Application fee
4.	Index for List of Plans/ Drawings		All Plans/Drawings to be checked as per Index.  Followings are missing at present –  Plate 2: Plan certified by OP/MPPA Plate 9: Tentative land use plan.
5.	All Plans / Drawings		All Legends to be updated in accordance with features shown in respective plans. The blank Rows in Legend table should be omitted.  For Example, in Geological plan Coal outcrops to be shown in Legend, in Surface plan reserved forest & Protected Forests to be shown in legend, in Reclamation Plan Legends for Plantation area, Water body etc. to be incorporated.

 <b>एनटीपीसी</b> <b>NTPC</b> <small>A Maharatna Company</small>	<b>EXPERT REVIEW REPORT</b> <b>ON</b> <b>MINING PLAN (INCLUDING MINE CLOSURE PLAN)</b> <b>(1ST MODIFICATION) OF TALAIPALLI COAL BLOCK</b> <b>MAND-RAIGARH COAL FIELD</b> <b>DISTRICT- RAIGARH, STATE- CHHATTISGARH</b>	
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Sl. No.	Description	Clause No.	Remarks of MECON
6.	List of Abbreviations	1.1.4	The following Abbreviations used in the Text to be included in the list of Abbreviations Table—  <ol style="list-style-type: none"> <li>1. STPP (Clause 1.1.4)</li> <li>2. CMDPA (Clause 1.3.5)</li> <li>3. MGR (Clause 3.1.2)</li> <li>4. OGL (Clause 3.1.2)</li> <li>5. OBR (Clause 3.1.13)</li> <li>6. HLS (Clause 5.4)</li> <li>7. OHE (Clause 5.4)</li> <li>8. CPCB (Clause 8.2)</li> <li>9. TDS (Clause 8.2)</li> <li>10. NAAQ (Clause 8.3)</li> </ol>
7.	Chapter-1: Project Information	1.2.2	Road – Nearby road distance to be incorporated.  Air link – Nearby Airport Name with distance to be given.
8.	Chapter-1: Project Information	1.2.4	Drainage Pattern – To be elaborated.  Rainfall – Annual rainfall (avg.) along with max. and min. rainfall data to be incorporated in the report.
9.	Chapter-1: Project Information	1.3.2	Allotment/ Vesting order No. to be incorporated.
10.	Chapter-2: Exploration, Geology, Seam Sequence, Coal Quality & Reserve	2.1.2	The coordinates provided does not match with the Block Boundary Coordinates in GR.
11.	Chapter-2: Exploration, Geology, Seam Sequence, Coal Quality & Reserve	2.1.3	In GR, the total area of the Block has been mentioned as 20 Sq. Km. whereas in Mining Plan it has been mentioned as 21.194 Sq. Km. The same has to be checked.

Annexure -7



Expert Review Report

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 <b>एनटीपीसी</b> <b>NTPC</b> <small>A Bharat Company</small>	<b>EXPERT REVIEW REPORT</b> <b>ON</b> <b>MINING PLAN (INCLUDING MINE CLOSURE PLAN)</b> <b>(1ST MODIFICATION) OF TALAI PALLI COAL BLOCK</b> <b>MAND-RAIGARH COAL FIELD</b> <b>DISTRICT- RAIGARH, STATE- CHHATTISGARH</b>	
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Sl. No.	Description	Clause No.	Remarks of MECON
12.	Chapter-2: Exploration, Geology, Seam Sequence, Coal Quality & Reserve	2.1.4	In GR, the total area of the Block has been mentioned as 20 Sq.Km. where as in Mining Plan it has been mentioned as 21.194 Sq.Km. The same has to be checked.
13.	Chapter-2: Exploration, Geology, Seam Sequence, Coal Quality & Reserve	2.1.7	The clause may be corrected as per format/ Guideline provided by MoC for preparation of mining plan which states: "Cardinal Point Co-ordinates of the non-coal/lignite bearing area/existing mining lease outside the allotted Geological Coal/Lignite Block"
14.	Chapter-2: Exploration, Geology, Seam Sequence, Coal Quality & Reserve	2.1.8	Certificate to be produced as per the requirement.
15.	Chapter-2: Exploration, Geology, Seam Sequence, Coal Quality & Reserve	2.1.9	The date of capture of satellite imagery to be provided.
16.	Chapter-2: Exploration, Geology, Seam Sequence, Coal Quality & Reserve	2.2.1	It is mentioned as "It is situated between Ib-River Coalfield in the southeast and Korba Coalfield in the southwest with more or less similar stratigraphic and tectonic setting".  Please review the location of Mand-Raigarh Coalfield with respect to Korba Coalfield and Ib-River Coalfield.
17.	Chapter-2: Exploration, Geology, Seam Sequence, Coal Quality & Reserve	2.2.2	Coal Seam Sequence table should be updated as V Bottom, IV Middle & IV Bottom in Sl. No. 15, 17, 19.
18.	Chapter-2: Exploration, Geology, Seam Sequence, Coal Quality & Reserve	2.2.3	In GR, the total area of the Block has been mentioned as 20 Sq.Km. where as in the Mining Plan it has been mentioned as 21.194 Sq.Km. This has to be checked.

 <b>एनटीपीसी</b> <b>NTPC</b> <small>A Reliance Company</small>	<b>EXPERT REVIEW REPORT</b> <b>ON</b> <b>MINING PLAN (INCLUDING MINE CLOSURE PLAN)</b> <b>(1ST MODIFICATION) OF TALAIPELLI COAL BLOCK</b> <b>MAND-RAIGARH COAL FIELD</b> <b>DISTRICT- RAIGARH, STATE- CHHATTISGARH</b>	
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Sl. No.	Description	Clause No.	Remarks of MECON
19.	Chapter-2: Exploration, Geology, Seam Sequence, Coal Quality & Reserve	2.2.17	Gross Geological Reserve figure mismatches with that of Clause No. 1.5.11.
20.	Chapter-2: Exploration, Geology, Seam Sequence, Coal Quality & Reserve	2.2.23	To be updated in line with the table of 2.2.14.
21.	Chapter-2: Exploration, Geology, Seam Sequence, Coal Quality & Reserve	2.2.24	To be updated in line with the table of 2.2.14.
22.	Chapter-3: Mining	3.1.2	In the table showing the Geo-Mining Characteristics of the workable seams for OC, following seams have been considered as workable seams – XLB, XLI, V TOP, V BOTTOM.  However, in description it is mentioned that the above mentioned seams are classified as poorly developed seams in the block. Hence, resources of these seams are not considered. It needs to be checked.
23.	Chapter-3: Mining	3.1.2	In the Pit Formulation Strategy, Quarry surface has been taken as 45-50 m from the Block boundary. It needs to be verified.
24.	Chapter-3: Mining	3.1.3	25 Mt shall be Rated capacity, instead of peak rated capacity.
25.	Chapter-3: Mining	3.1.4	Capacity spelling to be corrected.
26.	Chapter-5: Infrastructure Facilities	5.2	Power Supply & Illumination: In the first paragraph, workshop has been repeated twice. It needs to be corrected.



Annexure -7

Expert Review Report

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 नएदीदीदी <b>NTPC</b> नएदीदीदी	<b>EXPERT REVIEW REPORT</b> <b>ON</b> <b>MINING PLAN (INCLUDING MINE CLOSURE PLAN)</b> <b>(1ST MODIFICATION) OF TALAIPALLI COAL BLOCK</b> <b>MAND-RAIGARH COAL FIELD</b> <b>DISTRICT- RAIGARH, STATE- CHHATTISGARH</b>	
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SL. No.	Description	Clause No.	Remarks of MECON
27	Chapter-5: Infrastructure Facilities	5.4	CHP:Mode of Despatch: Spelling of Talaiipalli OCP to be corrected in the firm point.
28	Chapter-5: Infrastructure Facilities	5.4	Unloading Arrangement: "Each silo shall facility of wagon loading" - This sentence shall be suitably corrected.
29	Chapter-8: Progressive & Final Mine Closure Plan	8.10.1	In Abandonment cost table, Quantity & Unit cost are not given. Hence, Total amount calculation to be verified by NTPC.
30	Chapter-8: Progressive & Final Mine Closure Plan	8.10.2	Balance Corpus for which provision is to be made - Please mention <u>(in Rs. Lakh)</u>  Balance Life of Mine - Please mention <u>(in Years)</u>

## Additional Annexure-17

### COMPLIANCE TO OBSERVATIONS FROM SCRUTINY COMMITTEE FOR MINING PLAN AND MINE CLOSURE PLAN (1<sup>ST</sup> MODIFICATION) OF TALAIWALLI COAL BLOCK, M/S NTPC LTD.

Sl No.	Parameters	Observation	Compliance
6	a. Targeted capacity b. Peak rated capacity (150% of the rated capacity)	Peak capacity and rated capacity to be stated	Rated Capacity- 25.50 MTPA Peak Capacity- 37.50 MTPA (@150% of the rated capacity)
1.3.9	Cardinal Points - coordinates of the Block boundary	Are the cardinal points coordinates of the block boundary used for preparation of mining plan part of the mine dossier?	No. The cardinal points-coordinates of the block boundary used for preparation of this Revised Mining Plan is different from mine dossier. At the time of allotment of the Block in 2006, the Talaiwalli Block boundary was not in WGS84 coordinate system. On request of NTPC, CMPCO carried out the DGPS survey in WGS84 coordinate system and finalized the block boundary. This has resulted in change of 6.4 Ha in block area on plan not on surface ground and change in Bounding coordinates. A corrigendum to the allotment order No. 10001/2015/NA dated Sep. 01, 2015 was issued by the Ministry of Coal vide order no. 10331/2015/NA dated Nov. 26, 2022 regarding this which is attached at Annexure-1.
1.3.20	OB in MWS	OB has reduced as compared to the previously approved mining plan. To be explained/corrected	In the previously approved Mining Plan, the pit was formulated considering Seam II as base seam for opencast mining and the entire dump was accommodated therein. On examination of the approved Mining Plan, it was found out that

			<p>The Mining Plan is technically and operationally not feasible and so revision of the mining plan was necessitated.</p> <p>The Revised Mining Plan has been formulated considering Seam IV B01 as base seam which is above Seam II. Seam IV B01 has been taken as the base seam for the pit since going upto Seam II which is only 4-4.5m thick and is 20-60m below seam IV B01 increases the OB handling to such an extent that dumping space availability becomes a constraint and mine will have to end abruptly mining only ~277 Mt of Coal. So, Opencast mining for the Talaiwalli coal block has been proposed upto Seam IV B01 to maximize the recovery of coal by Opencast Mining. Therefore, OB has reduced as compared to the previously approved Mining Plan.</p>
1.3.10	Seams not considered for Mining with Reasons	Why seams III, II, ILL, I, I, II, cannot be prioritized at present? Why seam I not considered workable?	<p>Opencast mining is technically feasible upto base Seam IV B01 due to lack of dumping space and for maximization of coal recovery by Opencast Mining.</p> <p>As simultaneous working of UG and OC is not operationally safe, Seams below IV B01 will be planned for UG mining at the end of OC mine life as per the scientific study/latest technology options available at that time.</p>

			Seam I is poorly developed in the block having non-minable thickness and therefore its reserve is not assessed in the Geological Report.
1.2.21	SR M/Gt/e	SR has reduced as compared to the previously approved mining plan. To be explained/corrected.	The Previously approved Mining Plan has proposed Opencast Mining upto Seam II which is below Seam IV Bot. This is technically and operationally not feasible due to lack of dumping space. Therefore, this revised Mining Plan has proposed the Opencast Mining upto Seam IV Bot which is above Seam II. This has resulted in removal of less O/R than the previously approved mining plan and hence the reduction of SR.
1.1.3	Base date of Mining Plan/ Mine Closure Plan	Base date cannot be later than the date of submission of mining plan.	Corrected.
1.5.3	Lease area 'Ha'	Reasons for change in block area, geological reserve and extractable reserve may be informed.	At the time of allotment of the Block in 2006, the Talaspall Block boundary was not in WGS84 coordinate system. On request of NTPC, CMPTI carried out the DGPS survey in WGS84 coordinate system and finalized the block boundary. This has resulted in change of 6.4 Ha in block area on plan not on surface ground and change in Sounding coordinates. A corrigendum to the allotment order No. 10331/2015/NA dated 14.01.2015 was issued by the Ministry of Coal vide order no. 10331/2015/NA dated 14.01.2022 regarding this which is attached as Annexure-I.

			The Net Geological Reserve of 1267.145 Mt mentioned in the Revised Mining Plan is as per the Geological Report prepared by MEC, in September 2006. The Gross Geological Reserve is arrived at by considering 10% geological loss which is mentioned in the Geological Report.
			The extractable reserve has changed since the base seam for Opencast Mining has changed from Seam II in the previous approved Mining Plan to Seam IV in the proposed Revised Mining Plan due to lack of space for dumping. Also, some area for conveyor corridor for evacuation of coal and infrastructures has been excluded from mining since mine cannot run without these infrastructures.
1.3.7	Production Schedule as per opening permission (meeting provisions of CMDPA if any)/Allotment Agreement.	Data to be given.	The planned production schedule is given in 1.4.7.
2.2.12	Seams not considered for Mining with Reasons.	Was it differently planned in the previously approved mining plan?	In the previously approved Mining Plan, the pit was formulated considering Seam II as base seam for opencast mining and the entire dump was accommodated therein. On examination of the previously approved Mining Plan, it was found out to be technically and operationally not feasible and so revision of the Mining plan was necessitated.

			<p>This Revised Mining Plan has been formulated considering Seam IV Bot as cobb seam. Seam IV Bot has been taken as the base seam for the pit since going upto Seam III which is only 4-4.5m thick and is 30-50m below seam IV Bot increases the O&amp;G handling to such an extent that dumping space availability becomes a constraint and mine will have to end abruptly mining only ~477 Mt of Coal. So, Opencast mining for the Talaspali coal block has been proposed upto Seam IV Bot to maximize the recovery of coal by Opencast Mining.</p> <p>As simultaneous working of LG and OC is not operationally safe. Seams below IV Bot will be planned for LG mining at the end of OC mine life as per the scientific study/latest technology options available at that time.</p>
3.1.6	Rated Capacity 'MTPA'	PKC of mine is being achieved in 2037-38. Reasons of same may be given.	It is because the mine will encounter upper seams (Seams IX, X, XI, XII etc.) in the later stage after 13-14 years. This will increase the cumulative thickness of coal and production can be increased to 25 MTPA.
3.1.7	Terrative Coal production Plan 'M1'	Annual scheduled production till year 2027-28 is less in the proposed MP in comparison to previously approved MP. Same needs to be reviewed.	The basal seam of IV Bot is at a depth of 200m in the eastern side of the block. It will require time to reach that kind of depth and then only can production can be ramped up. The schedule of production given is optimized based on the geominning condition, temporary external dump requirement, lead etc.

E.2.3	Period for which Mining Lease has been granted is to be renewed is to be applied for.	Life of mine to be quantified.	Corrected, it is 31 years.
E.2.15	Extractable Reserves 'Mt'	Extractable reserves have been reduced as compared to the previously approved mining plan. To be explained/corrected.	The extractable reserve has reduced since the base seam for Opencast Mining has changed from Seam III in the previous approved Mining Plan to Seam IV in the proposed Revised Mining Plan due to lack of space for dumping. Also, some area for conveyor corridor for evacuation of coal and infrastructures has been excluded from mining since mine cannot run without these infrastructures.
E.2.1	Block Area in 'Ha'	Geological block area, geological block area project/lease area, project area have been changed as compared to the previously approved mining plan. To be explained/corrected.	At the time of allotment of the Block in 2006, the Talaspali Block boundary was not in UTM/54 coordinate system. On request of NTPC, CMPDI carried out the DGPS survey in UTM/54 coordinate system and finalized the block boundary. This has resulted in change of 6.4 Ha in block area on plan not on surface ground and change in bounding coordinates. A corrigendum to the allotment order No. 12331/2015/NA dated 24.02.2015 was issued by the Ministry of Coal vide order No. 13331/2015/NA dated Nov. 26, 2022 regarding this which is attached as Annexure-1.
E.2.24	Handling of Rejects	E.2.25: Excavation area and safety zone area have been reduced while infrastructure area, green belt and undisturbed area have been increased as	In the earlier approved Mining Plan, no break-up of land use other than excavation area and safety zone was provided.

		compared to the previously approved mining plan. To be explained/corrected	In this proposed Mining Plan, detailed assessment of land use pattern has been done and provided accordingly.
1.5.11	Gross Geological Reserve "A1"	Gross Geological reserves, blocked reserves, mineable reserves and extractable reserves have been changed as compared to the previously approved mining plan. To be explained/corrected.	<p>The Net Geological Reserve of 1257 145 Mt mentioned in the Revised Mining Plan is as per the Geological Report prepared by MECG in September 2008. The Gross Geological Reserve is arrived at by considering 10% geological loss which is mentioned in the Geological Report.</p> <p>The blocked reserve, mineable reserve and extractable reserve has changed since the case seam for Opencast Mining has changed from Seam III in the previous approved Mining Plan to Seam II in the proposed Revised Mining Plan due to lack of space for dumping. Also, some area for conveyor corridor for evacuation of coal and infrastructures has been excluded from mining since mine cannot run without these infrastructures.</p>

APPROVED

## Additional Annexure-18

**COMPLIANCE TO OBSERVATIONS FROM MEETING OF THE INTERNAL COMMITTEE CONSTITUTED UNDER MMOR ACT 1957 FOR APPROVAL OF MINING PLAN AND MINE CLOSURE PLAN (1<sup>ST</sup> MODIFICATION) OF TALAIKALLI COAL BLOCK, M/S NTPC LTD HELD ON 07/02/2023 THROUGH VIDEO CONFERENCING**

Sl No.	Observation	Compliance
1	Changes made in the mining plan as compared to the approved mining plan shall be furnished as an annexure. The production scheduled proposed shall be compared with the approved mining plan.	Furnished as Annexure-19
2	It has been stated that dump accommodation is not possible if opencast mine were to be operated with Seam III as base seam, as was proposed in the earlier approved mining plan. It shall be elaborated with relevant plan (s).	A Conceptual Report on Proposed Opencast Mining is furnished as Annexure-20 wherein it is clearly demonstrated that this is the best possible option to extract maximum reserves.
3	Seams below Seam-IV has been proposed to be mined by underground mining method. However, no liquidation programme / mining details as per guidelines of MoC dated 29.05.2020 regarding mining plan has been given. To be furnished.	A Conceptual Report on UG Mining is attached as Annexure-21.
4	No projection of a part of coal bearing area in the south west part of the geological block has been done. To be corrected.	A Conceptual Report on Projection of South West Area is attached as Annexure-21.
5	Annexure 3A1 Approval as per guidelines of MoC dated 29.05.2020 shall be given	Complies

6	Additional Annexure-15 Observations made during Expert Review has been given. However, compliance to the observations made by the project proponent and certification done by the agency carrying out the aforesaid review shall also be submitted.	Complies
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## Additional Annexure-19

### CHANGES MADE IN THE PROPOSED REVISED MINING PLAN AS COMPARED TO THE APPROVED MINING PLAN

Sl. No.	Particulars	Approved Mining Plan	Proposed Revised Mining Plan	Remarks
1	Block Area in "Ha"	2119 Ha	2119.40 Ha	At the time of allotment of the Talalpalli coal block in 2006, the block boundary was not in WGS84 coordinate system. On request of NTPC, CMPDI carried out the DGPS survey in WGS84 coordinate system and finalized the block boundary. This has resulted in change of 5.4 Ha in block area on plan not on surface ground and change in bounding coordinates.
2	Lease area "Ha"	2119 Ha	2119.40 Ha	Same as above
3	Project Area "Ha"	2119 Ha	2119.40 Ha	Same as above
4	Base Seam for OC Mining	Seam III	Seam IV Bot.	This Revised Mining Plan has been formulated considering Seam IV Bot as base seam which is above Seam III. Seam IV Bot has been taken as the base seam for the pit since going upto Seam III which is only 4-4.5m thick and is 30-60m below seam IV Bot increases the Ore handling to such an extent that dumping space availability becomes a constraint and mine will have to end abruptly mining only ~277 Mt of Coal (Conceptual Report provided as Annexure 20). So, Opencast mining for the Talalpalli coal block has been proposed upto Seam IV Bot to maximize the recovery of coal by Opencast mining.
5	Life of the Project "Yrs"	OC- 54 years UG- 34 years	OC-31 years UG- to be planned at the end of OC mine life	Since, Base Seam for OC mining has changed from Seam III to Seam IV Bot, Extractable reserve has also get changed and thus life of OC mine has also get changed
6	Production Target "MTPA"	OC-18 MTPA UG- 0.72 MTPA	OC-25 MTPA UG- to be planned at the end of OC mine life	Considering strike length and cumulative thickness of coal, 25 MTPA is the optimum capacity of the Talalpalli Coal Mine

7	Seams not considered for Mining with Reasons	Seams II L1, II L and Seam I has not been considered for mining as they are poorly developed in the block and have non-mineable thickness.	Seam III, II L3, II L2, II L1, II L and Seam I has not been considered due to non-mineable thickness and poor development of seams.	Opencast Mining is technically feasible upto base Seam IV Bot due to lack of dumping space and for maximization of coal recovery by Opencast Mining.  As simultaneous working of UG and OC is not operationally safe, Seams below IV Bot will be planned for UG mining at the end of OC mine life as per the scientific study/latest technology options available at that time. However, a Conceptual Plan for UG mining has been provided as Annexure 21.
8	Gross Geological Reserve "Mt"	1400.57 Mt	1407.94 Mt	The Net Geological Reserve of 1267.145 Mt mentioned in the Revised Mining Plan is as per the Geological Report prepared by MECL in September 2008. The Gross Geological Reserve of 1407.94 Mt is arrived at by considering 32% geological loss which is mentioned in the Geological Report.
9	Net Geological Reserve "Mt"	1260.52 Mt.	1267.145 Mt (as per GR)	The Net Geological Reserve of 1267.145 Mt mentioned in the Revised Mining Plan is as per the Geological Report prepared by MECL in September 2008.
10	Mineable Reserve "Mt"	OC-888.08 Mt UG- 17.57 Mt.	OC-654.80 Mt UG- will be planned later	The mineable reserve has changed since the base seam for Opencast Mining has changed from Seam III in the approved Mining Plan to Seam IV Bot in the proposed Revised Mining Plan due to lack of space for OB dumping. Also, some area for conveyor corridor for evacuation of coal and infrastructures has been excluded from OC mining since mine cannot run without these infrastructures. The coal under infrastructures in south west part of the block shall be liquidated by OC & UG mining method at the end of OC mine life.



11	Extractable Reserves 'Mt'	OC-843.68 Mt UG- 17.57 Mt	OC- 631.56 Mt UG- will be planned later	Same as above. Moreover, the extractable reserve of 843.68 Mt by OC in the approved Mining Plan is incorrect even if it is assumed to be technically feasible to mine up to base seam III. While reviewing the approved Mining Plan (Technical Feasibility Note on Talaspalli Coal Block attached as Annexure-22), the extractable reserve by OC was found to be 790.80 Mt, assuming there is no dumping space constraint.																																																							
12	OB in MMS	3777.07 Cum	2734.58 Cum	The approved Mining Plan has proposed Opencast Mining upto Seam III which is below Seam IV Bot. This is technically and operationally not feasible due to lack of dumping space. Therefore, in this revised Mining Plan, Opencast Mining is proposed with base seam of Seam IV Bot which is above Seam III. This has resulted in removal of less OB than the approved mining plan.																																																							
13	SR MS/te	4.48 cum/t	4.33 cum/t	Same as above																																																							
14	Production Schedule	<table border="1"> <thead> <tr> <th>Year</th> <th>Coal (Mt)</th> <th>Year</th> <th>Coal (Mt)</th> </tr> </thead> <tbody> <tr><td>1</td><td>1.30</td><td>1</td><td>3.50</td></tr> <tr><td>2</td><td>4.00</td><td>2</td><td>6.03</td></tr> <tr><td>3</td><td>8.00</td><td>3</td><td>7.58</td></tr> <tr><td>4</td><td>13.00</td><td>4</td><td>9.00</td></tr> <tr><td>5</td><td>18.00</td><td>5</td><td>14.40</td></tr> <tr><td>6</td><td>18.00</td><td>6</td><td>18.00</td></tr> <tr><td>7</td><td>18.00</td><td>7</td><td>22.00</td></tr> <tr><td>8 to 47</td><td>18.00/yr</td><td>8 to 14</td><td>22.00/yr</td></tr> <tr><td>48</td><td>15.00</td><td>15 to 19</td><td>25.00/yr</td></tr> <tr><td>49</td><td>10.00</td><td>20</td><td>12.00</td></tr> <tr><td>50</td><td>7.00</td><td>30</td><td>12.00</td></tr> <tr><td>51</td><td>6.00</td><td>31</td><td>6.64</td></tr> <tr><td>52</td><td>3.19</td><td></td><td></td></tr> </tbody> </table>	Year	Coal (Mt)	Year	Coal (Mt)	1	1.30	1	3.50	2	4.00	2	6.03	3	8.00	3	7.58	4	13.00	4	9.00	5	18.00	5	14.40	6	18.00	6	18.00	7	18.00	7	22.00	8 to 47	18.00/yr	8 to 14	22.00/yr	48	15.00	15 to 19	25.00/yr	49	10.00	20	12.00	50	7.00	30	12.00	51	6.00	31	6.64	52	3.19			<p>The basal seam of Seam IV Bot is at a depth of 200m in the western side of the block. It will require time to reach that kind of depth and then only can production can be ramped up. The schedule of production given is optimized based on the geo-mining condition, temporary external dump requirement, concurrent backfilling and total accommodation of OB, lead etc. The rated capacity of the mine has been increased to 25 MTPA from 18 MTPA.</p>
Year	Coal (Mt)	Year	Coal (Mt)																																																								
1	1.30	1	3.50																																																								
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*A Mine Rules Company*

For Internal use of NTPC



**CONCEPTUAL REPORT FOR  
OC MINING OF  
TALAIPALLI COAL BLOCK**



**JUNE 2022**

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## CHAPTER 1

### BACKGROUND

#### 1.1 INTRODUCTION

Talaipalli coal mining block in the state of Chhattisgarh was initially allotted to NTPC by Ministry of Coal (MoC), vide letter no.13016/29/2003-CA-1, dated 25.01.2006, for meeting coal requirement for the proposed 4000MW Lara Integrated Power Project which is approximately 60 kms away from the coal block.

Talaipalli Block lies in the eastern part of Mand-Raigarh Coalfield in the state of Chhattisgarh. At the time of allotment, the block was regionally explored by GSI by drilling 15 holes (6434.55m) and estimated coal reserves of 964.88 million tonnes of indicated category were assessed.

On receiving Letter of Award (LOA) from Ministry of Coal, NTPC Ltd issued Work order to MECL to carry out detailed exploration in the block. MECL drilled about 102 boreholes (39854.75 mtrs. of drilling) in approximately 20 sq. km. block area for which the Geological Report (GR) was submitted to NTPC on 29.09.08.

On receipt of GR, NTPC awarded the consultancy for preparation of Mining Plan and Feasibility Report for this block to Advance Coal Management & Marketing Pvt. Ltd. (ACMM), New Delhi. The Mining Plan was prepared by ACMM in 2009 for a rated capacity of 18.00 Mtpy based on the aforementioned GR which was later approved by the Ministry of Coal on 31.03.2010. Subsequently, all statutory clearances were obtained on the basis of the approved Mining Plan.

However, as a consequence to the Judgment of the Hon'ble Supreme Court in September 2014, the block allocation was cancelled which was later re-allotted to NTPC on 08.09.2015.



NTPC planned to develop and operate the mine through outsourcing by appointing a Mine Developer and Operator(MDO) with scope of works viz. overburden removal, extraction of coal, construction of CHP & other fixed mine infrastructures, compliance of statutory obligations and other associated activities.

Meanwhile, all requisite statutory clearances and permissions were obtained from the respective statutory bodies. The major statutory clearances out of the above are furnished below:

Table 1-1: Major Statutory Clearances with Obtaining Date

Activity	Date of Achievement
Env. Clearance	02.01.13/13.11.15 (Rev.)
Forest Clearance	St-I: 05.11.12; St-II: 29.01.14; 23.05.17(Rev)
Consent to Establish	06.01.15
Consent to Operate	17.03.16
Tripartite Escrow Agreement (Banker, COO & NTPC)	15.05.14 & 04.06.17
DGMS Permission	19.01.18
Coal Controllers permission	31.01.18

## 1.2 NEED FOR THIS CONCEPTUAL REPORT

M/s TEMPL was appointed as MDO on 26.08.2020 by NTPC for development and operation of Tataipalli Coal Block. Post award of the contract, a dispute developed between M/s TEMPL and NTPC wherein TEMPL has claimed that as per their calculations 404.5 MT of coal can't be extracted at a stripping ratio of 4.30 cum/tonne as specified in the approved Mining Plan. In view of M/s TEMPL, the stripping ratio should be around 4.92 to 5.25 Cum/t. Along with this, the issue of accommodation of excess OB in the designated dump area including temporary external dump and unfeasibility of 100% backfilling by re-handling of temporary external dump as per approved mining plan has

also been raised by M/s TEMPL. There were a series of discussion/meetings held between NTPC and TEMPL to resolve the issue.

Subsequently, M/s TEMPL chose to rescind the contract through their Notice dated 04.05.2021 and filed a Commercial Civil Suit before Hon'ble Delhi High Court. Subsequent to few hearings and submissions made by both the Parties, the Hon'ble Delhi High Court directed both the parties for mutual discussions for amicable resolution of the issue which was complied by both the Parties by holding meetings wherein M/s TEMPL requested for appointment of Independent Expert for review of the mining plans of Talaipalli coal mining project.

Thereafter, M/s TEMPL and NTPC requested CMPDI for review of the technical parameters of the Talaipalli coal mining project on urgent basis which was accepted by CMPDI.

The Technical Feasibility Note on Talaipalli Coal Block was prepared by CMPDI and was submitted to NTPC and M/S TEMPL in September 2021. The approved Mining Plan was reviewed and it was found to be not feasible. CMPDI recommended revision of the Approved Mining Plan.

Against this backdrop, NTPC has awarded the consultancy service to CMPDI for Preparation of Conceptual Report, Mining Plan and feasibility Report for Talaipalli Coal Block to CMPDI.

### 1.3 SCOPE OF THE CONCEPTUAL REPORT

The Conceptual Technical Report will study the pit & dump options and finalize the base option along with mutually agreed project criteria that would form the basis of detailed study in the Mining plan and Feasibility Report.

The conceptual report has outlined the preliminary delineation of Open-pit boundary options and assessment of likely mineable reserves and waste quantities. It has also tentatively assessed the rated capacity, production buildup and mining strategy with respect to OB dumping.

#### 1.4 BASE DOCUMENT

The Geological Report on Detailed Exploration for Coal: Talapalli Coal Block (September 2008) prepared by MECL forms the base document for the above assignment.

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## CHAPTER 2

### PROJECT SITE INFORMATION

#### 2.1 LOCATION

Talaipalli coal block having an area of 2115.5 ha is bounded by latitude  $22^{\circ} 13' 35''$  &  $22^{\circ} 16' 08''$  N and longitude  $83^{\circ} 25' 49''$  &  $83^{\circ} 30' 22''$  E. It is located in the eastern part of the Mand Raigarh coalfield and lies in Raigarh district of Chhattisgarh State. Talaipalli block roughly forms a rectangle, the longer axis is NW-SE direction forming the length of the block, and the shorter axis NE-SW direction forming the width. The block boundary allocated to NTPC Ltd., was pillared by Boundary Pillars BP-1 to BP-65. The Kelo river forms the eastern boundary of the block and the boundary line passes through Naya Rampur & Raikera village in the south of Sajhepalli, west of Chotiguda forming the western boundary. Ajjigarh and Kudur-Mauha village forming the northern boundary.

Talaipalli block is covered by Survey of India top sheet No. 64N/7 & N/8 (RF 1:50000). The block is mostly covered by cultivated land while south-eastern part of the block has Reserve & protected forest cover. Talaipalli, Kudhur-Mauha, Ajjigarh, Chotiguda, Bichhinara, Naya Rampur, Raikera and Sajhepalli are numerous villages located within the block.

#### 2.2 COMMUNICATION

Talaipalli block is about 55 km away from Raigarh township and is close to Tehsil Headquarters at Gharghoda which lies on Raigarh-Ambikapur State Highway. Talaipalli village is situated in the block & it is about 20 km NE from Gharghoda and is connected with Gharghoda partly by all-weather Gharghoda-Lelunga road. Gharghoda is about 35 km. North of Raigarh Railway Station which is on Howrah-Bombay Main Line of South Eastern Railway. A large part of the area of investigation is practically inaccessible during monsoon. The nearest railway station is Raigarh which is 55 km away from Talaipalli block lying on the Mumbai-Howrah main line of SE railways.

### 2.3 PHYSIOGRAPHY AND DRAINAGE

The topography of Talaipalli block is mostly covered by softer horizon and in general represents an undulating terrain bounded by Tolge Pahar in the north and Silot Pahar (580m) in the south. The general ground level elevation of the area varies between 280 m and 340m above MSL.

Kelo River is flowing through the south-eastern part of the present area, constitute the main drainage system. The main subsidiary stream channel draining the block from north-west to south-east joins the Kelo River at the extreme south-eastern part of the area. This subsidiary stream channel is fed by number of small tributaries rising from hills both from north and south.

### 2.4 CLIMATE

The area experiences a sub-tropical climate with very hot and dry summer. In the summer season from March to June, temperature rises to 45<sup>o</sup> C during the peak period. The monsoon period extends from mid-June to September with an average annual mean rainfall of 1620 mm. The winter season starts from November and continues upto February. During winter the temperature goes down to 18.5<sup>o</sup> C.

### 2.5 LAND USE, FLORA & FAUNA

Forest cover is found in the south eastern part of the block. Small land patches having forest cover are available in central part of the block. Remaining part of the area is mostly cultivated land. Cultivation and collection of forest products are the main occupation of the people of the area. The soil of the area is having fair to medium range of fertility. The main crop grown in this area is paddy. The commonly found flora in the area are Sal, Teak, Bija, Mango, Neem, Tendu etc. Wild animals found are elephants, wild dogs & bears etc.

## 2.6 VILLAGES AND HABITATION

Total eight number of village lies within the Talaipalli Block as per the Socio-Economic Survey report (2007) provided by NTPC. The details are as under:

Table 2-1: Particulars of the Village within Talaipalli Coal Block

S.No.	Name of the Village	Proposed land to be Acquired (hect)
1	Talapali	162.51
2	Bichinara	401.70
3	Nayarampur	482.51
4	Kudurmaha	298.74
5	Raikera	1493.717
6	Chotiguda	371.219
7	Ajligam	60.470
8	Safelpali	380.34
	<b>Total</b>	<b>6147.963</b>

The demographic pattern of the villages viz. Talapali, Bichinara, Nayarampur, Kudurmaha, Raikera, Chotiguda, Ajligam & Safelpali as per Socio-Economic Survey (2007) provided by NTPC is detailed in Table 2-2 below:

Table 2-2: Demographic profile of the villages

Name of Village	Male	Female	Total Population	SC	ST	Other
Talapali	261 (63.5)	199 (53.3)	460	18 (4.8)	134 (37.3)	327 (96.7)
Bichinara	389 (48.7)	377 (51.8)	766	233 (37.4)	441 (74.8)	42 (8.6)
Nayarampur	177 (36.4)	174 (40.4)	351	28 (7.4)	125 (36.4)	-
Kudurmaha	76 (48.4)	87 (51.6)	163	-	109 (66.2)	2 (1.2)
Raikera	1055 (49.7)	1046 (50.2)	2101	67 (3.2)	1404 (71.5)	511 (25.7)
Chotiguda	198 (58.3)	419 (58.7)	617	114 (19.4)	447 (72.9)	437 (71.6)
Ajligam	190 (52.4)	91 (47.6)	281	-	148 (77.5)	47 (22.5)
Safelpali	339 (58.7)	355 (60.3)	694	17 (8.8)	218 (34.2)	349 (57.0)
<b>Total</b>	<b>2812 (59.6)</b>	<b>2881 (60.4)</b>	<b>5693</b>	<b>387 (6.8)</b>	<b>2797 (68.7)</b>	<b>1442 (27.6)</b>

\*Figures in parentheses show percentage

**CHAPTER 3****GEOLOGY AND EXPLORATION****3.1 EXPLORATION ACTIVITIES**

The Ministry of coal allocated Talaipalli Block for exploitation to NTPC Ltd. after conducting the detailed exploration. As mentioned above the block was regionally explored by GSI and estimated 964.88 million tonnes of indicated category coal reserves based on only 15 boreholes data. NTPC Ltd. after receiving letter of award (LOA) from Ministry of Coal, decided that MECL shall carry out detailed exploration in the block by drilling boreholes at 400m x 400m grid interval, involving around 45,000m. drilling in 105 proposed boreholes with related geological work, so as to convert the indicated category of coal reserves to prove category.

MECL commenced the task of detailed exploration for coal in Talaipalli block on behalf of NTPC Ltd, on 11.08.2006 by deploying 3 rigs initially. Two projects were opened for the purpose of administrative control and for smooth functioning of drilling and related geological work. Progressively the rigs were increased in these projects to even 13 rigs (during April & May – 2007) to complete the task. Thus by 10.08.2007 a total of 33716.65 m. of drilling was done from 85 boreholes.

It was likely that the drilling target in Talaipalli block would have been completely achieved as per schedule, but due to the onset of monsoon and non-approachability to drill sites and also stoppage of work by the forest authorities, the exploration activities were temporarily suspended.

The drilling operation was resumed on 21/12/2007 after the completion of monsoon and harvesting. A total of 17 boreholes (MNRT-86 to MNRT-102) and two suspended boreholes MNRT-20 (Depth 187.50 – 429.20 = 241.70 m) and MNRT-74 (Depth 329.50 – 523.60 = 194.10 m.) were completed involving 6138.10 m. drilling. A total of 39854.75

m. drilling is done in 102 MNRT series boreholes in Tataipalli block by MECL. A grand total of 46289.30 m. drilling has been done by MECL & GSI in 117 boreholes (MNRT & RT series) in Tataipalli block.

The financial year wise break-up of drilling in Tataipalli block by MECL is given below :

Year 2006-07	::	22433.70 m.
Year 2007-08	::	16615.15 m.
Year 2008-09	::	805.90 m.
<b>Total Drilling</b>	<b>:</b>	<b>39854.75 m.</b>

A total of 20100.00 m in 48 BHz, out of 102 boreholes drilled in the block have been geophysical logged using multi parameter probes.

#### SAMPLING AND ANALYSIS :

The carbonaceous horizons (coal, shaly coal and carbonaceous shale) of all correlatable coal seams as well as non-combustible bands of significant thickness from the boreholes drilled by MECL in this block were sent for band by band analysis to chemical laboratory, MECL, Nagpur. Before sending it to the laboratory, the samples prepared after crushing at (-) 72 mesh sizes, coning and quartering, packing etc. were done at project level only.

A total of 5965.41m of coal sampling in 102 boreholes have been carried out. All the samples have been sent for conducting band by band analysis.

After obtaining band by band analysis, the seam overall analysis at 60% RH & 40 °C for all correlatable coal seams having thickness >0.50 m. were advised for BCS, I-30, I-100 thickness of seams. Some IP seam thickness was also analysed. Two seams were occasionally clubbed some time with above / below bands & result obtained for the combined thickness. Similarly, a few unworkable coal seams / bands were also subjected to overall analysis at 60% RH and 400C. In addition to the seam overall analysis, special tests such as Ultimate analysis, GCX, AFT, Ash analysis, HGI, Sulphur Distribution, Total



Sulphur, Phosphorous content, Swelling Index and Coking Type have also been carried out as per the stipulated norms.

### 3.2 REGIONAL GEOLOGY

The extensive occurrences of Barakar and Supra-Barakar rocks amidst isolated Talchir outcrops spanned between latitudes 21°45' to 22°42' and longitudes 83°01' to 83°44', constitutes Mand-Raigarh Coalfield. It is situated between Ib-River Coalfield in the southeast and Korba Coalfield in the southwest with more or less similar stratigraphic and tectonic setting. The coal measures in the Mand-Raigarh basin are exposed in three well defined patches due to erosion of the overlying Kamthi rocks along the drainage of the prominent rivers.

Generalized stratigraphy of Mand-Raigarh Coalfield is given at Table 3-1.

Table 3-1: Generalized Stratigraphic Succession

Age	Formation	Thickness (m)	Lithology
1	2	3	4
Recent to subrecent			Alluvial soil pebbly to bouldery bed with silty clay band, laterite etc.
Cretaceous to Eocene	Deccan Traps		Basalt flows & dolerite dykes
Lower to Middle Triassic	Kamthi	2851	Poorly sorted, frequently ferruginous, coarse to very coarse grained, locally graded to pebbly, mega cross bedded sandstone containing brownish grey to buff coloured clay clasts. A fossiliferous red claystone to siltstone bed occurs at the base.

Upper Permian to Lower Permian	Raniganj	180	Mostly fine to medium grained, grayish white, micaceous sandstone and siltstone with claystone, shale, minor coarse grained sandstone and two coal seams of inferior grade.
	Barren Measure	300	Dominantly grey claystone/gray shale with siltstone and iron stone bands; interbanded sequence of fine to medium grained sandstone and shale
	Barakar	425 - 800	Medium to coarse and very coarse grained even gritty, sandstone at the lower part followed upward by fine to medium grained assemblage with grey claystone/shale which become predominant towards the upper part, number of coal seams and carbonaceous shale.
	Karharbar(?)	23	Mottled at places carbonaceous sandstone, frequently associated with pebbles of quartzite granite etc. of various shapes and sizes
Upper Carboniferous to lowermost Permian	Talchir	150+	Very fine to fine grained sandstone with siltstone and shale, occasionally greenish in nature, at places with matrix based variegated poly-mictic conglomerate.

### 3.2.1 DESCRIPTION OF GEOLOGICAL FORMATIONS

The geological formations of Mand-Raigarh Coalfield are briefly described below:

- **Precambrian** :The Precambrian rocks comprising granite gneiss, mica schist, phyllites and quartzites along with quartz veins & pegmatites occur along the northern, northeastern periphery. The strike of the foliation varies from E-W to N70°W – S70°E with 50° to 70° dip towards west.
- **Talchir Formation** : The Talchir sequence begins with tillite at the base and overlies the basement unconformably. It occurs as a continuous strip along the northern periphery of the basin. Along the southern boundary, Talchirs crop out as narrow, elongated discontinuous strips disrupted by faults. The Mand-Raigarh basin shows widespread development of basal tillite pointing to advancement of ice from the surrounding Precambrian uplands.
- **Karharbari Formation** : Karharbari formation is developed in a limited area. It consists of mottled, at places carbonaceous sandstone, frequently associated with pebbles of quartzite, granite etc. of various shapes and sizes.
- **Barakar Formation** : The Barakar formation conformably overlies the Talchir sediments over the major part of coalfield and covers a large tract within the coalfield. It is represented predominantly by multistoried cross-bedded feldspathic sandstone which are highly kaolinised and friable with subordinate shales, carbonaceous shales and coal seams. The sandstone are mostly medium to very coarse grained and milky white to greyish white in colour.
- **Barren Measure Formation** : Barren Measure formation overlies conformably over Barakar formation. This formation comprises of predominantly grey

claystone/grey shale with siltstone and iron stone bands and interbanded occurrence of fine to medium grained sandstone & shale.

- **Raniganj Formation** : Raniganj formation has been demarcated in south-eastern and south-western part, besides patchy occurrence in north-western part. It is represented by mostly fine to medium grained sandstone, siltstone with clay stone, shale, fine to coarse grained sandstone and coal seams / bands of inferior grade.
- **Kamthi Formation** : The rocks of Kamthi formation are well exposed at higher contours of the flat topped hills. It is represented dominantly by coarse, friable, porous, brownish to red cross bedded sandstone and argillaceous beds. The nature of the contact between Kamthi & Barakars is variable and is somewhat discordant and at places the Kamthi strata overlap the older units.
- **Intrusives/Deccan Trap** : A number of basic dykes, sills and flows have been observed in the Uprora-Rorea area in the northern part of the coalfield. The basic rock comprise fine grained basalts to coarse grained gabbroid type. The flows at places have been altered to laterite.

### 3.2.2 COAL SEAMS

The regional exploration carried out in the western part of Mand-Raigarh coalfield along the eastern bank of Mand river in northern part of Dharamjygarh-Khargaon, Ongana - Potta as well as Chhal area, have revealed the presence of a number of coal seams in this coalfield. Exploration in the north-western and western part of the coalfield reveals number of coal seams and these have been numbered as I to XXXI and so on in ascending order.

The coals of this coalfield are generally banded in nature and are not devolatilised. The coals in general, are low in rank, high in volatile and non-coking type.

### 3.2.3 REGIONAL STRUCTURE

The Mand-Raigarh Coalfield is an asymmetrical basin with an approximately NW-SE axis. It is a part of the Mand-Korba master basin lying within the Mahanadi graben. It displays a typical half-graben configuration, with the southern boundary marked by a major NW-SE zone of faulting coinciding with the trend of the Mahanadi graben and the northern boundary not faulted over the major part. In the Mand Valley proper, the coal measures lying between Kharsia & Dharamjaygarh display a broad syndinal structure with its axis running just south of Sithra. The northern limb of the Mand river basin is exposed to the north of the Sithra-Dharamjaygarh area where the Barakar beds are found to strike broadly in NW-SE direction. The beds dip at low angle 50 – 70 towards south-west. In the southern limb, the strike is approximately NW-SE with minor variations and the beds dip towards north-east.

The other structural element in this basin belt comprises normal gravity faults. The available surface and sub-surface data indicate that the area lying on both sides of Mand river is traversed by number of sub-parallel faults of considerable linear extent, though the surface expressions of faults are very limited or entirely lacking. Two sets of faults trending WNW-ESE to NW-SE and N-S occur. The former generally has down throws against the dip i.e. towards north while the latter has easterly throw. The amount of throw varies from 10m. to 150m.

### 3.3 GEOLOGY OF TALAIPALLI BLOCK

Talaipalli Block is located in the eastern part of Mand-Raigarh Coalfield. The geology of the block is in conformity with the regional set up. Major part of Talaipalli block is covered by the rocks of Barakar formations. Barren measure occurs in the southern part of the block. However a small patch of Barren Measure is also noticed in the north western part of the block.

The geological succession evolved on the basis of exploration data generated in the block is given in the Table 3-2 below:

Table 3-2: Geological Succession in Talaipalli Block

Formation	Thickness (m)	Lithology
Recent	0.50 – 18.00	Soil, alluvium
Barren Measures	18.80 – 143.00	Shale, fine to medium grained sandstone, and intercalation of shale and sandstone, carbonaceous shale and thin coal bands
Barakars	30 – 596	Fine, medium and coarse grained feldspathic, grey sandstone, micaceous and laminated at places. Grey shale, fine clay, intercalation of shale and sandstone and carbonaceous shales with coal seams
Talchir	1.00 – 54.30	Khakke, greenish shales & sandstone, occasional pebbly
Basement		Metamorphics

#### 3.3.1 DESCRIPTION OF FORMATION

- Metamorphics** Precambrian metamorphic rock constitute the basement of the basin. These are composed of quartzite, mica-schist, granite gneiss and at places intruded by pegmatites or vein quartz. The metamorphics have been intersected in 7 boreholes (MNRT-53, 62, RT-6, 9, 12, 13 & 14). The thickness of metamorphics in boreholes varies from 1.00m (MNRT-62) to 9.90m (RT-9).

- **Talchir Formation :** The rocks of Talchir formation are not exposed within the block boundary. It is encountered in boreholes RT-5,6,9,10,12,13 &14. The thickness of Talchir, as intersected in boreholes varies from 1.20m (RT-12) to 54.30m (RT-10). Talchir formation consists of greyish white to greenish grey sandstone and shale, occasionally khakies in colour. At places it is embedded with pebbles of quartzite, mica-schist, granite gneiss and of pegmatite:-
- **Barakar Formation :** The major part of the block is covered with Barakar formation. Thickness of Barakar formation as intersected in borehole varies from 30 – 596 m. Barakar formation constitute fine to coarse grained, white to grey feldspathic, micaceous sandstone, shale and carbonaceous shale with economic coal horizons. A total of 27 coal seams have been encountered in this formation besides a few local seams / bands.
- **Barren Measure Formation :** This formation has occupied the southern part of the block. Besides a small patch of barren measure is preserved in the northern part of the block due to opposite dip of faults formation of graben. This formation is intersected in 15 boreholes with thickness varying from 18.80 m (MNRT-27) to 143.00 m (MNRT-24). Barren Measure Formation is represented by predominantly grey shale with minor sandstone and intercalation of sandstone and shale.
- **Igneous Intrusives :** The block is free from any igneous intrusives
- **Soil & Alluvium :** Major part of the block is covered by a layer of soil and alluvium. The weathering has affected all the strata below soil to a varying extent. The

thickness of soil ranges from 0.50m (MNRT-7, 8) to 18 m (MNRT-59). The depth of weathered zone varies from 6.00 m (MNRT-34) to 27.30 m (MNRT-5).

### 3.3.2 STRUCTURE OF THE BLOCK

The general strike of the bed is NW-SE in the major part of the block which swings to almost east – west in the north-western and western part of the block. The dip of beds varies from 4° to 8° towards South-west.

The Geological Plan of the Talaipalli Coal Block is given in Fig. 2-1 below:



Figure 2-1: Geological Plan of Talaipalli Coal Block

The block does not show major tectonic disturbances. A total of 12 numbers of faults have been deciphered from the subsurface data out of which three faults namely fault F1-F3,



F4-F4 and F8-F8 are major faults. Most of the faults are restricted to the northern part of the block. The faults details are furnished in Table 2-2 below:

Table 2-2: Details of Faults

Fault No.	Location	Trend	Nature of fault	Throw
F1-F1	Northern part passing near BH No. MNRT-24, 27, 22 & 35	East-West to ENE, NE-SW dipping northerly	Dip fault	20m – 85 m
F2-F2	Northern part passing through MNRT-30	Essentially east-west dipping northerly	Dip fault	0 – 10m
F3-F3	Northern part passing through MNRT-22	Curvilinear dipping northerly	Dip fault	30-35 m.
F4-F4	Northern part near BH MNRT-31, 24, 43 & 62	East-West dipping northerly	Dip fault	30 – 150 m
F5-F5	Northern western part through BH. MNRT-62	East-West	Strike fault	35 m
F6-F6	Northern part passing through MNRT-31	WNE-ESE dipping westerly	Oblique fault	15 – 25 m.
F7-F7	Northern part passing through MNRT-11	NW - SE	Oblique fault	20 m.
F8-F8	Northern part passing through MNRT-11 & 5	NW-SE	Oblique fault	60-105 m.
F9-F9	Northern part passing through MNRT-101 RT-4 & MNRT-11	East – West to curvilinear	Strike/Oblique Fault	25m
F10-F10	Northern part passing through RT-7	NE-SW	Oblique curvilinear	0-10 m.
F11-F11	Southern part	NW-SE	Curvilinear	0 – 10 m.
F12-F12	Southern part	NW-SE	Oblique	25 m.

### 3.3.3 COAL SEAMS

Detailed exploration in Talaipalli Block has revealed the presence of coal bearing horizons belonging to Barakar Formations. These carbonaceous horizons could be distinctly demarcated as upper, middle and lower columns of Barakar formation. Altogether 26 workable coal seams are developed in the block. Besides these workable seams there are few non workable persistent bands occurring throughout the block. All the 26 seams are mainly composed of coal, shaly coal, carbonaceous shale and shale. The coal is dull in appearance high in moisture and is of non-coking type. The seams are not effected by any igneous intrusive.

Seam XLA is the top most seam in the block, developed persistently in the southern part of the block over a limited area. Seam-X has split into 4 major sections as X-LA, X-LB, X-Top and X Bottom. X Bottom seam underlies the X Top seam and is the thickest coal seam among X group of seam. Similarly seam-IX has 3 sections, (IX-L2, IX-L1 & IX) seam-VI has 3 sections; VI Top, VI Middle and VI Bottom, seam V has 3 splits as V Top, V Middle, V Bottom. Seam IV has 4 sections, IV Top, IV Middle, IV L & IV Bottom. Seam-III has two splits as seam III L and seam III. Whereas seam-II has 5 splits, sections as II L3, II L2, II L1, II and II L. Seam-I is poorly developed in the block and do not attain workable thickness.

The sequence of coal seams and parting is given Table 3-4 below:

Table 3-4: Sequence of Coal Seams & Parting

S. No.	Coal Seams	Thickness of Coal Seam (m)		Thickness of Parting (m)		Dominant Thickness (m)
		Minimum	Maximum	Minimum	Maximum	
1	X LA	0.20	1.06			0.50-0.90
	Parting			5.41	11.90	6.0-9.5
2	X LB	0.30	1.28			0.50-0.90
	Parting			3.37	14.89	4.0-6.0
3	X Top	0.40	1.60			1.00-1.15
	Parting			0.70	3.00	1.0-2.0

S. No.	Coal Seams	Thickness of Coal Seam (m)		Thickness of Parting (m)		Dominant Thickness (m)
		Minimum	Maximum	Minimum	Maximum	
4	X Bot	1.6	8.1			3.5-6.0
	Parting			2.3	20.15	3.5-16.5
5	IX L2	1.2	2.55			1.2-2.0
	Parting			13.59	21.54	17.0-18.5
6	IX L1	0.36	1.85			1.2-2.0
	Parting			5.65	11.87	6.0-8.0
7	IX	0.96	6.96			3.5-6.0
	Parting			6.30	16.15	9.0-12.0
8	VIII	2.06	6.64			4.0-6.5
	Parting			17.68	42.01	20.0-25.0
9	VII	0.10	3.90			0.50-1.0
	Parting			1.08	17.44	4.0-14.0
10	VI Top	0.37	3.42			1.2-3.0
	Parting			0.56	9.25	0.5-1.5
11	VI Mid	3.09	10.01			5.0-9.0
	Parting			0.85	5.96	1.0-2.0
12	VI Bot	0.48	1.75			0.50-1.0
	Parting			2.80	23.45	14.0-21.0
13	V Top	0.50	3.09			0.50-1.50
	Parting			9.09	18.94	11.5-18.5
14	V Mid	0.15	3.73			0.50-2.50
	Parting			4.55	15.95	0.50-12.0
15	V Bot	0.30	5.40			0.50-2.0
	Parting			15.16	30.14	17.0-23.0
16	IV Top	0.54	5.78			2.5-5.0
	Parting			5.30	20.13	6.0-10.0
17	IV Mid	0.99	7.24			3.5-7.0
	Parting			0.75	6.95	3.5-5.5
18	IV L	0.23	4.99			0.50-2.0
	Parting			0.70	4.55	0.50-2.0
19	IV Bot	0.55	5.67			1.5-3.5
	Parting			8.05	21.54	14.0-17.0
20	III L	0.10	3.25			0.50-1.5

S. No.	Coal Seams	Thickness of Coal Seam (m)		Thickness of Parting (m)		Dominant Thickness (m)
		Minimum	Maximum	Minimum	Maximum	
	Parting			24.57	44.55	33.0-39.0
21	III	0.66	5.97			2.0-5.5
	Parting			31.1	55.99	33.0-51.0
22	II L3	0.50	3.09			<0.90
	Parting			13.39	40.9	18.0-36.0
23	II L2	0.07	2.68			<0.90
	Parting			5.0	60.39	35.0
24	II L1	0.05	1.54			<0.90
	Parting			1.27	20.59	3.0-14.0
25	II	0.13	5.92			1.5-2.5
	Parting			0.37	3.89	0.50-2.0
26	II L	0.05	2.45			<0.90
	Parting			Around		
27	I	0.22	0.55			27

### 3.3.4 RESERVES

As per GR, a Net Geological Reserve of 1267.145 million tonnes of coal reserves including both opencast and underground reserves varying in grade from 'A' to 'G' have been established in the block. Out of this, 40.278 million tonnes of reserves fall in the indicated category and remaining 1226.867 million tonnes are proved reserves.

Depth-wise Net Geological Reserve and indicated reserve are provided in table 3-5 and 3-6 below

Table 3.5: Depth-wise Net Geological Reserve (MWD) (MWD) (MWD)

SEAM	DEPTH												TOTAL				
	0-50	50-100	100-150	150-200	200-250	250-300	300-350	350-400	400-450	450-500	500-550	550-600					
XLA	0.381	1.151	1.883	0.382	0	0	0	0	0	0	0	0	0	0	0	0	3.877
XLB	0.874	1.168	2.476	0.328	0	0	0	0	0	0	0	0	0	0	0	0	4.836
XTOP	3.421	4.293	4.169	1.974	0.21	0	0	0	0	0	0	0	0	0	0	0	14.128
XBOT	25.693	25.727	17.369	10.343	0.913	0	0	0	0	0	0	0	0	0	0	0	90.058
W12	1.708	8.887	3.852	0.986	0.918	0	0	0	0	0	0	0	0	0	0	0	26.969
W1	8.431	0.336	0.941	8.683	2.788	0.128	0	0	0	0	0	0	0	0	0	0	20.335
W	20.888	31.227	20.791	17.421	12.338	0.585	0	0	0	0	0	0	0	0	0	0	103.251
VW	16.483	36.979	26.913	32.613	21.213	2.281	0	0	0	0	0	0	0	0	0	0	153.281
W	0	0.718	2.128	2.778	6.188	4.888	0	0	0	0	0	0	0	0	0	0	16.248
VITOP	1.952	4.477	0.388	7.738	0.918	0.483	0.487	0.008	0	0	0	0	0	0	0	0	14.234
VIMC	16.948	26.363	46.913	27.848	26.483	24.183	1.853	0.118	0	0	0	0	0	0	0	0	180.918
VIBOT	0.173	1.013	1.494	1.428	3.332	2.884	0.528	0.042	0	0	0	0	0	0	0	0	10.808
VITOP	0.821	0.682	0.941	3.871	3.086	3.783	2.18	0.088	0	0	0	0	0	0	0	0	17.811
VIMC	4.032	2.463	6.833	7.488	6.73	6.116	2.91	0.2	0	0	0	0	0	0	0	0	36.167
VIBOT	4.038	3.367	0.233	3.442	6.683	6.344	4.058	0.981	0.083	0	0	0	0	0	0	0	42.021
VITOP	4.148	11.151	11.21	20.788	19.633	14.888	6.038	3.183	0.32	0	0	0	0	0	0	0	80.022
VIMC	6.49	14.843	14.952	27.052	28.988	22.782	18.24	15.218	1.18	0.024	0	0	0	0	0	0	148.477
W	2.353	6.886	3.116	4.012	6.888	6.283	1.127	1.882	0.287	0.008	0	0	0	0	0	0	21.151
XIBOT	2.217	9.912	3.813	12.888	14.034	11.883	7.742	3.881	1.321	0.021	0	0	0	0	0	0	70.888
W1	0.388	8.21	3.287	4.022	8.712	6.738	4.328	0.071	0.788	0.12	0.088	0.017	0.088	0.017	0.088	0.017	33.042
W	0	1.771	7.244	7.373	11.171	15.827	12.788	10.678	6.027	2.788	0.283	0.112	0.283	0.112	0.283	0.112	80.344
W12	0	0	2.128	3.822	1.912	3.188	3.021	1.182	0.382	0.27	1.012	0.047	1.012	0.047	0.283	0.112	17.888
W12	0	0	0.128	0.002	0.007	0.188	1.471	1.048	0.671	1.478	0.188	0.22	0.188	0.22	0.283	0.112	8.414
W12	0	0	0	0.141	0.752	0.548	0.621	0.728	1.082	1.022	0.94	0.24	0.94	0.24	0.283	0.112	8.872
W	0	0	0	0.447	1.797	4.481	6.333	7.381	8.884	9.243	4.788	0.948	4.788	0.948	0.283	0.112	42.781
W1	0	0	0	0	0.218	0.142	0	1.888	0.781	1.022	0.038	0.034	1.022	0.038	0.034	0.038	4.281
TOTAL	122.428	298.682	214.588	216.172	198.028	148.588	76.821	63.228	21.461	14.387	10.221	8.82	1287.148				

Table 3.6: Depth-wise Net Geological Reserve (MWD) (MWD) (MWD)

SEAM	DEPTH												TOTAL				
	0-50	50-100	100-150	150-200	200-250	250-300	300-350	350-400	400-450	450-500	500-550	550-600					
XLA	0.311	0.277	0.384	0.128	0	0	0	0	0	0	0	0	0	0	0	0	0.999
XLB	0	0.317	0.482	0.182	0	0	0	0	0	0	0	0	0	0	0	0	0.981
XTOP	0	0.113	0.211	0.489	0.332	0	0	0	0	0	0	0	0	0	0	0	1.085
XBOT	0	0.712	1.921	0.381	0.002	0	0	0	0	0	0	0	0	0	0	0	3.446
W12	0	0.11	0.528	0.94	0.942	0	0	0	0	0	0	0	0	0	0	0	2.788
W1	0	0	0.334	0.184	1.888	0.122	0	0	0	0	0	0	0	0	0	0	1.688
W	0	0	0.837	1.388	1.374	0.888	0	0	0	0	0	0	0	0	0	0	4.318
VW	0	0	0.382	1.2	1.948	1.018	0	0	0	0	0	0	0	0	0	0	4.187
W	0	0	0	0.012	0	0	0	0	0	0	0	0	0	0	0	0	0.012
VITOP	0	0	0	0.388	0.384	0.331	0.489	0.004	0	0	0	0	0	0	0	0	1.684
VIMC	0	0	0	0.278	1.387	1.742	2.421	0.118	0	0	0	0	0	0	0	0	6.918
VIBOT	0	0	0	0.002	0.147	0.182	0.484	0.042	0	0	0	0	0	0	0	0	0.758
VITOP	0	0	0	0	0.188	0.224	0.481	0.281	0	0	0	0	0	0	0	0	1.228
VIMC	0	0	0	0	0.334	1.222	2.288	1.188	0	0	0	0	0	0	0	0	6.018
VIBOT	0	0	0	0	0.002	0.002	0.487	0.887	0.882	0	0	0	0	0	0	0	1.272
VITOP	0	0	0	0	0	0.384	0.611	0.778	0.318	0	0	0	0	0	0	0	1.882
VIMC	0	0	0	0	0	0.207	1.741	0.228	0.882	0.224	0	0	0	0	0	0	2.842
W1	0	0	0	0	0	0.344	0.317	0.382	0.311	0.358	0	0	0	0	0	0	0.938
VIBOT	0	0	0	0	0	0.338	0.878	0.332	0.61	0.331	0	0	0	0	0	0	1.642
W1	0	0	0	0	0	0.071	0.002	0.188	0.00	0.008	0.142	0.384	0.017	0.384	0.017	0.888	
W	0	0	0	0	0	0.281	0	0.428	0.111	0.222	0.247	0.288	1.427	0.288	0.247	0.288	1.427
W12	0	0	0	0	0	0	0	0.002	0.002	0.042	0.018	0.018	0.002	0.018	0.002	0.018	0.042
W12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
W12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
W1	0	0	0	0	0	0	0	0	0.004	0	0.142	0.008	0.001	0.008	0.001	0.008	0.008
W1	0	0	0	0	0	0	0	0	0.012	0	0.224	0.018	0.001	0.224	0.018	0.001	0.224
TOTAL	0.311	1.89	4.881	7.272	7.882	8.11	7.842	0.222	2.242	0.718	0.621	0.472	40.272				

## CHAPTER 4

### MINING: CONCEPTUAL PLAN

Talapalli Coal Block in Mand-Raigarh coalfield having an area of 21.15 sq. km. has been allotted to NTPC for meeting coal requirement for the proposed 4000MW Lars Integrated Power Project which is approximately 60 kms away from the coal block.

This Conceptual Report concerns with Opencast mining potential only and the US potentiality shall be separately dealt with in the Mining Plan once the opencast pit and dump option is finalized.

The Conceptual Technical Report has studied the pit & dump options and finalized the base option. It has outlined the preliminary delineation of Open-pit boundary options and assessment of likely mineable reserves and waste quantities. It has also tentatively assessed the rated capacity, production buildup, mining strategy with respect to OB dumping and coal handling strategy.

#### 4.1 ADJACENT BLOCKS

The Talapalli Coal Block is surrounded by the following

North:	Beyond in-crop zone
South:	Unexplored area and Dipside of Barod-Bijari Block
East:	Peima Block
West:	Chimtapani Extension Block and Dipside of Barod-Bijari Block

#### 4.2 CONSTRAINTS ON MINE DEVELOPMENT

The following constraints in opencast working of the deposit have been envisaged:

- The block area being surrounded by coal bearing blocks and hills in all sides, availability of any land for external dumping outside the block area appears remote.
- Kalo river flowing along the north-eastern side of the block
- Presence of about 06 villages (fully or partly) within the proposed mining area.
- High Initial Depth of base seam in the western side due to presence of several faults and high stripping ratio especially in the western side of the block requires huge amount of temporary external dump in the dip side which needs to be re-handled later.

#### 4.3 PIT DELINEATION: MINE BOUNDARY OPTIONS

Different mine boundary options for opencast mining were studied. The objective of study was to come out with best possible option to maximize the recovery of coal with due consideration to space available within the block for internal and external dumping.

The mine boundary for different pit option has been delineated taking into consideration block boundary, surface features, strip ratio and external dump space required for continuity of mining.

As discussed with NTPC officials, the height of dump has been considered as 120m above ground level for all the options due to space constraints for dumping of waste.

Based on sequence of mining as per geo-mining parameters and existing constraints on mine development four options were worked out for Tataipalli Block. As discussed with NTPC officials, the height of internal and external dump has been considered as 120m above ground level for all the options due to space constraints for dumping of waste.

##### **Option I: Base Seam III with full strike and External dump on the dip side of the block**

This pit option has been formulated considering the base seam as Seam III. The entire block and the mandatory safety barriers with conveyor corridor along eastern, western and southern boundary has been considered for fixing the pit surface boundary keeping in mind the availability of dumping space.

The entry is envisaged to be made from both eastern and western side. The external dumping will be done in the dip side of the block. But due to high stripping ratio and lack of space for the internal as well as external dump, the pit shall be constrained to work only until the dumping space is available.

Considering the availability of dumping space (with RL +120 m from ground level), this option has ~277 Mt of mineable coal reserve. The tentative quantity of OBR is ~1358 Mcum with an average stripping ratio of 4.90 cum/t.



Figure 0-2: Option / Pit Plan



### **Option II: Base seam III leaving high strip ratio zone on the western side**

This option has been formulated considering Seam III as base seam and also keeping in mind the limited availability of dumping space. Therefore, high strip ratio zone in the western side of the block has been excluded from open cast mining. The pit has been optimized to extract maximum coal. The western boundary of the pit is an arbitrary line considering low strip ratio zone and leaving sufficient external dump space in the western side. The external dump shall be done in the western part of the block and will be merged with internal dump. The infrastructural facilities will be in the south-west corner of the block.

This option has ~505 Mt of mineable coal reserve and ~2304 Mcum of OBR with an average stripping ratio of 4.56 cum/t.



Figure 4-2: Option II Pit Plan

**Option III: Base seam IV with full strike and temporary external dump on the dip side of the Block**

This option has been formulated considering Seam IV as base seam. In this option, the pit boundary has been fixed leaving safety barrier, conveyor corridor along the eastern, southern and western boundary. The infrastructural facilities will be in the south-west corner of the block. The entry will be from both eastern and western side. A temporary dump will be created in the dip side of the block which will be re-handled from 12<sup>th</sup>-13<sup>th</sup> year of operation.

This option has ~631 Mt of mineable coal reserve and ~2735 Mcum of OBR with an average stripping ratio of 4.33 cum/t.



Figure 4.5: Option III Pit Plan

#### **Option IV; Base seam IV leaving high strip ratio zone on the western side**

This option has been formulated considering Seam IV as base seam. The high strip ratio zone in the western side has been excluded from open cast mining. The pit boundary on the western side has been delineated based on the dumping requirement, dump space availability and maximum extraction of coal. The external dump shall be done in the western part of the block and will be merged with internal dump. The Infrastructural facilities will be in the south-west corner of the block.

This option has ~485 Mt of mineable coal reserve and ~2002 Mcum of OBR with an average stripping ratio of 4.12 cum/t.



Figure 4-4. Option IV Pit Plan

The above options has been summarized below in table 4-1.

Table 4-1: Pit Definition Options

Particulars	Pit Formulation	Extractable Reserves (Mt)	OBR (Mm <sup>3</sup> )	SR (m <sup>3</sup> /t)	Backfilling (Mm <sup>3</sup> )	External Dump (within the Block) (Mm <sup>3</sup> )	Temporary External Dump (Mm <sup>3</sup> )
Option I	Base Seam III with full strike and External dump on the dip side of the block.	277	1358	4.9	725	533	-
Option II	Base seam III leaving high strip ratio zone on the western side.	505	2304	4.56	1984	320	-
Option III	Base seam IV with full strike and temporary external dump on the dip side of the Block.	631	2735	4.33	2735	-	480
Option IV	Base seam IV leaving high strip ratio zone on the western side	485	2003	4.12	1798	204	-

#### 4.4 RECOMMENDED OPTION: DETAILS

Option III is proposed to be the recommended option for carrying out the detailing work for the mining plan.

This option proposes to mine ~631 Mt of mineable coal reserve and ~2735 Mm<sup>3</sup> of OBR with an average stripping ratio of 4.33 cum/t. Seam IV has been taken as the base seam for the pit since going upto Seam III which is only 4-4.5m thick and is 50-60m below seam IV increases the OB handling to such an extent that dumping space availability becomes a constraint and mine will have to end abruptly mining only ~277 Mt of Coal. As discussed above, the maximum coal extraction is possible in Option III and so with due regards to conservation of coal, Option III has been proposed to be the recommended option.

The Final Stage Quarry Plan for the recommended option i.e. Option III is shown below in Fig-4-5.



Figure 4-5: Final Stage Quarry Plan

#### 4.4.1 GEO-MINING CHARACTERISTICS

The Geological & Mining characteristics of the quarriable block for the proposed Talaspalli OCP is given in table 4-2.

Table 4-2: Geo-Mining Characteristics of the Block

S. No.	Particulars	Unit	Range		Usual/ Mean
			Minimum	Maximum	
1	Coal Seam Thickness				
	XLA	m	0.30	1.04	0.50-0.95
	XLB	m	0.30	1.28	0.50-0.90
	X Top	m	0.40	1.40	1.00-1.15
	X Bot	m	1.60	8.10	3.5-6.0
	IX L1	m	1.30	2.55	1.5-2.0
	IX L2	m	0.88	1.85	1.5-2.0
	IX	m	5.96	6.96	3.5-6.0
	VIII	m	3.06	6.64	4.0-6.5

S. No.	Particulars	Unit			Usual/ Mean
			Minimum	Maximum	
	VI	m.	0.10	3.90	0.50-1.0
	VI Top	m.	0.97	3.42	1.3-3.0
	VI Mid	m.	3.09	10.01	5.0-9.0
	VI Bot	m.	0.48	1.75	0.50-1.0
	V Top	m.	0.50	3.09	0.50-1.50
	V Mid	m.	0.15	3.33	0.50-2.50
	V Bot	m.	0.3	5.4	0.50-2.0
	IV Top	m.	0.54	5.78	2.5-5.0
	IV Mid	m.	3.03	7.23	3.5-7.0
	IV L	m.	0.34	4.97	0.50-2.0
	IV Bot	m.	0.55	5.67	1.5-3.5
II	Thickness of Parting				
	Parting XIIA & XII B	m.	5.41	11.7	6.0-9.3
	Parting XII B & X TOP	m.	3.97	14.80	4.0-6.0
	Parting X TOP & X BOT	m.	0.80	2.98	1.0-2.0
	Parting X BOT & IX L1	m.	2.30	20.15	2.5-16.5
	Parting IX L2 & IX L1	m.	13.59	21.54	17.0-18.5
	Parting IX L1 & IX	m.	5.95	11.87	6.0-8.0
	Parting IX & VIII	m.	6.30	16.15	8.0-12.0
	Parting VIII & VII	m.	17.69	42.01	20.0-25.0
	Parting VIII & VI TOP	m.	1.08	17.44	4.0-14.0
	Parting VI TOP & VI MID	m.	0.56	3.25	0.5-1.5
	Parting VI MID & VI BOT	m.	0.85	5.88	1.0-2.0
	Parting VI BOT & V TOP	m.	2.80	23.45	14.0-21.0
	Parting V TOP & V MID	m.	3.08	18.94	11.5-18.5
	Parting V MID & V BOT	m.	4.55	15.95	0.50-12.0
	Parting V BOT & IV TOP	m.	15.16	30.14	17.0-23.0
	Parting IV TOP & IV MID	m.	5.30	20.13	6.0-10.0
	Parting IV MID & IV L	m.	0.75	6.95	2.5-5.5
	Parting IV L & IV BOT	m.	0.70	4.55	0.50-2.0
	Parting IV BOT & III L	m.	8.05	21.54	14.0-17.0
	Parting III L & III	m.	24.87	44.55	33.0-39.0
III	Seam Gradient	degree			45.8°
IV	Maximum Depth	m.			340
V	Specific Gravity	t/cum			
	- Coal				1.65
	- Overburden				2.4

#### 4.4.2 BASIC PROJECT AND MINE PARAMETERS

The basic project parameters and mine parameters for the recommended option is presented below in table 4-3 and table 4-4.

Table 4-3: Basic Project parameters for recommended option

Sl. No.	Parameters	Unit	Value
1	Net Geological Reserve	Mt	1267.145
2	Extractable Reserve	Mt	631.56
3	OB Volume	Mcum	2734.90
4	Stripping ratio	Cum/t	4.33
5	Target Capacity	Mt/year	25
6	Tentative Mine life	Years	31

Table 4-4: Mine parameters for recommended option

Sl. No.	Parameters	Unit	Value	
1	Maximum depth	m	340	
2	Usual strike length:	along the Mine Floor	m	4800
		along the Mine Surface	m	5300
4	Usual dip rise length:	on the Mine Floor	Km	2500
		on the Mine Surface	Km	3200
6	Area:	On the Mine Floor	ha	1298.88
		On the Mine Surface	ha	1839.85

#### 4.4.3 EXTRACTABLE RESERVES

For furnishing account of reserves, Net Geological Reserve has been arrived by taking geological loss of 10 % from Gross Geological Reserve. Mining loss of 5 % has been taken to arrive at the open-castable mineable reserves.

The seam-wise reserve and OB/parting is presented below in table 4-5.

Table 4-5: Seam wise Extensible reserve

Sl No.	Seam	Coal (Mta)	Cumulative Coal (Mta)	OB (Mcum)	Cumulative OB (Mcum)
1	X-LA	0.10	0.10	594.09	594.09
2	X-LB	0.28	0.36	59.60	653.68
3	X-TOP	8.65	7.01	68.32	722.01
4	X-BOT	52.84	59.85	18.93	740.93
5	IX-L2	18.64	78.49	93.99	834.92
6	IX-L1	18.75	97.24	217.52	1052.44
7	IX	68.57	165.81	84.25	1136.69
8	VIII	82.28	248.09	127.99	1264.65
9	VII	3.37	251.46	312.69	1577.34
10	VI-TOP	18.60	270.06	105.25	1682.59
11	VI-MID	110.38	380.44	21.72	1704.31
12	VI-BOT	4.11	384.55	35.28	1739.58
13	V-TOP	7.05	391.60	240.63	1980.19
14	V-MID	17.64	409.24	199.78	2179.97
15	V-BOT	22.72	431.96	119.83	2299.80
16	IV-TOP	53.04	485.00	273.06	2572.86
17	IV-MID	82.09	567.09	116.83	2689.69
18	IV-L	18.81	585.90	25.21	2714.90
19	IV-BOT	45.68	631.58	20.00	2734.90
		<b>631.56</b>		<b>2734.90</b>	

#### 4.4.4 CHOICE OF TECHNOLOGY

The operational factors include:

- Multi-Seam operation involving 19 seams horizons.
- Effective seam thickness varying from 1.00 to 9.00 m with majority of seams having less effective thickness varying from 1.00 to 2.50m.
- Mild seam gradient.
- OB with varying parting thickness



Based on the above factors surface miner has been considered for extraction of coal as surface miner eliminates blasting in coal. Blasting in comparatively less thick coal seams leads to higher contamination of extracted coal.

As removal of overburden with varying parting thickness requires flexible operation, shovel-dumper combination with conventional system of mining i.e. Inclined slicing has been considered for removal of overburden.

For a rated capacity of 25.0 Mtpy, it is proposed to deploy 10-12 cum Hydraulic Shovel/backhoe and 20-22 Cum Hydraulic shovel/backhoe with 100T and 190-200T Rear Dumper respectively for OB. For thin parting lower size equipment shall be deployed. For Coal, Surface Miner with Front End Loader and 100T Dumper shall be deployed.

The details of the fleet size will be presented in the Mining Plan.

#### 4.4.5 MINING SEQUENCE, METHOD OF MINING AND MINING SYSTEM

The block has NW-SE strike of around 5 km. Opencast mining for the Talaipalli coal block has been proposed upto Seam IV as suggested above to maximize the recovery of coal. It has been proposed to mine maximum area in the block with due consideration to space required within the block for external dumping. The peak rated capacity for the block is proposed to be 25.00 Mtpy.

To ensure availability of adequate quantity of coal and early reaching of target capacity, a two-entry scenario has been envisaged: one on the north eastern side and the other on the western side. Seam IV will be accessed from both the side which will form the base of the quarry. Then working front of both the quarry will advance towards south and towards each other eventually merging into a single quarry with full strike length after about 9-10 years.

In the initial years, simultaneous working of mechanized opencast mine and the projected belowground mine may pose operational problems due to massive production from the opencast unit. As such, it is considered prudent to start underground mine work after exhaustion of opencast workings.

OB will be transported through flank roads to external OB dumps and internal OB dumps. Coal is proposed to be transported through ramps and flank roads. Coal from both pit in initial years and also after merger of the pit will be transported to mobile crushing arrangement at the surface in both eastern and western side and thereafter to Coal dispatch center by surface conveyors.

It is proposed to use conventional method of mining viz. inclined sicing with excavators/loaders loading coal and waste into Dumpers for hauling.

#### **Mining System**

Elements of mining system have been determined in accordance with the parameters of excavation, transport equipment and parameters of drilling and blasting. However, the space constraint for dumping the OB has been the most important factor taken into consideration for designing the mining system, since the mining system plays an important role for determining the void created for internal dump.

With due consideration to geo-mining characteristics of the deposit and as envisaged in the Mining Plan, the mine is proposed to be worked by shovel-dumper combination as well as Surface Miner.

Design of mining system has been done considering safety guidelines of Directorate General of Mines Safety (DGMS). However, during mine operations, the safety rules, regulations and various circulars issued by DGMS should be strictly followed and adhered to.

The height of the shovel-benches in OB varies from inter-burden thickness to 10-15m. The width of the working benches has been considered as 40-45m and the width of non-working benches has been considered as 25m.

The slope of each bench is proposed as 70°. But the overall running slope in working faces will be around 12°. The ultimate pit slope is varies between 30 deg to 37 deg.

Persistent bands of thickness more than 1m present in coal seams are proposed to be mined separately.

Bench height of OB dumps formed by shovel-Dumper system will be 30m and slope of individual dump benches will be 37° (equal to angle of natural repose of OB material). Width of berm between two adjacent benches will be 30 m.

Proposed System Parameters are tabulated and given below in table 4-6.

Table 4-6: System Parameters

Sl. No.	Particulars	Unit	Pit	Dump
1	Bench height	m	10-15/IB thickness	30
2	Working bench width	m	40-45	30
3	Nonworking bench width	m	25	30
4	Bench slope	Deg.	70	37

#### 4.4.6 PRODUCTION BUILD-UP AND RATED CAPACITY

The mine has been planned for a peak capacity of 25 Mtpa of coal production. The mine will achieve a capacity of 22 Mt in 6<sup>th</sup> year and after encountering new seams, the mine will reach the target capacity of 25 Mt in 15<sup>th</sup> year only. The production build-up with likely OB quantities is given below in table 4-7.

Table 4-7: Tentative Production Build-up schedule

Year	Coal (MT)		Natural OB (Mcum)		SR (cum/t)	
	Annual	Cumm.	Annual	Cumm.	Runing	Cumm.
1	2.00	2.00	9.45	9.45	4.73	4.73
2	3.00	7.00	22.77	32.22	4.55	4.60
3	9.00	16.00	40.17	72.39	4.46	4.52
4	13.00	29.00	58.39	130.78	4.49	4.51
5	18.00	47.00	79.55	210.33	4.42	4.48
6	22.00	69.00	110.69	321.02	5.03	4.65
7	22.00	91.00	110.69	431.71	5.03	4.74
8	22.00	113.00	110.69	542.41	5.03	4.80
9	22.00	135.00	110.69	653.10	5.03	4.84
10	22.00	157.00	110.69	763.79	5.03	4.86
11	22.00	179.00	94.14	859.90	4.37	4.80
12	22.00	201.00	94.14	954.05	4.28	4.75
13	22.00	223.00	94.14	1048.19	4.28	4.70
14	22.00	245.00	94.14	1142.34	4.28	4.65
15	25.00	270.00	105.90	1247.64	4.21	4.62

#### 4.4.7 WASTE DISPOSAL STRATEGY

It is envisaged that initially for 3-4 years, all the OB generated will be dumped externally from both the eastern and western pit. This temporary external dump is proposed to be located in the southern side of the block. Once sufficient void is created after 3-4 years of operation, internal dumping will start in eastern pit while in the Western pit, internal dumping can be started only from 6<sup>th</sup> year of operation once the base seam is reached.

The external dumping will continue till 11<sup>th</sup> year and thereafter from 13<sup>th</sup> year, this external dump will have to be re-handled back into the quarry void for smooth mine advancement.

Out of the total OB of ~2735 Mcum, it is estimated that ~490 Mcum (~18%) will be required to be dumped externally temporarily. This ~490 Mcum will be re-handled back

into the quarry after sufficient space is available for accommodation of waste from 13<sup>th</sup> year.

The height of the temporary external dump is proposed to be around 120m above ground level upto an RL of +420m and final height of the internal dump is proposed to be 120m above ground level upto an RL of +420m. This will ensure optimization of the life of the mine to extract maximum mineable coal. However, a slope stability study will be imperative to determine final dump height and final dump slope as per regulation no. 106, CMR 2017, and DGMS Circular no. 3, 2020.

Shovel-dumper spoil dumps will be formed in benches of 30m and slope of individual dump bench will be 37° (equal to angle of natural repose of OB material). The width of berm between two adjacent benches will be 30 m. Overall slope of dump works out to be 23°-24°. Top soil wherever available will be stacked separately which will be used up for spreading over the completed OB dumps. For the formation of dumps and leveling of dumps, dozers will be used.

During mining operation, OB dump stability, high-wall slope stability for OB bench parameters, and maximum OB dump height should be adopted and modified as per the scientific study and DGMS permission.

#### 4.5 INFRASTRUCTURE AND FACILITIES

##### 4.5.1 COAL HANDLING AND DISPATCH ARRANGEMENT

The mine is proposed to begin through two quarries: East Pit and West pit. Talaspalli mine is planned for maximum production of 25.0 Mtpa. These two quarries will join around 10<sup>th</sup> year, however coal production will continue from both and. As proposed in Mining Plan, coal will be produced through surface miner (~100 mm size). Therefore, crushing of

coal will not be required for handling and despatch. Total coal produced from Talaipalli Project will be loaded into railway wagon at nearby proposed railway siding through silo and RLS for final despatch and transportation up to final destination. A dedicated MGR has already been planned and under construction in the south-western part of the block for coal loading and despatch.

Coal handling plant is proposed to cater entire production of coal from OCP and accordingly facilities of receiving of coal, required conveying system, storage bunker and reclamation of coal from bunker with conveying through belt conveyors to silo and loading into rail wagon through Rapid load out system.

#### Eastern quarry:

The proposed coal handling system includes receiving of ROM coal at surface produced through surface miner. ROM coal from eastern quarry will be transported at surface through dumpers/trucks which will be received in receiving hoppers for conveying of coal through belt conveyors.

Suitable receiving arrangement for coal produced through surface miner (-100 mm size) in Truck receiving station has been proposed for receiving of these coal at surface near the quarry mouth of the mine. These receiving arrangement for coal have been proposed near mine quarry mouth to minimise the truck/dumper movements. The receiving pit/station along with the conveyor may be shifted as per the mine advancement and requirement during mine operation.

Initially, truck receiving hoppers are considered, however, suitable alternative receiving arrangement either through Reclaim feeder/ Chain feeder/Truck receiving station may also be considered at later stage according to mine condition and space availability at receiving pits.

The above proposed receiving station have been proposed for eastern quarry and at the southern side of the mine at a suitable location. It shall be shifted as per the mine

advancement of eastern quarry. The location plan shown for receiving stations and other system of coal handling are tentative and it may change as per requirement.

Coal from receiving station shall be conveyed through suitable capacity belt conveyors along the southern and eastern boundary of the eastern quarry at surface through series of conveyors. Further this coal will be conveyed and stored into a bunker of suitable capacity with the help of tripper. The storage bunker has been placed near proposed silo in the space provided for infrastructures to ease the wagon loading.

#### **Western quarry:**

Coal produced through surface miner (-100 mm) from western quarry shall be transported by truck/ dumpers at surface and received in a hopper. Suitable receiving arrangement for coal produced through surface miner (-100 mm size) in truck receiving station has been proposed for receiving of these coal at surface near the quarry mouth of the mine. These receiving arrangement for coal have been proposed near mine quarry mouth to minimize the truck/dumper movements. The receiving pit/ station along with the conveyor may be shifted as per the mine advancement and requirement during mine operation. Coal from receiving stations shall be conveyed through suitable capacity belt conveyors along the western boundary of the western quarry at surface through series of conveyors. Further this coal will be conveyed and stored into a bunker of suitable capacity with the help of tripper.

#### **Loading & Despatch:**

Coal from bunker will be reclaimed through suitable capacity feeders and fed to proposed silos through suitable capacity of belt conveyors. The coal will be loaded in to railway wagons through Rapid load out system having suitable capacity pre-weigh hoppers with loading Silo. Two nos. silo will be placed on two different rail lines of proposed railway siding for loading of coal into railway wagons. Both the silos are connected with the bridge conveyors for feeding of coal into silos to ensure flexibility in loading.

#### 4.5.2 WORKSHOP

For maintenance and repair of equipment deployed at Talaipalli coal block, a workshop facility have been envisaged at the south-west corner of the block earmarked for infrastructural facilities. Daily maintenance, scheduled maintenance and repair are proposed to be carried out in the project workshop.

#### 4.5.3 PUMPING

Adequate number of pumps will be provided to dewater the inflow of water due to precipitation falling within the active pit limit during the monsoon season to enable the mining activity to continue round the year.

#### 4.5.4 POWER SUPPLY

A NTPC substation is already under operation at the site. Permanent Power shall be available from 132 KV / 33 KV NTPC Substation at Raikers village within the block in the south-west corner of the block which has been earmarked for infrastructural facilities.



## CHAPTER 5

## CONCLUSION AND RECOMMENDATIONS

## 5.1 RECOMMENDATIONS

The Conceptual Report has been prepared for optimum extraction of coal under the present constraints and lack of space for waste disposal, keeping in view safety and other necessary conditions. The given figures are tentative and may get updated during detailed planning.

- The conceptual note presents various pit options for Talalpalli Coal Mine which is presented below:

Particulars	Pit Formulation	Extractable Reserves (Mt)	OBR (Mm <sup>3</sup> )	SR (m <sup>3</sup> /t)	Backfilling (Mm <sup>3</sup> )	External Dump (within the Block) (Mm <sup>3</sup> )	Temporary External Dump (Mm <sup>3</sup> )
Option I	Base seam III with full strike and External dump on the dip side of the block.	277	1358	4.9	725	623	-
Option II	Base seam III leaving high strip ratio zone on the western side.	505	1304	2.59	1384	320	-
Option III	Base seam IV with full strike and temporary external dump on the dip side of the Block.	631	2735	4.33	1735	-	490
Option IV	Base seam IV leaving high strip ratio zone on the western side.	486	2002	4.12	1798	304	-

It is apparent from the above table that Option III gives maximum extractable coal at low strip ratio and therefore it is recommended as the base option. Other options are

not attractive due to constraints of dumping space availability and adverse stripping ratio.

- The mine will be designed with a rated capacity of 25Mtpa which is likely to be achieved in 15<sup>th</sup> year. However, the mine will reach a capacity of 22 Mtpa in 5<sup>th</sup> year of mine operation
- The mine life is tentatively estimated to be 31 years with an average stripping ratio of 4.33 cum/t.
- It is proposed to deploy 20-22 cum Hydraulic Shovel/backhoe and 10-12 cum hydraulic shovel/backhoe with 190T-200T dumper and 100T dumper respectively for a peak annual OB of ~110 Mcum. For Coal, Surface miner with FEL and 100T dumpers is proposed to be deployed.
- Coal produced through surface miner (-100 mm) from both side of the quarry (Eastern and western) shall be transported by truck/ dumpers at surface and received in a hopper. Suitable receiving arrangement for coal produced through surface miner (-100 mm size) in truck receiving station has been proposed for receiving of these coal at surface near the quarry mouth of the mine. It is proposed to have two separate truck receiving station and conveyor system at the eastern and western boundary of the mine to minimize the lead. The receiving pit/ station along with the conveyor may be shifted as per the mine advancement and requirement during mine operation. Coal from receiving stations shall be conveyed through suitable capacity belt conveyors at surface through series of conveyors. Further this coal will be conveyed and stored into a bunker of suitable capacity with the help of tripper. Coal from bunker will be reclaimed through suitable capacity feeders and fed to proposed silos through suitable capacity of belt conveyors. The coal will be loaded in to railway wagons through Rapid load out system having suitable capacity pre-weigh hoppers with loading Silo.

- The figures worked out in the conceptual report may undergo minor changes during the course of detailed planning for the Mining Plan.
- The key parameters proposed in the Conceptual Report is required to be finalized and confirmed by NTPC to start the work on Mining Plan/FR.
- Some additional inputs have to be provided by NTPC for preparation of Mining Plan. The list of inputs is attached as Annexure I. The requirement of other inputs for feasibility report preparation will be communicated separately.

PLATES

PLATE I



SB No. 22/2022/27

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PLATE II



SB No. 22/2022/27

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PLATE-III



SB No. 22/2022/2

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PLATE-IV



SB No. 22/2022/2

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**CONCEPTUAL NOTE  
FOR  
ASSESSMENT OF UG MINING POTENTIALITY OF  
TALAIPELLI BLOCK  
& PROJECTIZATION OF SOUTH WEST AREA OF  
THE BLOCK**



**FEBRUARY 2023**

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## 1.0 INTRODUCTION

Mining Plan and Mine Closure Plan (1<sup>st</sup> Modification) of Talaipalli Coal Block of M/s NTPC Ltd is has been prepared at CMPDI (HQ). The said Coal Block shows the existence of 27 coal horizons with their splits. Coal extraction by opencast has been proposed up to seam-IV Bot. Underground mining potentiality of left out coal Seam III and Seam II in whole of the block along with the small portion of the overlying Seams (Seams IV Mid, V Bot, VI Mid and VII) in the South West Corner (below the area considered for Surface infrastructures) has been assessed. Also, opencastable reserve upto VIII seam in the south west corner below the area considered for infrastructures has been estimated.

## 2.0 LOCATION

Talaipalli coal block having an area of 2115.5 ha is bounded by latitude 22° 13' 35" & 22° 16' 08" N and longitude 83° 25' 49" & 83° 30' 22"E. It is located in the eastern part of the Mand Raigarh coalfield and lies in Raigarh district of Chhattisgarh State. Talaipalli block roughly forms a rectangle, the longer axis is NW-SE direction forming the length of the block, and the shorter axis NE-SW direction forming the width. The block boundary allocated to NTPC Ltd, was pillared by Boundary Pillars BP-1 to BP-65. The Keio River forms the eastern boundary of the block and the boundary line passes through Naya Rampur & Raikera village in the south, Salhepalli, west of Chotiguda forming the western boundary. Ajjgarh and Kudur-Mauha village forming the northern boundary.

Talaipalli block is covered by Survey of India top sheet No. 64N/7 & N/8 (RF 1:50000). The block is mostly covered by cultivated land while south-eastern part of the block has Reserve & protected forest cover. Villages such as Talaipalli, Kudhur-Mauha, Ajjgarh, Chotiguda, Bichhinara, Naya Rampur, Raikera and Salhepalli are located within the block.



