

**Pre-feasibility Report
of
AMRAPALI OCP
(12 MTPA)**

CHAPTER-I: INTRODUCTION

1.1 SUMMARISED DATA

A. Mining Parameters

1. Name of the Project : Amrapali OCP (12.00 MTY)
2. Coalfield : North Karanpura Coalfield
3. Location : Chatra District
4. Company : Central Coalfields Limited
5. Mineable Reserve
(As on 31.03.2018) : 124.79 M.Te.
6. OB Volume : 138.68 Mm³ (including 13.44 Mm³ to be rehandled.)
7. Av.Grade of Coal (ROM) : Grade 'F'
8. Main Consumer : Barh STPS
9. Method of Mining : Surface Miner and Shovel - Dumper
10. Life (As on 31.03.2018): 11 Years
11. Manpower Requirement : 275

1.2 Executive Summary

1	Two Geological Blocks i.e. "Amrapali" and "Kishanpur" have been identified for formation of an Opencast Project i.e. Amrapali OCP to feed coal to proposed STPS at Barh near Patna which is located at a distance of about 300 km from this proposed site.
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2	The proposed project is approachable by a 12 Km long fair weather Kutcha road from Tandwa Village. Tandwa village is connected to Khalari by a 20 KM fair - weather road in the south. It is connected with Hazaribagh also by a 50 KM long metal road via Barkagaon.
3	The latitude of the Amrapali Block is bounded by 23°51'31" & 23°53'38" N as well as longitude 85° 00'05" & 85°02'07" E. The Kishanpur block is limited by latitudes 23°47'40" & 23°50'38" N and longitude 84°55'35" & 84°57'40" E.
4	The proposed project is characterized by more or less flat terrain with gentle undulations. In general, ground slopes towards south. The maximum and minimum elevation is 497 m & 440m, respectively.
5	A total of 7676.25m was drilled in 85 boreholes in the Amrapali Block covering an area of 8.1 sq.km. The product mixed quality of the proposed OCP will be Grade-F, average UHV-2659 K.Cal per Kg & average ash 40.61%
6	Project Report for Amrapali OCP (12Mty), CCL with both coal and OB outsourcing variant was approved by CIL Board vide letter no.CIL:XI(D):04112:2012:3874 dated 23rd February2012 for an initial capital investment of Rs. 858.11 crores.
7	The project has obtained Environmental clearance for 12 MTY on 3.01.2006 as per EIA notification 1994. The total project area as per obtained EC is 1426.08 Ha. out of which 793.08 Ha is forest land.
8	The project area of present proposal is 619.87 Ha. (531.64 ha. of forest land and 88.23 Ha of Non-forest land). Proposed capacity is 12 MTY. The total mineable reserves as on 31.03.2018 have been estimated as 124.79 M.tonne corresponding to a volume of OBR of 138.68 Mm ³ (including 13.44 Mm ³ to be rehandled.) at an average stripping ratio of 1.003 M ³ per tonne.
9	The total volume of OBR is estimated as 138.68 Mm ³ (including 13.44 Mm ³ to be re-handled). 16.86 Mcum is proposed to be placed in the external dump and balance 121.82 Mucm will be backfilled in the excavated quarry/ mine void.