### 3.0 DESCRIPTION OF THE BLOCK

The block extends over an area of about 21.18 Sq.km, in which forest cover is extended over an area of about 7.10 Sq.km. The limits of Block Boundary are defined as given below:

- North: Beyond in-crop zone
- South: Unexplored area and Dipside of Barod-Bijari Block
- East: Pelma Block
- West: Chintapani Extension Block and Dipside of Barod-Bijari Block

### 4.0 GEOLOGICAL STRUCTURE

The general dip and strike of the seams within the geological coal block area as under:

i) Strike	Strike is approximately NW-SE with minor variations
ii) Dip	The beds dip at low angle 4° – 6° towards south-west

### 5.0 DETAILS OF SEAMS FOR UG MINING

#### 5.1 SEAM SEQUENCE

The Seam Sequence is given below.

Sequence of Coal Seams &amp; Partings

S. No.	Coal Seams	Thickness of Coal Seam (m)		Thickness of Parting (m)		Dominant Thickness (m)
		Minimum	Maximum	Minimum	Maximum	
1	X LA	0.20	1.06			0.50-0.90
	Parting			5.41	11.90	6.0-9.5
2	X LB	0.30	1.28			0.50-0.90
	Parting			3.37	14.89	4.0-6.0
3	X Top	0.40	1.69			1.00-1.15
	Parting			0.70	3.00	1.0-2.0
4	X Bot	1.6	8.1			3.5-6.0
	Parting			2.3	20.15	3.5-16.5
5	IX L2	1.2	2.55			1.2-2.0
	Parting			13.59	21.54	17.0-18.5
6	IX L1	0.36	1.85			1.2-2.0
	Parting			5.65	11.87	6.0-8.0
7	IX	0.96	6.96			3.5-6.0
	Parting			6.30	16.15	9.0-12.0
8	VIII	2.06	6.64			4.0-6.5
	Parting			17.68	42.01	20.0-25.0
9	VII	0.10	3.90			0.50-1.0
	Parting			1.06	17.44	4.0-14.0
10	VI Top	0.37	3.42			1.2-3.0
	Parting			0.58	3.25	0.5-1.5
11	VI Mid	3.09	10.01			5.0-9.0
	Parting			0.85	5.98	1.0-2.0
12	VI Bot	0.48	1.75			0.50-1.0
	Parting			2.80	23.45	14.0-21.0
13	V Top	0.50	3.09			0.50-1.50
	Parting			9.09	18.94	11.5-16.5
14	V Mid	0.15	3.73			0.50-2.50
	Parting			4.55	15.95	0.50-12.0
15	V Bot	0.30	5.40			0.50-2.0

S. No.	Coal Seams	Thickness of Coal Seam (m)		Thickness of Parting (m)		Dominant Thickness (m)
		Minimum	Maximum	Minimum	Maximum	
	Parting			15.16	30.14	17.0-23.0
16	IV Top	0.54	5.78			2.5-5.0
	Parting			5.30	20.13	8.0-10.0
17	IV Mid	0.99	7.24			3.5-7.0
	Parting			0.75	6.95	3.5-5.5
18	IV L	0.23	4.99			0.50-2.0
	Parting			0.70	4.55	0.50-2.0
19	IV Bot	0.55	5.67			1.5-3.5
	Parting			8.05	21.54	14.0-17.0
20	III L	0.10	3.25			0.50-1.5
	Parting			24.57	44.55	33.0-39.0
21	III	0.66	5.97			2.0-5.5
	Parting			31.1	55.99	33.0-51.0
22	II L3	0.50	3.09			<0.90
	Parting			13.39	40.9	28.0-38.0
23	II L2	0.07	2.68			<0.90
	Parting			5.0	60.39	35.0
24	II L1	0.05	1.54			<0.90
	Parting			1.27	20.59	3.0-14.0
25	II	0.13	5.92			1.5-2.5
	Parting			0.37	3.89	0.50-2.0
26	II L	0.05	2.45			<0.90
	Parting			Around 35.0 m		
27	I	0.22	0.55			-

## 5.2 SEAMS CONSIDERED FOR UG MINING

The Seam III and Seam II below Seam IV Bot (bottommost seam of the OC mine) have attained underground workable thickness over most of the block area consistently and have been considered to be mined after the completion of OC mining.

In addition to Seam II and Seam III, Seams IV Mid, V Bot, VI Mid and VII lying in a very small area on the south west corner of Talaipalli Block have been considered for UG mining. This area on the south west corner of the block has been earmarked for infrastructures required for OC mining. Only the above mentioned seams have achieved UG workable thickness in this area. All the other Seams above Seam III in this area have been found to be unworkable by UG methodology.

However, the top seams (Seam X-Top to VIII) in this area will be extracted by OC mining after relocation of infrastructure facilities after the end of OC mine life of 31 years.

## 5.3 DETAILS OF GEOLOGICAL RESERVE FOR UG MINING

Seams	Net Geological Reserve (Mt)	Area Considered
VII	5.34	South west area considered for Infrastructures
VI-MID	15.94	South west area considered for Infrastructures
V-BOT	2.84	South west area considered for Infrastructures
IV-MID	12.58	South west area considered for Infrastructures
III	80.05	Whole Block
II	42.78	Whole Block
<b>Total</b>	<b>159.52</b>	

## 6.0 STRATEGY FOR UG MINING

Mechanized opencast mining of various coal seams commencing from the topmost X seam to IV Bot seam has been planned. The various coal seams/splits available below IV Bot seam and the partings between various such horizons have been examined.

It is evident that Seam III L below Seam IV Bot (the proposed quarry floor) has thickness varying from 0.12m to 3.25m although the seam has not acquired workable thickness in the mining area as the prevalent thickness in 83% of boreholes varies from 0.5m to 1.50m. The seam folio plan of Seam III L (Plate- 10B30) for Talaipalli Block can be referred for the purpose.

The seam below seam III L is Seam III which has acquired workable thickness in the mining area (the prevalent seam thickness is 2.0 to 5.50 m in 88% of boreholes). The seams upto Seam IV Bottom have been planned to be worked by Opencast. The OC workings are proposed to be filled with OB upto a height of 120m above the surface height in the final stage of the workings (Refer Final Stage Dump Plan plate- 21E). The parting between Seam IV Bottom and Seam III varies from 42m to 57m (Isoparting plan annexed). The thickness of Seam III in most of the mine area varies from 2m to 5m. The working of Seam III by underground, attracts the following provisions of Coal Mine Regulations (marked in italic):

*The Coal Mine Regulations and the circulars issued thereunder state that "no working which has approached within 60m of any other working (not being a working which has been physically examined and found to be free from accumulation of water or other liquid matter or any material that is likely to flow when wet), whether in the same mine or in an adjoining mine, shall be extended further except with the prior permission in writing of the Chief Inspector and subject to such conditions as he may specify therein.*

*For the purposes of this sub-regulation, the distance between the said workings shall mean the shortest distance between the workings of the same seam or between any two seams or sections, as the case may be, measured in any direction whether horizontal, vertical or inclined.*

*The mine surveyor in the mine is supposed to record in a bound paged book the full facts when working of the mine have approached to about 120m from the mine boundary or from disused or waterlogged workings. Every entry in such bound paged book is supposed to be signed and dated by the surveyor and countersigned and dated by the manager.*

A void has been proposed to be left in the OC workings in the final stage of the Opencast operations (Refer plate-21E) and would normally be filled with water. Although, the pumping operation round the clock in OC mine is a practice, the OB dumps of the OC workings are watercharged during rainy season.

Therefore, for working Seam III, the DGMS will require scientific studies to be carried out for stability of the parting.

Also in Tataipalli block, there would be dead load of the 120m high dump above the Original Ground Level. Therefore, for working Seam III under the dead load of 120m, DGMS will stipulate a scientific study for the estimation of impacts of dead load of internal dump over the parting between roof of seam III and floor of seam IV Bot (i.e. floor of quarry). Depillaring of Seam III with caving may lead to danger of slope failure of dump due to subsidence. Also, simultaneous UG and OC workings statutorily require withdrawal of manpower from UG workings when blasting operations in OC workings are to be carried out. The movements due to HEMM in OC also have its safety implications in UG operations. Therefore, in this Mining Plan simultaneous UG and OC operations have not been considered. However, the construction period of the UG mine is proposed to begin 4 years before the completion of OC activities.

The parting between IV Bot and Seam III varies from around 42m to 57m i.e. less than 15t where t is the thickness of Seam III in certain areas within the block. Therefore, DGMS may not permit the depillaring of Seam III in many panels due to safety risk of overriding of pillars. However, extractable

reserves of Seam III have been assessed considering that permission for depillering operations subject to certain conditions will be granted by DGMS.

Detailed study of the Geological Report has revealed that possibility of any belowground mining in Seam IIL1 and IIL does not exist due to poor development of the carbonaceous horizons. Seam II has developed working thickness in the block barring eastern side. Seam IIL2 & Seam IIL3 have attained workable thickness in North West and south west areas of the coal block in very small areas. The seam IIL2 and IIL3 have workable area at a depth higher than 500m in the south western side. These seams have developed workable thickness in a very small area in the North Western side at a depth higher than 300m. Accessing these areas from Seam II would involve thin seam drivage or drivage of drifts. Hence, Seam IIL2 and Seam IIL3 are considered to be non economical as the workable reserves are meagre.

The Seam Folio plans of Seam II (Plate- 10B32) indicate that this seam has the very good potential to be mined by underground mining operation as it has developed workable thickness for UG mining in the mining area on from the central to western portion. The prevalent workable thickness of the II Seam varies from 1.5 to 5m. The depth of the workings vary from 230m to greater than 600m in the dipmost portion of the mining area.

The Surface Infrastructures (Merry-go-Round, Workshop, CHP, Silo etc) in this Mining Plan have been proposed in the south west corner of the Talaipalli block. The seams below this small area were examined for their mining potentiality. The seams from X Top to VIII are being proposed to be worked by OC method after relocation of the surface infrastructures at a suitable place within the block at the end of life of OC mine i.e. 31 years proposed in the Mining Plan.

The other seams below this area and above Seam III were examined for their workability by UG technology. The seams VII, VI Mid, V Bot and IV Mid have

been found to have developed workable thickness. It is proposed to drive 3 drifts from Seam III to VII for working these seams in this area.

## 7.0 UG MINING TECHNOLOGY

The Bord & Pillar method using SDL / LHD is the most prevalent underground mining method being used in the Indian mines. This is a semi mechanized technology and involves blasting operations. The work force is well versed with the various operations. The manpower deployment in the working districts being high and the production to the tune of 100 tons per day with SDL and 200 tons per day with LHD machine is being achieved in Indian mines. The reserves, the extent of mine and the high production requirements of the country call for deploying Mass Production Technology in Talapalli Block.

The two prevalent methods for Mass production deployed in the Indian Mines are **Continuous Miner Technology** and **Longwall technology**.

**Continuous Miner Technology** on Bord & Pillar method is in operation in many mines of CIL. This technology is very flexible and the deploys coal cutting instead of blasting. This makes this technology less hazardous and more productive. The shuttle car used in the CM package is a coal hauling machine is tyre mounted like the LHDs being used in the CIL mines. The continuous Miner machine is available in wide cutting ranges. These days CM on hiring basis is being used in many mines of CIL and the production to the tune of 2000 tpd and more is being achieved in mines. In the hiring mode of CM technology, the district manpower is provided by the private party. The CM technology has been deployed in mines upto 400m depth in India.

**Powered Support Longwall (PSLW) technology** is generally suitable where comparatively large area free from faults and geological disturbances available for deployment. Long panels can be made for final extraction, as the method is highly inflexible. The property should not have large and abrupt variation in seam thickness. Besides, as the method involves cutting/shearing



(no blasting) and the rate of extraction is very high, it ensures better percentage of extraction, ease of management and is safer. Longwall panels operate on "straight line" extraction method.

A number of Longwall faces have been operated in the mines of CIL in collaboration with European Companies and even with Chinese collaboration. Till date the best results have been given by the Chinese packages. Longwall packages also require additional gate road drilage equipment.

The two seams which have achieved Underground workable thickness in most of the area are Seam II and Seam III. A small portion of the block on the south west corner has been proposed to be worked by Underground in the upper seams which have achieved workable thickness. The upper seam III has a restriction of less than 60m parting with the bottom most seam IV. Bot in the Opencast Quarry. For the purpose of Flexibility in operations, the CM technology has been preferred in working the seam III. Most of the working area in this seam is at depths suitable for deployment of Continuous Miners.

The lower prominent workable seam is Seam II which has depths ranging from 200m to 550m. The Western side of this seam has not achieved workable thickness. Some large portions of the property are completely fault free. These thick fault free portions have been chosen for deployment of Longwall technology. The main dip development of Seam III has been proposed to be worked with CM technology.

The higher seams in the Southwest portion have been proposed to be worked with CM technology considering the flexibility and productivity of the technology.

## 8.0 TENTATIVE EXTRACTABLE UG RESERVE

Seams	Net Geological Reserve (Mt)	Extractable Reserve (Mt)	Area Considered
VII	5.34	2.22	South west area considered for Infrastructures
VI-MID	15.94	8.12	South west area considered for Infrastructures
V-BOT	2.84	0.77	South west area considered for Infrastructures
IV-MID	12.58	6.45	South west area considered for Infrastructures
III	80.05	53.71	Whole Block
II	42.78	28.25	Whole Block
<b>Total</b>	<b>159.52</b>	<b>99.52</b>	

## 9.0 MAIN MINE ENTRIES

Considering the availability of land as per the OC planning of higher seams, the only option suitable for the mine is working by two shafts. The usage of Inclines is likely to block very large quantity of coal which can otherwise be extracted by Opencast. One of the shafts can shall be used as intake airshaft (for man winding and material winding) and the coal handling is proposed to be carried from the other shaft. The depth of the shafts has been considered to be 245 m.

Though it is ideal to locate such mine openings around middle of the area considered for belowground workings, yet disposition of seams for opencast mining operations does not permit to have such a choice.

## 10.0 MINE CAPACITY AND LIFE OF THE MINE

The seam II and Seam III would be connected with two shafts from surface till the end of Opencast mine life. The shaft sinking is proposed to be started 4 years prior to the end of OC mine life (31 years).

The total extractable reserves of all the workable seams above seam III in the area on the south west corner of the block being utilized for infrastructure comes to 17.5 Mt the details of which have been provided in table in 8.0. The total extractable reserves in seam III are to the tune of

53.71 MT. Considering deployment of three CMs in the seams III and above, a life of around 40 Years is envisaged.

In Seam II, it is proposed to deploy one Longwall face alongwith two roadheaders. Considering average thickness of 3m for longwall face alongwith adequate gate/trunk transport is likely to produce on an average of about 1.7 MTPA. The two CM sets of standard height are proposed to be deployed in the Seam II and are likely to produce 1 Mt per annum. The total extractable reserves (Seam II) are to the tune of 28.25 MT. The total nos of CM deployment in the mine is five but considering the constraints of the drift drivages etc. at a time only four CM machines have been considered to be worked in the mine.

The peak production of the mine that can be achieved is around 3.7 Mty  $\{(Longwall\ and\ roadheader\ 1.7\ Mty) + (4\ No\ of\ SHCCM\ 2.0)\}$ . However, the average production of the mine can be considered to be 2.5 Mty and the life of mine comes to around 40 Years. This capacity of the mine is being envisaged considering the constraints of OC workings above and the restriction of stipulations of DGMS prior to granting depillaring permission in every panel of seam III as the workings are within 50m of the of the IV Bottom workings which may be water charged during rainy season. The scientific study related to determining the hard cover between IV Bottom and Seam III and feasibility of safe depillaring of the panels in Seam III has to be carried out. The conditions imposed for depillaring are likely to reduce the productivity of CM and also it is envisaged that not all the panels in Seam III will get permission for depillaring. There are numerous faults on the North Western side of the property.

The conditions prevailing in the OC mine for a very long period cannot be projected in advance. Likewise with the existing planning of the UG mine, a conceptual plan stipulating the method extraction of UG, the machinery deployment etc. has been provided. However, near the end of completion of OC mining, a detailed UG mine plan will have to be prepared for the purpose.

## 11.0 MINE VENTILATION

The working belowground mines in Mand-Raigarh Coalfield are placed in Degree-I category of gassiness. It is, therefore, expected that the proposed underground mine workings at Talaipali Coal block would also fall in same Degree-I of gassiness. However, a scientific study for the purpose is proposed to be carried out. Accordingly, ventilation provisions in this are based on Degree-I gassiness. These provisions may need to be altered if any change in degree of gassiness is found on actual determination as required by statute.

Exhaust ventilation system is considered for the proposed mine with one of the shafts provided with a main mechanical ventilator with suitably designed air lock arrangements & evasee. The ventilation simulation study in the mining plan are proposed to be carried out to establish the size of the motor and the type of the fan for the mine

## 12.0 OC MINING IN THE SOUTH WEST PART AND TENTATIVE EXTRACTABLE RESERVE

In the Revised Mining Plan, surface infrastructures (CHP, Merry-go-Round, Silo, Workshops, and Sub-station etc) have been proposed in the south west part of the block. At the end of OC mine life of 31 years, the sterilized coal in this small part shall be taken out by both OC and UG method.

Given the shape of the block in South west part, OC mining can only be done upto Seam VIII, since going further deep will reduce the working area on the floor which will restrict machine deployment and operation. Rest of the Seams from Seam VII shall be mined by UG method subject to its workability by UG mining.

The tentative Seam-wise opencastable reserve, which can be extracted from the South west part of the block is given below:



Seams	Net Geological Reserve of Quarry upto Seam VIII (Mt)	Extractable reserve by OC upto Seam VIII (Mt)
X-LB		
X-TOP	0.21	0.20
X-BOT	4.05	3.85
IX-L2	1.32	1.25
IX-L1	1.08	1.02
IX	2.84	2.70
VIII	3.03	2.88
<b>Total</b>	<b>12.53</b>	<b>11.90</b>

The total extractable Reserve by OC mining in South West part is tentatively estimated to be 11.90 Mt. The peak capacity of the mine that can be achieved in South West part is around 1.50 Mtpa with the mine life of around 8 years.

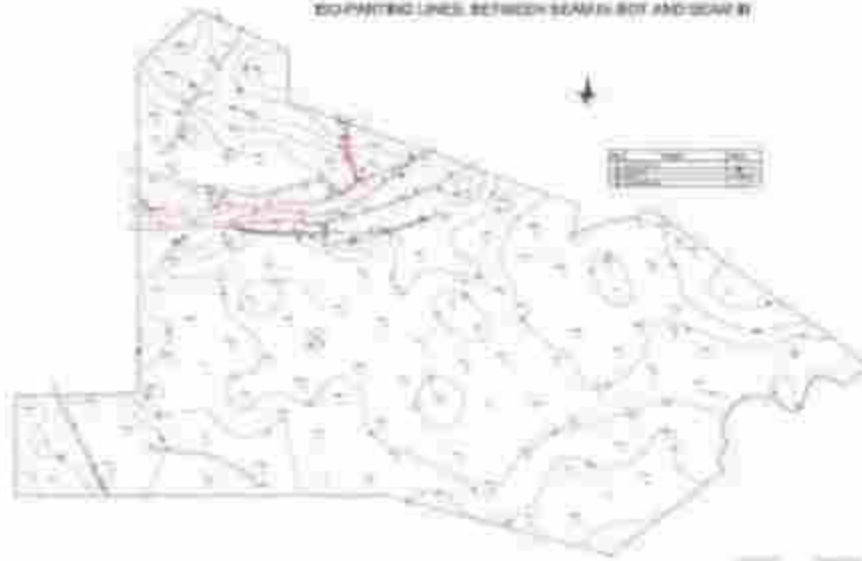
Therefore, total estimated reserve which can be extracted by both OC and UG after 31 years of proposed OC mine life is as follows:

Particulars	Extractable Reserve (Mt)	Mine Life (Years)
UG	99.52	40
OC	11.90	8
<b>Total</b>	<b>111.42</b>	-

The above figures may change while doing detailed planning.

A Revised Mining Plan needs to be prepared after 25 years for UG mining of Whole Block and OC mining upto Seam VIII in south western area where infrastructure for proposed Opencast mine is located.

ISOPHYTHIC LINES BETWEEN SEAM IN BOT AND SEAM IN



ISOPHYTHIC LINES BETWEEN SEAM IN BOT AND SEAM IN





**cmpdi**  
*A Mine Rules Company*



## TECHNICAL FEASIBILITY NOTE TALAIPELLI COAL BLOCK



SEPTEMBER 2021

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APPROVED

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3.	15 <sup>th</sup> Year Stage Plan	1:10000	HQ/OCM/003312
4.	20 <sup>th</sup> Year Stage Plan	1:10000	HQ/OCM/003313
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6.	Final Year(26 <sup>th</sup> ) Stage Plan	1:10000	HQ/OCM/003315
7.	Flowsheet of CHP	NTS	

Job No: 021021045

V

## DISCLAIMER

For the preparation of this Report, the MINEX Model, Approved Mining Plan and other Stage Plans/data for Talaiwalli Coal block as provided by NTPC Ltd has been relied upon by CMPDI. CMPDI has not verified data provided by NTPC Ltd for accuracy and does not warrant the accuracy of, or make any other warranties or representations regarding this Report if there is any discrepancy in the data provided by NTPC Ltd. Further, this Technical review is a broad assessment and is subject to refinement in the detailed planning.

We have done our best to ensure that the alternate feasible option for Opencast Mining of Talaiwalli coal block provided to the client is the most feasible option in the existing circumstances. We do not claim that this is the only and/or best option for this purpose.

No assurance is given that a position contrary/different to the opinions expressed herein will not be asserted by any person, entity, authority and/or sustained by an appellate authority or a court of law.

## CHAPTER 1

### BACKGROUND

#### 1.1 INTRODUCTION

Talapalli coal mining block in the state of Chhattisgarh was initially allotted to NTPC by Ministry of Coal (MoC), vide letter no.13016/29/2003-CA-1, dated 25.01.2006, for meeting coal requirement for the proposed 4000MW Lars Integrated Power Project which is approximately 60 kms away from the coal block.

Talapalli Block lies in the eastern part of Mand-Raigarh Coalfield in the state of Chhattisgarh. At the time of allotment, the block was regionally explored by GSI by drilling 15 holes (6434.55m) and estimated coal reserves of 964.88 million tonnes of indicated category were assessed.

On receiving Letter of Award (LOA) from Ministry of Coal, NTPC Ltd issued Work order to MECL to carry out detailed exploration in the block. MECL drilled about 102 boreholes (39854.75 mtrs. of drilling) in approximately 20 sq. km. block area for which the Geological Report (GR) was submitted to NTPC on 29.09.08.

On receipt of GR, NTPC awarded the consultancy for preparation of Mining Plan and Feasibility Report for this block to Advance Coal Management & Marketing Pvt. Ltd. (ACMM), New Delhi. The Mining Plan was prepared by ACMM in 2009 for a rated capacity of 18.00 Mtpa based on the aforementioned GR which was later approved by the Ministry of Coal on 31.03.2010. Subsequently, all statutory clearances were obtained on the basis of the approved Mining Plan.

However, as a consequence to the Judgment of the Hon'ble Supreme Court in September 2014, the block allocation was cancelled which was later re-allotted to NTPC on 08.09.2015.

NTPC planned to develop and operate the mine through outsourcing by appointing a Mine Developer and Operator(MDO) with scope of works viz. overburden removal, extraction of coal, construction of CHP & other fixed mine infrastructures, compliance of statutory obligations and other associated activities.

Meanwhile, all requisite statutory clearances and permissions were obtained from the respective statutory bodies. The major statutory clearances out of the above are furnished below:

Table 3-1: Major Statutory Clearances with Obtaining Date

Activity	Date of Achievement
Env. Clearance	02.01.13/13.11.15 (Rev.)
Forest Clearance	St-I: 05.11.12; St-II: 29.01.14; 23.05.17(Rev)
Consent to Establish	06.01.15
Consent to Operate	17.03.16
Tripartite Escrow Agreement (Banker, COO & NTPC)	15.05.14 & 04.09.17
DGMS Permission	19.01.18
Coal Controllers permission	31.01.18

NTPC floated the 1st NIT for appointment of MDO (for 404.5 MMt of coal extraction with a stripping ratio of 4.3 Cum./t in a period of 25 years as per Approved Mine Plan) on 31.12.2015. M/s. NCC-BGR Consortium was declared successful in the bid and was awarded the contract on 13.11.2017, but due to one FIR filed by CBI on corruption charges involving one of the Directors of BGR & NTPC, this contract was terminated on 04.07.2019.

Thereafter, Second NIT for appointment of MDO (for 404.5 MMt of coal extraction with a stripping ratio of 4.3 Cum./t in a period of 25 years as per Approved Mine Plan) was issued on 19.08.2019. M/s. Thriveni Earthmovers Pvt. Ltd. (TEMPL) emerged as the successful bidder and was appointed as MDO on 26.08.2020.

## 1.2 REASON FOR THIS TECHNICAL FEASIBILITY STUDY

M/s TEMPL was appointed as MDO on 26.08.2020 by NTPC for development and operation of Talaspalli Coal Block. Post award of the contract, a dispute developed between M/s TEMPL and NTPC wherein TEMPL has claimed that as per their calculations 404.5 MT of coal can't be extracted at a stripping ratio of 4.30 cum/tonne as specified in the approved Mining Plan. In view of M/s TEMPL, the stripping ratio should be around 4.92 to 5.25 Cum/t. Along with this, the issue of accommodation of excess QB in the designated dump area including temporary external dump and unfeasibility of 100% backfilling by re-handling of temporary external dump as per approved mining plan has also been raised by M/s TEMPL. There were a series of discussion/meetings held between NTPC and TEMPL to resolve the issue.

Subsequently, M/s TEMPL chose to rescind the contract through their Notice dated 04.05.2021 and filed a Commercial Civil Suit before Hon'ble Delhi High Court. Subsequent to few hearings and submissions made by both the Parties, the Hon'ble Delhi High Court directed both the parties for mutual discussions for amicable resolution of the issue which was complied by both the Parties by holding meetings wherein M/s TEMPL requested for appointment of Independent Expert for review of the mining plan of Talaspalli coal mining project.

M/s TEMPL vide letter dated 31.05.2021 (Annexure-I), submitted its consent to NTPC for appointment of CMPDIL as an Independent Consultant for review of the technical parameters of the Talaspalli coal mining project along with the consent to share the cost of the assignment/fees of CMPDIL equally with NTPC. Thereafter, NTPC requested CMPDIL vide letter NTPC/CM-HQ/TLCMP/2021/02 dated 01.06.2021 (Annexure- II) to take up this work on urgent basis which has been accepted by CMPDIL.



### 1.3 OBJECTIVE OF THE STUDY

The objective of the study is to ascertain the technical feasibility of the mining of the Talaipalli Coal Block and determine maximum coal that can be extracted from the block.

The report is aimed at holistically evaluating the feasibility of mining/dumping sequence as per the Approved Mining Plan and if found unworkable, provide an alternate technically feasible option to maximize the mineable coal.

### 1.4 SCOPE OF THE WORK

The agreed broad scope of the work is as below:

- ✓ Examination of two Entry scenario as per Approved Mining Plan with respect to Mineable Reserves, OB quantities, Average stripping ratio, Waste Disposal Planning and Average Lead.
- ✓ Generate a best possible scenario to maximize mineable coal from the block providing Mineable Reserves, OB quantities, Average stripping ratio, Waste Disposal Planning and Average Lead & Lift and identification of all major assumptions.
- ✓ Provide coal evacuation/handling arrangement up to railway siding with respect to proposed feasible option

The Schematic drawing and plates with respect to Stage Plans (5<sup>th</sup> year, 10<sup>th</sup> year, 15<sup>th</sup> year, 20<sup>th</sup> year, and 25<sup>th</sup> year) are included in the Report.

## CHAPTER 2

### TALAIPELLI COAL BLOCK: AN OVERVIEW

#### 2.1 SITE INFORMATION

Talaipalli coal block is located in the eastern part of the Mand-Raigarh coalfield and lies in Raigarh district of Chhattisgarh State. The Kelo river forms the eastern boundary of the block and the boundary line passes through Nays Rampur & Raikera village in the south of Sajhepalli, west of Chotiguda forming the western boundary. Ajigarh and Kudur-Mauha village forming the northern boundary. The block is mostly covered by cultivated land while south-eastern part of the block has Reserve & protected forest cover. Talaipalli, Kudhur-Mauha, Ajigarh, Chotiguda, Bichinara, Naya Rampur, Raikera and Sajhepalli are numerous villages located within the block.

The block is about 55 km away from Raigarh Township and is close to Tehsil Headquarters at Gharghoda which lies on Raigarh-Ambikapur State Highway. Talaipalli village is situated in the block & it is about 20 km NE from Gharghoda and is connected with Gharghoda partly by all-weather Gharghoda-Lelunga road. Gharghoda is about 35 km North of Raigarh Railway Station which is on Howrah-Bombay Main Line of South Eastern Railway.

#### 2.2 GEOLOGY, EXPLORATION AND RESOURCES

Talaipalli Block is located in the eastern part of Mand-Raigarh Coalfield. The area of the block is about 20 sq. km. Major part of the block is covered by the rocks of Barakar formations. Barren measure occurs in the southern part of the block. However a small patch of Barren Measure is also noticed in the north western part of the block.

The geological succession evolved on the basis of exploration data generated in the block is given in the Table 2-1 below:

Table 2-1: Geological Succession in Talaspalli Block

Formation	Thickness (m)	Lithology
Recent	0.50 – 18.00	Soil, alluvium
Barren Measures	18.80 – 143.00	Shale, fine to medium grained sandstone, and intercalation of shale and sandstone, carbonaceous shale and thin coal bands
Barakars	30 – 596	Fine, medium and coarse grained feldspathic, grey sandstone, micaceous and laminated at places. Grey shale, fire clay, intercalation of shale and sandstone and carbonaceous shales with coal seams
Talchir	1.00 – 54.30	Khakee, greenish shales & sandstone, occasional pebbly
Basement		Metamorphics

### 2.2.1 STRUCTURE OF THE BLOCK

The general strike of the bed is NW-SE in the major part of the block which swings to almost east – west in the north-western and western part of the block. The dip of beds varies from 4° to 8° towards South-west.

The Geological Plan of the Talaspalli Coal Block is given in Fig. 3-1 below:



Figure 2-2: Geological Plan of Talaspalli Coal Block

The block does not show major tectonic disturbances. A total of 12 numbers of faults have been deciphered from the subsurface data out of which three faults namely fault F1-F1, F4-F4 and F8-F8 are major faults. Most of the faults are restricted to the northern part of the block. The faults details are furnished in Table 2-2 below.

Table 2-2: Details of Faults

Fault No.	Location	Trend	Nature of fault	Throw
F1-F1	Northern part passing near BH No. MNRT-24, 27, 22 & 35	East-West to ENE, NE-SW dipping northerly	Dip fault	20m – 85 m
F2-F2	Northern part passing through MNRT-30	Essentially east-west dipping northerly	Dip fault	0 – 10m.
F3-F3	Northern part passing through MNRT-22	Curvilinear dipping northerly	Dip fault	30-35 m.
F4-F4	Northern part near BH MNRT-31, 24, 43 & 63	East-West dipping northerly	Dip fault	30 – 150 m
F5-F5	Northern western part through BH, MNRT-62	East-West	Strike fault	35 m
F6-F6	Northern part passing through MNRT-31	WNE-ESE dipping westerly	Oblique fault	15 – 25 m.
F7-F7	Northern part passing through MNRT-11	NW - SE	Oblique fault	20 m.
F8-F8	Northern part passing through MNRT-11 & 5	NW-SE	Oblique fault	60-105 m.
F9-F9	Northern part passing through MNRT-101 RT-4 & MNRT-11	East – West to curvilinear	Strike/Oblique Fault	25m
F10-F10	Northern part passing through RT-7	NE-SW	Oblique curvilinear	0 -10 m.
F11-F11	Southern part	NW-SE	Curvilinear	0 – 10 m.
F12-F12	Southern part	NW-SE	Oblique	25 m.

### 2.2.2 COAL SEAMS

Detailed exploration in Talaspalli Block has revealed the presence of coal bearing horizons belonging to Barsakar Formations. These carbonaceous horizons could be distinctly

demarcated as upper, middle and lower columns of Barakar formation. The coal is dull in appearance high in moisture and is of non-coking type.

There are 27 correlatable coal horizons, viz. seams XLA, XLB, XTOP, XBOT, IXL2, XLI, IX, VII, VI, VI TOP, VI MID, VI BOT, V TOP, V MID, V BOT, IV TOP, IV MID, IV L, IV BOT, III L, III, III L, II L2, II L1, II, II L, & I.

The sequence of coal seams and parting is given Table 2-3 below:

Table 2-3: Sequence of Coal Seams & Parting

S. No.	Coal Seams	Thickness of Coal Seam (m)		Thickness of Parting (m)		Dominant Thickness (m)
		Minimum	Maximum	Minimum	Maximum	
1	X LA	0.20	1.06			0.50-0.90
	Parting			5.41	11.90	6.0-9.5
2	X LB	0.30	1.28			0.50-0.90
	Parting			3.37	14.89	4.0-6.0
3	X Top	0.40	1.60			1.00-1.15
	Parting			0.70	3.00	1.0-2.0
4	X Bot	1.6	8.1			3.5-6.0
	Parting			2.3	20.15	3.5-16.5
5	IX L2	1.2	2.55			1.2-2.0
	Parting			13.59	21.54	17.0-18.5
6	IX L1	0.36	1.85			1.2-2.0
	Parting			5.65	11.87	6.0-8.0
7	IX	0.96	6.96			3.5-6.0
	Parting			6.30	16.15	9.0-12.0
8	VIII	2.06	6.64			4.0-6.5
	Parting			17.68	42.01	20.0-25.0
9	VII	0.10	3.90			0.50-1.0
	Parting			1.08	17.44	4.0-14.0
10	VI Top	0.37	3.42			1.2-3.0
	Parting			0.56	3.25	0.5-1.5
11	VI Mid	3.09	10.01			5.0-9.0
	Parting			0.85	5.98	1.0-2.0

S. No.	Coal Seams	Thickness of Coal Seam (m)		Thickness of Parting (m)		Dominant Thickness (m)
		Minimum	Maximum	Minimum	Maximum	
12	VI Bot	0.48	1.75			0.50-1.0
	Parting			2.90	23.45	14.0-21.0
13	V Top	0.50	3.09			0.50-1.50
	Parting			9.09	18.94	11.5-18.5
14	V Mid	0.15	3.73			0.50-2.50
	Parting			4.55	15.95	0.50-12.0
15	V Bot	0.30	5.40			0.50-2.0
	Parting			15.16	30.14	17.0-23.0
16	IV Top	0.54	5.78			2.5-5.0
	Parting			5.30	20.13	6.0-10.0
17	IV Mid	0.99	7.24			3.5-7.0
	Parting			0.75	6.95	3.5-5.5
18	IV L	0.23	4.99			0.50-2.0
	Parting			0.70	4.55	0.50-2.0
19	IV Bot	0.55	5.67			1.5-3.5
	Parting			8.05	21.54	14.0-17.0
20	III L	0.10	3.25			0.50-1.5
	Parting			24.57	44.55	33.0-39.0
21	III	0.66	5.97			2.0-5.5
	Parting			31.1	55.99	33.0-51.0
22	II L3	0.50	3.09			<0.90
	Parting			13.39	40.9	28.0-38.0
23	II L2	0.07	2.68			<0.90
	Parting			5.0	60.39	35.0
24	II L1	0.05	1.54			<0.90
	Parting			1.27	20.39	3.0-14.0
25	II	0.13	5.92			1.5-2.5
	Parting			0.37	3.69	0.50-2.0
26	II L	0.05	2.45			<0.90
	Parting			Around		
27	I	0.22	0.55			27

**2.2.3 RESERVES**

As per GR, a Net Geological Reserve of 1267,145 million tonnes of coal reserves including both opencast and underground reserves varying in grade from 'A' to 'G' have been established in the block.

**2.3 BRIEF OVERVIEW OF APPROVED MINING PLAN (OPENCAST MINING)**

M/s ACMM prepared the Mining Plan for Talaiпали Coal Block in 2010 for a rated capacity of 18.00 Mtpy. As per Mining Plan, this coal block has gross geological reserves of 1400.58 MT. Opencast coal mining has been proposed upto the basal seam III for a total gross geological reserves of 1323.58 MT and the balance 77.13 MT are considered for by below ground method of mining. Salient Features of the Approved Mining Plan is given below:

Table 2-4: Salient Features of Approved Mining Plan

Sl.No	Particulars	
1.	Project Details	Location: Eastern part of Mand-Raigarh Coalfield, Dist- Raigarh, Chhattisgarh Area - 21.13 sq km
2.	Reserves (MT)	a) Gross Geological Reserves -1400.58 b) Net Geological Reserves- 1260.52 c) Mineable Reserves*/Extractable- - Opencast- 843.68 - Under ground- 17.57 d) Reserves blocked in barrier & Batter 336.69 (* Mining Loss (@ 5% ) 44.40
3.	Quarry Parameters (m)	Max. depth-404 Max. strike length-5690 Min. strike length-1370 Max. dip rise length-4760 Min. dip rise length-3060



Sl.No	Particulars						
4.	Annual Target Output (MT)	Opencast-18.0 Underground-0.72 ( at 100%) & - 0.50 (at 85%)					
5.	Total Life (Years)	Opencast- Construction -2 Production -52 Underground- Construction - 4 Production - 26					
7.	Quality of Coal ; Overall Grade - "P" Non-coking	U.H.V (K.Cal/Kg)		Ash %		Moisture %	
		Min	Max	Min	Max	Min	Max
		1310	5892	17.6	45.1	1.2	11
8.	Average Stripping Ratio Mm <sup>3</sup> /ta	4.48					
9.	Specific gravity of coal(Average)	1.65 t/cum					
10.	Method of Mining	Opencast --(Shovel-Dumper combination)/ Surface miner Underground- Continuous Miner & Shuttle car combination					

### 2.3.1 MINING STRATEGY

In the Mining plan, it is proposed to mine maximum area leaving a statutory barrier of 7.5m on surface from block boundary. It is also proposed to leave barrier of 50m from Kelo river on the eastern side of the block.

It is proposed to develop infrastructure facility like MGR, Workshop, store, Sub-station, office etc. on the South-Western corner of the property. At the end of the mining operation, it is suggested to dismantle all infrastructure facility on the South-Western corner of the property to extract blocked coal below infrastructure facilities.

To ensure availability of adequate quantity of coal, it has been planned to commence mechanized mining operations by having two independent opencast mines at eastern & western extremities. Accordingly mining operation has been envisaged by driving two

access trenches, one on the east side of the North Eastern side and the other on the western side of the property as shown in Fig 2-2 & 2-3. Both the quarries would advance towards southwards as also towards each other to finally merge into one entity after about 20 years of mine operation.

Internal dump will start once sufficient void space gets available from 5th year of mine operation. This de-coaled area can be used for internal dumping. Initially overburden will be placed as temporary external dump within the mine property.

The lead of Coal and lead of OB/partings has been considered as 2.0-3.0 Km.

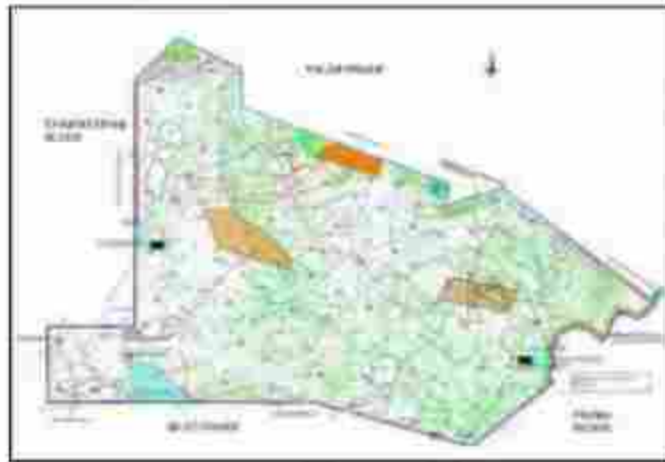


Figure 2-2: First year Strip & Parting Mining Plan

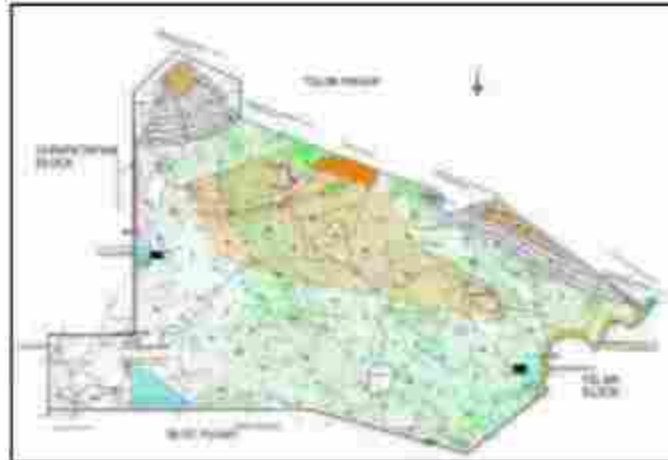


Figure 2-3: Fifth year Steep Plan as per Mining Plan

Some major system parameters for both coal winning & OB removal are given below:-

a) For 35 M<sup>3</sup> Electric Rope shovel to be deployed for removal of overburden.

- 1) Height of the bench - 20 m
- 2) Width of the working bench - 50m
- 3) Width of the non-working bench - 30m
- 4) High wall angle of the bench - 70° to the horizontal

b) For 20 M<sup>3</sup> Hydraulic shovel to be deployed for removal of overburden.

- 5) Height of the bench - 15m
- 6) Width of the working bench - 50m
- 7) Width of the non-working bench - 30m
- 8) High wall angle of the bench - 70° to the horizontal

c) For 12 M<sup>3</sup> hydraulic shovel working in the thick seam and thick parting.

- 1) Height of the bench -15m
- 2) Width of the working bench -40m
- 3) Width of the non-working bench -25m
- 4) High wall angle of the bench - 70°

d) For 4.5 M<sup>3</sup> hydraulic shovel working in the thin seam and thin parting

- 1) Height of the bench - equal to thickness of coal seam and thickness of parting
- 2) Width of the working bench -30m
- 3) Width of the non-working bench -25m
- 4) High wall angle of the bench -70°

The above parameters may be modified according to the actual working condition. The high wall angle for the soft OB bench will not be steeper than 45°.

The Final Stage Quarry Plan and Final Stage Dump Plan is shown below in fig. 2-4 and 2-5.

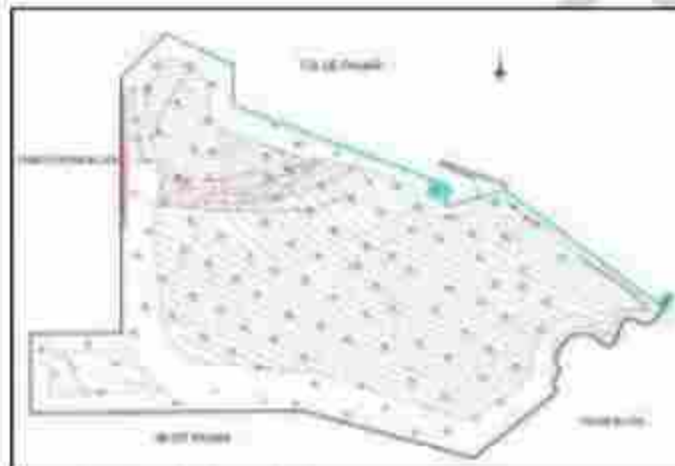


Figure 2-4. Final Stage Quarry Plan or Final Stage Dump Plan

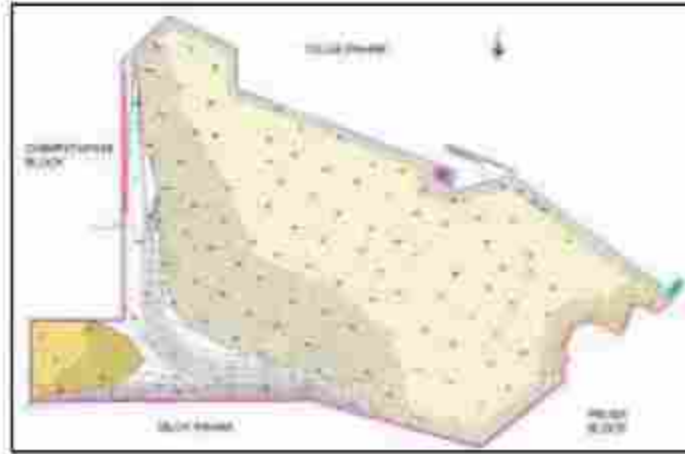


Figure 2-2: Final Slope Dump Plan as per Mining Plan

### 2.3.2 CALENDAR PROGRAMME OF EXCAVATION

The summarized calendar programme of excavation is given in Table 2-5 which has been developed based on adopted sequence of open cast mine development at optimum condition of mining operation in the block.

Table 2-5: Calendar Programme of Excavation

Year	Coal Mt	Cuttin coal MT	Nature		Running	Aug	Adjusted		Running	Aug
			OB	Cumm OB	SR	SR	OB	Cumm OB	SR	SR
			Month	Month	Cur/t	Cur/t	Month	Month	Cur/t	Cur/t
1	1.50	1.50	6.00	6.00	4.00	4.00	7.83	7.83	3.17	3.17
2	4.00	5.50	13.99	21.89	4.00	4.00	18.04	25.83	4.75	4.85
3	5.00	13.30	31.88	55.37	4.00	4.00	34.00	62.88	4.23	4.30
4	12.00	26.30	51.97	105.94	4.00	4.00	55.35	115.94	4.23	4.23
5	18.00	44.30	71.96	177.85	4.00	4.00	75.30	192.44	4.23	4.32
6	18.00	62.30	75.91	248.81	3.99	4.00	75.30	268.94	4.23	4.30
7	18.00	80.30	71.47	321.21	3.97	3.99	75.30	343.44	4.23	4.33
8	18.00	98.30	71.47	392.74	3.97	3.99	75.30	418.94	4.23	4.33
9	18.00	116.30	71.47	464.21	3.97	3.99	75.30	493.44	4.23	4.33

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Year	Coal	Cumulative coal	Reserve		Running		Adjusted		Running		Avg	
			OB	Cumulative OB	SR	SR	OB	Cumulative OB	SR	SR	SR	SR
	Mt	Mt	Mcum	Mcum	Cum/Y	Cum/Y	Mcum	Mcum	Cum/Y	Cum/Y		
10	18.00	134.30	71.47	133.87	3.87	3.88	76.30	374.94	4.25	4.27		
11	18.00	152.30	70.25	603.71	3.89	3.87	76.30	651.44	4.25	4.27		
12	18.00	170.30	69.88	679.38	3.88	3.86	76.30	727.94	4.25	4.27		
13	18.00	188.30	69.84	745.44	3.88	3.85	76.30	804.44	4.25	4.27		
14	18.00	206.30	69.88	813.30	3.88	3.85	76.30	880.94	4.25	4.27		
15	18.00	224.30	69.86	883.16	3.88	3.84	76.30	957.44	4.25	4.25		
16	18.00	242.30	69.86	953.02	3.88	3.84	76.30	1033.94	4.25	4.25		
17	18.00	260.30	70.30	1023.30	4.12	3.86	76.30	1110.24	4.33	4.27		
18	18.00	278.30	70.31	1093.24	4.17	3.86	76.30	1186.54	4.33	4.27		
19	18.00	296.30	70.31	1163.15	4.17	3.86	76.30	1262.84	4.33	4.25		
20	18.00	314.30	70.31	1233.06	4.17	4.01	76.30	1339.14	4.33	4.25		
21	18.00	332.30	70.31	1302.96	4.17	4.00	76.30	1415.44	4.33	4.25		
22	18.00	350.30	70.31	1372.89	4.17	4.04	76.30	1491.74	4.33	4.25		
23	18.00	368.30	70.31	1442.80	4.17	4.03	76.30	1568.04	4.33	4.25		
24	18.00	386.30	70.31	1512.71	4.17	4.04	76.30	1644.34	4.33	4.25		
25	18.00	404.30	70.31	1582.62	4.17	4.07	76.30	1720.64	4.33	4.25		
26	18.00	422.30	70.31	1652.54	4.17	4.08	76.30	1796.94	4.33	4.25		
27	18.00	440.30	70.31	1722.45	4.18	4.08	80.10	1873.24	4.43	4.21		
28	18.00	458.30	70.31	1792.36	4.18	4.08	80.10	1949.54	4.43	4.21		
29	18.00	476.30	70.31	1862.28	4.18	4.00	80.10	2025.84	4.43	4.21		
30	18.00	494.30	70.31	1932.19	4.18	4.09	80.10	2102.14	4.43	4.21		
31	18.00	512.30	70.31	2002.10	4.18	4.00	80.10	2178.44	4.43	4.21		
32	18.00	530.30	70.31	2072.01	4.41	4.10	80.10	2254.74	4.43	4.21		
33	18.00	548.30	82.28	2141.91	4.37	4.11	80.10	2331.04	4.43	4.21		
34	18.00	566.30	82.28	2211.82	4.37	4.13	80.10	2407.34	4.43	4.24		
35	18.00	584.30	82.28	2281.72	4.37	4.13	80.10	2483.64	4.43	4.24		
36	18.00	602.30	82.28	2351.63	4.37	4.18	80.10	2559.94	4.43	4.21		
37	18.00	620.30	84.07	2421.53	4.67	4.17	80.10	2636.24	4.43	4.21		
38	18.00	638.30	87.29	2491.43	4.83	4.18	87.84	2712.54	4.43	4.21		
39	18.00	656.30	87.33	2561.33	4.83	4.25	87.84	2788.84	4.43	4.21		
40	18.00	674.30	87.33	2631.23	4.83	4.23	87.84	2865.14	4.43	4.21		
41	18.00	692.30	87.33	2701.13	4.83	4.24	87.84	2941.44	4.43	4.21		
42	18.00	710.30	88.34	2771.03	4.81	4.26	87.84	3017.74	4.43	4.21		
43	18.00	728.30	89.60	2840.93	4.79	4.27	87.84	3094.04	4.43	4.21		
44	18.00	746.30	89.60	2910.83	4.79	4.28	87.84	3170.34	4.43	4.24		
45	18.00	764.30	89.60	2980.73	4.79	4.28	87.84	3246.64	4.43	4.21		
46	18.00	782.30	89.60	3050.63	4.79	4.30	87.84	3322.94	4.43	4.21		
47	18.00	800.30	79.84	3120.53	4.10	4.30	87.84	3399.24	4.23	4.27		
48	18.00	818.30	81.38	3190.43	4.10	4.29	78.30	3475.54	4.23	4.21		
49	10.00	835.30	41.00	3260.33	4.25	4.29	48.00	3551.84	4.20	4.21		
50	7.00	852.30	38.31	3330.24	13.79	4.37	32.40	3628.14	4.13	4.21		
51	8.00	869.30	74.92	3400.14	12.40	4.43	33.88	3704.44	4.33	4.21		
52	5.18	883.88	64.31	3470.07	13.40	4.48	31.54	3780.74	4.08	4.21		
<b>Total</b>	<b>843.88</b>		<b>3777.07</b>				<b>2777.87</b>					

It is envisaged to make two quarry entry into the mine one on the east side of the North Eastern side and one on the western side of the property shown in the final stage quarry plan (fig. 2-4). Year wise coal extraction from east and west quarry for initial five year is summarized in table below:

Table 2-2: Coal extraction from east & west quarry for initial five years

YEAR	COAL(Mt)		OB(Mcum)		Total Coal (Mt)	Total OB (Mcum)
	East	West	East	West		
1	0.45	1.05	2.45	5.30	1.50	7.65
2	1.03	2.67	5.18	13.86	4.00	19.04
3	1.58	6.22	7.06	26.94	8.00	34.00
4	2.12	10.87	8.93	46.32	13.00	59.25
5	3.48	12.32	13.04	53.46	18.00	76.50

The total mineable coal reserves have been estimated as 843.69 Mt at the corresponding OBR of 3777.07 Mm<sup>3</sup> at an average SR of 4.48 m<sup>3</sup>/t.

The rated output of 15 Mtpa would be achieved in 5th year of quarry excavation (excluding construction period).

### 2.3.3 LIST OF MAJOR HEMM

The list of major mining machineries upto target year is given below in table 2-7.

Table 2-7: List of HEMM

Sl. No.	Equipment	Size	No	Year				
				1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	5 <sup>th</sup>
<b>A Overburden</b>								
1	Electric Shovel	35 Cum	4				2	4
2	Electric Hydraulic Shovel	20 Cum	6	1	2	5	7	8
3	Electric Hydraulic Shovel	4.5 Cum	11	3	8	8	8	11
4	Rear Dumper	240T	41				21	41
5	Rear Dumper	190T	76	8	18	43	67	76
6	Rear Dumper	50 T	92	21	61	61	67	92
7	Electric Drill	311 mm	3				1	3
8	Elec. Drill	250 mm	13	2	4	8	11	13
9	Diesel Drill	160 mm	9	2	3	5	7	9
10	Dozer	450 hp	6	2	5	6	6	6
11	Dozer with ripper	850 hp	5	1	2	3	4	5
<b>B Coal</b>								
1	Diesel Hydraulic Shovel	12 Cum	1			1	1	1
2	Diesel Hydraulic Shovel	4.5 Cum	3	1	2	2	3	3
3	Surface Miner	2200	4				1	4
4	Front end loader	4.5 cum	4				2	4
5	Rear Dumper	35 T	38				19	38
6	Rear Dumper	120T	10			10	10	10
7	Rear Dumper	50 T	26	8	16	18	26	26
8	Elec. Drill	250 mm	2			1	2	2
9	Diesel Drill	160 mm	3	1	2	3	3	3
10	Dozer	450 hp	3	1	1	2	3	3
11	Dozer with ripper	850 hp	3			1	3	3
<b>C Common</b>								
1	Grader	280 hp	8	2	4	6	7	8
2	Hydraulic Shovel	6.5 Cum	2		1	2	2	2
3	Crane	100 T	4	1	2	3	3	4
4	Crane	30 T	4		1	2	2	4
5	Crane	8 T	6	1	2	2	4	6
6	Crane	5 T	4		1	2	3	4
7	Diesel B'hoie	1.0 Cum	6	2	3	4	5	6
8	FE Loader	5-6 Cum	3	1	2	2	3	3

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9	FE Loader	1-2 Cum	4	2	2	3	4	4
10	Diesel Drill	100 mm	4	1	1	2	4	4
11	Dozer	450 hp	4	1	2	3	3	4
12	Diesel bowser		8	3	4	5	7	8
13	Fire tender		3	1	2	3	3	3
14	Boom truck		3	0	1	3	3	3
15	Heavy duty toe truck		3	1	3	3	3	3
16	Fork lift truck	8T	3	1	3	3	3	3
17	Line Truck		2	1	2	2	2	2
18	Tipping truck	8T	6	2	4	6	6	6
19	Vibratory compactor		4	1	2	4	4	4
20	Tyre handler		4	1	3	3	4	4
21	Mobile maintenance Van		5	1	3	5	5	5
22	Water sprinkler	28kl	10	2	4	6	8	10
<b>D</b>	<b>Reclamation</b>							
1	Grader	380 hp	2					2
2	Dozer	450 hp	2					2
3	Water sprinkler	28kl	2					2
4	Farm Truck		2					2

#### 2.3.4 DISPOSAL OF WASTE

In the initial years, when sufficient void to the floor of the basal seam III is not created, the OB spoil generated will be temporarily accommodated within the block area to the dipside of the working area and then re-handled back in the void to the floor of the basal seam as internal dump.

Overall height of OB dump is 450 m from the deepest point of the mine floor, out of which only 60m is above quarry surface. Each tier of OB dump is of 30m height and berm width has been increased to 30m, with the result that the ultimate dump slope is 22 degrees.

Internal dump will start once sufficient void space gets available from 5th year of mine operation. This de-coaled area can be used for internal dumping. Initially overburden will

be placed at two external dump as shown in fig. 2-2 and fig. 2-3 earlier. For first four years of mine operation, OB will be accommodated in external dump only. In 5th year, majority of the OB will be dumped in external dump and only 12.29 Mcum will be accommodated in internal dump. From 9th year onward, no external dumping will be required. Hence, OBR will be accommodated in internal dump for rest of the mine life.

As there is no land available for external dump, it has been envisaged to re-handle external dump back to de-coaled area of the mine. Re-handling of overburden will start from 9th year of mine operation till 20th year of mine operation. About 264.52 Mcum of external dump will be required which has been planned to re-handle back to the de-coaled area of the mine.

Top soil is proposed to be removed separately and dumped outside the quarry in a manner so as not to lose its fertility. The top soil would be spread over the reclaimed land, afterward.

The dumping schedule is given in table 2-8 below:

Table 2-8: Dumping Schedule

Year	External dump (Mcum)		Internal dump (Mcum)		Rehandling		Total OB (Mcum)	
	Annual	Cumms	Annual	Cumms	Annual	Cumms	Annual	Cumms
1	7.65	7.65	0.00	0.00		0.00	7.65	7.65
2	19.54	26.89	0.00	0.00		0.00	19.54	26.89
3	34.00	60.69	0.00	0.00		0.00	34.00	60.69
4	55.25	115.94	0.00	0.00		0.00	55.25	115.94
5	64.21	180.15	12.29	12.29		0.00	76.50	192.44
6	45.38	225.53	31.12	43.41		0.00	76.50	268.94
7	21.17	246.70	55.33	98.76		0.00	76.50	345.44
8	17.80	264.52	58.68	157.43		0.00	76.50	421.94
9	0.00	264.52	76.50	233.93	8.12	8.12	76.50	498.44
10	0.00	264.52	76.50	310.42	18.33	26.35	76.50	574.94
11	0.00	264.52	76.50	386.92	18.13	44.38	76.50	651.44
12	0.00	264.52	76.50	463.42	18.13	62.51	76.50	727.94
13	0.00	264.52	76.50	539.92	25.42	87.92	76.50	804.44
14	0.00	264.52	76.50	616.42	25.42	113.35	76.50	880.94
15	0.00	264.52	76.50	692.92	25.42	138.77	76.50	957.44
16	0.00	264.52	76.50	769.42	25.42	164.19	76.50	1033.94
17	0.00	264.52	78.30	847.72	25.42	189.61	78.30	1112.24

Year	External dump (Mcum)		Internal dump (Mcum)		Rehandling		Total OB (Mcum)	
	Annual	Cumm.	Annual	Cumm.	Annual	Cumm.	Annual	Cumm.
18	0.00	264.52	78.30	936.02	25.42	215.03	78.30	1190.54
19	0.00	264.52	78.30	1004.32	25.42	240.45	78.30	1268.84
20	0.00	264.52	78.30	1082.62	24.07	264.52	78.30	1347.14
21	0.00	264.52	78.30	1160.92		264.52	78.30	1425.44
22	0.00	264.52	78.30	1239.22		264.52	78.30	1503.74
23	0.00	264.52	78.30	1317.52		264.52	78.30	1582.04
24	0.00	264.52	78.30	1395.82		264.52	78.30	1660.34
25	0.00	264.52	78.30	1474.12		264.52	78.30	1738.64
26	0.00	264.52	78.30	1552.42		264.52	78.30	1816.94
27	0.00	264.52	80.10	1630.72		264.52	80.10	1895.24
28	0.00	264.52	80.10	1709.02		264.52	80.10	1973.54
29	0.00	264.52	80.10	1787.32		264.52	80.10	2051.84
30	0.00	264.52	80.10	1865.62		264.52	80.10	2130.14
31	0.00	264.52	80.10	1943.92		264.52	80.10	2208.44
32	0.00	264.52	80.10	2022.22		264.52	80.10	2286.74
33	0.00	264.52	80.10	2100.52		264.52	80.10	2365.04
34	0.00	264.52	80.10	2178.82		264.52	80.10	2443.34
35	0.00	264.52	80.10	2257.12		264.52	80.10	2521.64
36	0.00	264.52	80.10	2335.42		264.52	80.10	2600.04
37	0.00	264.52	80.10	2413.72		264.52	80.10	2678.34
38	0.00	264.52	87.84	2492.02		264.52	87.84	2756.64
39	0.00	264.52	87.84	2570.32		264.52	87.84	2834.94
40	0.00	264.52	87.84	2648.62		264.52	87.84	2913.24
41	0.00	264.52	87.84	2726.92		264.52	87.84	2991.54
42	0.00	264.52	87.84	2805.22		264.52	87.84	3069.84
43	0.00	264.52	87.84	2883.52		264.52	87.84	3148.14
44	0.00	264.52	87.84	2961.82		264.52	87.84	3226.44
45	0.00	264.52	87.84	3040.12		264.52	87.84	3304.74
46	0.00	264.52	87.84	3118.42		264.52	87.84	3383.04
47	0.00	264.52	87.84	3196.72		264.52	87.84	3461.34
48	0.00	264.52	73.10	3275.02		264.52	73.10	3539.64
49		264.52	48.00	3353.32		264.52	48.00	3617.94
50		264.52	32.41	3431.62		264.52	32.41	3696.24
51		264.52	25.98	3510.02		264.52	25.98	3774.54
52		264.52	21.04	3588.32		264.52	21.04	3852.84
<b>Total</b>	<b>264.52</b>		<b>3512.55</b>		<b>264.52</b>		<b>3777.07</b>	

### 2.3.5 COAL HANDLING AND OFFTAKE

Coal from the quarry will be transported over the haul road provided in the quarry batters duly connected to various coal benches through temporary ramps. Coal dumpers would move up the access trench and on the surface up to the discharge hoppers of primary crushers. Coal will be sized to (-) 300 mm in primary crushers and subsequently to (-) 50 mm size in secondary crushers. Two independent belt conveying circuits on eastern and western side of the block have been envisaged for transporting the crushed coal to the ground bunker at coal dispatch center, planned to be constructed at the south western extremity of the coal block as shown in fig. 2-6.

Suitable arrangement will be provided to draw coal from the ground bunker in to two silos from where coal will be dispatched to the power house over dedicated "Mary Go Round" system of rail network.

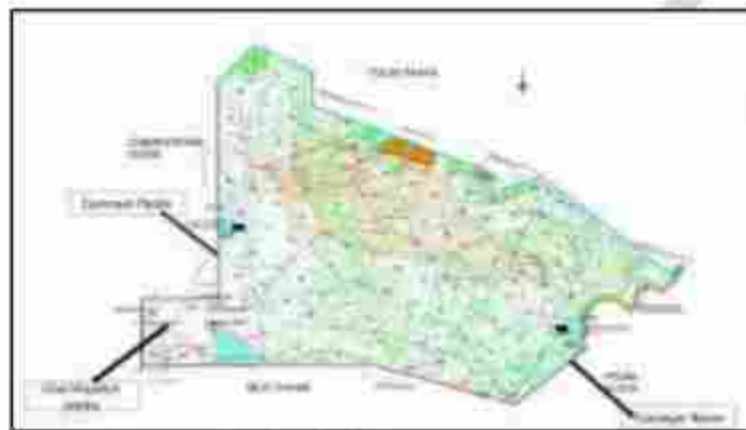


Figure 2-6. Surface Plan showing conveyor route and Coal Dispatch Centre.

**CHAPTER 3****TECHNICAL FEASIBILITY STUDY**

As mentioned earlier in the report, the need for this technical feasibility study for Talaiwalli coal block arose due to the disputes between NTPC and its MDO M/s TEMPL regarding strip ratio in Approved Mining Plan, Issue of accommodation of OB dump and unworkability of Talaiwalli mine as per Approved Mining Plan.

As per the scope, the study has been done in two parts. Firstly, the opencast mining part of the approved mining plan has been reviewed with respect to Mineable Reserves, OB quantities, Average stripping ratio and Waste Disposal Planning. Secondly, an alternate feasible option for opencast mining of the Talaiwalli Coal Block has been worked out to extract maximum open-castable reserves of coal from the block. Also, the coal excavation strategy has been reviewed in light of the alternate feasible option.

**3.1 REVIEW OF MINING PLAN (OPENCAST MINING)**

The Approved Mining Plan has been examined with respect to Stripping Ratio and waste disposal planning. The volumetric calculation is based on the MINEX model of Talaiwalli Coal Block prepared by MECL. The MINEX model, Approved Mining Plan and different Stage Pits was provided by NTPC. The Review of Mining Plan has been done up to calendar year 25 since the MDO contract has been awarded for 25 years only. However, the strip ratio of the Final Stage Quarry (52<sup>nd</sup> year) provided in the Mining Plan has been determined to find out the variance in stripping ratio, if any.

As discussed earlier, the Mining plan has envisaged two entries for mining the Talaiwalli Block: one on the east side of the North Eastern side and the other on the western side

of the property. It is mentioned in the Mining Plan that both the eastern and western quarry will advance independently and they will merge after about 20 years of mine operation. However, the Mining Plan contains only Final Stage Plans along with 1<sup>st</sup> to 5<sup>th</sup> year stage plans. The 25<sup>th</sup> year stage pit has not been provided in the Mining Plan for analysing the volumetric.

Therefore, the 25<sup>th</sup> year Pit has been provided by NTPC based on the identified sequence of operation and 25 year calendar schedule in approved Mining Plan, for like to like comparison of Reserves and Strip Ratio. The 25<sup>th</sup> year stage pit is shown below in fig. no. 3-1



Figure 3-1: 25<sup>th</sup> Year Stage Pit provided by NTPC

### 3.1.1 RESERVES, OB VOLUME AND STRIPPING RATIO

The Mineable Reserve, OB volume and Average Stripping Ratio for the Talapalli Block has been determined for Year 5, Year 25 and Year 52 (life of the mine) based on the stage pit boundaries provided in the Mining Plan or Stage Fits provided by NTPC. The details are given in table 3-1 below:

Table 3-1: Comparison of Mineable Reserve, OB volume and Stripping Ratio

Year	As per Approved Mining Plan (AMP)			As per CMPDIL based on AMP design		
	Coal (Mte)	OB (Mcum)	Stripping Ratio (cum/te)	Coal (Mte)	OB (Mcum)	Stripping Ratio (cum/te)
5	44.50	191.44	4.32	56.08	165.07	4.58
25	404.5	1758.64	4.30	430.50	2169.66	5.04*
52 (Final)	843.69	3777.07	4.48	790.81	4008.5	5.07*

\*Not Workable according to design of Approved Mining Plan as discussed later

The average stripping ratio to produce ~404.5 Mte of coal in 25 years is ~4.30 cum/te as per Mining Plan whereas examination of the Pit boundaries and designs obtained from NTPC to deliver ~404.5 Mte of coal indicates that the average strip ratio is ~5 cum/te (five). The variance in strip ratio is around 16-17%.

According to the Mining Plan, the total Mineable Coal is 843.69 Mte and the total OB volume is 3777.07 Mcum with average strip ratio of 4.48 cum/te. However, analysis of the design of the final stage pit in the Mining Plan and volumetric calculation using MINEX model provided by NTPC suggest that the total mineable coal estimated in the final stage pit is 790.81 Mte and OB volume is estimated to be 4008.50 Mcum. This gives an average strip ratio of 5.07 cum/te which is ~13% more than what is indicated in the Mining Plan.

### 3.1.2 WASTE DISPOSAL PLANNING AND AVAILABILITY OF LAND

As per the Mining Plan, about 264.52 Mcum of OB is likely to be accommodated in the temporary external dump and has been planned to be re-handled back to the de-coaled area of the mine. The temporary external dump is 60m above the ground level with maximum RL of 4360m. A particular area in the dip side within the block has been designated for temporary external dump.

Upon examining the design in Mining Plan, it is understood that the maximum OB that can be accommodated in the proposed temporary external dump is ~175 Mcum assuming the swell factor to be 1.2. Therefore, 264.52 Mcum of OB cannot be accommodated in the temporary external dump as envisaged in the Mining Plan.

Further, it has been envisaged in the Mining Plan that the internal dump will start in the 5<sup>th</sup> year of mine operation and from 5<sup>th</sup> year of mine operation sufficient void space will be created such that re-handling of temporary external dump along with yearly OB removed will be accommodated in the generated internal void. The temporary dump has been envisaged to be re-handled till 20<sup>th</sup> year of mine operation.

Upon perusal of the stage pit and sequence of mining in the Mining Plan, it is estimated that to deliver 44.50 Mte of coal in 5 years, total OB removed will be around ~204 Mcum rather than 192.44 Mcum given in the Mining Plan. The strip ratio works out to be ~4.58 cum/te rather than 4.32 cum/te in the Mining Plan. Further, it has been estimated that at the end of 5<sup>th</sup> year of mine operation, the total internal dump capacity created in the void is ~11 Mcum.



Table 3-3: Estimated OB generated and OB accommodation in designed dump at the end of 5<sup>th</sup> year

Year	Estimated OB (Mcum)	Total OB accommodated (Mcum)			Remarks
		External	Internal	Total	
5	204	178	11	189	Shortage of space for ~15 Mcum of OB

Thus, the total OB accommodation in external and internal dump is estimated to be ~189 Mcum (178 Mcum+ 11 Mcum) at the end of 5<sup>th</sup> year while the total OB estimated to be generated is ~204 Mcum.

This suggest that if the mining sequence and dumping location for temporary external dump identified in the Mining Plan is strictly adhered to, it will effectuate cessation of the opencast mining operation in 5<sup>th</sup> year due to inadequate dumping space and mine will not be able to progress thereafter.

Even when the temporary external dump height is increased to 90m above the ground level upto a RL of +390m, the maximum OB accommodation in external dump would be ~251 Mcum. In 6<sup>th</sup> year stage, total OB generated would be ~286 Mcum and total OB accommodation in internal dump would be ~25 Mcum. So, the mine operation will stop in 6<sup>th</sup> year, even if the height of the dump is increased.

To ensure progression of the mine beyond 5<sup>th</sup> year, a scenario has been evaluated considering the entire land within the lease area is available for dumping and thus external dumping shall be done in the southern extremities of the block.

As per the Mining Sequence followed in the Mining Plan, it is estimated that at the end of 25<sup>th</sup> year, total OB volume generated would be ~2040 Mcum to deliver 404.5 Mts of coal. The total internal dumping space created would accommodate ~1175 Mcum (upto RL of +360m) of OB while the Mining Plan envisages backfill of total OB generated (1738.64 Mcum) till 25<sup>th</sup> year by re-handling the temporary external dump. Evidently, the accommodation of total OB internally is not feasible and so re-handling of OB is not

possible. As it happens, the total external dump space beyond the pit boundary of 25<sup>th</sup> year is ~ 175 Mcum upto an RL of +360m. Therefore, even after utilizing the entire land available for external dump, the total dump accommodation in 25<sup>th</sup> year would be 1350 Mcum (External+Internal) while the total OB generated would be ~2040 Mcum. It is clear that there is no space for dumping available for ~690 Mcum of OB.

Stage-wise generation of OB and availability of dumping space (upto RL of +360m), considering the entire land within the block is available for dumping, for 5<sup>th</sup>, 10<sup>th</sup> and 15<sup>th</sup> year has been determined. The details are given below in table 3-3.

Table 3-3: Stage wise estimated OB generated and space available for OB accommodation

Year	Coal (Mta)	Estimated OB (Mcum)	Total Dump accommodation upto RL of +360m (Mcum)			Remarks -
			External	Internal	Total	
5	44.50	204	668	11	689	Dumping space adequate
10	134.50	675	544	209	753	Dumping space adequate
15	224.50	1160	403	507	910	Dumping space inadequate

It is evident from the above table that mining operation will come to a halt between 10<sup>th</sup> and 15<sup>th</sup> year due to non-availability of sufficient dumping space for OB. Even when the External Dump height is increased to 120m above ground level (4 deck) upto a RL of +390m, the total OB accommodation in external and internal dump will increase to only ~1070 Mcum, thus forcing the mine operation to discontinue in 14<sup>th</sup> year.

Therefore, the examination of the Mining Plan has led to the conclusion that overall, this Mining Plan does not seem to be practical and workable. Mineable coal and mining life given in mining plan is not feasible. Also dump accommodation as suggested in mining plan is not feasible. There is calculation error in stripping ratio as well.

### 3.2 ALTERNATE FEASIBLE OPTION

One of the scope of the work is to provide an alternate feasible option for opencast mining if the Mining Plan is found to be impractical. It is understood from the above that mine operation in accordance with the two entry scenario and mining sequence in Approved Mining Plan is not feasible in the Talapalli Block since opencast mining cannot progress beyond 5<sup>th</sup> year. It is also apparent that even when the entire land within the block is made available for external dumping and height of external dump within the block is increased to 120m above ground level, mine operation cannot continue beyond 14<sup>th</sup> year.

Taking into consideration the dumping constraint due to inadequate dumping space, an alternate feasible opencast mining strategy has been designed to extract maximum coal from opencast mining. Also, the mining sequence has been determined to minimize the strip ratio. A tentative calendar programme, OB disposal schedule and lead for OB/Coal has also been worked out. Schematic stage plans at an interval of 5 year has been provided in the report. Additionally, due to change in pit design and mining sequence, an alternate coal evacuation/handling strategy has been suggested.

#### 3.2.1 OPENCAST MINING STRATEGY

Opencast mining for the Talapalli coal block has been proposed upto Seam III as suggested in the mining plan to maximize the recovery of coal. It has been proposed to mine maximum area in the block with due consideration to space required within the block for external dumping. The rated capacity for the block is proposed to be 18.00 Mtpa.

Similar to Approved Mining Plan, a two-entry scenario has been envisaged: one on the north eastern side and the other on the western side. However, due to lack of adequate dumping space, the western quarry is proposed to stop after 5<sup>th</sup> years of operation and

only eastern quarry will continue thereafter. This will optimize the mineable coal and increase the life of the mine thereby conserving coal.

### 3.2.1.1 MINE BOUNDARY

The mine boundary for the western and eastern quarry has been delineated taking into consideration block boundary, surface features, strip ratio and external dump space required for continuity of mining.

#### WEST PIT

The west pit has been proposed upto Seam VII and will operate for 5 year only. This is due to the fact that backfilling of western pit would be required after 5 years to create adequate dumping space for the subsequent year's OB to be dumped. Also, the pit is designed upto VII i.e. 110m depth as there is lack of space for the pit to go upto Seam III in 5 years which is at a depth of ~250m. The pit boundaries for the western pit is given below:

**Northern Boundary** : Foot of the hill in northwest and 7.5m from the block boundary

**Southern Boundary** : Extent of the pit upto 5 year of operation

**Eastern Boundary** : 7.5m from the block and extent of the pit upto 5 year of operation

**Western Boundary** : 7.5m from the block boundary

**EAST PIT**

The East pit has been proposed upto Seam III. The major considerations for delineation of Eastern Pit boundary are strip ratio minimization and requirement of external dump space within the block. The pit boundaries for the eastern pit is given below:

**Northern Boundary** : 7.5m from the block boundary

**Southern Boundary** : 100m from the block for conveyor corridor and magazine

**Eastern Boundary** : 60m from Kelo rover and 7.5m from block boundary

**Western Boundary** : Fault F1 and an arbitrary line considering low strip ratio zone and leaving sufficient external dump space in the western side

**3.2.1.2 MINEABLE RESERVE**

For furnishing account of reserves, Net Geological Reserve has been arrived by taking geological loss of 10 % from Gross Geological Reserve. Mining loss of 5 % has been taken to arrive at the open-castable mineable reserves.

Total open-castable mineable reserve has been estimated as 411.66 Mte at a strip ratio of 4.60 cum/te. Tentative Reserve assessment for opencast mining is given below in table 3-4:

Table 3-4: Mineable reserve assessment for Opencast Mining

Particulars	Value in Mte
Net Geological Reserve as per GR	1267.15
Open-castable Net Geological Reserve	575.78
Net Geological Reserve blocked in batter	142.45
<b>Available Net Geological Reserve for Opencast Mining</b>	<b>433.33</b>
Less: Mining Loss @ 5%	21.67
<b>Mineable Reserve for Opencast Mining</b>	<b>411.66</b>

Seam-wise mineable reserve for opencast mining is furnished below in table 3-5:

Table 3-5: Seam-wise Mineable Reserve

Seams	Net Geological Reserve (Mte)	Mineable Reserve (Mte)
X-LA	0.00	0.00
X-LB	0.20	0.19
X-TOP	2.73	2.59
X-BOT	13.95	12.75
IX-L2	7.95	7.55
IX-L1	10.09	9.89
IX	40.46	38.44
VIII	51.58	48.00
VII	2.17	2.08
VI-TOP	10.28	9.77
VI-MID	67.34	63.98
VI-BOT	1.41	1.35
V-TOP	3.39	3.22
V-MID	12.80	12.16
V-BOT	18.27	17.36
IV-TOP	38.35	36.44
IV-MID	57.85	54.96
IV-L	14.13	13.43
IV-BOT	32.11	30.51
III-L	11.34	10.77
III	26.93	25.54
<b>TOTAL</b>	<b>433.33</b>	<b>411.66</b>

### 3.2.1.3 PRODUCTION TARGET AND LIFE OF PROJECT

Considering the Pit geometry and total thickness of coal in the block, the production target has been kept same as 18.00 Mtpy proposed in the Mining Plan.

For the rated capacity of 18.00 Mtpy and considering the mineable reserve of 411.66 Mtpa, the production life of Talaspalli mine is estimated to be 25 years.

### 3.2.1.4 MINING SEQUENCE AND SCHEDULE

The mining operation in Talaspalli block has been envisaged to be done through two entry. One entry will be in the north-eastern side and other entry will be in the western side. As the physical possession of land is taken, equipment will be deployed to drive two access trench on either side to reach the bottommost seam and then this two pit viz. West Pit and East Pit will advance towards the dip side.

The west pit is proposed upto Seam VII and once the base seam is reached in 4<sup>th</sup> year of operation, it will advance towards the dip. The west pit is proposed only for 5 years since operating the west pit further beyond 5 years will lead to inadequate dumping space for external dump and thus it will become an impediment to continuity in coal production. The west pit will be utilized for backfilling OS from eastern pit after 5 years.

The east pit is proposed upto Seam III and is the main pit which will operate till end of the life. During 5<sup>th</sup> year of operation, coal production from both the pit will reach 18.00 Mtpy. After 5 years, the east pit will independently produce 18.00 Mtpy till 25<sup>th</sup> year of mine operation.

Internal dump will start once sufficient void is created in the pit. It has been proposed to start internal dumping in east pit from 6<sup>th</sup> year of mine operation. The external dump is

proposed to be done on the western side of the east pit and western external dump shall be merged with internal dump of the east pit after 10<sup>th</sup> year.

The mine parameters for the east and west pit is given below in table 3-6:

Table 3-6: Mine Parameters

Sl. No.	Parameters	Unit	Value	
			East Pit	West Pit
1	Maximum depth	M	350	110
2	Maximum strike length: along the Mine Floor	Km	3.50	1.10
	along the Mine Surface	Km	4.20	1.40
3	Minimum strike length: along the Mine Floor	Km	2.25	0.90
	along the Mine Surface	Km	2.90	1.05
4	Maximum dip rise length: on the Mine Floor	Km	2.40	0.50
	on the Mine Surface	Km	3.20	0.95
5	Minimum dip rise length: on the Mine Floor	Km	2.10	0.40
	on the Mine Surface	Km	3.10	0.83
6	Area: On the Mine Floor	ha	775.70	43.43
	On the Mine Surface	ha	1171.45	111.99

The calendar plan of mining operations has been formulated based on the adopted sequence of opencast minefield development, optimum conditions of mining operations for the entire life of the planned opencast mine.

The target capacity of 18.00 Mtpa of ROM coal has been proposed to be achieved in the 5<sup>th</sup> year of mine opening. The peak volume of OS excavation is 91.08 Mcum per annum. The production schedule is given in table 3-7 below:



Table 3-7: Tentative Production Schedule

Year	Coal (Mte)			Cumm. Coal (Mte)	OB (Mcum)			Cumm. OB (Mcum)	Strip Ratio (Cum/te)	Cumm. SR (cum/te)
	East Pit	West Pit	Total		East Pit	West Pit	Total			
1	0.90	0.90	1.80	1.80	4.13	3.14	7.26	7.26	4.04	4.04
2	2.00	2.00	4.00	5.80	9.17	11.47	19.62	26.88	4.51	4.69
3	4.00	4.00	8.00	9.80	18.33	20.93	39.26	60.14	4.91	4.90
4	9.00	4.00	13.00	26.80	41.34	20.93	62.27	118.33	4.76	4.54
5	14.35	1.65	18.00	44.80	66.93	15.11	82.03	212.96	4.76	4.31
6	18.00		18.00	62.80	91.08		91.08	356.09	5.06	4.68
7	18.00		18.00	80.80	91.08		91.08	596.11	5.06	4.92
8	18.00		18.00	98.80	91.08		91.08	887.19	5.06	4.95
9	18.00		18.00	116.80	91.08		91.08	1278.25	5.06	4.96
10	18.00		18.00	134.80	88.88		88.88	1699.94	4.99	4.96
11	18.00		18.00	152.80	81.33		81.33	2148.04	4.51	4.91
12	18.00		18.00	170.80	81.33		81.33	2629.13	4.31	4.86
13	18.00		18.00	188.80	81.33		81.33	3142.33	4.51	4.69
14	18.00		18.00	206.80	81.33		81.33	3687.32	4.51	4.60
15	18.00		18.00	224.80	78.87		78.87	4264.00	4.37	4.77
16	18.00		18.00	242.80	77.00		77.00	4871.00	4.28	4.73
17	18.00		18.00	260.80	77.00		77.00	5508.00	4.28	4.70
18	18.00		18.00	278.80	77.00		77.00	6175.00	4.28	4.67
19	18.00		18.00	296.80	77.00		77.00	6872.00	4.28	4.65
20	18.00		18.00	314.80	80.34		80.34	7609.26	4.26	4.64
21	18.00		18.00	332.80	80.88		80.88	8388.14	4.48	4.63
22	18.00		18.00	350.80	80.88		80.88	9207.00	4.48	4.62
23	18.00		18.00	368.80	80.88		80.88	10065.90	4.48	4.62
24	18.00		18.00	386.80	80.88		80.88	10964.76	4.48	4.61
25	18.00		18.00	404.80	80.88		80.88	11903.66	4.48	4.60
26	7.16		7.16	411.96	32.99		32.99	12944.85	4.50	4.60
<b>Total</b>	<b>397.81</b>	<b>14.25</b>	<b>411.86</b>		<b>180.77</b>	<b>79.37</b>	<b>1894.85</b>		<b>4.60</b>	

### 3.2.1.5 MINING SYSTEM AND SYSTEM PARAMETERS

Elements of mining system have been determined in accordance with the parameters of excavation, transport equipment and parameters of drilling and blasting. However, the space constraint for dumping the OB has been the most important factor taken into consideration for designing the mining system, since the mining system plays an important role for determining the void created for internal dump.

With due consideration to geo-mining characteristics of the deposit and as envisaged in the Mining Plan, the mine is proposed to be worked by shovel-dumper combination as well as Surface Miner.

Design of mining system has been done considering safety guidelines of Directorate General of Mines Safety (DGMS). However, during mine operations, the safety rules, regulations and various circulars issued by DGMS should be strictly followed and adhered to.

The height of the shovel-benches in OB varies from inter-burden thickness to 10-12m. The width of the working benches has been considered as 40m and the width of non-working benches has been considered as 25m. Considering the flat dip ( $4^{\circ}$ - $8^{\circ}$ ) of the seams, it is proposed to excavate the OB from advancing benches by inclined layers parallel to seam floor. This eliminates the need to cut new horizons from the side of seam roof and simplifies water drainage from the benches to central sump.

The slope of each bench is proposed as  $70^{\circ}$ . But the overall running slope in working faces will be around  $20^{\circ}$ . The ultimate pit slope is varies between  $33^{\circ}$  deg to  $42^{\circ}$  deg.

Persistent bands of thickness more than 1m present in coal seams are proposed to be mined separately.

Bench height of OB dumps formed by Shovel-Dumper system will be 30m and slope of individual dump benches will be 37° (equal to angle of natural repose of OB material). Width of berm between two adjacent benches will be 30 m.

Proposed System Parameters are tabulated and given below in table 3-8.

Table 3-8: System Parameters

Sl. No.	Particulars	Unit	Pit	Dump
1	Bench height	m	10-12	30
2	Working bench width	m	40	30
3	Nonworking bench width	m	25	30
4	Bench slope	Deg	70	37

Above mentioned system parameters are indicative in nature. Referring to Regulation no. 106, CMR 2017, and DGMS circular no. 3, 2020, it is imperative on part of the owner to carry out slope stability study to determine acceptable system parameters i.e. overall slopes of permanent dump and pit walls.

### 3.2.1.6 COAL AND OB TRANSPORTATION

OB will be transported through flank roads in both the pit to external OB dumps and internal OB dumps.

Coal in both the pit is proposed to be transported through ramps and flank roads. Coal from east pit will be transported to mobile crushing arrangement at the surface and thereafter to Coal dispatch center by surface conveyors. Coal from west pit shall be directly transported to coal dispatch center through trucks since the pit is proposed to be operated only for 5 years and providing conveyor for surface transport will make it redundant after 5 years.

The lead for OB shall vary from about 5.00-7.25 km over the life of the mine. For West Pit, the average lead for external dumping vary from 3.25-3.75 km. For East Pit, the average lead for Internal dumping vary from 3.00-3.50 km while the average lead for external dumping vary from 6.75-7.25 km in initial 10 years and thereafter it vary from 6.00-6.50 km for next 5 years. The lead for external dumping after 15<sup>th</sup> year will be same as lead for Internal dumping.

The lead for coal vary from about 2.50 – 5.00 km over the life of the mine. For west Pit, the average lead for coal vary from 4.50-5.00 km. For East Pit, the average lead for coal vary from 2.50-4.00 km.

The lead estimation is tentative and may be estimated each year in the yearly operation plan.

### 3.2.2 WASTE DISPOSAL STRATEGY

It is envisaged that initially for 5 years, all the OB generated will be dumped externally. The external dump is proposed to be located in the western side of the east pit leaving 100m distance from east pit boundary. Once sufficient void is created after 5 years of operation, internal dumping will start and some OB will be dumped in the de-coaled area.

Initially the OB from both the east and west pit will be dumped externally as shown in the 5<sup>th</sup> year stage plan. However, after 5 years, the west pit will cease to operate and thereafter it will be backfilled with the OB generated by the east pit. This is necessary to create adequate dumping space for continuity of mine operation.

The external dumping will continue till 15<sup>th</sup> year and thereafter only tiny amount of OB of around ~1 Mcum per year will be dumped externally in the region between external dump toe and east pit boundary.

The Approved Mining Plan has proposed re-handling of OB back into the void but there is no space within the pit for re-handling and so re-handling has not been envisaged.

Out of the total OB of 1894.85 Mcum, it is estimated that 510.05 Mcum (~27%) will be required to be dumped externally and rest 1384.80 Mcum (~73%) will be dumped internally. The final height of the external dump is proposed to be around 120m above ground level upto an RL of +410m and final height of the internal dump is around 90m above ground level upto an RL of +375m. This will ensure optimization of the life of the mine to extract maximum mineable coal. However, a slope stability study will be imperative to determine final dump height and final dump slope as per regulation no. 106, CMR 2017, and DGMS Circular no. 3, 2020.

Shovel-dumper spoil dumps will be formed in benches of 30m and slope of individual dump bench will be 37° (equal to angle of natural repose of OB material). The width of berm between two adjacent benches will be 30 m. Overall slope of dump works out to be 22°- 24°. Top soil wherever available will be stacked separately which will be used up for spreading over the completed OB dumps. For the formation of dumps and leveling of dumps, dozers will be used.

During mining operation, OB dump stability, high-wall slope stability for OB bench parameters, and maximum OB dump height should be adopted and modified as per the scientific study and DGMS permission.

Final stage dump plan, as well as stage plans also show the location of external/internal dumps showing RL as well as volume of dump.

The year-wise dumping schedule is provided in table 3-9 below:

Table 3-9: Tailings Dump Schedule

Year	External Dump		Internal Dump		Total OB	
	Annual	Cummulative	Annual	Cummulative	Annual	Cummulative
1	7.26	7.26	0.00	0.00	7.26	7.26
2	19.83	26.89	0.00	0.00	19.83	26.89
3	39.26	66.16	0.00	0.00	39.26	66.16
4	62.17	128.33	0.00	0.00	62.17	128.33
5	85.63	213.96	0.00	0.00	85.63	213.96
6	34.21	248.17	56.87	56.87	91.08	305.05

Year	External Dump		Internal Dump		Total OB	
	Annual	Cummulative	Annual	Cummulative	Annual	Cummulative
7	34.21	282.38	56.87	113.73	91.08	396.11
8	34.21	316.59	56.87	170.60	91.08	487.19
9	34.21	350.80	56.87	227.46	91.08	578.26
10	34.21	385.01	54.47	281.93	88.68	668.94
11	22.40	407.41	58.70	340.63	81.10	748.04
12	22.40	429.81	58.70	399.33	81.10	829.13
13	22.40	452.21	58.70	458.02	81.10	910.23
14	22.40	474.61	58.70	516.72	81.10	991.32
15	22.40	497.01	56.27	572.99	78.67	1070.00
16	1.80	498.81	73.40	646.39	77.00	1147.00
17	1.80	500.61	73.40	723.80	77.00	1224.01
18	1.80	502.41	73.40	799.20	77.00	1301.01
19	1.80	504.21	73.40	874.61	77.00	1378.02
20	1.80	506.01	78.64	953.25	80.24	1458.26
21	0.84	506.85	80.04	1033.29	80.88	1539.14
22	0.84	507.69	80.04	1113.33	80.88	1620.02
23	0.84	508.53	80.04	1193.37	80.88	1700.90
24	0.84	509.37	80.04	1273.41	80.88	1781.78
25	0.84	509.21	80.04	1353.45	80.88	1862.66
26	0.84	510.05	31.35	1384.80	32.19	1894.85

### 3.3 COAL HANDLING AND DISPATCH ARRANGEMENT

The mine is proposed to work through two quarries: East Pit and West pit. Talaspalli mine is planned for the production of 18.0 Mtpa of ROM coal from mine. As proposed in the Approved Mining Plan, coal will be produced through shovel dumper and surface miner (-100 mm size). Therefore, crushing of coal will also be required for handling and despatch. Total coal produced from Talaspalli Project will be loaded into railway wagon at nearby new proposed railway siding through silo and RLS for final despatch. A railway siding has been proposed in the south-western part of the block for coal loading and despatch.

Coal handling plant is proposed to cater entire production of coal from OCP and accordingly facilities of receiving, required crushing system, conveying, reclamation of coal from stockpile with conveying through belt conveyors to silo and loading into rail wagon through Rapid load out system.

#### **Eastern quarry:**

The proposed coal handling system includes receiving of ROM coal at surface. ROM coal from eastern quarry will be transported at surface through dumpers/trucks which will be received in receiving hoppers for conveying of coal through belt conveyors.

Suitable receiving arrangement for coal produced through shovel dumper /surface miner (-100 mm size) in Truck receiving station has been proposed for receiving of these coal at surface near the quarry mouth of the mine. These receiving arrangement for coal have been proposed near mine quarry mouth to minimize the truck/dumper movements. The receiving pit/ station may be shifted as per the mine advancement and requirement during mine operation.

At this stage, truck receiving hoppers are considered, however, suitable alternative receiving arrangement either through Reclaim feeder/ Chain feeder/Truck receiving station may also be considered at later stage according to mine condition and space availability at receiving pits.

ROM blasted coal produced and transported through dumper shall also be received at surface in receiving hopper of crusher. These coal will be crushed up to (-) 100 mm size with suitable capacity of crushers/ sizes and it will also be fed to conveyors for further transportation through belt conveyors.

The above proposed receiving and crushing station have been proposed for eastern quarry and at the southern side of the mine at a suitable location. It shall be shifted as per the mine advancement of eastern quarry. The location plan shown for receiving/

crushing stations and other system of coal handling in Stage Plans are tentative and it may change as per requirement.

Coal from receiving station and crushers shall be conveyed through suitable capacity belt conveyors at surface through series of conveyors. Further this coal will be conveyed and stored into stockpile through stacker conveyors. The stockpile may be placed near proposed silo in the space provided for infrastructures.

#### **Western quarry:**

Coal produced from western quarry shall be transported by truck/ dumpers at surface and received in a hopper of crusher for crushing coal up to (-)100 mm size. This crushing station for coal will be placed at a suitable location near proposed stockpile for Silo loading arrangement. This crushed coal shall also be reclaimed into suitable capacity belt conveyor and fed to proposed stockpile. The life of this quarry is about five years only as such coal crushing and handling/ conveying set up may be provided accordingly.

#### **Loading & Despatch:**

Coal from stockpile will be reclaimed through suitable capacity feeders/reclaimers and fed to proposed silos through suitable capacity of belt conveyors. The coal will be loaded in to railway wagons through Rapid load out system having suitable capacity pre-weigh hoppers with loading Silo. Two nos. silo will be placed on two different rail lines of proposed railway siding for loading of coal into railway wagons. Both the silos are connected with the bridge conveyors for feeding of coal into silos to ensure flexibility in loading.



**CHAPTER 4****CONCLUSION AND RECOMMENDATIONS****4.1 KEY FINDINGS AND RECOMMENDATIONS**

In light of the review of the Approved Mining Plan and technical feasibility study done in the earlier chapter, some of the key findings are summarised below:

- The mine operation as per Approved Mining Plan is not feasible and if executed, will cease to operate in 5<sup>th</sup> year and beyond. This is because of the fact that designated dumping space in the Mining Plan for temporary external dump is not adequate and there would be no space left for dumping OB in 5<sup>th</sup> year of operation.
- It is also evident that even if the entire land within the lease area is made available for dumping and external dump height is increased to 120m above ground level as opposed to 60m in the Mining Plan, the mine will still not be able to operate beyond 14<sup>th</sup> year when the mining sequence of the Approved Mining Plan is followed.
- The mineable reserve for opencast mining as per Approved Mining Plan is 843.69 Mte at an average strip ratio of 4.48 cum/te for a life of 52 years. This mine cannot operate for 52 years attributable to the lack of land available within the block for accommodating OB. Also, while examining the pit design of the Mining Plan, it was found that the total mineable coal with opencast mining would be ~790.80 Mte at an average strip ratio of ~5.07 cum/te assuming there is no dumping space constraint and the mine operation is feasible for the entire projectised area in the Mining Plan.

- The Approved Mining Plan envisages total coal production of 404.50 Mte of coal at an average strip ratio of 4.30 cum/te for first 25 years, which is the contract period of MDO appointed by NTPC. Although mining till 25<sup>th</sup> year as per design of Mining Plan is impractical, the average strip ratio to deliver 404.50 Mte of coal in accordance with the sequence of the Mining Plan would be around ~5.04 cum/te assuming there is no dumping space constraint and mine operation is feasible till 25<sup>th</sup> year.
- A feasible option has been prepared after detailed analysis of the geo-mining parameters of the block and it has been ascertained that the total mineable coal from opencast mining would be around ~411.66 Mte at an average strip ratio of 4.60 cum/te as opposed to 343.69 Mte at an average strip ratio of 4.48 cum/te given in the Mining Plan. This is due to inadequate space available within the block for accommodation of QB. Additionally, the life of the mine would be around 26 years as opposed to 52 years in the Mining Plan.
- Pit boundary, mining sequence, external dump location and final height of the external dump is proposed to be changed to ensure continuity of mine operation and to extract maximum coal from opencast mining.
- Mine system parameters is proposed to be modified to ensure optimization of dump generation and creation of void. The change in bench parameters would necessitate review of equipment configuration proposed in the Approved Mining Plan.
- Two pit operation has been envisaged for 5 years and thereafter only east pit can continue since continuance of west pit will become a hindrance to coal production in subsequent years due to inadequate dumping space.

- Re-handling of OB has not been envisaged as there is no space within the pit for accommodating re-handled external dump.
- Since the west pit will operate only for 5 years, it is prudent to use conveyor transport only for east pit and coal from west pit (~14.25 Mta) shall be directly transported to the coal dispatch centre through trucks for 5 years.
- The lead for OB shall vary from about 3.00-7.25 km and the lead for coal vary from about 3.50 – 5.00 km over the life of the mine. The lead may be estimated each year in the year-wise operation plan.

In view of the above findings, it is evident that the current Mining Plan appears to be impractical. Therefore it is imminent to modify the Mining Plan and get the competent approval considering the proposed alternate feasible option since all the crucial parameters viz. opencast-able mineable reserves, strip ratio, opencast mine boundary, calendar programme of excavation, opencast mine life, dumping location and dump schedule, lead distance, system parameters etc. would significantly change from the Approved Mining Plan.

### ANNEXURES

#### ANNEXURE-I: Letter from NTPC requesting CMPDI to be Independent Consultant



Ref No: NTPC/TA-4274/2022-23

07/06/2022

To,  
 Dr. A K Saha  
 Director (Technical)  
 Planning & Design  
 CMPDI,  
 Kanchi Road,  
 Ranchi

Sub: Consultancy for review of Mining Plan of Talaspalli Coal Block as Independent Consultant

Sir,

Talaspalli coal block, located in West Singhbhum, Chhattisgarh, was initially allocated to Ministry of Coal on 25/11/2008. In the year of allocation, the block was originally awarded to NTPC engaged by MDCI. In revised allocation and preparation of Geological Report (GR) on 14/07/2009, upon completion of about 40% (approx) (SRDA 13/204 17/2009) in 2009, Jharkhand State Govt. (JG) was awarded on 20/06/2009.

After receipt of the GR, NTPC appointed Advanced Oad Management & Marketing Pvt. Ltd (AOMM) as consultant for preparation of Mining Plan on 24/06/2009. Mining Plan prepared by AOMM was approved by Ministry of Coal for a mine capacity of 0.8 MTPA, on 17/03/11. Subsequently, all statutory clearances were obtained on the back of the approved Mining Plan.

The Analysis of Approved Mining Plan is given in table

Sl.	Monthly Reserves (MMT)	Production (MTPA)	Shipping Rate (Cm/yr)	Life of the Mine (Yrs)
1.	44.33	177.37	4.33	12
2.	428.20	1750.00	4.33	20

Subsequent to the cancellation of allocation of Talaspalli coal block on account of the 20A issued by MHP, Government of India in Sep-14, the block was allocated to NTPC on 05/09/2015.

NTPC appointed M/s. Devasi Engineering Private Limited (DEPL), as Mine Development/Operator (MDO) on 20/06/2015 for development and operation of Talaspalli Coal Block. During the contract period, DEPL has to invest Rs. 25 Million towards the cost of an average indicative Shipping Rate of 4.33 Cm/yr for 20 years including the handling of 284 M Cum. of COB dumped in proposed submergible dump.

DEPL, after the award of work, through various correspondence and meetings, claimed that as per their calculation 454 MMt of coal can be extracted at a shipping rate of 4.33 Cm/yr as specified in the approved Mining Plan. As per their estimation by various pre-design, shipping rate is varying between 4.30 to 5.20 Cm/yr. Further, DEPL claims that excess COB generated cannot be accommodated in the designated dump under the approved Mining Plan and 100% of handling of COB is also not possible. DEPL also stated that lot of operations is not feasible at the shipping rate and mine operations would become uneconomical after 5 years of operation if they follow the approved Mining Plan.

*(Signature)*  
 Chief Mining Engineer, Talaspalli Coal Block, MHP, West Singhbhum District, Kanchi Road, Ranchi, Chhattisgarh  
 Prepared by: NTPC, Ranchi. CMPDI, Ranchi. Talaspalli Coal Block, West Singhbhum District, Kanchi Road, Ranchi, Chhattisgarh.  
 Website: www.cmpdi.co.uk



NTPC had a series of discussions with TEMPL for the past 5 months and every time it was communicated to them to start the mining operations as per the approved Mining Plan. It was also agreed to have the Mining Plan may be revised after 5 years of operation, after obtaining sufficient additional information.

In the meantime, when discussions with TEMPL were under progress for finding feasible solution, in contrary, M/s TEMPL chose to record the Project Agreement through their notice dated 04.05.2021 and filed a Contention Case just before Hon'ble Delhi Court. When the matter came for hearing on 10.05.2021 before Hon'ble Delhi Court, counsel of TEMPL brought the intervention of NTPC's earlier agreement to CMPSL into the notice of Hon'ble Delhi High Court. Accordingly, Hon'ble Delhi High Court in order dated 07.08.2021 has made the following observation:

"I, Mr. Manoj Prasad, learned senior counsel for the plaintiff submits that the plaintiff's complaint has been admitted in Central Mine Planning and Design Institute (CMPDI) and the report of the said authority would be relevant for reference to M/s. Tantal Mining, learned Senior Counsel submits that he shall verify the documents made by the plaintiff and communicate the same to the defendant."

Subsequently, as per the direction of Delhi High Court, further discussions for amicable resolution of the issue were held between NTPC and TEMPL on 14.12.2021 and 21.05.2022 and when in TEMPL requested for establishment of Independent Board for review of the Mining plan of Talaspall coal mining project.

In the meantime, NTPC, in a meeting with Secretary, Ministry of Coal held on 10.05.2021 and with the Director, Authority & JAIL, Secretary, Ministry of Coal held on 13.05.2021 agreed about the issue relating to re-approval Mining Plan of Talaspall mine.

M/s TEMPL, vide letter dated 01.05.2021, requested to M/s NTPC for appointment of CMPDI as an Independent Consultant for revision of the above Mining Plan as per the approved Mining Plan and also requested for sharing of the cost of the appointment of CMPDI, equally with NTPC.

Since, CMPDI, is the premier Government organization in the field of mine planning & design in India, and also as per the observation made by Hon'ble Delhi Court, M/s. on behalf of both NTPC (as) and Tantal Earthmovers Private Ltd., hereby request you to take up the consultancy assignment as an Independent Consultant for detailed study and for amicable resolution of the issues. Cost of the appointment of CMPDI, in this regard, shall be equally shared by NTPC and TEMPL.

In this regard, a list of scope of work is listed below:

- 1) Review of the Mining Plan of Talaspall coal mining project for last 25 years and the life of mine (27 years) with reference to various plan of execution. Coal & Ore, mining plan, striping schedule (incl. external and in-handling), feasibility of the project, etc.
- 2) Review of all documents - writings / correspondence being obtained by M/s TEMPL.
- 3) Verify stage plans for the last 25 years clearly showing position of the pit, external dump, and top & backfill dump.
- 4) If any deviation/irregularity is observed mining plan, is that same deviation feasible solution may be provided along with the design parameters used and assumptions made therein.

(Sd/-) S. Raju J.

For Ministry Head quarters, 11, B-Block, Sector-10, Gurgaon, Haryana. Contact: 0122-2600000. Fax: 0122-2600001. Regional Office: NTPC, Block-1, Sector-10, Gurgaon, Haryana. Contact: 0122-2600000. Fax: 0122-2600001. Website: www.nptcltd.co.in



Page 3

☛ A detailed report to be submitted including the findings of the review with covering of the entire scope.

You are requested to kindly take up the consultancy assignment on urgent basis. Cost of the assignment/fee of DMPCD, shall be taken care of jointly. In this regard, we would request you to initiate you that the next date of meeting in the Delhi High Court is scheduled to be held on 27.12.2022.

Thanking you,

Yours faithfully,

(Pankaj Malhotra)  
Executive Director (Coal Mining)  
e-Mail: [pankajm@nptcl.com](mailto:pankajm@nptcl.com)  
Mobile: 989994004



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APX

ANNEXURE-II: Consent from TEMPL to engage CMPDI to review the Mining Plan

**THRIVEN EARTHMOVERS PRIVATE LIMITED**

A World Class Mine Developer Operator  
CIN: U0802112109PTC020807



May 21, 2021

Ref: TEMPL/TC/Consent/2021-2022-11

To:  
Proposed Project  
Talaspalli CMP  
ETPC Ltd.  
Lakshya Road, Bhadrachalam  
District: Nellore-522111  
Chhattisgarh

- Ref:**
- (1) Order dated 10.08.2021 by Hon'ble Delhi High Court in C.O. No. 2108/2021, Thriven Earthmovers Private Limited v. ETPC Ltd.
  - (2) Meeting between representatives of ETPC and TEMPL on 14.08.2021 and 21.08.2021
  - (3) ETPC's email dated 10.08.2021, 2.9.2021

**Sub:** Engagement of the Central Mine Planning and Design Institute Limited (CMPDI) to review and put conditions pertaining to the Talaspalli Coal Mining Project.

Dear Sir,

Present to the Hon'ble Delhi High Court's order dated 10.08.2021, ETPC and TEMPL, representatives had participated in meetings on 14.08.2021 and 21.08.2021 to resolve outstanding issues and bring an amicable solution.

TEMPL, submitted ETPC its approach, CMPDI, jointly sharing all details of each other's possession, including descriptions, to review the technical issues pertaining to the development and 22-year extension of the Talaspalli Coal Mining Project. TEMPL agreed to a joint meeting to CMPDI, as an Independent Consultant/Agency, and would bear the costs of CMPDI with ETPC for the engagement. The scope of work shall be as defined by us in Annexure-1.

You are requested to take necessary action to appoint CMPDI, as per annex. We would be glad to assist you in any way to engage jointly with CMPDI, as required.

Thanking You,

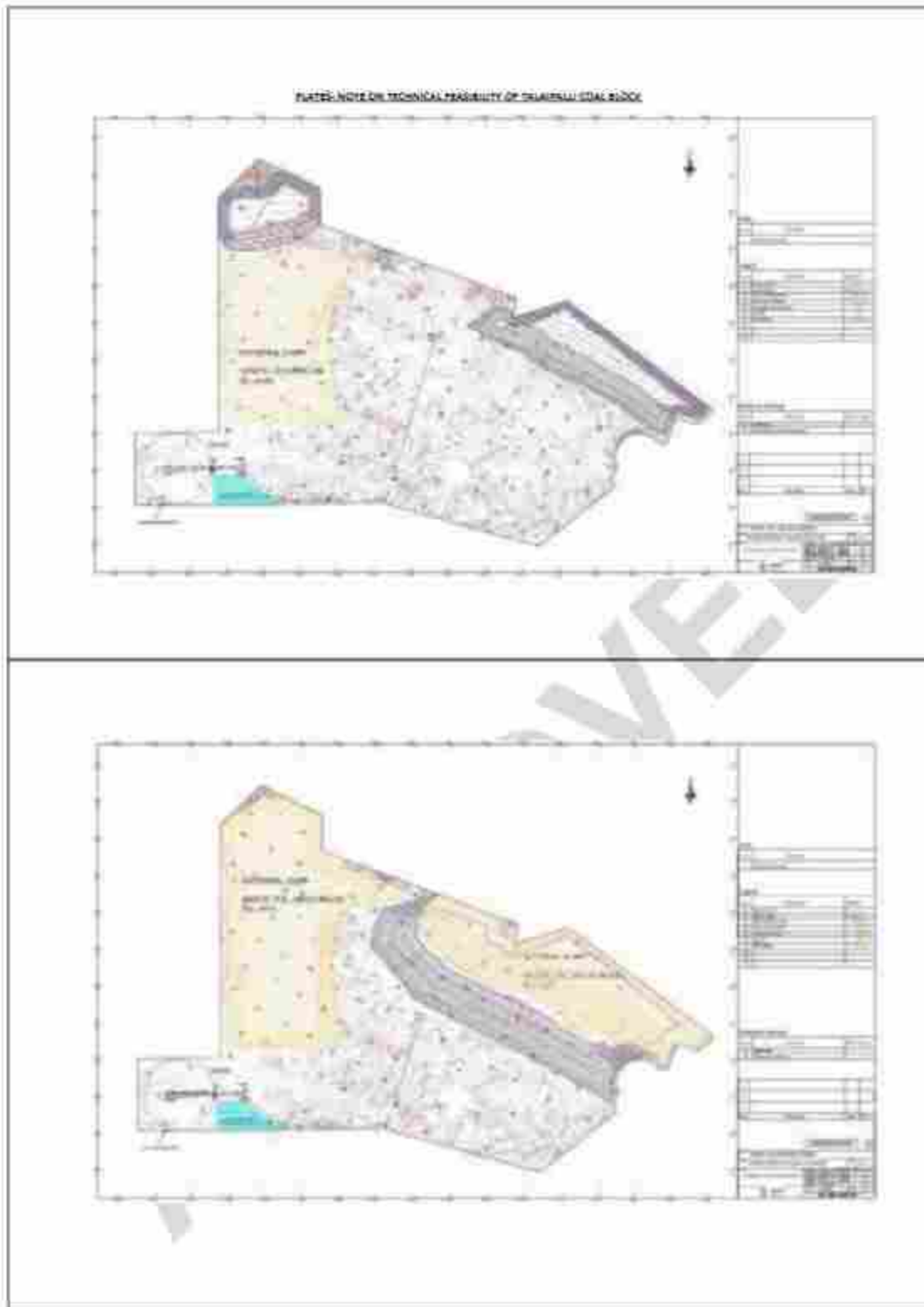
Yours faithfully,  
For Thriven Earthmovers Private Limited,

Authorized Signatory

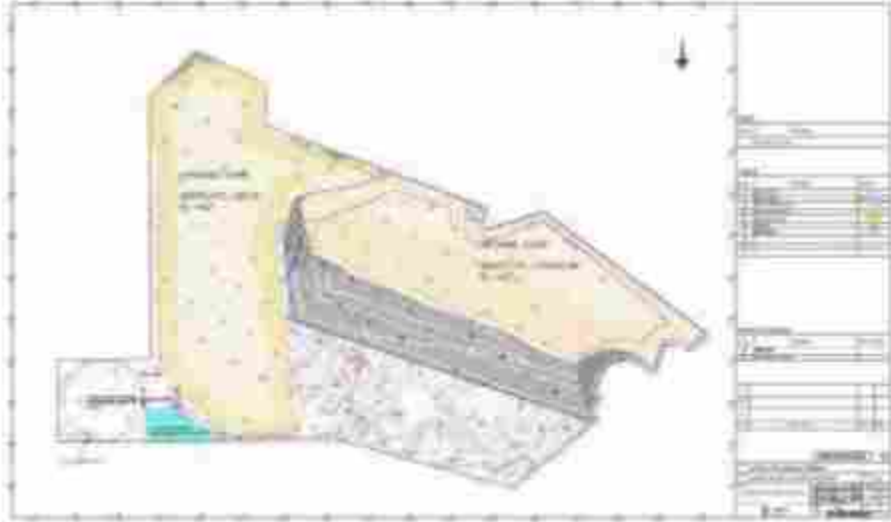
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- 1. Thriven Earthmovers Private Limited, Lakshya Road, Bhadrachalam, District: Nellore-522111
- 2. ETPC Ltd., Lakshya Road, Bhadrachalam, District: Nellore-522111
- 3. All correspondence should be sent to the above mentioned addresses.
- 4. Tel: 0864 2612222/2612223

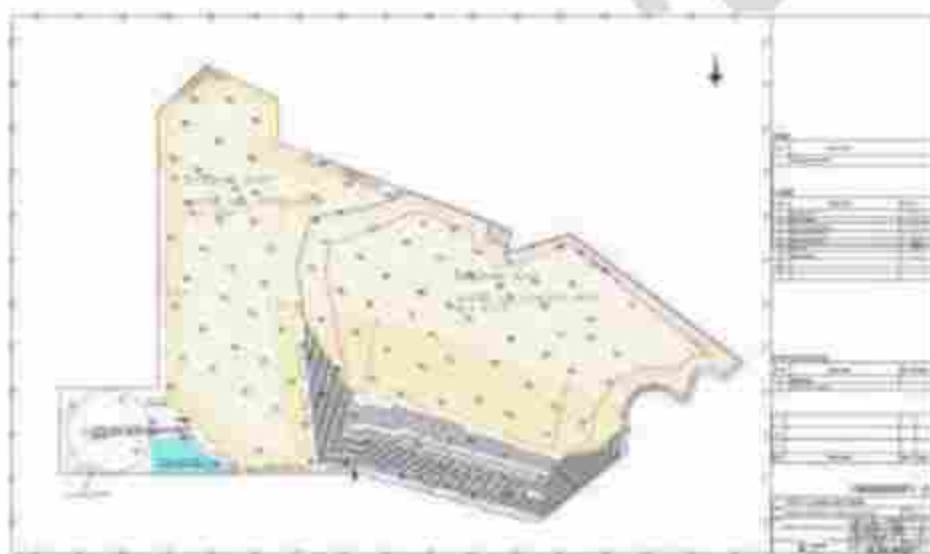
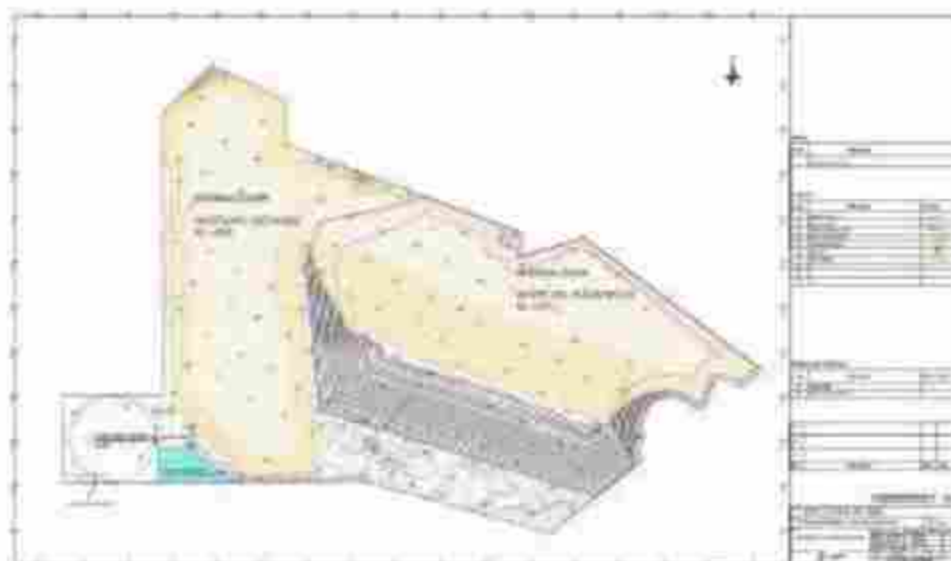
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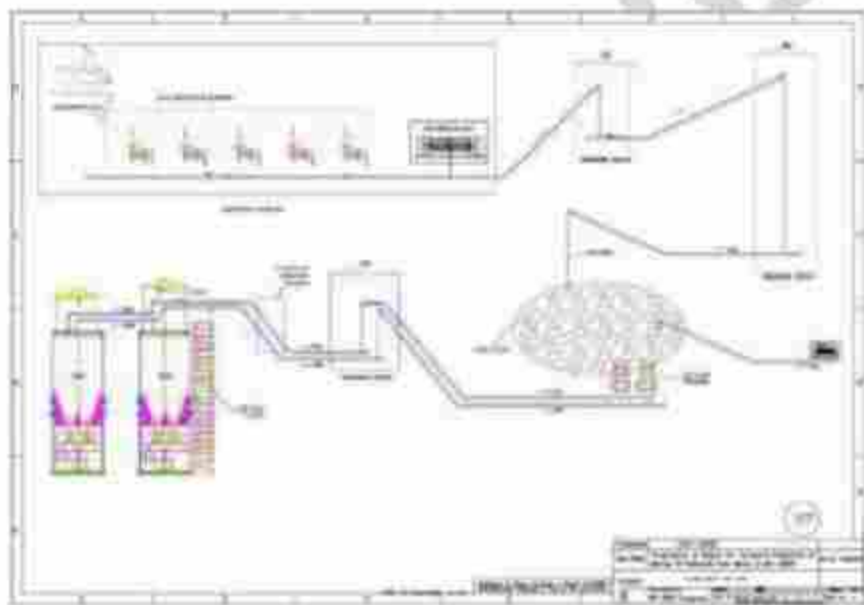
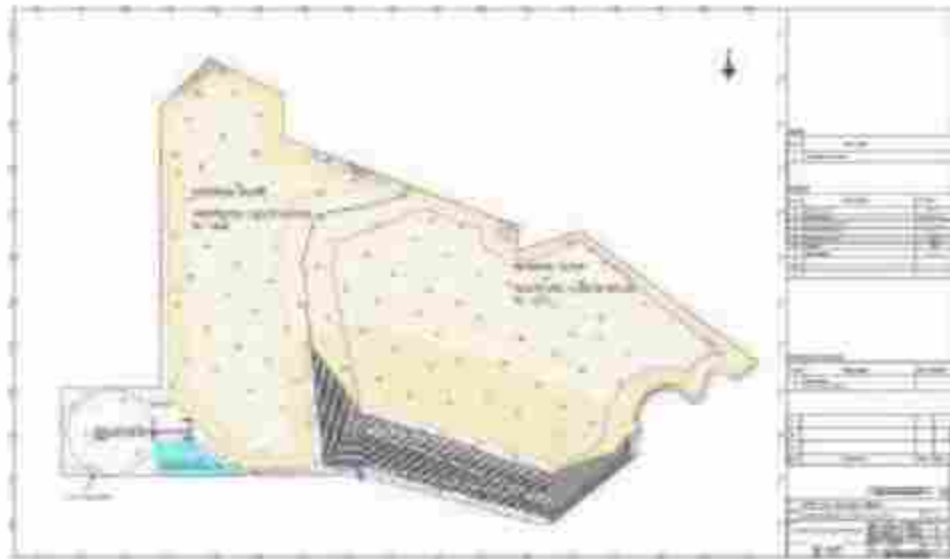






APPROVED







Expert Advice and Technical Vetting of  
Technical Feasibility Note of Talaipalli Coal  
Block prepared by CMPDIL



December 2021



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**List of Abbreviations**

<b>Mt</b>	Million metric tons
<b>Mbcm</b>	Million bank cubic meter
<b>AMP</b>	Approved Mining Plan
<b>MECL</b>	Mineral Exploration Corporation Limited
<b>CMPDIL</b>	Central Mine Planning and Design Institute Limited
<b>RoM</b>	Run of Mine
<b>TEMPL</b>	Thrivem Earth Movers Private Limited
<b>Mty</b>	Million metric tons per year



## DISCLAIMER

Given the mandate and the timeline of the work, this report is a high-level review of Approved Mining Plan of Talaiipalli Coal Mine (AMP), TEMPL's findings of the AMP, and the Technical Feasibility Note of Talaiipalli Coal Block prepared by CMPDIL.

All the data and plans provided with the CMPDIL's technical note has been relied upon and interpreted for the technical suggestions and the vetting of the report or developing any new insights about the mining strategy and sustainability of the operation.

IIT-ISM has not reviewed the MINEX Resource Model of Talaiipalli coal mine for any volume calculations. However, validations of overburden volumes have been performed on the mine stage plans (AutoCad drawings) provided by NTPC as part of the Technical Feasibility Note of CMPDIL. The level of accuracy of volume calculation would be in the range of  $\pm 10\%$ .

Further, this report is for the NTPC's own use and not for the use of any third party.

## CHAPTER 1

### Background

#### 1.1. Introduction

IIT-ISM has been approached by NTPC for an Expert Advice and Technical Verifying of Technical Feasibility Note of Talaspalli Coal Block prepared by CMPDIL.

Talaspalli coal block is located in the eastern part of Mand-Raigarh Coalfield in the state of Chhattisgarh. The coal block has been allotted to NTPC by Ministry of Coal (MoC), vide letter no. 13016/29/2003-CA-1, dated 25.01.2006, for meeting coal requirement of proposed 4000MW Lara Integrated Power Project, approximately 60 km. away from the coal block.

Mining plan of Talaspalli coal block was prepared by Advanced Coal Management & Marketing Pvt. Ltd (ACMM), New Delhi on behalf of NTPC in 2009 and got approved by Ministry of Coal for a rated capacity of 18 MMTPA, on 31.03.2010. Subsequently, the various statutory clearances were obtained on the basis of this approved Mining Plan to develop and operate the mine (Table 1.1).

Table 1.1. List of Statutory Clearances.

Description	Date of Clearance
Approval of mining plan	31.03.2010
Environment Clearance (EC)	02.01.13/13.11.15 (Rev.)
Forest Clearance (FC)	Stage I: 05.11.12, Stage II: 29.01.14, 23.05.17(Rev.)
Consent to Establish (CTE)	06.01.15
Consent to Operate (CTO)	17.03.16
Tripartite Escrow Agreement (Banker, COO & NTPC)	15.05.14 & 04.09.17
DGMS Permission	19.01.18
Coal Controllers Permission	31.01.18

Based on the approved mine plan and the subsequent approvals (Table 1.1), NTPC appointed M/s. Tiruvani Earthmovers Private Limited (TEMPL or the Contractor) as MDO on 26.08.2020 for

development and operation of Talaspalli coal mine. TEMPL disputed the technical viability of the mining plan and filed a Commercial Civil Suit before Hon'ble Delhi High Court. Later on, at the direction of the Hon'ble Delhi High Court, NTPC and TEMPL agreed to engage CMPDIL as the Independent Consultant for reviewing the approved Mining Plan and the workings of TEMPL and to suggest a feasible solution for working of the mine. CMPDIL took up this assignment and submitted its Technical Feasibility Note on 07.09.2021.

NTPC has approached IIT-ISM for the expert advice and technical vetting of CMPDIL's Technical Feasibility Report (hereinafter referred as CMPDIL Report or Report) along with a high level review of the approved mine plan (AMP) and the findings of TEMPL, and has engaged IIT-ISM for the said services vide purchase order no. 5500039997-108-1074, dated, 19.11.2021.

### **1.2. Scope of Work**

The scope of as proposed by IIT-ISM through its proposal dated, 14.11.2021, has agreed for the following scope of work:

- Technical review of Technical Feasibility Note prepared by CMPDIL.
- Technical review of Approved Mining Plan and Findings of TEMPL, and
- Suggestions/Expert advice for modification for sustainable mine

### **1.3. Exclusions**

The Scope of Work for this work does not include the followings,

- Review, development and / or modification of Mines resource model.
- Modification of the quarry plan. Any modification in the mine plan suggested / recommended by IIT-ISM shall be undertaken by NTPC. Should NTPC require any alteration in the mining plan, IIT-ISM would be able to do it under a separate agreement beyond the scope of work of this proposal.
- Any environment impact assessment study. Should NTPC require any assistance in completing the environment impact assessment study, IIT-ISM would be able to do under a separate agreement beyond the scope of work of this proposal.

## CHAPTER 2

### Review of Approved Mining Plan

#### 2.1. Geological Parameters of the coal mine

Talsipalli Coal Block ("Coal Block") is located in the eastern part of Mand-Raigarh Coalfield. The area of the block is approximately 20 sq. km. Major part of the block is covered by Barakar rock formations. As per the geological plan provided by NTPC, the barren measure rocks occur in the southern part of the block. A small patch of Barren Measure rock is also noticed in the north western part of the block (Figure 2.1). Geological succession of rocks is shown in Table 2.1.



Fig. 2.1. Geological Plan of Talsipalli Coal Block

**Table 2.1. Geological Succession of Lithologies**

Formation	Thickness (m)	Lithology
Recent	0.50 – 18.00	Soil, alluvium
Barren Measures	18.80 – 143.00	Shale, fine to medium grained sandstone, and intercalation of shale and sandstone, carbonaceous shale and thin coal bands
Barakar Rocks	30 – 596	Fine, medium and coarse grained feldspathic, grey sandstone, micaceous and laminated at places. Grey shale, fire clay, intercalation of shale and sandstone and carbonaceous shales with coal seams
Talchar Rocks	1.00 – 54.30	Khatke, greenish shale & sandstone, occasional pebbly
Basement		Metamorphic rock

#### 2.1.1. Structure of the coal formation

As shown in the geological plan (Figure 2.1), the general strike direction of coal seams in the coal block is NW-SE in the major part of the block which swings to almost east – west in the north-western and western part of the block. As reported from the approved mine plans, the dip of the coal seams varied from 4° to 8° towards south-west (Figure 2.1).

A total of 12 numbers of faults have been reported in the coal block as per the approved mine plan. The details are provided in Table 2.2.

**Table 2.2. Details of Faults**

Fault no.	Location	Trend	Fault Type	Throw
F1-F1	Northern part passing near BH No. MNRT-24, 87, 22 & 35	East-West to ENE, NE-SW dipping northerly	Dip fault	20 – 85m
F2-F2	Northern part passing through MNRT-30	Essentially east-west dipping northerly	Dip fault	0 – 10m
F3-F3	Northern part passing through MNRT-22	Curvilinear dipping northerly	Dip fault	30 – 35m
F4-F4	Northern part near BH MNRT-31, 24, 43 & 62	East-West dipping northerly	Dip fault	30 – 150m
F5-F5	Northern western part through BH MNRT-62	East-West	Strike fault	35m
F6-F6	Northern part passing through MNRT-31	WNE-ESE dipping westerly	Oblique fault	15 – 25m
F7-F7	Northern part passing through MNRT-11	NW - SE	Oblique fault	10m
F8-F8	Northern part passing through MNRT-11 & 5	NW-SE	Oblique fault	60-105m
F9-F9	Northern part passing through MNRT-101 RT-4 & MNRT-11	East - West to curvilinear	Strike / Oblique Fault	25m
F10-F10	Northern part passing through RT-7	NE-SW	Oblique / Curvilinear	0 -10m
F11-F11	Southern part	NW-SE	Curvilinear	0 – 10m
F12-F12	Southern part	NW-SE	Oblique	25 m

Most of the faults are restricted to the northern part of the block. Faults F1, F4 and F8 are major faults with larger throw.



### 2.1.2. Coal Seams

There are 27 coal seams / horizons in the coal block namely, XLA, XLB, X TOP, X BOT, IXL2, XLI, IX, VIII, VII, VI TOP, VIMID, VI BOT, V TOP, VMID, V BOT, IV TOP, IV MID, IV L, IV BOT, III L, III, IIL3, II L2, II L1, II, II L & I. The sequence of coal seams along with inter-burdens are shown in Table 2.3.

**Table 2.3. Sequence of Coal Seams & Inter-burdens / Partings**

S. No.	Coal Seams	Thickness of Coal Seam (m)		Thickness of Parting (m)		Dominant Thickness (m)
		Minimum	Maximum	Minimum	Maximum	
1	XLA	0.20	1.06			0.50-0.90
	Parting			5.41	11.90	6.0-9.5
2	XLB	0.30	1.28			0.50-0.90
	Parting			3.37	14.89	4.0-6.0
3	X Top	0.40	1.60			1.00-1.15
	Parting			0.70	3.00	1.0-2.0
4	X Bot	1.6	3.1			3.5-6.0
	Parting			2.3	20.15	3.5-16.5
5	IXL2	1.2	2.55			1.2-2.0
	Parting			13.59	21.54	17.0-18.5
6	IXL1	0.36	1.85			1.2-2.0
	Parting			5.65	11.87	6.0-8.0
7	IX	0.96	6.96			3.5-6.0
	Parting			6.30	16.15	9.0-12.0
8	VIII	2.06	6.64			4.0-6.5
	Parting			17.68	42.01	20.0-25.0
9	VII	0.10	3.50			0.50-1.0
	Parting			1.08	17.44	4.0-14.0
10	VI Top	0.37	3.42			1.2-3.0
	Parting			0.56	3.25	0.5-1.5
11	VI Mid	3.09	10.01			5.0-9.0
	Parting			0.85	5.98	1.0-2.0

12	VI Bot	0.48	1.75			0.50-1.0
	Parting			2.80	23.45	14.0-21.0
13	V Top	0.50	3.09			0.50-1.50
	Parting			9.09	18.94	11.5-18.5
14	V Mid	0.15	3.73			0.50-2.50
	Parting			4.55	15.95	0.50-12.0
15	V Bot	0.30	5.40			0.50-2.0
	Parting			15.16	30.14	17.0-23.0
16	IV Top	0.54	5.78			2.5-5.0
	Parting			5.30	20.13	6.0-10.0
17	IV Mid	0.99	7.24			3.5-7.0
	Parting			0.75	6.95	3.5-5.5
18	IV L	0.23	4.99			0.50-2.0
	Parting			0.70	4.55	0.50-2.0
19	IV Bot	0.55	5.67			1.5-3.5
	Parting			8.05	21.54	14.0-17.0
20	III L	0.10	3.25			0.50-1.5
	Parting			24.57	44.55	33.0-39.0
21	III	0.66	5.97			2.0-5.5
	Parting			31.1	55.99	33.0-51.0
22	II L3	0.50	3.09			<0.90
	Parting			13.39	40.9	28.0-38.0
23	II L2	0.07	2.68			<0.90
	Parting			5.0	60.39	35.0
24	II L1	0.05	1.54			<0.90
	Parting			1.27	20.59	3.0-14.0
25	II	0.13	5.92			1.5-2.5
	Parting			0.37	3.89	0.50-2.0
26	II L	0.05	2.45			<0.90
	Parting			Around		
27	I	0.22	0.88			27

### 2.2. Mining parameters:

As per the approved mining plan, the proposed mining method is open cast mining with shovel-dumper-surface mine equipment systems. Open cast mining is proposed up to the floor coal seam III. Final stage quarry plan and quarry parameters are shown in Figure 2.2. and Table 2.4.

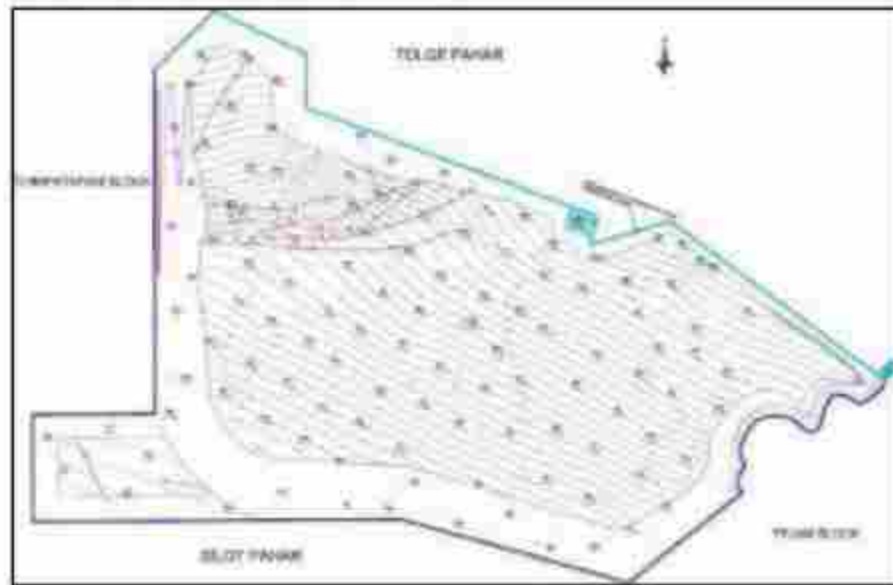


Figure 2.2. Final stage quarry plan of AMP

Table 2.4. Mining parameters

Sl. No.	Description of Mining Parameters	Values
1	Project Details	Area - 21.13 km <sup>2</sup>
2	Reserves (hIT)	Gross Geological Reserves (hIT): 1400.58 Net Geological Reserves (hIT): 1260.52 Mineable Reserves * Extractable- OC: 843.88 U/G: 17.57 Coal blocked in barrier & batters: 336.69 Mining Losses Considered (@ 5%): 44.40
3	Pit Parameters (m)	Max. depth of OC mine: 404

		Strike lengths (m):	
		Max.	6690
		Min.	1370
		Dip-rise lengths (m):	
		Max.	4760
		Min.	3060
4	Annual Coal Target Output (MT)	OC:	18.0
		UG:	0.72
5	Life of the Mine (LOM) (Years) (*: Mine construction period)	OC:	1* + 52 = 54
		UG:	4* + 26 = 30
6	Average Specific gravity of coal		1.65
7	Equipment Systems Proposed for Mining	OC: Shovel – Dumper for Overburden, and a combination of Shovel / Loader – Dumper and Surface Miner for Coal.	
		UG: Continuous Miner & Shuttle Car Combination	
8	Average lead for Coal and Overburden (km)		2-3
9	Overall coal quality: Grade - "F" Non-coking		<b>U.H.V (K.Cal /Kg.)</b>
		Min. - 1310	Max. 5892
			<b>Ash %</b>
		Min. 17.50	Max. 45.10
			<b>Moisture %</b>
		Min. 1.20	Max. 11.00

\*: Construction period

### 2.3. Mine development strategy:

Mine development strategy envisaged in approved mine plan has left a barrier of 7.5m on the surface from the adjoining coal block boundaries and 60m barrier from Kalo river on the eastern side of the Talapalli coal block. Infrastructure facilities of the project such as MGR, workshop, store, sub-station, office etc. are proposed in the S-W corner of the property. These infrastructure facilities have blocked the coal which have been proposed to be extracted towards the end of the mine life when these infrastructures would be dismantled completely.

Given a large annual capacity (18.0 MTPA) of the mine and a high stripping ratio (4.30), high-capacity mining equipment have been proposed for coal extraction, overburden removal and the auxiliary

operations of the mine. Approved mining plan envisaged two pit mining operations at eastern & western extremities respectively of the coal block with respective east and west pit external dumps for overburden dumping in the initial years (Figure 2.3).



Figure 2.3. Two-pit mining operation at the end of 1<sup>st</sup> year operation of AMP

### 2.3.1. Calendar program of excavation and dumping schedule:

Both east and west pit advance towards the dip direction and finally merge to become a single pit at the end of 20 years of mining operation. Internal dumping / backfilling is envisaged to begin in the 5<sup>th</sup> year of mining operation once sufficient void is created within the pit. In the absence of land available for external dumping beyond the leasehold boundary / coal bearing area, initial overburden produced up to 4<sup>th</sup> year of quarry operation (115.94 million m<sup>3</sup>) is to be put entirely as an external dump on the lease hold (herein after referred as "External" or "On - Pit Dump") (Figure 2.3.) on the dip side. In the 5<sup>th</sup> year of mining operation, the

majority of the OB is dumped externally, only 12.29 million m<sup>3</sup> is accommodated internally (Table 2.7). Year wise coal extraction and overburden removal program of east and west pits for initial five year are shown in Table 2.5.

**Table 2.5. Coal production and overburden removal program of east and west pit**

Years	Coal (Mft)		OB (Mbcm)		Total Coal (Mft)	Total OB (Mbcm)
	East	West	East	West		
1	0.45	1.05	2.45	5.2	1.5	7.65
2	1.03	2.97	5.18	13.86	4	19.04
3	1.68	6.32	7.06	26.94	8	34
4	2.13	10.87	8.93	46.32	13	55.25
5	5.48	12.52	23.04	53.46	18	76.5

Note: Calendar program of excavation for east and west pit after 5<sup>th</sup> year till the merger of the pit is not provided.

From 5<sup>th</sup> year to 8<sup>th</sup> year, due to the lack of space available for internal dumping, the total overburden quantity of 306 million m<sup>3</sup> is split into external dump (148.58 million m<sup>3</sup>) to be placed on the on-pit dump and internal dump (157.42 million m<sup>3</sup>). From 9<sup>th</sup> year onward, no external dumping is proposed as the entire overburden quantity is accommodated in the internal dump for the balance period of the mine life. The entire external dump (total quantity - 264.52 million m<sup>3</sup>) is re-handled back to within the quarry from 9<sup>th</sup> year until 20<sup>th</sup> year. The two quarries will finally merge in the 20<sup>th</sup> year of mining operation. 25 years calendar program of excavation and dumping are shown in Table 2.6 and 2.7 respectively.

Overall height of OB dump is 450 m from the deepest point of the mine floor, out of which only 60m is above the general quarry surface up to an RL. value of +360m. Each tier of OB dump bench is of 30m height and berm width 30m, resulting into an ultimate dump slope is 22 degrees.

Table 2.6. Calendar Program of coal production and overburden removal

Year	Coal	Cum. coal	Volume of overburden (Normal)				Volume of Overburden (Adjusted)			
			Current		Average		Current		Average	
			OB	OR	SR	SE	OB	OR	SR	SE
	Mt	Mt	M.cum	M.cum	Cum %	Cum %	M.cum	M.cum	Cum %	Cum %
1	1.50	1.50	8.00	8.00	4.00	4.00	7.83	7.83	5.10	5.10
2	4.00	5.50	12.99	12.99	4.00	4.00	19.84	24.89	4.78	4.91
3	1.00	13.50	31.99	31.97	4.00	4.00	34.00	60.89	4.25	4.50
4	11.00	24.50	51.97	100.94	4.00	4.00	53.23	115.94	4.25	4.58
5	11.00	44.50	71.96	177.90	4.00	4.00	74.50	192.44	4.25	4.52
6	13.00	62.50	71.91	249.81	4.00	4.00	78.50	249.94	4.25	4.50
7	11.00	80.50	71.47	321.27	3.97	3.99	78.50	343.44	4.25	4.39
8	11.00	98.50	71.47	392.74	3.97	3.99	78.50	421.94	4.25	4.28
9	11.00	116.50	71.47	464.21	3.97	3.98	78.50	498.44	4.25	4.28
10	11.00	134.50	71.47	535.67	3.97	3.98	78.50	576.94	4.25	4.27
11	11.00	152.50	70.82	607.22	3.99	3.97	78.50	651.44	4.25	4.27
12	11.00	170.50	69.88	678.79	3.88	3.98	78.50	727.94	4.25	4.27
13	11.00	188.50	69.88	749.44	3.88	3.95	78.50	804.44	4.25	4.27
14	11.00	206.50	69.88	820.33	3.88	3.91	78.50	880.94	4.25	4.27
15	11.00	224.50	69.88	891.18	3.88	3.94	78.50	957.44	4.25	4.28
16	11.00	242.50	69.88	962.02	3.88	3.94	78.50	1033.94	4.25	4.28
17	11.00	260.50	71.30	1033.32	4.18	3.99	78.50	1112.24	4.35	4.27

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18	11.00	278.50	76.81	1107.24	4.27	3.98	78.50	1190.74	4.35	4.27
19	11.00	296.50	76.81	1184.31	4.27	3.99	78.50	1269.24	4.35	4.28
20	11.00	314.50	76.81	1261.38	4.27	4.01	78.50	1347.74	4.35	4.28
21	11.00	332.50	76.81	1337.98	4.27	4.02	78.50	1425.24	4.35	4.29
22	11.00	350.50	76.81	1414.39	4.27	4.04	78.50	1502.74	4.35	4.29
23	11.00	368.50	76.81	1491.38	4.27	4.05	78.50	1582.24	4.35	4.29
24	11.00	386.50	76.81	1568.72	4.27	4.06	78.50	1660.74	4.35	4.30
25	11.00	404.50	76.81	1645.85	4.27	4.07	78.50	1738.24	4.35	4.30
26	11.00	422.50	76.81	1722.94	4.27	4.08	78.50	1814.74	4.35	4.30
27	11.00	440.50	76.81	1797.45	4.14	4.08	80.10	1897.84	4.45	4.31
28	11.00	458.50	74.30	1872.34	4.18	4.08	80.10	1977.14	4.45	4.31
29	11.00	476.50	76.80	1947.26	4.18	4.08	80.10	2057.24	4.45	4.32
30	11.00	494.50	74.80	2022.14	4.18	4.08	80.10	2137.34	4.45	4.32
31	11.00	512.50	74.80	2097.38	4.14	4.09	80.10	2217.44	4.45	4.32
32	11.00	530.50	79.18	2178.45	4.42	4.10	80.10	2297.54	4.45	4.33
33	11.00	548.50	82.28	2259.92	4.37	4.12	80.10	2377.64	4.45	4.33
34	11.00	566.50	82.28	2341.28	4.37	4.13	80.10	2457.74	4.45	4.34
35	11.00	584.50	82.28	2422.48	4.37	4.13	80.10	2537.84	4.45	4.34
36	11.00	602.50	82.28	2503.75	4.37	4.16	80.10	2617.94	4.45	4.35
37	11.00	620.50	84.87	2589.33	4.67	4.17	80.10	2698.04	4.45	4.35
38	11.00	638.50	87.32	2671.18	4.82	4.18	87.94	2782.82	4.88	4.38
39	11.00	656.50	87.32	2754.32	4.82	4.21	87.94	2873.72	4.88	4.38
40	11.00	674.50	87.32	2838.37	4.82	4.23	87.94	2964.78	4.88	4.38

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41	13.00	490.50	37.55	2366.22	4.85	4.24	87.94	3049.40	4.88	4.40
42	13.00	710.50	54.54	3025.76	4.81	4.28	87.94	3137.24	4.88	4.42
43	13.00	728.50	55.60	3111.37	4.76	4.27	87.94	3225.08	4.88	4.45
44	13.00	746.50	56.66	3196.97	4.74	4.28	87.94	3312.92	4.88	4.44
45	13.00	764.50	57.60	3282.57	4.76	4.29	87.94	3400.76	4.88	4.45
46	13.00	782.50	58.58	3368.13	4.78	4.30	87.94	3488.60	4.88	4.46
47	13.00	800.50	59.54	3453.67	4.80	4.30	87.94	3576.44	4.88	4.47
48	13.00	817.50	61.53	3539.20	4.80	4.29	73.20	3469.64	4.88	4.48
49	10.00	821.50	41.82	3241.32	4.80	4.29	48.00	3497.64	4.80	4.48
50	7.00	832.50	64.32	3603.64	4.79	4.31	32.41	3700.05	4.83	4.48
51	6.00	838.50	74.52	3712.56	4.42	4.42	25.98	3756.82	4.35	4.48
52	5.38	843.89	64.51	3777.87	32.43	4.48	21.04	3777.87	4.50	4.48
<b>Total</b>	<b>840.68</b>		<b>3777.87</b>					<b>3777.87</b>		

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Table 2.7. Overburden dumping schedule up to 20<sup>th</sup> year of operation

Year	Extraal Dump		Intraal Dump		Rehandling		Total OS (Mcum)	
	Annual	Cumm.	Annual	Cumm.	Annual	Cumm.	Annual	Cumm.
1	7.65	7.65	0	0	0	0	7.65	7.65
2	19.04	26.69	0	0	0	0	19.04	26.69
3	34	60.69	0	0	0	0	34	60.69
4	55.25	115.94	0	0	0	0	55.25	115.94
5	64.21	180.15	22.59	22.59	0	0	76.5	182.44
6	45.58	225.55	31.12	43.41	0	0	76.5	288.94
7	22.17	246.7	22.55	65.74	0	0	76.5	342.44
8	17.82	264.52	38.48	107.42	0	0	76.5	421.94
9	0	264.52	76.5	235.92	8.12	8.12	76.5	498.44
10	0	264.52	76.5	312.42	18.13	26.25	76.5	574.94
11	0	264.52	76.5	388.92	18.13	44.38	76.5	651.44
12	0	264.52	76.5	465.42	18.13	62.51	76.5	727.94
13	0	264.52	76.5	541.92	22.42	87.93	76.5	804.44
14	0	264.52	76.5	618.42	22.42	113.35	76.5	880.94
15	0	264.52	76.5	694.92	22.42	138.77	76.5	957.44
16	0	264.52	76.5	769.42	22.42	164.19	76.5	1033.94
17	0	264.52	76.5	847.12	22.42	189.61	76.5	1112.44

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18	0	264.32	78.3	926.02	22.42	225.23	78.3	1180.24
19	0	264.32	78.3	1004.32	22.42	240.45	78.3	1248.84
20	0	264.32	78.3	1082.62	24.37	264.32	78.3	1347.34
21	0	264.32	78.3	1160.92		264.32	78.3	1451.44
22	0	264.32	78.3	1239.22		264.32	78.3	1560.94
23	0	264.32	78.3	1317.52		264.32	78.3	1682.04
24	0	264.32	78.3	1395.82		264.32	78.3	1808.34
25	0	264.32	78.3	1474.12		264.32	78.3	1938.84

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### 2.3.2. Equipment Configurations and deployment Schedule

Following equipment configurations for overburden removal, coal extraction and various auxiliary operations of the mine have been proposed in the approved mine plan (Table 2.5).

**Table 2.8. Equipment Configuration and Phasing**

Sl. No.	Equipment	Size	Nos.	Year of Operation				
				1	2	3	4	5
<b>A. Overburden Removal</b>								
1	Electric Shovel	35 Cum	4				2	4
2	Electric Hydraulic Shovel	20 Cum	8	1	2	5	7	8
3	Electric Hydraulic Shovel	4.5 Cum	11	3	8	8	8	11
4	Rear Dumper	240T	41				21	41
5	Rear Dumper	190T	76	8	18	45	67	76
6	Rear Dumper	50 T	92	21	61	61	67	92
7	Electric Drill	311 mm	3				1	3
8	Elec. Drill	250 mm	15	2	4	8	11	15
9	Diesel Drill	160 mm	9	2	3	5	7	9
10	Dozer	450 HP	6	2	5	6	6	6
11	Dozer with ripper	850 HP	5	1	2	3	4	5
<b>B. Coal Extraction</b>								
1	Diesel Hydraulic Shovel	12 Cum	1			1	1	1
2	Diesel Hydraulic Shovel	4.5 Cum	3	1	2	2	3	3
3	Surface Miner	2200	4				1	4
4	Front end loader	4.5 cum	4				2	4
5	Rear Dumper	55 T	38				19	38
6	Rear Dumper	120T	10			10	10	10
7	Rear Dumper	50 T	26	8	16	18	26	26
8	Elec. Drill	250 mm	2			1	2	2
9	Diesel Drill	160 mm	3	1	2	3	3	3
10	Dozer	450 HP	3	1	1	2	3	3
11	Dozer with ripper	850 HP	3			1	3	3
<b>C. Common (Auxiliary Operation)</b>								

1	Grader	280 HP	8	2	4	6	7	8
2	Hydraulic Shovel	6.5 Cum	2		1	2	2	2
3	Crane	100 T	4	1	2	3	3	4
4	Crane	30 T	4		1	2	2	4
5	Crane	8 T	6	1	2	2	4	6
6	Crane	5 T	4		1	2	3	4
7	Diesel Backhoe	1.0 Cum	6	2	3	4	5	6
8	FE Loader	5-6 Cum	3	1	2	2	3	3

The top overburden is proposed to be mined by 55.0 m<sup>3</sup> Rope Shovel and 240 T Rear Dump (RD) Truck combinations, thick inter-seam partings / inter-burdens are proposed to be mined by 20.0 m<sup>3</sup> Rope Shovel and 190 T RD Truck combinations, and the thin partings / inter-burdens are proposed to be mined by 4.5 m<sup>3</sup> hydraulic shovels and 35 - 50 T RD Trucks.

For coal extraction, 12.0 m<sup>3</sup> hydraulic shovels and RD 130 T trucks are proposed for thick coal seams, 4.5 m<sup>3</sup> hydraulic back-hoes and 35 - 50 T RD Trucks for thin seams. In addition, Surface Miner in combination with 4.50 m<sup>3</sup> Front End Loaders (FELs) and 35 T RD Trucks have been proposed to extract up to 40% of the coal.

IIT-ISM is of the view that it is difficult comment on the fleet size and the deployment schedule of various equipment configurations proposed for overburden / inter-burdens removal and coal production in the mining plan, as the calendar program of excavation in the approved mining plan does not provide the year wise break-ups of Top OB, Thick Partings / Inter-burdens and Thin Partings / Inter-burdens, and also the seam wise production details. The details of estimation of productivities for various equipment configurations are also not provided in the mining plan.

While detailed production planning is not within the scope of the present work, IIT - ISM is happy to provide the estimate of productivities of various equipment systems proposed for Tallapalli coal mine (Table 2.9 to 2.13). These estimates can be used by NTPC for estimating the fleet sizes of various equipment systems to be deployed in the mine.

**Table 2.9. Estimation of Productivity and Fleet of 35.0 cum. Shovel – RD 240 T Dumpers**

	Particulars	Value	Unit.	
Assumptions	Swell Factor	0.74	=	
	Bucket Fill factor of Shovel	90%	=	
	Bucket Capacity of Shovel	35	cum.	
	Volumetric Capacity of Dumper (Struck Capacity)	130	cum.	
	Bucket Cycle Time	0.6	min.*	
	Spotting time of dumper	0.6	min.*	
	Factors Allowed for Travelling, Positioning etc.	0.85	=	
	Annual working hours of shovel	6000	hrs.	
	Av. Speed of Dumper	30	kmph.*	
	Lead	2.5	km*	
	Dumper Spotting, Unloading & Waiting Time	2'	min.*	
	Working Dumper Availability	80%	=	
	1	Average standard hourly output of 35.0 m <sup>3</sup> shovel	1864.8	cum.
	2	Annual output of 35.0 m <sup>3</sup> Shovel	9510480	cum.
3	240 T dumpers fleet size for one shovel	6	=	
4	Annual output of 240 T RD Trucks	1585080	cum.	
5	Average hourly output of RD Trucks	310.8	cum.	

**Table 2.10. Estimation of Productivity and Fleet of 20.0 cum. Shovel – RD 190 T Dumpers**

	Particulars	Value	Unit.
Assumptions	Swell Factor	0.74	=
	Bucket Fill factor of Shovel	90%	=
	Bucket Capacity of Shovel	20	cum.
	Volumetric Capacity of 190 T Dumpers	101	cum.
	Bucket Cycle Time	0.6	min.*
	Spotting time of dumper	0.6	min.*
	Factors Allowed for Travelling, Positioning etc.	0.85	=
	Annual working hours of shovel	6000	hrs.

	Av. Speed of Dumper	30	kmph*
	Lead	2.5	km*
	Dumper Spotting, Unloading & Waiting Time	2	min.*
	Working Dumper Availability	80%	#
1	Average standard hourly output of 20.0 m <sup>3</sup> shovel	1141.714286	cum.
2	Annual output of 20.0 m <sup>3</sup> Shovel	5822742.857	cum.
3	190 T dumpers fleet size for one shovel	5	#
4	Annual output of 190 T RD Trucks	1164548.571	cum.
5	Average hourly output of 190 T RD Trucks	228.3428571	cum.

**Table 2.11. Estimation of Productivity and Fleet of 12.0 cum. Hyd. Shovel – RD 120 T Dumpers**

	Particulars	Value	Unit.	
Average factor	Swell Factor	0.74	#	
	Bucket Fill factor of Shovel	90%	#	
	Bucket Capacity of Shovel	12	cum.	
	Volumetric Capacity of 120 T Dumpers	70	cum.	
	Bucket Cycle Time	0.45	min.*	
	Spotting time of dumper	0.6	min.*	
	Factors Allowed for Travelling, Positioning etc.	0.85	#	
	Annual working hours of shovel	6000	hrs.	
	Av. Speed of Dumper	30	kmph*	
	Lead	2.5	km*	
	Dumper Spotting, Unloading & Waiting Time	2	min.*	
	Working Dumper Availability	80%	#	
	1	Average standard hourly output of 12.0 m <sup>3</sup> shovel	871.85	cum.
	2	Annual output of 12.0 m <sup>3</sup> Shovel	4446458.18	cum.
	3	120 T dumpers fleet size for one shovel	6	#
4	Annual output of 120 T RD Trucks	741076.36	cum.	
5	Average hourly output of 120 T RD Trucks	145.31	cum.	

**Table 2.12. Estimation of Productivity and Fleet of 4.5 cum. Hyd. Backhoe – RD 35 T Dumpers**

	Particulars	Value	Unit.	
Assumptions	Swell Factor	0.74	#	
	Bucket Fill factor of Shovel	80%	#	
	Bucket Capacity of Shovel	4.5	cum.	
	Volumetric Capacity of 190 T Dumpers	16	cum.	
	Bucket Cycle Time	0.4	min*	
	Spotting time of dumper	0.4	min.*	
	Factors Allowed for Travelling, Positioning etc.	0.85	#	
	Annual working hours of shovel	6000	hrs.	
	Av. Speed of Dumper	25	kmph*	
	Lead	2.5	km*	
	Dumper Spotting, Unloading & Waiting Time	1.5	min.*	
	Working Dumper Availability	80%	#	
	1	Average standard hourly output of 4.5 m <sup>3</sup> shovel	319.68	cum.
	2	Annual output of 4.5 m <sup>3</sup> Shovel	1630368	cum.
	3	35 T dumpers fleet size for one shovel	10	#
4	Annual output of 35 T RD Trucks	1630368	cum.	
5	Average hourly output of 35 T RD Trucks	31.97	cum.	

**Table 2.13 (a). Estimation of Productivity of Surface Miner (SM 2200)**

Particulars	Value	Units
Sp. Gravity (Coal)*	1.5	#
B (Cutting Width) *	2.2	meter
T (Cutting Depth) *	0.2	meter
V (SM Speed) *	20	meter / minutes
Q (B*T*V*60) (Productivity)	528	cum / hour
Factor for manbetting etc. *	75%	%

Hourly productivity	396	cum/ hour
	594	tons/ hour
Working hours	5000	hours
Annual productivity	2970000	tons
	1880000	cum

\*: Assumptions

Table 2.13 (b). Estimation of FEL-Truck Fleet for each Surface Miner.

	Particulars	Value	Unit.	
Assuming factors	Swell Factor	0.74	=	
	Bucket Fill factor of FEL	80%	=	
	Bucket Capacity of FEL	4.5	cum.	
	Volumetric Capacity of 35 T Truck	16	cum.	
	Bucket Cycle Time	1	min.*	
	Truck Spotting Time	0.5	min.*	
	Factors for Travelling, Positioning etc. of FEL	85%	=	
	Annual working hours of FEL	6000	hrs.	
	Air. Speed of Truck	20	kmph.*	
	Lead	2.5	km*	
	Truck Spotting, Unloading & Waiting Time at Delivery	1.5	min.*	
	Working Trucks Availability	75%	=	
	1	Average standard hourly output of 4.5 m <sup>3</sup> shovel	142.08	cum.
	2	Annual output of 4.5 m <sup>3</sup> Shovel	724608	cum.
3	35 T dumpers fleet size for one shovel	6	=	
4	Annual output of 35 T RD Trucks	120768	cum.	
5	Average hourly output of 35 T RD Trucks	23.68	cum.	
6	Number of FEL per Surface Miner	3	=	
7	Number of Trucks per Surface Miner	18	=	

### 2.3.3. Mining Benches

Benches are the most distinguishing feature of a surface mine and one of the busiest areas of operation. Benches are crucial for surface mining operations as they have to accommodate all the major mining activities such as blasting, excavation, loading, hauling etc. Mining operations take place in multiple benches. To access the different benches a road or ramp are created. The width and steepness of the road and ramp depends upon the type and size of the equipment to be accommodated. Depending upon the operating requirements and the push back design, the mining benches can be classified into working benches and non-working (inactive) benches.

Stable slopes to the benches are extremely important for safe mining operations. At the same time slope angle is an important geometric consideration which has significant economic impacts. Normally bench should be as steep as possible within the reasonable factor of safety to ensure better economic returns. A typical initial design value of 70° bench slope angle may be considered. A thorough bench slope stability analysis may be essential to maximize the economic gain and strike a balance between safety and economy of operation. IIT – ISM recommends the following bench geometries for safe and efficient operations of various equipment systems / configuration of Talaspalli coal mine:

Table 2.14. Mining benches geometry

Sl. No.	Equipment Configuration	Bench Height (m)	Bench Width (m)		Length of Bench (m)	Bench Slope (°)
			Working Bench	Non-working Bench		
1	35.0 cum. Shovel – 240 T Dumpers	20.00	50.00	30.00	300 - 400	65 - 70°
2	20.0 cum. Shovel – 190 T Dumpers	15.00	50.00	30.00	300 - 400	65 - 70°
3	12.0 cum. Shovel – 120 T Dumpers	15.00	40.00	25.00	300 - 400	65 - 70°
4	4.5 cum. Shovel – 55 T Dumpers	5.0 - 6.0	30.00	25.00	200 - 300	65 - 70°
5	Surface Miners – FEL – 35 T	4.5 cum.	100 - 150	-	500	60 - 65°

Above mentioned system parameters are indicative in nature based on equipment configuration, working efficiency and safety requirements of mining operations. However, the requirements



according to the DGMS Regulation no. 196, CMR 2017, and Circular no. 3, 2020 must be carried out for slope stability study to determine acceptable system parameters i.e overall slopes of permanent dump and pit walls.

## CHAPTER 3

### Review of Findings of TEMPL

M/s TEMPL, the appointed MDO of Tallaipalli coal mine by NTPC, has disputed the approved mining plan strategy on five potential grounds - i) TEMPL observed that 404.5 MT of coal can't be extracted at a stripping ratio of 4.30 cum/ton by 25<sup>th</sup> year of mine operation as specified in the approved Mining Plan (AMP); ii) there would be an excess OB quantity than envisaged in the AMP which would not be able to be accommodated in the designated internal and external dump areas; iii) 100% backfilling by re-handling of temporary external dump / on pit dump as envisaged in the AMP is not feasible; iv) TEMPL observed that production will stop after 10 year if the two pit approach as proposed in the AMP is followed; and v) TEMPL claimed that the average lead overburden transportation will be 2 to 3 kms more than the average lead indicated in the AMP.

#### 3.1. TEMPL's observations about excess overburden quantity till 25<sup>th</sup> year mining operation

M/S TEMPL has prepared its own estimate of mineable coal reserve and stripping ratio (Table 3.1) based on the approved 25<sup>th</sup> year mine plan (Figure 3.1).

Table 3.1. TEMPL Reserve Statement on the basis of 25<sup>th</sup> year approved mine plan.

Description	UoM	Values (TEMPL)	Value (AMP*)	Variations
Coal Reserve (by open cast mining method)	Million Tons	409.70	404.50	+ 5.30
Waste Adjusted	Million BCM	2143.00	1735.64	+ 404.36
Strip Ratio	BCM/Ton	5.23	4.30	+ 0.93



Figure 3.1. 25<sup>th</sup> year approved mining plan.

TEMPL estimated the total coal quantity of 409.70 Mt against the AMP estimated quantity of 404.50 Mt up to 25<sup>th</sup> years. Likewise, total overburden quantity has been estimated as 2143.00 million bcm against the approved mine plan overburden quantity of 1738.64 (adjusted) and 1645.63 million bcm (natural) up to 25<sup>th</sup> year. This resulted into a revised stripping ratio of 5.23 as against the AMP stripping ratio of 4.30 (adjusted) and 4.07 (natural).

The above observations of TEMPL provides a significant deviation in the overburden quantity of the mine having a huge commercial impact during the life of the contract. However, TEMPL's claim is not substantiated by the detailed engineering drawing and the calculation sheets.

Further, TEMPL modified the mining sequence to arrive at a revised mining plan of 25<sup>th</sup> years (Figure 3.2), which provided a superior outcome than the approved mining plan from mining point of view (Table 3.2).

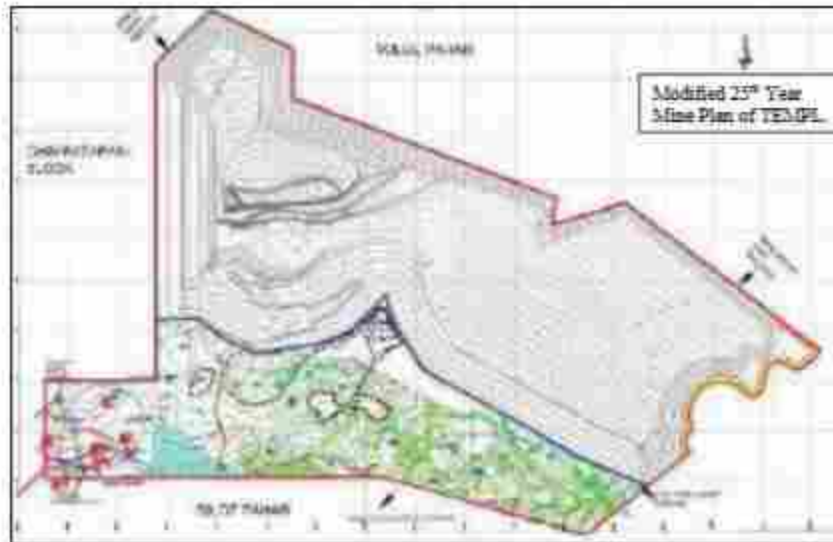


Figure 3.2. 25<sup>th</sup> year pit operation plan modified by TEMPL.

Table 3.2. TEMPL optimized Reserve Statement of 25 years operation.

Details	UoM	Values	Value (AMP*)	Variations
Coal Reserve (by open cast mining method)	Million Tons	405.00	404.50	+0.50
Waste Adjusted	Million BCM	1592.00	1738.64	+253.86
Strip Ratio	BCM / Ton	4.92	4.30	+0.60

**Disclaimer by M/S. TEMPL:** The above designs are based on information provided and assumptions made. TEMPL is not responsible for the accuracy or veracity of its sources.

In the modified 25<sup>th</sup> year mining plan of TEMPL, the estimated coal quantity was reduced to 404.50 (a minor reduction of 0.50 Mtp), the estimated total overburden quantity got reduced to 1992.00 (still carrying a variation of over 14.50 % from approved mining plan), and the stripping ratio was also reduced to 4.92 (a variation of over 13.90% from the approved mine plan). However, the findings of TEMPL is based on high-level assumptions and does not claim the accuracy of the results.

However, IIT-ISM is of the view that the revised mining plan does carry the merit, a much more detailed engineering plan may be sought from TEMPL or an expert agency may be engaged to look into details of the mining plan to improve accuracy and engineering aspects of the mining plan from implementation point of view.

**3.2. M/S. TEMPL claims that there is less dumping space at the designated dumping area and there won't be the feasibility of 100% backfilling by re-handling of temporary external dump as per approved mining plan**

M/S TEMPL's claim, based on the study of the approved mining plan, shows a shortfall of dumping space by as high as 943 million bcm up to 25<sup>th</sup> year of mining operation (Table 3.3).

**Table 3.3. Assessment of dumping space by TEMPL.**

Details	UoM	TEMPL Estimate	AMP Estimate
Waste mined up to 25 <sup>th</sup> years	Million bcm	2143.00	1738.60
In-pit dump capacity	Million bcm	1100.00	NA
No space for dumping	Million bcm	943.00	NA

However, after modification of the mining plan which brings an improvement (Figure 3.3), the short fall in the dumping space is reduced to 542 million bcm (Table 3.4).

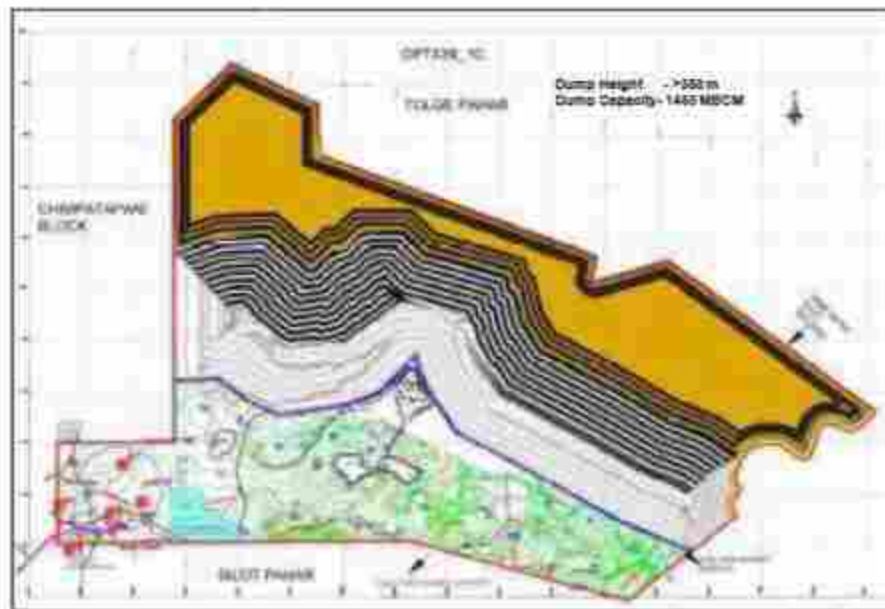


Figure 3.3. 25<sup>th</sup> year mine plan showing OB dumps.

Table 3.4. TEMPL Dumping Scenarios as per optimized 25<sup>th</sup> Year Mine Plan .

Details	UoM	Modified Mining Plan Estimate	AMIP Estimate
Waste Mine (25 <sup>th</sup> Year)	Million bcm	3992.00	1738.60
In-pit dump capacity	Million bcm	1450.00	NA
No space for dumping (Swall Factor - 23%)	Million bcm	542.00	NA

Though, the TEMPL's claim is on the basis of a high-level indicative diagram (Figure 3.3) which certainly carry a merit, but in absence of a detailed engineering (drawings and calculations), IIT-ISM is not in position ascertain the accuracy of TEMPL's claim. An expert agency may be engaged to look into detailed engineering aspects of the mining plan to ascertain the accuracy and implementability of

the mining plan. No justification is provided for swell factor calculations which has been assumed as 23%. IIT-ISM does not take cognizance of SRK mine plan as it is not a key stakeholder in this case.

**3.3. TEMPL claim that production will stop after 10 years if Double Pit approach is followed. Whereas, with Single Pit approach the production continues till the 25th year.**

Approved mining plan envisages two pit operations at eastern & western extremities respectively of the coal block. Two access trenches and box cuts have been opened (Figure 2.2). Both east and west pit advance towards the dip directions and finally merge at the end of 20 years of mining operation. Internal dump will begin once sufficient void is created within the pit in the 5<sup>th</sup> year of mining operation. In absence of land outside the leasehold, all the overburden generated up to 4<sup>th</sup> year and thereafter part of overburden up to 9<sup>th</sup> year of quarry operation is proposed outside the quarry operation on the dip side within the lease hold area to be re-handled back from 10<sup>th</sup> year of operation.

TEMPL has disputed this mining strategy saying that with two pit operation strategy, the coal production from the mine will stop in the 10<sup>th</sup> years as both pit operations would be bound by fine on pit / external dump (Figure 3.4. and Table 3.5).

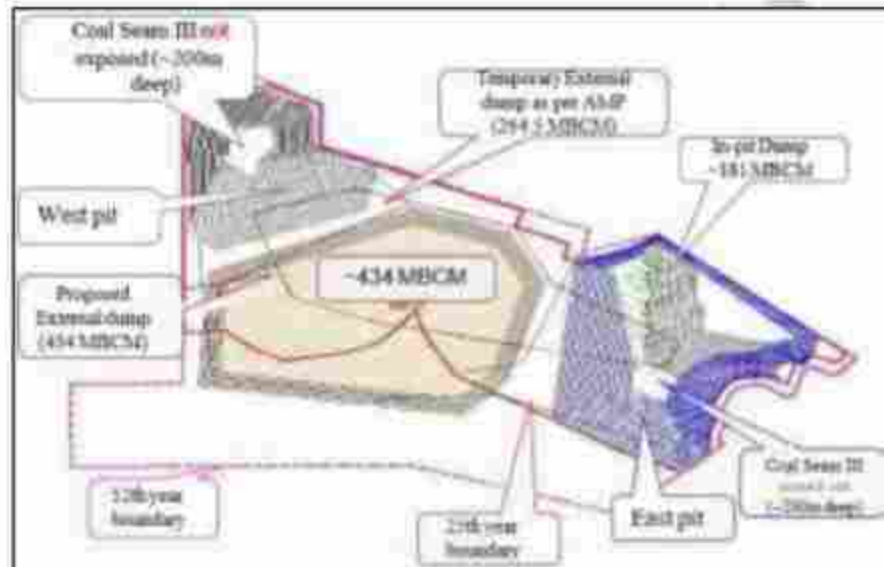


Figure 3.4. Two pit operation at the end of 10 years.

Table 3.5. Coal and Overburden Quantities in 10<sup>th</sup> Year of Operation

Details	UoM	Values
Coal extracted	Million tons	132.00
Waste generated	Million bcm	562.00
In-pit dumping	Million bcm	181.00

However, the single pit operation strategy starting with East pit proposed by TEMPL can continue the production till 25<sup>th</sup> year (Figure 3.6).

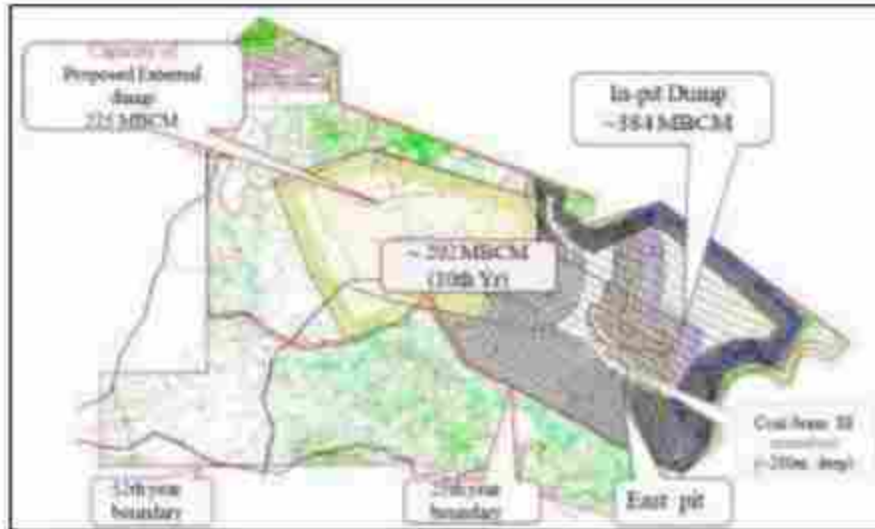


Figure 3.5. Single pit operation in 10<sup>th</sup> year.

Table 3.6. TEMPL Reserve Statement of Single Pit Operation in 10<sup>th</sup> Year.

Details	UoM	Values
Coal extracted	Million tons	132.00
Waste generated	Million bcm	587.00



In-pit dumping	Million ton	384.00
----------------	-------------	--------

IIT-ISM does not completely agree with the observations of TEMPL. IIT-ISM is of the view that TEMPL has not provided enough information in terms of engineering drawings (year-wise operating plans), estimation of internal and external dump quantities (year-wise) and calendar program of excavation showing the coal and overburden quantities (year-wise) from East and West respectively from 5<sup>th</sup> to 10<sup>th</sup> years of mining operations. In absence of these information, it is not possible to substantiate the TEMPL's claim that two pit operations would not be feasible after 10<sup>th</sup> year of operations. Rather, in a single pit operation, there is a high risk of the mining operation to be bound by the external dump which can stop the mining operation.

Prima-facie from Figure 3.4, it still seems possible to accommodate extra quantities of overburden in the external dump by increasing its height the dump due to the availability of space and thus continuing the two-pit operation in the 10<sup>th</sup> year. From 10<sup>th</sup> to 20<sup>th</sup> year of mining operation, a detailed study in terms of developing engineering plans and designs to ascertain that the operation does not stop as the intensity of operation increase due to re-handling of external dump.

**3.4. M/S. TEMPL claimed that the lead distance will be increased by 2 to 3 kms compared to the average lead indicated in the approved mining plan.**

IIT - ISM is of the view that there is a need to calculate average lead distance for overburden dumping at least at 5 years intervals to ascertain the claim. In absence this data TEMPL's claim does not exist.

## CHAPTER 4

### Review of Technical Feasibility Note of Talaipalli Coal Block prepared by CMPDIL

CMPDIL technical Note of Talaipalli Coal Block broadly contained two parts: i) Review of opencast mining strategy of AMP with reference to mineable reserves, overburden quantities, average stripping ratio and waste disposal schedule, and ii) an alternate mining plan strategy of Talaipalli Coal Block to optimize coal extraction and the coal evacuation strategy, if the AMP is not found to be workable.

Approved Mining Plan (AMP) was examined by CMPDIL with volumetric calculations of coal and overburden quantities using MINEX ROM model prepared by MECL. AMP contained only the 1<sup>st</sup> to 5<sup>th</sup> years, and 25<sup>th</sup> years and Final stage (52<sup>nd</sup> mining plans. 10<sup>th</sup> year, 15<sup>th</sup> year and 20<sup>th</sup> year mining plan was missing). Therefore, CMPDIL reviewed these mining plans as per the mining sequence proposed in the AMP for the reserves and overburden quantities (Table 4.1 and 4.2).

**Table 4.1. Comparison of Mineable Reserve, OB volume and Stripping Ratio**

Year	As per Approved Mining Plan (AMP)			As per CMPDIL based on AMP Design		
	Coal (Mft.)	OB (Mbcm)	Stripping Ratio (cum/t)	Coal (Mft.)	OB (Mbcm)	Stripping Ratio (cum/te)
5	44.5	192.44	4.32	36.08	165.07	4.58
25	404.5	1738.64	4.3	430.5	2169.66	5.04
52 (Final)	843.69	3777.07	4.48	790.51	4008.5	5.07

\*Not Workable according to design of Approved Mining Plan as discussed later

**Table 4.2. Variations of Reserve, OB volume and Stripping Ratio**

Year	Variations (%)		
	OB (Mbcm)	Coal (Mft.)	Stripping Ratio (cum/te)
5	-14%	-19%	6%
25	25%	6%	17%
52 (Final)	6%	-6%	13%

Till the 5<sup>th</sup> year mine plan of AMP, while there was a decrease in the coal reserve as per CMPDIL estimates by 19% (from 44.50 Mt in the AMP to 36.08 Mt in the CMPDIL estimate), the decrease in overburden quantity is also 14% (from 192.44 Mbcm to 165.07 Mbcm) leading to a net increase in the stripping ratio by 6%. IIT-ISM is of the view that these variations are well within the expected accuracy level of the

In the 25<sup>th</sup> year mine plan, there is a marginal increase in the coal reserve of CMPDIL estimates by 6% (from 404.50 Mt to 430.5 Mt), the increase in overburden quantity is quite high at 25% (from 1738.64 Mbcm to 2169 Mbcm) leading to an increase in the stripping ratio by 17%. In the final year (32<sup>nd</sup> year) mining plan there has been a decrease in the coal reserve of CMPDIL estimates by 6% (from 843.69 Mt to 790.81.5 Mt), and an increase in overburden quantity is by 6% (from 3777.07 Mbcm to 4000.8 Mbcm) leading to an increase in the stripping ratio by 13%.

It is pertinent to note that a similar study carried out by TEMPL till the 25<sup>th</sup> year mining plan showed a variation of 5.30 Mt in coal (from 404.50 Mt to 409.70 Mt) and + 404.36 Mbcm in overburden (from 1738.64 Mbcm to 2143.00 Mbcm) leading to a net increase in stripping ratio from 4.30 to 5.30 (Table 3.1). However, TEMPL workings were not based on detailed engineering as CMPDIL's. Therefore, IIT-ISM considers the CMPDIL's study more authentic and accepts the outcomes.

#### **4.1. Waste Disposal and Overburden Dumping Plan**

AMP has proposed to dump 264.52 Mbcm overburden (from 1<sup>st</sup> year to 9<sup>th</sup> Year) in the external dump and re-handle the same back to the internal dump from 10<sup>th</sup> year to 20<sup>th</sup> year in a systematic manner as the two pit operations advanced and finally merge together in the 20<sup>th</sup> year. The temporary external dump is 60m above the ground level with maximum RL of +560m. A particular area in the dip side within the block has been designated for temporary external dump (Figure 3.4).

CMPDIL reviewed the dump plan and concluded that the maximum OB that can be accommodated in the proposed temporary external dump area is ~178 Mbcm at a swell factor of 1.2 (The "swell factor" is defined as the ratio of the bank to loose weight densities of excavating material). Therefore, 264.52 Mbcm of OB cannot be accommodated in the temporary external dump as envisaged in the AMP. IIT-ISM is of the view is that this is a serious bottle neck to carry out the mining operation beyond 10<sup>th</sup> year.

Further, CMPDIL has estimated that to deliver 44.50 Mt of coal till the 5<sup>th</sup> year of operation, total overburden to be removed will be approximately ~204 Mbcm instead of 192.44 Mbcm as proposed in the AMP, an additional ~11 Mbcm with a variation in the excavation area (CMPDIL estimated only 36.08 Mt coal and 165.07 Mbcm of overburden from the same excavation area proposed until 5<sup>th</sup> year of the AMP) (Table 4.1). Further, it has been estimated that at the end of 5<sup>th</sup> year of mining operation, the total internal dump capacity created in the mine void is 11.00 Mbcm as against 12.29 Mbcm estimated in the AMP (a variation of approximately 11.7%) (Table 4.3). There will be shortage of space to accommodate approximately 13.0 Mbcm of overburden which is ~7% variation together in external and internal dumps. IIT-ISM is of the view that a variation of ~7% is well within the acceptable limits and there would not be a problem in continuing with the operation until the 5<sup>th</sup> year as per the AMP.

**Table 4.3. Estimation of OB produced and its accommodation in the designated dump at the end of 5 year**

Year	Estimated OB (Mbcm)	Total OB accommodated (Mbcm)			Remarks
		External	Internal	Total	
5	204	178	11	189	Shortage of space for ~15 Mbcm of OB

Prima-facie from Figure 3.4, it still seems possible to accommodate extra quantities of overburden in the external dump by increasing its height the dump due to the availability of space and thus continuing the two-pit operation in the 10<sup>th</sup> year. From 10<sup>th</sup> to 20<sup>th</sup> year of mining operation, a detailed analysis with proper engineering design and the plans was required to ascertain that the operation does not stop as the intensity of operation increase due to re-handling of external dump.

Accordingly, CMPDIL carried out this exercise by increasing the height of temporary external dump to 90m above the ground level up-to a RL. of +390m, the maximum overburden quantity in the revised external dump would increase to ~251 Mbcm from 178 Mbcm in the dump up to +360m level. Thus following the natural excavation plan (249 Mbcm - un-adjusted), the mining operation is going to be feasible till 6<sup>th</sup> year. However, if the advance stripping is continued till the 6<sup>th</sup> year stage, total OB generated would be ~268 Mbcm and total OB accommodation in internal dump would be short by ~25

Mbcm. So, the mine operation will stop in 6<sup>th</sup> year, even if the height of the dump is increased. Further, to ensure progression of the mine beyond 5<sup>th</sup> year, CMPDIL evaluated the dumping options considering the entire land within the lease area is available for dumping and thus external dumping was to be done in the southern extremities of the block.

CMPDIL estimated that to deliver 404.50 Mt of coal till 25<sup>th</sup> year of mining operation, a total of ~2040 Mbcm of overburden will be generated following the mining sequence proposed in the AMP. CMPDI has analyzed the availability of space for internal and external dumping for 5<sup>th</sup>, 10<sup>th</sup> and 15<sup>th</sup> years of mining operation up to the RL of +360m as shown in Table 4.4.

**Table 4.4. Stage-Wise Estimation of OB generated and Dumping Space**

Year of Operation	Coal (Mt.)	Estimated OB (Mbcm)	Total Dump accommodation up-to RL of +360m (Mbcm)			Remarks
			External	Internal	Total	
5	44.50	204	688	11	639	Dumping space adequate
10	134.50	675	544	209	753	Dumping space adequate
15	224.50	1160	-403	507	910	Dumping space inadequate

Further, CMPDIL estimated that up to 25<sup>th</sup> year of mining operation, the total internal dumping space created would be ~1175 Mbcm (up-to RL of +360m) of OB while the Mining Plan envisaged to re-handle and backfill the entire OB (1738.64 Mbcm) generated as per the AMP till 25<sup>th</sup> year of mining operation. Evidently, the accommodation of total OB internally would not be feasible, and hence the mining operation would not happen till 25<sup>th</sup> year of operation.

CMPDIL further explored the possibilities to accommodate more overburden dumps by increasing the dump height level to ~390m (4 decks of 30m each). CMPDIL estimated that even with an increase in the final dump height to ~390m, total designed space for overburden dump would be ~1070 Mbcm, thus making the mining operation not feasible beyond 14<sup>th</sup> year.

In the 25<sup>th</sup> year of mining operation, CMPDIL estimated the total external dump space beyond 25<sup>th</sup>

year pit boundary is ~ 175 Mbcm up to an RL of ~360m. Therefore, even after utilizing the entire land available for external dump, the total dump accommodation in 25<sup>th</sup> year would be 1350 Mbcm (External + Internal) while the total OB generated would be ~2040 Mbcm. It is clear that there is no space for dumping available for ~690 Mbcm of OB.

Therefore, the examination of the Mining Plan has led to the conclusion that overall, this Mining Plan does not seem to be practical and workable for 25 years as a lot of errors are there in the estimation of internal and external dump quantities. Mineable coal and mining life given in mining plan is not feasible. Also dump accommodation as suggested in mining plan is not feasible. There is calculation error in stripping ratio as well.

IIT-ISM agrees with the estimation of overburden dumps within the lease hold areas at different years of mining operations and endorses the view of CMPDIL that it would be difficult to carry out the mining operation beyond 15<sup>th</sup> years due to serious issues associated with excavation and dumping schedule.

#### 4.3. Alternative Mine Plan Option of CMPDIL

In the light of the above findings of the AMP, CMPDIL thoroughly reviewed the mining strategy of Tallapalli coal mine. CMPDIL suggested an alternative mining strategy based on the maximization of coal extraction, optimum overburden removal and dumping schedule, still meeting the coal production requirements of 18.0 hft.

The alternative mining plan maximized the coal extraction with less surface area up to Seam III so that more overburden can be accommodated in external and internal dump. The alternative mining plan still followed two - pit operation - one on the north eastern side and the other on the western side. However, due to lack of adequate dumping space, the western quarry is terminated 5<sup>th</sup> year of mining operation after mining coal up to seam VI to a maximum depth of 110m (Figure 4.1), so that the void and the space thus created could be utilized for additional quantities of overburden generated from eastern pit in the subsequent years.

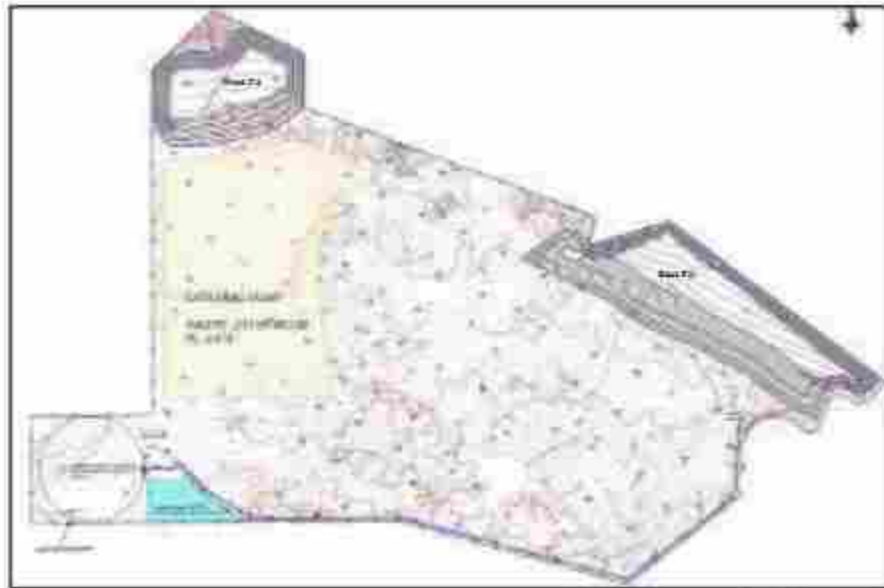


Figure 4.1. Mining plan at the end of 5<sup>th</sup> year of operation.

A tentative calendar programme of excavation and OB disposal schedule of the alternative mining plan is shown in Table 4.5.

Table 4.5. Calendar Program of Excavation of Alternative / Modified Mining Plan

Year	Coal (Mt)			Cumm. Coal (Mt)		OB (Mbcum)		Cumm. OB (Mbcum)	Strip Ratio (Cum:1)	Cumm. SR (cum:1)
1	0.9	0.8	1.5	1.5	4.15	5.14	7.24	7.24	4.84	4.84
2	2	2	4	5.5	9.57	10.47	19.65	16.89	4.31	4.89
3	4	4	8	13.5	13.33	20.95	39.24	46.14	4.91	4.9
4	6	4	13	26.5	41.24	26.95	62.77	112.33	4.78	4.84
5	14.35	3.65	18	44.5	66.52	19.11	55.63	215.96	4.79	4.81
6	18		18	62.5	91.08		91.08	302.03	5.04	4.95
7	18		18	80.5	91.08		91.08	393.11	5.04	4.92
8	18		18	98.5	91.08		91.08	487.19	5.04	4.95
9	18		18	116.5	91.08		91.08	578.26	5.04	4.94
10	18		18	134.5	88.88		88.88	668.94	4.95	4.94
11	18		18	152.5	81.1		81.1	748.04	4.11	4.91
12	18		18	170.5	81.1		81.1	829.13	4.31	4.86
13	18		18	188.5	81.1		81.1	910.23	4.31	4.83
14	18		18	206.5	81.1		81.1	991.33	4.31	4.8
15	18		18	224.5	73.47		73.47	1070	4.37	4.77
16	18		18	242.5	77		77	1147	4.28	4.73
17	18		18	260.5	77		77	1224.01	4.28	4.7
18	18		18	278.5	77		77	1301.01	4.28	4.67
19	18		18	296.5	77		77	1378.02	4.28	4.65
20	18		18	314.5	80.24		80.24	1458.28	4.44	4.64
21	18		18	332.5	80.88		80.88	1539.14	4.49	4.63
22	18		18	350.5	80.88		80.88	1620.02	4.49	4.62
23	18		18	368.5	80.88		80.88	1700.9	4.49	4.62
24	18		18	386.5	80.88		80.88	1781.78	4.49	4.62
25	18		18	404.5	80.88		80.88	1862.66	4.49	4.4
26	7.18		7.18	411.68	22.19		22.19	1884.85	4.5	4.4
Total	387.41	14.25	411.66		1820.27	74.97	1894.65			4.69

APPROVED



Mining plans of 10<sup>th</sup> year, 15<sup>th</sup> year and 20<sup>th</sup> year developed by CMPDIL are shown in Annexure I.

#### 4.3.1. Mine Boundary

The mine boundary for the western and eastern quarry was fixed taking into consideration block boundary, surface features, strip ratio and external dump space required for continuity of mining.

**West Pit:** The west pit was designed up-to Seam VII at a maximum depth of 110m to be operated in the initial 5 years. This was required in order to create more space for dumping of overburden needed in the subsequent years for the overburden of the East Pit (Table 4.4). The coal extraction was limited to seam VI because it was not possible to reach seam III (at a depth of 250m in 5<sup>th</sup> year) in the constrained geological conditions considering the dumping requirements. The West pit boundary is determined by the following conditions:

<b>Northern Boundary</b>	: Foot of the hill in northwest and 7.5m from the block boundary
<b>Southern Boundary</b>	: Extent of the pit up-to 5 <sup>th</sup> year of operation
<b>Eastern Boundary</b>	: 7.5m from the block and extent of the pit upto 5 year of operation
<b>Western Boundary</b>	: 7.5m from the block boundary

**East Pit:** The East pit is proposed up-to Seam III. The major considerations for the fixing of Eastern Pit boundary were the requirements of space for external dumping within the block boundary and minimization of overburden quantity still meeting the coal production requirements. The East pit boundaries was determined by the following conditions:

<b>Northern Boundary</b>	: 7.5m from the block boundary
<b>Southern Boundary</b>	: 100m from the block for conveyor corridor and magazine
<b>Eastern Boundary</b>	: 60m from Kalo rover and 7.5m from block boundary
<b>Western Boundary</b>	: Fault F1 and an arbitrary line considering low strip ratio zone and leaving sufficient external dump space in the western side

The East pit will operate till end of the life. Till 5<sup>th</sup> year of operation, coal production from both the pit will reach 18.00 Mtpy. Internal dump will start once sufficient void is created in the pit. After 5 years, the east pit will independently produce 18.00 Mtpy till 25<sup>th</sup> year of mine operation by open cast mining (Table 4.4). It has been proposed to start internal dumping in east pit from 6<sup>th</sup> year of

mining operation when the sufficient void is created within the pit. At the same time the backfilling will also be done in the West pit from 6<sup>th</sup> year. By 10<sup>th</sup> year of mining operation (Figure 4.2), the West pit will be completely filled and merged with the external dump, and the external dump will also begin merging with the internal dump of East pit.

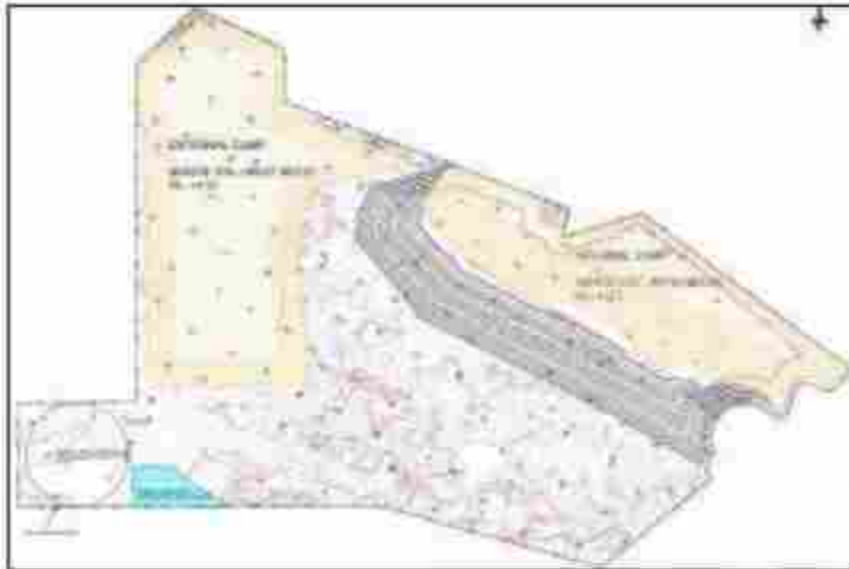


Figure 4.2. 10<sup>th</sup> year mining operation showing external and internal dumps.

Overburden removal from East pit peaks in the 6<sup>th</sup> year of operation at 91.08 Mbcm and continues till the 9<sup>th</sup> year before it tapers down to 88.68m in the 10<sup>th</sup> year and 81.10 Mbcm from 11<sup>th</sup> to 14<sup>th</sup> year.

#### 4.3.2. Reserve Statement

Statement of reserve as per the revised pit design is shown in Table 4.6.

Table 4.6. Resource and Reserve Statement of Alternative Mining Plan

Particulars	Value in Mt
Net Geological Reserve as per GR	1267.15

Net Geological Reserve by Open Cast Mining Method	575.78
Net Geological Reserve blocked in buffer	142.45
Available Net Geological Reserve for Opencast Mining	433.33
Less: Mining Loss @ 5%	21.67
Mineable Reserve for Opencast Mining	411.66

Net Geological Reserve is arrived considering a geological loss of 10 % from Gross Geological Reserve (Resource) and mining loss of 5 % leading to a final total reserve of 411.66 Mt at a stripping ratio of 4.60 cum t. Seam-wise resource (geological reserve) and reserve (mineable reserve) statements are shown in Table 4.7.

**Table 4.7. Seam-Wise Resource and Reserve Statement**

Seam	Net Geological Reserve (Mt)	Mineable Reserve (Mt)
X-LA	0.00	0.00
X-LB	0.20	0.19
X-TOP	2.73	2.59
X-BOT	23.95	21.75
IX-L2	7.95	7.55
IX-L1	10.09	9.59
IX	40.46	38.44
VIII	51.58	49.00
VII	2.17	2.06
VI-TOP	10.28	9.77
VI-MID	67.34	63.98
VI-BOT	1.42	1.35
V-TOP	3.89	3.22
V-MID	12.80	12.16
V-BOT	19.27	17.36
IV-TOP	38.55	36.44
IV-MID	57.85	54.96

IV-L	14.13	13.43
IV-BOT	32.11	30.51
III-L	11.34	10.77
III	26.91	25.56
TOTAL	433.33	411.66

Table 4.8. Final pit design parameters

Sl. No.	Parameters	Unit	Value	
			East Pit	West Pit
1	Maximum depth	Meter	350	110
2	Maximum strike length	Km		
	Mine Floor		3.60	1.10
	Mine Surface		4.20	1.40
3	Minimum strike length	Km		
	Mine Floor		2.25	0.90
	Mine Surface		2.90	1.05
4	Maximum dip-rise length	Km		
	Mine Floor		2.40	0.50
	Mine Surface		3.20	0.95
5	Minimum dip-rise length	Km		
	Mine Floor		2.10	0.40
	Mine Surface		3.10	0.83
6	Area	Hectare		
	Mine Floor		775.70	43.43
	Mine Surface		1171.45	111.93

#### 4.4. Overburden dumping strategy

Alternative mining plan envisaged that in the initial 5 years, all the OB generated from east and west pit will be dumped externally (Figure 4.1). The external dump will be located in the western side of the east pit leaving 100m distance from east pit boundary. Once sufficient void is created after 5 years of operation, internal dumping will start in the east pit in the de-coaled area. However, after 5 years, the west pit will cease to exist and the void of the west pit will be utilized to place the overburden generated in the west pit. 666.96 (74+590). By 10<sup>th</sup> year the west pit will be completely filled and merged with the external dump carrying ~ 666.96 Mbcm of overburden generated from mining operation (Table 4.8). The external dumping will be continuing till 15<sup>th</sup> year and thereafter only tiny amount of OB of around ~13.04 Mbcm will be dumped till 26<sup>th</sup> year of operation. No re-handling of external dump back to the east pit is proposed, thus saving huge amount of money for the project. However, based on the environmental impact assessment study, the final void may be left to serve as the water storage for ground water recharging or may be completely reclaimed by flushing external and internal dumps, followed by development of an environment friendly land use for the neighboring society.

Out of the total overburden of 1894.85 Mbcm, ~510.05 Mbcm (~27%) will be dumped externally and the balance 1384.80 Mbcm (~73%) will be dumped internally. The final height of the external dump is will be ~120m above ground level up-to an RL of +410m. The final height of the internal dump will be around 90m above ground level up-to an RL of +375m. The dumps will be formed in benches with individual bench heights of 30m each and a bench width of 30m. To ensure the safety of dump, scientific slope stability study will be required for the final dump design under the regulation no. 106, CMR 2017, and DGMS Circular no. 3, 2020 to ensure the safety of operation. The year-wise dumping schedule is provided in Table 4.9 below:

Table 4.9. Tentative Dumping Schedule

Year	External Dump		Internal Dump		Total OB	
	Annual	Cumulative	Annual	Cumulative	Annual	Cumulative
1	7.26	7.26	0.00	0.00	7.26	7.26
2	19.63	26.89	0.00	0.00	19.63	26.89
3	39.26	66.16	0.00	0.00	39.26	66.16
4	62.17	128.33	0.00	0.00	62.17	128.33

5	85.63	213.96		0.00	85.63	213.96
6	34.21	248.17	56.87	56.87	91.08	305.03
7	34.21	282.38	56.87	113.73	91.08	396.11
8	34.21	316.59	56.87	170.60	91.08	487.19
9	34.21	350.80	56.87	227.46	91.08	578.26
10	34.21	385.01	54.47	281.93	88.68	666.94
11	22.40	407.41	58.70	340.63	81.10	748.04
12	22.40	429.81	58.70	399.33	81.10	829.13
13	22.40	452.21	58.70	458.02	81.10	910.23
14	22.40	474.61	58.70	516.72	81.10	991.32
15	22.40	497.01	56.27	572.99	78.67	1070.00
16	1.60	498.61	75.40	648.39	77.00	1147.00
17	1.60	500.21	75.40	723.80	77.00	1224.01
18	1.60	501.81	75.40	799.20	77.00	1301.01
19	1.60	503.41	75.40	874.61	77.00	1378.02
20	1.60	505.01	78.64	953.25	80.24	1458.26
21	0.84	505.83	80.04	1033.29	80.88	1539.14
22	0.84	506.69	80.04	1113.33	80.88	1620.02
23	0.84	507.53	80.04	1193.37	80.88	1700.90
24	0.84	508.37	80.04	1273.41	80.88	1781.78
25	0.84	509.21	80.04	1353.45	80.88	1862.66
26	0.84	510.05	31.35	1384.80	32.19	1894.85

CMPDIL has estimated the lead overburden varying from about 3.00-7.25 km over the life of the mine. For west pit, the average lead for external dumping is estimated to vary from 3.25-3.75 km. For east pit, the average lead of internal dumping is estimated to vary from 3.00-3.50 km. The average lead for external dumping from east pit is estimated to vary from 6.75-7.25 km in initial 10 years and thereafter from 6.00-6.50 km for next 5 years. The lead for external dumping after 15<sup>th</sup> year is estimated to be 3.0 - 3.50 km. IIT-ISM is of the view that there is an opportunity to optimize haulage network of overburden transport on a year-to-year basis on the basis of annual operating plan which has the potential to reduce the lead distance of overburden transport.

#### **4.5 Coal handling and dispatch arrangements**

Coal from both the pit is proposed to be transported to surface by the trucks which would then be fed into a mobile crushing arrangement and thereafter to coal dispatch center by surface conveyors. Coal from west pit shall be directly transported to coal dispatch center, as the pit will be operational only for 5 years, therefore, any capital investment for conveyor system would not be a viable option.

As per the Approved Mining Plan, coal will be produced through a shovel dumper and surface miner equipment systems. Surface miner equipment system is expected to produce ~40% of the coal, i.e., ~7.2 Mtpa (-100 mm size). Therefore, crushing of coal will also be required for handling and dispatch. The entire coal produced from Talaiwalli Project (18.0 Mtpa) will be transported & dispatched through railways. Loading into the rail wagon at the railway siding will be through Silos and Rapid Loading System (RLS). Therefore, a railway siding is proposed in the south-western part of the block for coal loading and dispatch.

As the coal handling plant (CHP) is proposed to cater entire production of coal, accordingly facilities of receiving station, crushing & conveying system up to the silo will be established for RLS into the railway wagon. The lead for coal varies from about 2.50 – 3.00 km over the life of the mine. For west Pit, the average lead for coal varies from 4.50-5.00 km.

##### **4.5.1. Coal handling system of East Pit:**

East quarry will have a separate receiving station for ROM coal at the mine mouth before it is crushed and conveyed to the central dispatch arrangement. The proposed coal handling system includes receiving of ROM coal at surface. The receiving pit / station and the mobile crusher unit will be shifted as the mine advances during the operation. The proposed receiving and crushing stations are proposed at the southern side of the mine at a suitable location.

For East Pit, the average lead for coal varies from 2.50-4.00 km. The lead estimation is tentative and may be estimated each year in the yearly operation plan.

##### **4.5.2. Coal handling system for west pit:**

Coal produced from western quarry shall be transported by truck/ dumpers at surface and received in a

hopper of crusher for crushing coal up to (-)100 mm size. This crushing station for coal will be placed at a suitable location near proposed stockpile for Silo loading arrangement. The coal up to the crushing station shall be transported from the mine via trucks.

#### **4.5.3. Loading & Dispatch Arrangements**

The coal will be loaded in to railway wagons through Rapid load out system having suitable capacity pre-weigh hoppers with loading Silo. Two nos. of silos are proposed with two different rail lines of at the railway siding for loading of coal into railway wagons. Both the silos will be connected with the bridge conveyors for feeding of coal into silos to ensure flexibility in loading.



## CHAPTER 5

### Technical Vetting of CMPDIL Report and Suggestions to Improve Sustainability of Tallapalli Coal Mine

IIT-ISM examined the approved mine plan (AMP) of Tallapalli coal block, findings of TEMPL, and technical report of Tallapalli coal mine prepared by CMPDIL with the following observations.

While prima-facie the overall mining strategy of NTPC's approved mining plan looked sound, the variations in year wise estimated quantities of coal and overburden, estimated quantity of internal and external dump to accommodate overburden volume produced as per the AMP was questioned by both Thiruvani Earthmovers Private Limited (TEMPL) and the CMPDIL report. TEMPL raised four potential problems in the AMP - i) TEMPL observed that 404.5 MT of coal can't be extracted at a stripping ratio of 4.30 cum/ton by 25<sup>th</sup> year of mine operation as specified in the approved Mining Plan (AMP), ii) there would be an excess OB quantity than envisaged in the AMP which would not be able to be accommodated in the designated internal and external dump areas, iii) 100% backfilling by re-handling of temporary external dump / on pit dump as envisaged in the AMP is not feasible, iv) TEMPL observed that production will stop after 10 year if the two pit approach as proposed in the AMP is followed, and v) TEMPL claimed that the average lead overburden transportation will be 2 to 3 kms more than the average lead indicated in the AMP.

CMPDIL examined the AMP to validate the volumetric calculations of coal and overburden quantities. CMPDIL used MINEX ROM model prepared by MECL for volume calculations. As the AMP contained only the 1<sup>st</sup> to 5<sup>th</sup> years, 25<sup>th</sup> years and Final stage (52<sup>nd</sup> year) mining plans (10<sup>th</sup> year, 15<sup>th</sup> year and 20<sup>th</sup> year mining plan was missing), CMPDIL reviewed these mining plans as per the mining sequence of AMP for estimation of reserves, overburden quantities and dumping strategy. The key findings of CMPDIL and IIT-ISM's comments are as below;

- Till the 5<sup>th</sup> year mine plan of AMP, while there is a decrease in the coal reserve as per CMPDIL estimates by 19% (from 44.50 Mt in the AMP to 36.08 Mt in the CMPDIL estimate), the decrease in overburden quantity is also 14% (from 192.44 Mbcm to 165.07 Mbcm) leading to a net increase in the stripping ratio by 6%. As the validation of ROM model was not in the scope of IIT-ISM's

work, therefore, these figures were accepted / relied upon by IIT-ISM. The variations in the stripping ratios are well within the expected level of accuracy  $\pm$  10% of the report. IIT-ISM sees a possibility of errors in estimation of coal reserve and overburden quantity in the approved mining plan.

- Further, CMPDIL estimated that to deliver 44.50 Mtpa of coal till the 5<sup>th</sup> year of operation, total overburden to be removed will be approximately ~304 Mbcm instead of 192.44 Mbcm as proposed in the AMP, an additional ~11 Mbcm with a variation in the area of excavation (CMPDIL estimated only 36.08 Mt coal and 165.07 Mbcm of overburden in the same excavation area proposed until 5<sup>th</sup> year by the AMP). Further, it has been estimated that at the end of 5<sup>th</sup> year of mining operation, the total internal dump capacity created in the mine void is 11.00 Mbcm as against 12.29 Mbcm estimated in the AMP (a variation of approximately 1.29 Mbcm). There will be shortage of space to accommodate approximately 15.0 Mbcm of overburden which is ~7% variation together in external and internal dumps. IIT-ISM is of the view that there is a possibility to accommodate this extra volume with a minor modification in the year wise operational plan. Therefore, there should not be a problem in continuing with the operation until the 5<sup>th</sup> year as per the AMP.
- CMPDIL analyzed the availability of space for internal and external dumping for 5<sup>th</sup>, 10<sup>th</sup> and 15<sup>th</sup> years of mining operation up to the RL of +360m, it was observed that the mining operation would stop before the year 15 as there will be a shortfall for dumping space to accommodate ~300 Mbcm extra overburden generated during the operation.

CMPDIL further explored the possibilities to accommodate more overburden dumps by increasing the dump height level to +390m. CMPDIL estimated that even with an increase in the final dump height to +390m, total designed space for overburden dump would be ~1070 Mbcm as against the total dumping requirements of 1160 Mbcm in the 15<sup>th</sup> year. IIT-ISM does not quite agree with CMPDIL's observation that the mine will not be able to move beyond 14<sup>th</sup> year, the shortfall in the quantity is less than 10% and there would be a possibility to further increase the height at least 5 – 10m which can accommodate the shortfall in the quantity of dumping space in the 15<sup>th</sup> year.

CMPDIL has not provided any estimate of overburden removal and space for dumping beyond 15<sup>th</sup> years and up to 24<sup>th</sup> year. Therefore, to conclude that the mine will not progress beyond 15<sup>th</sup> year may be pre-mature. In absence of detailed drawings and data submitted by CMPDIL in support their calculations, IIT-ISM has only relied on CMPDIL's estimations and tried to extrapolate few

estimations based on its professional experience and subject matter expertise. CMPDIL has also not provided the estimates for 20<sup>th</sup> year so that IIT-ISM could review the scenarios between 15<sup>th</sup> and 20<sup>th</sup> year.

In the 25<sup>th</sup> year mine plan, there is a marginal increase in the coal reserve of CMPDIL estimates, by 6% (from 404.50 Mt to 430.5 Mt), the increase in overburden quantity is quite high at 25% (from 1738.64 Mbcm to 2169 Mbcm) leading to an increase in the stripping ratio by 17%. It was pertinent to note that a similar study carried out by TEMPL till the 25<sup>th</sup> year mining plan showed a variation of 5.30 Mt in coal (from 404.50 Mt to 409.70 Mt) and +404.36 Mbcm in overburden (from 1738.64 Mbcm to 2143.00 Mbcm) leading to a net increase in stripping ratio from 4.30 to 5.30 (Table 3.1). However, TEMPL workings were not based on detailed engineering as CMPDIL's. Since the review of MINEX ROM model was not in the scope of IIT-ISM's work, IIT-ISM considers the CMPDIL's analysis and accepted these outcomes.

- According to the CMPDIL's calculations, to deliver 404.50 Mt of coal till 25<sup>th</sup> year of mining operation of the AMP, a total of ~ 2040 Mbcm of overburden will be generated following the mining sequences proposed in the AMP. In the 25<sup>th</sup> year of mining operation, CMPDIL estimated the total external dump space beyond 25<sup>th</sup> year pit boundary is ~ 175 Mbcm up to an RL of +360m. Therefore, even after utilizing the entire space for dumping, the total accommodation of dump in the 25<sup>th</sup> year would be 1350 Mbcm (External + Internal) while the total OB generated would be ~2040 Mbcm. It is clear that there is no space for dumping available for ~690 Mbcm of OB. CMPDIL has not estimated nor provided the detailed drawings and information in support of its calculation for 25<sup>th</sup> year of mining operations of the approved mining plan. CMPDIL has also not estimated the dumping space beyond +360m level as it has done so in the alternative mining plan.
- The examination of the AMP by CMPDIL has, thus led to the conclusion that overall AMP's mining plan strategies are not workable unless it is further modified / optimized from excavation and dumping point of view. The errors have been found in the estimation of coal and overburden quantities, internal and external dump quantities etc. which can make the implementation of AMP un-feasible. IIT-ISM agrees with the findings of CMPDIL report that there will be a bottleneck in implementing the AMP unless the AMP is modified to address the above issues (Figure i and v of Annexure D).

Accordingly, CMPDIL suggested modifications in the mining plan in order to improve excavation and the dumping strategy of Talaspalli coal mine. IIT-ISM has reviewed the modified mining plan

proposed by CMPDIL with following observations:

- CMPDIL analyzed the geo-mining conditions / parameters of Talapalli coal block to ascertain mining of coal takes place for at least for a minimum period of 25 years. In the alternate / modified mining plan, CMPDIL has estimated total mineable coal by opencast mining method to be ~411.66 Mt at an average strip ratio of 4.60 cum/t for a period of 25 years at an annual production rate of 18Mtpy from 5<sup>th</sup> year of mining operation. Beyond this limit, open cast mining method is not proposed because of the dumping space bottleneck as the operation becomes bound by the external dump. The modified mining plan still follows the two pit operations as proposed in the AMP - one on the north eastern (East Pit) side and the other on the western side (West Pit). However, due to lack of adequate dumping space, the western quarry is terminated in the 5<sup>th</sup> year of mining operation after mining coal up to seam VI up to a maximum depth of 110m, so that the mine void and the space thus created could be utilized for additional quantities of overburden generated from eastern pit in the subsequent years. The East pit will operate till end of the life up to seam III, and up to a maximum depth of ~350m. There is a scope to increase the internal dump height with proper dump slope study by 20 - 30m thus increasing the capacity of internal dump and reducing the external dump quantity, thus de-bottle necking the mining operation beyond 25 years. An expert professional agency may be engaged to carry this study.
- Till 5<sup>th</sup> year of operation, coal production from both the pit will reach 18.00 Mtpy. Internal dump will start once sufficient void is created in the pit. After 5 years, the east pit will independently produce 18.00 Mtpy till 25<sup>th</sup> year of mining operation. It has been proposed to start internal dumping in east pit from 6<sup>th</sup> year of mining operation when the sufficient void is created within the pit. At the same time the complete backfilling will also be done of the West pit from 6<sup>th</sup> year. By 10<sup>th</sup> year of operation, the West pit will be completely filled and merged with the external dump, and the external dump will also begin merging with the internal dump of keeping a barrier of 100m between the encroachment of the east pit and the dumping area. IIT-ISM does not find any bottleneck in continuing the operation till 10<sup>th</sup> year (Figure vi and vii of Annexure I).
- IIT-ISM has also analyzed the dumping scenario in the 15<sup>th</sup> and 20<sup>th</sup> year (Figure ix and figure x of Annexure I) and finds a scope of increasing the total dump quantity by 3 to 5% in the existing dump plan.
- Out of the total overburden of 1894.85 Mbcm, ~510.05 Mbcm (~27%) is proposed to be dumped externally and the balance 1384.80 Mbcm (~73%) internally. The final height of the external dump

it will be ~120m above ground level up-to an RL of +410m. The final height of the internal dump will be around 90m above ground level up-to an RL of +375m. IIT-ISM reviewed the available dumping space (Internal + External + West Pit Void) and finds an scope to increase the overburden dump quantity by 3 - 5%, up to 2000 Mcum (Figure x). Further, the dumps will be formed in benches with individual bench heights of 30m each and a bench width of 30m. IIT-ISM is of the view that there exists a scope to increase the height internal dump by another tier of 20-30m thus de-bottle necking and continuing the operation beyond 26<sup>th</sup> years and making available additional coal reserve.

- IIT-ISM has carried out a high-level study of the average overburden transportation lead in the 5<sup>th</sup>, 10<sup>th</sup>, 15<sup>th</sup>, 20<sup>th</sup> and 25<sup>th</sup> year of operation (Table 5.1).

**Table 5.1. Approximate Average Lead for Overburden Transportation**

Years of Operation	Average Lead (km)	
	Internal Dump	External Dump
5th Year	-	4.50
10th Year	4.2	5.10
15th Year	4.8	-
20th Year	4.8	-
25th Year	4.5	-

- As the life of the west pit is only 5 years, a truck transport is proposed for coal transportation up to the railway siding instead of a conveyor transport which could eventually have a larger environmental foot print than the truck transport considering its installation and dis-enslting in a 5 years' timeframe, in addition to its economic viability. For the east pit, conveyor transport is proposed from the mouth of the pit until the railway siding.
- CMPDIL has estimated the lead overburden varying from about 3.00-7.25 km over the life of the mine. For west pit, the average lead for external dumping is estimated to vary from 3.25-3.75 km. For east pit, the average lead of internal dumping is estimated to vary from 3.00-3.50 km. The average lead for external dumping from east pit is estimated to vary from 6.75-7.25 km in initial 10 years and thereafter from 6.00-6.50 km for next 5 years. The lead for external dumping after 15<sup>th</sup> year is estimated to be 3.0 - 3.50 km.
- The entire coal produced from Talapalli Project (18.0 Mt) will be transported / dispatched through railways. Loading into the rail wagons at the railway siding will be through Silos and Rapid Loading System (RLS).

- The lead for coal varies from about 2.50 – 5.00 km over the life of the mine. For west Pit, the average lead for coal will vary from 4.50-5.00 km.

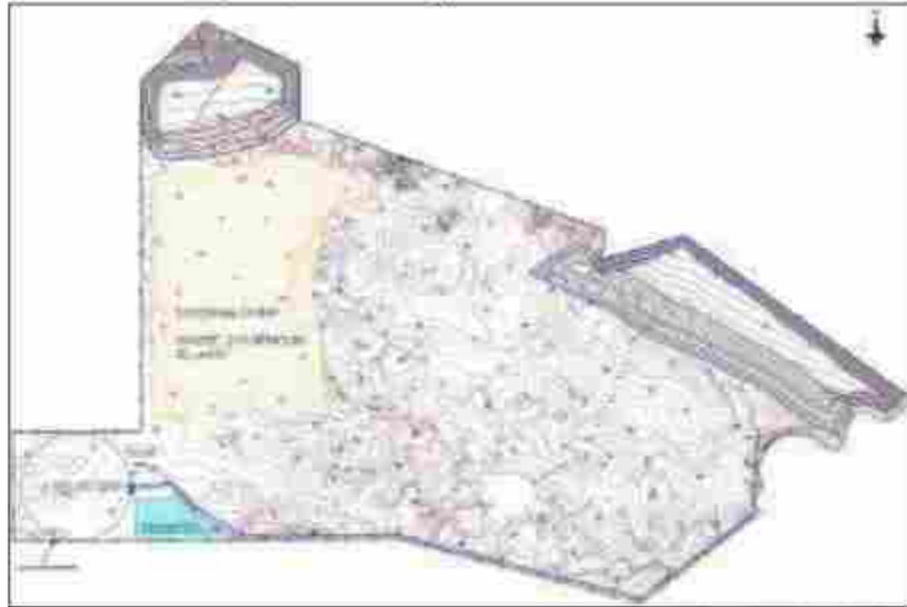
Following suggestions of IIT-ISM may be considered which may have the bearing on the sustainability and viability of the alternative / modified mining plan of CMPDIL:

- As proposed by CMPDIL, the dumps (both internal and external) will be formed in benches with individual bench heights of 30m each and a bench width 30m. However, while reviewing the 25<sup>th</sup> years plan, it is found the individual bench width is 40m instead of 30m as suggested in the text. This could have a significant impact on the quantities of internal dump and consequently delimiting the mining operation at 26<sup>th</sup> year as proposed by CMPDIL. A representative cross section extracted from 25<sup>th</sup> year mining plan is shown in (Figure x, Annexure I).
- Alternative / modified mining plan sterilizes large quantity of coal to be mine by open cast mining method. The new mining plan extracts only ~ 411.66 Mt of coal for a period of 26 years as against the total mineable coal reserve of 845.69 Mt for a period of 52 years because no re-handling of external dump is proposed. This aspect may be looked into with detailed mine planning with an objective to further optimize the mining sequence.
- As per the alternative / modified mining plan, open cast mining ceases in the 26<sup>th</sup> year (becomes bound by the external dump). In case this alternative mining plan of CMPDIL is adopted, NTPC should explore possibilities of High Wall Mining on the final high wall faces of the open cast mine to maximize the extraction of coal.
- IIT-ISM suggests flushing of internal and external dump for the reclamation of final void of the east pit to develop a land form for a better land use and minimize environmental impacts of mining. While doing so IIT-ISM proposes to take into confidence the community around for sustainable land usage post mining.
- Both the AMP and CMPDIL report suggest application of Surface Miners in the windrowing options to mine ~40%, i.e., ~7.2 Mt of coal. IIT-ISM is of the view that as the mine has the provisions of crushing and conveying the entire coal produced from the Tallapalli coal mine, and there is no requirement of selective coal mining, a cost benefit analysis of surface miner equipment system (Surface Miner + FEL + Trucks) vis-a-vis the shovel/dumper equipment system (Shovel + Truck + Blasting) should be performed.
- IIT-ISM is of the view that there is an opportunity to optimize haulage network of overburden.

transport on a year-to-year basis on the basis of annual operating plan which has the potential to reduce the lead distance of overburden transport.

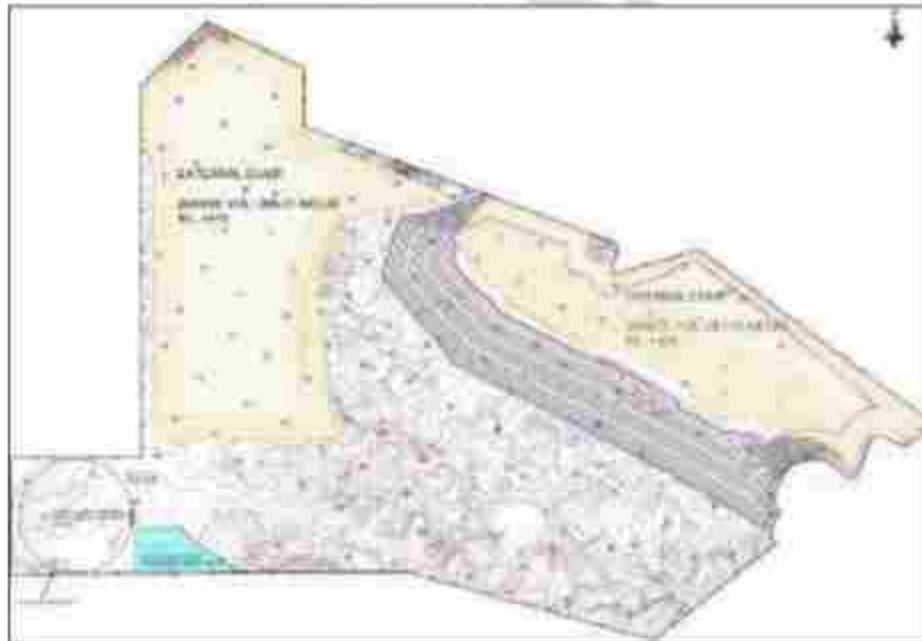
Annexure I

Figure 5. 5<sup>th</sup> year modified mining plan of CMPDIL



52

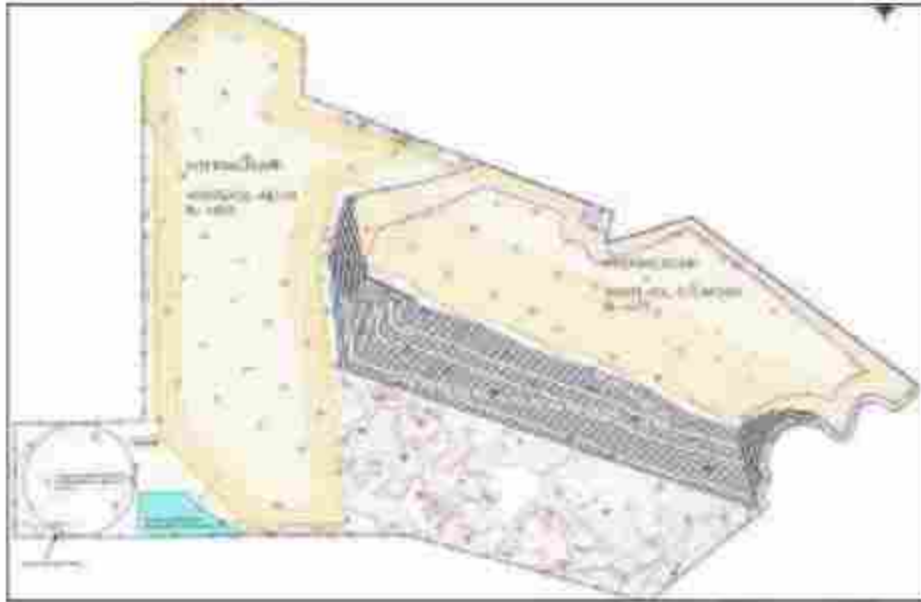
Figure 6. 10<sup>th</sup> year modified mining plan of CMPDIL



53

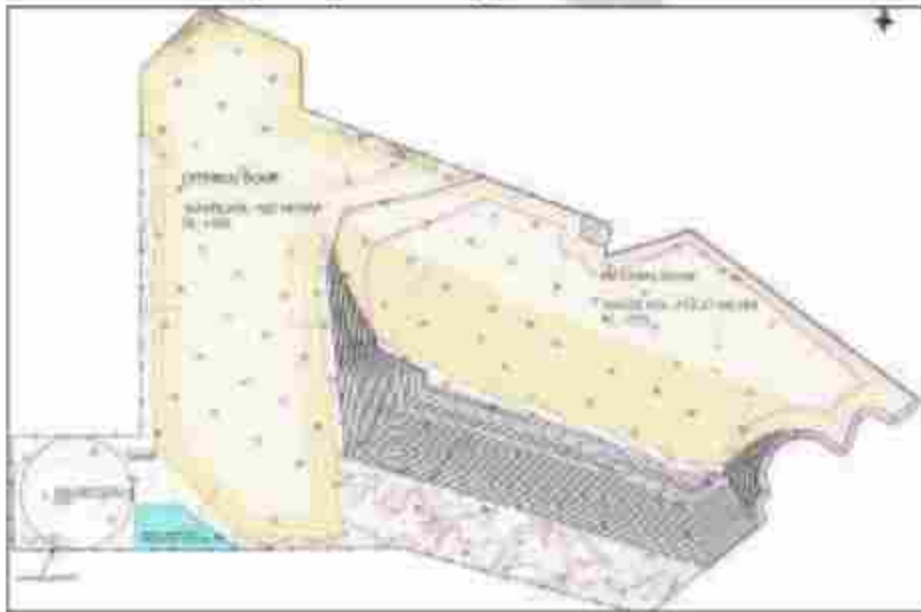


Figure iii: 15<sup>th</sup> year modified mining plan of CMPDGL



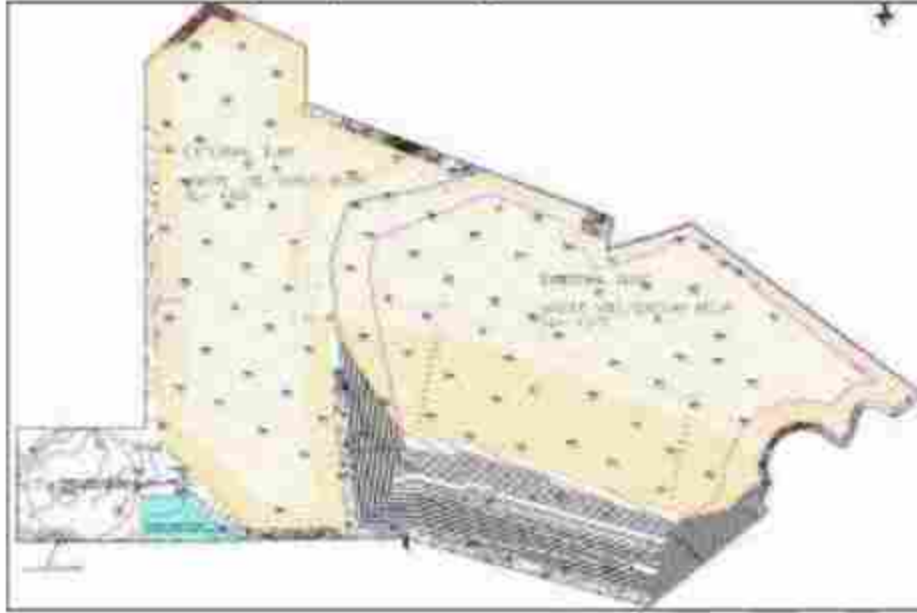
64

Figure iv: 20<sup>th</sup> year modified mining plan of CMPDGL



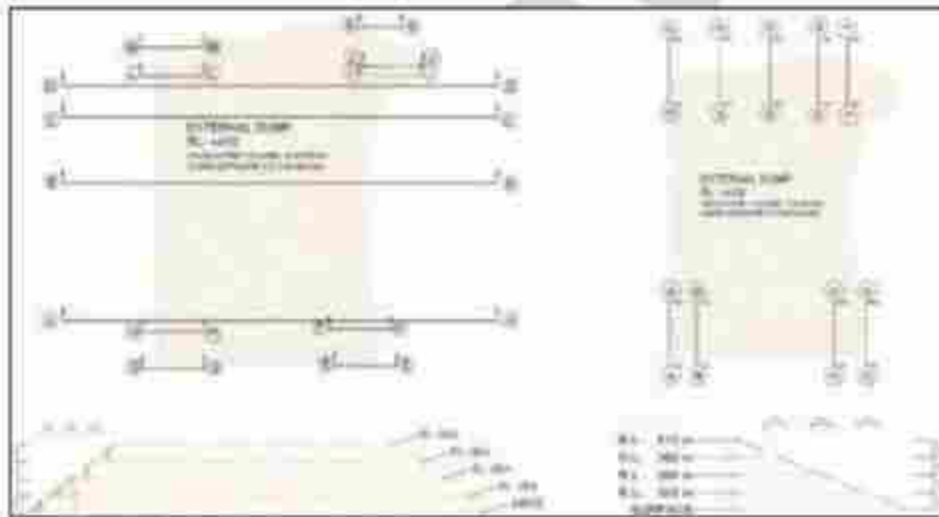
65

Figure v. 2<sup>nd</sup> year modified mining plan of CMPDIL



56

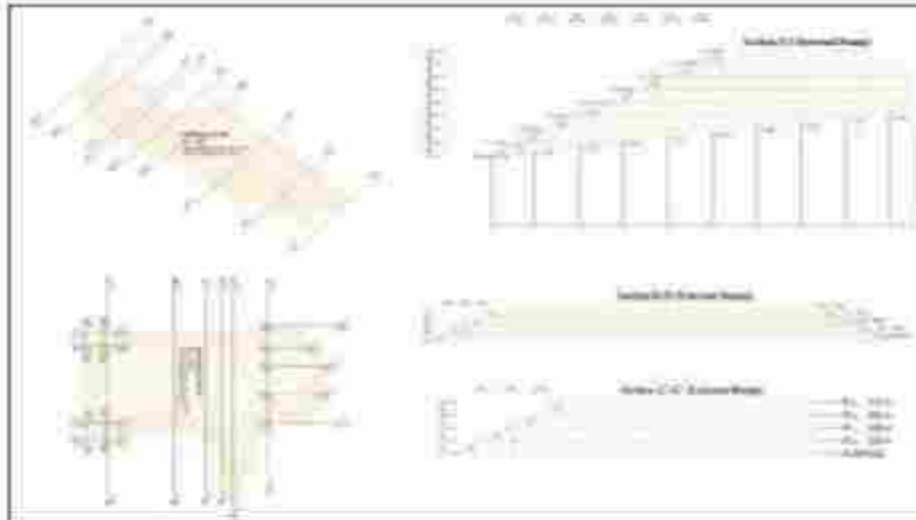
Figure vi. Estimated Dump Quantities in the 2<sup>nd</sup> Year of Mining Operation



Estimated Dump Quantities 2 <sup>nd</sup> Year (Mton)		
External Dump	Internal Dump	Total
~218	Nil	~218

57

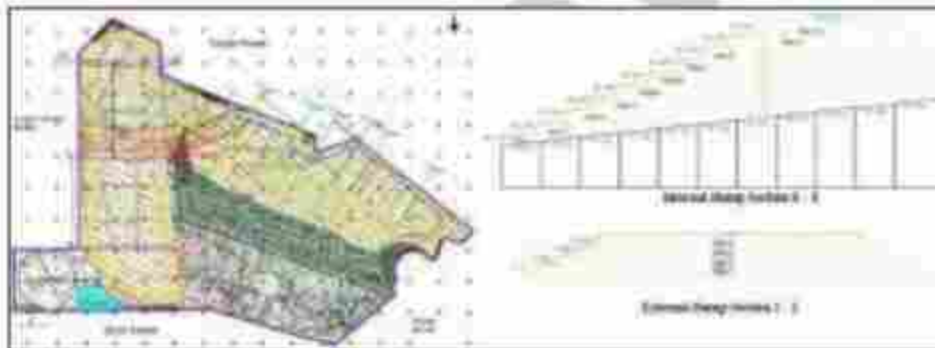
Figure iii. Estimated Dump Quantities in the 10<sup>th</sup> Year of Mining Operation.



Estimated Dump Quantities of 10th Year (Metric)			
External Dump	Internal Dump		Total
	East Pit	West Pit	
~570	~290	~10	~130

50

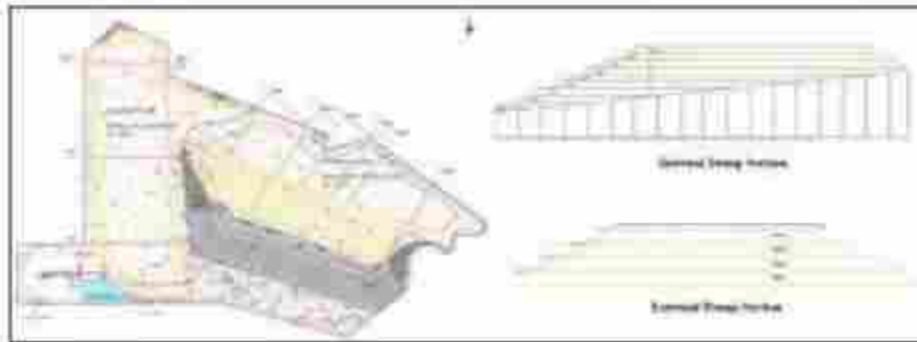
Figure iii. Estimated Dump Quantities in the 15<sup>th</sup> Year of Mining Operation.



Estimated Dump Quantities of 15th Year (Metric)			
External Dump	Internal Dump		Total
	East Pit	West Pit	
~475	~340	~10	~1083

50

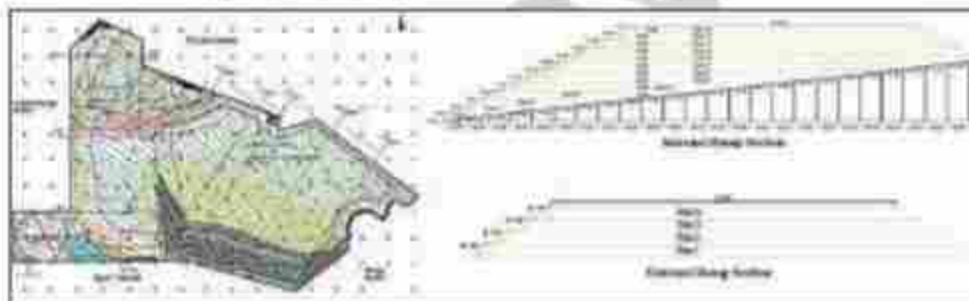
Figure 1c. Estimated Dump Quantities in the 10<sup>th</sup> Year of Mining Operation.



Estimated Dump Quantities of 10th Year (Mcum)			
External Dump	Internal Dump		Total
	East Pit	West Pit	
~500	~880	~70	~1450

70

Figure 2. Estimated Dump Quantities in the 15<sup>th</sup> Year of Mining Operation.



Estimated Dump Quantities of 15th Year (Mcum)			
External Dump	Internal Dump		Total
	East Pit	West Pit	
~490	~1440	~70	~2000

71

## Additional Annexure-25

**PERSONNEL ASSOCIATED WITH PREPARATION OF MINING PLAN AND MINE CLOSURE PLAN (1<sup>ST</sup> MODIFICATION) OF TALAIPALLI COAL BLOCK, M/S NTPC LTD.**

Sl. No	Name of Expert	Particulars
1	Rakesh Chandra Dutta	Project Coordinator
2	Rajesh Dhingra	Project Coordinator (for UG only)
3	Vats Priyesh	Technical Area Expert
4	Murari Prasad	Technical Area Expert
5	Ashish Agrawal	Technical Area Expert
6	Amritanshu	Technical Area Expert
7	Sagar Das	Technical Area Expert
8	Farah Nawaz	Technical Area Expert
9	Navin Kumar	Technical Area Expert
10	Vinod Kumar Pandey	Technical Area Expert

APPROVED

## Additional Annexure-26

### ANNEXURE 26

#### TO WHOM IT MAY CONCERN

The Mining Plan & Mine Closure Plan (1<sup>st</sup> modification) of Talaipally Coal Mine of NTPC Limited formulated by CMPDIL, Ranchi (Certificate No: NABET/APA-MPPA/IA/010) was sent for Expert Review to Mining Plan preparing Agency-MECON Limited (Certificate No: NABET/APA-MPPA/IA/015).

The Mine Plan & Mine Closure Plan of Talaipally Coal Mine has been reviewed from Technical & Administrative angle and observations were forwarded to the project proponent for further compliance at their end. Subsequently, the project proponent has submitted the compliance report incorporating all our observations on Draft Mining Plan & Mine Closure Plan (1<sup>st</sup> modification) of Talaipally Coal Mine. The Compliance Report has been reviewed & found in line with the Guidelines for Preparation, Formulation, Submission, Processing, Scrutiny, Approval and Revision of Mining Plan circulated vide Office Memorandum dated 29<sup>th</sup> May 2020.

Henceforth, the subject Mining Plan is recommended for consideration of the Approving Authority for Approval.

Sincerely,

For MECON Limited, Ranchi

Digital Signature

Name of the Authorizing Officer: S. R. VIRSEN

Date: 17.03.2023

## Additional Annexure-27

**COMPLIANCE TO OBSERVATIONS FROM MEETING OF THE INTERNAL COMMITTEE CONSTITUTED UNDER MMDR ACT 1957 FOR APPROVAL OF MINING PLAN AND MINE CLOSURE PLAN (1<sup>ST</sup> MODIFICATION) OF TALAIKALLI COAL BLOCK, M/S NTPC LTD HELD ON 23/03/2023 THROUGH VIDEO CONFERENCING**

Sl No.	Observation	Compliance
1	A part of area in the north west part of the geological block has not been proposed to be liquidated. This shall be justified/corrected.	There is a steep hill in the north west part of the block with elevation difference of 70 m. The top width of the drain to take care of the surface runoff in that region will be close to 150 m in order to achieve the required bed level. The excavation of such drain will be huge and hence a minimum safe distance of 50 m is proposed between the drain and the opencast mine to prevent danger of inundation of the mine during rainy season. In order to keep the drain inside block boundary and for the safe operation of the mine, the pit boundary delineation along the foothill is proposed in the Revised Mining Plan.
2	Point 14, Additional Annexure-12 The proposed production schedule for few years is inferior to that given in the approved mining plan. To be justified/corrected.	The production schedule as given in the proposed Revised Mining Plan is the most optimized one based on the geo-mining condition, temporary external dump requirement, concurrent handling and total accommodation of OS, etc. The approved Mining Plan is incorrect and operationally not feasible which is apparent from Technical Feasibility Note of TalaiKalli Coal Block (Annexure-22, 23 and 24). As the depth of the base seam (i.e. Seam III) in the western side is around 250m according to the approved Mining Plan, the production schedule for initial years and peak production capacity of 15 MTPA is not possible to achieve in the given span of 5 years as per the approved mining plan. However, the cumulative coal production for the first 7 years in both the approved Mining Plan and the proposed Revised Mining Plan is 50.50 Mt. From 7 <sup>th</sup> year onwards, the production in the Revised Mining Plan is 22 MTPA as against the production of 15 MTPA in the approved Mining Plan. The peak production in the Revised Mining Plan is increased to 25 MTPA which will be achieved in the 15 <sup>th</sup> year and will continue till 25 <sup>th</sup> year. Hence, taking into consideration the above factors, the overall production schedule as per the Revised Mining Plan is better than the approved Mining Plan.

3	Features, land boundaries etc. outside the project area and not a part of the mining plan shall be removed (refer Plate 4, 9 etc.).	Complied
4	As the extractable reserves were reduced considerably compared to the approved MP, Pit Optimization exercise shall be undertaken for maximum recovery of reserves.	Pit optimization exercise has been done for maximization of coal recovery through optimized mining as given in Conceptual Report (Annexure-26). The approved Mining Plan, which envisaged OC mining upto Seam III, is incorrect and operationally not feasible. Mining upto Seam II will result in less extraction of Coal due to dump space constraint as given in Conceptual Report. Different Pit options has been envisaged to maximize the recovery of coal and the proposed pit option in the Revised Mining Plan is found to be the most optimized for maximum recovery of Coal.

## Additional Annexure-28

COMPLIANCE TO OBSERVATIONS FROM MEETING OF THE INTERNAL COMMITTEE CONSTITUTED UNDER MMOR ACT 1957 FOR APPROVAL OF MINING PLAN AND MINE CLOSURE PLAN (1<sup>ST</sup> MODIFICATION) OF TALAIKALLI COAL BLOCK, M/S. NTPC LTD HELD ON 17/04/2023 THROUGH VIDEO CONFERENCING

Query: 1 - Para 1.5.28 of Mining plan- A Commercial Civil suit has been started to be filed regarding the mining plan. (a) Is the matter sub-judice? (b) Relevant documents to be furnished in support of the declaration in (a).

Reply of ITPC:

- a) The matter is not sub-judice.
- b) The referred commercial suit has been classified as withdrawn. The relevant order of Hon'ble High Court of Delhi is enclosed as Annexure-28 for kind information of Internal Committee constituted under MMOR ACT 1957 for approval of Mining Plan.

APPROVED



**Additional Annexure-29**

S-33

\* **IN THE HIGH COURT OF DELHI AT NEW DELHI**  
+ CS(COMM) 219/2021, LA. 6177/2021, 6180/2021, 6181/2021,  
3914/2022, 4551/2022 & 10541/2022  
THRIVENI EARTHMOVERS PVT. LTD

..... Plaintiff

Through: Mr. Parag P. Tripathi, Sr. Adv. with  
Mr. Abhimanyu Bhandari, Mr. Anand  
Varma, Mr. Anirudh Bakhru,  
Mr. Apoorva Pandey, Mr. Anirudh  
Dusaj, Mr. Adyasha Nanda,  
Mr. Apoorv Tripathi and Mr. Riya  
Kalra, Adv.

versus

NIPC LTD

..... Defendant

Through: Mr. Chetan Sharma, ASG with  
Mr. Puneet Taneja, Mr. R. Dubey,  
Mr. Amit Gupta, Mr. Saurabh  
Tripathi and Mr. Manmohan Singh  
Narula, Adv.

**CORAM:**  
**HON'BLE MR. JUSTICE V. KAMESWAR RAO**

**ORDER**  
**07.09.2022**

%

**LA. 10541/2022**

1. This is an application filed by the plaintiff with the following prayers:

*"It is therefore humbly prayed that this Hon'ble Court be pleased to:*

*(i) Allow the present application and refer the present dispute for conciliation by the CCIE in accordance with the procedure set forth in the OM issued by the Hon'ble Ministry of Power and New and Renewable Energy dated 29.12.2021;*

*(ii) Pass any other order as this Hon'ble Court may deem fit in the interests of justice."*

Signature Verified  
07/09/2022 11:40:00  
Sudhakar Gopal  
17/09/2022

2. A reply to the application has been filed by the defendant wherein it is stated, as per the procedure provided in the OM dated December 29, 2021, the dispute can be referred to the conciliation committee with the consent of the parties and the party withdrawing the case. It is stated that the condition precedent for referring the dispute to CCIE is that the plaintiff needs to withdraw the case. It is also stated that keeping in view the procedure specifically provided in OM dated December 29, 2021 for reference of dispute to the Conciliation Committee in case dispute is pending before Court of Law, defendant vide its letter dated August 18, 2022 has informed the plaintiff that they are ready for referring the dispute provided, plaintiff complies with the procedure for reference in a matter pending before a Court of Law, which requires withdrawing the case before making reference.

3. I have heard Mr. Parag P. Tripathi, learned Senior Counsel appearing for the plaintiff and Mr. Chetan Sharma, learned Additional Solicitor General appearing for the defendant on this application, yesterday. During the course of hearing, Mr. Tripathi would submit that the plaintiff is inclined to go for conciliation with the defendant by withdrawing the suit provided that in the eventuality the conciliation proceedings fail or any grievance subsist, the plaintiff should be granted liberty to revive the present suit and such a prayer, should not be objected to by the defendant.

4. Mr. Sharma had taken time to take instructions from the defendant. Mr. Sharma has taken instructions. According to him, the OM dated December 29, 2021 on which reliance has been placed by Mr. Tripathi is very clear, inasmuch as if the conciliation fails, the plaintiff shall be at liberty to approach this Court for revival of the suit to which the defendant shall have no objection.

5. In view of the submission made by Mr. Sharma, the present suit and connected applications are dismissed as withdrawn. The defendant to refer the dispute to conciliation.

6. It is made clear that if the conciliation fails or any grievance subsist relating to the suit filed by the plaintiff, the plaintiff is at liberty to approach this Court for revival of the suit. If such a prayer is made, as stated by Mr. Sharma, the defendant shall not object to the same. It is made clear, all the rights and contentions of the parties are left open.

7. The application is disposed of.

**V. KAMESWAR RAO, J**

**SEPTEMBER 7, 2022** *ukv*

Ministry of Mines  
Government of India  
New Delhi



APPROVED

## Additional Annexure-30

**COMPLIANCE TO OBSERVATIONS FROM MEETING OF THE INTERNAL COMMITTEE CONSTITUTED UNDER MMOR ACT, 1957 FOR APPROVAL OF MINING PLAN AND MINE CLOSURE PLAN OF TALRIPALI COAL BLOCK, M/S NTPC LTD HELD ON 14/07/2023 THROUGH VIDEO CONFERENCING**

**Query:** Extractable reserves have decreased considerably as compared to the earlier approved mining plan. The decrease of extractable reserves (South-West, and West) as compared to the earlier mining plan with explanation shall be tabulated.

**Compliance:** The detailed variation of extractable reserves with respect to approved Mining Plan is tabulated below:

**TABLE-1: SEAMWISE EXTRACTABLE RESERVES IN EARLIER APPROVED MINING PLAN VS-3-193 PROPOSED REVISED MINING PLAN**

Seams	Extractable Reserves in Earlier Approved MP (Mt)			Extractable Reserves in Proposed Revised MP (Mt)	Difference w.r.t. Approved MP (Mt)	Reason for Difference in Proposed Revised MP w.r.t. Approved MP			
	CC	UC	Total			Decrease due to Re-assessment** (1/4)	Due to conversion of common general drain towards** (1/5)	Infrastructure area in South-West zone** (1/6)	Seams proposed to be mined West to U2***
S-1A	0.08		0.08	0.00	0.08	0.08			
S-1B	1.47		1.47	0.00	1.47	1.47			
S-2DF	0.17		0.17	0.00	0.17	0.17		0.00	
S-2DT	15.18		15.18	02.54	12.64	4.71	12.70	0.00	
S-4	28.14		28.14	15.84	12.30	1.00	0.71	0.00	
S-4S	20.07		20.07	16.70	3.37	1.48	1.00	0.00	
S	62.92		62.92	48.87	14.05	8.07	0.71		
W	100.88		100.88	82.00	18.88	0.00	0.00	0.00	

Seams	Extractable Reserves in Earlier Approved MP (Mt)			Extractable Reserves in Proposed Revised MP (Mt)	Difference w.r.t. Approved MP (Mt)	Reason for Difference in Proposed Revised MP w.r.t. Approved MP			
	CC	UC	Total			Decrease due to Re-Assessment** (1/4)	Due to conversion of common general drain towards** (1/5)	Infrastructure area in South-West zone** (1/6)	Seams proposed to be mined West to U2***
W	4.70		4.70	0.07	4.63	0.00	0.00		
S-1709	22.81		22.81	10.80	12.01	1.40	0.00		
S-1710	122.95		122.95	110.00	12.95	0.00	14.00		
S-1821	3.48		3.48	4.11	0.63	0.04	0.00		
S-170P	0.00		0.00	7.00	7.00	0.00	0.00		
S-1710	22.11		22.11	17.84	4.27	1.40	0.00		
S-1807	20.71		20.71	0.00	20.71	0.00	0.00		
S-1709P	00.00		00.00	00.00	00.00	0.00	00.00		
S-1810	00.00		00.00	00.00	00.00	0.00	0.00		
S-4	21.00		21.00	10.00	11.00	0.00	0.00		
S-1827	11.00		11.00	00.00	11.00	0.00	0.00		
S-1	10.07		10.07	10.07	0.00				10.07
S-1	40.70		40.70	40.70	0.00				40.70
S-1B		4.00	4.00		4.00				4.00
S-1C		1.00	1.00		1.00				1.00
S-1D		0.00	0.00		0.00				0.00
S		11.47	11.47		11.47				11.47

Seams	Extractable Reserves in Earlier Approved MP (Mt)			Extractable Reserves in Proposed Revised MP (Mt)			Difference in Earlier Approved MP (Mt)	Reason for Difference in Proposed Revised MP w.r.t. Earlier Approved MP				
	OC	US	Total	OC	OC-SOUTH WEST*	US*		Decrease due to Re-estimation** (M)	Over-estimation/under-estimation** (M)	Infrastructure area in South-West part** (M)	Seams proposed to be mined later by US***	
IIA			0.00				0.00					0.00
<b>Total</b>	<b>343.08</b>	<b>17.87</b>	<b>360.95</b>	<b>330.95</b>		<b>29.99</b>	<b>32.99</b>	<b>12.99</b>	<b>17.99</b>	<b>12.99</b>	<b>11.99</b>	

\* In earlier approved Mining Plan, leaving only 7.5m stationary barrier and 50m from late river, the whole of remaining area i.e. 2079.58 Ha is shown to be extracted by OC method. No area for conveyor corridor, garden drain, roads, lighting arrangement, etc. has been provided without which mining is not feasible. This has been corrected in the proposed Revised Mining Plan. A 40-50m width of area has been left around the block for conveyor corridor, roads, garden drain, lighting arrangements, etc. Also 1000 Ha of land which is the South West part of the block for required infrastructure like UGS, Workshop, Substation etc. and is proposed to be mined later (Refer Annexure 21) due to which the total operation area in the Revised MP is 1024.55 Ha.

\*\* Seams before (V, VI, VII) is proposed to be mined by US method as it is not feasible to mine by OC method due to dump space constraint. To mine extractable reserves for OC mining of South West part and US mining, as given in Annexure 21 (CONCEPTUAL NOTE FOR RE-EVALUATION OF US MINING POTENTIALITY OF TALAJARU BLOCK & PROSPECTATION OF SOUTH WEST AREA OF THE BLOCK), a Revised Mining Plan needs to be prepared after 25 years for US mining of whole block and OC mining upto 2026 (in south western area where infrastructure for proposed Operation mine is located).

TABLE-2: SEAMWISE EXTRACTABLE RESERVES IN EARLIER APPROVED MINING PLAN VS. A US PROPOSED REVISED MINING PLAN INCLUDING RESTRICTED EXTRACTABLE RESERVES BY US MINING AND BY OC MINING IN SOUTH WEST PART ADDED IN CONCEPTUAL NOTE (ANNEXURE 21)

Seams	Extractable Reserve in Earlier Approved MP (Mt)			Extractable Reserve in Proposed Revised MP (Mt)			Difference in Earlier Approved Mining Plan	Reason for Difference
	OC	US	Total	OC	OC-SOUTH WEST*	US*		
IIA	0.00		0.00	0.00			0.00	The earlier approved Mining Plan is not correct (Refer Annexure 21- Note on Technical Feasibility of Talajaru Coal Block). Further, assuming to Pumping space constraint and the mining operation to be feasible for the entire projected area as per the earlier approved Mining Plan, the total extractable reserves by OC mining would be 700.00 Mt and not 343.08 Mt as given in the earlier approved Mining Plan (Refer Pg. 44 of Annexure-21).
IIB	1.47		1.47	0.38			1.09	In earlier approved Mining Plan, leaving only 7.5m stationary barrier and 50m from late river, the whole of remaining area i.e. 2079.58 Ha is shown to be extracted by OC method. No area for conveyor corridor, garden drain, roads, lighting arrangement, etc. has been provided without which mining is not feasible. This has been corrected in the proposed Revised Mining Plan. A 40-50m width of area has been left around the block for conveyor corridor, roads, garden drain, lighting arrangements, etc. Also 1000 Ha of land which is the South West part of the block for required infrastructure like UGS, Workshop, Substation etc. and is proposed to be mined later (Refer Annexure 21) due to which the total operation area in the Revised MP is 1024.55 Ha.
IVTOP	9.17		9.17	6.65	0.2		2.32	In earlier approved Mining Plan, leaving only 7.5m stationary barrier and 50m from late river, the whole of remaining area i.e. 2079.58 Ha is shown to be extracted by OC method. No area for conveyor corridor, garden drain, roads, lighting arrangement, etc. has been provided without which mining is not feasible. This has been corrected in the proposed Revised Mining Plan. A 40-50m width of area has been left around the block for conveyor corridor, roads, garden drain, lighting arrangements, etc. Also 1000 Ha of land which is the South West part of the block for required infrastructure like UGS, Workshop, Substation etc. and is proposed to be mined later (Refer Annexure 21) due to which the total operation area in the Revised MP is 1024.55 Ha.
IVBOT	75.69		75.69	52.64	2.35		22.69	In earlier approved Mining Plan, leaving only 7.5m stationary barrier and 50m from late river, the whole of remaining area i.e. 2079.58 Ha is shown to be extracted by OC method. No area for conveyor corridor, garden drain, roads, lighting arrangement, etc. has been provided without which mining is not feasible. This has been corrected in the proposed Revised Mining Plan. A 40-50m width of area has been left around the block for conveyor corridor, roads, garden drain, lighting arrangements, etc. Also 1000 Ha of land which is the South West part of the block for required infrastructure like UGS, Workshop, Substation etc. and is proposed to be mined later (Refer Annexure 21) due to which the total operation area in the Revised MP is 1024.55 Ha.
IVL3	19.02		19.02	16.94	0.38		2.09	In earlier approved Mining Plan, leaving only 7.5m stationary barrier and 50m from late river, the whole of remaining area i.e. 2079.58 Ha is shown to be extracted by OC method. No area for conveyor corridor, garden drain, roads, lighting arrangement, etc. has been provided without which mining is not feasible. This has been corrected in the proposed Revised Mining Plan. A 40-50m width of area has been left around the block for conveyor corridor, roads, garden drain, lighting arrangements, etc. Also 1000 Ha of land which is the South West part of the block for required infrastructure like UGS, Workshop, Substation etc. and is proposed to be mined later (Refer Annexure 21) due to which the total operation area in the Revised MP is 1024.55 Ha.
IVL1	23.07		23.07	18.75	1.02		4.30	In earlier approved Mining Plan, leaving only 7.5m stationary barrier and 50m from late river, the whole of remaining area i.e. 2079.58 Ha is shown to be extracted by OC method. No area for conveyor corridor, garden drain, roads, lighting arrangement, etc. has been provided without which mining is not feasible. This has been corrected in the proposed Revised Mining Plan. A 40-50m width of area has been left around the block for conveyor corridor, roads, garden drain, lighting arrangements, etc. Also 1000 Ha of land which is the South West part of the block for required infrastructure like UGS, Workshop, Substation etc. and is proposed to be mined later (Refer Annexure 21) due to which the total operation area in the Revised MP is 1024.55 Ha.
IV	62.82		62.82	66.37	1.7		3.55	In earlier approved Mining Plan, leaving only 7.5m stationary barrier and 50m from late river, the whole of remaining area i.e. 2079.58 Ha is shown to be extracted by OC method. No area for conveyor corridor, garden drain, roads, lighting arrangement, etc. has been provided without which mining is not feasible. This has been corrected in the proposed Revised Mining Plan. A 40-50m width of area has been left around the block for conveyor corridor, roads, garden drain, lighting arrangements, etc. Also 1000 Ha of land which is the South West part of the block for required infrastructure like UGS, Workshop, Substation etc. and is proposed to be mined later (Refer Annexure 21) due to which the total operation area in the Revised MP is 1024.55 Ha.
VII	100.58		100.58	87.22	1.28		13.08	In earlier approved Mining Plan, leaving only 7.5m stationary barrier and 50m from late river, the whole of remaining area i.e. 2079.58 Ha is shown to be extracted by OC method. No area for conveyor corridor, garden drain, roads, lighting arrangement, etc. has been provided without which mining is not feasible. This has been corrected in the proposed Revised Mining Plan. A 40-50m width of area has been left around the block for conveyor corridor, roads, garden drain, lighting arrangements, etc. Also 1000 Ha of land which is the South West part of the block for required infrastructure like UGS, Workshop, Substation etc. and is proposed to be mined later (Refer Annexure 21) due to which the total operation area in the Revised MP is 1024.55 Ha.
VII	4.75		4.75	3.37		1.32	1.38	In earlier approved Mining Plan, leaving only 7.5m stationary barrier and 50m from late river, the whole of remaining area i.e. 2079.58 Ha is shown to be extracted by OC method. No area for conveyor corridor, garden drain, roads, lighting arrangement, etc. has been provided without which mining is not feasible. This has been corrected in the proposed Revised Mining Plan. A 40-50m width of area has been left around the block for conveyor corridor, roads, garden drain, lighting arrangements, etc. Also 1000 Ha of land which is the South West part of the block for required infrastructure like UGS, Workshop, Substation etc. and is proposed to be mined later (Refer Annexure 21) due to which the total operation area in the Revised MP is 1024.55 Ha.
VITOP	22.81		22.81	12.80			10.01	In earlier approved Mining Plan, leaving only 7.5m stationary barrier and 50m from late river, the whole of remaining area i.e. 2079.58 Ha is shown to be extracted by OC method. No area for conveyor corridor, garden drain, roads, lighting arrangement, etc. has been provided without which mining is not feasible. This has been corrected in the proposed Revised Mining Plan. A 40-50m width of area has been left around the block for conveyor corridor, roads, garden drain, lighting arrangements, etc. Also 1000 Ha of land which is the South West part of the block for required infrastructure like UGS, Workshop, Substation etc. and is proposed to be mined later (Refer Annexure 21) due to which the total operation area in the Revised MP is 1024.55 Ha.
VIBOT	130.99		130.99	110.38			20.61	In earlier approved Mining Plan, leaving only 7.5m stationary barrier and 50m from late river, the whole of remaining area i.e. 2079.58 Ha is shown to be extracted by OC method. No area for conveyor corridor, garden drain, roads, lighting arrangement, etc. has been provided without which mining is not feasible. This has been corrected in the proposed Revised Mining Plan. A 40-50m width of area has been left around the block for conveyor corridor, roads, garden drain, lighting arrangements, etc. Also 1000 Ha of land which is the South West part of the block for required infrastructure like UGS, Workshop, Substation etc. and is proposed to be mined later (Refer Annexure 21) due to which the total operation area in the Revised MP is 1024.55 Ha.
VIL3	3.46		3.46	4.11			0.65	In earlier approved Mining Plan, leaving only 7.5m stationary barrier and 50m from late river, the whole of remaining area i.e. 2079.58 Ha is shown to be extracted by OC method. No area for conveyor corridor, garden drain, roads, lighting arrangement, etc. has been provided without which mining is not feasible. This has been corrected in the proposed Revised Mining Plan. A 40-50m width of area has been left around the block for conveyor corridor, roads, garden drain, lighting arrangements, etc. Also 1000 Ha of land which is the South West part of the block for required infrastructure like UGS, Workshop, Substation etc. and is proposed to be mined later (Refer Annexure 21) due to which the total operation area in the Revised MP is 1024.55 Ha.
VITOP	9.02		9.02	7.08			1.94	In earlier approved Mining Plan, leaving only 7.5m stationary barrier and 50m from late river, the whole of remaining area i.e. 2079.58 Ha is shown to be extracted by OC method. No area for conveyor corridor, garden drain, roads, lighting arrangement, etc. has been provided without which mining is not feasible. This has been corrected in the proposed Revised Mining Plan. A 40-50m width of area has been left around the block for conveyor corridor, roads, garden drain, lighting arrangements, etc. Also 1000 Ha of land which is the South West part of the block for required infrastructure like UGS, Workshop, Substation etc. and is proposed to be mined later (Refer Annexure 21) due to which the total operation area in the Revised MP is 1024.55 Ha.

Seams	Extractable Reserve in Earlier Approved MP (Mt)			Extractable Reserve in Proposed Revised MP (Mt)			Difference w.r.t approved Mining Plan	Reason for Difference	
	OC	UG	Total	OC	OC-SOUTH WEST*	UG*			Total
V-MD	23.13		23.13	17.54			17.54	5.59	arrangements, etc. due to which the total excavation area in the Revised MP is 1829.85 Ha. Considering the infrastructure area in the south west part which will be mined by OC method upto Seam VII as per the Conceptual Note for UG and South West OC mining (Refer Annexure II) the total excavation area will increase to 1879.35 Ha. So in the proposed Revised MP, 500ha or less area than the earlier Mining Plan is proposed to be excavated for seam IX to (V-SOT). Hence the difference.
V-SOT	25.72		25.72	23.73		0.77	23.49	2.23	
V-TOP	58.89		58.89	53.04			53.04	5.85	
V-MD	53.50		53.50	51.29		2.49	53.54	-0.04	
V-L	21.55		21.55	18.81			18.81	2.74	
V-SOT	31.09		31.09	43.69			43.69	-12.60	
III	18.87		18.87				0.00	18.87	In the Proposed Revised MP, seam III is not proposed to be excavated by OC mining as it is not feasible due to stope space constraint. Also, the seam has not attained workable thickness in the mining area as the proposed thickness in E3/E4 boreholes varies from 0.5m to 1.30m and as it cannot be mined through UG mining (Refer Annexure II- Conceptual Note on UG mining and South West part).

Seams	Extractable Reserve in Earlier Approved MP (Mt)			Extractable Reserve in Proposed Revised MP (Mt)			Difference w.r.t approved Mining Plan	Reason for Difference	
	OC	UG	Total	OC	OC-SOUTH WEST*	UG*			Total
II	48.75		48.75			33.71	33.71	-15.04	In the Proposed Revised MP, seam II is not proposed to be excavated by OC mining as it is not feasible due to stope space constraint. The seam will be mined by UG method (Refer Annexure II- Conceptual Note on UG mining and South West part).
II-L		4.33	4.33				0.00	4.33	Seam II-L & Seam II-S have attained workable thickness in North West and south west part of the coal block in very small areas. The seam II-L and II-S have workable area at a depth higher than 300m in the south western side. These seams have developed workable thickness in a very small area in the North Western side at a depth higher than 300m. Accessing these areas from Seam II would involve thin seam driffts or drifts of air. Hence, Seam II-L and Seam II-S are considered to be non-economical (Refer Annexure II- Conceptual Note on UG mining and South West part).
II-L		1.65	1.65				0.00	1.65	Not mineable due to poor development of the carbonaceous horizons.
II-L			3.02				0.00	3.02	Seam II will be mined through UG mining (Refer Annexure II- Conceptual Note on UG mining and South West part).
II		11.47	11.47			28.28	28.28	-16.81	

Sears	Extractable Reserve in Earlier Approved MP (Mt)			Extractable Reserve in Proposed Revised MP (Mt)			Difference w.r.t approved Mining Plan	Reason for Difference
	OC	UG	Total	OC	OC-SOUTH WEST*	UG*		
IL			2.00				0.00	Not feasible due to poor development of the carbonaceous horizons
<b>Total</b>	<b>842.88</b>	<b>17.87</b>	<b>860.75</b>	<b>831.98</b>	<b>11.90</b>	<b>89.52</b>	<b>742.88</b>	<b>118.27</b>

Note:  
 \* Tentative extractable reserve for OC mining of South West area and UG mining as given in Annexure-21 (CONCEPTUAL NOTE FOR ASSESSMENT OF UG MINING POTENTIALITY OF TALARAULI BLOCK & REDEVELOPMENT OF SOUTH WEST AREA OF THE BLOCK). A Mining Mining Plan needs to be prepared after 29 years for UG mining of whole South West and OC mining can be done only in south western area where infrastructure for proposed operations were already in place.

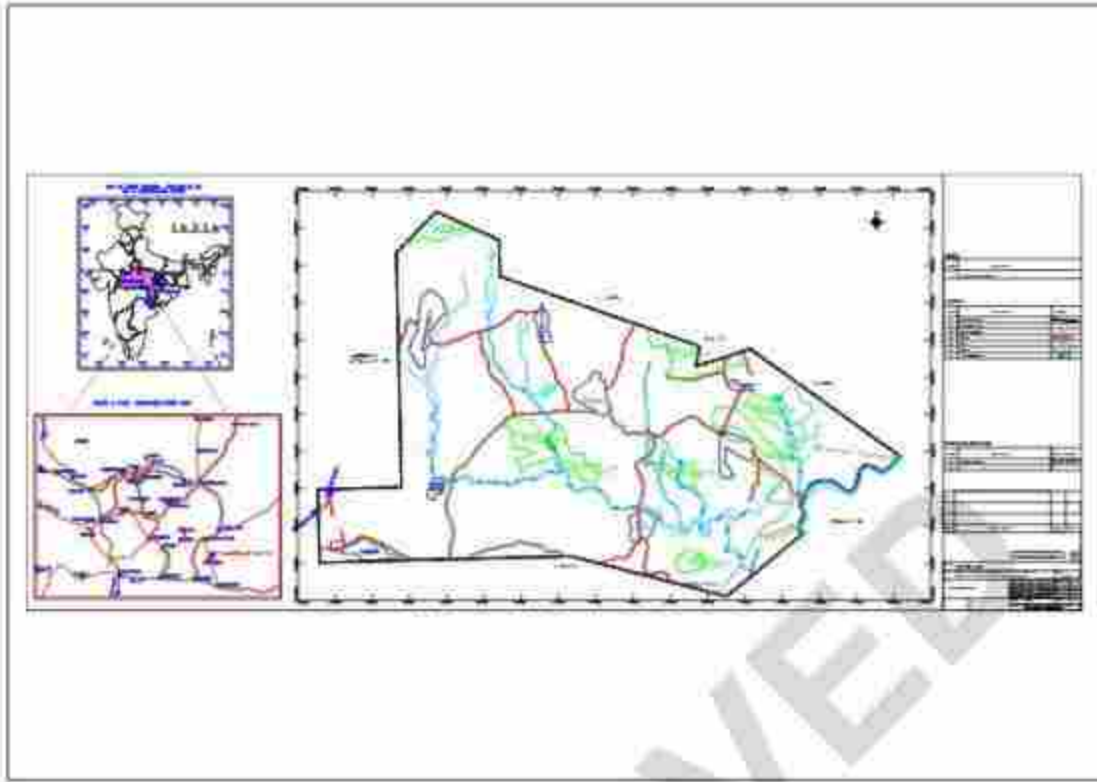
TABLE-2: SUMMARY OF EXTRACTABLE RESERVE (INCLUDING TENTATIVE RESERVE BY UG MINING AND OC MINING IN SOUTH WEST)

S. No.	Particulars	Extractable Reserve in Earlier Approved MP (Mt)	Extractable Reserve in Proposed Revised MP (Mt)	Remarks
1	Sears from 7-A to 7-B*	782.78	861.02*	Difference with respect to earlier approved Mining Plan is 122.04 Mt. This difference is on account of following: - Calculated area in earlier approved Mining Plan (Refer Fig. A4 of Annexure-21)- 140.23 Mt - Due to area provided for conveyor corridor, gantry drain, roads, lighting arrangement, etc around the block which was not provided in earlier approved Mining Plan and without which mining operation is not feasible- 170.13 Mt
2	Sears IL to Sears IV	81.98	81.98	No loss in extractable reserve below Sears IL-III with respect to earlier approved Mining Plan
<b>Total</b>		<b>864.76</b>	<b>942.99</b>	

\* 861.02 Mt of Extractable Reserve includes 825.89 Mt of reserve as given in proposed Revised MP & 11.90 Mt of tentative OC reserve and 24.23 Mt of tentative UG reserve of Sears above 7-B\* as given in Annexure-21 (CONCEPTUAL NOTE FOR ASSESSMENT OF UG MINING POTENTIALITY OF TALARAULI BLOCK & REDEVELOPMENT OF SOUTH WEST AREA OF THE BLOCK)

# Plan/Plates

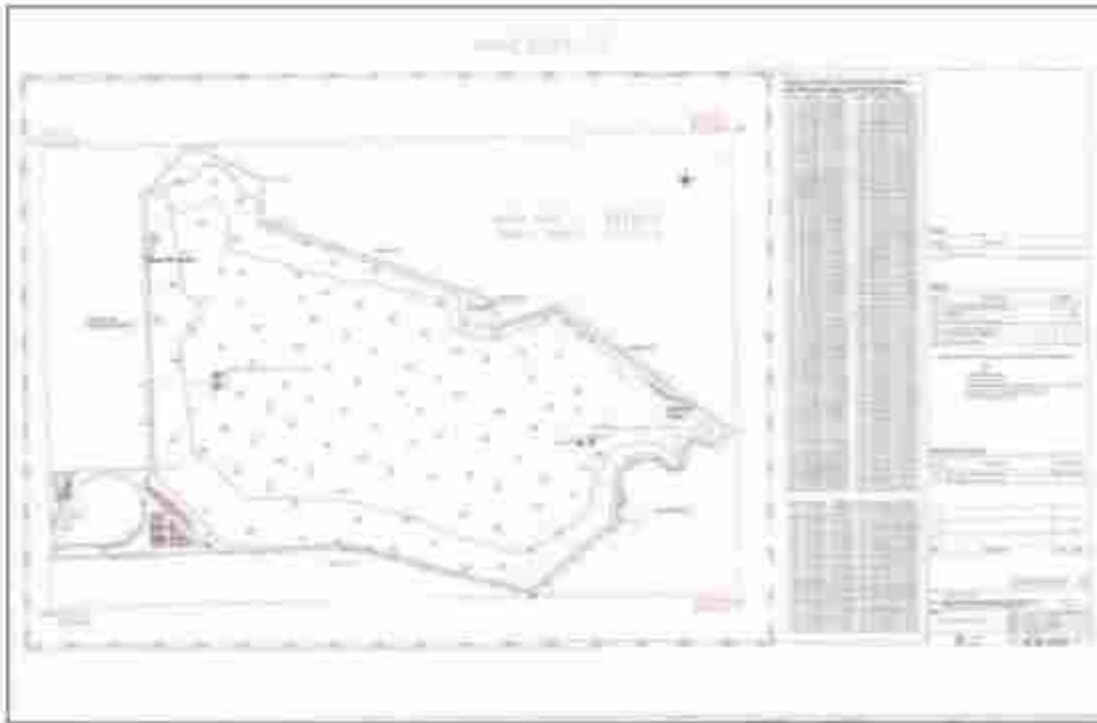
## Plate 1



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Plan / Plate 2A



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Plan / Plate 3A (Lease Area)



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Plan / Plate 3B (Project Area)



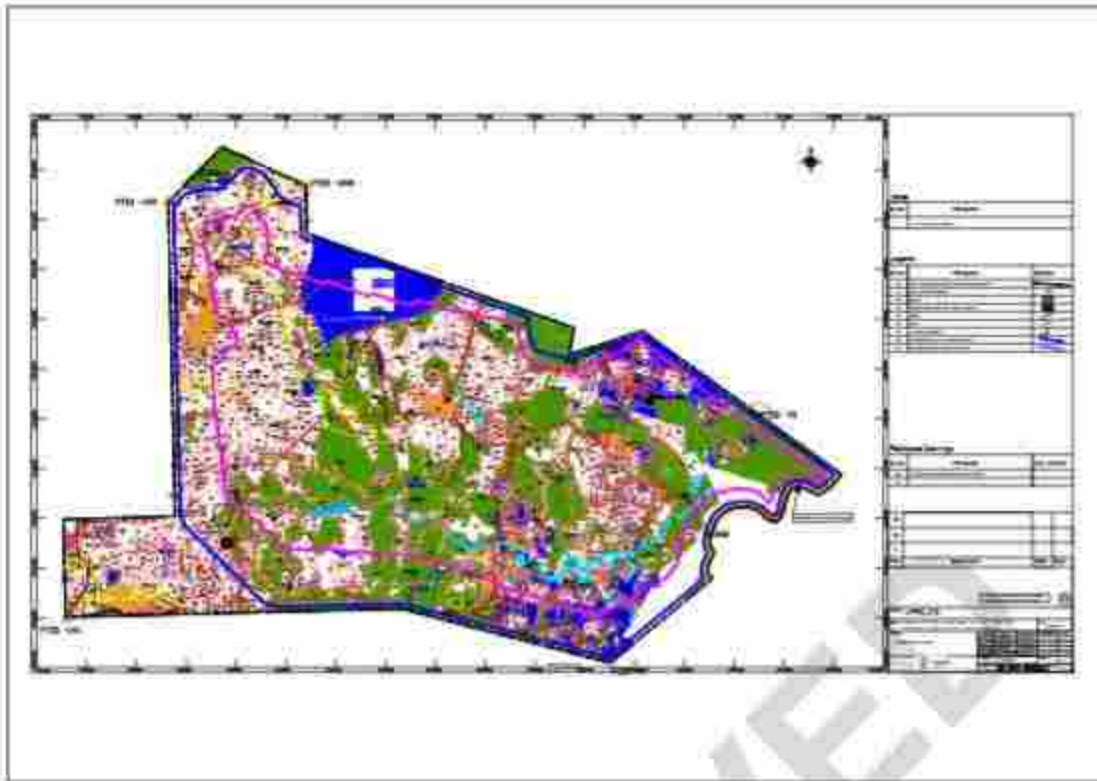
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Plan / Plate 3C (Geological Block)



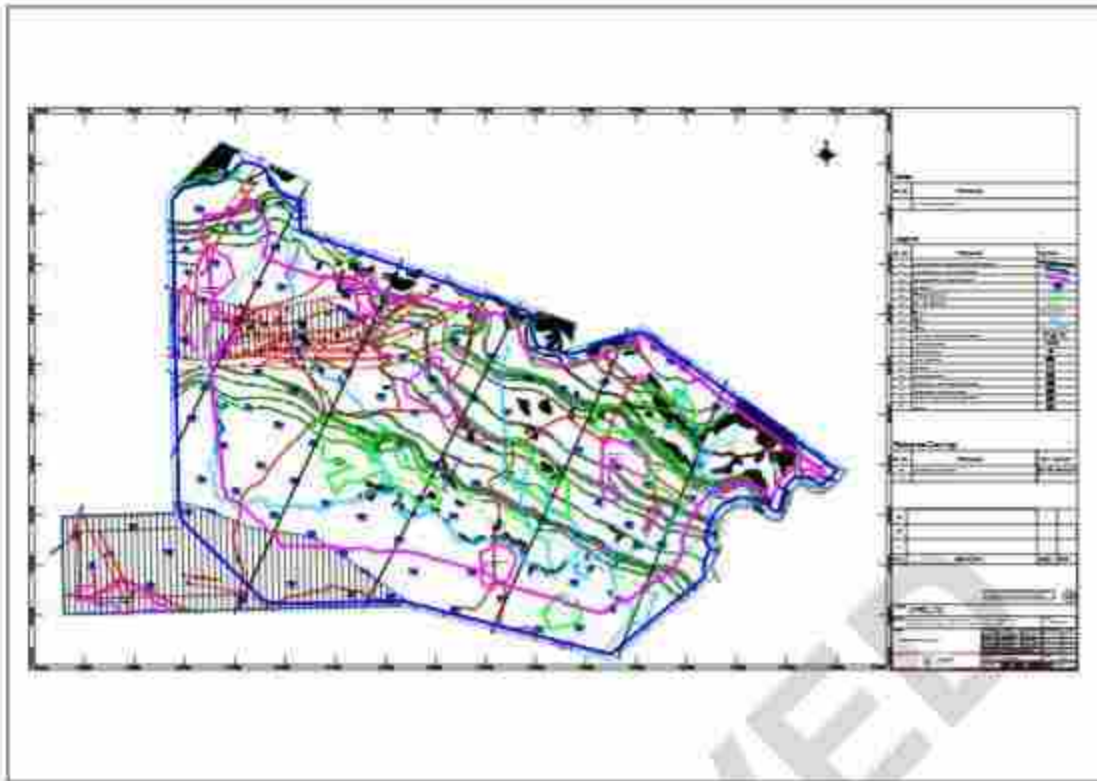
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Plan / Plate 4

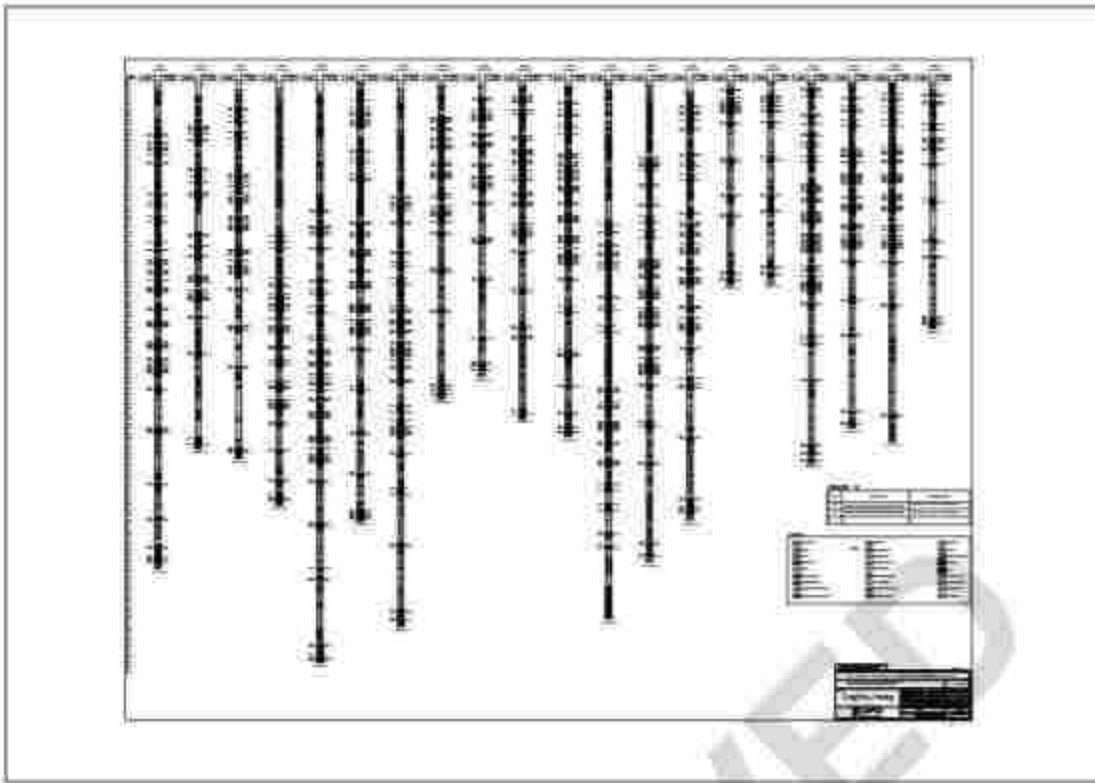


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Plan / Plate 5A1

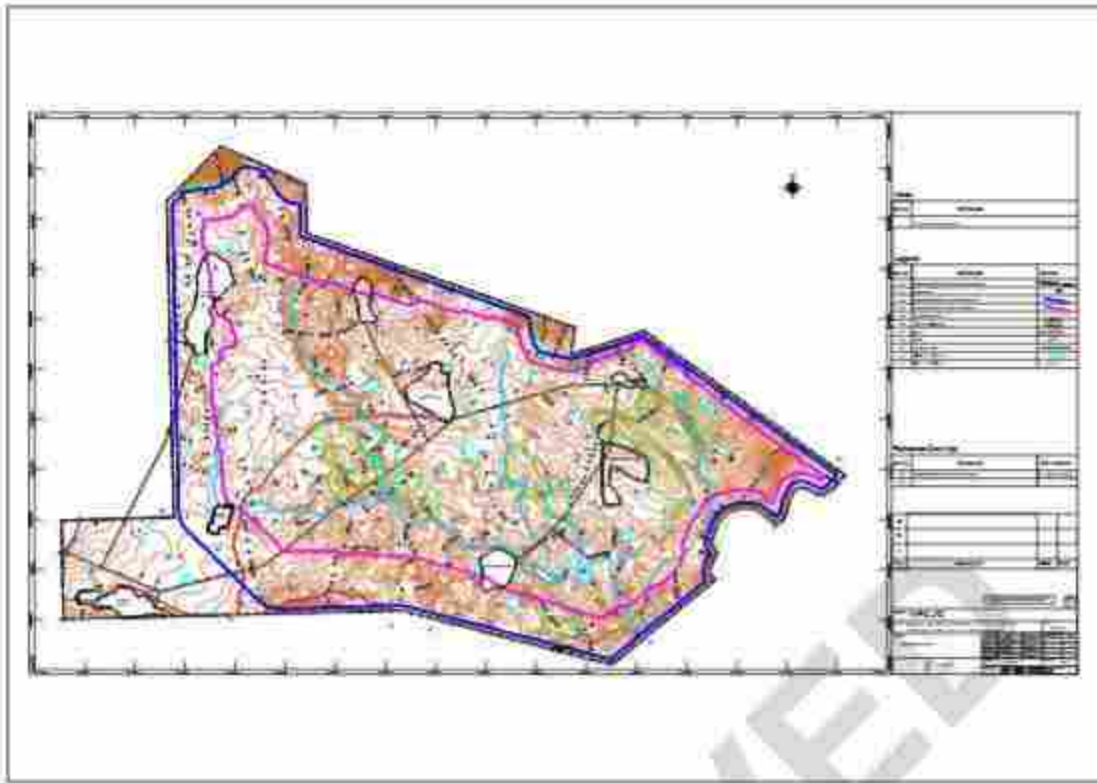


Plan / Plate 6A1



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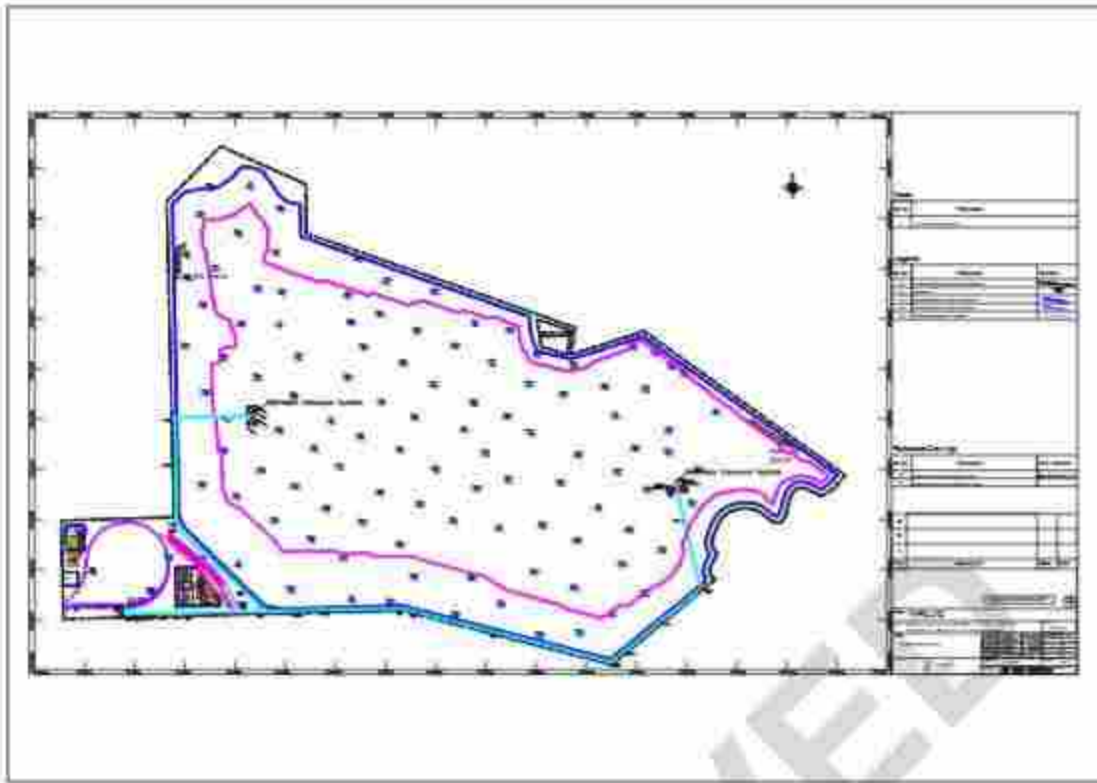
Plan / Plate 7



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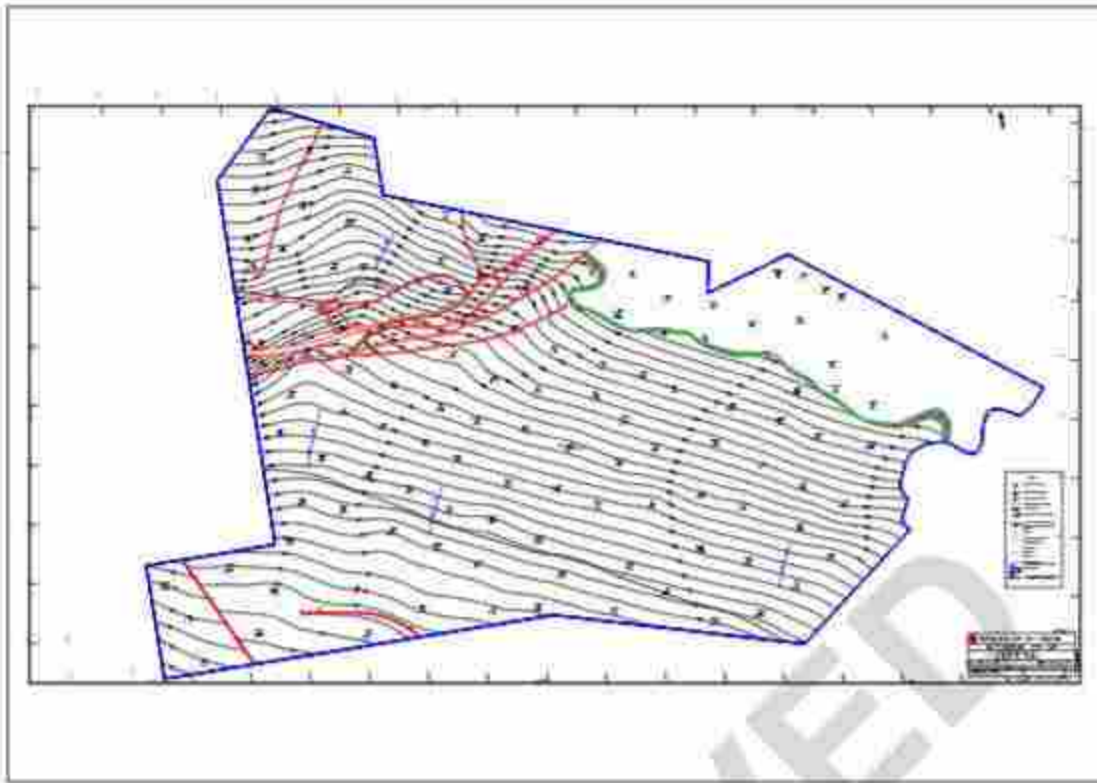
Plan / Plate 8



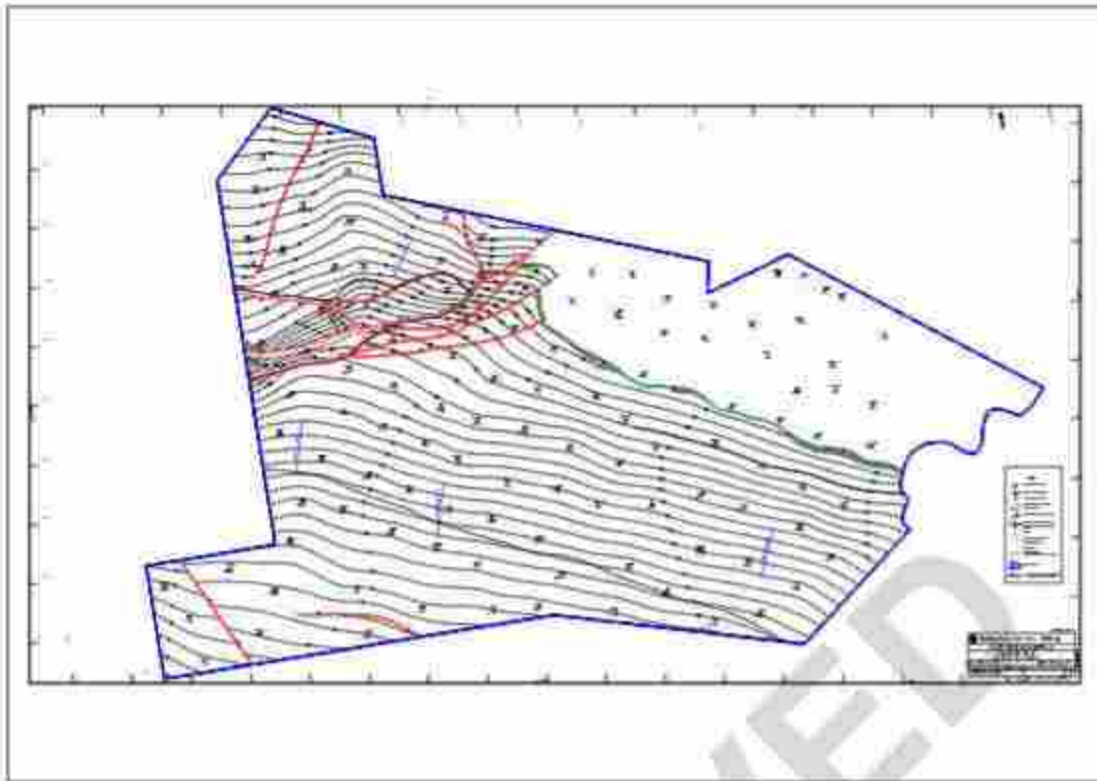
Plan / Plate 9



Plan / Plate 10A1

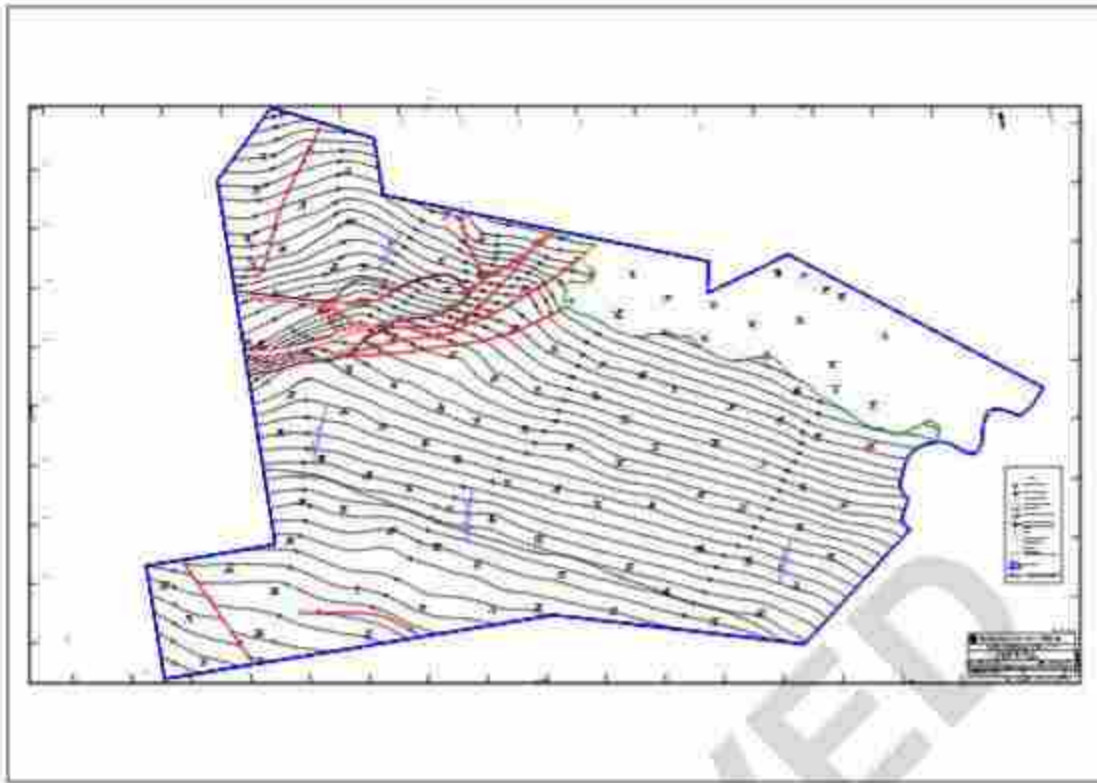


Plan / Plate 10A2



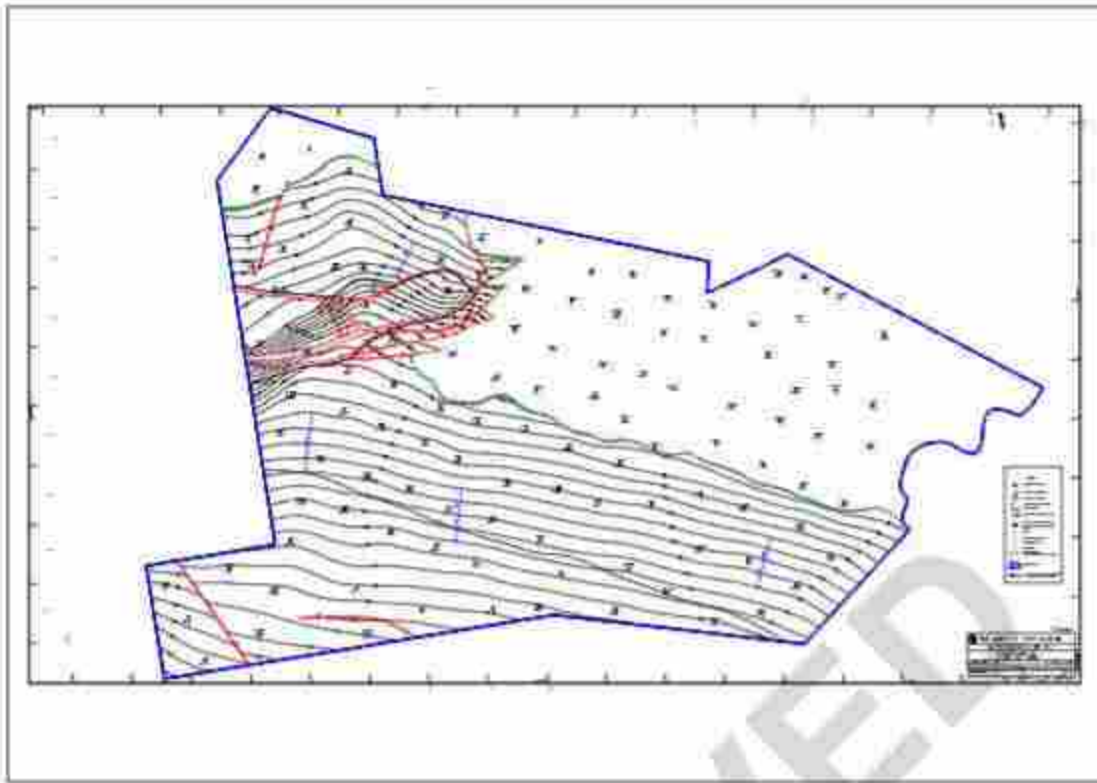
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Plan / Plate 10A3



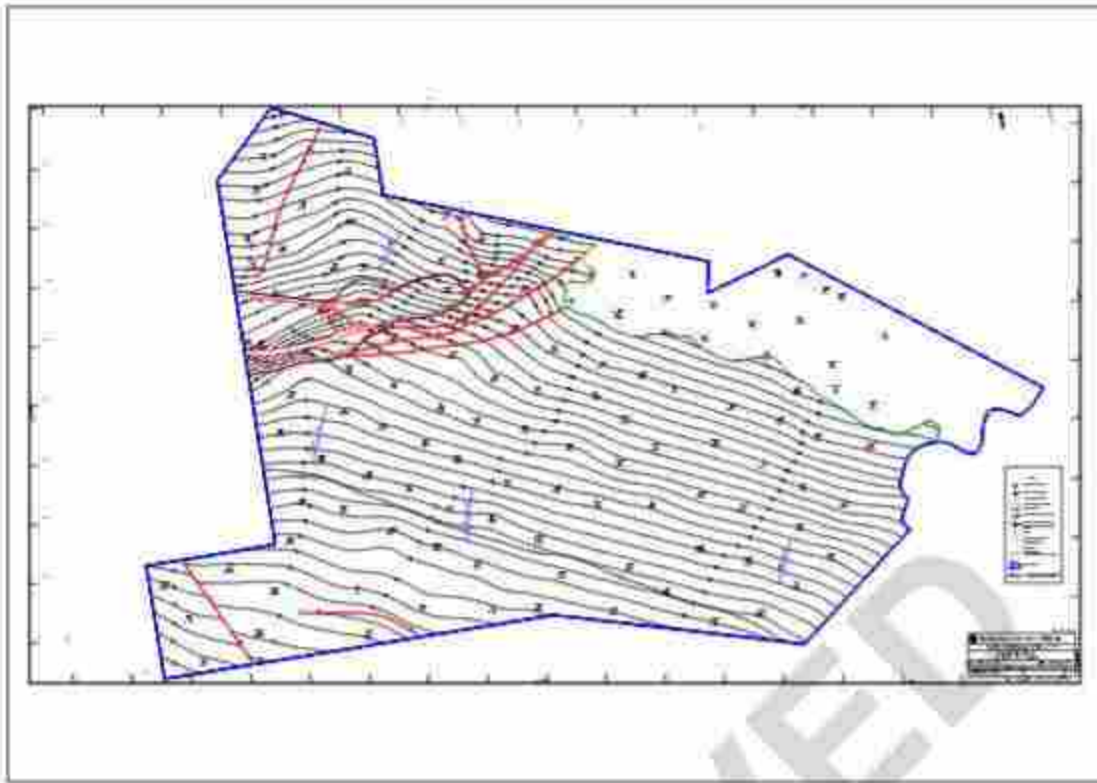
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Plan / Plate 10A4



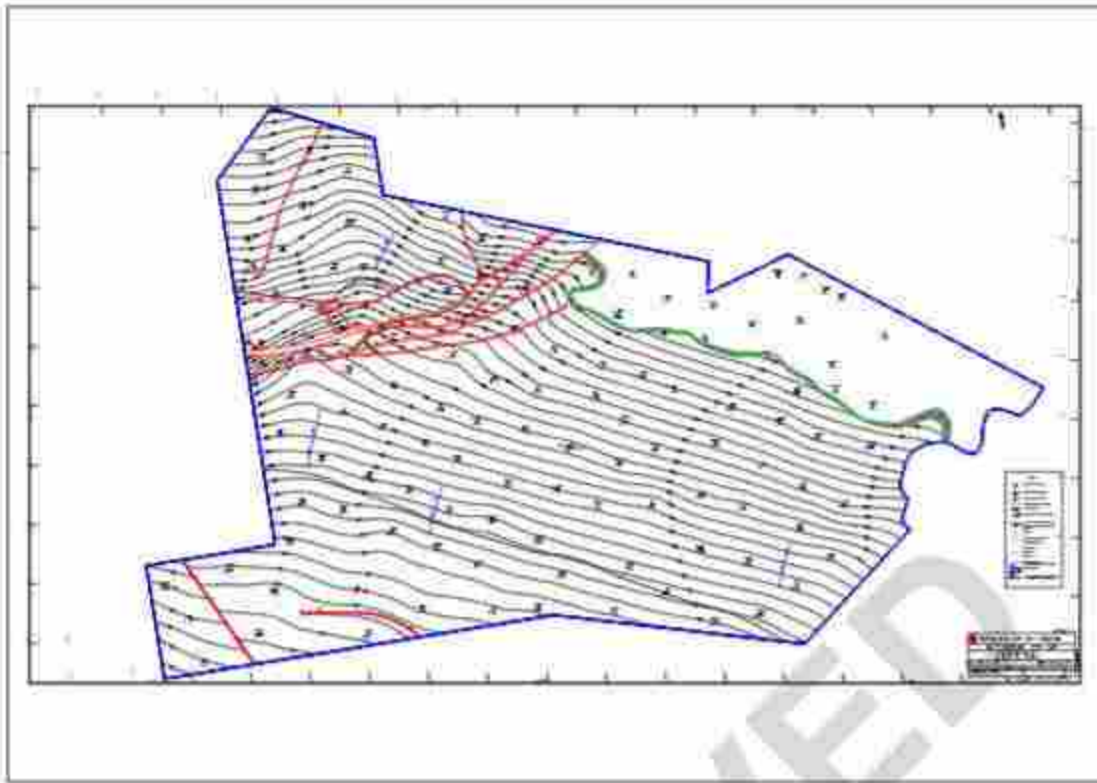
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Plan / Plate 10A5



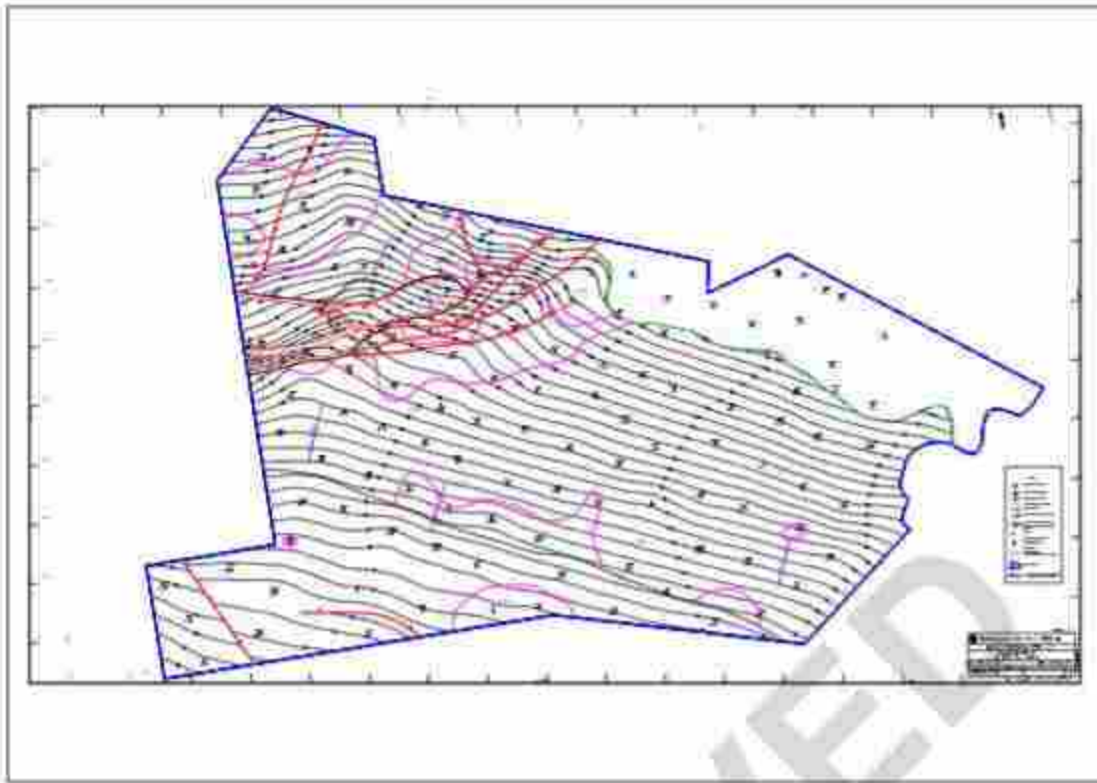
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Plan / Plate 10A6

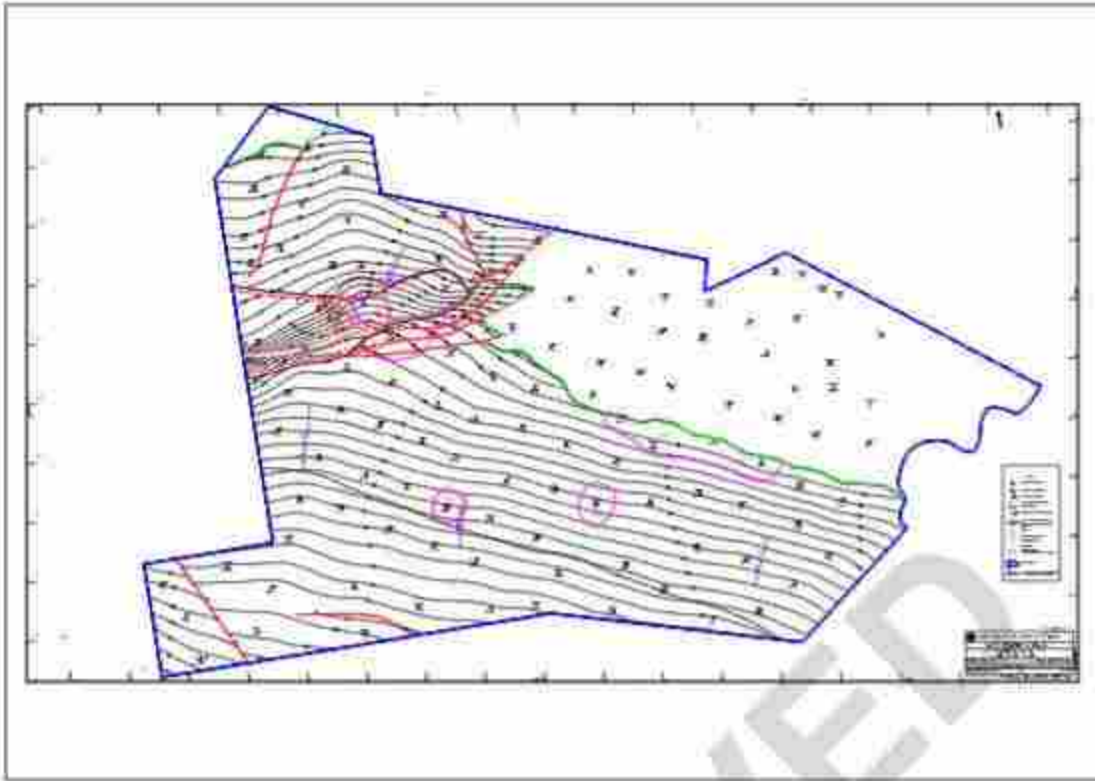




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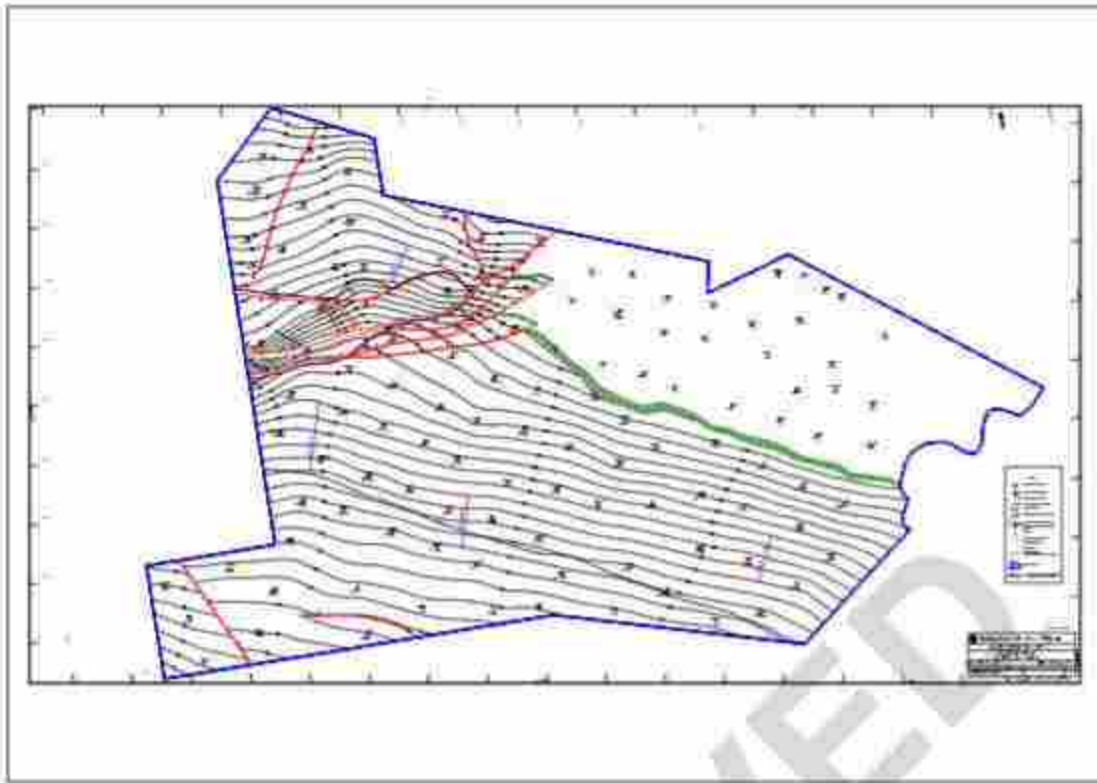


Plan / Plate 10A8



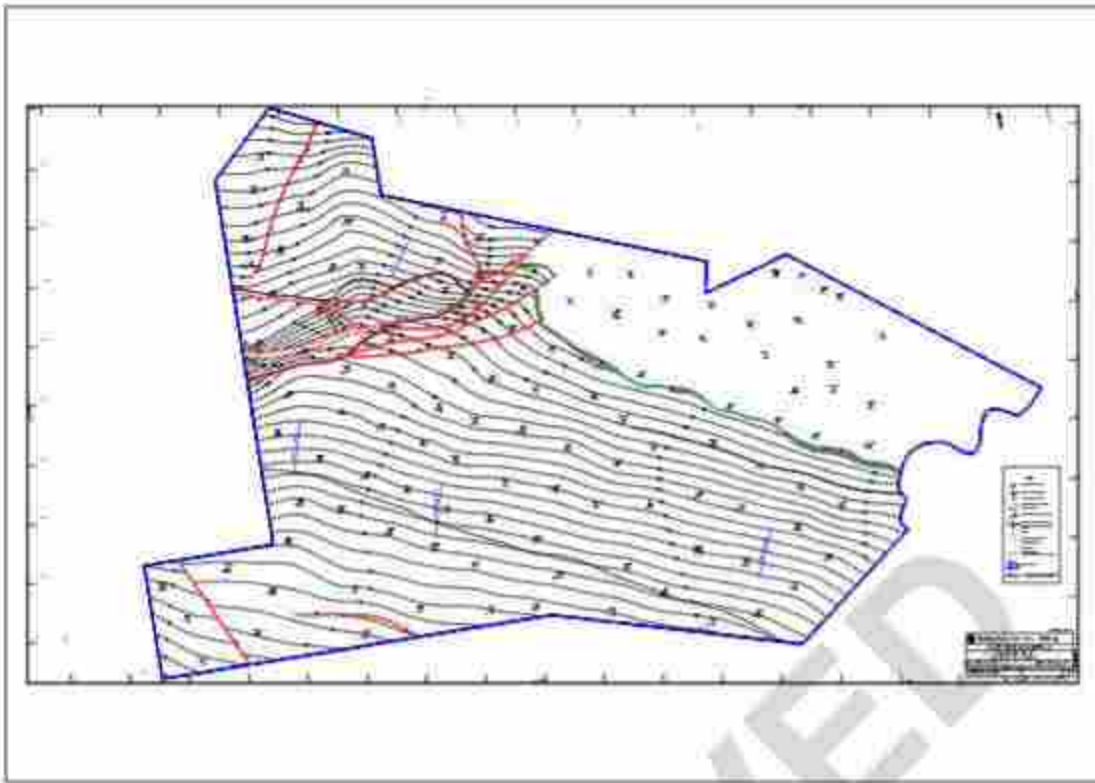
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Plan / Plate 10A9



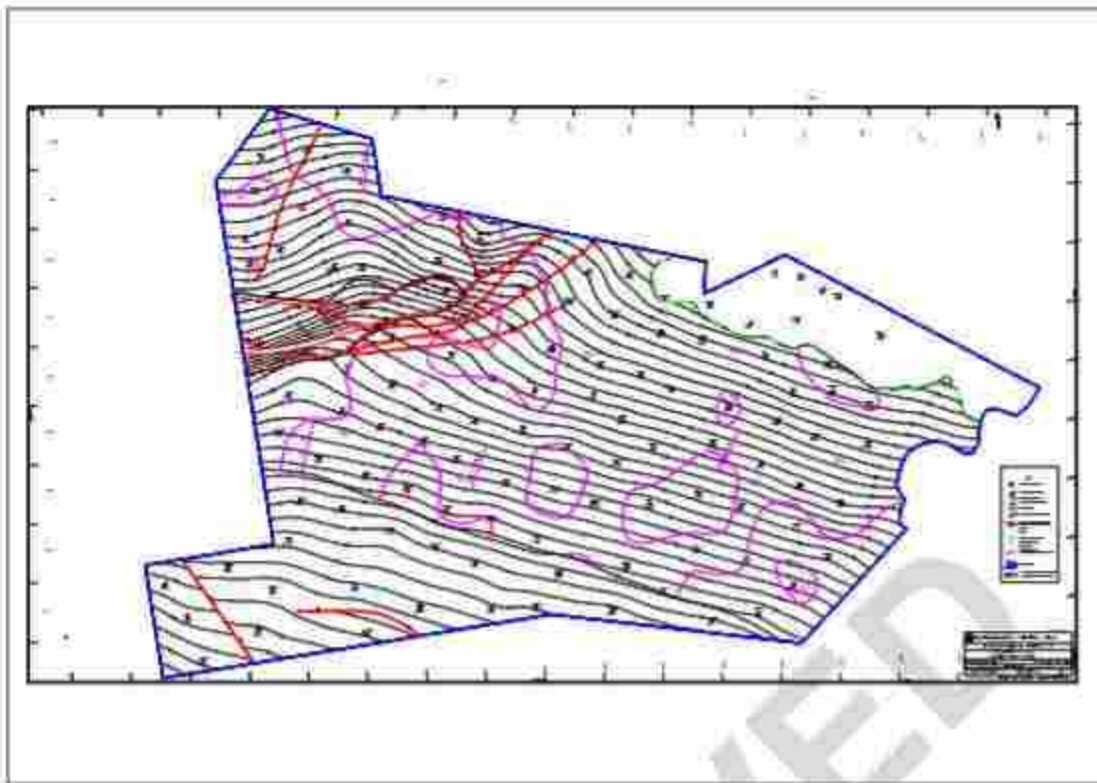
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Plan / Plate 10A10



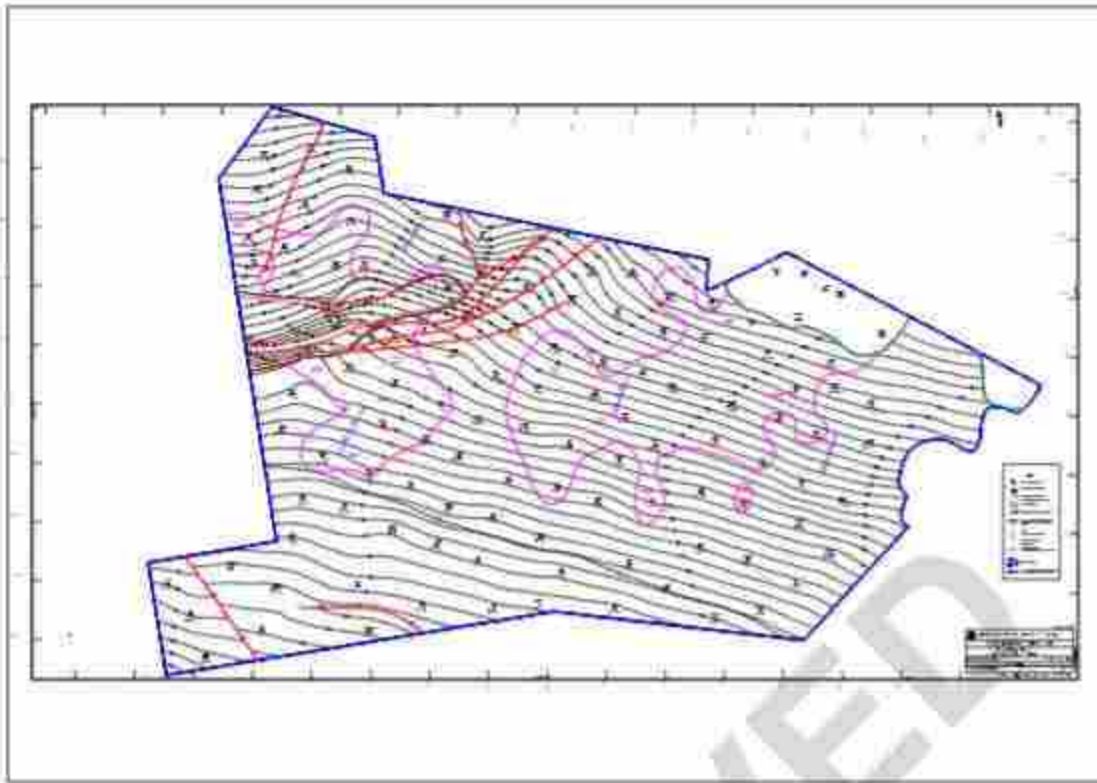
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Plan / Plate 10A11

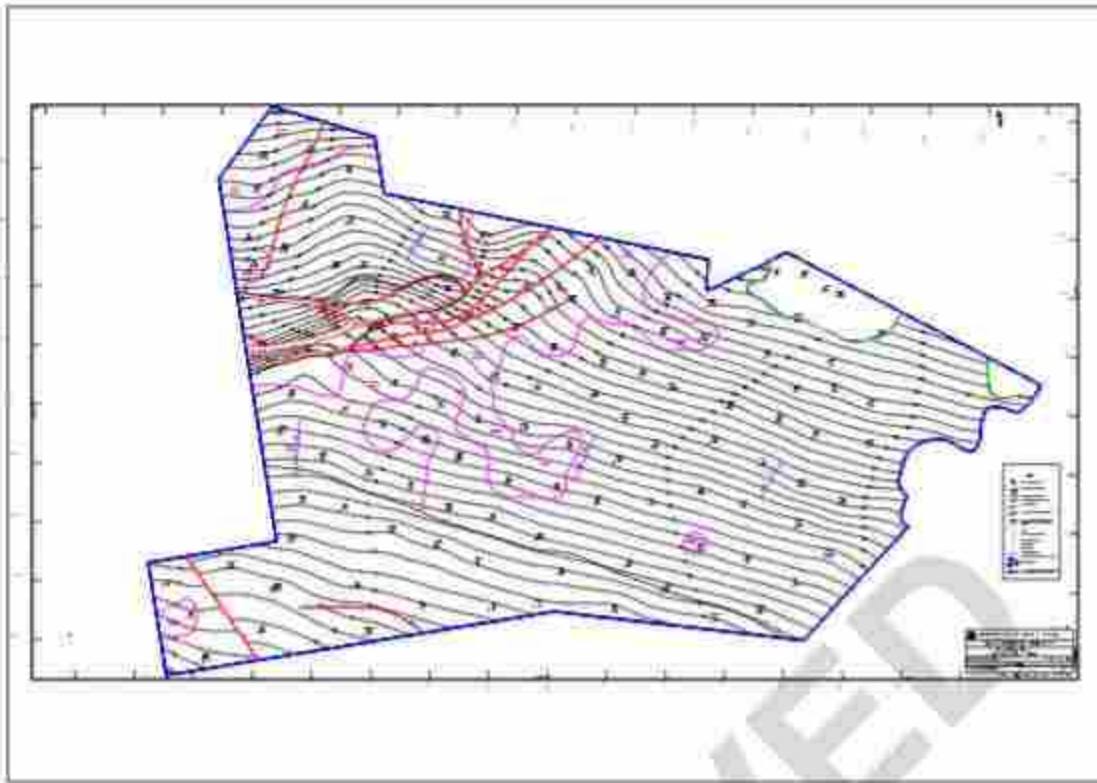


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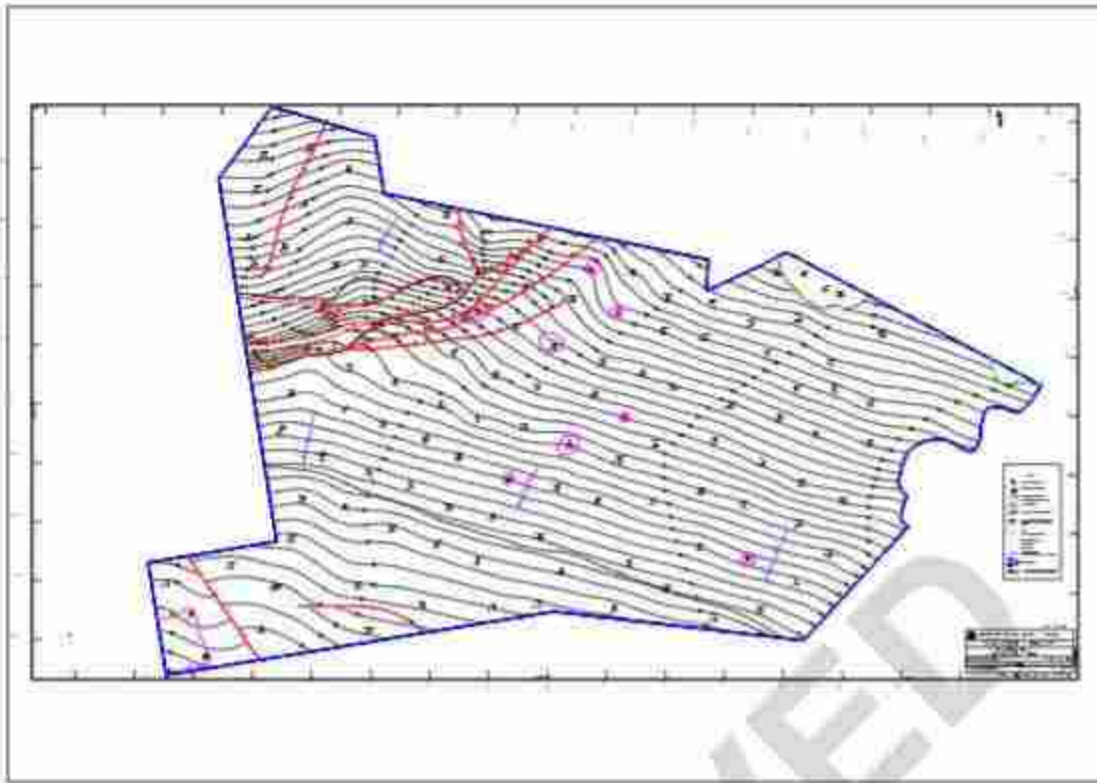
Plan / Plate 10A12



Plan / Plate 10A13



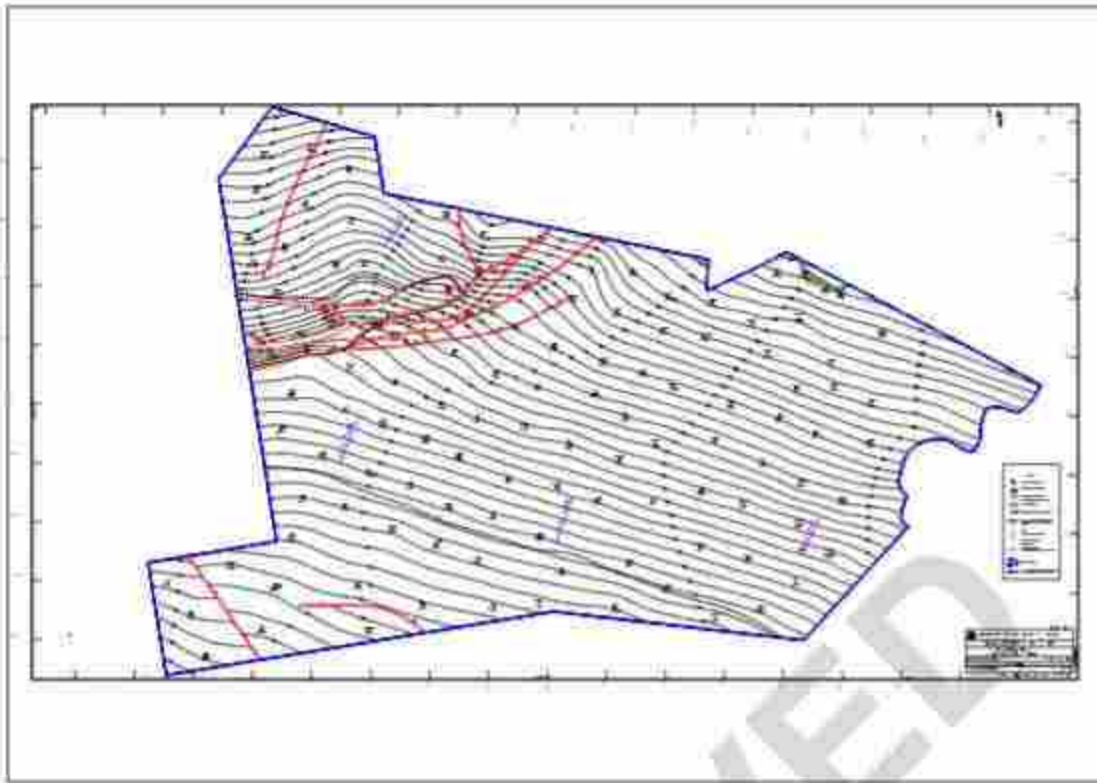
Plan / Plate 10A14



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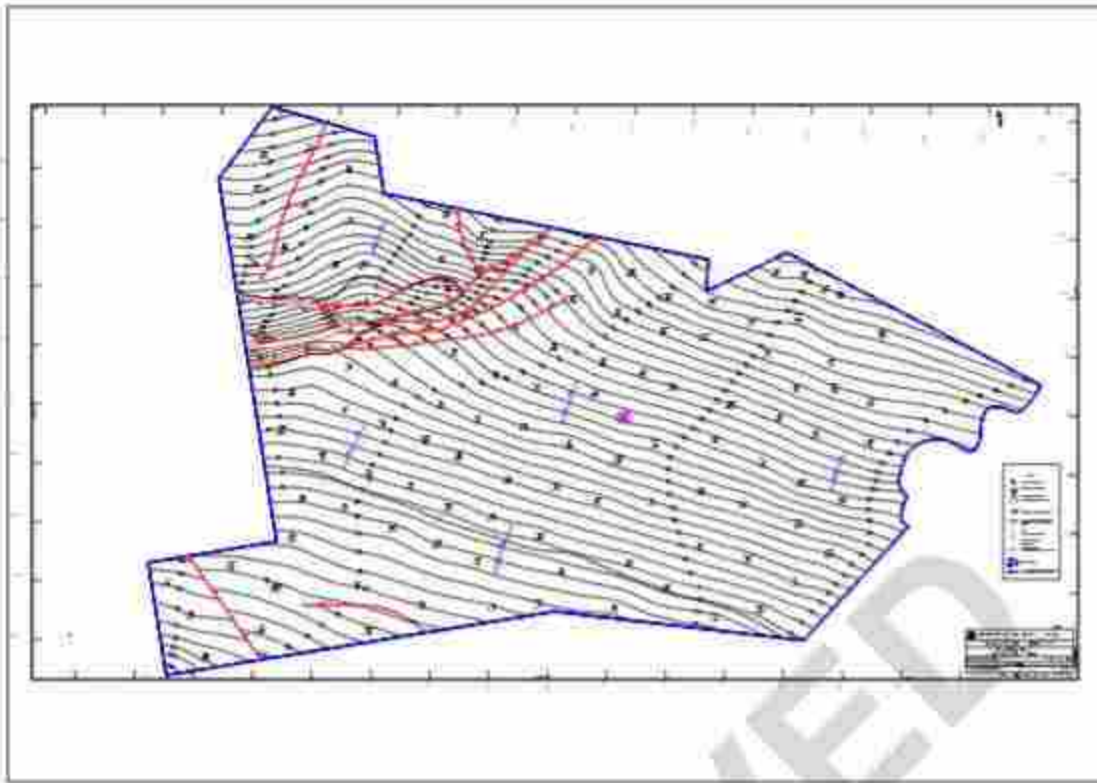


Plan / Plate 10A15



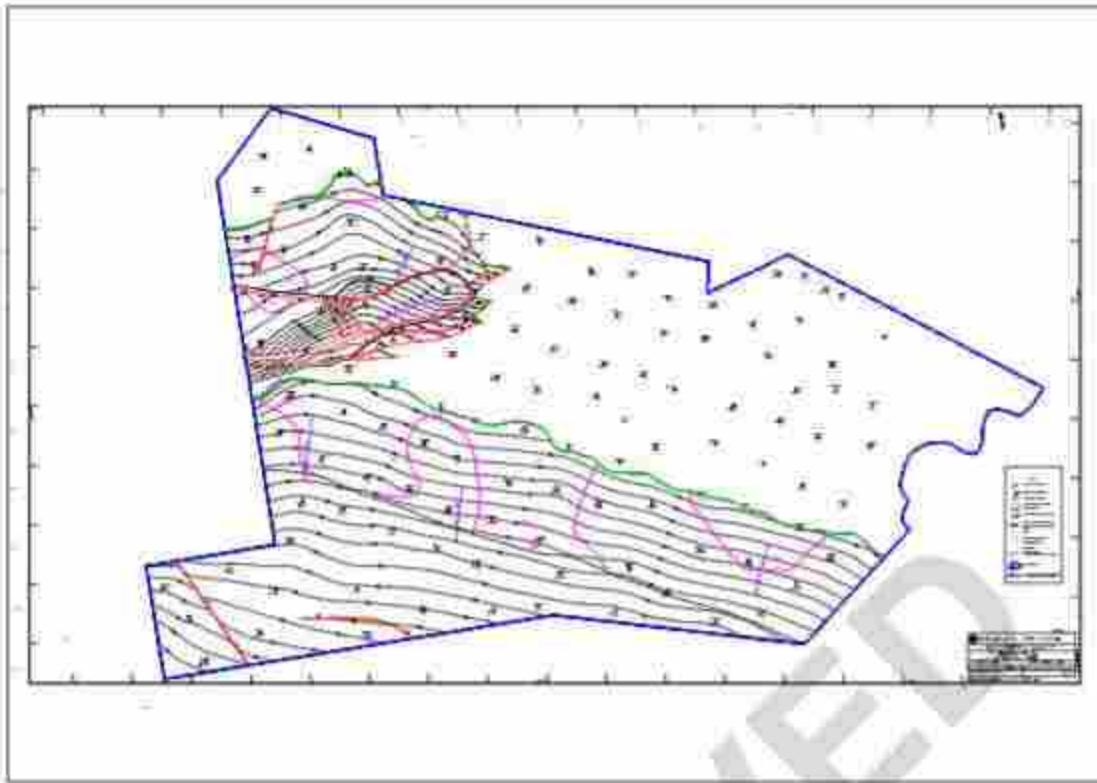
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Plan / Plate 10A16



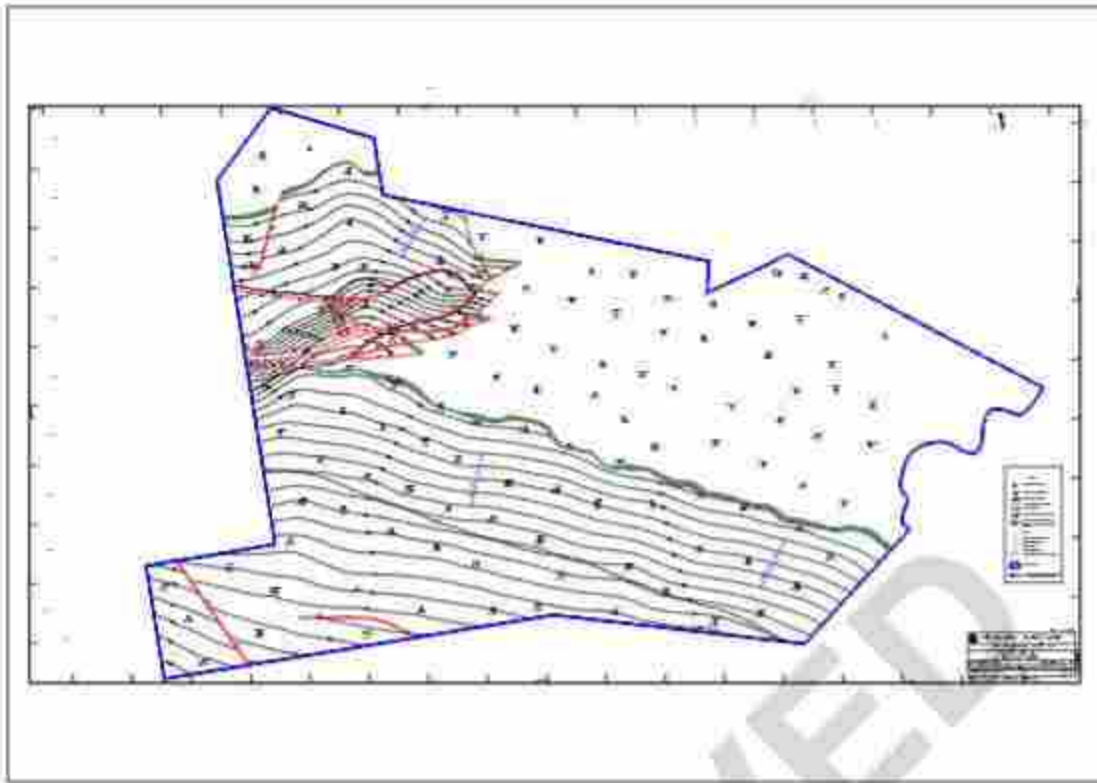
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Plan / Plate 10A17



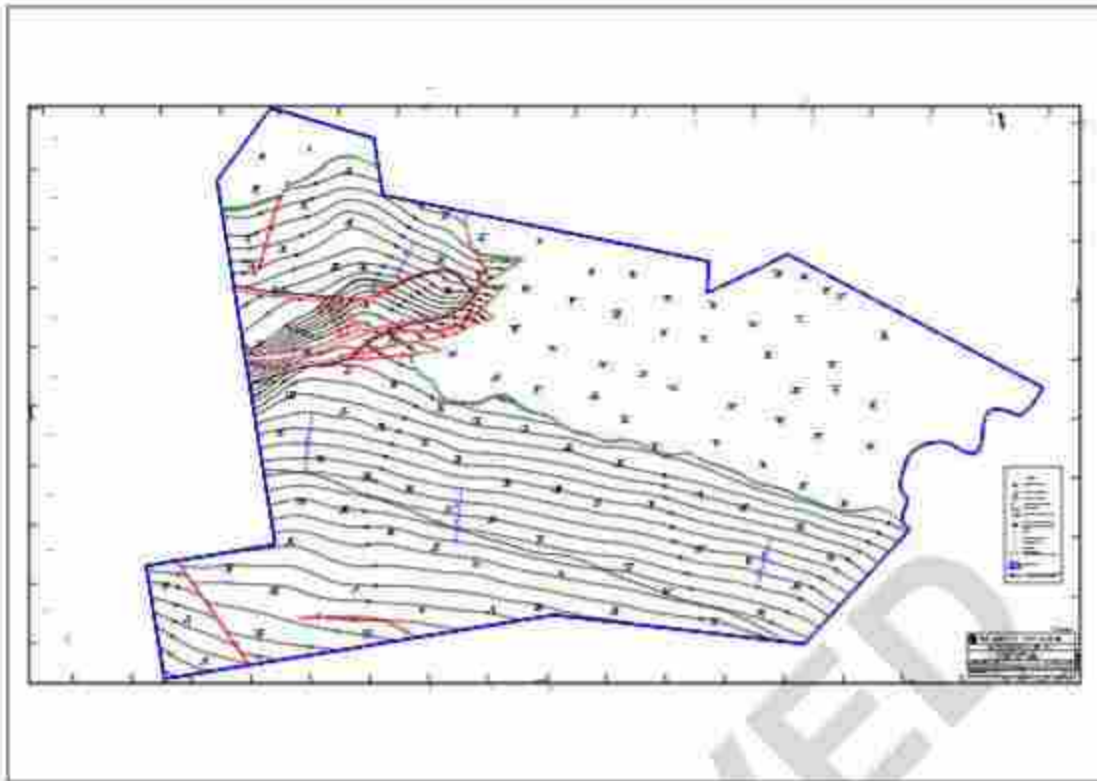
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Plan / Plate 10A18

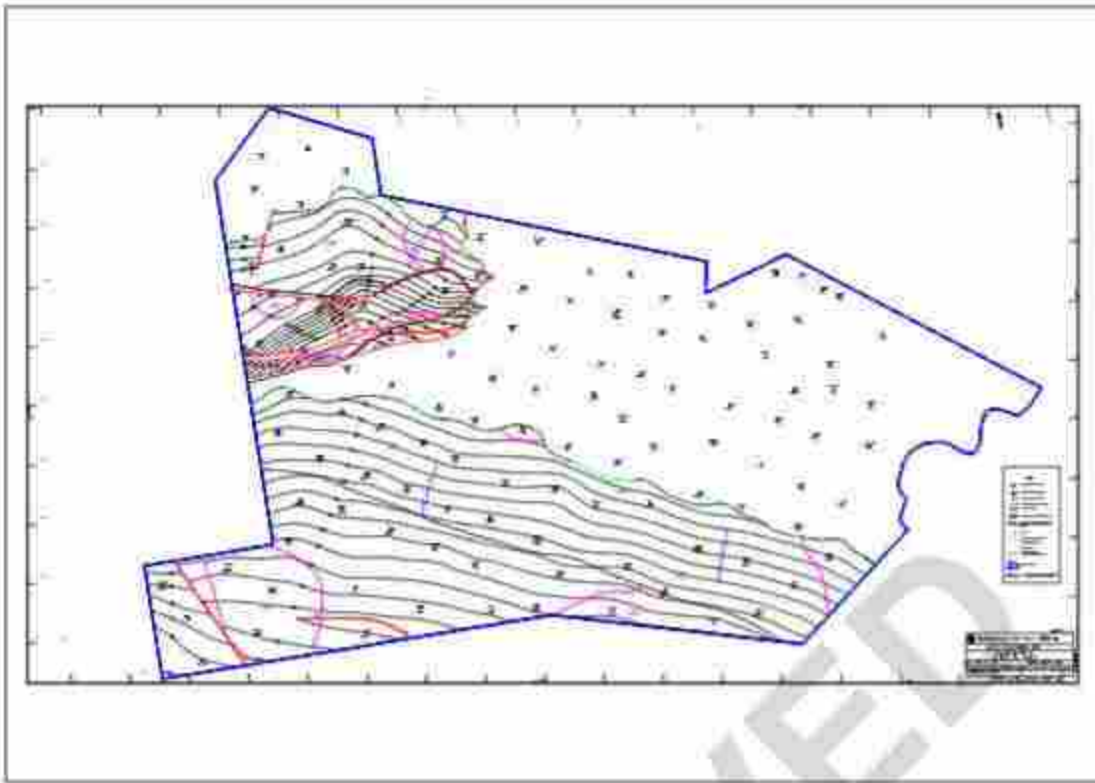


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Plan / Plate 10A19

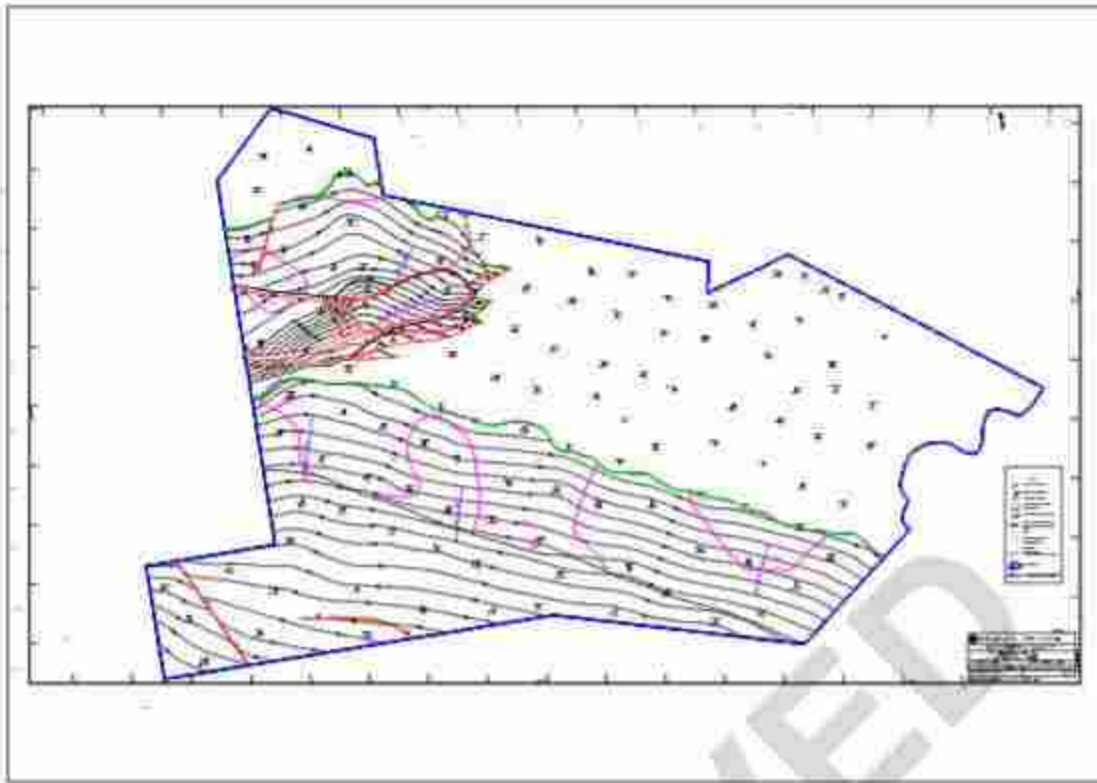


Plan / Plate 10A20



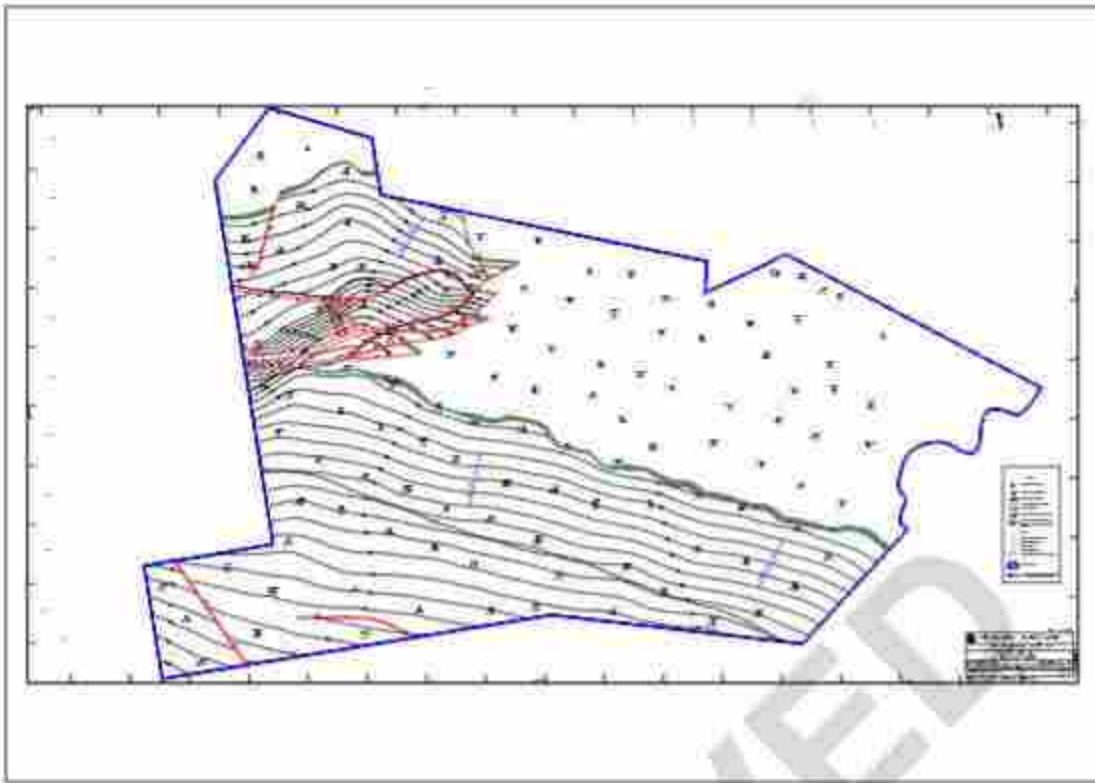
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Plan / Plate 10A21



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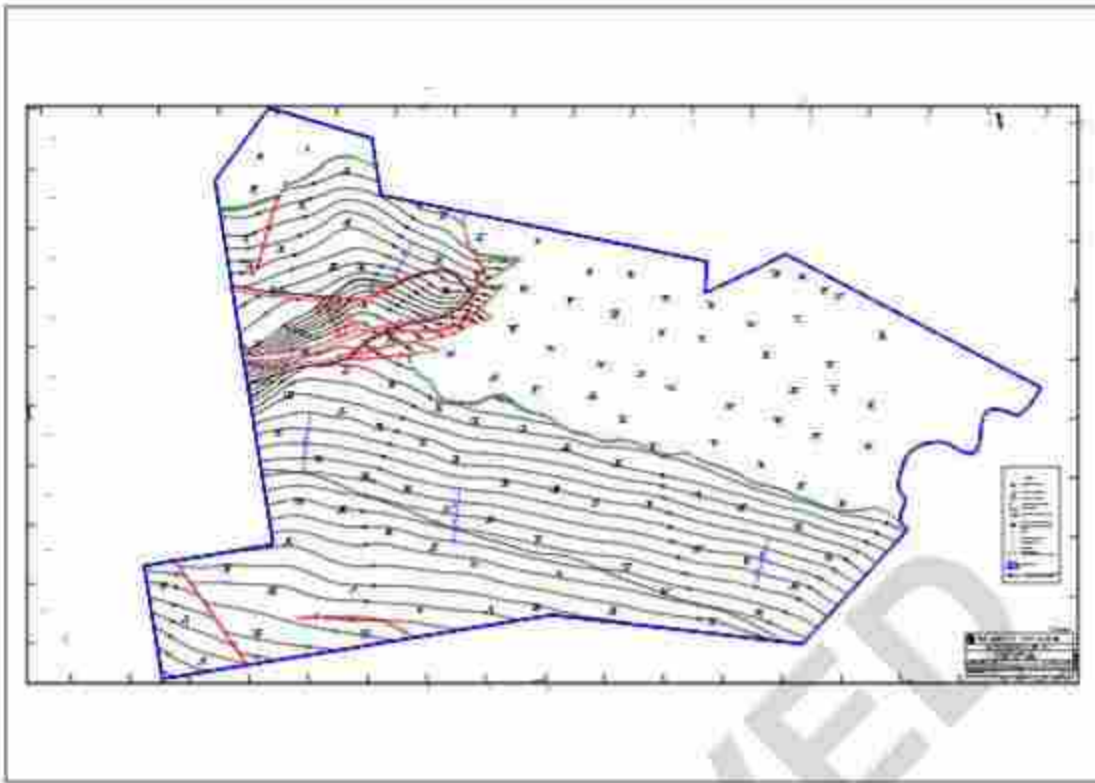
Plan / Plate 10A22



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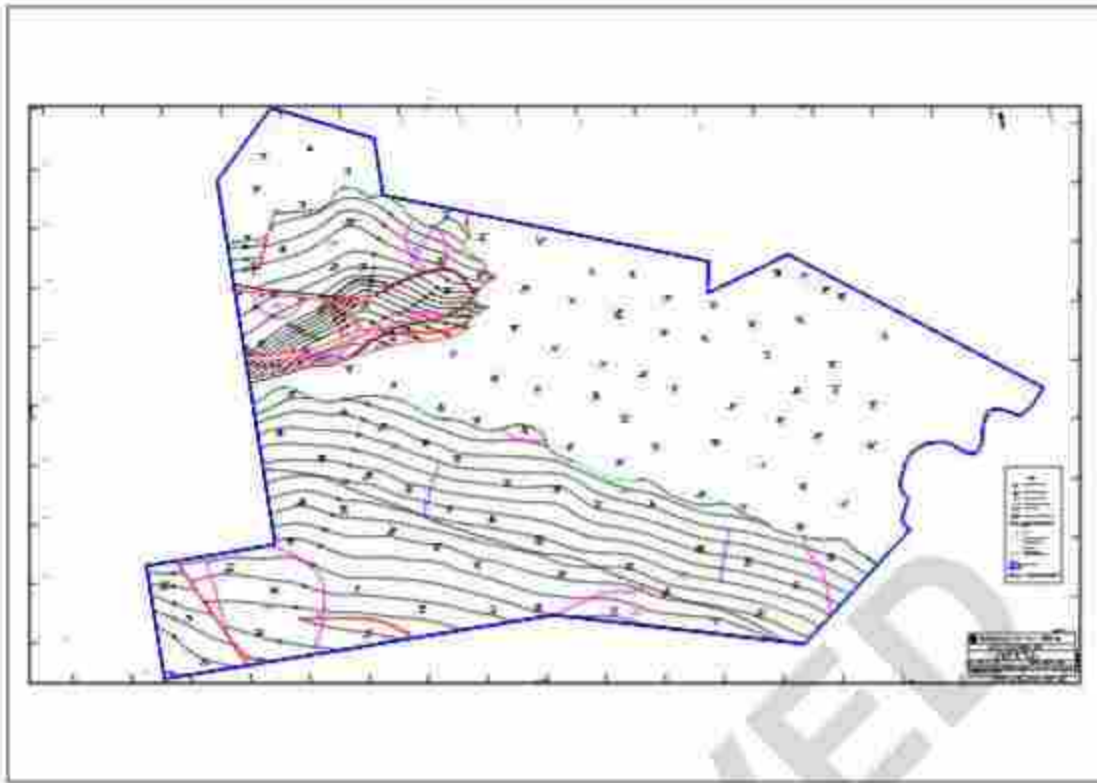


Plan / Plate 10A23

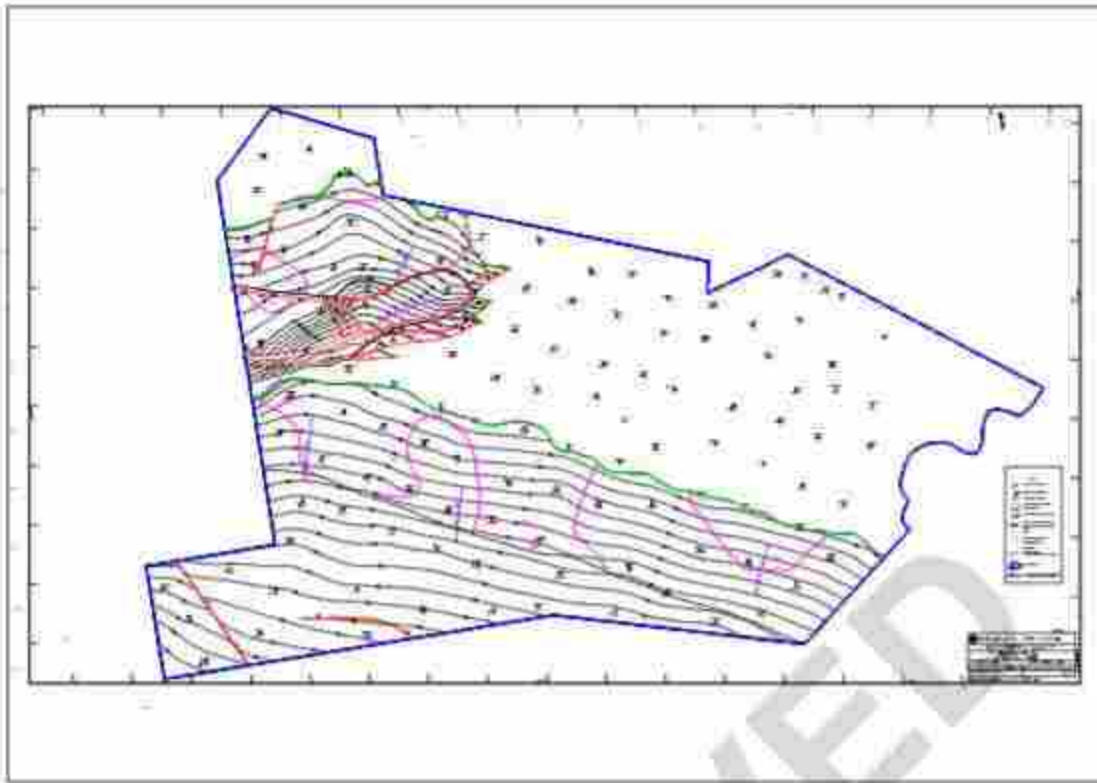


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Plan / Plate 10A24

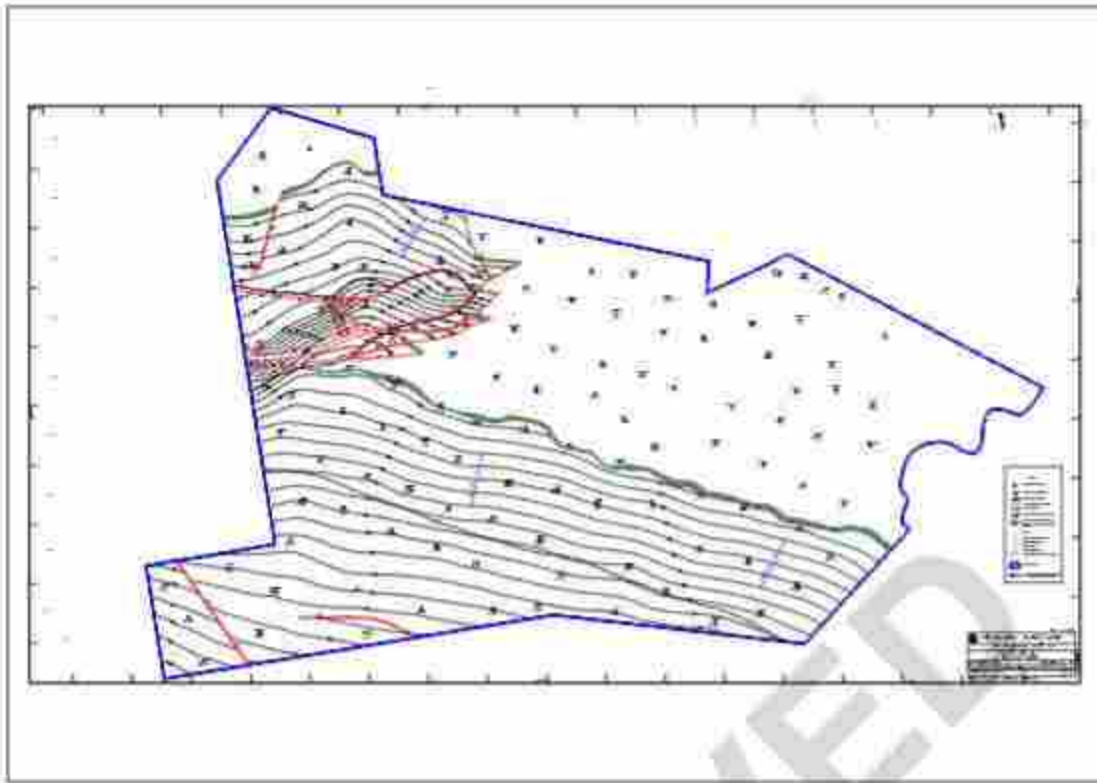


Plan / Plate 10A25



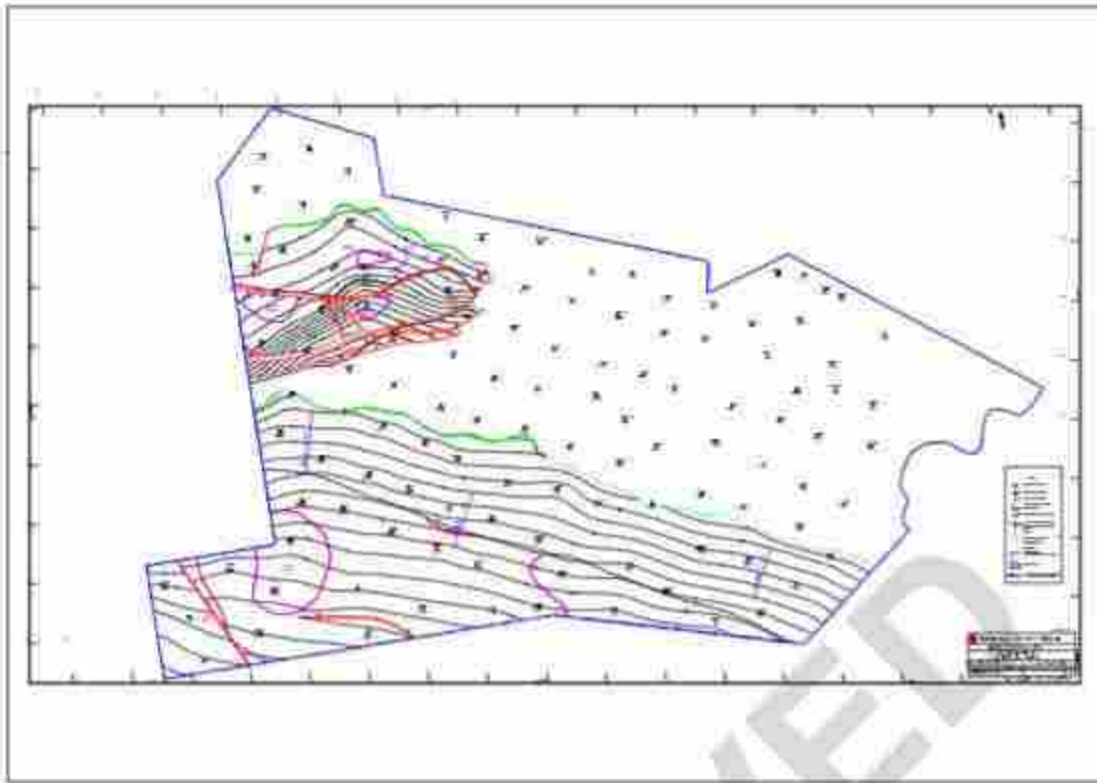
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Plan / Plate 10A26



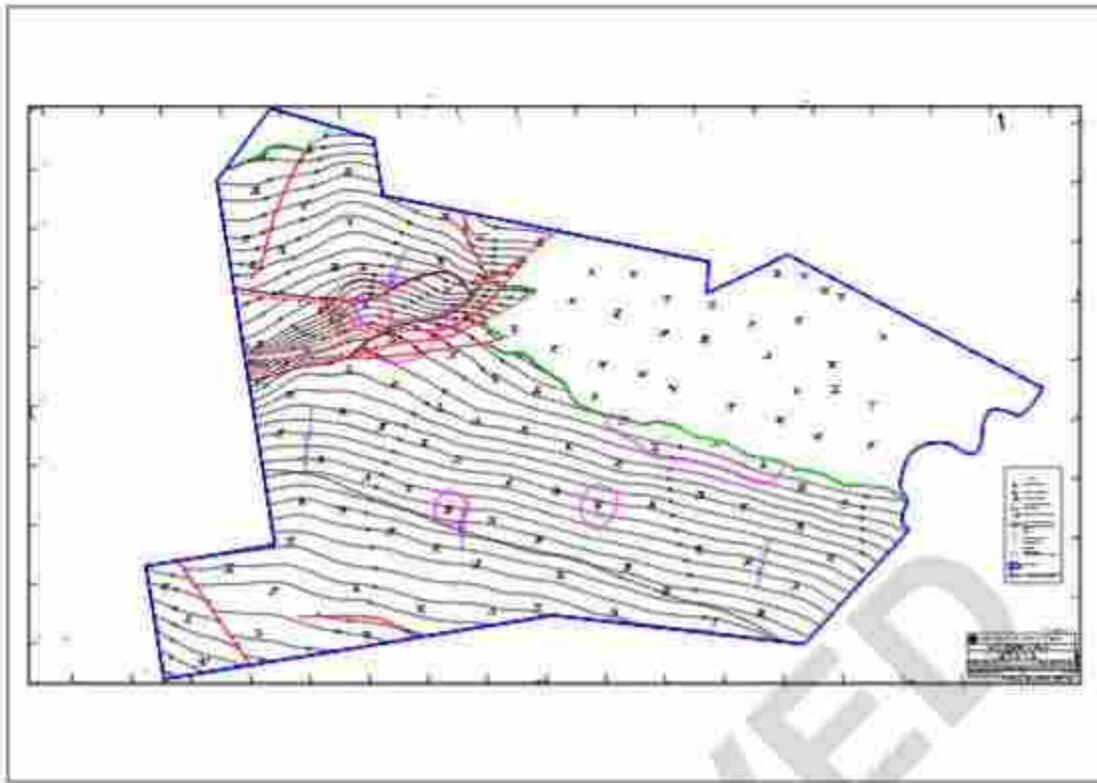
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Plan / Plate 10A27



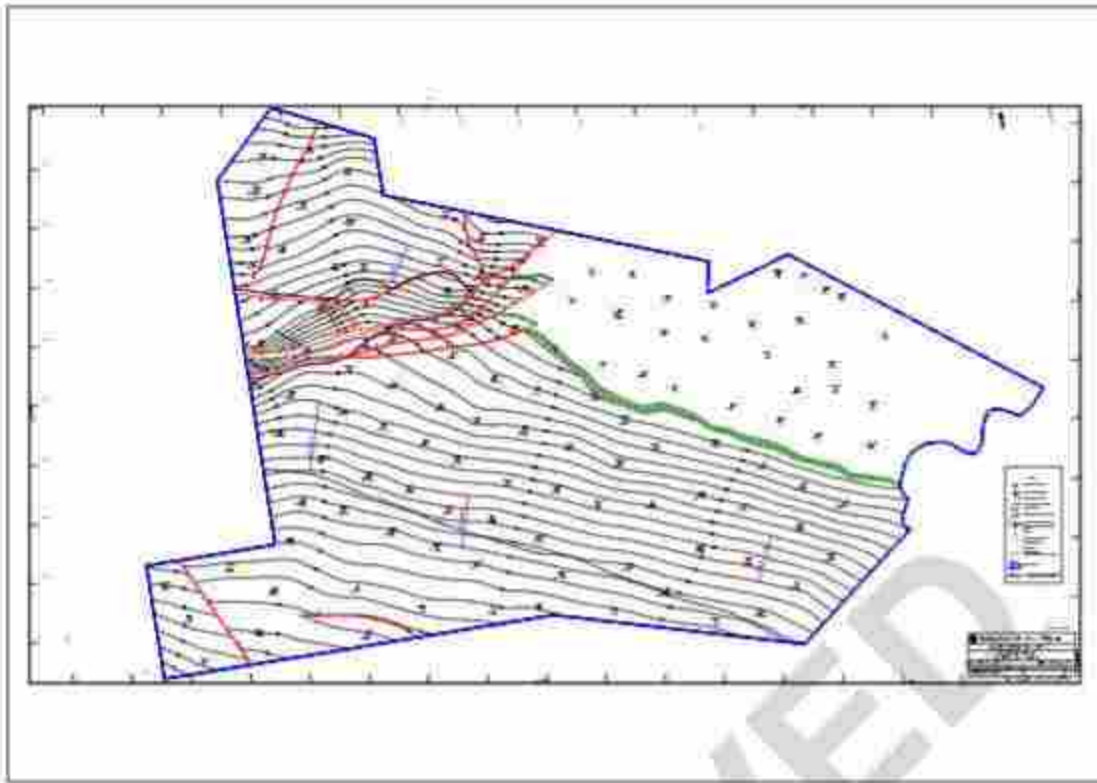
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Plan / Plate 10A28

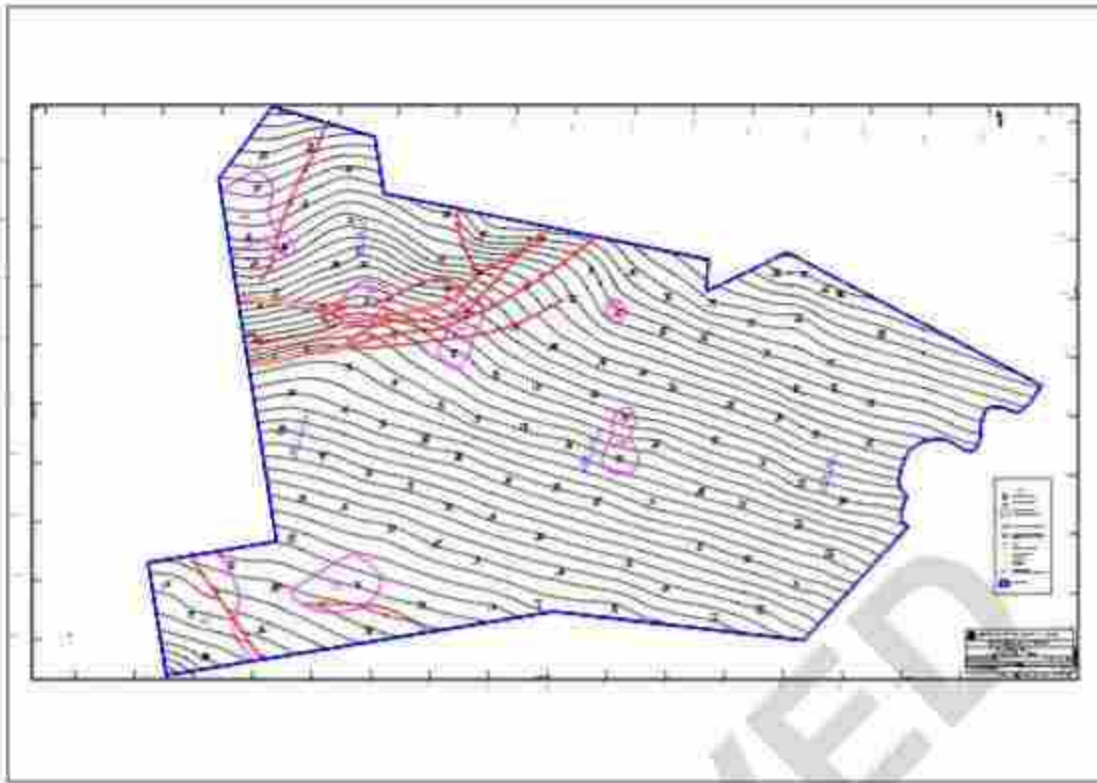


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Plan / Plate 10A29

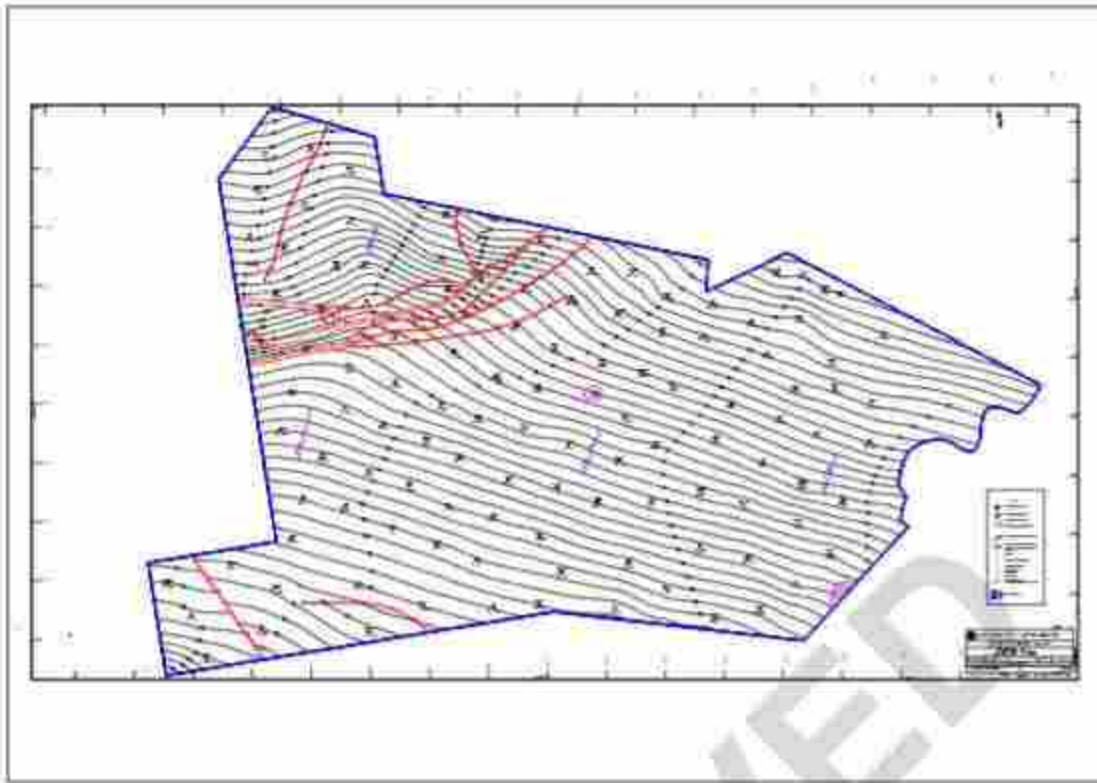


Plan / Plate 10A30



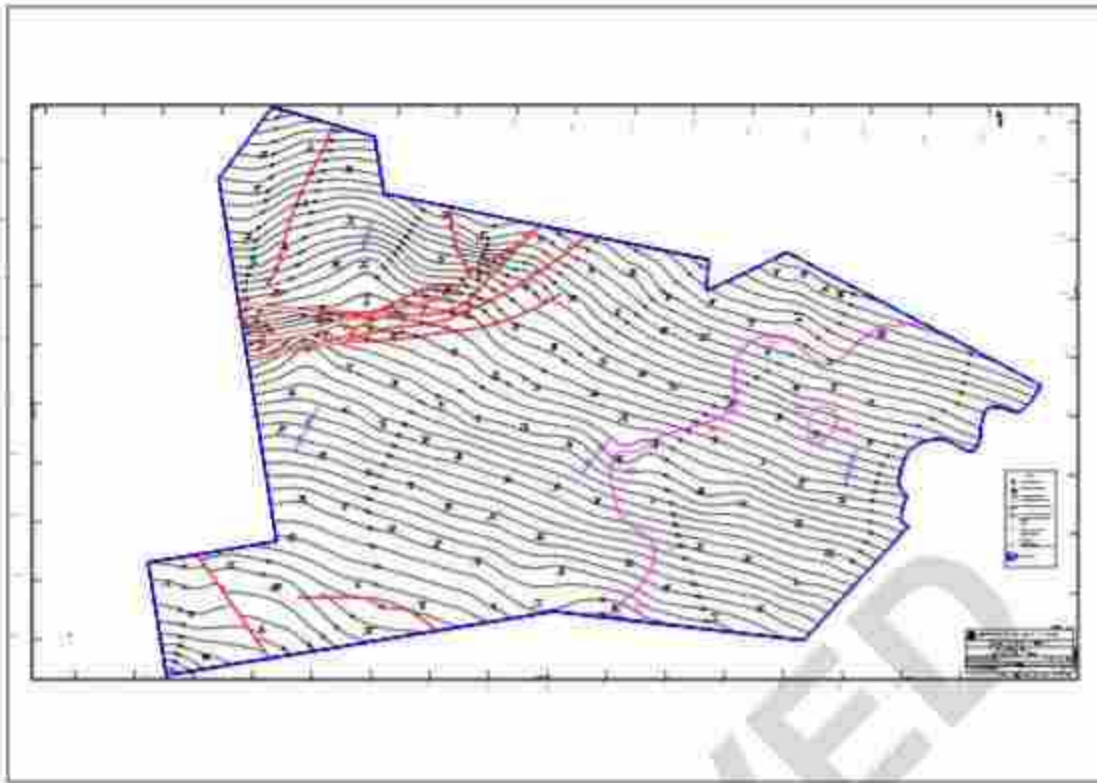


Plan / Plate 10A31



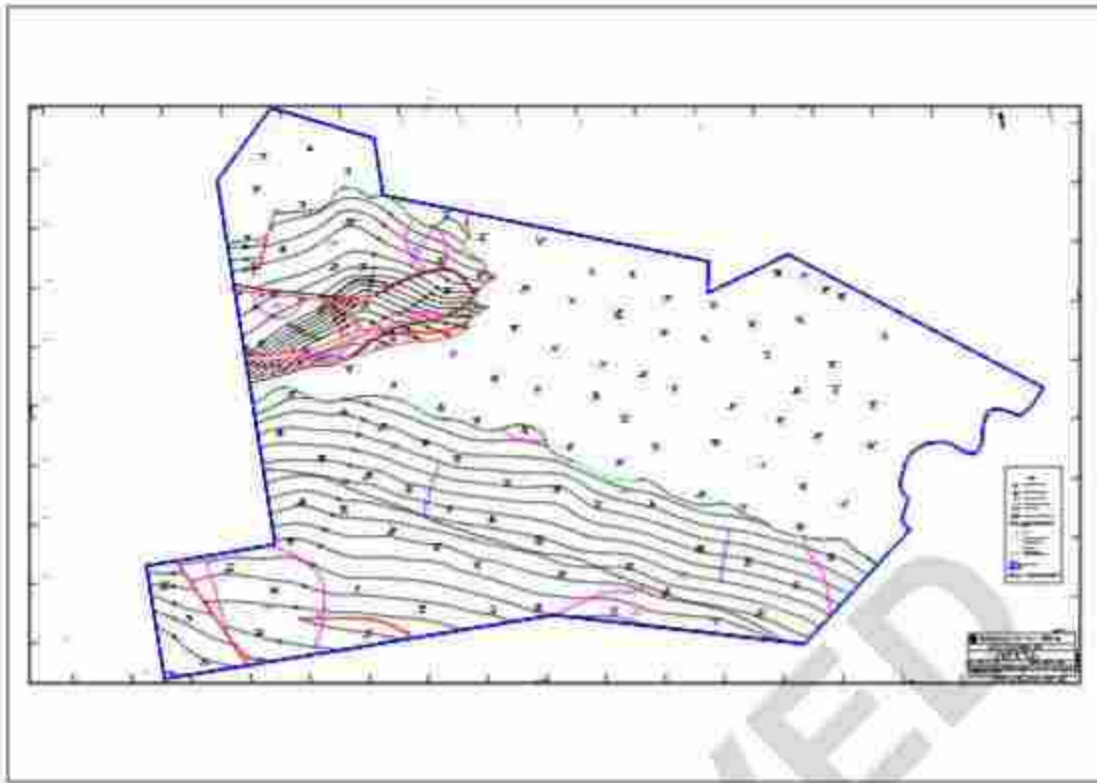
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Plan / Plate 10A32

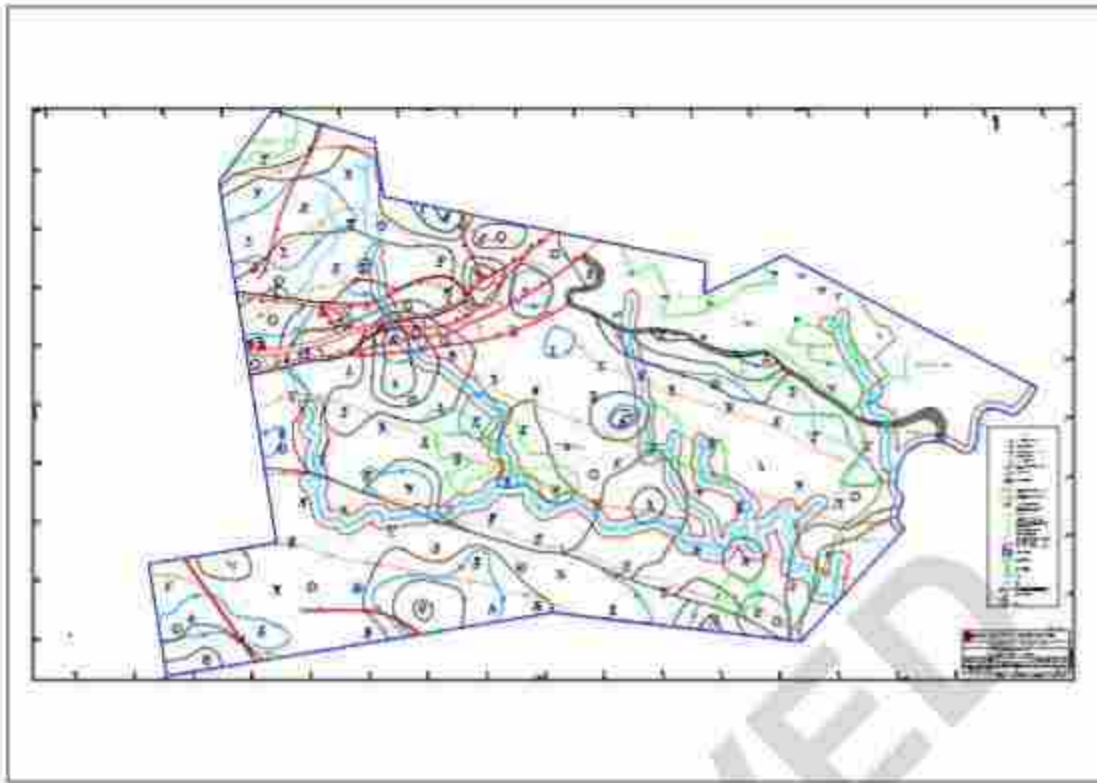


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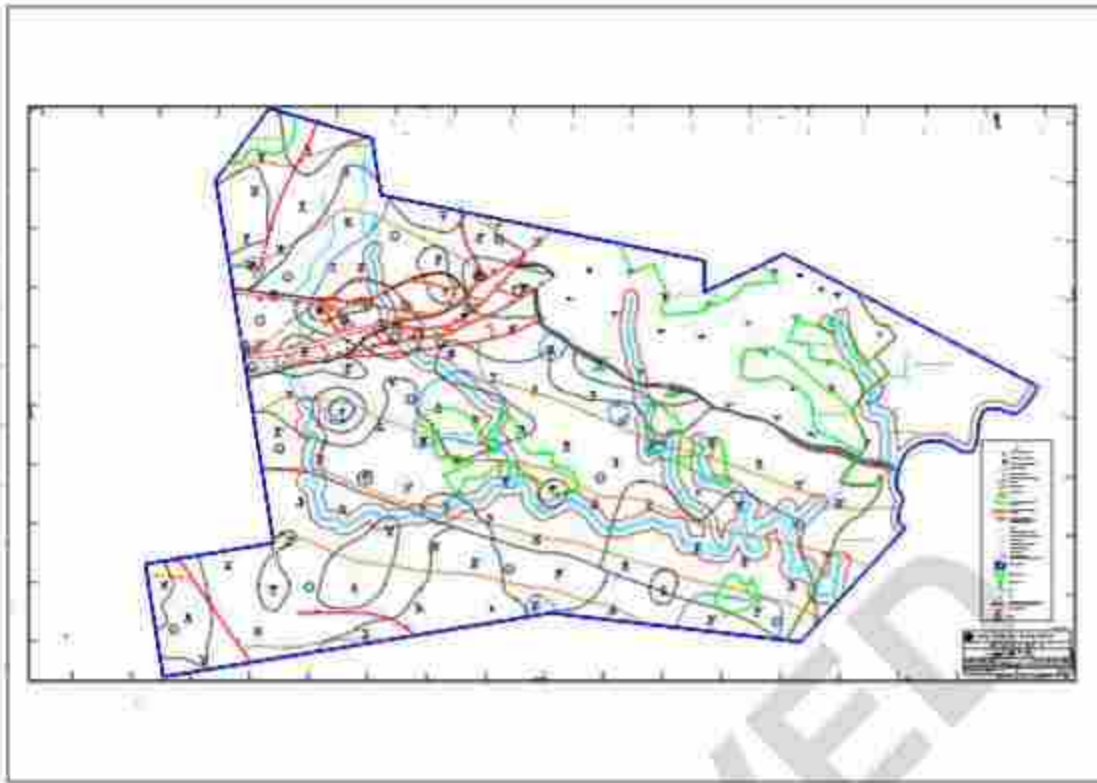


Plan / Plate 10B1



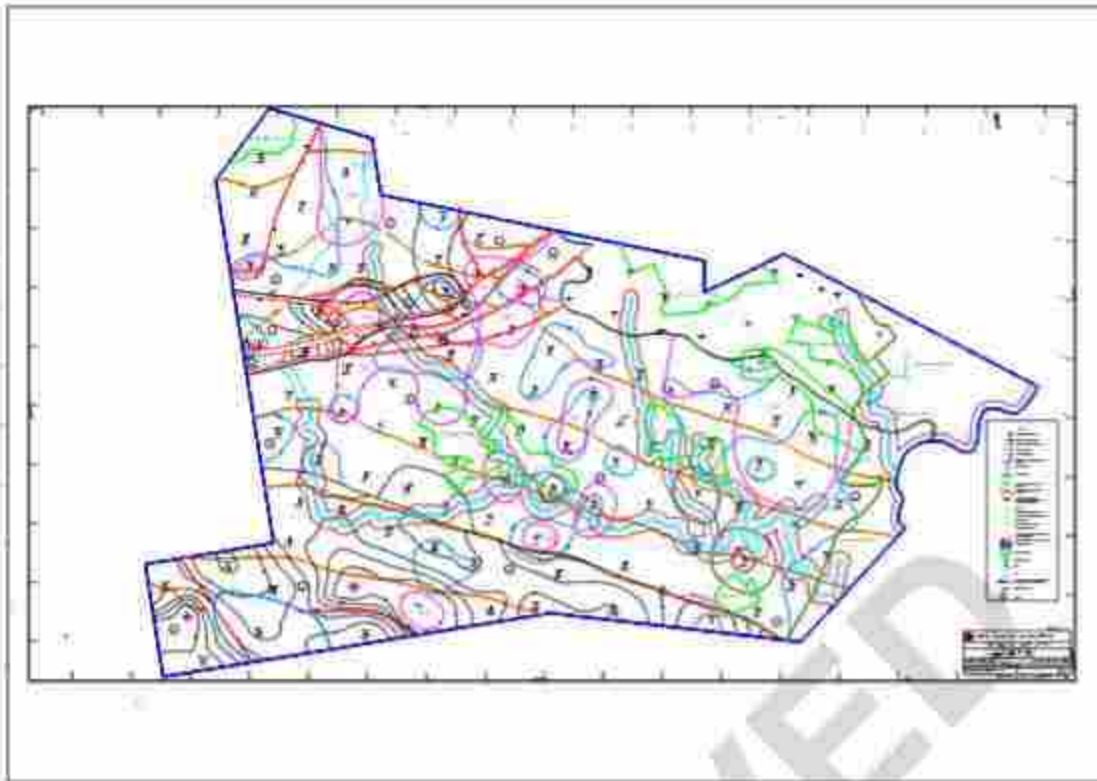
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Plan / Plate 10B2

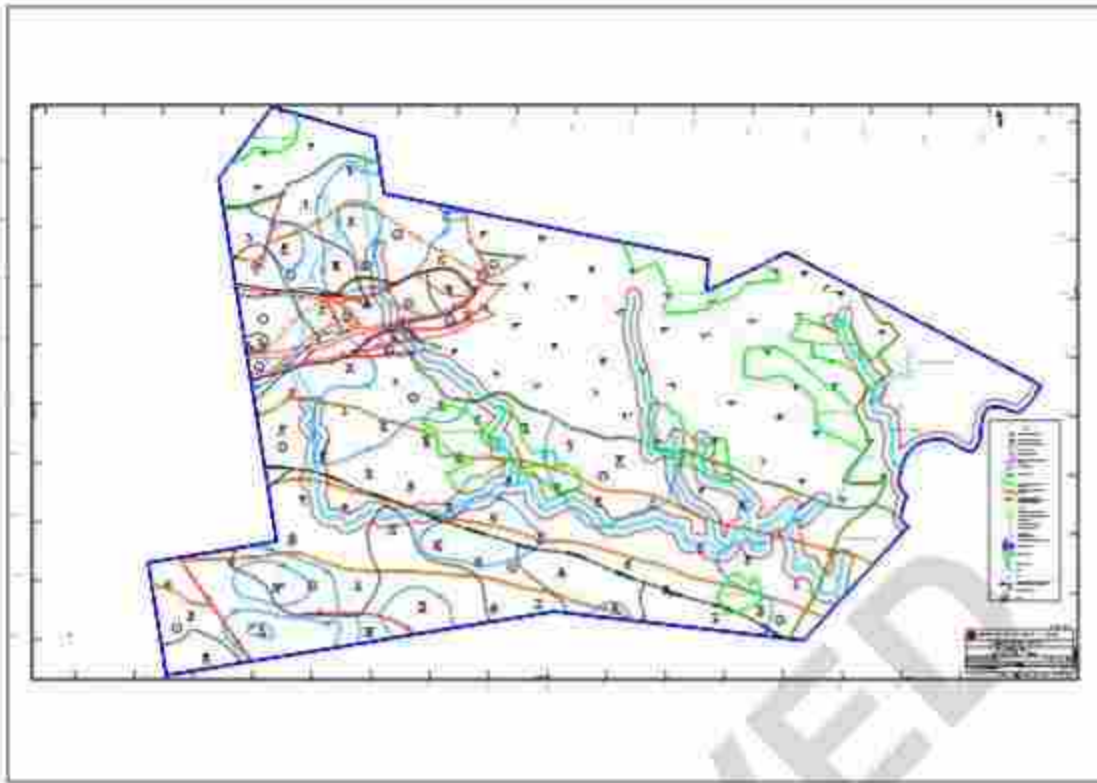


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Plan / Plate 10B3

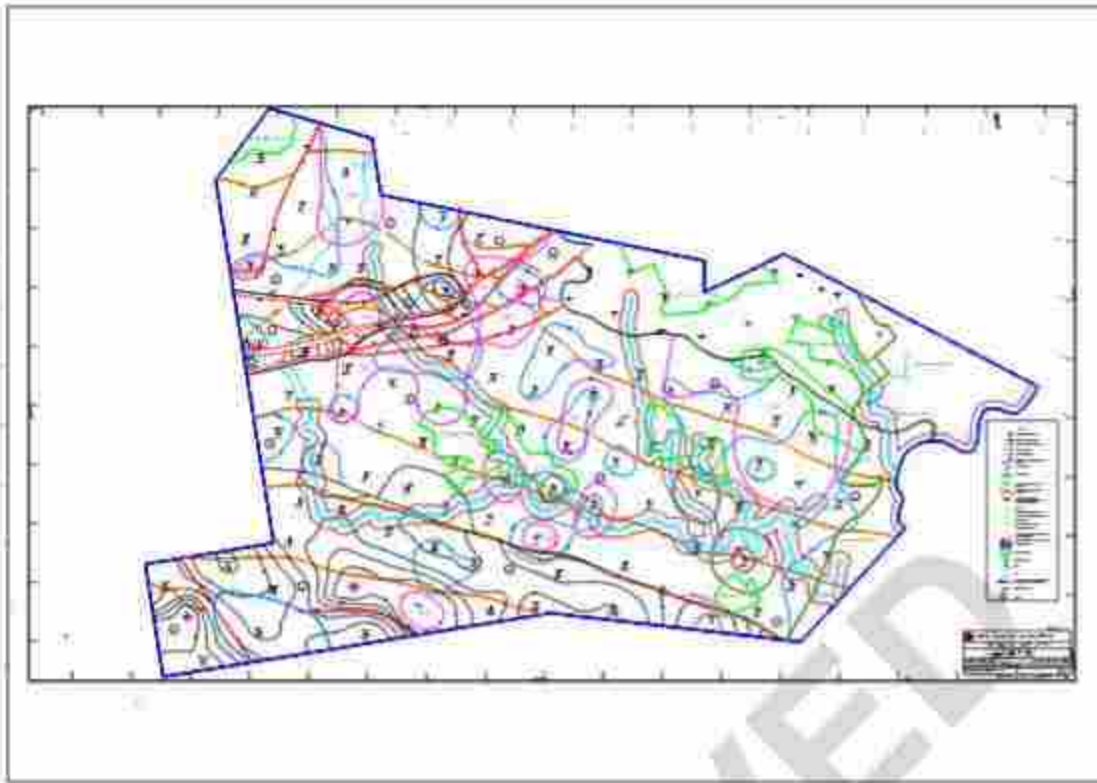


Plan / Plate 10B4



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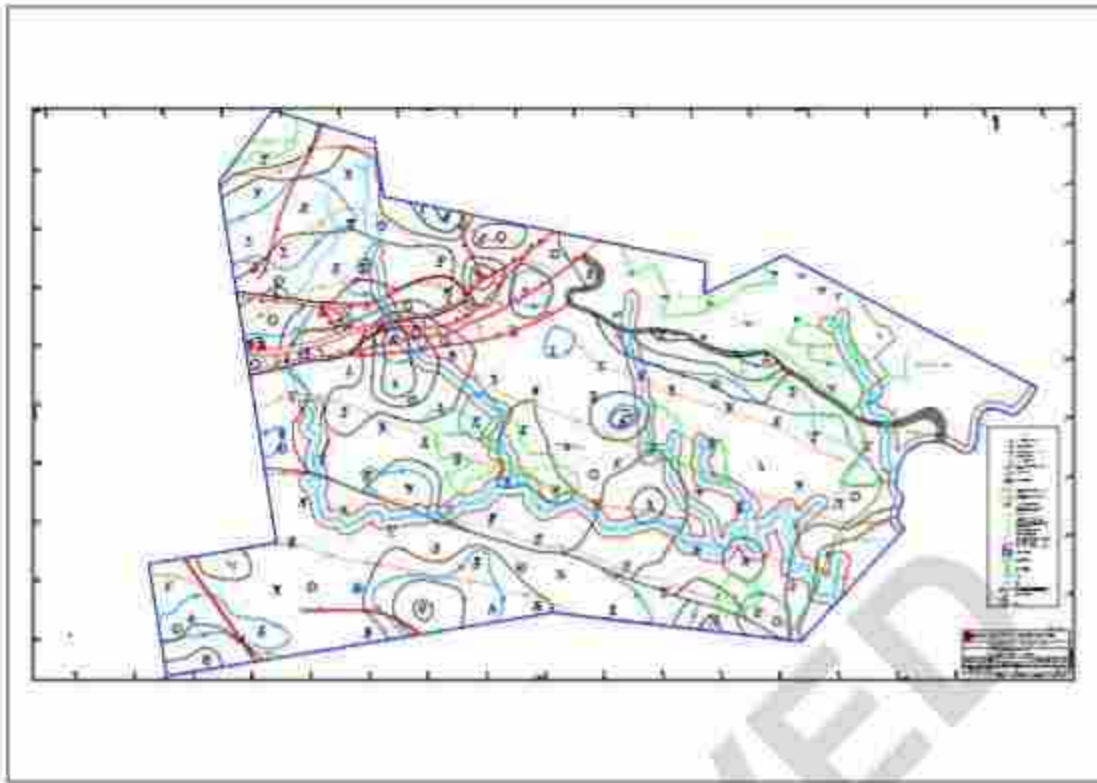
Plan / Plate 10B5



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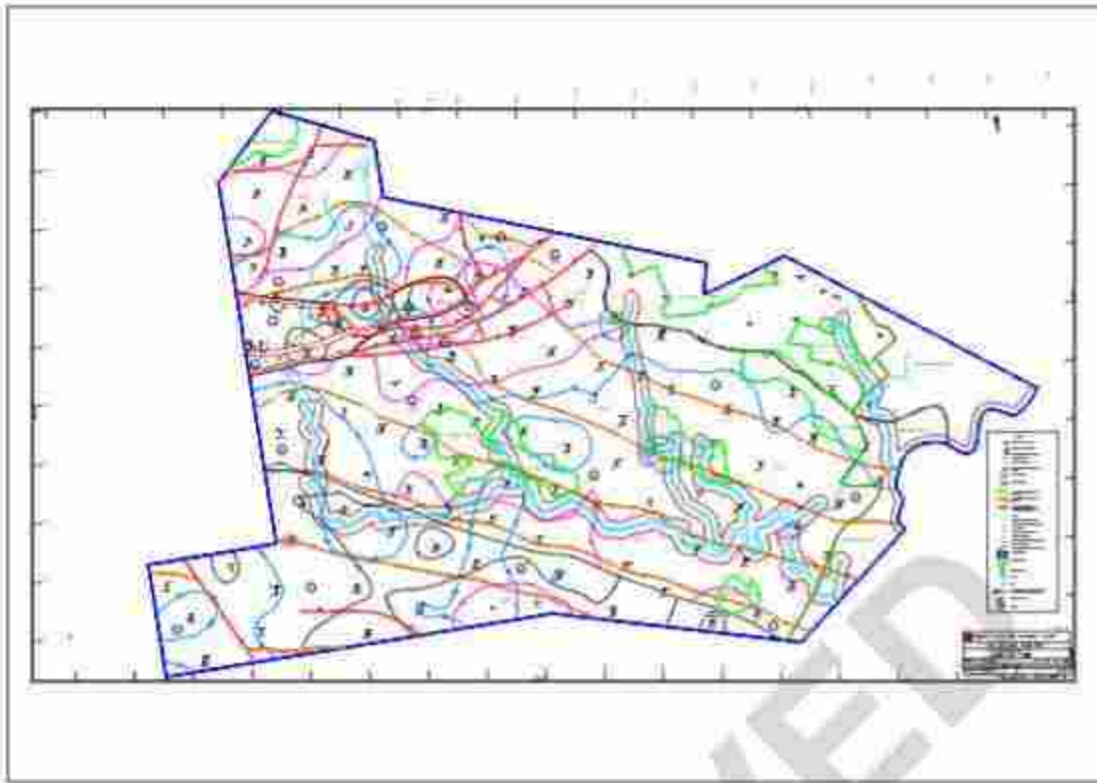


Plan / Plate 10B6



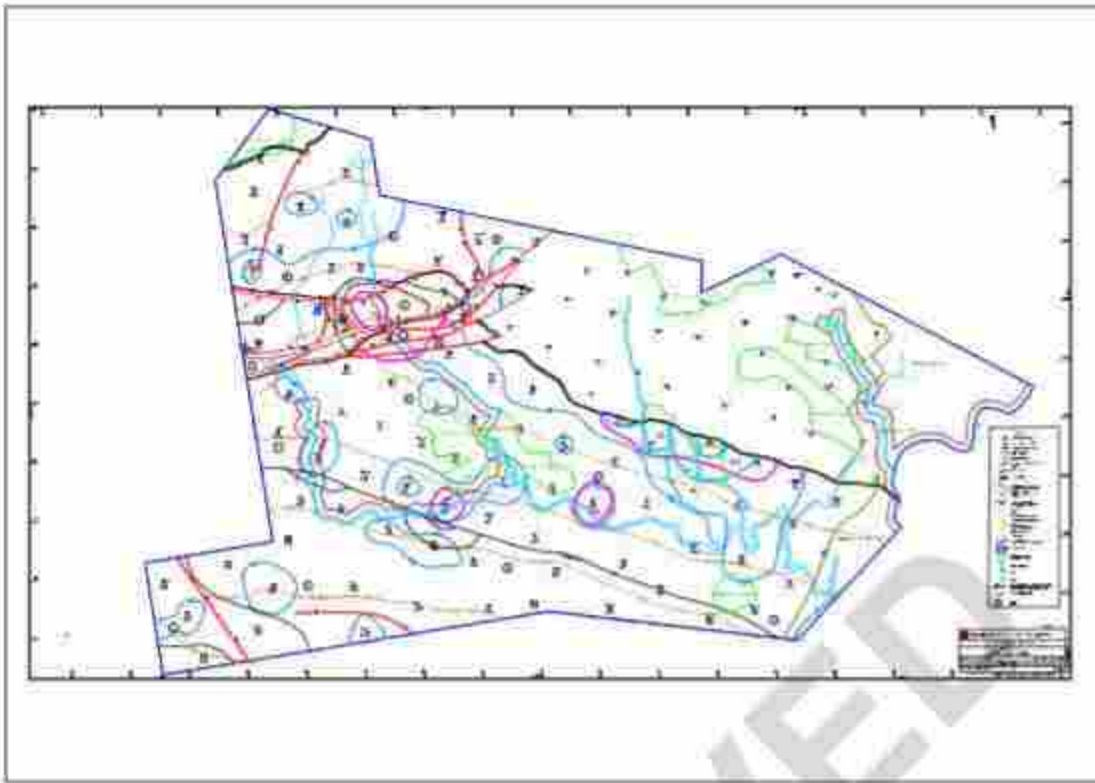
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Plan / Plate 10B7



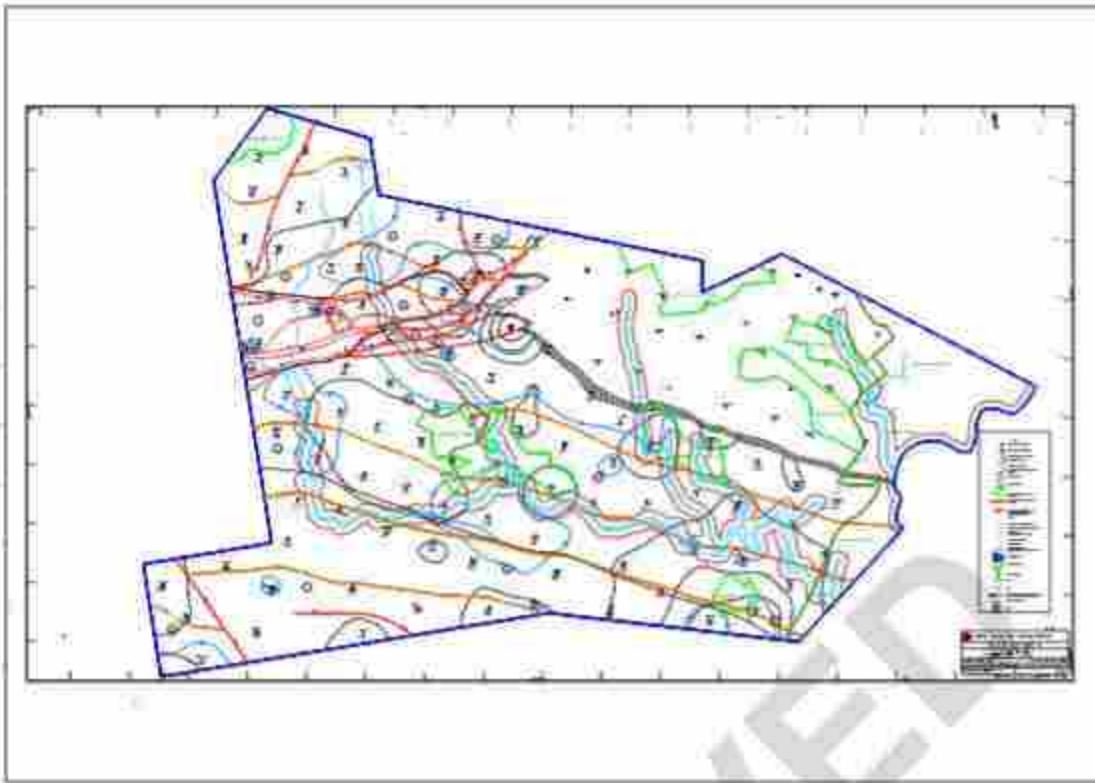
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Plan / Plate 10B8



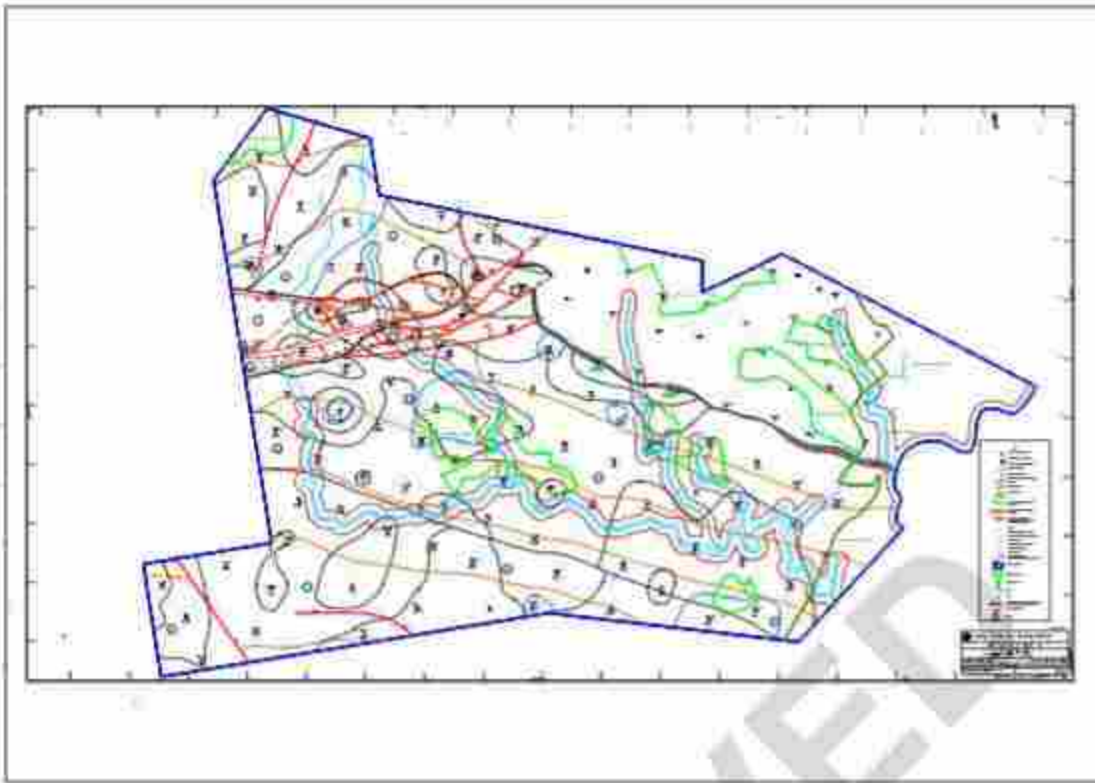
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Plan / Plate 10B9



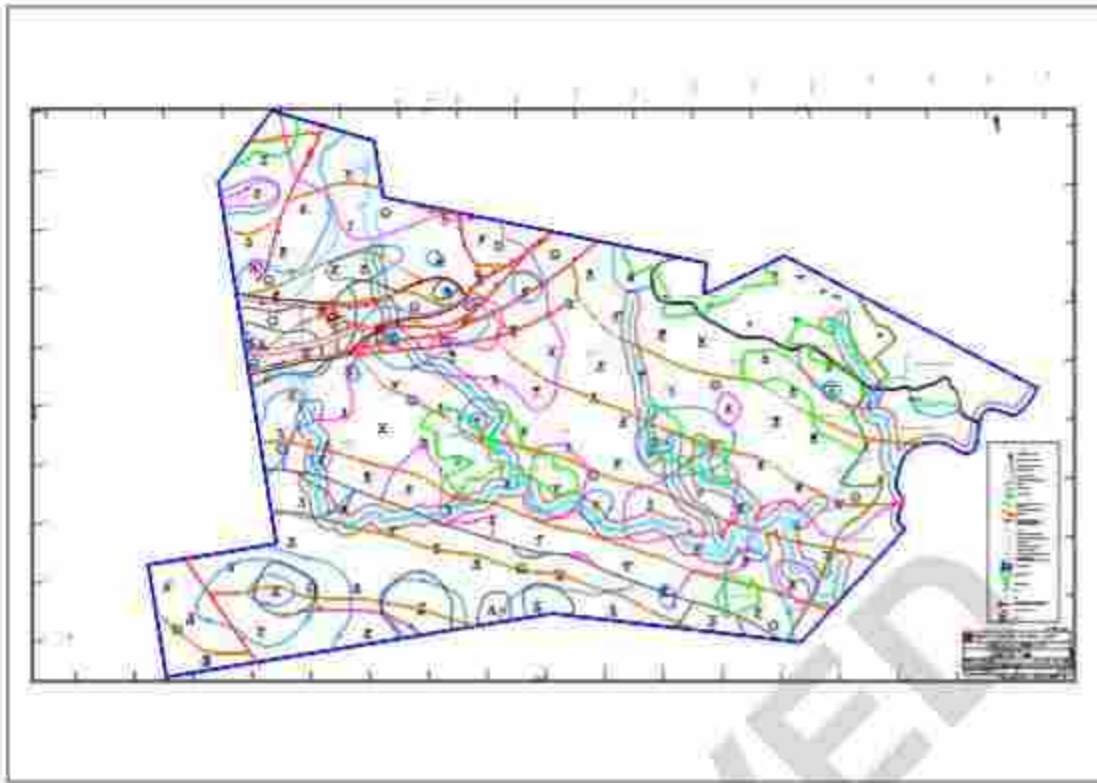
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Plan / Plate 10B10



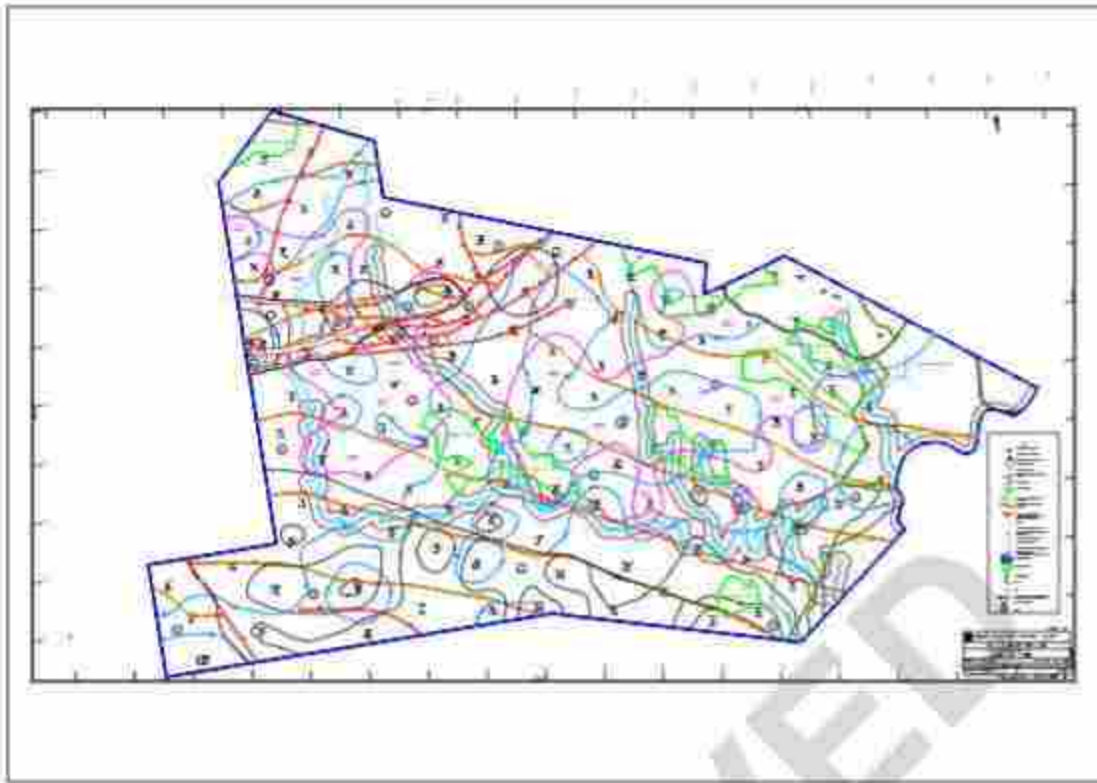
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Plan / Plate 10B11



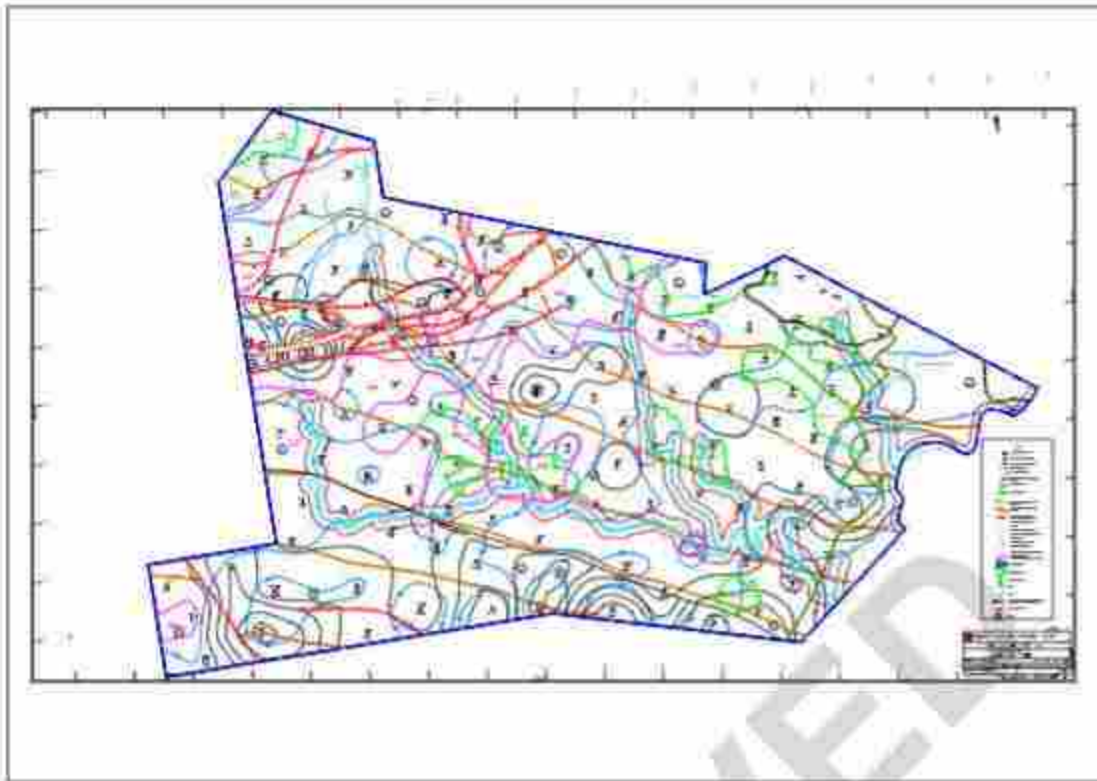
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Plan / Plate 10B12



APPROVED

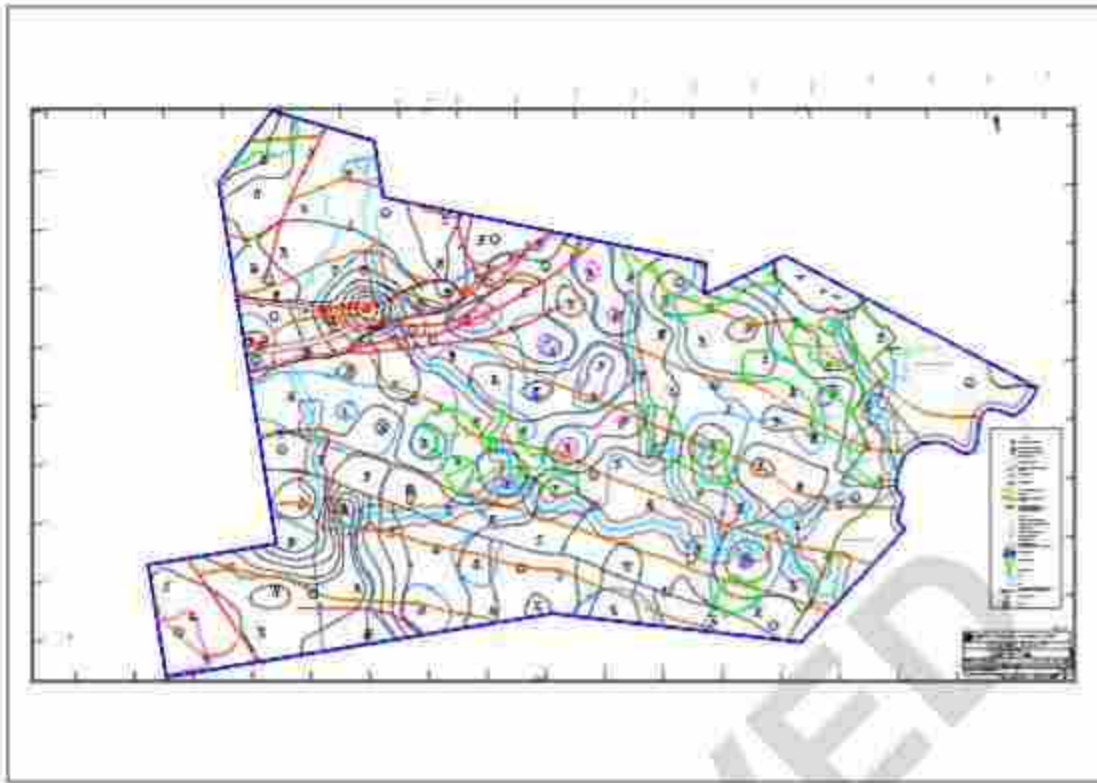
Plan / Plate 10B13



APPROVED

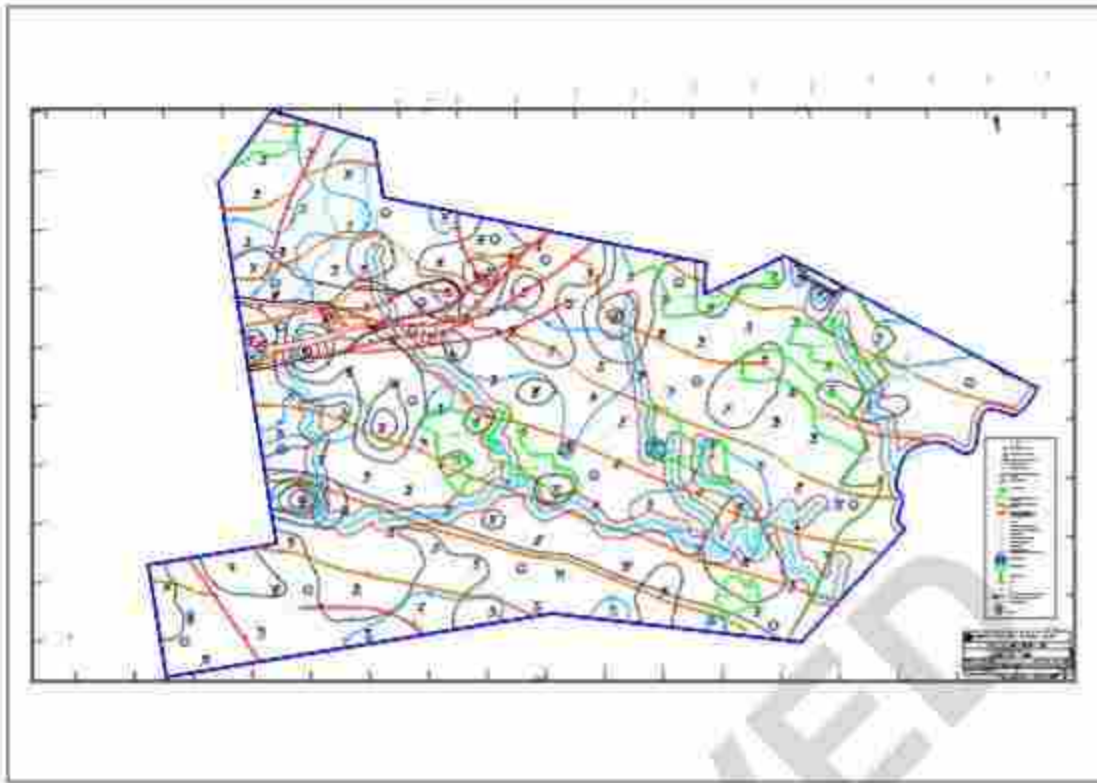


Plan / Plate 10B14



APPROVED

Plan / Plate 10B15



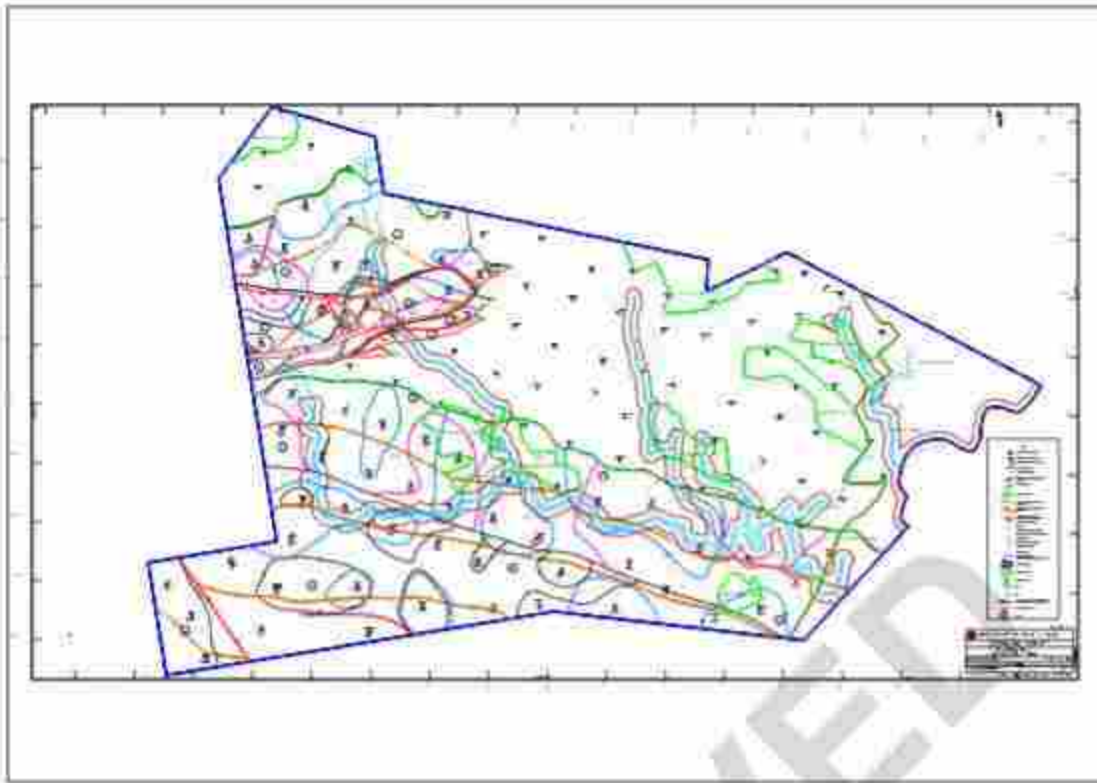
APPROVED

Plan / Plate 10B16



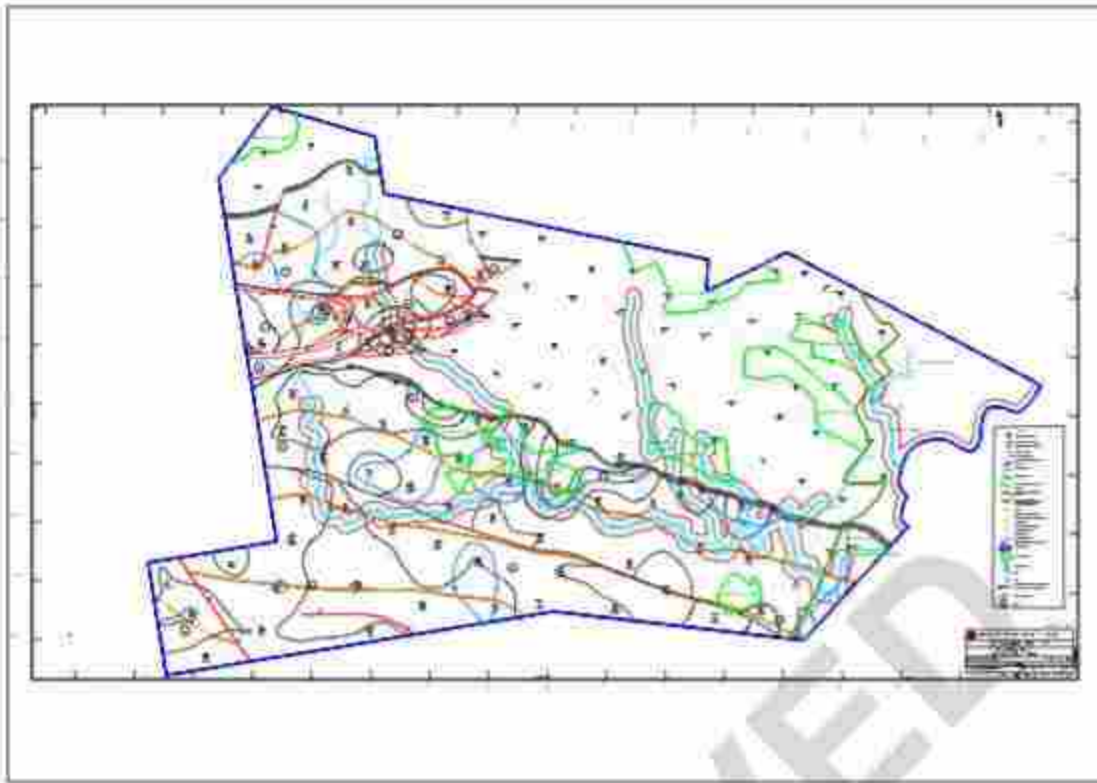
APPROVED

Plan / Plate 10B17



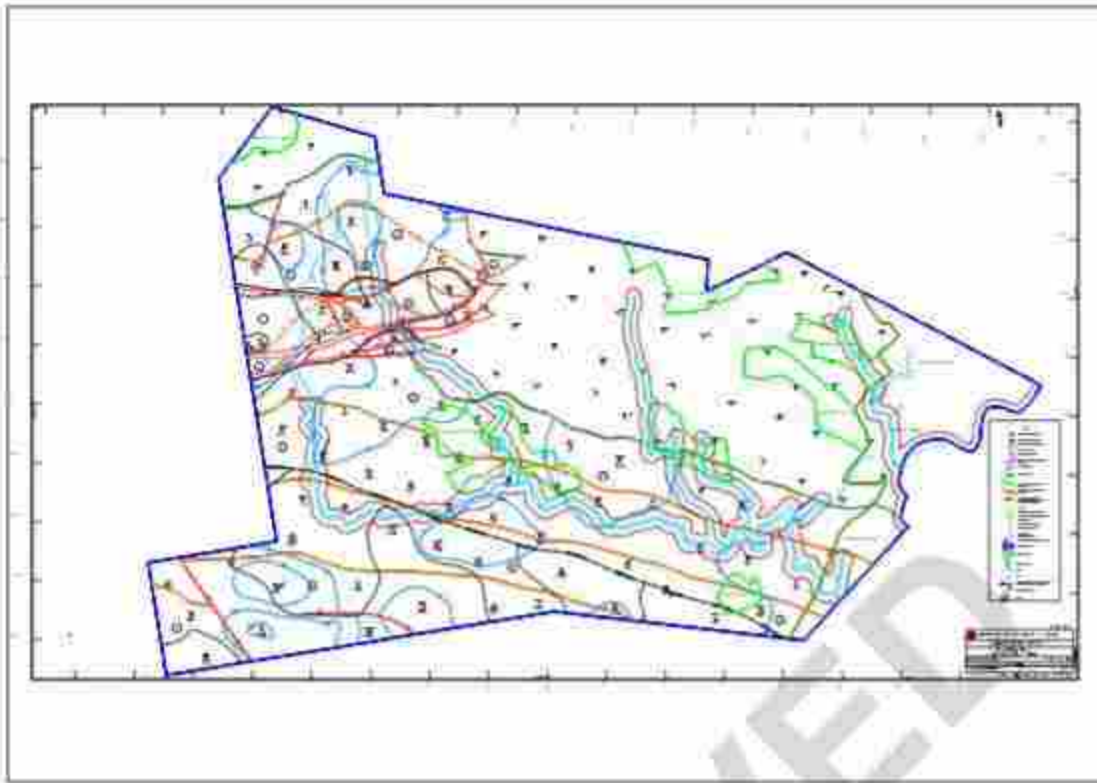
APPROVED

Plan / Plate 10B18

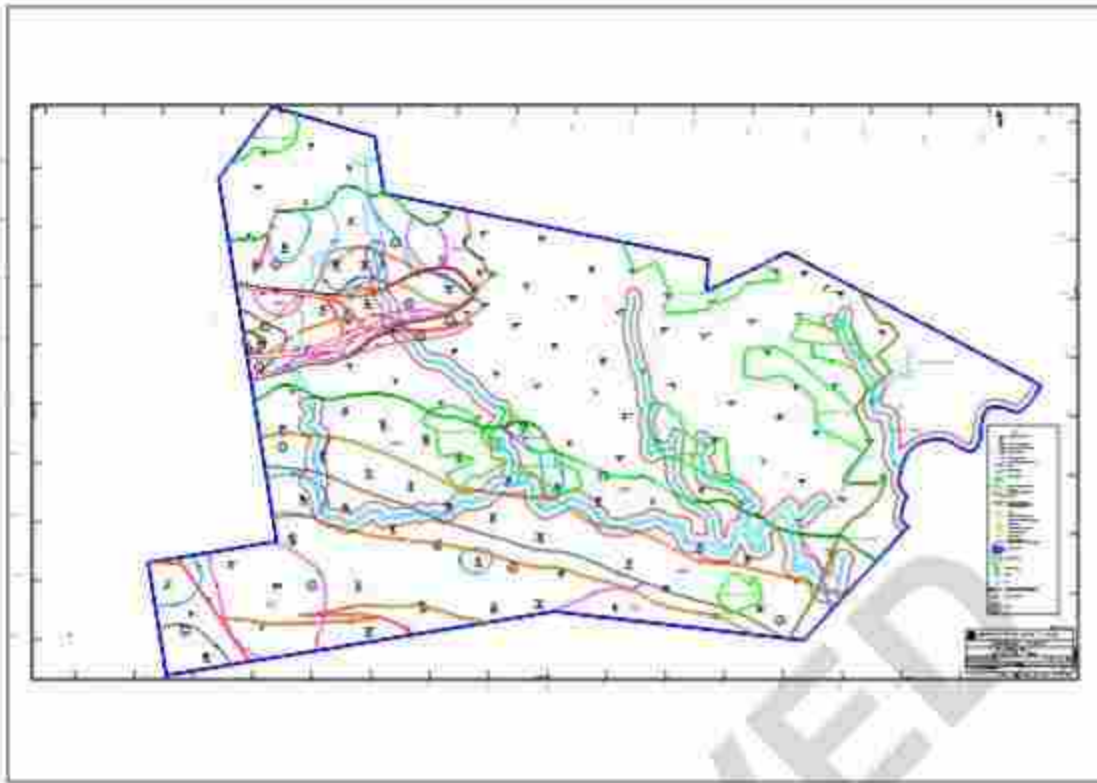


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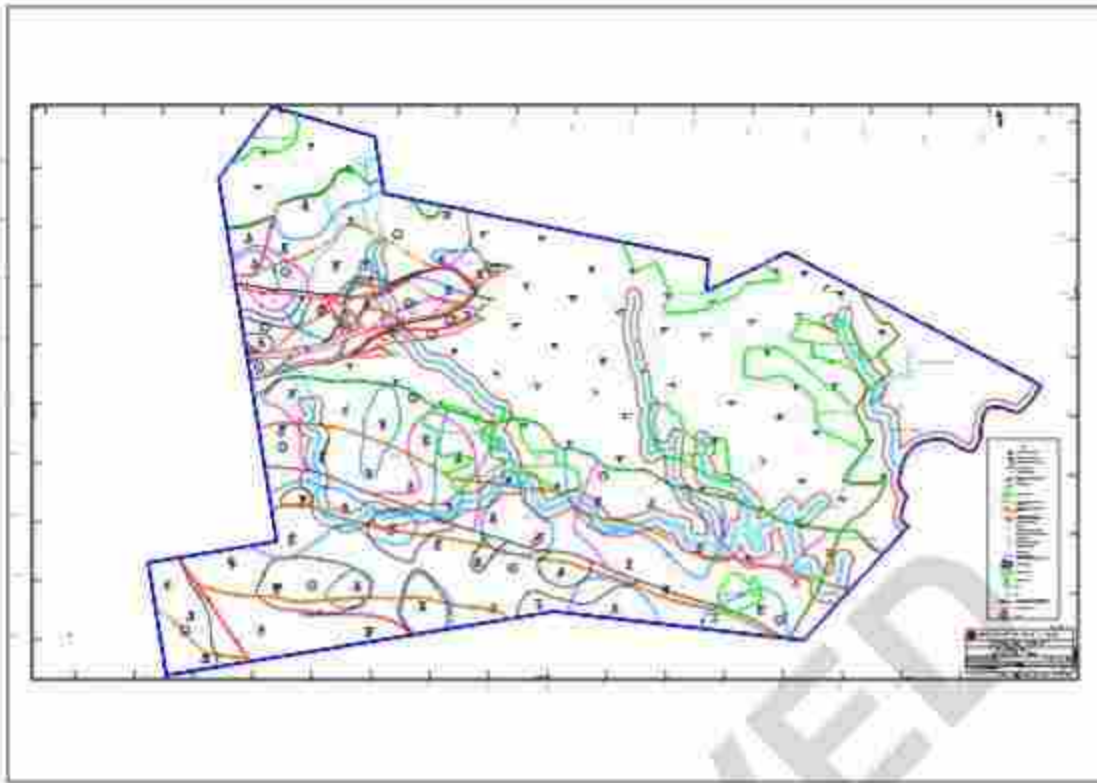
Plan / Plate 10B19



Plan / Plate 10B20



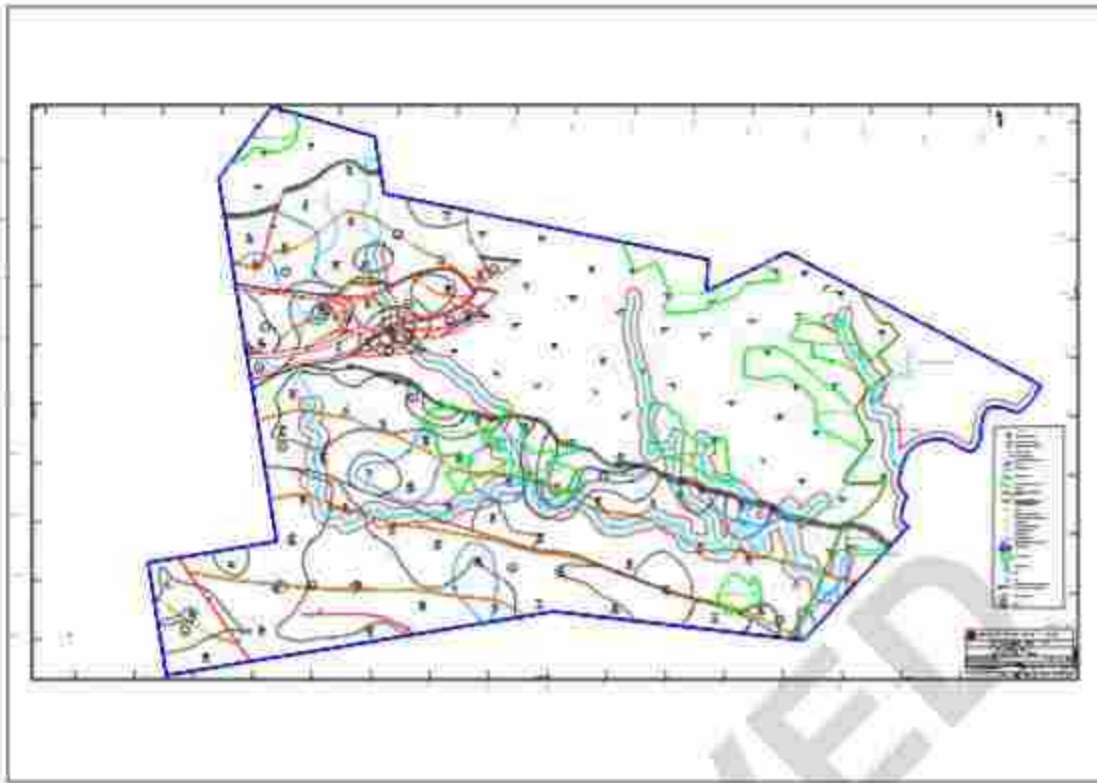
Plan / Plate 10B21



APPROVED

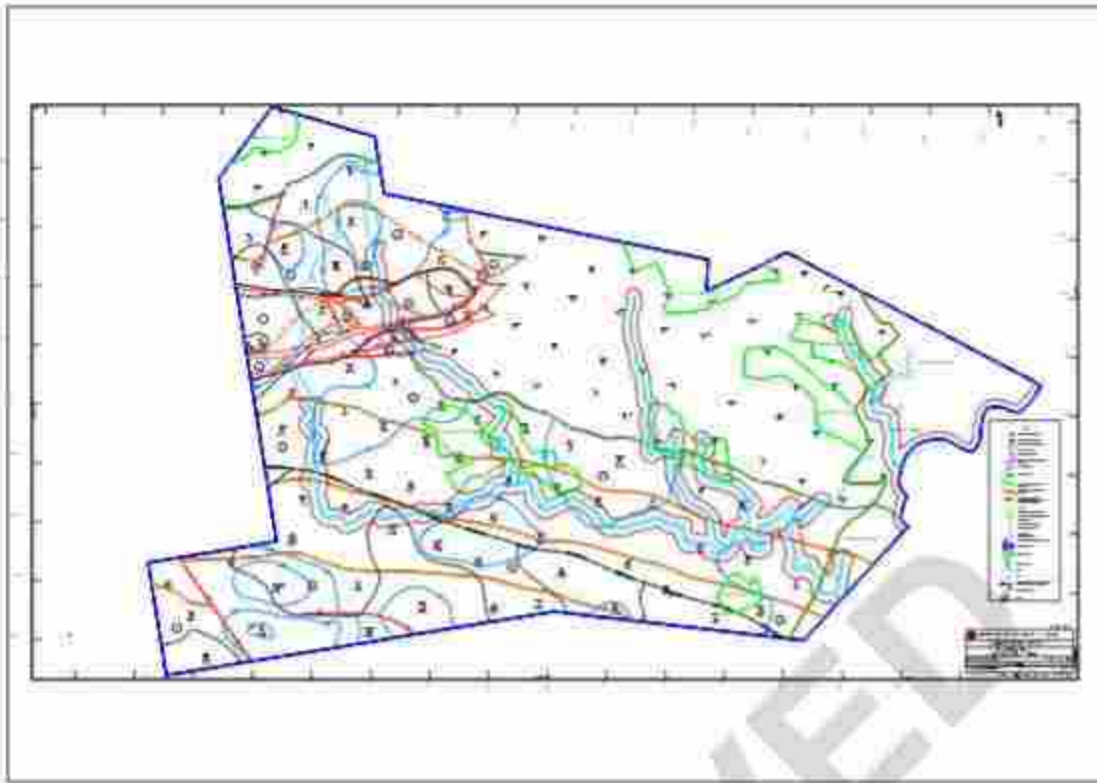


Plan / Plate 10B22



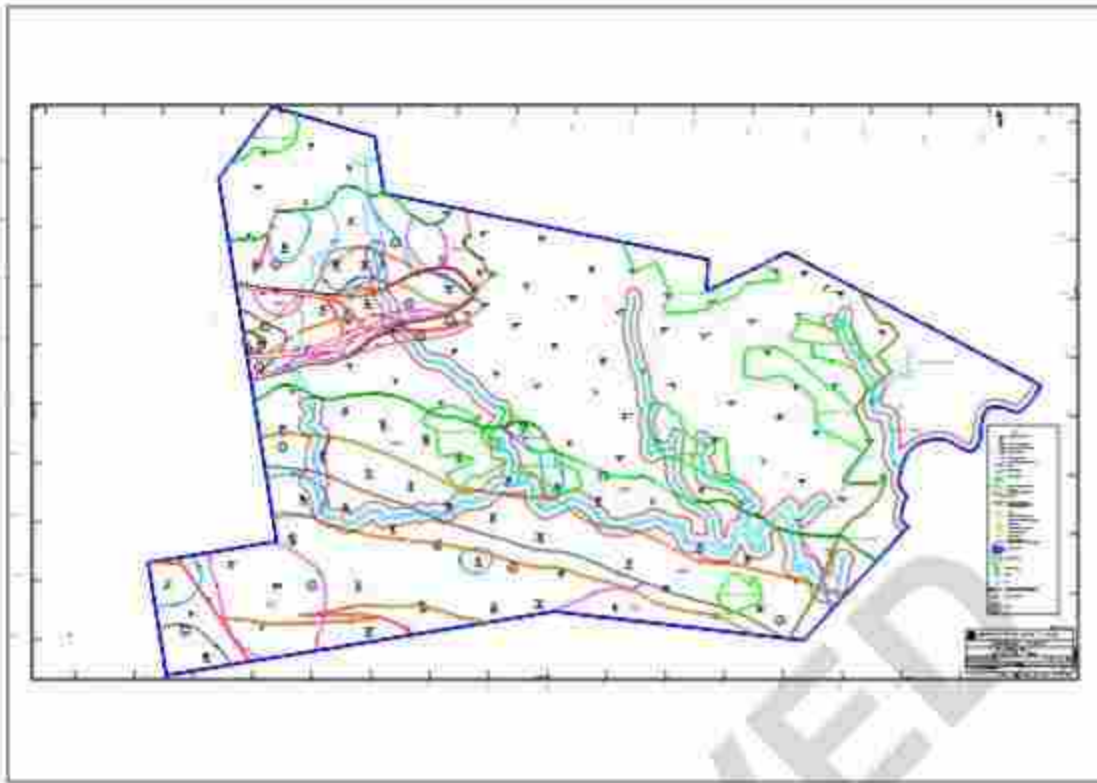
APPROVED

Plan / Plate 10B23



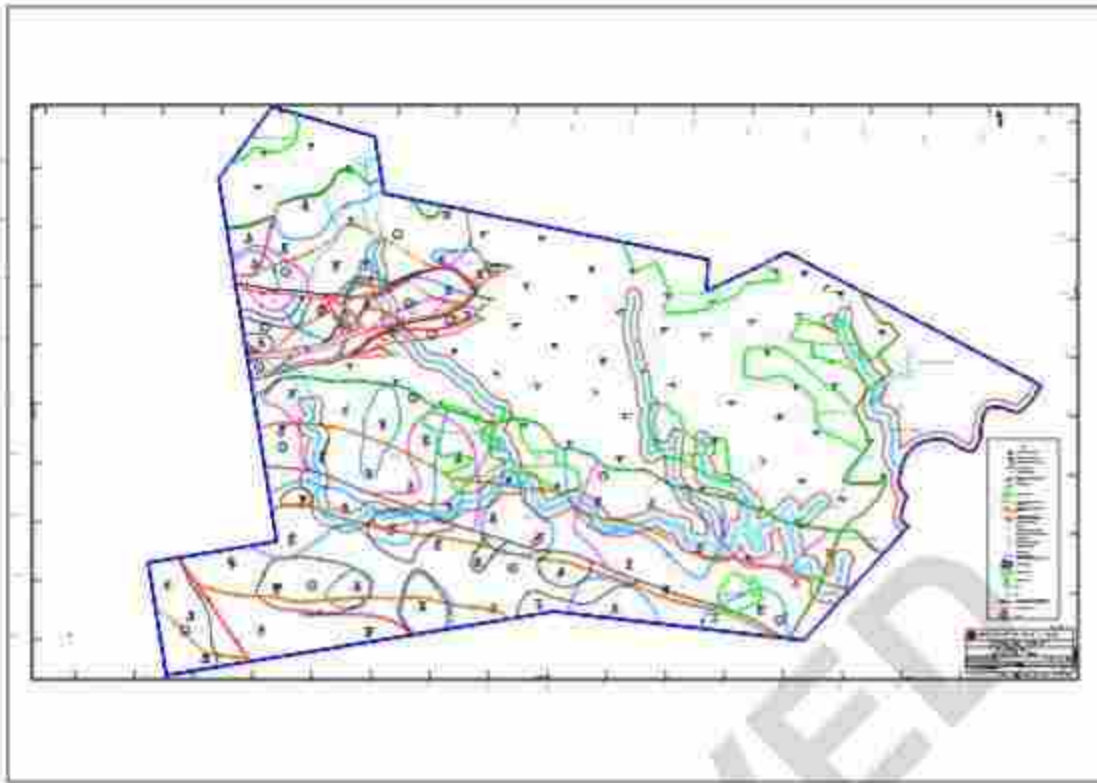
APPROVED

Plan / Plate 10B24



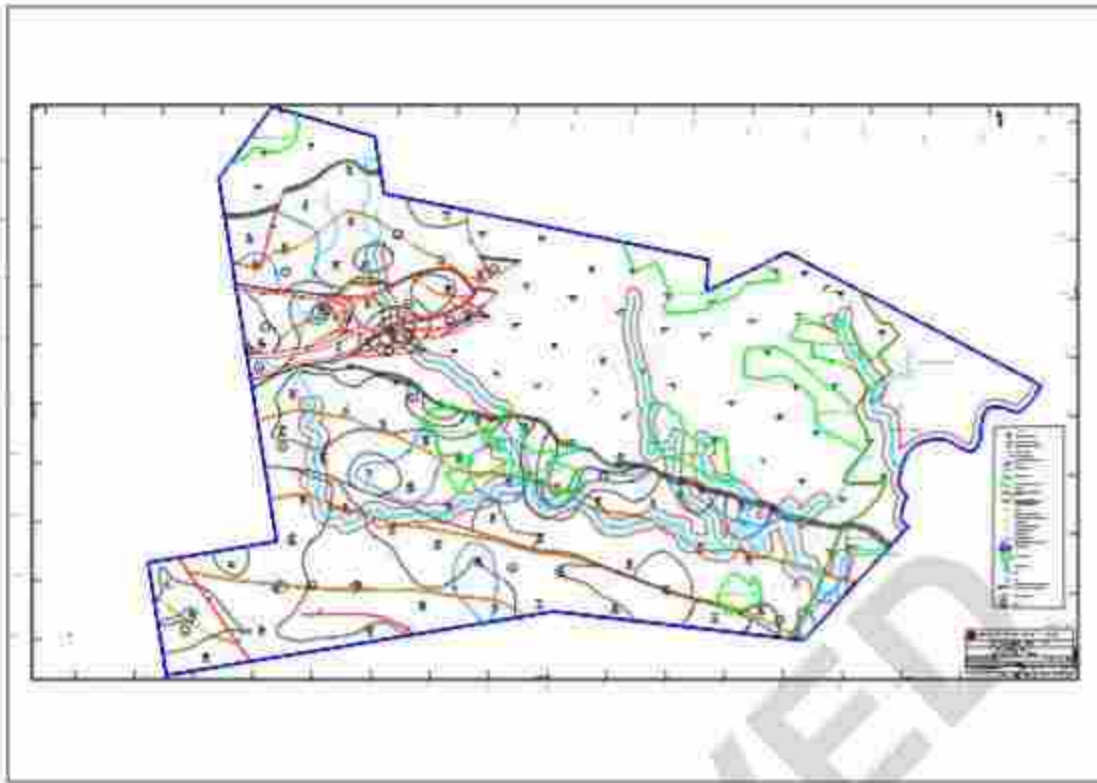
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Plan / Plate 10B25



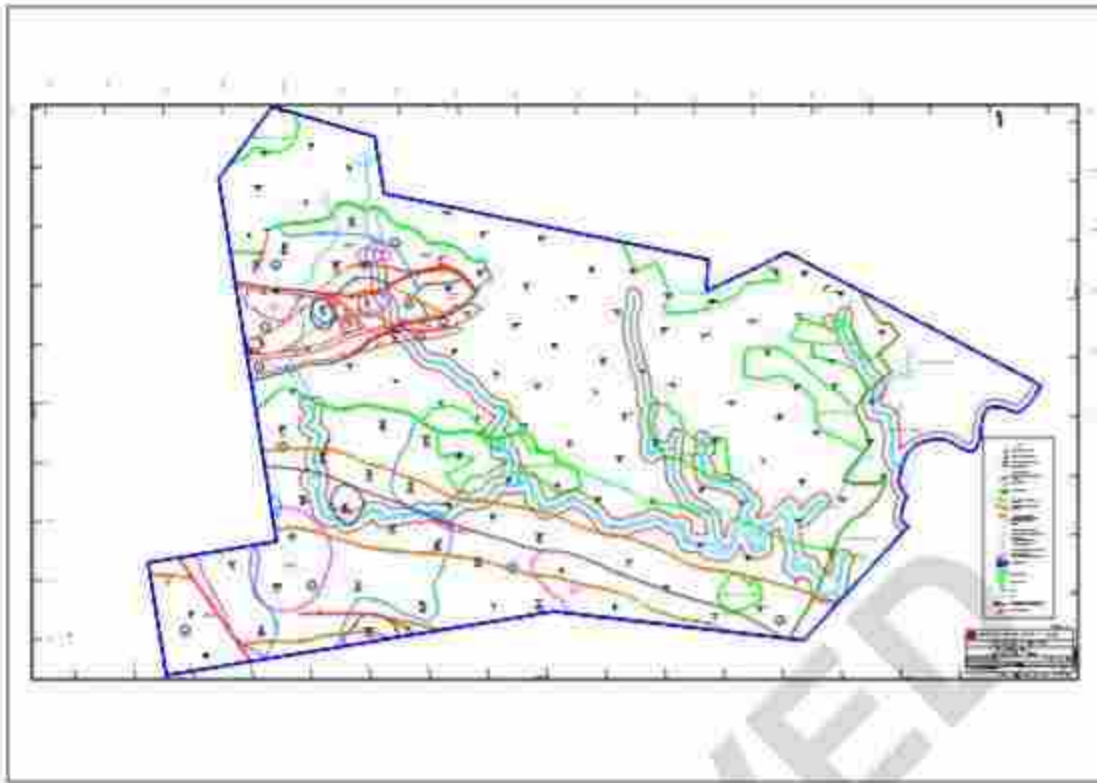
APPROVED

Plan / Plate 10B26



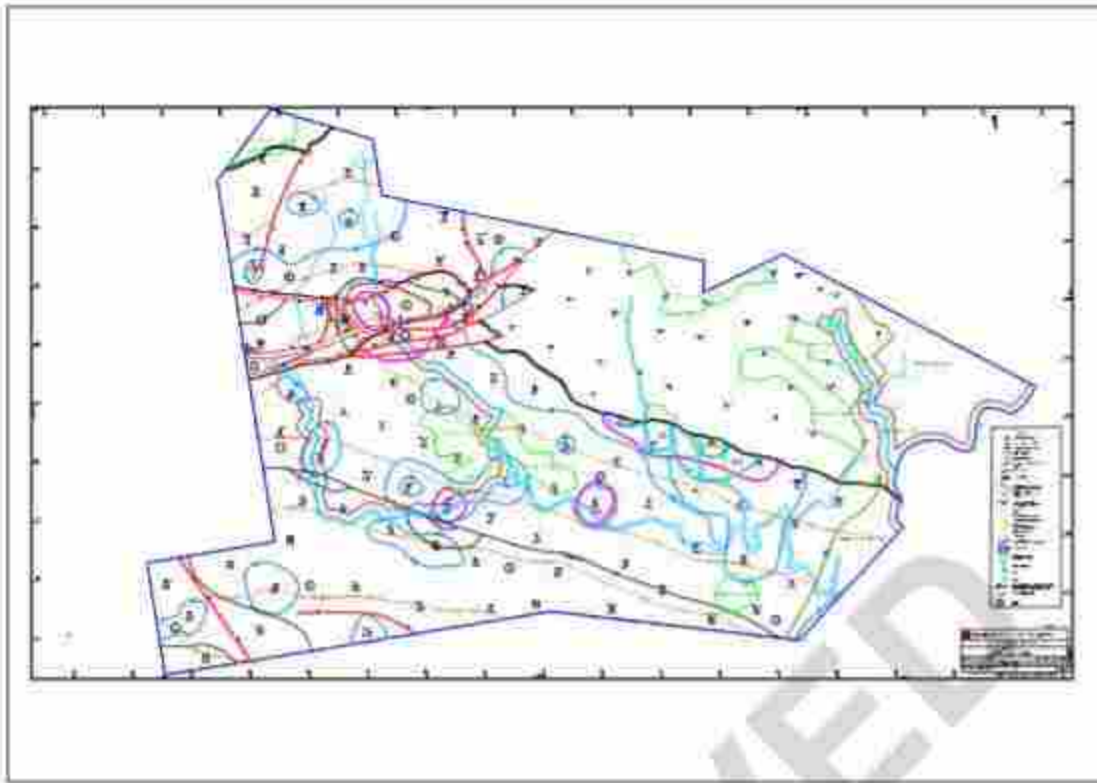
APPROVED

Plan / Plate 10B27



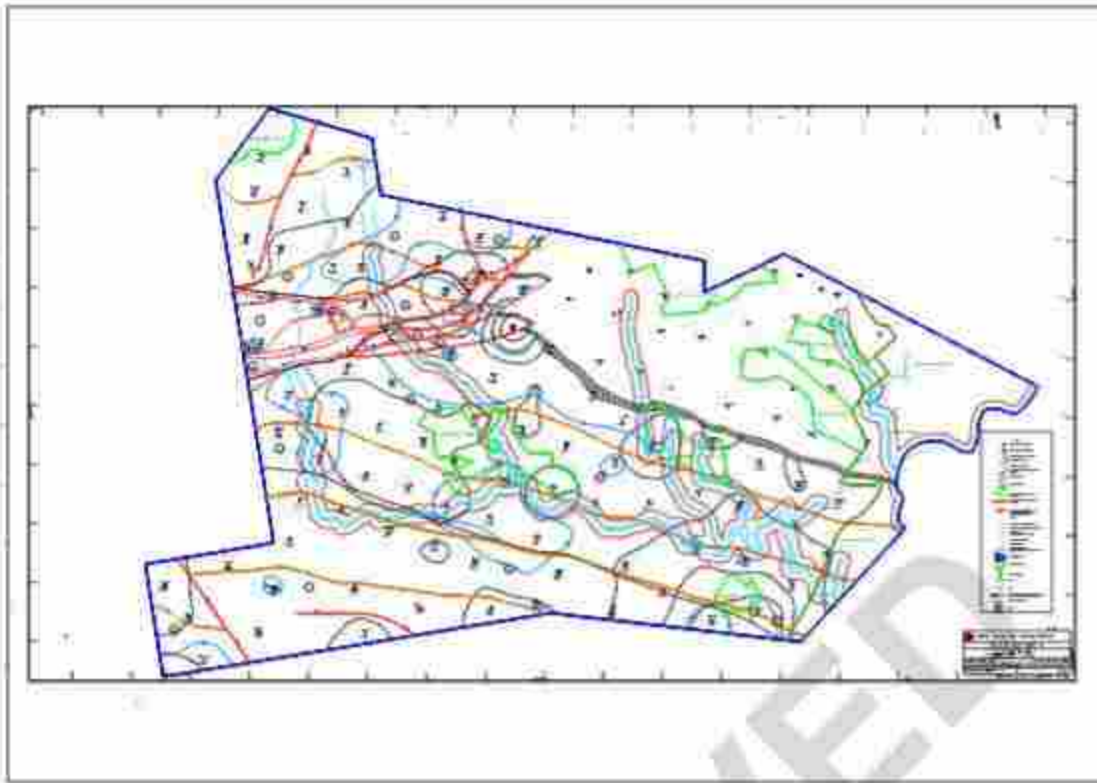
APPROVED

Plan / Plate 10B28



APPROVED

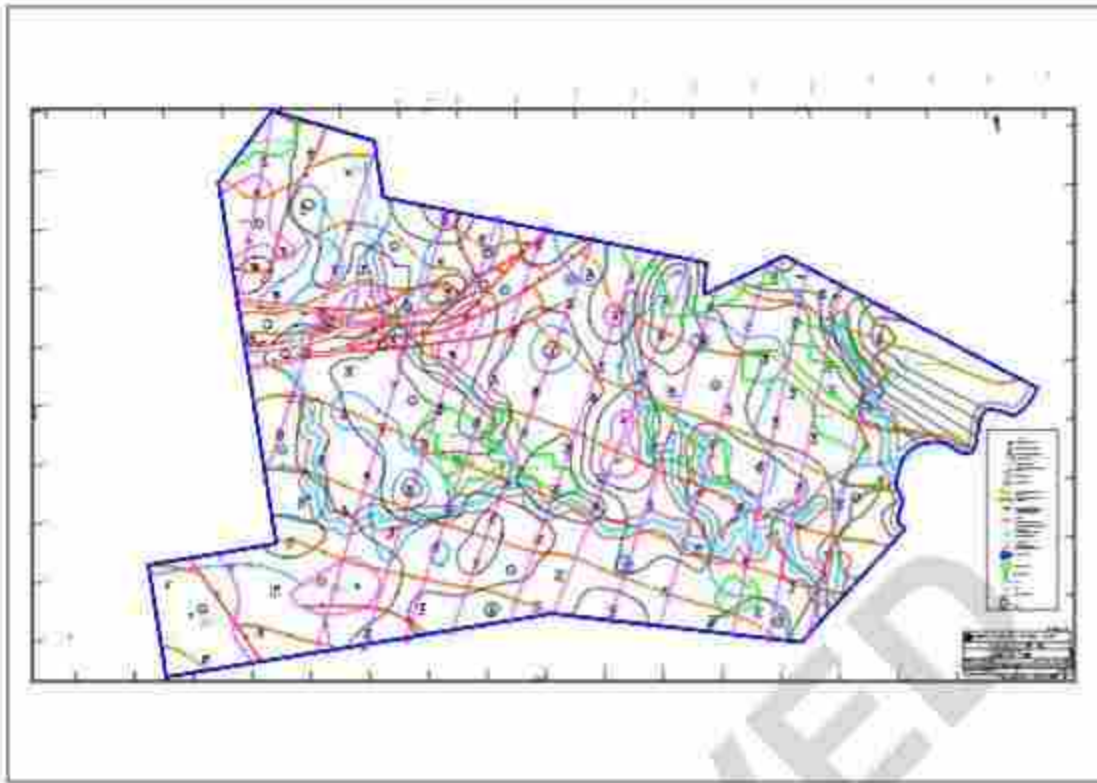
Plan / Plate 10B29



APPROVED

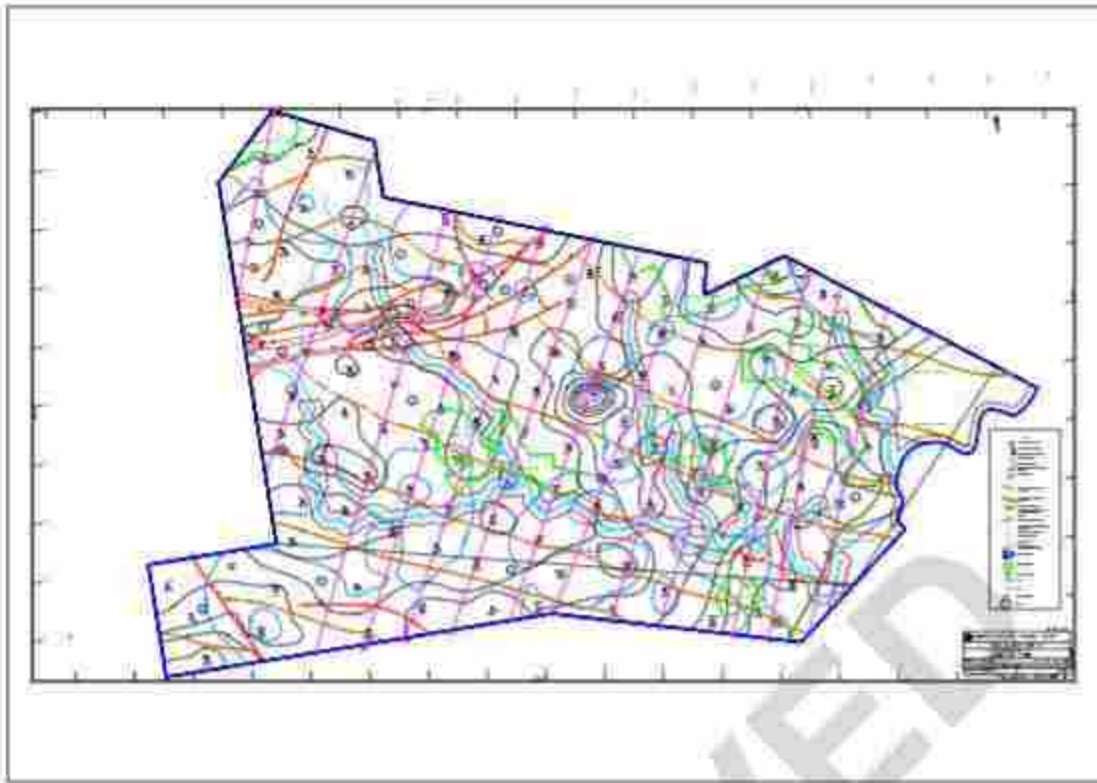


Plan / Plate 10B30



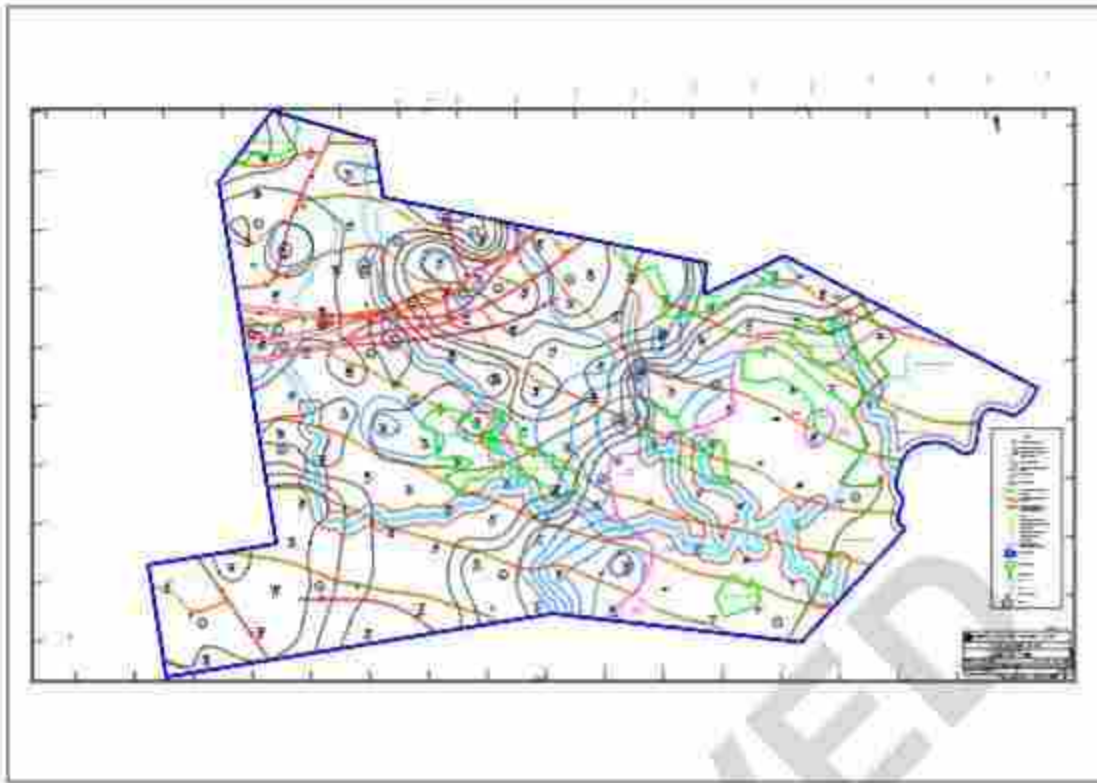
APPROVED

Plan / Plate 10B31



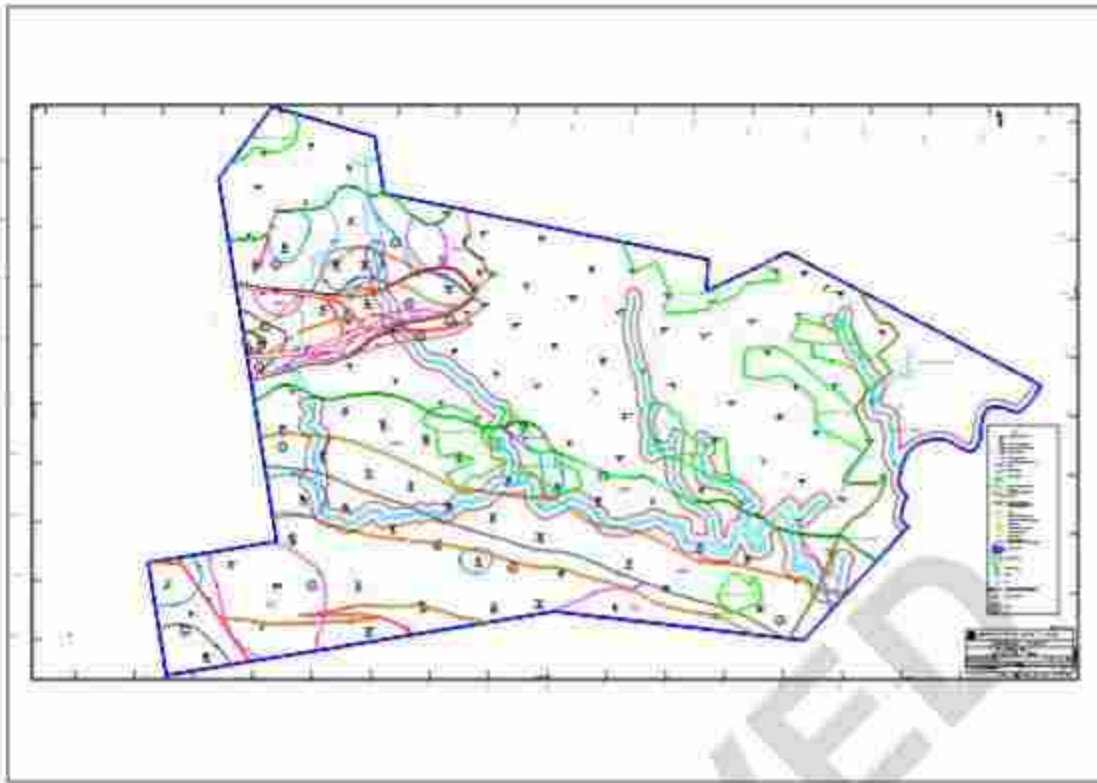
APPROVED

Plan / Plate 10B32

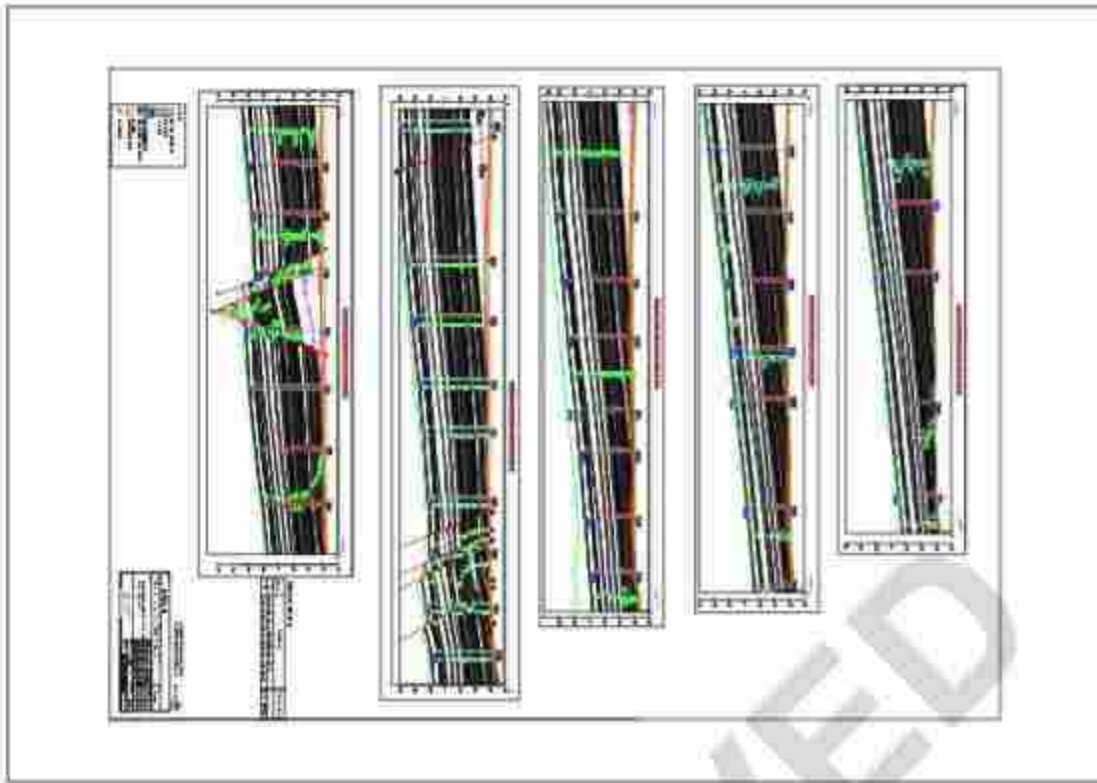


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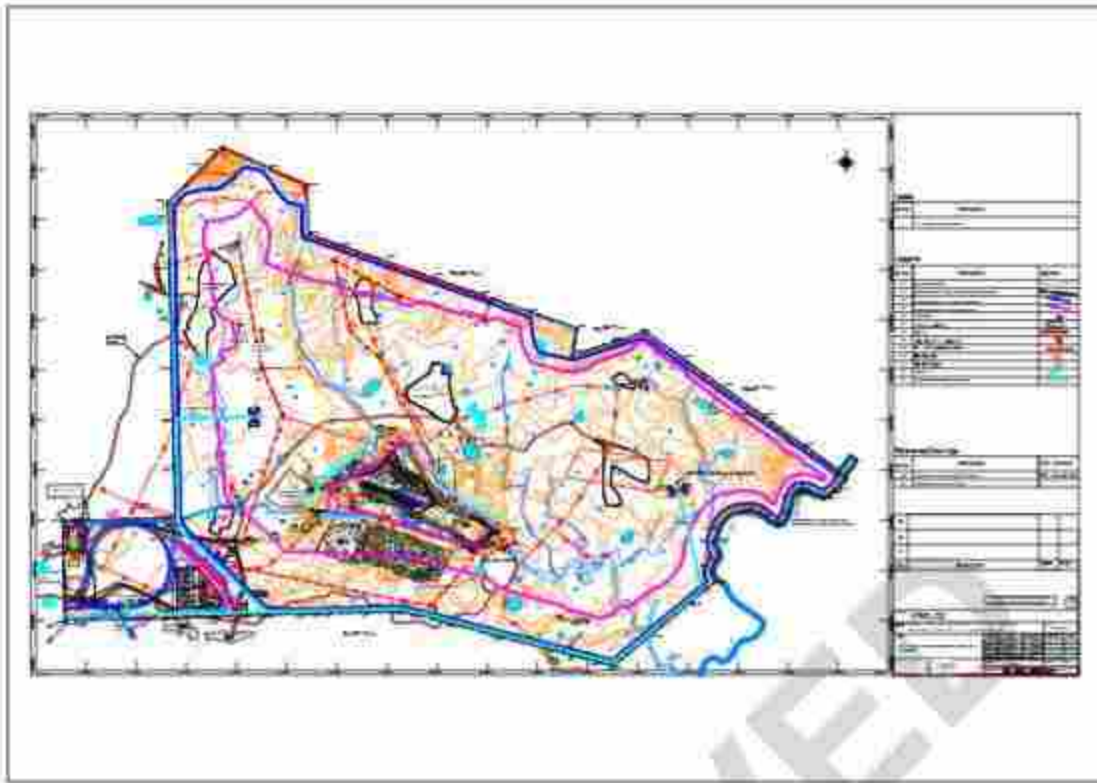
Plan / Plate 10B33



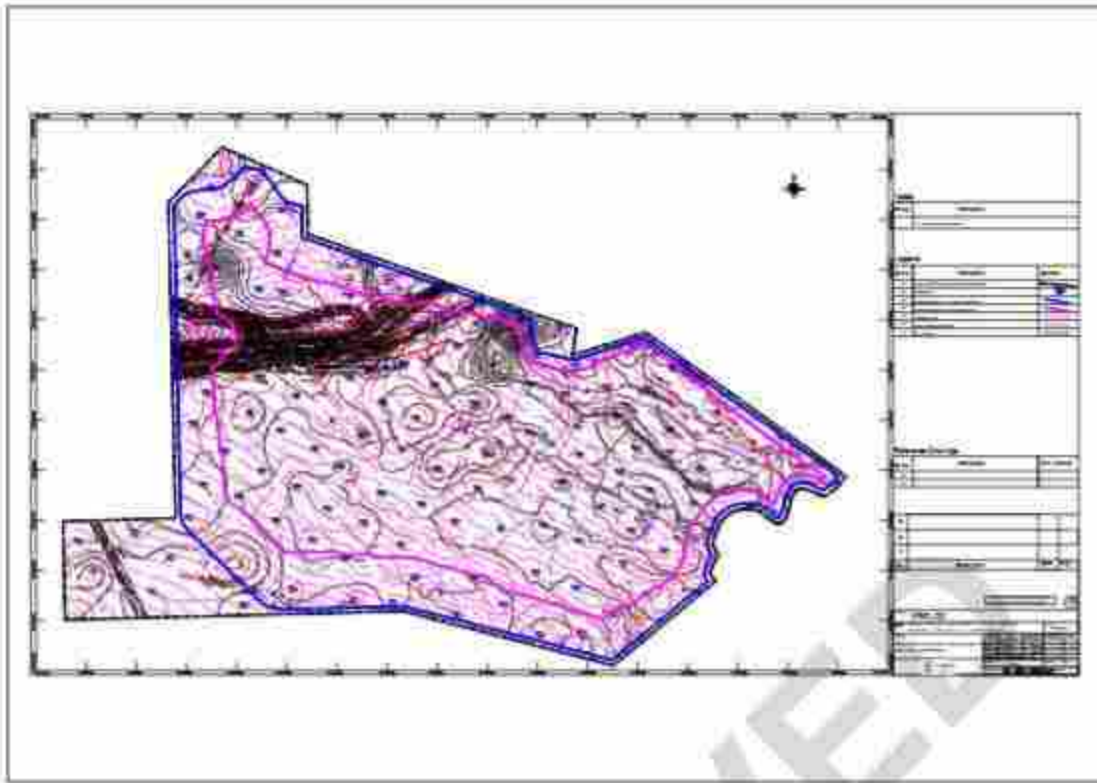
Plan / Plate 11A1



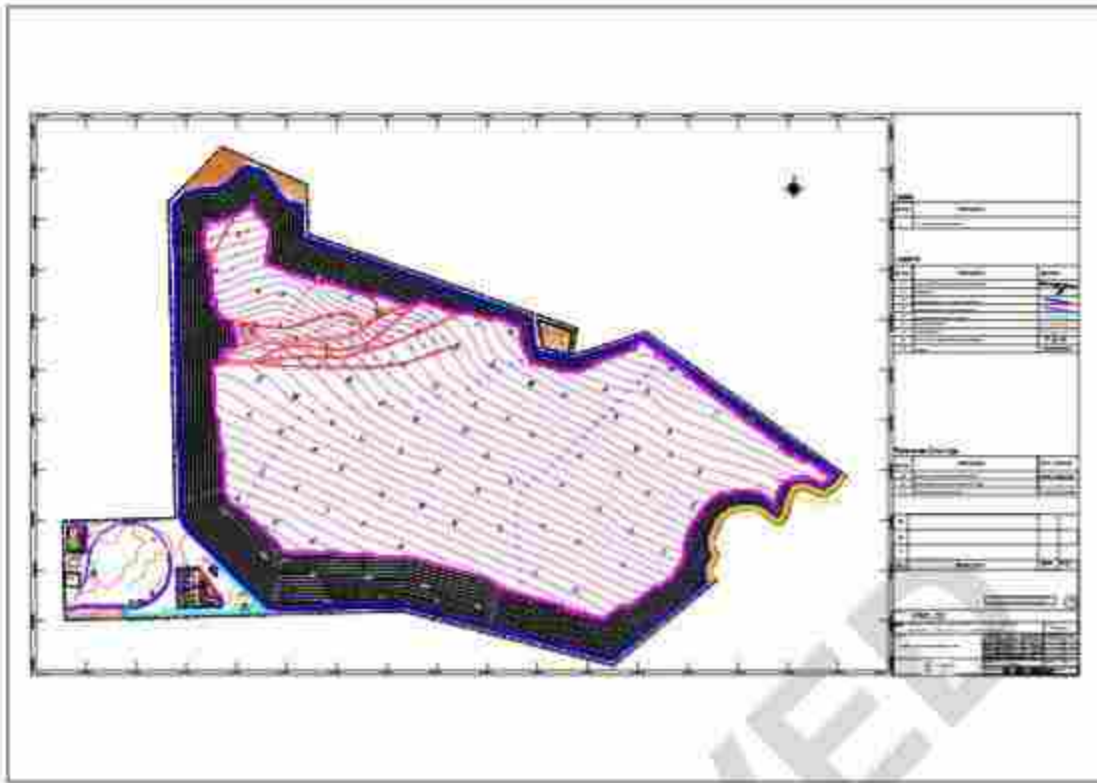
Plan / Plate 12



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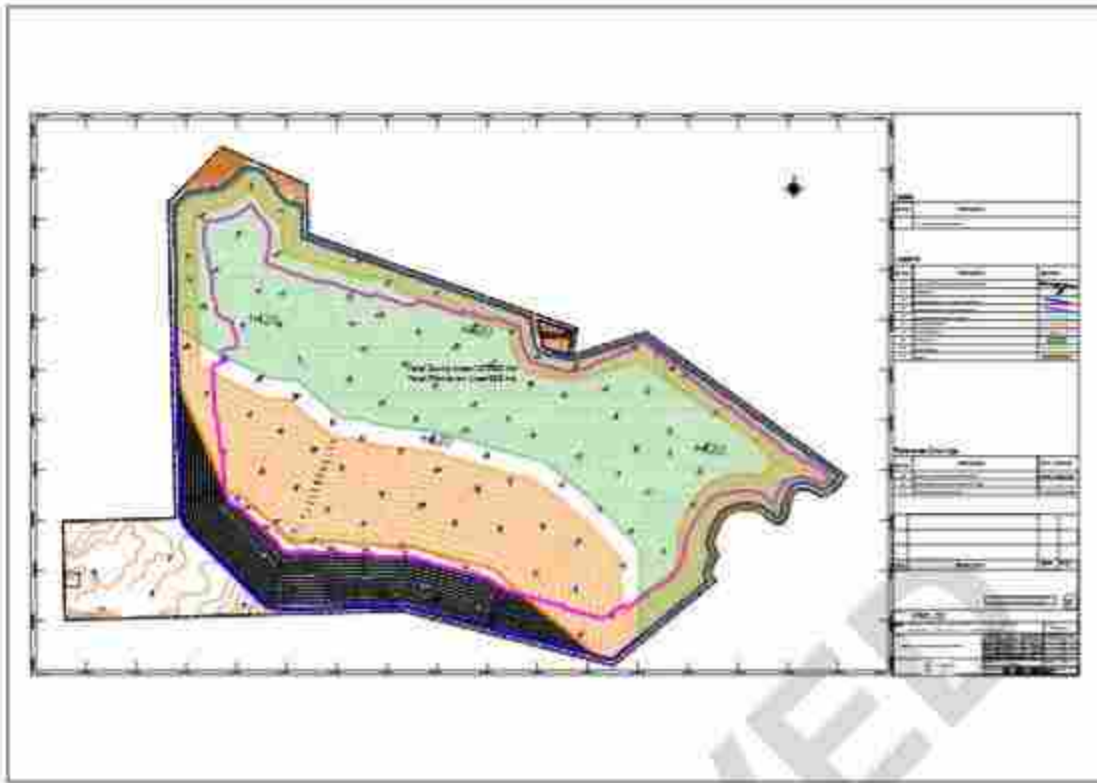
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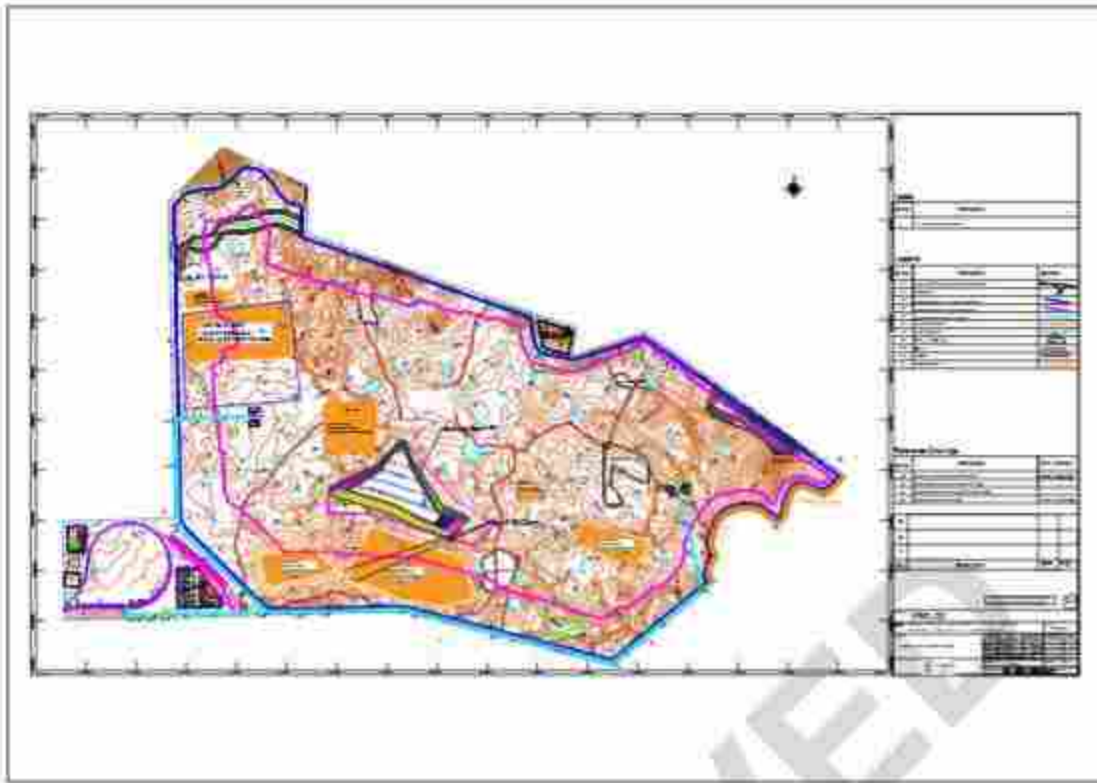
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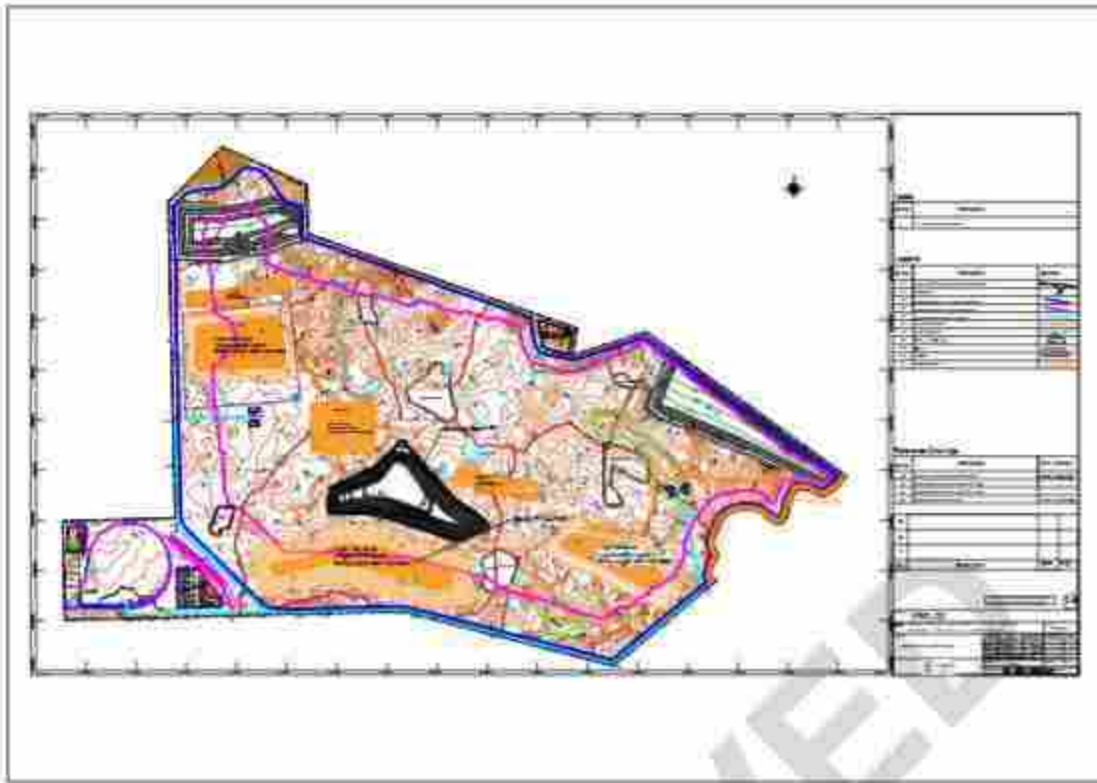
Plan / Plate 20



Plan / Plate 21A

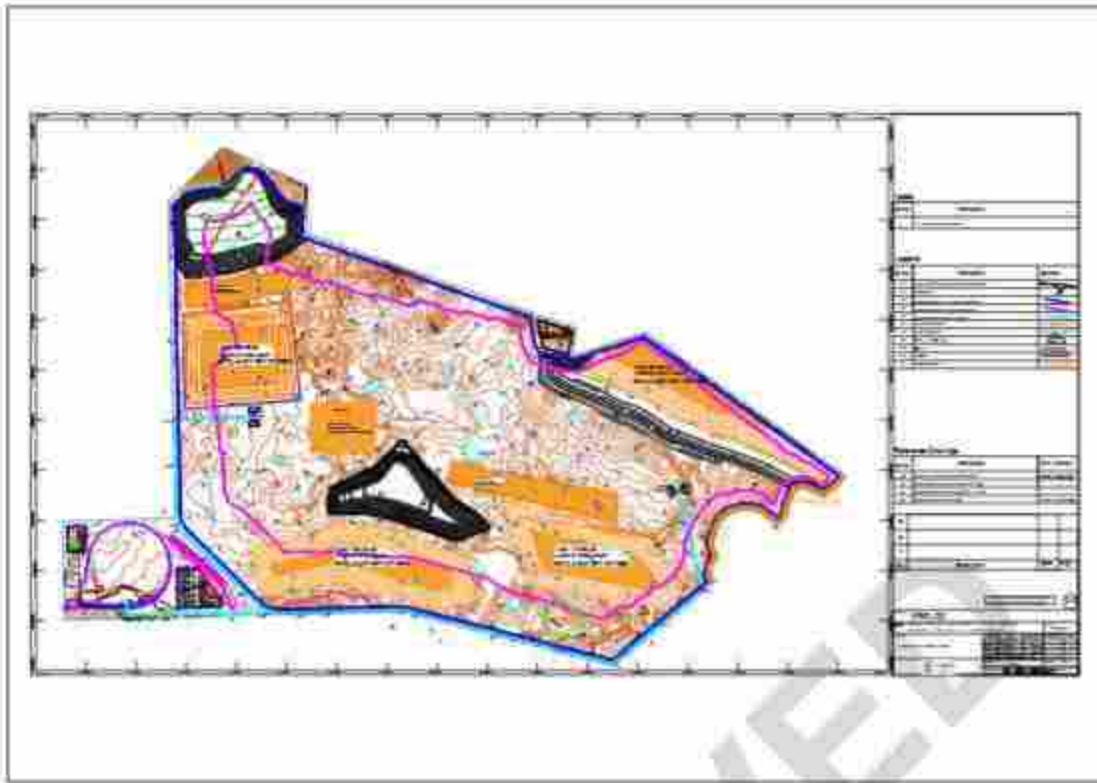


Plan / Plate 21B



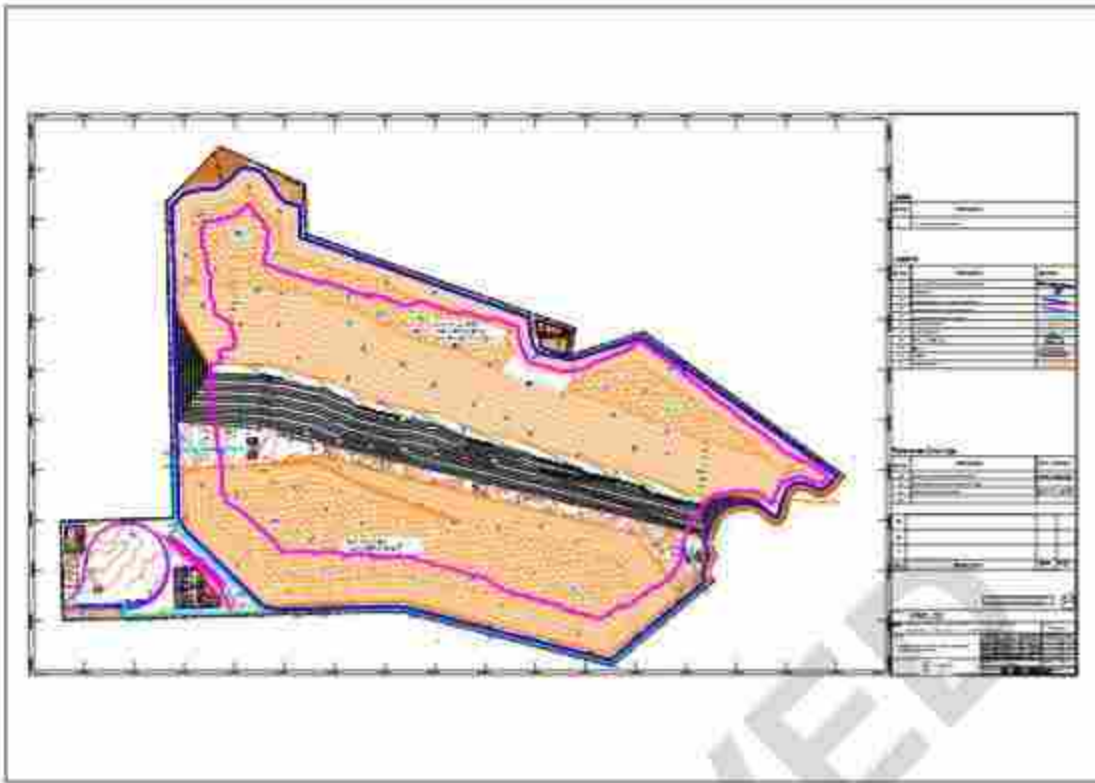
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Plan / Plate 21C



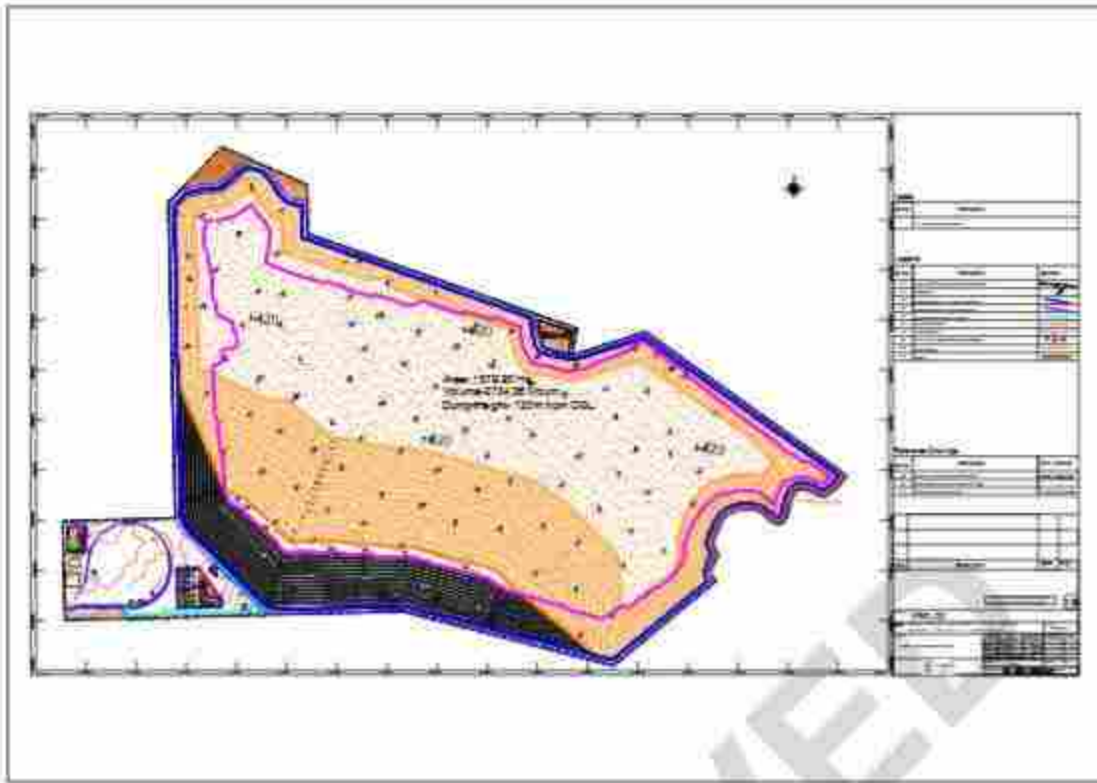
APPROVED

Plan / Plate 21D

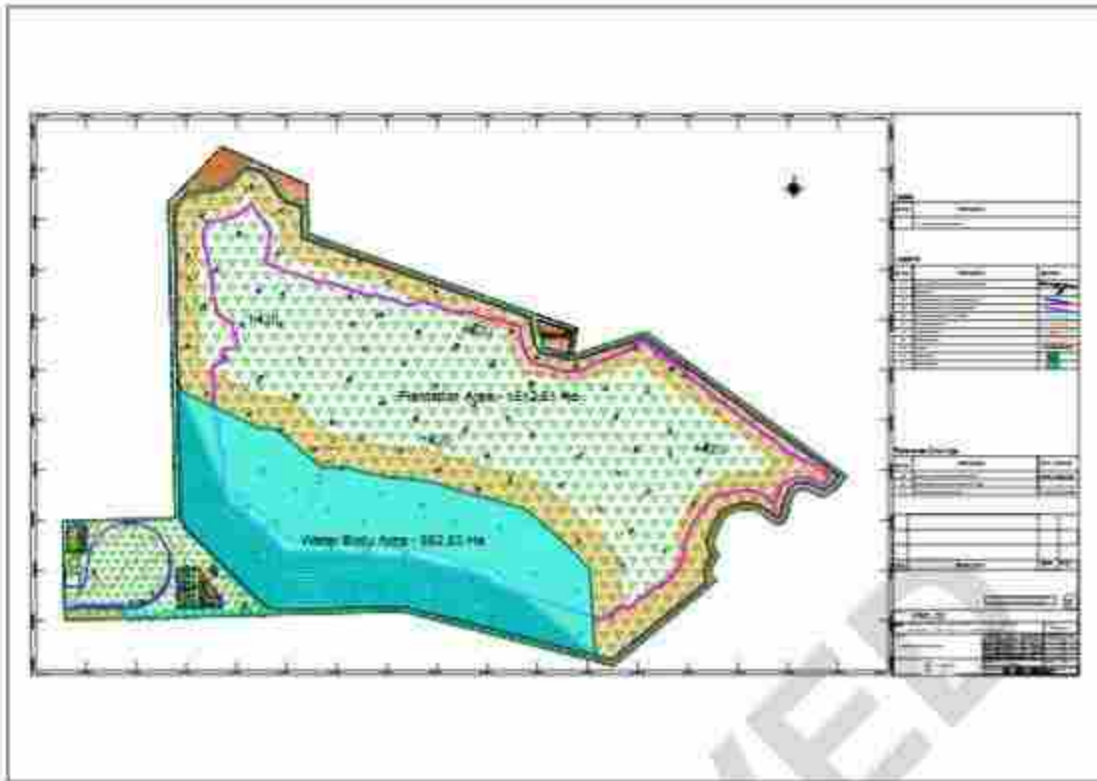


APPROVED

Plan / Plate 21E



APPROVED



APPROVED

Additional Plan / Plates-23



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Government of India Receipt Portal

**RECEIPT**

Transaction Ref.No: 1512220009288 Dated: Dec 15 2022 12:03PM

Received from M/S. NTPC LIMITED with Transaction Ref.No.  
1512220009288

Dated Dec 15 2022 12:03PM the sum of INR 550100 (Five Lakhs Fifty  
Thousand One Hundred Only) through Internet based Online payment in the  
account of

Coal and Lignite, Application Processing fee- Mining Plan of NTPC Talajpalli.

**Disclaimer:- This is a system generated electronic receipt, hence no physical signature  
is required for the purpose of authentication**

Printed On: 15-12-2022 12:7:21

Courtesy :- Controller General of Accounts

APPROVED





**TALAIPELLI COAL MINING PROJECT**

**BALANCE SHEET**

( Amount in ₹ )

	As at	Note	31.03.2024	31.03.2023
001	ASSETS		0.00	0.00
002			0.00	0.00
003	NON-CURRENT ASSETS		0.00	0.00
004	PROPERTY, PLANT & EQUIPMENT	2	22,470,901,639.89	11,851,840,228.77
005	CAPITAL-WORK-IN-PROGRESS	3	21,485,825.44	6,395,141,351.09
006	INVESTMENT PROPERTY	4	0.00	0.00
007	INTANGIBLE ASSETS	5	3,112,959.51	3,004,326.07
008	INTANGIBLE ASSETS UNDER DEVELOPMENT	6	0.00	0.00
009	FINANCIAL ASSETS		0.00	0.00
010	I) EQUITY INVESTMENTS IN SUBSIDIARIES AND JOINT VENTURES	7	0.00	0.00
011	II) OTHER INVESTMENTS	8	0.00	0.00
012	III) LOANS	9	19,440,559.81	25,928,580.23
013	IV) TRADE RECEIVABLES	10	0.00	0.00
014	V) OTHER FINANCIAL ASSETS	11	440,132,198.64	240,815,777.12
015	OTHER NON-CURRENT ASSETS	12	135,346,388.57	140,122,652.60
017	<b>TOTAL NON-CURRENT ASSETS</b>		<b>23,091,430,465.56</b>	<b>21,437,853,223.97</b>
018			0.00	0.00
019	CURRENT ASSETS		0.00	0.00
020	INVENTORIES	13	1,334,938,439.21	381,212,709.52
021	FINANCIAL ASSETS		0.00	0.00
022	I) OTHER INVESTMENTS	14	0.00	0.00
023	II) TRADE RECEIVABLES	15	0.00	0.00
024	III) CASH AND CASH EQUIVALENTS	16	897,892.50	781,189.50
025	IV) BANK BALANCES OTHER THAN CASH AND CASH EQUIVALENTS	17	0.00	0.00
026	V) LOANS	18	12,794,631.58	13,287,481.74
027	VI) OTHER FINANCIAL ASSETS	19	-877,485,498.12	5,285,709.57
028	CURRENT TAX ASSETS (NET)		0.00	0.00
029			0.00	0.00
030	OTHER CURRENT ASSETS	20	464,988,736.65	129,755,871.69
031			0.00	0.00
032	<b>TOTAL CURRENT ASSETS</b>		<b>1,135,954,001.82</b>	<b>508,383,632.82</b>
033	ASSETS HELD FOR SALE	21	0.00	0.00
036	REGULATORY DEFERRAL ACCOUNT DEBIT BALANCES	22	72,465,229.92	58,539,909.82
037	<b>TOTAL ASSETS</b>		<b>24,299,739,701.30</b>	<b>21,996,696,165.81</b>
038	EQUITY AND LIABILITIES		0.00	0.00
039	EQUITY		0.00	0.00
040	EQUITY SHARE CAPITAL	23	0.00	0.00
041	OTHER EQUITY	24	1,877,667,483.24	-64,712,088.17
044	<b>TOTAL EQUITY</b>		<b>1,877,667,483.24</b>	<b>-64,712,088.17</b>
045			0.00	0.00
046	LIABILITIES		0.00	0.00
047	NON-CURRENT LIABILITIES		0.00	0.00
048	FINANCIAL LIABILITIES		0.00	0.00
049	I) BORROWINGS	25	0.00	0.00



**TALAIPELLI COAL MINING PROJECT**

**BALANCE SHEET**

( Amount in ₹ )

	As at	Note	31.03.2024	31.03.2023
050	I) LEASE LIABILITIES	25	0.00	0.00
051	III) TRADE PAYABLES		0.00	0.00
052	- TOTAL OUTSTANDING DUES OF MICRO AND SMALL ENTERPRISES	27	0.00	0.00
053	- TOTAL OUTSTANDING DUES OF CREDITORS OTHER THAN MICRO AND SMALL ENTERPRISES	27	0.00	0.00
054	IV) OTHER FINANCIAL LIABILITIES	28	72,489,800.24	17,458,928.74
055	PROVISIONS	29	315,913,015.00	0.00
056	DEFERRED TAX LIABILITIES (NET)	30	0.00	0.00
057	OTHER NON-CURRENT LIABILITIES	31	0.00	0.00
058			0.00	0.00
059	<b>TOTAL NON-CURRENT LIABILITIES</b>		<b>388,401,515.24</b>	<b>17,458,928.74</b>
060			0.00	0.00
061	<b>CURRENT LIABILITIES</b>		<b>0.00</b>	<b>0.00</b>
062	<b>FINANCIAL LIABILITIES</b>		<b>0.00</b>	<b>0.00</b>
063	i) BORROWINGS	32	0.00	0.00
064	ii) LEASE LIABILITIES	33	0.00	0.00
065	III) TRADE PAYABLES		0.00	0.00
066	- TOTAL OUTSTANDING DUES OF MICRO AND SMALL ENTERPRISES	34	12,509,317.75	49,210.00
067	- TOTAL OUTSTANDING DUES OF CREDITORS OTHER THAN MICRO AND SMALL ENTERPRISES	34	1,180,484,958.55	692,458,448.88
068	III) OTHER FINANCIAL LIABILITIES	35	1,500,821,355.52	828,133,603.58
069	OTHER CURRENT LIABILITIES	36	315,397,715.00	110,332,439.00
070	PROVISIONS	37	2,545,837,565.50	2,980,452,110.00
071	CURRENT TAX LIABILITIES (NET)	38	0.00	0.00
072			0.00	0.00
073	<b>TOTAL CURRENT LIABILITIES</b>		<b>5,382,940,933.52</b>	<b>4,511,436,172.85</b>
074			0.00	0.00
077	DEFERRED REVENUE	39	0.00	0.00
078	REGULATORY DEFERRAL ACCOUNT CREDIT BALANCES	39A	0.00	0.00
079	INTER UNIT ACCOUNTS		18,470,729,669.30	17,532,513,182.39
080			0.00	0.00
081	<b>TOTAL EQUITY AND LIABILITIES</b>		<b>24,299,739,701.28</b>	<b>21,996,636,155.81</b>
082	Material Accounting Policies as per note 1	1	0.00	0.00
083			0.00	0.00
084	The Accompanying notes 1 to 45A form an integral part of these financial statements.		0.00	0.00
085			0.00	0.00

( Auditor Initial & Stamp )

( Head of Finance )

( Head of Unit )

**TALAIPELLI COAL MINING PROJECT****OTHER COMPREHENSIVE INCOME****( Amount in ₹ )**

<b>For the Year ended</b>	<b>31.03.2024</b>	<b>31.03.2023</b>
001	0.00	0.00
002 <b>Other comprehensive income</b>	<b>0.00</b>	<b>0.00</b>
003 <b>(A) Items that will not be reclassified to profit or loss</b>	<b>0.00</b>	<b>0.00</b>
004 - Net gains/(losses) on fair value of equity instruments through other comprehensive income	0.00	0.00
005 Income tax on above that will not be reclassified to profit or loss	0.00	0.00
006 - Net actuarial gains/(losses) on defined benefit plans	1,064,440.30	11,121.29
007 Income tax on above that will not be reclassified to profit or loss	0.00	0.00
008	0.00	0.00
009 <b>(B) Items that will be reclassified to profit or loss</b>	<b>0.00</b>	<b>0.00</b>
010 Income tax relating to above items that will be reclassified to profit or loss	0.00	0.00
011	0.00	0.00
012 <b>Other comprehensive income for the year, net of income tax</b>	<b>1,064,440.30</b>	<b>11,121.29</b>
013	0.00	0.00
014 <b>Total comprehensive income for the year (A+B)</b>	<b>1,064,440.30</b>	<b>11,121.29</b>



**TALAIPELLI COAL MINING PROJECT**  
**STATEMENT OF PROFIT AND LOSS**

( Amount in ₹ )

	For the Year ended	Note	31.03.2024	31.03.2023
001	Revenue		0.00	0.00
002	Revenue from operations	40	3,832,323,887.97	0.00
003	Other income	41	22,853,023.72	10,439,891.45
005	<b>Total Income</b>		<b>3,854,976,721.69</b>	<b>10,439,891.45</b>
007	Expenses		0.00	0.00
008	Fuel including cost of captive coal	42	4,829,211,248.09	0.00
009	Employees benefits expense	43	155,525,810.99	6,340,205.51
010	Electricity purchased for trading		0.00	0.00
011	Finance costs	44	518,846,355.83	0.00
012	Depreciation, amortization and impairment expenses	45	255,427,802.02	0.00
013			0.00	0.00
014	Other expenses	46	1,137,826,771.43	130,123,893.78
015	CC expenses charge to revenue		95,108,522.55	0.00
016	Less: Unit expenses transferred to CC		0.00	0.00
017	<b>Total expenses</b>		<b>8,927,576,910.68</b>	<b>136,464,093.29</b>
020	<b>Profit before exceptional items &amp; tax</b>		<b>1,527,399,811.01</b>	<b>-126,024,077.84</b>
021	Exceptional items		0.00	0.00
024	<b>Profit before tax</b>		<b>1,527,399,811.01</b>	<b>-126,024,077.84</b>
027	Tax expense:		0.00	0.00
028	Current tax		0.00	0.00
031	Deferred tax		0.00	0.00
034			0.00	0.00
035	<b>Total Tax expense</b>		<b>0.00</b>	<b>0.00</b>
038	<b>Profit for the period before regulatory deferral account balances</b>		<b>1,527,399,811.01</b>	<b>-126,024,077.84</b>
037	Movement in regulatory deferral account balances		0.00	0.00
038	Regulatory deferred account - deferred		0.00	0.00
039	Others		13,915,320.10	54,669,084.51
040	Tax impact on regulatory deferral account balances		0.00	0.00
041	<b>Net movement in regulatory deferral account balances (net of tax)</b>		<b>13,915,320.10</b>	<b>54,669,084.51</b>
042	<b>Profit for the period/year</b>		<b>1,541,315,131.11</b>	<b>-41,354,993.33</b>
055	Other comprehensive income		0.00	0.00
056	(A) Items that will not be reclassified to profit or loss		0.00	0.00
057	- Net gains/(losses) on fair value of equity instruments through other comprehensive income		0.00	0.00
058	Income tax on above that will not be reclassified to profit or loss		0.00	0.00
059	- Net actuarial gains/(losses) on defined benefit plans		1,054,440.30	11,121.29
060	Income tax on above that will not be reclassified to profit or loss		0.00	0.00
064			0.00	0.00
065	<b>Other comprehensive income for the year, net of income tax</b>		<b>1,054,440.30</b>	<b>11,121.29</b>
070			0.00	0.00
071			0.00	0.00
072	<b>Total Comprehensive Income for the year</b>		<b>1,542,379,571.41</b>	<b>-41,343,872.04</b>

**TALAIPELLI COAL MINING PROJECT****STATEMENT OF PROFIT AND LOSS****( Amount in ₹ )**

	For the Year ended	Note	31.03.2024	31.03.2023
086			0.00	0.00
087	Earnings per equity share:		0.00	0.00
088	Basic & Diluted		0.00	0.00
089	Material Accounting Policies		0.00	0.00
090			0.00	0.00
091	The accompanying notes 1 to 48 form an integral part of these financial statements.		0.00	0.00

( Auditor Initial &amp; Stamp )

( Head of Finance )

( Head of Unit )

Note forming part of Balance Sheet  
**NOTE NO. 2 TO THE FS-NCA-PROPERTY, PLANT AND EQUIPMENT**  
**Business Area : 1071**

(Amount in Rupees)

Asset Class	Opening Gross Block As At 01.04.2023		Additions		Deductions/ Adjustments		Closing Gross Block As At 31.03.2024		Opening Depreciation As At 01.04.2023		Additions		Deductions/ Adjustments		Closing Depreciation As At 31.03.2024		Net Block As At 31.03.2024		Net Block As At 31.03.2023	
1. TANGIBLE ASSETS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2 Land : (including development expenses)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3 Freehold	164884056.00	0.00	0.00	0.00	0.00	0.00	164884056.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	164884056.00	164884056.00	0.00
4 Right of Use	41642487.56	0.00	0.00	0.00	0.00	41642487.56	0.00	0.00	6307633.94	1446792.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	31807690.87	33754633.62	0.00
5 Submergence	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6 Right of use - Coal Bearing Area Land	10221461690.74	0.00	0.00	0.00	0.00	10221461690.74	0.00	0.00	673228368.16	319537165.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6011054489.46	6546226222.56	0.00
7 Roads, bridges, culverts & help aids	365844030.23	0.00	25111437.98	0.00	0.00	365844030.23	0.00	0.00	19981717.50	14040188.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	346934952.06	336963102.73	0.00
8 Building	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9 Freehold	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10 Main plant	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11 Others	1063018725.56	321646743.86	0.00	0.00	0.00	1384665469.44	0.00	0.00	62904437.88	79276063.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1042781967.86	1000414267.70	0.00
12 Right of Use	1607947.00	0.00	0.00	0.00	0.00	1607947.00	0.00	0.00	1697247.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13 Temporary erection	3711867.00	0.00	0.00	0.00	0.00	3711867.00	0.00	0.00	683262.68	705279.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2323495.00	3026734.42	0.00
14 Water Supply, drainage & sewerage system	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15 Hydraulic works, barrages, dams, tunnels and power channel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16 MGR track and signalling system	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17 Railway siding	0.00	0.00	360503892.00	0.00	0.00	360503892.00	0.00	0.00	0.00	8263044.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	368766936.61	368766936.61	0.00
18 Earth dam/reservoir	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19 Plant and machinery (including associated civil works)	23767407.87	0.00	38765637.00	0.00	0.00	62533044.87	0.00	0.00	327266.82	2988474.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	66271963.10	30514621.06	0.00
20 Craned Asset	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note forming part of Balance Sheet  
**NOTE NO. 2 TO THE FS-NCA-PROPERTY, PLANT AND EQUIPMENT**  
**Business Area : 1071**

(Amount in Rupees)

Asset Class	Opening Gross Block As At 01.04.2023		Additions		Deductions/ Adjustments		Closing Gross Block As At 31.03.2024		Opening Depreciation As At 01.04.2023		Additions		Deductions/ Adjustments		Closing Depreciation As At 31.03.2024		Net Block As At 31.03.2024		Net Block As At 31.03.2023	
20 Plant and machinery (including associated civil works) Right of use Asset	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21 Furniture and fixtures	62135476.12	0.00	0.00	0.00	0.00	0.00	62135476.12	11278369.95	0.00	0.00	0.00	0.00	0.00	0.00	14893009.14	47242266.96	50957066.13			
22 Assets under 5 Km Scheme	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23 Vehicles including spares/buys / helicopter-Overhead	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24 Vehicles including spares/buys / helicopter - Right of Use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25 Office equipment	29609533.21	8558150.08	0.00	0.00	0.00	0.00	38167683.29	9784272.21	4023692.75	0.00	0.00	0.00	0.00	0.00	13789719.97	24378993.42	19844906.10			
26 EDP, WP machines and software equipment	19271080.61	11230066.91	0.00	0.00	0.00	0.00	30511129.82	13110537.57	3785214.27	0.00	0.00	0.00	0.00	0.00	16895751.84	13616377.86	6180523.34			
27 Construction equipments	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28 Electrical installations	483524217.18	53862904.41	0.00	0.00	0.00	0.00	547387121.60	63878875.21	33841548.20	0.00	0.00	0.00	0.00	0.00	97720423.41	448786636.19	429645341.88			
29 Communication equipments	1042727.44	32386132.60	(11328.00)	0.00	0.00	0.00	40802532.34	2027877.60	2689910.71	0.00	0.00	0.00	0.00	0.00	4712673.46	378886650.86	8396649.84			
30 Hospital equipments	9014814.94	0.00	0.00	0.00	0.00	0.00	9014814.94	2807458.92	1472416.03	0.00	0.00	0.00	0.00	0.00	399874.92	5044839.04	6517356.02			
31 Laboratory and diagnostic equipments	5322665.81	0.00	0.00	0.00	0.00	0.00	5322665.81	1188280.53	342222.19	0.00	0.00	0.00	0.00	0.00	1530002.72	3792063.09	4134386.26			
32 Capital expenditure on assets not owned by the Company	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
33 Assets of Government	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note forming part of Balance Sheet  
**NOTE NO. 2 TO THE FS-NCA-PROPERTY, PLANT AND EQUIPMENT**  
**Business Area : 1071**

(Amount in Rupees)

Asset Class	Opening Gross Block As At 01.04.2023		Additions		Deductions/ Adjustments		Closing Gross Block As At 31.03.2024		Opening Depreciation As At 01.04.2023		Additions		Deductions/ Adjustments		Closing Depreciation As At 31.03.2024		Net Block As At 31.03.2024		Net Block As At 31.03.2023	
34 Less: Grants from Government	0.00		0.00		0.00		0.00		0.00			0.00		0.00		0.00		0.00		0.00
35 Less: Recoverable from GQI	0.00		0.00		0.00		0.00		0.00			0.00		0.00		0.00		0.00		0.00
36 Assets for ash utilisation	0.00		0.00		0.00		0.00		0.00			0.00		0.00		0.00		0.00		0.00
37 (Less): Adjusted from fly ash utilisation reserve fund	0.00		0.00		0.00		0.00		0.00			0.00		0.00		0.00		0.00		0.00
38 Site Restoration Cost	0.00		1776900000.00		0.00		1776900000.00		0.00			2805806452		0.00		2805806452		1711541835.48		0.00
39 Mining Properties	0.00		8860277655.53		0.00		8860277655.53		0.00			221506941.39		0.00		221506941.39		8636870714.14		0.00
Grand Total (Tangible)	12505443827.70		115946600854.67		(1708675.00)		24095380407.37		873901000.93		725585238.40		(1702361.85)		1997484477.48		224709016219.80		11631840226.77	
Grand Total Prev Year (Tangible)	30576433077.68		19090161656.63		(5405.62)		12905443827.70		571304531.59		302401484.06		(4415.62)		873901000.93		11631840226.77		10006238548.10	



(Amount in Rupees)

Note forming part of Balance Sheet  
NOTE NO. 2 TO THE FS-NCA-PROPERTY, PLANT AND EQUIPMENT  
Business Area : 1071

Particulars	Details of Adjustments of Gross Block and Depreciation/Amortization			
	Gross Block	Depreciation/Amortization	Tangible As At: 31.03.2023	Tangible As At: 31.03.2024
Disposal of assets	0.00	0.00	0.00	0.00
Retirement of assets	(1708575.00)	(5405.62)	(1702361.85)	(4415.62)
Cost adjustments	0.00	0.00	0.00	0.00
Assets capitalised with retrospective effect /Write back of excess capitalisation	0.00	0.00	0.00	0.00
Depreciation on construction equipment capitalised as EDC	0.00	0.00	0.00	0.00
Prior Period Depreciation due to Assets capitalised with retrospective effect / Write back of excess capitalisation	0.00	0.00	0.00	0.00
Special Depreciation (As per New Policy)	0.00	0.00	0.00	0.00
Transfer in /out because of Inter Unit transfers	0.00	0.00	0.00	0.00
Others	0.00	0.00	0.00	0.00
<b>TOTAL</b>	<b>(1708575.00)</b>	<b>(5405.62)</b>	<b>(1702361.85)</b>	<b>(4415.62)</b>

Note:- Additions during the year includes capital expenditure towards CSR (in Rs.) : 0.00

**Note forming part of Balance Sheet  
NOTE NO. 3 TO THE FS-NCA-CAPITAL WORK-IN-PROGRESS  
Business Area: TALAIPELLI COAL MINING PROJECT**

(Amount in Rupees)

Sl No	Asset Class	As At 01.04.2023	Addition	Deduction/ Adjustment	Capitalized	As At 31.03.2024
		1	2	3	4	5
1	CAPITAL WORK-IN-PROGRESS					
2	Development of land					
3	Roads, bridges, culverts & helipads		250030.49	55018.00	250030.67	
4	Piling and foundation					
5	Buildings					
6	Main plant					
7	Others	114729.44	2433.47	(281457.47)	6596535.86	10019106.01
8	Temporary erection					
9	Water supply, drainage and sewerage system					
10	Hydraulic works, barrages, dams, tunnels and pipeline channel					
11	M/R, track and signalling system					
12	Railway lighting			(3609336.02)	3609336.02	
13	Earth dam reservoir					
14	Plant and equipment		4443400.04	(3314890.00)		10952161.04
15	Furniture and fixtures					
16	Vehicles					
17	Office equipment			(669199.00)	3069169.00	
18	EO PMP machines & satcom equipment	352266.00	229356.44	(4151456.44)		
19	Construction equipments					
20	Electrical installations	6177660.36	115680.00	(4797579.61)	13091248.00	
21	Communication equipment	1947520.43	(30152181.00)	(205174.00)	(32004875.06)	
22	Hospital equipments					
23	Laboratory and workshop equipments					
24	Assets under SFM Scheme of the GOI					
25	Capital expenditure on assets not owned by the company					
26	Expenditure towards development of coal mines	926900050.18	(4730107713.96)	(4847901940.23)		
27	Survey, Investigation, Geology & Supervision, etc.					
28	Difference in exchange on foreign currency loans					

**Note forming part of Balance Sheet**  
**NOTE NO. 3 TO THE FS-NCA-CAPITAL WORK-IN-PROGRESS**  
**Business Area: TALAIPELLI COAL MINING PROJECT**

(Amount in Rupees)

Sl No	Asset Class	As At 01.04.2023	Addition	Deduction/ Adjustment	Capitalized	As At 31.03.2024
	1	2	3	4	5	6
29	Expenditure towards diversion of forest land					
30	Pre-commissioning expenses (net)					
31	Exp/pend/losses-otherwise attributable Project					
32	Expenditure During Construction Period (net)					
33	LESS: Allocated to related works					
34	LESS: Provision for Unrecoverable works					
35	Construction stores (At Cost)	79549.00		(79540.00)		
36	Gravel					
37	Cement					
38	Others	9501436.55	128812.91	(9695951.07)		14298.39
39	Sub-total	9664985.55	128812.91	(9768400.07)		14298.39
40	LESS: Provision for shortages					
41	Sub-total	9664985.55	128812.91	(9768400.07)		14298.39
42	Total CWIP	9368141351.03	(436869701.24)	(4443167829.06)	654788196.32	21486525.44
43						
44						
45	PREVIOUS YEAR TOTAL	7963717471.41	6313630769.66	(3463317687.32)	417769670.61	8396141361.09

**Note:- Additions during the year includes capital expenditure towards CSR (in Rs.) :**

0.00

Note forming part of Balance Sheet  
**NOTE NO. 4 TO THE FS-NCA-INVESTMENT PROPERTY**  
 Business Area : 1071

(Amount in Rupees)

Asset Class	Opening Gross Block As At 01.04.2023		Additions		Deductions/ Adjustments		Closing Gross Block As At 31.03.2024		Opening Depreciation As At 01.04.2023		Additions		Deductions/ Adjustments		Closing Depreciation As At 31.03.2024		Net Block As At 31.03.2024		Net Block As At 31.03.2023	
INVESTMENT PROPERTY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1. Free Held Land	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2. ROU Land	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grand Total (Investment Property)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grand Total (Prev Year Investment Property)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note forming part of Balance Sheet  
**NOTE NO. 4 TO THE FS-NCA-INVESTMENT PROPERTY**  
 Business Area : 1071

(Amount in Rupees)

Particulars	Details of Adjustments of Gross Block and Depreciation/Amortization			
	Gross Block		Depreciation/Amortization	
	Investment Property As At: 31.03.2024	Investment Property As At: 31.03.2023	Investment Property As At: 31.03.2024	Investment Property As At: 31.03.2023
Disposal of assets	0.00	0.00	0.00	0.00
Retirement of assets	0.00	0.00	0.00	0.00
Cost adjustments	0.00	0.00	0.00	0.00
Assets capitalised with retrospective effect /Write back of excess capitalisation	0.00	0.00	0.00	0.00
Depreciation on construction equipment capitalised as EDC	0.00	0.00	0.00	0.00
Prior Period Depreciation due to Assets capitalised with retrospective effect /Write back of excess capitalisation	0.00	0.00	0.00	0.00
Special Depreciation (As per New Policy)	0.00	0.00	0.00	0.00
Transfer in /out because of Inter Unit transfers	0.00	0.00	0.00	0.00
Others	0.00	0.00	0.00	0.00
<b>TOTAL</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

Note :- Additions during the year includes capital expenditure towards CSR (in Rs.) : 0.00

Note forming part of Balance Sheet  
**NOTE NO. 5 TO THE FS-NCA-INTANGIBLE ASSETS**  
 Business Area : 1071

(Amount in Rupees)

Asset Class	Opening Gross Block As At 01.04.2023	Additions	Deductions/ Adjustments	Closing Gross Block As At 31.03.2024	Opening Depreciation As At 01.04.2023	Additions	Deductions/ Adjustments	Closing Depreciation As At 31.03.2024	Net Block As At 31.03.2024	Net Block As At 31.03.2023
<b>INTANGIBLE ASSETS</b>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1. Right to Use- Land	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2. -Others	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3. -Softwares	4836308.07	1644302.00	0.00	6480610.07	1931982.00	1530368.56	0.00	3462350.56	3118059.51	3004336.07
Grand Total (Intangible)	4836308.07	1644302.00	0.00	6480610.07	1931982.00	1530368.56	0.00	3462350.56	3118059.51	3004336.07
Grand Total Prev Year (Intangible)	2777894.07	2158614.00	0.00	4936508.07	951485.19	980486.81	0.00	1031982.00	3004336.07	1626208.86

(Amount in Rupees)

Note forming part of Balance Sheet  
NOTE NO. 5 TO THE FS-NCA-INTANGIBLE ASSETS  
Business Area : 1071

Particulars	Details of Adjustments of Gross Block and Depreciation/Amortization			
	Gross Block		Depreciation/Amortization	
	In Tangible As At: 31.03.2024	In Tangible As At: 31.03.2023	In Tangible As At: 31.03.2024	In Tangible As At: 31.03.2023
Disposal of assets	0.00	0.00	0.00	0.00
Retirement of assets	0.00	0.00	0.00	0.00
Cost adjustments	0.00	0.00	0.00	0.00
Assets capitalised with retrospective effect /Write back of excess capitalisation	0.00	0.00	0.00	0.00
Depreciation on construction equipment capitalised as EDC	0.00	0.00	0.00	0.00
Prior Period Depreciation due to Assets capitalised with retrospective effect / Write back of excess capitalisation	0.00	0.00	0.00	0.00
Special Depreciation (As per New Policy)	0.00	0.00	0.00	0.00
Transfer in /out because of Inter Unit transfers	0.00	0.00	0.00	0.00
Others	0.00	0.00	0.00	0.00
<b>TOTAL</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

Note :- Additions during the year includes capital expenditure towards CSR (in Rs.) : 0.00

**Note forming part of Balance Sheet**  
**NOTE NO. 6 TO THE FS-NCA-INTANGIBLE ASSETS UNDER DEVELOPMENT**  
**Business Area: TALAIPALLI COAL MINING PROJECT**

(Amount in Rupees)

Sl No	Asset Class	As At 01.04.2023	Addition	Deduction/ Adjustment	Capitalized	As At 31.03.2024
	1	2	3	4	5	6
1	INTANGIBLE ASSETS UNDER DEVELOPMENT					
2	Software					
3	Right to use Others					
4	Exploration and Evaluation Expenditure - Coal Mine					
5	Exploratory wells in progress					
6	Less: Provision for exploratory wells-in-progress					
7	Total					
8	PREVIOUS YEAR TOTAL:-					

**Note:- Additions during the year includes capital expenditure towards CSR (in Rs.) :**

0.00





TALAIPELLI COAL MINING PROJECT

NOTE NO. 7 TO THE FS-NCA-EQUITY INVESTMENTS IN SUBSIDIARIES AND JOINT VENTURES (Amount in ₹)

As at	No. of shares	Face value	31.03.2024	31.03.2023
001 NON CURRENT INVESTMENTS- INVESTMENTS IN SUBSIDIARIES AND JOINT VENTURES			0.00	0.00
012 EQUITY INSTRUMENTS - UNQUOTED-(FULLY PAID UP UNLESS OTHERWISE STATED, AT COST)			0.00	0.00
013 SUBSIDIARY COMPANIES			0.00	0.00
014 PATRATU VIDYUT UTPADAN NIGAM LTD.			0.00	0.00
015 NTPC ELECTRIC SUPPLY COMPANY LTD.			0.00	0.00
016 NTPC VIDYUT VYAPAR NIGAM LTD.			0.00	0.00
017 NABINAGAR POWER GENERATING COMPANY LTD.			0.00	0.00
018 KANTI BIJLEE UTPADAN NIGAM LTD.			0.00	0.00
019 BHARTIYA RAIL BIJLEE COMPANY LTD.			0.00	0.00
020 NTPC MINING LTD (NML)			0.00	0.00
021 THDC INDIA LTD.			0.00	0.00
022 NEEPCO LTD.			0.00	0.00
023 NTPC EDMC Waste Solutions Pvt Ltd			0.00	0.00
024 NTPC Renewables Energy Ltd			0.00	0.00
025 Ramagiri Gas & Power Pvt. Limited (RGPP)			0.00	0.00
026 NTPC Green Energy Limited			0.00	0.00
027 Green Valley Renewable Energy Limited			0.00	0.00
028			0.00	0.00
029			0.00	0.00
030 SUB TOTAL			0.00	0.00
055 JOINT VENTURE COMPANIES			0.00	0.00
056 Utility Powertech Ltd.			0.00	0.00
057 NTPC GE Power Services Pvt.Ltd.			0.00	0.00
058 NTPC-SAIL Power Company Ltd.			0.00	0.00
059 NTPC-Tamil Nadu Energy Company Ltd.			0.00	0.00



TALAIPELLI COAL MINING PROJECT

NOTE NO. 7 TO THE FS-NCA-EQUITY INVESTMENTS IN SUBSIDIARIES AND JOINT VENTURES (Amount in ₹)

As at	No. of shares	Face value	31.03.2024	31.03.2023
060	Rainagin Gas & Power Pvt. Limited (RGPPPL)		0.00	0.00
061	ARAVALI POWER COMPANY PRIVATE LTD.		0.00	0.00
062	Jhabua Power Ltd.		0.00	0.00
063	NTPC BHEL POWER PROJECTS PRIVATE LTD.		0.00	0.00
064	MEJA URJA NIGAM PRIVATE LIMITED		0.00	0.00
065	SF-NTPC ENERGY SYSTEMS LTD.		0.00	0.00
066			0.00	0.00
067	NABINAGAR POWER GENERATING COMPANY LTD.		0.00	0.00
068	TRANSFORMER AND ELECTRICAL KERALA LTD.		0.00	0.00
069	NATIONAL HIGH POWER TEST LABORATORY PRIVATE LTD.		0.00	0.00
070			0.00	0.00
071	CIL NTPC URJA PRIVATE LTD.		0.00	0.00
072	ANUSHAKTI VIDHYUT NIGAM LTD.		0.00	0.00
073	ENERGY EFFICIENCY SERVICES LTD.		0.00	0.00
074			0.00	0.00
075	TRINGOMALEE POWER COMPANY LTD.		0.00	0.00
076	BANGLADESH-INDIA FRIENDSHIP POWER COMPANY (PVT.) LTD.		0.00	0.00
077	HINDUSTAN URVARAK & RASAYAN LIMITED		0.00	0.00
078	KONKAN LNG LTD.		0.00	0.00
085	<b>SUB TOTAL</b>		<b>0.00</b>	<b>0.00</b>
100	AGGREGATE AMOUNT OF IMPAIRMENT IN THE VALUE OF INVESTMENTS		0.00	0.00
110	TOTAL (NET OF IMPAIRMENT) OF JV		0.00	0.00
111	<b>Gross Total of Investments</b>		<b>0.00</b>	<b>0.00</b>
134	<b>Total</b>		<b>0.00</b>	<b>0.00</b>
135	Details of Investments		0.00	0.00
136	Aggregate amount of Unquoted Investments		0.00	0.00



TALAIPELLI COAL MINING PROJECT

NOTE NO. 7 TO THE FS-NCA-EQUITY INVESTMENTS IN SUBSIDIARIES AND JOINT VENTURES (Amount in ₹)

As at	No. of shares	Face value	31.03.2024	31.03.2023
141			0.00	0.00
142			0.00	0.00
143			0.00	0.00
144			0.00	0.00
145			0.00	0.00
153	Valuation of Investments as per Note 1		0.00	0.00
154			0.00	0.00
202			0.00	0.00
233			0.00	0.00



TALAIPELLI COAL MINING PROJECT

NOTE NO. 8 TO THE FS-NCA-OTHER INVESTMENTS

( Amount in ₹ )

As at	No. of shares	Face value	31.03.2024	31.03.2023
001 Non-current financial assets (investments)			0.00	0.00
006 Long Term - Trade			0.00	0.00
007 Equity Instruments (fully paid up unless otherwise stated)			0.00	0.00
008 Quoted			0.00	0.00
009 JOINT VENTURE COMPANIES			0.00	0.00
010 FTC India Ltd.			0.00	0.00
070 INTERNATIONAL COAL VENTURES PRIVATE LTD.			0.00	0.00
075 BF-NTPC ENERGY SYSTEMS LTD.			0.00	0.00
008 Jhabua Power Limited-8.5% Non convertible debentures - private placement			0.00	0.00
110 COOPERATIVE SOCIETIES			0.00	0.00
111			0.00	0.00
112 SUB TOTAL			0.00	0.00
113 AGGREGATE AMOUNT OF IMPAIRMENT IN THE VALUE OF INVESTMENTS			0.00	0.00
115 TOTAL			0.00	0.00
120			0.00	0.00
146 NTPC EMPLOYEES CONSUMERS AND THRIFT CO-OPERATIVE SOCIETY LTD. KORBA			0.00	0.00
147 NTPC EMPLOYEES CONSUMERS AND THRIFT COOPERATIVE SOCIETY LTD. RSTPP			0.00	0.00
148 NTPC EMPLOYEES CONSUMERS COOPERATIVE SOCIETY LTD. FARAKKA			0.00	0.00
149 NTPC EMPLOYEES CONSUMERS COOPERATIVE SOCIETY LTD. VINDHYACHAL			0.00	0.00
150 NTPC EMPLOYEES CONSUMERS COOPERATIVE SOCIETY LTD. ANTA			0.00	0.00
151 NTPC EMPLOYEES CONSUMERS COOPERATIVE SOCIETY LTD. KAWAS			0.00	0.00
152 NTPC Employees - Consumers Cooperative Society Ltd. Kanika			0.00	0.00



TALAIPELLI COAL MINING PROJECT

NOTE NO. 9 TO THE FS-NCA-LOANS

( Amount in ₹ )

As at	31.03.2024	31.03.2023
001 LOANS (NON CURRENT)	0.00	0.00
004 RELATED PARTIES	0.00	0.00
005 SECURED	0.00	0.00
006 UN-SECURED	0.00	0.00
007 WITH SIGNIFICANT INCREASE IN CREDIT RISK	0.00	0.00
008 CREDIT IMPAIRED	0.00	0.00
009	0.00	0.00
010 EMPLOYEES(INCLUDING ACCRUED INTEREST)	0.00	0.00
011 SECURED	14,905,541.65	15,085,095.11
012 UNSECURED	8,493,902.29	16,778,741.29
013 WITH SIGNIFICANT INCREASE IN CREDIT RISK	0.00	0.00
014 CREDIT IMPAIRED	0.00	0.00
015 LESS : EMPLOYEE LOANS DISCOUNTING	0.00	0.00
016 SECURED	2,752,328.00	4,005,028.29
017 UNSECURED	1,206,546.43	1,932,127.88
018 LOAN TO STATE GOVERNMENT IN SETTLEMENT OF DUES FROM CUSTOMERS (UNSECURED)	0.00	0.00
019 OTHERS	0.00	0.00
020 SECURED	0.00	0.00
021 UNSECURED	0.00	0.00
022 WITH SIGNIFICANT INCREASE IN CREDIT RISK	0.00	0.00
023 CREDIT IMPAIRED	0.00	0.00
024 LESS: ALLOWANCE FOR CREDIT IMPAIRED LOANS	0.00	0.00
026 SUB TOTAL	19,440,569.51	25,926,680.23
027	0.00	0.00
028 TOTAL	19,440,569.51	25,926,680.23
029	0.00	0.00
030	0.00	0.00
031 Due from Directors and Officers of the Company	0.00	0.00
032 Directors	0.00	0.00
033 Officers	0.00	0.00
034	0.00	0.00
035 Loans to related parties include:	0.00	0.00
036 i)Key management personnel	0.00	0.00
037 ii)Subsidiary companies	0.00	0.00
038 iii)Joint Venture companies	0.00	0.00
039 iv)Others	0.00	0.00
040	0.00	0.00
055 Other loans represent loans given to	0.00	0.00
056 a) APIIC	0.00	0.00
061	0.00	0.00
062 RPD	0.00	0.00
063 i)Key management personnel	0.00	0.00



TALAIPELLI COAL MINING PROJECT

NOTE NO. 9 TO THE FS-NCA-LOANS

( Amount in ₹ )

As at	31.03.2024	31.03.2023
064 ii)Subsidiary companies	0.00	0.00
065 iii)Joint Venture companies	0.00	0.00
066 iv)Others	0.00	0.00
067 <b>Total</b>	<b>0.00</b>	<b>0.00</b>



TALAIPELLI COAL MINING PROJECT

NOTE NO. 10 TO THE FS-NCA-TRADE RECEIVABLES

( Amount in ₹ )

As at	31.03.2024	31.03.2023
001 Non-current financial assets - Trade receivables	0.00	0.00
002 UNSECURED, CONSIDERED GOOD	0.00	0.00
003 CREDIT IMPAIRED	0.00	0.00
004	0.00	0.00
006 Total	0.00	0.00



TALAIPELLI COAL MINING PROJECT  
ANNEXURE TO NOTE 9- RPD (LOANS) SUBSIDIARIES

( Amount in ₹ )

As at	31.03.2024	31.03.2023
010	0.00	0.00





TALAIPELLI COAL MINING PROJECT

NOTE NO. 11 TO THE FS-NCA-OTHER FINANCIAL ASSETS

( Amount in ₹ )

As at	31.03.2024	31.03.2023
001 Other Financial Assets (non current)	0.00	0.00
002	0.00	0.00
003 Share application money pending allotment in (Subsidiary Companies) :	0.00	0.00
004 NTPC Electric Supply Company Ltd.	0.00	0.00
005 NTPC Vidyut Vyapar Nigam Ltd.	0.00	0.00
006 Nabinagar Power Generating Company Ltd.	0.00	0.00
007 Kanti Bijlee Utpadan Nigam Ltd.	0.00	0.00
008 Bhartiya Rail Bijlee Company Ltd.	0.00	0.00
009 Patratu Vidyut Utpadan Nigam Ltd.	0.00	0.00
010 NTPC Mining Limited	0.00	0.00
011 THDC Ltd.	0.00	0.00
012 NEEPCO Ltd.	0.00	0.00
013	0.00	0.00
014 Total	0.00	0.00
015 Share application money pending allotment (Joint Venture)	0.00	0.00
016 Utility Powertech Ltd.	0.00	0.00
017 NTPC GE Power Services Pvt.Ltd.	0.00	0.00
018 NTPC-SAIL Power Company Ltd.	0.00	0.00
019 NTPC-Tamil Nadu Energy Company Ltd.	0.00	0.00
020 Ratnagiri Gas & Power Private Ltd.	0.00	0.00
021 Aravali Power Company Private Ltd.	0.00	0.00
022	0.00	0.00
023 NTPC BHEL Power Projects Private Ltd.	0.00	0.00
024 Meja Urja Nigam Private Limited	0.00	0.00
025 BF-NTPC Energy Systems Ltd.	0.00	0.00
026 Anushakti Vidhyut Nigam Ltd.	0.00	0.00
027 Nabinagar Power Generating Company Ltd.	0.00	0.00
028 Energy Efficiency Services Ltd.	0.00	0.00
029 National High Power Test Labortory Private Ltd.	0.00	0.00
030	0.00	0.00
031 CIL NTPC Urja Private Ltd.	0.00	0.00
032 Trincomalee Power Company Ltd.	0.00	0.00
033 Hindustan Urvarak & Rasayan Limited	0.00	0.00
034 Bangladesh-India Friendship Power Company Private Ltd.	0.00	0.00
035 Sub Total	0.00	0.00
036	0.00	0.00
037 Claims Recoverable	0.00	0.00
038 Finance Lease Recoverable	0.00	0.00
039 Mine Closure Deposit	440,138,196.64	240,815,777.12
040 Financial Deposit	0.00	0.00
041	0.00	0.00
042 Total	440,138,196.64	240,815,777.12



TALAIPELLI COAL MINING PROJECT

NOTE NO. 12 TO THE FS-NCA-OTHER NON-CURRENT ASSETS

( Amount in ₹ )

As at	31.03.2024	31.03.2023
001 Other Non-current Assets	0.00	0.00
002	0.00	0.00
003 CAPITAL ADVANCES	0.00	0.00
004 SECURED	0.00	0.00
005 Unsecured	0.00	0.00
006 COVERED BY BANK GUARANTEE	13,079,114.00	30,524,144.00
007 OTHERS	117,823,250.00	104,147,565.00
008 CONSIDERED DOUBTFUL	0.00	0.00
009 LESS: ALLOWANCE FOR BAD & DOUBTFUL ADVANCES	0.00	0.00
<b>010 Sub-Total</b>	<b>130,902,364.00</b>	<b>134,671,709.00</b>
011	0.00	0.00
012 Advances other than capital advances	0.00	0.00
013 SECURITY DEPOSITS	0.00	0.00
019 Advances to Related parties	0.00	0.00
022 Advances to Contractors & Suppliers	0.00	0.00
023 SECURED	0.00	0.00
024 UNSECURED	0.00	0.00
025 CONSIDERED DOUBTFUL	0.00	0.00
026 LESS: ALLOWANCE FOR BAD & DOUBTFUL ADVANCES	0.00	0.00
<b>027 Sub Total</b>	<b>0.00</b>	<b>0.00</b>
028 RECEIVABLE FROM MCP ESCROW A/C	0.00	0.00
029 Pre Paid expenses	0.00	0.00
039 ADVANCE TAX & TAX DEDUCTED AT SOURCE	2,888,785.66	1,224,064.66
040 LESS:- PROVISION FOR CURRENT TAX	0.00	0.00
041	0.00	0.00
<b>042 Sub Total</b>	<b>2,888,785.66</b>	<b>1,224,064.66</b>
043 DEFERRED PAYROLL EXPENSES (SECURED)	1,819,302.51	2,904,378.51
044 DEFERRED PAYROLL EXPENSES (UNSECURED)	735,936.40	1,322,710.52
<b>045 Sub Total</b>	<b>2,555,238.91</b>	<b>4,227,089.03</b>
046 DEFERRED FOREIGN CURRENCY FLUCTUATION ASSET	0.00	0.00
049	0.00	0.00
<b>050 Total</b>	<b>136,346,388.57</b>	<b>140,122,862.69</b>
051	0.00	0.00
052	0.00	0.00
062 Advances include amount due from the following Private Companies in which Directors of the Company are also Directors in such Companies	0.00	0.00
064	0.00	0.00
065 NTPC GE Power Services Pvt.Ltd.	0.00	0.00
066	0.00	0.00
067 Ratnagiri Gas & Power Private Ltd.	0.00	0.00
068 Aravali Power Company Private Ltd.	0.00	0.00
069 NTPC-SCCL Global Ventures Private Ltd.	0.00	0.00

**TALAIPELLI COAL MINING PROJECT****NOTE NO. 12 TO THE FS-NCA-OTHER NON-CURRENT ASSETS****( Amount in ₹ )**

As at	31.03.2024	31.03.2023
070 NTPC BHEL Power Projects Private Ltd.	0.00	0.00
071 Meja Urja Nigam Private Limited	0.00	0.00
072 Nabinagar Power Generating Company Ltd	0.00	0.00
073 National High Power Test Laboratory Private Ltd.	0.00	0.00
075 CIL NTPC Urja Private Ltd.	0.00	0.00
077	0.00	0.00
078 <b>Related Party (Adv)</b>	<b>0.00</b>	<b>0.00</b>
079 Key Management personal	0.00	0.00
080 Subsidiary companies	0.00	0.00
081 Joint Venture companies	0.00	0.00
082 Contractors	0.00	0.00
083 Others	0.00	0.00
085	0.00	0.00
086 <b>Total</b>	<b>0.00</b>	<b>0.00</b>

**TALAIPELLI COAL MINING PROJECT****NOTE NO. 13 TO THE FS-CA-INVENTORIES****( Amount in ₹ )**

As at	31.03.2024	31.03.2023
001 <b>INVENTORIES</b>	<b>0.00</b>	<b>0.00</b>
002	0.00	0.00
003 Coal	1,319,668,415.11	350,894,239.58
004 Fuel oil	0.00	0.00
005 Naphtha	0.00	0.00
006 Stores and spares	11,111,200.21	123,200.00
007 Chemicals & consumables	0.00	0.00
008 Loose tools	0.00	0.00
009 Others	4,058,823.89	195,359.94
010	0.00	0.00
011	0.00	0.00
012 <b>Sub Total</b>	<b>1,334,838,439.21</b>	<b>351,212,799.52</b>
013 Less: Provision for shortages	0.00	0.00
014 Less: Provision for obsolete/ unservicable/dimuntion in value of surplus inventory	0.00	0.00
016	0.00	0.00
017 <b>Total</b>	<b>1,334,838,439.21</b>	<b>351,212,799.52</b>
018 <b>Inventories include material in transit</b>	<b>0.00</b>	<b>0.00</b>
019 Coal	0.00	0.00
020 Fuel oil	0.00	0.00
021 Naphtha	0.00	0.00
022 Stores and spares	0.00	0.00
023 Chemicals & consumables	0.00	0.00
024 Loose tools	0.00	0.00
025 Others	0.00	0.00
026	0.00	0.00
028	0.00	0.00



TALAIPELLI COAL MINING PROJECT

NOTE NO. 14 TO THE FS-CA-OTHER INVESTMENTS

( Amount in ₹ )

As at	No. of shares	Face value	31.03.2024	31.03.2023
001	<b>CURRENT INVESTMENTS</b>		0.00	0.00
002	(Valuation as per Note 1)		0.00	0.00
003	Jharia Power Limited-8.5% Non convertible debentures- private placement		0.00	0.00
003	Investment in Mutual Funds (Details as under)		0.00	0.00
004	SBI-Magnum Insta Cash Fund-DDR		0.00	0.00
005	SBI Premier Liquid Fund Super-IP-DDR		0.00	0.00
006	SBI-SHF Ultra Short Term Fund-IP-DDR		0.00	0.00
007	UTI Money Market- IP-Direct-Growth		0.00	0.00
008	IDBI-Liquid plan- Direct-Growth		0.00	0.00
009	Canara Robeco Liquid Fund Super-IP-DDR		0.00	0.00
040	Canara Robeco Treasury Advantage Fund Super-IP-DDR		0.00	0.00
041	IDBI Liquid Fund-DDR		0.00	0.00
042	SBI Premier Liquid fund-Direct DDR (Ash Fund)		0.00	0.00
043	UTI Liquid CashPlan - IP - DDR (Ash Funds)		0.00	0.00
044	IDBI Liquid Fund - DDR - (Ash Funds)		0.00	0.00
045	Baroda Liquid Fund - Direct - Growth		0.00	0.00
046			0.00	0.00
047			0.00	0.00
048	<b>Sub Total</b>		0.00	0.00
049			0.00	0.00
052	<b>Unquoted Investments</b>		0.00	0.00
064			0.00	0.00
065	<b>TOTAL</b>		0.00	0.00
067			0.00	0.00

TALAIPELLI COAL MINING PROJECT

NOTE NO. 15 TO THE FS-CA-TRADE RECEIVABLES

( Amount in ₹ )

As at	31.03.2024	31.03.2023
001 TRADE RECEIVABLES (current)*	0.00	0.00
002	0.00	0.00
003 Secured, Considered Good	0.00	0.00
004 Unsecured , considered good	0.00	0.00
005 Credit impaired	0.00	0.00
006 Unbilled Revenue	0.00	0.00
007 Sub-Total	0.00	0.00
008 Total	0.00	0.00
009 Less: Allowance for credit impaired receivables	0.00	0.00
010 Total	0.00	0.00
012 Less: Discom Clearing	0.00	0.00
014	0.00	0.00
015 Grand Total	0.00	0.00
016 Other Unsecured	0.00	0.00
017 Long-term trade receivables	0.00	0.00
018 TCS Clearing	0.00	0.00
019 Discom Clearing	0.00	0.00
228 Trade Receivable	0.00	0.00
230 Not due	0.00	0.00
231 Due	0.00	0.00
232 (i) Undisputed Trade receivables # considered good	0.00	0.00
233 (ii) Undisputed Trade Receivables # which have significant increase in credit risk	0.00	0.00
234 (iii) Undisputed Trade Receivables # credit impaired	0.00	0.00
235 (iv) Disputed Trade Receivables#considered good	0.00	0.00
236 (v) Disputed Trade Receivables # which have significant increase in credit risk	0.00	0.00
237 (vi) Disputed Trade Receivables # credit impaired	0.00	0.00
238 Unbilled	0.00	0.00
239 Total	0.00	0.00
240	0.00	0.00
241 (i) Undisputed Trade receivables # considered good	0.00	0.00
242 Less than 6 months	0.00	0.00
243 6 months -1 year	0.00	0.00
244 1-2 years	0.00	0.00
245 2-3 years	0.00	0.00
246 More than 3 years	0.00	0.00
247 Sub Total (i)	0.00	0.00
248 (ii) Undisputed Trade Receivables # which have significant increase in credit risk	0.00	0.00
249 Less than 6 months	0.00	0.00
250 6 months -1 year	0.00	0.00
251 1-2 years	0.00	0.00
252 2-3 years	0.00	0.00



TALAIPELLI COAL MINING PROJECT

NOTE NO. 15 TO THE FS-CA-TRADE RECEIVABLES

( Amount in ₹ )

As at	31.03.2024	31.03.2023
253 More than 3 years	0.00	0.00
254 <b>Sub Total (II)</b>	<b>0.00</b>	<b>0.00</b>
255 <b>(iii) Undisputed Trade Receivables -credit impaired</b>	<b>0.00</b>	<b>0.00</b>
256 Less than 6 months	0.00	0.00
257 6 months -1 year	0.00	0.00
258 1-2 years	0.00	0.00
259 2-3 years	0.00	0.00
260 More than 3 years	0.00	0.00
261 <b>Sub Total (III)</b>	<b>0.00</b>	<b>0.00</b>
262	0.00	0.00
263 <b>(iv) Disputed Trade Receivables#considered good</b>	<b>0.00</b>	<b>0.00</b>
264 Less than 6 months	0.00	0.00
265 6 months -1 year	0.00	0.00
266 1-2 years	0.00	0.00
267 2-3 years	0.00	0.00
268 More than 3 years	0.00	0.00
269 <b>Sub Total (IV)</b>	<b>0.00</b>	<b>0.00</b>
270 <b>(v) Disputed Trade Receivables # which have significant increase in credit risk</b>	<b>0.00</b>	<b>0.00</b>
271 Less than 6 months	0.00	0.00
272 6 months -1 year	0.00	0.00
273 1-2 years	0.00	0.00
274 2-3 years	0.00	0.00
275 More than 3 years	0.00	0.00
276 <b>Sub Total (V)</b>	<b>0.00</b>	<b>0.00</b>
277 <b>(vi) Disputed Trade Receivables # credit impaired</b>	<b>0.00</b>	<b>0.00</b>
278 Less than 6 months	0.00	0.00
279 6 months -1 year	0.00	0.00
280 1-2 years	0.00	0.00
281 2-3 years	0.00	0.00
282 More than 3 years	0.00	0.00
283 <b>Sub Total (VI)</b>	<b>0.00</b>	<b>0.00</b>

**TALAIPELLI COAL MINING PROJECT****NOTE NO. 16 TO THE FS-CA-CASH AND CASH EQUIVALENTS****( Amount in ₹ )**

As at	31.03.2024	31.03.2023
001 CASH & BANK BALANCES	0.00	0.00
002 Cash & Cash Equivalents	0.00	0.00
003 Balances with Banks	697,692.50	781,189.50
004 Cheques & Drafts on hand	0.00	0.00
005 Cash on hand	0.00	0.00
006 Others (stamps in hand)	0.00	0.00
007 Bank deposits with original maturity upto three months	0.00	0.00
008 Balances with RBI	0.00	0.00
009	0.00	0.00
011 Total	<u>697,692.50</u>	<u>781,189.50</u>



TALAIPELLI COAL MINING PROJECT

NOTE NO. 17 TO THE FS-CA-BANK BALANCES OTHER THAN CASH AND CASH EQUIVALENTS (Amount in ₹)

As at	31.03.2024	31.03.2023
001 Other Bank Balances	0.00	0.00
002 Deposits with original maturity of more than three months but not more than twelve months	0.00	0.00
003 Earmarked balances with banks*	0.00	0.00
004 <b>SubTotal</b>	<b>0.00</b>	<b>0.00</b>
005 Interest accrued on deposits	0.00	0.00
006	0.00	0.00
008 <b>Total</b>	<b>0.00</b>	<b>0.00</b>
009	0.00	0.00
010 <b>Earmarked balances with banks consist of :</b>	<b>0.00</b>	<b>0.00</b>
011 Unpaid dividend account balance	0.00	0.00
012 Towards public deposit repayment reserve	0.00	0.00
013 Towards redemption of bonds due for repayment within one year	0.00	0.00
014 Security with Government/other authorities	0.00	0.00
015 Unpaid refund/interest account balance - Tax free bonds/ Bonus Debentures	0.00	0.00
016 Earmarked for RGGVY/DDUGJY/SAUBHAGYA Fund/RDSS	0.00	0.00
017 Earmarked for Fiyash Utilisation Reserve Fund	0.00	0.00
018 Deposits with original maturity upto three months as per court orders	0.00	0.00
019 Payment Security Scheme of MNRE NSM (NTPC)	0.00	0.00
020 Payment Security Scheme of MNRE NSM (NVVN)	0.00	0.00
021 Enforcement Directorate of Solar Plant(NVVN)	0.00	0.00
022 Bank guarantee Fund of MNRE (NVVN)	0.00	0.00
023 Others	0.00	0.00
024 Margin Money	0.00	0.00
025	0.00	0.00
026	0.00	0.00
027	0.00	0.00
031 <b>Total</b>	<b>0.00</b>	<b>0.00</b>
032	0.00	0.00
033 Bank deposits with original maturity of less than three months- other than earmarked	0.00	0.00
034 Bank deposits with original maturity of more than three months but not more than twelve months- other than earmarked	0.00	0.00
035 Earmarked bank balances (current account)	0.00	0.00



TALAIPELLI COAL MINING PROJECT

NOTE NO. 18 TO THE FS-CA-LOANS

( Amount in ₹ )

As at	31.03.2024	31.03.2023
001 Current financial assets - Loans	0.00	0.00
002 Loans (current)-including interest accrued	0.00	0.00
004 Related Parties	0.00	0.00
005 Secured	0.00	0.00
006 Un-Secured	0.00	0.00
007 With significant increase in Credit Risk	0.00	0.00
008 Credit impaired	0.00	0.00
009	0.00	0.00
010 Employees	0.00	0.00
011 Secured	3,306,477.49	2,522,840.70
012 Unsecured	9,488,154.09	10,744,621.04
013 With significant increase in Credit Risk	0.00	0.00
014 Credit impaired	0.00	0.00
015 Less: Employee Loans Discounting	0.00	0.00
016 Loan to State Government in settlement of dues from customers (Unsecured)	0.00	0.00
017	0.00	0.00
018 Others	0.00	0.00
019 Secured	0.00	0.00
020 Unsecured	0.00	0.00
021 With significant increase in Credit Risk	0.00	0.00
022 Credit impaired	0.00	0.00
023	0.00	0.00
024 Less: Allowance for credit impaired loans	0.00	0.00
026	0.00	0.00
027 Total (Loans)	12,794,631.58	13,267,461.74
028	0.00	0.00
029 Due from Directors and Officers of the Company	0.00	0.00
030 Directors	0.00	0.00
031 Officers	0.00	0.00
032	0.00	0.00
033 Loans to related parties include:	0.00	0.00
034 i)Key management personel	0.00	0.00
035 ii)Subsidiary companies	0.00	0.00
036 KBUNL	0.00	0.00
037 RGPPL	0.00	0.00
038 NVVN	0.00	0.00
039 iii)Joint Venture companies	0.00	0.00
040 iv)others	0.00	0.00
041	0.00	0.00
060 RPD	0.00	0.00
061 i)Key management personel	0.00	0.00
062 ii)Subsidiary companies	0.00	0.00
063 iii)Joint Venture companies	0.00	0.00
064 iv)Others	0.00	0.00
065	0.00	0.00



TALAIPELLI COAL MINING PROJECT

NOTE NO. 18 TO THE FS-CA-LOANS

( Amount in ₹ )

	As at	31.03.2024	31.03.2023
066	Total	0.00	0.00

TALAIPELLI COAL MINING PROJECT

NOTE NO. 19 TO THE FS-CA-OTHER FINANCIAL ASSETS

( Amount in ₹ )

As at	31.03.2024	31.03.2023
001 Other Financial Assets (current)	0.00	0.00
002	0.00	0.00
003 <b>ADVANCES</b>	0.00	0.00
004	0.00	0.00
005 <b>Related Parties</b>	0.00	0.00
006 Secured	0.00	0.00
007 Un-Secured	-679,656,210.16	-7,668.16
008 Considered doubtful	0.00	0.00
009	0.00	0.00
010 <b>Employees</b>	0.00	0.00
012 Unsecured	1,387,476.00	1,223,863.00
013 Considered Doubtful	0.00	0.00
014	0.00	0.00
020 <b>Others</b>	0.00	0.00
021 Secured	0.00	0.00
022 Unsecured	0.00	0.00
023 Considered Doubtful	0.00	0.00
024	0.00	0.00
025 Less: Allowance for bad & doubtful advances	0.00	0.00
026	0.00	0.00
033 <b>Total (Advances)</b>	<b>-678,268,734.16</b>	<b>1,216,194.84</b>
044	0.00	0.00
045 <b>Claims Recoverable</b>	0.00	0.00
046 Secured	0.00	0.00
047 Unsecured, considered good	608,972.00	608,972.00
048 Considered Doubtful	0.00	0.00
049 Less:- Allowance for doubtful claims	0.00	0.00
050 <b>Others-Claims Recoverable</b>	0.00	0.00
051	0.00	0.00
052 <b>Contract Asset- Revenue</b>	0.00	0.00
053 Hedging cost recoverable from beneficiaries	0.00	0.00
054 Derivative MTM Asset	0.00	0.00
055 Finance Lease Receivable	0.00	0.00
056 Mine-Closure Deposit	0.00	0.00
057 Financial Deposit	0.00	0.00
059 <b>Other Accrued Income</b>	0.00	0.00
060 Secured, Considered Good	0.00	0.00
061 Unsecured , considered good	194,264.04	3,460,542.73
062 Credit impaired	0.00	0.00
063	0.00	0.00
064 <b>Sub-Total</b>	<b>194,264.04</b>	<b>3,460,542.73</b>
065 Less: Allowance for credit impaired receivables	0.00	0.00
066 <b>Total</b>	<b>194,264.04</b>	<b>3,460,542.73</b>
067	0.00	0.00
068 <b>Others*</b>	0.00	0.00
070	0.00	0.00

**TALAIPELLI COAL MINING PROJECT****NOTE NO. 19 TO THE FS-CA-OTHER FINANCIAL ASSETS****( Amount in ₹ )**

As at	31.03.2024	31.03.2023
071 <b>Total</b>	<b>-677,465,498.12</b>	<b>5,285,709.57</b>
072 * Other include amount recoverable from contractors and other parties towards hire charges, rent/electricity etc.	0.00	0.00
073 <b>Advances to related parties include:</b>	<b>0.00</b>	<b>0.00</b>
074 i)Key management personnel	0.00	0.00
075	0.00	0.00
076 iii)Joint Venture companies	0.00	0.00
077	0.00	0.00
078 v)Others	0.00	0.00
079	0.00	0.00
080 Advances include amount due from the following Private Companies in which Directors of the Company are also Directors in such Companies	0.00	0.00
081 Related Party (Adv)- Employee	0.00	0.00
082 Related Party (Adv)- Subsidiaries	-679,656,210.16	-7,668.16
083 Related Party (Adv)- Joint Ventures	0.00	0.00
084	0.00	0.00
085 Related Party (Adv)- Others	0.00	0.00
086	0.00	0.00
099	0.00	0.00
100	0.00	0.00
101 <b>Total</b>	<b>-679,656,210.16</b>	<b>-7,668.16</b>



TALAIPELLI COAL MINING PROJECT

NOTE NO. 20 TO THE FS-CA-OTHER CURRENT ASSETS

( Amount in ₹ )

As at	31.03.2024	31.03.2023
001 OTHER CURRENT ASSETS	0.00	0.00
002 Security Deposits (Unsecured)	0.00	0.00
003 Deposit with Customs, port trust & others*	11,258,857.00	9,371,387.00
004 ADVANCES	0.00	0.00
005	0.00	0.00
006 Related Parties	0.00	0.00
007 Secured	0.00	0.00
008 Un-Secured	0.00	0.00
009 Considered doubtful	0.00	0.00
010	0.00	0.00
011 Employees(including imprest)	0.00	0.00
012 Secured	0.00	0.00
013 Unsecured	226,471.00	0.00
014 Considered Doubtful	0.00	0.00
015	0.00	0.00
016 Contractors & Suppliers	0.00	0.00
017 Secured	0.00	0.00
018 Unsecured	340,152,249.00	118,000,873.00
019 Considered Doubtful	0.00	0.00
020	0.00	0.00
021 Others**	0.00	0.00
022 Secured	0.00	0.00
023 Unsecured	0.00	1,343,540.00
024 Considered Doubtful	0.00	0.00
025 Less: Allowance for bad & doubtful advances	0.00	0.00
026 Receivable from MCP Escrow A/c	0.00	0.00
027 Deferred Payroll Expenses (Secured)	268,776.00	347,283.84
028 Deferred Payroll Expenses (Unsecured)	607,167.55	692,787.85
029 Sub-total	875,943.65	1,040,071.69
030 Interest accrued on :	0.00	0.00
031 Advances to contractors	0.00	0.00
032	0.00	0.00
033 Claims Recoverable	0.00	0.00
034 Secured	0.00	0.00
035 Unsecured, considered good	112,475,216.00	0.00
036 Considered Doubtful	0.00	0.00
037 Less:- Allowance for doubtful claims	0.00	0.00
038	0.00	0.00
039 Deferred premium on forward exchange contract/ Option Assets	0.00	0.00
041	0.00	0.00
042 Others	0.00	0.00
043	0.00	0.00
045 Total (Other Current Assets)	464,988,736.65	129,755,871.69
046 **Include Prepaid Expenses	0.00	1,343,540.00
047 *Includes sales tax/Entry tax/VAT deposited under protest with Sales Tax Authorities	0.00	0.00

**TALAIPELLI COAL MINING PROJECT****NOTE NO. 20 TO THE FS-CA-OTHER CURRENT ASSETS****( Amount in ₹ )**

As at	31.03.2024	31.03.2023
048 *Includes deposited with courts	0.00	0.00
049 *Includes deposited with LIC for annuity payments	0.00	0.00
050 * Includes deposits with WRD / against BG in r/o finance lease	0.00	0.00
051 Other include amount recoverable from contractors and other parties towards hire charges, rent/electricity etc.	0.00	0.00
053 <b>Advances to related parties include:</b>	<b>0.00</b>	<b>0.00</b>
054 i)Key management personnel	0.00	0.00
055 ii)Subsidiary companies	0.00	0.00
056 iii)Joint Venture companies	0.00	0.00
057 Contractors	0.00	0.00
058 Others	0.00	0.00
059	0.00	0.00
060 Advances include amount due from the following Private Companies in which Directors of the Company are also Directors in such Companies	0.00	0.00
061	0.00	0.00
062	0.00	0.00
063 Related Party (Adv)- Employee	0.00	0.00
064 Related Party (Adv)- Subsidiaries	0.00	0.00
065 Related Party (Adv)- Joint Venture	0.00	0.00
066	0.00	0.00
067	0.00	0.00
068 <b>Total</b>	<b>0.00</b>	<b>0.00</b>
069	0.00	0.00



TALAIPELLI COAL MINING PROJECT

NOTE NO. 21 TO THE FS-ASSETS HELD FOR SALE

( Amount in ₹ )

As at	31.03.2024	31.03.2023
001 ASSET HELD FOR SALE	0.00	0.00
002	0.00	0.00
003 Assets held for Sale	0.00	0.00
004	0.00	0.00
005 Total	0.00	0.00
031	0.00	0.00
032 Assets held for sale includes:-	0.00	0.00
033	0.00	0.00
034 Land	0.00	0.00
035 Building	0.00	0.00
036 Plant and equipment	0.00	0.00
037 Other assets	0.00	0.00
038 Total	0.00	0.00
039	0.00	0.00
040	0.00	0.00
041	0.00	0.00
042	0.00	0.00
043	0.00	0.00





TALAIPELLI COAL MINING PROJECT

NOTE NO. 22 TO THE FS--REGULATORY DEFERRAL ACCOUNT DEBIT BALANCES

( Amount in ₹ )

As at	31.03.2024	31.03.2023
001 On account of Exchange Differences	72,455,229.92	58,539,909.82
002 On account of employee benefit exp	0.00	0.00
003 Regulatory deferred account - deferred	0.00	0.00
004 Deferred asset for ash transportation	0.00	0.00
005 Deferred asset for Arbitration Award	0.00	0.00
008	0.00	0.00
009 Total	72,455,229.92	58,539,909.82



TALAIPELLI COAL MINING PROJECT  
ANNEXURE TO NOTE 9- RPD (LOANS) JOINT VENTURE

( Amount in ₹ )

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As at	31.03.2024	31.03.2023
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**TALAIPELLI COAL MINING PROJECT****NOTE NO. 23 TO THE FS-EQUITY-EQUITY SHARE CAPITAL****( Amount in ₹ )**

As at	31.03.2024	31.03.2023
001 <b>SHARE CAPITAL</b>	<b>0.00</b>	<b>0.00</b>
002 <b>Equity Share Capital</b>	<b>0.00</b>	<b>0.00</b>
003 <b>Authorised</b>	<b>0.00</b>	<b>0.00</b>
004 16,60,00,00,000 equity shares of Rs. 10/- each (Previous year 10,000,000,000 equity shares of Rs. 10/- each)	0.00	0.00
005 <b>Issued, Subscribed and fully Paid-up</b>	<b>0.00</b>	<b>0.00</b>
006 9,69,66,66,134 equity shares of Rs. 10/- (Pv. Year 9,894,557,280 equity shares of Rs. 10/- each)	0.00	0.00
007	<b>0.00</b>	<b>0.00</b>
008 <b>Total</b>	<b>0.00</b>	<b>0.00</b>
009 During FY 2018-19, the company has issued 1,649,092,880 equity shares of Rs. 10/- each as fully paid bonus shares	0.00	0.00
010 The holders of the equity shares are entitled to receive dividends as declared from time to time, and are entitled to one vote per share at meetings of the company	0.00	0.00
011 Details of shareholders holding more than 5% shares in the company	0.00	0.00
012 - President of India	0.00	0.00
013 No. of Shares	0.00	0.00
014 % of holding	0.00	0.00
015 - Life Insurance Corporation of India/ICICI Prudential Mutual Fund	0.00	0.00
016 No. of Shares	0.00	0.00
017 % of holding	0.00	0.00



TALAIPELLI COAL MINING PROJECT

NOTE NO. 24 TO THE FS-EQUITY-OTHER EQUITY

( Amount in ₹ )

As at	31.03.2024	31.03.2023
001 RESERVE AND SURPLUS	0.00	0.00
002	0.00	0.00
003 Capital Reserve	0.00	0.00
004 As per last financial statements	0.00	0.00
006 Add : Grants received during the year	0.00	0.00
007 Add: Transfer from Surplus	0.00	0.00
008 Less: Write back during the year/period	0.00	0.00
009 Less: Adjustments during the year/period	0.00	0.00
010 SUB-TOTAL	0.00	0.00
011	0.00	0.00
017	0.00	0.00
018 SECURITIES PREMIUM ACCOUNT	0.00	0.00
019 AS PER LAST FINANCIAL STATEMENTS	0.00	0.00
020 ADD: ADDITIONS DURING THE YEAR/PERIOD	0.00	0.00
021 LESS: ADJUSTMENTS DURING THE YEAR/PERIOD	0.00	0.00
022 SUB-TOTAL	0.00	0.00
023 BONDS REDEMPTION RESERVE	0.00	0.00
024 AS PER LAST FINANCIAL STATEMENTS	0.00	0.00
025 ADD: TRANSFER FROM SURPLUS	0.00	0.00
026 LESS: TRANSFER TO SURPLUS ON REDEMPTION	0.00	0.00
027 LESS: ADJUSTMENTS DURING THE YEAR/ PERIOD	0.00	0.00
028 SUB-TOTAL	0.00	0.00
029 CAPITAL REDEMPTION RESERVE	0.00	0.00
030 As per last financial statements	0.00	0.00
031 Add: Transfer from Surplus	0.00	0.00
032 Less: Transfer to surplus on redemption	0.00	0.00
033 Less: Adjustments during the year/ period	0.00	0.00
034 Sub-Total	0.00	0.00
035 Share Application money pending Allotment	0.00	0.00
036 As per last financial statements	0.00	0.00
037 Add: Addition during the year	0.00	0.00
038 Less: Utilised for allotment during the year	0.00	0.00
039 Less: Adjustments during the year/ period	0.00	0.00
040 SUB-TOTAL	0.00	0.00
046 FLY-ASH UTILISATION RESERVE FUND	0.00	0.00
047 AS PER LAST FINANCIAL STATEMENTS	0.00	0.00
048 TRANSFERRED TO CC	0.00	0.00
049 ADD: TRANSFER FROM REVENUE FROM OPERATIONS	0.00	0.00
050 ADD: TRANSFER FROM OTHER INCOME	0.00	0.00
051 LESS: UTILISED DURING THE YEAR	0.00	0.00
052 TANGIBLE ASSETS	0.00	0.00
053 EMPLOYEE BENEFIT EXPENSES	0.00	0.00
054 GENERATION, ADMN. AND OTHER EXPENSES	0.00	0.00



TALAIPELLI COAL MINING PROJECT

NOTE NO. 24 TO THE FS-EQUITY-OTHER EQUITY

( Amount in ₹ )

As at	31.03.2024	31.03.2023
055 TAX EXPENSES	0.00	0.00
056 SUB-TOTAL	0.00	0.00
057 Self Insurance Reserve	0.00	0.00
058 As per last financial statements	0.00	0.00
059 Add: Addition during the year	0.00	0.00
060 Less: Utilised for allotment during the year	0.00	0.00
061 Less: Adjustments during the year/ period	0.00	0.00
062 SUB-TOTAL	0.00	0.00
063 SPECIAL ALLOWANCE RESERVE FUND	0.00	0.00
064 AS PER LAST FINANCIAL STATEMENTS	0.00	0.00
065 ADD: ADDITION DURING THE YEAR	0.00	0.00
066 LESS: UTILISED FOR ALLOTMENT DURING THE YEAR	0.00	0.00
067 LESS: ADJUSTMENTS DURING THE YEAR/ PERIOD	0.00	0.00
068 SUB-TOTAL	0.00	0.00
069 CORPORATE SOCIAL RESPONSIBILITY (CSR) RESERVE	0.00	0.00
070 AS PER LAST FINANCIAL STATEMENTS	0.00	0.00
071 ADD : TRANSFER FROM SURPLUS	0.00	0.00
072 LESS:-WRITE BACK DURING THE YEAR	0.00	0.00
073 SUB-TOTAL	0.00	0.00
074 GENERAL RESERVE	0.00	0.00
075 AS PER LAST FINANCIAL STATEMENTS	0.00	0.00
076 ADD: TRANSFER FROM SURPLUS	0.00	0.00
077 LESS: TRANSFER TO SURPLUS	0.00	0.00
078 LESS: WRITE BACK DURING THE YEAR /PERIOD	0.00	0.00
079 LESS: ADJUSTMENTS DURING THE YEAR /PERIOD	0.00	0.00
080 SUB-TOTAL	0.00	0.00
081	0.00	0.00
082 RETAINED EARNINGS	0.00	0.00
083 AS PER LAST FINANCIAL STATEMENTS	-64,610,547.04	-23,255,553.71
084 ADD(LESS):-CHANGES IN ACCOUNTING POLICY / PRIOR PERIOD ERRORS	0.00	0.00
085 ADD(LESS):-PROFIT (LOSS) AFTER TAX FOR THE YEAR FROM STATEMENT OF PROFIT & LOSS	1,941,315,131.11	-41,354,993.33
087 ADD: WRITE BACK FROM BOND REDEMPTION RESERVE	0.00	0.00
088 ADD: WRITE BACK FROM CAPITAL RESERVE	0.00	0.00
089 ADD: WRITE BACK FROM FOREIGN PROJECT RESERVE	0.00	0.00
090 ADD: WRITE BACK FROM CSR RESERVE	0.00	0.00
091 ADD: WRITE BACK FROM GENERAL RESERVE	0.00	0.00
093 LESS: TRANSFER TO BONDS REDEMPTION RESERVE	0.00	0.00



TALAIPELLI COAL MINING PROJECT

NOTE NO. 24 TO THE FS-EQUITY-OTHER EQUITY

( Amount in ₹ )

As at	31.03.2024	31.03.2023
094 LESS: TRANSFER TO SPECIAL ALLOWANCE RESERVE FUND	0.00	0.00
095 LESS: TRANSFER TO FOREIGN PROJECT RESERVE	0.00	0.00
096 LESS: TRANSFER TO CAPITAL RESERVE	0.00	0.00
097 LESS: TRANSFER TO CSR RESERVE	0.00	0.00
098 LESS: TRANSFER TO GENERAL RESERVE	0.00	0.00
099 LESS: INTERIM DIVIDEND PAID	0.00	0.00
100 LESS: TAX ON INTERIM DIVIDEND PAID	0.00	0.00
101 LESS: FINAL DIVIDEND PAID	0.00	0.00
102 LESS: TAX ON FINAL DIVIDEND PAID	0.00	0.00
103 LESS: ISSUE OF BONUS DEBENTURE	0.00	0.00
104 LESS: TAX ON ISSUE OF BONUS DEBENTURE	0.00	0.00
105 <b>SUB-TOTAL</b>	<b>1,876,704,584.07</b>	<b>-64,610,547.04</b>
110	0.00	0.00
111 <b>REMEASUREMENT OF DEFINED BENEFIT PLANS</b>	<b>0.00</b>	<b>0.00</b>
112 AS PER LAST FINANCIAL STATEMENTS	-101,541.13	-112,662.42
113 ADD/(LESS):- ACTUARIAL GAINS/LOSS THROUGH OCI	1,064,440.30	11,121.29
114 <b>SUB-TOTAL</b>	<b>962,899.17</b>	<b>-101,541.13</b>
115	0.00	0.00
116 <b>FVTOCI Reserve</b>	<b>0.00</b>	<b>0.00</b>
117 AS PER LAST FINANCIAL STATEMENTS	0.00	0.00
118 ADD/(LESS):- NET GAIN/LOSS OF EQUITY INSTRUMENTS THROUGH OCI	0.00	0.00
119 <b>Sub-Total</b>	<b>0.00</b>	<b>0.00</b>
120	0.00	0.00
121 <b>Total Other equity</b>	<b>1,877,667,483.24</b>	<b>-64,712,088.17</b>
122	0.00	0.00
123	0.00	0.00
124	0.00	0.00
125	0.00	0.00
126	0.00	0.00
127	0.00	0.00
128 The fly ash utilization reserve fund is controlled at Corporate Centre.	0.00	0.00



TALAIPELLI COAL MINING PROJECT

NOTE NO. 25 TO THE FS-NCL-BORROWINGS

( Amount in ₹ )

As at	31.03.2024	31.03.2023
001 LONG TERM BORROWINGS	0.00	0.00
002 Bonds	0.00	0.00
003 Secured	0.00	0.00
004 7.37 % Tax free secured non-cumulative non-convertible redeemable bonds-2015 of Rs. 1,000/- each redeemable at par in full on 5th October 2035 (Fifty Sixth Issue - Public Issue - Series 3A).	0.00	0.00
005 7.62 % Tax free secured non-cumulative non-convertible redeemable bonds-2015 of Rs. 1,000/- each redeemable at par in full on 5th October 2035 (Fifty Sixth Issue - Public Issue - Series 3 B).	0.00	0.00
006 8.61% Tax free secured non-cumulative non-convertible redeemable bonds of ₹ 10,00,000/- each redeemable at par in full on 4th March 2034 (Fifty First Issue C - Private Placement)	0.00	0.00
007 8.66% Tax free secured non-cumulative non-convertible redeemable bonds - 2013 of ₹ 1000/- each redeemable at par in full on 16th December 2033 ( Fiftieth Issue - Public Issue - Series 3A)	0.00	0.00
008 8.91% Tax free secured non-cumulative non-convertible redeemable bonds - 2013 of ₹ 1000/- each redeemable at par in full on 16th December 2033 ( Fiftieth Issue - Public Issue - Series 3B)	0.00	0.00
009 7.37% Secured non-cumulative non-convertible redeemable taxable bonds of Rs. 10,00,000/- each redeemable at par in full on 14th December 2031 (Sixty Sixth Issue - Private Placement)	0.00	0.00
010 7.49% Secured non-cumulative non-convertible redeemable taxable bonds of Rs. 10,00,000/- each redeemable at par in full on 7th November 2031 (Sixty Fourth Issue - Private Placement)	0.00	0.00
011 7.28 % Tax free secured non-cumulative non-convertible redeemable bonds-2015 of Rs. 1,000/- each redeemable at par in full on 5th October 2030 (Fifty Sixth Issue - Public Issue - Series	0.00	0.00

**TALAIPELLI COAL MINING PROJECT****NOTE NO. 25 TO THE FS-NCL-BORROWINGS****( Amount in ₹ )**

As at	31.03.2024	31.03.2023
2A)		
012 7.53 % Tax free secured non-cumulative non-convertible redeemable bonds-2015 of Rs. 1,000/- each redeemable at par in full on 5th October 2030 (Fifty Sixth Issue - Public Issue - Series 2 B).	0.00	0.00
013 7.32% Secured non-cumulative non-convertible redeemable taxable bonds of Rs 10,00,000/- each redeemable at par in full on 17 July 2029 (Sixty Ninth Issue - Private Placement)	0.00	0.00
014 8.63% Tax free secured non-cumulative non-convertible redeemable bonds of ₹ 10,00,000/- each redeemable at par in full on 4th March 2029 (Fifty First Issue B - Private Placement)	0.00	0.00
015 8.30% Secured non-cumulative non-convertible redeemable taxable bonds of Rs 10,00,000/- each redeemable at par in full on 15 January 2029 (Sixty Seventh Issue - Private Placement)	0.00	0.00
016 8.48% Tax free secured non-cumulative non-convertible redeemable bonds - 2013 of ₹ 1000/- each redeemable at par in full on 16th December 2028 ( Fiftieth Issue - Public Issue - Series 2A)	0.00	0.00
017 8.73% Tax free secured non-cumulative non-convertible redeemable bonds - 2013 of ₹ 1000/- each redeemable at par in full on 16th December 2028 ( Fiftieth Issue - Public Issue - Series 2B)	0.00	0.00
018 7.47% Secured non-cumulative non-convertible redeemable taxable bonds of Rs. 10,00,000/- each redeemable at par in full on 16th September 2026 (Sixty Third Issue - Private Placement)	0.00	0.00
019 7.58% Secured non-cumulative non-convertible redeemable taxable bonds of Rs. 10,00,000/- each redeemable at par in	0.00	0.00



**TALAIPELLI COAL MINING PROJECT**

**NOTE NO. 25 TO THE FS-NCL-BORROWINGS**

( Amount in ₹ )

As at		31.03.2024	31.03.2023
full on 23rd August 2026 (Sixty Second Issue - Private Placement)			
020	8.05% Secured non-cumulative non-convertible redeemable taxable bonds of Rs. 10,00,000/- each redeemable at par in full on 5th May 2026 (Sixtieth Issue - Private Placement)	0.00	0.00
021	8.19% Secured non-cumulative non-convertible redeemable taxable bonds of Rs. 10,00,000/- each redeemable at par in full on 15th December 2025 (Fifty Seventh Issue - Private Placement)	0.00	0.00
022	7.11 % Tax free secured non-cumulative non-convertible redeemable bonds-2015 of Rs. 1,000/- each redeemable at par in full on 5th October 2025 (Fifty Sixth Issue - Public Issue - Series 1A).	0.00	0.00
023	7.36 % Tax free secured non-cumulative non-convertible redeemable bonds-2015 of Rs. 1,000/- each redeemable at par in full on 5th October 2025 (Fifty Sixth Issue - Public Issue - Series 1 B).	0.00	0.00
024	7.15% Tax free secured non-cumulative non-convertible redeemable bonds - 2015 of Rs. 10,00,000/- each redeemable at par in full on 21st August 2025 (Fifty Fifth Issue - Private Placement)	0.00	0.00
025	9.17% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 22nd September 2024 (53rd Issue - private placement).	0.00	0.00
026	9.34% Secured non-cumulative non-convertible redeemable taxable bonds of ₹10,00,000/- each redeemable at par in full on 24th March 2024 (Fifty Second Issue - private placement)	0.00	0.00
027	8.19% Tax free secured non-cumulative non-convertible redeemable bonds - 2013 of ₹ 10,00,000/- each redeemable at	0.00	0.00



TALAIPELLI COAL MINING PROJECT

NOTE NO. 25 TO THE FS-NCL-BORROWINGS

( Amount in ₹ )

As at	31.03.2024	31.03.2023
par in full on 4th March 2024 (Fifty First Issue A - Private Placement)		
028 8.41% Tax free secured non-cumulative non-convertible redeemable bonds - 2013 of ₹ 1000/- each redeemable at par in full on 16th December 2023 ( Fiftieth Issue - Public Issue - Series 1A)	0.00	0.00
029 8.66% Tax free secured non-cumulative non-convertible redeemable bonds - 2013 of ₹ 1000/- each redeemable at par in full on 16th December 2023 ( Fiftieth Issue - Public Issue - Series 1B)	0.00	0.00
030 9.25% Secured non-cumulative non-convertible redeemable taxable bonds of ₹10,00,000/- each with five equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 11th year and in annual installments thereafter upto the end of 15th year respectively commencing from 4th May 2023 and ending on 4th May 2027. (Forty fourth issue - private placement)VII	0.00	0.00
031 8.48% Secured non-cumulative non-nonvertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 1st May 2023 (Seventeenth issue - private placement)I	0.00	0.00
032 8.80% Secured non-cumulative non-convertible redeemable taxable bonds of ₹10,00,000/- each redeemable at par in full on 4th April 2023 (Forty ninth issue -private placement	0.00	0.00
033 8.49% Secured non-cumulative non-convertible redeemable taxable fully paid-up bonus debentures of Rs. 12.50 each redeemable at par in three annual installments of Rs. 2.50, Rs. 5.00 and Rs. 5.00 at the end of 8th year, 9th year and 10th year on 25th March 2023, 25th March 2024 and 25th March 2025 respectively (Fifty Fourth Issue -Bonus Debentures)X - (refer Note 5 d)	0.00	0.00
034 8.73% Secured non-cumulative	0.00	0.00

TALAIPELLI COAL MINING PROJECT

NOTE NO. 25 TO THE FS-NCL-BORROWINGS

( Amount in ₹ )

As at	31.03.2024	31.03.2023
non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 07th March 2023 ( Forty eighth issue - private placement)		
035 9.00% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each with five equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 11th year and in annual installments thereafter upto the end of 15th year respectively commencing from 25th January 2023 and ending on 25th January 2027 (Forty second issue- private placement)III	0.00	0.00
036 8.84% Secured non-cumulative non-convertible redeemable taxable bonds of ₹10,00,000/- each redeemable at par in full on 4th October 2022. (Forty seventh issue- private placement)VII	0.00	0.00
037 7.93% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 03 May 2022 (68th Issue - Private Placement)	0.00	0.00
038 6.72% Secured non-cumulative non-convertible redeemable taxable bonds of Rs. 10,00,000/- each redeemable at par in full on 24th November 2021 (Sixty Fifth Issue - Private Placement)	0.00	0.00
039 8.10% Secured Non-Cumulative Non-Convertible Redeemable Taxable Bonds of Rs. 30,00,000/- each redeemable at par in three equal separately transferable redeemable principal parts (STRPP) at the end of 5th year, 10th year & 15th year on 27th May 2021, 27th May 2026 and 27th May 2031 respectively (Sixty First Issue- Private Placement)	0.00	0.00
040 8.33% Secured non-cumulative non-convertible redeemable taxable bonds of Rs.10,00,000/- each redeemable at par in full on 24th February 2021	0.00	0.00

TALAIPELLI COAL MINING PROJECT

NOTE NO. 25 TO THE FS-NCL-BORROWINGS

( Amount in ₹ )

As at		31.03.2024	31.03.2023
(Fifty Ninth Issue - Private Placement).			
042	8.93% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 19th January 2021 (Thirty seventh issue - private placement)III	0.00	0.00
043	8.18% Secured non-cumulative non-convertible redeemable taxable bonds of Rs.10,00,000/- each redeemable at par in full on 31st December 2020 (Fifty Eight Issue - Private Placement).	0.00	0.00
044	8.73 % Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 31st March 2020 (Thirty third issue- private placement)III	0.00	0.00
045	8.78 % Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 9th March 2020 (Thirty first issue- private placement)III	0.00	0.00
046	11.25% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in five equal annual installments commencing from 6th Nov 2019 and ending on 6th Nov 2023 (Twenty seventh issue - private placement)III	0.00	0.00
047	7.89% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 5th May 2019 (Thirtieth issue - private placement)III	0.00	0.00
048	8.65% Secured non-cumulative non-convertible redeemable taxable bonds of ₹10,00,000/- each redeemable at par in full on 4th February 2019 (Twenty ninth issue - private placement)III	0.00	0.00
049	7.50% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full	0.00	0.00



TALAIPELLI COAL MINING PROJECT

NOTE NO. 25 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

As at	31.03.2024	31.03.2023
on 12th January 2019 (Nineteenth issue - private placement)II		
050 11% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 21st November 2018 (Twenty eighth issue - private placement)III	0.00	0.00
051 9.3473% Secured non-cumulative non-convertible redeemable taxable bonds of ₹15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 20th July 2018 and ending on 20th July 2032 (Forty sixth issue - private placement)VII	0.00	0.00
052 9.4376% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 16th May 2018 and ending on 16th May 2032 (Forty fifth issue - private placement)VII	0.00	0.00
053 8.00% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 10th April 2018 (Sixteenth issue -private placement)I	0.00	0.00
054 9.2573% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 2nd March 2018 and ending on 2nd March 2032 (Forty third issue - private placement)III	0.00	0.00
055 9.6713% Secured non-cumulative non-convertible redeemable taxable bonds	0.00	0.00

TALAIPELLI COAL MINING PROJECT

NOTE NO. 25 TO THE FS-NCL-BORROWINGS

( Amount in ₹ )

As at	31.03.2024	31.03.2023
of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 23rd December 2017 and ending on 23rd December 2031 (Forty first issue - private placement)III		
056 9.558% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 29th July 2017 and ending on 29th July 2031(Fourtieth issue-private placement)III	0.00	0.00
057 9.3896% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 9th June 2017 and ending on 9th June 2031(Thirty ninth issue-private placement)III	0.00	0.00
058 9.17% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 22nd March 2017 and ending on 22nd March 2031(Thirty eighth issue-private placement)III	0.00	0.00
059 8.8086% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th	0.00	0.00



TALAIPELLI COAL MINING PROJECT

NOTE NO. 25 TO THE FS-NCL-BORROWINGS

( Amount in ₹ )

As at	31.03.2024	31.03.2023
year and in annual installments thereafter upto the end of 20th year respectively commencing from 15th December 2016 and ending on 15th December 2030 (Thirty sixth issue - private placement)III		
060 8.785% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 15th September 2016 and ending on 15th September 2030 (Thirty fifth issue - private placement)III	0.00	0.00
061 8.71% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 10th June 2016 and ending on 10th June 2030 (Thirty fourth issue - private placement)III	0.00	0.00
062 8.8493% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 15,00,000/- each with fifteen equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of 6th year and in annual installments thereafter upto the end of 20th year respectively commencing from 25th March 2016 and ending on 25th March 2030 (Thirty second issue - private placement)III	0.00	0.00
063 9.37% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 70,00,000/- each with fourteen separately transferable redeemable principal parts (STRPP) redeemable at par semi-annually commencing from 4th June 2012 and ending on 4th December 2018 (Twenty fifth issue -	0.00	0.00

TALAIPELLI COAL MINING PROJECT

NOTE NO. 25 TO THE FS-NCL-BORROWINGS

( Amount in ₹ )

As at	31.03.2024	31.03.2023
private placement)III		
065 9.06% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 70,00,000/- each with fourteen separately transferable redeemable principal parts (STRPP) redeemable at par semi-annually commencing from 4th June 2012 and ending on 4th December 2018 (Twenty sixth issue - private placement)III	0.00	0.00
066 8.6077% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 20,00,000/- each with twenty equal separately transferable redeemable principal parts (STRPP) redeemable at par semi-annually commencing from 9th September 2011 and ending on 9th March 2021 (Twenty fourth issue - private placement)IV	0.00	0.00
067 8.3796% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 20,00,000/- each with twenty equal separately transferable redeemable principal parts (STRPP) redeemable at par semi-annually commencing from 5th August 2011 and ending on 5th February 2021 (Twenty third issue - private placement)IV	0.00	0.00
068 8.1771% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 20,00,000/- each with twenty equal separately transferable redeemable principal parts (STRPP) redeemable at par semi-annually commencing from 2nd July 2011 and ending on 2nd January 2021 (Twenty second issue - private placement)IV	0.00	0.00
069 7.7125% Secured non-cumulative non-convertible redeemable taxable bonds of ₹ 20,00,000/- each with twenty equal separately transferable redeemable principal parts (STRPP) redeemable at par semi-annually commencing from 2nd August 2010 and ending on 2nd February 2020 (Twenty first issue - private placement)V	0.00	0.00
070 7.552% Secured non-cumulative non-convertible redeemable taxable bonds	0.00	0.00



TALAIPELLI COAL MINING PROJECT

NOTE NO. 25 TO THE FS-NCL-BORROWINGS

(Amount in ₹)

As at	31.03.2024	31.03.2023
of ₹ 20,00,000/- each with twenty equal separately transferable redeemable principal parts (STRPP) redeemable at par semi-annually commencing from 23rd September 2009 and ending on 23rd March 2019 (Twentieth issue - private placement)VI		
071 9.55% Secured non-cumulative non-convertible taxable redeemable bonds of ₹ 10,00,000/- each with ten equal separately transferable redeemable principal parts (STRPP) redeemable at par at the end of the 6th year and in annual installments thereafter upto the end of 15th year respectively from 30th April 2002 (Thirteenth issue - Part B - private placement)VIII	0.00	0.00
072 9.55% Secured non-cumulative non-convertible taxable redeemable bonds of ₹ 10,00,000/- each redeemable at par in ten equal annual instalments commencing from the end of 6th year and upto the end of 15th year respectively from 18th April 2002 (Thirteenth issue -Part A - private placement)VIII	0.00	0.00
075	0.00	0.00
076	0.00	0.00
077	0.00	0.00
078	0.00	0.00
079	0.00	0.00
080	0.00	0.00
081	0.00	0.00
082 <b>Sub Total</b>	<b>0.00</b>	<b>0.00</b>
083 <b>Unsecured</b>	<b>0.00</b>	<b>0.00</b>
084 6.55% Unsecured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 17 April 2023 (Seventieth Issue - Private Placement)	0.00	0.00
085 6.29% Unsecured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 11 April 2031 (Seventy First Issue - Private Placement)	0.00	0.00
086 5.45% Unsecured non-cumulative non-convertible redeemable taxable bonds	0.00	0.00

**TALAIPELLI COAL MINING PROJECT**

**NOTE NO. 25 TO THE FS-NCL-BORROWINGS**

( Amount in ₹ )

As at	31.03.2024	31.03.2023
of ₹ 10,00,000/- each redeemable at par in full on 15 October 2025 (Seventy Second Issue - Private Placement)		
087 6.43% Unsecured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 27 January 2031 (Seventy Third Issue - Private Placement)	0.00	0.00
088 6.87% Unsecured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 21 April 2036 (Seventy Fourth Issue - Private Placement)	0.00	0.00
089 6.69% Unsecured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 13 September 2031 (Seventy Fifth Issue - Private Placement)	0.00	0.00
090 6.74% Unsecured non-cumulative non-convertible redeemable taxable bonds of Rs.10,00,000/- each redeemable at par in full on 14 April 2032 (Seventy Sixth Issue - Private Placement)	0.00	0.00
091 5.78% Unsecured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 29 April 2024 (Seventy Seventh Issue - Private Placement)	0.00	0.00
092 7.44% Unsecured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 25 August 2032 (Seventy Eighth Issue - Private Placement)	0.00	0.00
093 7.44% Unsecured non-cumulative non-convertible redeemable taxable bonds of ₹ 10,00,000/- each redeemable at par in full on 15 April 2033 (Seventy Ninth Issue - Private Placement)	0.00	0.00
094 7.35% Unsecured non-cumulative non-convertible redeemable taxable bonds of ₹ 1,00,000/- each redeemable at par in full on 17 April 2026 (Eightieth Issue - Private Placement)	0.00	0.00
095 7.48% Unsecured non-cumulative non-convertible redeemable taxable bonds of ₹ 1,00,000/- each redeemable at par in full on 21 March 2026 (Eighty First Issue - Private Placement)	0.00	0.00
096	0.00	0.00
097	0.00	0.00
098	0.00	0.00
099	0.00	0.00
100 <b>Sub-total</b>	<b>0.00</b>	<b>0.00</b>
101 <b>Total</b>	<b>0.00</b>	<b>0.00</b>



TALAIPELLI COAL MINING PROJECT

NOTE NO. 25 TO THE FS-NCL-BORROWINGS

( Amount in ₹ )

As at	31.03.2024	31.03.2023
102 Foreign Currency Notes-Unsecured	0.00	0.00
103 4.50% Fixed Rate Notes Due for repayment on 19th March 2028	0.00	0.00
104 2.75% Fixed rate notes due for repayment on 1st February 2027	0.00	0.00
105 4.25 % Fixed rate notes due for repayment on 26th February 2026	0.00	0.00
106 4.375% Fixed Rate Note due for repayment on 26th November 2024	0.00	0.00
107 4.75 % Fixed Rate Notes due for repayment on 3rd Oct 2022	0.00	0.00
108 7.25 % Fixed green global INR denominated bonds due on 3 May 2022	0.00	0.00
109 7.375 % Fixed green global INR denominated bonds due on 10 August 2021	0.00	0.00
110 5.625% Fixed Rate Notes due for repayment on 14th July 2021	0.00	0.00
111 3.75 % Fixed rate notes due for repayment on 03 April 2024	0.00	0.00
112	0.00	0.00
113	0.00	0.00
114	0.00	0.00
115 Sub Total	0.00	0.00
116 Term Loans	0.00	0.00
117 From Banks	0.00	0.00
118 Secured	0.00	0.00
119 Rupee Loans	0.00	0.00
120 Unsecured	0.00	0.00
121 Foreign Currency Loans	0.00	0.00
122 Rupee Loans	0.00	0.00
123 From Others	0.00	0.00
124 Secured	0.00	0.00
125 Rupee Loans	0.00	0.00
126 Foreign Currency loans (guaranteed by GOI)	0.00	0.00
127 Unsecured	0.00	0.00
128 Foreign Currency loans (guaranteed by GOI)	0.00	0.00
129 Other Foreign currency loans	0.00	0.00
131 Rupee Loans	0.00	0.00
132 Deposits	0.00	0.00
133 Unsecured	0.00	0.00
134 Fixed Deposits	0.00	0.00
135 Others	0.00	0.00
136 Unsecured	0.00	0.00
137 Bonds Application Money Pending Allotment	0.00	0.00
138 Sub-total	0.00	0.00
139 Total	0.00	0.00
140 Less:- Interest accrued but not due on secured	0.00	0.00



TALAIPELLI COAL MINING PROJECT

NOTE NO. 25 TO THE FS-NCL-BORROWINGS

( Amount in ₹ )

As at	31.03.2024	31.03.2023
borrowings		
141 Less:- Interest accrued but not due on unsecured borrowings	0.00	0.00
142 Less:- Current maturities of long term borrowings	0.00	0.00
143 Bonds-Secured	0.00	0.00
144 Fixed Rate Notes	0.00	0.00
146 Foreign currency loans from Banks- unsecured	0.00	0.00
147 Rupee loans from banks- Secured	0.00	0.00
148 Rupee loans from banks- unsecured	0.00	0.00
149 Rupee Term loan from Others - Secured	0.00	0.00
150 Foreign currency loans from others- unsecured (Guaranteed by GOI)	0.00	0.00
151 Other foreign currency loans from others- unsecured	0.00	0.00
152 Rupee loans from others- unsecured	0.00	0.00
153	0.00	0.00
154	0.00	0.00
155	0.00	0.00
156	0.00	0.00
157	0.00	0.00
158	0.00	0.00
159	0.00	0.00
160	0.00	0.00
161	0.00	0.00
201 Total	0.00	0.00



TALAIPELLI COAL MINING PROJECT

NOTE NO. 26 TO THE FS-NCL-LEASE LIABILITIES

( Amount in ₹ )

As at	31.03.2024	31.03.2023
001 Non-current financial liabilities - Lease liabilities	0.00	0.00
002 Lease liabilities	0.00	0.00
003 Long term maturities of Finance Lease Liabilities (Secured) IX	0.00	0.00
004 Long term maturities of Finance Lease Liabilities (Unsecured) X	0.00	0.00
005 Sub-Total	0.00	0.00
006 Less: current maturities of lease liabilities	0.00	0.00
007 Finance Lease obligations - secured	0.00	0.00
008 Finance Lease obligations - unsecured	0.00	0.00
009 Sub-Total	0.00	0.00
011 Total	0.00	0.00



TALAIPELLI COAL MINING PROJECT

NOTE NO. 27 TO THE FS-NCL-TRADE PAYABLES

( Amount in ₹ )

As at	31.03.2024	31.03.2023
001 TRADE PAYABLES(NON CURRENT)	0.00	0.00
002 For Goods and Services	0.00	0.00
003 - Micro & Small Enterprises	0.00	0.00
004 - Others	0.00	0.00
005	0.00	0.00
007 Total	0.00	0.00



## TALAIPALLI COAL MINING PROJECT

## NOTE NO. 28 TO THE FS-NCL-OTHER FINANCIAL LIABILITIES

( Amount in ₹ )

As at	31.03.2024	31.03.2023
001 OTHER FINANCIAL LIABILITIES (NON-CURRENT)	0.00	0.00
002 Payable for Capital Expenditure	0.00	0.00
003 - Micro & Small Enterprises	388,771.37	0.00
004 - Others	1,422.63	656,329.01
005 Contractual Obligations	72,098,406.24	16,802,599.73
006 Others	0.00	0.00
007 Deposits from contractors and others	0.00	0.00
008	0.00	0.00
009	0.00	0.00
011 Total	72,488,600.24	17,458,928.74
020	0.00	0.00
021 Payable for Capital Expenditure - SD/retntion	0.00	0.00
022 - Micro & Small Enterprises	388,771.37	0.00
023 - Others	1,422.63	656,329.01
024 Sub-total	390,194.00	656,329.01
025 Contractual Obligations	0.00	0.00
026 - Micro & Small Enterprises	29,912.80	29,743.00
027 - Others	72,068,493.44	16,772,856.73
028 Sub-total	72,098,406.24	16,802,599.73
029 Total ( 24+28)	72,488,600.24	17,458,928.74
030	0.00	0.00



## TALAIPALLI COAL MINING PROJECT

## NOTE NO. 29 TO THE FS-NCL-PROVISIONS

( Amount in ₹ )

As at	31.03.2024	31.03.2023
001 LONG TERM PROVISIONS	0.00	0.00
002 Provision for Employee Benefits	0.00	0.00
003 Opening Balance	0.00	0.00
004 Additions/ (adjustments) during the year	0.00	0.00
005 Closing Balance	0.00	0.00
006	0.00	0.00
007 Others	0.00	0.00
008 i) Mine Closure Provision	0.00	0.00
009 Opening Balance	0.00	0.00
010 Additions during the year	1,739,600,000.00	0.00
011 Amounts adjusted during the year	0.00	0.00
012 Amounts reversed during the year	0.00	0.00
013 Closing Balance	1,739,600,000.00	0.00
014	0.00	0.00
015 ii) Stripping Activity Adjustments	0.00	0.00
016 Opening Balance	0.00	0.00
017 Additions during the year	0.00	0.00
018 Amounts adjusted during the year	755,469,290.00	0.00
019 Amounts reversed during the year	668,217,695.00	0.00
020 Closing Balance	-1,423,686,985.00	0.00
021	0.00	0.00
024	0.00	0.00
025 TOTAL	315,913,015.00	0.00



**NOTE NO. 30 TO THE FS-NCL-DEFERRED TAX LIABILITIES (NET)**

( Amount in ₹ )

As at	Opening Balance on 01.04.2023	Addition	Closing Balance on 31.03.2024
<b>001 DEFERRED TAX LIABILITIES (NET)</b>			
002 Difference of book depreciation and tax depreciation	0.00	0.00	0.00
003 Less: Deferred tax assets			
004 Provisions & Other disallowances for tax purposes	0.00	0.00	0.00
005 Unabsorbed Depreciation	0.00	0.00	0.00
006 Disallowances u/s 43B of the Income Tax Act, 1961	0.00	0.00	0.00
007 Others	0.00	0.00	0.00
008 Opening Balance	0.00	0.00	0.00
009 Additions during the year	0.00	0.00	0.00
010 Amounts adjusted during the year	0.00	0.00	0.00
011 Amounts reversed during the year	0.00	0.00	0.00
012 Closing Balance	0.00	0.00	0.00
013 MAT credit entitlement	0.00	0.00	0.00
014 <b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
016	0.00	0.00	0.00
017 <b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
018 Breakup of deferred tax assets	0.00	0.00	0.00
019 Provision	0.00	0.00	0.00
020 Statutory dues	0.00	0.00	0.00
021 Leave encashment	0.00	0.00	0.00
022 Others	0.00	0.00	0.00
023	0.00	0.00	0.00
024	0.00	0.00	0.00



TALAIPELLI COAL MINING PROJECT

NOTE NO. 31 TO THE FS-NCL-OTHER NON-CURRENT LIABILITIES

( Amount in ₹ )

As at	31.03.2024	31.03.2023
001 Other Non current Liabilities	0.00	0.00
002 Advances from customers and others	0.00	0.00
003 Deposits from contractors and others	0.00	0.00
004 Grants	0.00	0.00
006	0.00	0.00
007 TOTAL	0.00	0.00



TALAIPELLI COAL MINING PROJECT

NOTE NO. 32 TO THE FS-CL-BORROWINGS

( Amount in ₹ )

As at	31.03.2024	31.03.2023
001 Short Term Borrowings	0.00	0.00
002 Loans repayable on demand	0.00	0.00
003 From Banks	0.00	0.00
004 Secured	0.00	0.00
005 Cash Credit	0.00	0.00
006 Unsecured	0.00	0.00
007 Cash Credit	0.00	0.00
008 Other loans-unsecured	0.00	0.00
009 Commercial Papers	0.00	0.00
010 Less: Unamortised discount on Commercial Papers	0.00	0.00
011 Sub-Total	0.00	0.00
012 Current maturity of long term borrowings	0.00	0.00
013 Bonds-Secured	0.00	0.00
014 Foreign Currency Fixed Rate Notes	0.00	0.00
015 From Banks	0.00	0.00
016 Secured	0.00	0.00
017 Rupee Term Loan	0.00	0.00
018 Foreign currency loans	0.00	0.00
019 Unsecured	0.00	0.00
020 Foreign currency loans	0.00	0.00
021 Rupee term loans	0.00	0.00
022 From Others	0.00	0.00
023 Secured	0.00	0.00
024 Rupee Term Loan	0.00	0.00
025 Unsecured	0.00	0.00
026 Foreign currency loans (Guaranteed by Government of India)	0.00	0.00
027 Other foreign currency loans	0.00	0.00
028 Rupee term loans	0.00	0.00
029 Fixed deposits	0.00	0.00
030 Bill discounted	0.00	0.00
031	0.00	0.00
032 Sub Total	0.00	0.00
034	0.00	0.00
035 TOTAL	0.00	0.00



TALAIPELLI COAL MINING PROJECT

NOTE NO. 33 TO THE FS-CL-LEASE LIABILITIES

( Amount in ₹ )

As at	31.03.2024	31.03.2023
001 Current financial liabilities - Lease liabilities	0.00	0.00
002 Current maturity of finance lease obligations (secured)	0.00	0.00
003 Current maturity of finance lease obligations (unsecured)	0.00	0.00
005 Total	0.00	0.00



TALAIPELLI COAL MINING PROJECT

NOTE NO. 34 TO THE FS-CL-TRADE PAYABLES

( Amount in ₹ )

As at	31.03.2024	31.03.2023
001 <b>TRADE PAYABLES</b>	0.00	0.00
002 For Goods and Services	0.00	0.00
003 - Micro & Small Enterprises	12,599,317.75	49,210.00
004 - Others	1,188,484,968.65	692,468,448.98
005	0.00	0.00
007 <b>Total</b>	<b>1,201,084,286.40</b>	<b>692,517,658.98</b>
008	0.00	0.00
172 <b>Trade payable</b>	0.00	0.00
173 <b>MSME</b>	0.00	0.00
174 Unbilled	8,618,754.75	49,140.00
175 Not due	0.00	0.00
176 Due	3,980,563.00	70.00
177 Disputed	0.00	0.00
178 Undisputed	3,980,563.00	70.00
179	0.00	0.00
180 <b>Sub-total (A)</b>	<b>12,599,317.75</b>	<b>49,210.00</b>
181	0.00	0.00
182 <b>Others</b>	0.00	0.00
183 Unbilled	41,807,428.65	361,372,043.98
184 Not due	0.00	0.00
185 Due	1,146,677,540.00	331,096,405.00
186 Disputed	0.00	0.00
187 Undisputed	1,146,677,540.00	331,096,405.00
188	0.00	0.00
189 <b>Sub-total (B)</b>	<b>1,188,484,968.65</b>	<b>692,468,448.98</b>
190	0.00	0.00
191 <b>Total</b>	<b>1,201,084,286.40</b>	<b>692,517,658.98</b>
192	0.00	0.00
193 <b>Ageing</b>	0.00	0.00
194 <b>MSME</b>	0.00	0.00
195 <b>Disputed</b>	0.00	0.00
196 Less than 1 year	0.00	0.00
197 1-2 years	0.00	0.00
198 2-3 years	0.00	0.00
199 More than 3 years	0.00	0.00
200 <b>Sub Total (I)</b>	<b>0.00</b>	<b>0.00</b>
201	0.00	0.00
202 <b>Undisputed</b>	0.00	0.00
203 Less than 1 year	3,980,493.00	70.00
204 1-2 years	70.00	0.00
205 2-3 years	0.00	0.00
206 More than 3 years	0.00	0.00
207 <b>Sub Total (II)</b>	<b>3,980,563.00</b>	<b>70.00</b>
208	0.00	0.00
209 <b>Total MSME (III)</b>	<b>3,980,563.00</b>	<b>70.00</b>
210	0.00	0.00

**TALAIPELLI COAL MINING PROJECT****NOTE NO. 34 TO THE FS-CL-TRADE PAYABLES****( Amount in ₹ )**

As at	31.03.2024	31.03.2023
211 Others	0.00	0.00
212 Disputed	0.00	0.00
213 Less than 1 year	0.00	0.00
214 1-2 years	0.00	0.00
215 2-3 years	0.00	0.00
216 More than 3 years	0.00	0.00
217 Sub Total (IV)	0.00	0.00
218	0.00	0.00
219 Undisputed	0.00	0.00
220 Less than 1 year	1,146,642,098.00	331,065,072.00
221 1-2 years	4,109.00	12,450.00
222 2-3 years	12,450.00	17,372.00
223 More than 3 years	18,883.00	1,511.00
224 Sub Total (V)	1,146,677,540.00	331,096,405.00
225	0.00	0.00
226 Total Others (VI)	1,146,677,540.00	331,096,405.00

**TALAIPELLI COAL MINING PROJECT**
**NOTE NO. 35 TO THE FS-CL-OTHER FINANCIAL LIABILITIES**

( Amount in ₹ )

As at	31.03.2024	31.03.2023
001 OTHER FINANCIAL LIABILITIES (CURRENT)	0.00	0.00
020 Interest accrued but not due on Unsecured Short Term Borrowing	0.00	0.00
021 Interest accrued but not due on secured borrowings	0.00	0.00
022 Interest accrued but not due on unsecured borrowings	0.00	0.00
023 Unpaid Dividends*	0.00	0.00
024 Unpaid matured deposits and interest accrued thereon*	0.00	0.00
025 Unpaid matured bonds and interest accrued thereon*	0.00	0.00
026 Unpaid bond refund money-Tax free bonds *	0.00	0.00
027 Book Overdraft	0.00	0.00
028 Payable to Customers	0.00	0.00
029 Liability under forward exchange contract	0.00	0.00
030 Hedging cost payable to beneficiaries	0.00	0.00
031 Derivative MTM Liability	0.00	0.00
032 Payable for Capital Expenditure	0.00	0.00
033 - Micro & Small Enterprises	8,091,729.46	5,055,749.90
034 - Others	165,767,733.75	226,335,927.22
035 Contractual Obligations	1,321,802,837.31	587,748,711.00
036 Others Payables	0.00	0.00
037 Deposits from contractors and others	2,124,188.00	2,074,188.00
038 Gratuity Obligations	0.00	0.00
039 Payable to employees	1,530,034.00	5,317,122.76
040 Payable to holding company	0.00	0.00
041 Retention on A/c BG encashment (Solar)	0.00	0.00
042 Payable to Solar Payment Security Account	0.00	0.00
043 Others **	1,504,843.00	1,602,265.00
044 Unspent CSR balance on ongoing Approved CSR projects	0.00	0.00
046	0.00	0.00
047	0.00	0.00
048 Total	1,500,821,365.52	828,133,963.88
049 * Represents the amounts which have not been claimed by the investor/holders of the bonds/ fixed deposits. Out of the above, no amount is due for payment to Investor Education and Protection Fund.	0.00	0.00
050 ** Include Payable to Hospital and other payable	0.00	0.00
051 Payable for Capital Expenditure - SD/retntion	0.00	0.00
052 - Micro & Small Enterprises	6,257,785.00	927,795.00
053 - Others	95,640,035.00	105,684,678.00
054 Sub-total	101,897,820.00	106,612,473.00
055 Contractual Obligations	0.00	0.00
056 - Micro & Small Enterprises	4,927,978.00	4,155,036.00
057 - Others	1,316,874,859.31	583,593,675.00



TALAIPELLI COAL MINING PROJECT

NOTE NO. 35 TO THE FS-CL-OTHER FINANCIAL LIABILITIES

( Amount in ₹ )

As at	31.03.2024	31.03.2023
058 Sub-total	1,321,802,837.31	587,748,711.00
059 Total	1,423,700,657.31	694,361,184.00
060	0.00	0.00



**TALAIPELLI COAL MINING PROJECT****NOTE NO. 36 TO THE FS-CL-OTHER CURRENT LIABILITIES****( Amount in ₹ )**

As at	31.03.2024	31.03.2023
001 OTHER CURRENT LIABILITIES	0.00	0.00
002 Advances from customers and others	0.00	0.00
003 Deferred discount on forward exchange contract	0.00	0.00
004 Tax deducted at source and other statutory dues	315,397,715.00	110,332,439.00
005 Deposits from contractors and others	0.00	0.00
006 Government grants	0.00	0.00
007 Others	0.00	0.00
009	0.00	0.00
010	0.00	0.00
011 Total	315,397,715.00	110,332,439.00



**TALAIPELLI COAL MINING PROJECT**  
**NOTE NO. 37 TO THE FS-CL-PROVISIONS**

( Amount in ₹ )

As at	31.03.2024	31.03.2023
<b>001 SHORT TERM PROVISIONS</b>	<b>0.00</b>	<b>0.00</b>
<b>002 Provision for Employee Benefits</b>	<b>0.00</b>	<b>0.00</b>
003 Opening balance	0.00	0.00
004 Additions/ (adjustments) during the year	0.00	0.00
<b>005 Closing Balance</b>	<b>0.00</b>	<b>0.00</b>
<b>028 Provisions for Obligations Incidental to Land Acquisition</b>	<b>0.00</b>	<b>0.00</b>
029 Opening balance	2,880,452,110.99	3,098,917,852.89
030 Additions during the year	45,918,064.00	613,186,468.00
031 Amounts paid during the year	698,341,830.39	831,652,209.90
032 Amounts reversed during the year	0.00	0.00
<b>033 Closing Balance</b>	<b>2,228,028,344.60</b>	<b>2,880,452,110.99</b>
<b>035 Provision for Tariff Adjustment</b>	<b>0.00</b>	<b>0.00</b>
036 Opening balance	0.00	0.00
037 Additions during the year	0.00	0.00
038 Amounts adjusted during the year	0.00	0.00
039 Amounts reversed during the year	0.00	0.00
<b>040 Closing Balance</b>	<b>0.00</b>	<b>0.00</b>
<b>042 Provision for shortage in Fixed Assets Pending Investigation &amp; Others</b>	<b>0.00</b>	<b>0.00</b>
043 Opening balance	0.00	990.00
044 Additions during the year	784,890.00	0.00
045 Amounts adjusted during the year	0.00	0.00
046 Amounts reversed during the year	0.00	990.00
<b>047 Closing Balance</b>	<b>784,890.00</b>	<b>0.00</b>
<b>048 Provision for Arbitration</b>	<b>0.00</b>	<b>0.00</b>
049 Opening balance	0.00	0.00
050 Additions during the year	316,824,332.00	0.00
051 Amounts used during the year	0.00	0.00
052 Amounts reversed during the year	0.00	0.00
<b>053 Closing Balance</b>	<b>316,824,332.00</b>	<b>0.00</b>
<b>054 Others</b>	<b>0.00</b>	<b>0.00</b>
055 Opening balance	0.00	0.00
056 Additions during the year	0.00	0.00
057 Amounts used during the year	0.00	0.00
058 Amounts reversed during the year	0.00	0.00
<b>059 Closing Balance</b>	<b>0.00</b>	<b>0.00</b>
102	0.00	0.00
<b>104 Total</b>	<b>2,545,637,566.60</b>	<b>2,880,452,110.99</b>



TALAIPELLI COAL MINING PROJECT

NOTE NO. 38 TO THE FS-CL-CURRENT TAX LIABILITIES (NET)

( Amount in ₹ )

As at	31.03.2024	31.03.2023
001 Current liabilities - current tax liabilities (net)	0.00	0.00
002 Opening balance	0.00	0.00
003 Additions during the year	0.00	0.00
004 Amounts adjusted during the year	0.00	0.00
005 Less: Set off against taxes paid	0.00	0.00
007	0.00	0.00
008 Closing Balance	0.00	0.00



TALAIPELLI COAL MINING PROJECT

NOTE NO. 39 TO THE FS--DEFERRED REVENUE

( Amount in ₹ )

As at	31.03.2024	31.03.2023
001 Deferred Revenue	0.00	0.00
002 On account of advance against depreciation	0.00	0.00
003 On account of income from foreign currency fluctuation	0.00	0.00
004 Government grants	0.00	0.00
007	0.00	0.00
008	0.00	0.00
009 TOTAL	0.00	0.00



TALAIPELLI COAL MINING PROJECT

NOTE NO. 39A TO THE FS--REGULATORY DEFERRAL ACCOUNT CREDIT BALANCES

( Amount in ₹ )

As at	31.03.2024	31.03.2023
001 Regulatory deferral account credit balances	0.00	0.00
002 Exchange Differences	0.00	0.00
003	0.00	0.00
005 <b>Total</b>	<b>0.00</b>	<b>0.00</b>

TALAIPELLI COAL MINING PROJECT

NOTE NO. 40 TO THE FS--REVENUE FROM OPERATIONS

( Amount in ₹ )

For the Year ended	31.03.2024	31.03.2023
001 REVENUE FROM OPERATIONS	0.00	0.00
002 Sales	0.00	0.00
003 Energy Sales (including Electricity Duty)	0.00	0.00
004 Less: Advance against depreciation deferred (net)	0.00	0.00
005 Add: Revenue recognized out of advance against depreciation	0.00	0.00
006 Add : Exchange fluctuation receivable from customers	0.00	0.00
007 Sale of energy through trading	0.00	0.00
008 Commission (NVVN)	0.00	0.00
009 Sub total	0.00	0.00
010 Less: Rebate to customers	0.00	0.00
011 Energy Sales (Total)	0.00	0.00
012 Consultancy, project management and supervision fees	0.00	0.00
013 Lease rentals on assets on Operating lease	0.00	0.00
014 Sale of Captive Coal	8,832,323,697.97	0.00
015 Intra Company Elimination	0.00	0.00
017 Sub-total	8,832,323,697.97	0.00
018 Total - Sales	8,832,323,697.97	0.00
019 Sale of fly ash/ash products	0.00	0.00
020 Less: Transferred to fly ash utilisation reserve fund	0.00	0.00
021 Sub-total	0.00	0.00
022 Other Operating Income	0.00	0.00
023 Interest from customers	0.00	0.00
024 Energy Internally Consumed *	0.00	0.00
025 Interest income on Assets under finance lease	0.00	0.00
026 Recognized from deferred revenue - government grant	0.00	0.00
027 Provision written back- Tariff Adjustment	0.00	0.00
028 Income form Trading of ESCerts	0.00	0.00
029 Income from E-Mobility Business & others	0.00	0.00
030 Others	0.00	0.00
032	0.00	0.00
033	0.00	0.00
034 Total	8,832,323,697.97	0.00
040 * Valued at variable cost of generation and corresponding amount included in power charges ( Note-No. 42)	0.00	0.00
041 Excise duty on sale of flyash, cenosphere & ash products	0.00	0.00
042 Energy sales of principal nature (NVVN)	0.00	0.00
043 Energy sales of agency nature (NVVN)	0.00	0.00

**TALAIPELLI COAL MINING PROJECT**
**NOTE NO. 41 TO THE FS--OTHER INCOME**
**( Amount in ₹ )**

For the Year ended	31.03.2024	31.03.2023
001 OTHER INCOME	0.00	0.00
002 Interest from	0.00	0.00
004 Financial assets at amortised cost	0.00	0.00
005 Government Securities (8.5% Tax Free Bonds issued by the State Governments)	0.00	0.00
006 Other Bonds	0.00	0.00
007 Non current Trade Receivable	0.00	0.00
008 Interest from Government of India Securities-Non-Trade	0.00	0.00
009 Less: Amortization of premium	0.00	0.00
010 Sub Total	0.00	0.00
011 Interest from others	0.00	0.00
012 Loan to State Government in settlement of dues from customers	0.00	0.00
013 Loan to Subsidiary Companies	0.00	0.00
014 Loan to Employees	2,986,103.32	2,888,966.21
015 Deposit with banks	16,647,140.52	7,551,015.24
016 Foreign Banks	0.00	0.00
017 Interest from Contractors	2,233,520.00	5,372,021.00
018 Interest from Income Tax Refunds	0.00	0.00
019 Less: Refundable to Customers	0.00	0.00
020 Sub Total	0.00	0.00
021 Deposits with banks-flyash utilisation reserve fund	0.00	0.00
022 Less: transferred to flyash utilisation reserve fund	0.00	0.00
023 Sub Total	0.00	0.00
024 Deposits with banks- DDUGJY funds	0.00	0.00
025 Interest from Contractors- DDUGJY funds	0.00	0.00
026 Transfer to DDUGJY-Advance from customers	0.00	0.00
027 Sub-total	0.00	0.00
030 Others	0.00	0.00
031 Other investments in Joint venture companies	0.00	0.00
032 Dividend from	0.00	0.00
033 Longterm investments in	0.00	0.00
034 Subsidiaries	0.00	0.00
035 Joint Ventures	0.00	0.00
036 Equity Instruments	0.00	0.00
037 Current investments in	0.00	0.00
038 Mutual Funds measured at fairvalue through profit or loss	0.00	0.00
039 Current investments in mutual funds-flyash utilisation reserve fund	0.00	0.00
040	0.00	0.00
041 Less: transferred to flyash utilisation reserve fund	0.00	0.00
042 Lease Rent # Ash Brick Plant	0.00	0.00
043 Less: transferred to flyash utilisation reserve fund	0.00	0.00
044 Other non-operating income	0.00	0.00
045 Profit on disposal of PPE	0.00	0.00

**TALAIPELLI COAL MINING PROJECT**
**NOTE NO. 41 TO THE FS--OTHER INCOME**
**( Amount in ₹ )**

	For the Year ended	31.03.2024	31.03.2023
046	Profit on redemption of GOI securities	0.00	0.00
047	Net gain on sale of investments	0.00	0.00
048	Surcharge received from customers	0.00	0.00
049	Hire charges for equipment	0.00	0.00
050	Gain on option contract / Discount on F.ExchContract	0.00	0.00
051	Lease rent from investment property	0.00	0.00
052	Provision written back-others	0.00	0.00
053	Fair value gains/(losses) on investments in mutual funds at fair value through profit or loss	0.00	0.00
054	Interest from Solar payment security account	0.00	0.00
055	Less : Transferred to SPSA fund	0.00	0.00
056	Interest on "Retention on A/c BG encashment (Solar)"	0.00	0.00
057	Less : Transferred to "Retention on A/c BG encashment (Solar)"	0.00	0.00
058		0.00	0.00
059		0.00	0.00
060		0.00	0.00
061	Miscellaneous Income	2,187,122.24	1,864,680.31
062	<b>Total</b>	<b>24,053,886.08</b>	<b>17,676,682.76</b>
063	Less: Transferred to Development of Coal Mines- Note 47A	1,400,862.36	7,236,701.31
064	Less: Transferred to Expenditure during Construction period (net)- Note 47	0.00	0.00
065	Less: Others	0.00	0.00
066	Less: Transferred to payable to Govt. of Jharkhand	0.00	0.00
068		0.00	0.00
069		0.00	0.00
070	<b>Total</b>	<b>22,653,023.72</b>	<b>10,439,981.45</b>
071		0.00	0.00
101	<b>Details of Miscellaneous Income</b>	<b>0.00</b>	<b>0.00</b>
102	Vehicle Hire Charges	26,000.00	26,000.00
103	Sale of by products & residuals	0.00	0.00
104	Township recoveries(excl. Hospital Recoveries)	629,585.44	224,877.31
105	Depreciation written back	0.00	0.00
106	Sale of Scrap	0.00	0.00
107	Receipt under loss of profit policy	0.00	0.00
108	Receipts under MBD/Fire Policy	0.00	0.00
109	Management development programme	0.00	0.00
110	Management Fee - Misc (NVVN)	0.00	0.00
111	Others	1,531,536.80	1,613,803.00
112		0.00	0.00
113		0.00	0.00
114	<b>Total (Miscellaneous Income)</b>	<b>2,187,122.24</b>	<b>1,864,680.31</b>
115		0.00	0.00
131	<b>Details of Provision written back others</b>	<b>0.00</b>	<b>0.00</b>



**TALAIPELLI COAL MINING PROJECT****NOTE NO. 41 TO THE FS--OTHER INCOME****( Amount in ₹ )**

	<b>For the Year ended</b>	<b>31.03.2024</b>	<b>31.03.2023</b>
132	Doubtful debts	0.00	0.00
133	Doubtful Loans, Advances and Claims	0.00	0.00
134	Doubtful Construction Advances	0.00	0.00
135	Shortage in Construction Stores	0.00	0.00
136	Shortage in Stores	0.00	0.00
137	Obsolescence in Stores	0.00	0.00
138	Unserviceable capital works	0.00	0.00
139	Other Obligation including Arbitration	0.00	0.00
140	Shortage in Fixed Assets	0.00	0.00
141	Diminution in value of Investment	0.00	0.00
142		0.00	0.00
143		0.00	0.00

**TALAIPELLI COAL MINING PROJECT****NOTE NO. 42 TO THE FS--FUEL COST****( Amount in ₹ )**

	For the Year ended	31.03.2024	31.03.2023
001	<b>FUEL COST</b>	<b>0.00</b>	<b>0.00</b>
002	Coal	0.00	0.00
003	Captive	4,818,218,660.55	0.00
004	Other than captive	6,992,987.54	0.00
005	Gas	0.00	0.00
006	Naptha	0.00	0.00
007	Oil	0.00	0.00
008	Biomass Pellets & Others	0.00	0.00
009		0.00	0.00
010		0.00	0.00
011	<b>Total</b>	<b>4,825,211,648.09</b>	<b>0.00</b>
012		0.00	0.00



TALAIPELLI COAL MINING PROJECT

NOTE NO. 43 TO THE FS--EMPLOYEE BENEFITS EXPENSE

( Amount in ₹ )

	For the Year ended	31.03.2024	31.03.2023
001	<b>EMPLOYEE BENEFITS EXPENSE</b>	<b>0.00</b>	<b>0.00</b>
002	Salaries and wages	275,429,075.84	257,396,281.13
003	Contribution to provident and other funds	44,381,640.51	32,121,927.51
004	Unwinding of deferred payroll expense	1,808,077.71	1,543,574.38
005	Staff welfare expenses	45,900,339.11	40,746,890.35
006	Less: Expenses transferred to Consultancy group	0.00	0.00
007		0.00	0.00
008	<b>Sub Total</b>	<b>367,519,133.17</b>	<b>331,808,673.37</b>
009	Less: Employee benefits expense allocated to fuel inventory	39,282,647.41	0.00
010	Less: Transferred/Allocated to development of coal mines - Note 47A	167,937,353.20	320,194,957.39
011	Less: Others	0.00	0.00
012	Less: Transferred to fly ash utilisation reserve fund	0.00	0.00
013	Less: Transferred to CSR Expenses	0.00	0.00
014	Reimbursements for employees on secondment	4,773,321.60	5,273,510.47
015	Less: Transferred to expenditure during construction period (net)- Note 47	0.00	0.00
016	Less: Transfer to Govt of Jharkhand A/c as recoverable	0.00	0.00
018		0.00	0.00
019	<b>TOTAL</b>	<b>155,525,810.96</b>	<b>6,340,205.51</b>
020	<b>Managerial Remuneration paid/ payable to Directors included above (except for Directors fee which is included in Note 42)</b>	<b>0.00</b>	<b>0.00</b>
021	Salaries and wages	0.00	0.00
022	Contribution to provident and other funds	0.00	0.00
023	Staff welfare expenses	0.00	0.00
024	Directors fee	0.00	0.00
025		0.00	0.00



TALAIPELLI COAL MINING PROJECT

NOTE NO. 44 TO THE FS--FINANCE COSTS

( Amount in ₹ )

	For the Year ended	31.03.2024	31.03.2023
001	<b>FINANCE COSTS</b>	<b>0.00</b>	<b>0.00</b>
002	Finance charges on financial liabilities measured at amortised cost	0.00	0.00
003	Bonds	321,433,941.10	318,128,443.79
004	Government of India Loans	0.00	0.00
005	Foreign currency term loans	159,654,155.85	58,897,548.54
006	Rupee term loans	450,661,473.00	319,122,694.00
007	Public deposits	0.00	0.00
008	Foreign currency bonds/notes	0.00	0.00
009	Cash Credit	0.00	0.00
010	Unwinding of discount on account of vendor liabilities	3,694,798.00	200,138.43
011	Commercial Papers	0.00	0.00
012	<b>Sub Total</b>	<b>935,444,367.95</b>	<b>696,348,824.76</b>
013	Interest on non financial items	0.00	0.00
014	<b>Other Borrowing Costs</b>	<b>0.00</b>	<b>0.00</b>
015	Bonds servicing & public deposit exp.	285,493.98	228,506.61
016	Guarantee fee	0.00	0.00
017	Management fee	0.00	0.00
018	Committ charges/exposure premium	0.00	0.00
019	Bond issue expenses	0.00	0.00
020	Legal exp on foreign currency loans	0.00	0.00
021	Foreign currency bonds/notes exp.	0.00	0.00
022	Up-front fee	0.00	0.00
023	Insurance premium on foreign currency loans	0.00	0.00
024		0.00	0.00
025	Others	0.00	0.00
026	<b>Sub Total (Other Borrowing cost)</b>	<b>285,493.98</b>	<b>228,506.61</b>
027		0.00	0.00
028	Exchange differences regarded as an adjustment to borrowing costs	10,661,721.93	34,296,508.95
029	<b>Sub Total</b>	<b>946,391,583.86</b>	<b>730,873,840.32</b>
030	Less: Transferred to Expenditure during construction period (net) - Note 47	0.00	0.00
031	Less: Transferred to development of coal mines- Note 47A	427,745,228.03	730,873,840.32
032		0.00	0.00
034	<b>Total</b>	<b>518,646,355.83</b>	<b>0.00</b>

**TALAIPELLI COAL MINING PROJECT**

<b>NOTE NO. 45 TO THE FS--DEPRECIATION, AMORTIZATION AND IMPAIRMENT EXPENSES</b>		<b>( Amount in ₹ )</b>	
	<b>For the Year ended</b>	<b>31.03.2024</b>	<b>31.03.2023</b>
001	Depreciation, amortization and impairment expenses	0.00	0.00
002	On property, plant and equipment- Note 2	725,585,238.40	302,401,484.96
003	On investment property- Note 2A	0.00	0.00
004	On intangible assets- Note 4	1,530,368.56	980,496.81
005		0.00	0.00
006	Sub-total	727,115,606.96	303,381,981.77
007	Less:	0.00	0.00
008	Allocated to fuel inventory	289,028,033.97	0.00
009	Transferred to Expenditure during Construction Period (net)- Note 47	0.00	0.00
010		0.00	0.00
011	Transferred/Allocated to development of coal mines - Note 47A	182,659,770.97	303,381,981.77
012	Adjustment with deferred revenue from deferred foreign currency fluctuation	0.00	0.00
013		0.00	0.00
015	<b>Total</b>	<b>255,427,802.02</b>	<b>0.00</b>



TALAIPELLI COAL MINING PROJECT

NOTE NO. 46 TO THE FS--OTHER EXPENSE

( Amount in ₹ )

	For the Year ended 31.03.2024	31.03.2023
001 OTHER EXPENSES	0.00	0.00
002 Power charges	44,682,850.00	29,597,852.19
003 Less: Recovered from contractors & employees	12,704,500.31	123,960.03
004 <b>Sub-Total(Power Charges)</b>	<b>31,978,349.69</b>	<b>29,473,892.16</b>
005 Water charges	1,343,540.00	188,903.00
006 Stores consumed	26,583.60	159,212.94
007 Rent	517,498.00	955,653.00
008 Less Recoveries	0.00	0.00
009 <b>Sub-Total (Rent)</b>	<b>517,498.00</b>	<b>955,653.00</b>
010 Cost of captive coal produced	9,175,846,673.50	2,987,867,524.49
011 <b>Repairs &amp; maintenance</b>	<b>0.00</b>	<b>0.00</b>
012 Buildings	1,161,396.00	269,414.00
013 Plant & machinery	0.00	0.00
014 Power stations	2,645,675.98	306,888.81
015 Construction equipment	0.00	0.00
016 Others	82,504,394.91	27,491,031.92
017 <b>Sub-total (Repairs &amp; maintenance)</b>	<b>86,311,466.89</b>	<b>28,067,334.73</b>
019 Load Dispatch Center Charges	0.00	0.00
021 Insurance	1,320,523.00	1,750.00
022 Interest to beneficiaries	0.00	0.00
023 Rates and taxes	4,306,851.18	6,592,846.45
024 Water cess & environment protection cess	0.00	577,321.00
025 Training & recruitment expenses	844,804.00	883,083.00
026 Less: Receipts	0.00	0.00
027 <b>Sub-total (Training and recruitment expenses)</b>	<b>844,804.00</b>	<b>883,083.00</b>
028 Communication expenses	11,211,525.17	6,440,574.03
029 Inland Travel	15,475,103.21	15,205,780.66
030 Foreign Travel	0.00	695,726.13
031 Tender expenses	56,280.00	0.00
032 Less: Receipt from sale of tenders	0.00	0.00
033 <b>Sub-total (Tender expenses)</b>	<b>56,280.00</b>	<b>0.00</b>
034 Payment to auditors	0.00	0.00
035 Audit fee	0.00	0.00
036 Tax audit fee	0.00	0.00
037 Other services	0.00	0.00
038 Reimbursement of expenses	0.00	0.00
039 <b>Sub-total (Payment to Auditors)</b>	<b>0.00</b>	<b>0.00</b>
040 Advertisement and publicity	1,128,420.00	762,031.00
041 Electricity duty	0.00	0.00
042 Security expenses	48,437,062.52	34,887,937.91
043 Entertainment expenses	2,892,635.57	2,214,555.05
044 Expenses for guest house	16,960,503.39	12,990,714.61
045 Less Recoveries	0.00	0.00
046 <b>Sub-Total (Guest house expenses)</b>	<b>16,960,503.39</b>	<b>12,990,714.61</b>
047 Education expenses	0.00	0.00
049 Donations	0.00	0.00

**TALAIPELLI COAL MINING PROJECT**
**NOTE NO. 46 TO THE FS--OTHER EXPENSE**
**( Amount in ₹ )**

	31.03.2024	31.03.2023
For the Year ended		
050 Ash utilisation & marketing expenses	0.00	0.00
051 Directors sitting fee	0.00	0.00
053 Professional charges and consultancy fees	18,044,702.17	73,324,567.88
054 Legal expenses	32,332,377.00	35,926,962.00
055 EDP hire and other charges	1,777,650.74	3,588,841.81
056 Printing and stationery	1,075,784.50	457,258.00
057 Oil & gas exploration expenses	0.00	0.00
059 Hiring of vehicles	34,266,925.01	26,121,371.40
061 Reimbursement of L.C.charges on sales realisation	0.00	0.00
062 LOSS ON FAIR VALUATION OF NON- CURRENT TRADE RECEIVABLE AT AMORTISED COST	0.00	0.00
063 Cost of Hedging	0.00	0.00
064 Derivatives MTM loss/gain (Net)	372,798.00	0.00
065 Net loss/(gain) in foreign currency transactions & translations	-23,400,707.94	84,669,084.51
066 Transport Vehicle running expenses	420,933.00	836,166.00
067 Horticulture Expenses	161,072.00	246,217.00
068 Hire charges- helicopter/aircraft.	0.00	0.00
069 Hire charges of construction equipment	0.00	0.00
070 Demurrage Charges	0.00	0.00
072	0.00	0.00
073 Miscellaneous expenses	685,831,138.31	17,723,945.65
074 Loss on disposal/write-off of PPE	6,213.15	990.00
075 <b>Sub-Total</b>	<b>10,149,546,705.66</b>	<b>3,370,860,244.41</b>
076 Less: Other expenses allocated to fuel inventory	4,489,907,979.17	0.00
077 Less: Transferred/Allocated to development of coal mines - Note 47A	4,847,481,575.06	3,284,627,807.43
078 Less: Transferred to fly ash utilisation reserve fund	0.00	0.00
079 Less: Hedging cost Net recoverable/payable from/to beneficiaries	372,798.00	0.00
080 Less: Others	0.00	0.00
081 Less: Transferred to CSR Expenses	0.00	0.00
082 Less: Transferred to Expenditure during Construction period(net)-Note 47	0.00	0.00
083 Less: Transfer to Govt of Jharkhand A/c as recoverable	0.00	0.00
084 <b>Net (Generation, Administration and Other expenses)</b>	<b>811,784,353.43</b>	<b>86,232,436.98</b>
085 Corporate Social Responsibility Expenses	8,235,196.00	43,892,406.80
086 Less: Grants-in-aid	0.00	0.00
087 <b>Sub-total (Corporate Social Responsibility Expenses)</b>	<b>8,235,196.00</b>	<b>43,892,406.80</b>
088 Provisions	0.00	0.00
089 Doubtful Debts	0.00	0.00
090 Doubtful loans, advances and claims	0.00	0.00
091 Doubtful Construction Advances	0.00	0.00
092 Shortage in stores	0.00	0.00

TALAIPELLI COAL MINING PROJECT

NOTE NO. 46 TO THE FS--OTHER EXPENSE

( Amount in ₹ )

For the Year ended	31.03.2024	31.03.2023
093: Obsolete/Dimunition in the value of surplus stores	0.00	0.00
094: Shortage in construction stores	0.00	0.00
095: Dimunition in value of long term investments	0.00	0.00
096: Shortage in Fixed assets	784,890.00	-990.00
097: Unfinished minimum work progress from oil & gas exploration	0.00	0.00
098: Unserviceable capital works	0.00	0.00
099: Tariff Adjustment	0.00	0.00
100: Others	0.00	0.00
101: (i) Provision for arbitration cases	316,824,332.00	0.00
102: (ii) Other provisions	0.00	0.00
103: <b>Total (Provisions)</b>	<b>317,609,222.00</b>	<b>-990.00</b>
104:	0.00	0.00
106: <b>Total</b>	<b>1,137,628,771.43</b>	<b>130,123,853.78</b>
107:	0.00	0.00
108: <b>Breakup of miscellaneous expenses.</b>	<b>0.00</b>	<b>0.00</b>
110: Hire charges of office equipment	0.00	0.00
112: Operating expenses of construction equipment	0.00	0.00
113: Operating expenses of D.G. sets	0.00	0.00
114: Furnishing expenses	328,912.45	1,169,077.00
115: Subscription to trade and other associations.	0.00	0.00
117: Visa and entry permit charges	0.00	0.00
118: Tree plantation exp.-NTPC Land	0.00	2,294,800.00
119: Research & development expenses	0.00	0.00
120: Less : Grants received for Research & development expenses.	0.00	0.00
121: Sub-total (Research & development expenses)	0.00	0.00
122: Bank charges	19,507,807.60	7,234.00
123: Business Development Expenditure	0.00	0.00
124: Surcharge (NVVN)	0.00	0.00
125: Power Trading Expenses	0.00	0.00
126: Brokerage & commission	0.00	0.00
130: Books and periodicals	87,460.00	70,241.00
131: Claims/advances written off	0.00	0.00
132: Stores written off	0.00	0.00
133: Survey & investigation expenses written off	0.00	0.00
134: Others	665,906,958.26	14,182,593.65
135: <b>Total</b>	<b>685,831,138.31</b>	<b>17,723,945.65</b>
136:	0.00	0.00
137:	0.00	0.00
138:	0.00	0.00



TALAIPELLI COAL MINING PROJECT

NOTE NO. 47 TO THE FS--EXPENDITURE DURING CONSTRUCTION PERIOD (NET)

( Amount in ₹ )

	For the Year ended	31.03.2024	31.03.2023
001	<b>EXPENDITURE DURING CONSTRUCTION PERIOD (NET)</b>	<b>0.00</b>	<b>0.00</b>
002	A. Employee benefits expense	0.00	0.00
003	Salaries and wages	0.00	0.00
004	Contribution to provident and other funds	0.00	0.00
005	Unwinding of deferred payroll expenses	0.00	0.00
006	Staff welfare expenses	0.00	0.00
007	<b>Total (A)</b>	<b>0.00</b>	<b>0.00</b>
008	<b>B. Finance Costs</b>	<b>0.00</b>	<b>0.00</b>
009	Finance charges on financial liabilities measured at amortised cost	0.00	0.00
010	Bonds	0.00	0.00
011	Foreign currency term loans	0.00	0.00
012	Rupee term loans	0.00	0.00
013	Foreign currency bonds/notes	0.00	0.00
014	Unwinding of discount on account of vendor liabilities	0.00	0.00
015	Others	0.00	0.00
016		0.00	0.00
017	Other Borrowings Costs	0.00	0.00
018	Guarantee Commission	0.00	0.00
019	Management Fees/Arrangers Fees	0.00	0.00
020	Commitment charges/Exposure Premium	0.00	0.00
021	Legal Expenses on foreign currency loans	0.00	0.00
022	Foreign currency bonds/notes expenses	0.00	0.00
023	Foreign Credit Insurance Premium	0.00	0.00
024	Upfront Fee	0.00	0.00
025	Exchange Differences	0.00	0.00
026	Others	0.00	0.00
027	Exchange differences regarded as adjustment to interest cost	0.00	0.00
028	<b>Total (B)</b>	<b>0.00</b>	<b>0.00</b>
029		0.00	0.00
030	C. Depreciation and amortisation	0.00	0.00
031	<b>D. Generation , administration and other expenses</b>	<b>0.00</b>	<b>0.00</b>
032	Power charges	0.00	0.00
033	Less: Recovered from contractors & employees	0.00	0.00
034	<b>Sub-total(Net power charges)</b>	<b>0.00</b>	<b>0.00</b>
035	Water charges	0.00	0.00
036	Rent	0.00	0.00
037	Repairs & maintenance	0.00	0.00
038	Buildings	0.00	0.00
039	Construction equipment	0.00	0.00
040	Others	0.00	0.00
041		0.00	0.00
042	Insurance	0.00	0.00

TALAIPELLI COAL MINING PROJECT

NOTE NO. 47 TO THE FS--EXPENDITURE DURING CONSTRUCTION PERIOD (NET)

( Amount in ₹ )

For the Year ended		31.03.2024	31.03.2023
043	Rates and taxes	0.00	0.00
044	Communication expenses	0.00	0.00
045	Travelling expenses	0.00	0.00
046	Tender expenses	0.00	0.00
047	Less: Income from sale of tenders	0.00	0.00
048	<b>Sub-total (Net tender expenses)</b>	<b>0.00</b>	<b>0.00</b>
049	Advertisement and publicity	0.00	0.00
050	Security expenses	0.00	0.00
051	Entertainment expenses	0.00	0.00
052	Guest house expenses	0.00	0.00
053	Less: Receipt from guest house	0.00	0.00
054	<b>Sub-total (Net Guest House Expenses)</b>	<b>0.00</b>	<b>0.00</b>
055	Education expenses	0.00	0.00
056	Brokerage & Commission	0.00	0.00
057	Books and periodicals	0.00	0.00
058	Community development expenses	0.00	0.00
059	Professional charges and consultancy fee	0.00	0.00
060	Legal expenses	0.00	0.00
061	EDP Hire and other charges	0.00	0.00
062	Printing and stationery	0.00	0.00
063	Miscellaneous expenses	0.00	0.00
064	<b>Total (D)</b>	<b>0.00</b>	<b>0.00</b>
065	<b>Total (A+B+C+D)</b>	<b>0.00</b>	<b>0.00</b>
066	<b>E. Less: Other Income</b>	<b>0.00</b>	<b>0.00</b>
067	Interest from	0.00	0.00
068	Indian banks	0.00	0.00
069	Foreign banks	0.00	0.00
070	Others	0.00	0.00
071	Contractors	0.00	0.00
072	Hire charges	0.00	0.00
073	Sale of scrap	0.00	0.00
074	Exchange Differences	0.00	0.00
075	Miscellaneous income	0.00	0.00
076	<b>TOTAL (E)</b>	<b>0.00</b>	<b>0.00</b>
077	F. Net actuarial gain/loss OCI	0.00	0.00
078		0.00	0.00
079	<b>GRAND TOTAL (A+B+C+D-E+F)</b>	<b>0.00</b>	<b>0.00</b>
080		0.00	0.00
081	* Balance carried to Capital Work-in-progress - (Note 3)	0.00	0.00



TALAIPELLI COAL MINING PROJECT

NOTE NO. 47A TO THE FS--EDC- COAL MINING

( Amount in ₹ )

	For the Year ended	31.03.2024	31.03.2023
001	<b>EDC- Coal Mining</b>	<b>0.00</b>	<b>0.00</b>
002	A. Employee benefits expense	0.00	0.00
003	Salaries and wages	124,296,601.36	249,779,563.10
004	Contribution to provident and other funds	18,138,629.49	30,341,331.00
005	Unwinding of deferred payroll expenses	0.00	0.00
006	Staff welfare expenses	25,502,122.35	40,074,063.29
007	<b>Total (A)</b>	<b>167,937,353.20</b>	<b>320,194,957.39</b>
008	B. Finance Costs	0.00	0.00
009	Finance charges on financial liabilities measured at amortised cost	0.00	0.00
010	Bonds	160,895,124.16	318,107,677.56
011	Foreign currency term loans	68,237,910.60	50,879,499.74
012	Rupee term loans	218,195,175.00	319,122,694.00
013	Foreign currency bonds/notes	0.00	0.00
014	Unwinding of discount on account of vendor liabilities	1,104,851.95	200,138.43
015	Others	0.00	0.00
016		0.00	0.00
017	Other Borrowings Costs	0.00	0.00
018	Guarantee Commission	0.00	0.00
019	Management Fees/Arrangers Fees	0.00	0.00
020	Commitment charges/Exposure Premium	0.00	0.00
021	Legal Expenses on foreign currency loans	0.00	0.00
022	Foreign currency bonds/notes expenses	0.00	0.00
023	Foreign Credit Insurance Premium	0.00	0.00
024	Upfront Fee	0.00	0.00
025	Exchange Differences	0.00	0.00
026	Others	5,966,472.39	8,267,321.64
027	Exchange differences regarded as adjustment to interest cost	-26,654,306.07	34,296,508.95
028	<b>Total (B)</b>	<b>427,745,228.03</b>	<b>730,873,840.32</b>
029		0.00	0.00
030	C. Depreciation and amortisation	182,659,770.97	303,381,981.77
031	D. Generation , administration and other expenses	0.00	0.00
032	Power charges	20,056,180.00	29,597,852.19
033	Less: Recovered from contractors & employees	70,309.61	123,960.03
034	<b>Sub-total(Net power charges)</b>	<b>19,985,870.39</b>	<b>29,473,892.16</b>
035	Water charges	0.00	0.00
036	Rent	74,999.00	955,653.00
037	Repairs & maintenance	0.00	0.00
038	Buildings	1,155,604.00	269,414.00
039	Construction equipment	0.00	0.00
040	Others	27,217,558.29	27,650,244.58
041	Cost of Captive Coal	4,689,577,586.35	2,987,867,524.49
042	Insurance	0.00	0.00
043	Rates and taxes	2,394,834.58	7,170,167.45

TALAIPELLI COAL MINING PROJECT

NOTE NO. 47A TO THE FS--EDC- COAL MINING

( Amount in ₹ )

For the Year ended	31.03.2024	31.03.2023
044 Communication expenses	4,514,272.50	6,387,218.01
045 Travelling expenses	7,676,957.74	15,776,476.54
046 Tender expenses	0.00	0.00
047 Less: Income from sale of tenders	0.00	0.00
048 <b>Sub-total (Net tender expenses)</b>	<b>0.00</b>	<b>0.00</b>
049 Advertisement and publicity	550,548.00	762,031.00
050 Security expenses	23,595,341.37	34,887,937.91
051 Entertainment expenses	1,117,922.56	2,214,555.05
052 Guest house expenses	8,414,596.39	12,990,714.61
053 Less: Receipt from guest house	0.00	0.00
054 <b>Sub-total (Net Guest House Expenses)</b>	<b>8,414,596.39</b>	<b>12,990,714.61</b>
055 Education expenses	0.00	0.00
056 Brokerage & Commission	0.00	0.00
057 Books and periodicals	9,000.00	70,241.00
058 Community development expenses	0.00	0.00
059 Professional charges and consultancy fee	30,007,941.80	73,321,217.88
060 Legal expenses	12,074,789.00	35,926,962.00
061 EDP Hire and other charges	914,162.00	3,588,841.81
062 Printing and stationery	394,120.50	457,258.00
063 Miscellaneous expenses	17,805,470.59	44,857,457.94
064 <b>Total (D)</b>	<b>4,847,481,575.06</b>	<b>3,284,627,807.43</b>
065 <b>Total (A+B+C+D)</b>	<b>5,625,823,927.26</b>	<b>4,639,078,586.91</b>
066 <b>E. Less: Other Income</b>	<b>0.00</b>	<b>0.00</b>
067 Interest from	0.00	0.00
068 Indian banks	0.00	0.00
069 Foreign banks	0.00	0.00
070 Others	0.00	0.00
071 Contractors	1,032,702.00	5,372,021.00
072 Hire charges	0.00	0.00
073 Sale of scrap	0.00	0.00
074 Exchange Differences	0.00	0.00
075 Miscellaneous income	368,160.36	1,864,680.31
076 <b>TOTAL (E)</b>	<b>1,400,862.36</b>	<b>7,236,701.31</b>
077 F. Net actuarial gain/loss-OCI	-36,069.17	1,401,110.81
078	0.00	0.00
079 <b>GRAND TOTAL (A+B+C+D-E+F)</b>	<b>5,624,386,995.73</b>	<b>4,633,242,996.41</b>
080	0.00	0.00
081 * Balance carried to Capital Work-in-progress - (Note 3)	5,624,386,995.73	4,633,242,996.41



TALAIPELLI COAL MINING PROJECT

NOTE NO. 48A TO THE FINANCIAL STATEMENTS

( Amount in ₹ )

As at	31.03.2024	31.03.2023
001 Balance sheet	0.00	0.00
002 Freehold land for which conveyancing of the title is awaiting completion of legal formalities	0.00	0.00
003 (a) area (in acres)	16.77	28.39
004 (b) value (in rs)	52,720,705.00	108,189,365.79
005 Right-of-use land for which execution of lease deed is awaiting completion of legal formalities	0.00	0.00
006 (a) area (in acres)	0.00	0.00
007 (b) value (in rs)	0.00	0.00
008 Right-of-use land acquired on perpetual lease and accordingly not amortised	0.00	0.00
009 (a) area (in acres)	0.00	0.00
010 (b) value (in rs.)	0.00	0.00
011 Land in physical possession of the company which has not been shown in the books pending settlement of price (in acres)	0.00	0.00
012 Deposit with government authorities towards land in possession of the company included in cost of land which is subject to adjus	0.00	0.00
013 Land not in possession of the company	0.00	0.00
014 (a) area (in acres)	0.00	0.00
015 -Freehold	0.00	0.00
016 -Right of Use	0.00	0.00
017 (b) value (in rs)	0.00	0.00
018 -Freehold	0.00	0.00
019 -Right of Use	0.00	0.00
020 Right-of-use buildings pending completion of legal formalities - value (in rs.)	0.00	0.00
021 Estimated amount of contracts remaining to be executed on capital account and not provided for	0.00	0.00
022 Property, plant & equipment	1,786,754,788.00	1,928,847,258.00
023 Intangible assets	0.00	0.00
024 Details of precommissioning expenditure	0.00	0.00
025 (a) precommissioning expenses	0.00	0.00
026 (b) precommissioning income	0.00	0.00
027 (c) net precommissioning expenditure	0.00	0.00
028	0.00	0.00
029	0.00	0.00
030	0.00	0.00
031 Exchange rate variation taken to revenue during the year (with -ve sign, if favourable)	0.00	0.00
045 Exchange rate variation capitalised during the year (with -ve sign, if favourable)	0.00	0.00
064 Short Term Leases	0.00	0.00
065 A) Rent	0.00	0.00
066 Company lease accomodation - executives	0.00	0.00
067 Company lease accomodation - directors	0.00	0.00
068 Others	517,498.00	955,653.00

**TALAIPELLI COAL MINING PROJECT**
**NOTE NO. 48A TO THE FINANCIAL STATEMENTS**
**( Amount in ₹ )**

As at	31.03.2024	31.03.2023
<b>069 Total</b>	<b>517,498.00</b>	<b>955,653.00</b>
101 Borrowing cost capitalised during the year	427,745,228.00	730,873,840.32
102 Revenue grants recognized during the year	0.00	0.00
103 Revenue expenditure on research and development	0.00	0.00
104 Capital expenditure on research and development	0.00	0.00
105 Expenditure on sustainability development - capital	0.00	0.00
106 Expenditure on csr- capital	0.00	0.00
107 Opening balance - CSR Liability	0.00	0.00
108 Paid/Adjusted during the Year out of Opening above	0.00	0.00
109 Amount yet to be paid against Cr Year CSR Exp	0.00	0.00
110 Closing Balance CSR- Liability ( : 110)	0.00	0.00
111	0.00	0.00
112	0.00	0.00
<b>113 Disclosure under msmed act 2006.</b>	<b>0.00</b>	<b>0.00</b>
114 Long-term	0.00	0.00
115 Short-term	-12,599,317.75	-49,210.00
<b>116 (i) (a) the principal amount remaining unpaid as at year end</b>	<b>-12,599,317.75</b>	<b>-49,210.00</b>
117 (i) (b) Interest due there on remaining unpaid as at Year end	0.00	0.00
118 (ii) the amount of interest paid by the buyer in terms of section 16, along with the amounts of the payment made to the supplier	0.00	0.00
119 (iii) the amount of interest due and payable for the period of delay in making payment(which has been paid but beyond the appoin	0.00	0.00
120 (iv) the amount of interest accrued and remaining unpaid at the end of the year; and	0.00	0.00
121 (v) the amount of further interest remaining due and payable even in the succeeding years, until such date when the interest due	0.00	0.00
122 Amount of inventories recognized as an expense (including fuel)	4,838,085,566.01	6,416,715.92
123 Amount of inventories capitalised as overhauling assets out of 122 above	0.00	0.00
124 Amount capitalised as edc out of 122 above	0.00	0.00
133 Value of Imported Material Consumed during the Year	0.00	0.00
134	0.00	0.00
135 Contingent liabilities	0.00	0.00
136 A. Claims against the company not acknowledged as debts in respect of :	0.00	0.00
137 (i)Capital works	9,140,000,000.00	2,501,044,932.00
138 (ii)Land compensation cases	0.00	0.00
139 (iii)Others by state authorities towards -	0.00	0.00
140 (a) Water royalty / water charges / naia tax	0.00	0.00
141 (b) Diversion of land / building permission fees	0.00	0.00

**TALAIPELLI COAL MINING PROJECT**

**NOTE NO. 48A TO THE FINANCIAL STATEMENTS**

( Amount in ₹ )

As at	31.03.2024	31.03.2023
142 (c) Other demands by state authorities	0.00	0.00
143 (iv) Others by fuel companies	0.00	0.00
144 (a) Disputes related to grade slippage-third party sampling	0.00	0.00
145 (b) Surface transportation charges on coal	0.00	0.00
146 (c) Take or pay claim - Gas stations	0.00	0.00
147 (d) Other claims by fuel companies not acknowledged as debt	0.00	0.00
149 B Disputed tax demands	0.00	0.00
150 (i) Income tax	0.00	0.00
151 (ii) Excise duty	0.00	0.00
152 (iii) Sales tax	0.00	0.00
153 (iv) Service tax/GST	0.00	0.00
154 (v) Entry tax	0.00	0.00
155 C. Others	0.00	0.00
156 <b>Total</b>	<b>9,140,000,000.00</b>	<b>2,501,044,932.00</b>
157 D. Possible reimbursement on account of contingent liabilities	0.00	0.00
158 (i) Capital works	0.00	0.00
159 (ii) Land compensation cases	0.00	0.00
160 (iii) Others (by state authorities)	0.00	0.00
161	0.00	0.00
162 (iv) Others by fuel companies	0.00	0.00
163 (v) Disputed income tax demand	0.00	0.00
164 (vi) Disputed tax demands -others	0.00	0.00
165 (vii) Others	0.00	0.00
167 <b>Total</b>	<b>0.00</b>	<b>0.00</b>
168 E. AMOUNT PAID UNDER PROTEST/ADJUSTED BY AUTHORITIES - TAX CASES	0.00	0.00
169 F CONTINGENT ASSETS	0.00	0.00
170 Intangible under development less than 1 year	0.00	0.00
171 Intangible under development #: 1-2 year	0.00	0.00
227 Intangible under development #: 2-3 year	0.00	0.00
277 Intangible under development #: More than 3 years	0.00	0.00
278 <b>Capital-Work-in Progress (CWIP)</b>	<b>0.00</b>	<b>0.00</b>
279 Projects in progress	21,485,625.00	9,396,141,351.09
280 Projects temporarily suspended	0.00	0.00
281	0.00	0.00
282	0.00	0.00
283 <b>Projects in progress</b>	<b>0.00</b>	<b>0.00</b>
284 Less than 1 year	21,485,625.00	2,182,043,225.96
285 1-2 years	0.00	2,366,048,208.37
286 2-3 years	0.00	2,650,931.21
287 More than 3 years	0.00	4,845,398,985.55
288 <b>Sub Total (I)</b>	<b>21,485,625.00</b>	<b>9,396,141,351.09</b>
289	0.00	0.00

**TALAIPELLI COAL MINING PROJECT****NOTE NO. 48A TO THE FINANCIAL STATEMENTS****( Amount in ₹ )**

As at	31.03.2024	31.03.2023
290 <b>Projects temporarily suspended</b>	<b>0.00</b>	<b>0.00</b>
291 Less than 1 year	0.00	0.00
292 1-2 years	0.00	0.00
293 2-3 years	0.00	0.00
294 More than 3 years	0.00	0.00
295 <b>Sub Total (II)</b>	<b>0.00</b>	<b>0.00</b>
296	0.00	0.00
380 Previous year figures have been regrouped/rearranged wherever necessary.	0.00	0.00





TALAIPELLI COAL MINING PROJECT

NOTE NO. 48B TO THE FS-RPD DISCLOSURE- TRANSACTIONS DURING THE PERIOD

( Amount in ₹ )

For the Year ended	31.03.2024	31.03.2023
001 1) Transactions during the year- subsidiaries	0.00	0.00
002 Purchase of equipment, supply & erection services	0.00	0.00
003 Purchase of spares	0.00	0.00
004 Maintenance services	0.00	0.00
005 Contracts for works/services for services provided by the company	0.00	0.00
006 Deputation of employees	0.00	0.00
007 Sales of goods	0.00	0.00
008 Sales of assets and Others	0.00	0.00
009 Sub-total	0.00	0.00
010	0.00	0.00
011 Dividend received	0.00	0.00
012 Equity contributions made	0.00	0.00
013 Share application money pending allotment	0.00	0.00
014 Loans granted	0.00	0.00
015 Interest on Loan	0.00	0.00
016 Guarantees received	0.00	0.00
017 Guarantees provided	0.00	0.00
018 Sub-total	0.00	0.00
019	0.00	0.00
020 Transactions during the year- jvs	0.00	0.00
021 Purchase of equipment, supply & erection services	0.00	16,504.00
022 Purchase of spares	0.00	0.00
023 Maintenance services	13,284,428.51	42,775,322.89
024 Contracts for works/services for services provided by the company	0.00	0.00
025 Deputation of employees	0.00	0.00
026 Sales of goods	0.00	0.00
027 Sales of property and other assets	0.00	0.00
028 Sub-total	13,284,428.51	42,791,826.89
029 Dividend received	0.00	0.00
030 Equity contributions made	0.00	0.00
031 Share application money pending allotment	0.00	0.00
032 Loans granted	0.00	0.00
033 Guarantees received	0.00	0.00
034 Interest on Loan	0.00	0.00
035 Guarantees provided	0.00	0.00
036 Sub-total	0.00	0.00
037 Total	13,284,428.51	42,791,826.89
038 Transactions with post employment benefit plans	0.00	0.00
039 Contributions made during the year	0.00	0.00
040 Compensation to key management personnel	0.00	0.00
041 Short term employee benefits	0.00	0.00
042 Post employment benefits	0.00	0.00
043 Other long term benefits	0.00	0.00
044 Termination benefits	0.00	0.00