10	For pumping and drainage of mine waters through Lagoons are as under: a) Main Pumps - 16 nos. b) Diesel pump - 2 nos c) Priming pump - 11 nos. d) Face pump - 13 nos. e) Slurry pump - 6 nos.												
11	Provision of initial power supply has been made from existing Piparwar 33 KV Switch Station of CCL. The switching station of Piparwar will have to be extended by two nos. of feeders for drawing power at 33KV by erecting 1 no. of 33 KV double circuit OHTL upto Amrapali Project For the permanent power supply arrangement, it is proposed to establish 1 no. 132/33KV, 2x50 MVA sub - station., which will be centrally located from the proposed Magadh OCP and Amrapali OCP and a regional 33 KV switching station.												
12	The manpower requirement for Amrapali OCP for a rated capacity of 12 MTY of ROM coal has been estimated as 275: <table><tr><td>Executive</td><td>:</td><td>20</td></tr><tr><td>Monthly Rated</td><td>:</td><td>71</td></tr><tr><td>Daily Rated</td><td>:</td><td>184</td></tr><tr><td>Total</td><td>:</td><td>275</td></tr></table>	Executive	:	20	Monthly Rated	:	71	Daily Rated	:	184	Total	:	275
Executive	:	20											
Monthly Rated	:	71											
Daily Rated	:	184											
Total	:	275											
13	The proposed land requirement for Amrapali COP is 619.87 Ha. Total forest area is 531.64 Ha and non-forest area is 88.23 Ha. Stage II clearance has been obtained for total forest area of proposed project vide letter no. J-11015/109/2003-IA.II(M) on 03.01.2006												
14	The project premises i.e. Core Zone consists of part of five villages and part of forest area. The affected villages are - Urshu, Binglat, Kumarang Kalan, Kumarang Khurd & Honne.												
15	The Buffer zone consists of 66 villages surrounding the area at 10 Km radius from the Core Zone.												
16	Base line environmental data have been generated for assessing pre-mining scenario of this area.												
17	Micro -Meteorology i.e., wind speed and direction, temperature, relative humidity for zone for necessary study of air environment.												

18	Air quality has been studied for the parameters i.e., Suspended Particulate Matter, Sulphur-di-Oxide, Oxides of Nitrogen. Air sampling stations were selected in the following places: a) Ursu village b) Garilaung village c) Binglat village d) Koed Village e) Devaloana village
19	Monitoring of air quality parameters is being carried out once in every fortnight by CMPDI and the results are well within the limits as per NAAQS.
20	Water quality is being studied in the Barki River & Chundru river. Two sampling stations have been fixed in the upstream of Barki River and Chundru River and the third station was fixed at down - stream i.e.at confluence point of Chundru & barki Rivers.
21	Noise quality is being studied for five sampling stations i.e.at Ursu village, Garilaung village, Binglat village, Koed village, Devaloang village .

22 Land details in Core Zone as per approved EC is as under :

Sl.No.	Item	Forest Land(Ha).	Non - Forest Land (Ha)	Total Land (Ha)
1	Quarry	577.90	283.46	861.36
2	Nala Diversion	2.85	0.25	3.10
3	W/S, S/S Office etc.	14.56	-	14.56
4	Colony including approach road*	2.00	44.70	46.70
5	On Dump	41.20	47.96	89.16
6	CHP	20.33	-	20.33
7	Haul Road	30.00	4.00	34.00
8	Embankment / Garland Drains	0.67	6.68	7.35
9	Diversion of Public road	0.67	7.58	8.25
10	Safety Zone	134.32	162.27	296.59
11	Total	824.50	556.90	1381.40
12	Less Forest in Safety Zone	(-) 134.32	-	(-)134.32
13	Total	690.18	556.90	1,247.08
14	Rly Siding	102.90	76.10	179.00
15	Total including Rly Siding	793.08	633.00	1426.08

Land details in Core Zone as per present proposal is as under :

Item	Total Area in Ha.
Quarry	425.22

Dump	89.16
Nala Diversion	3.10
WORKSHOP	14.48
CHP	6.27
SUB STN./OFFICE	6.00
HAUL ROAD	34.00
SAFETY ZONE	18.92
vaccant land	22.72
total	619.87

* Total forest land within the project area is 534.64 Ha. obtained Stage II clearance vide letter no. J-11015/109/2003-IA.II(M) on 03.01.2006.

- 24 The flora and fauna of the project area and buffer zone has been studied. The details have been included in the approved EMP
- 25 Socio - economic study was made and it has been observed that there are 50.77% male and 49.23% female. Scheduled castes accounts for 26.69% and Schedule tribes are 07.88%. Total literates are found to be 32.49% in the study area. The detail study report is included in the approved EMP.
- 26 The EMP was approved in January'2006.
27. Environmental Clearance for Amrapali OCP (12 Mty) was granted by MOEFCC vide ref no. J-11015/109/2003-IA.II(M) on 03.01.2006.

CHAPTER-II

2.0 Brief Description

Three power projects are being set up by NTPC under the Mega Power Policy of Govt. of India. The three power projects are (i) North Karanpura/Tandwa STPS (2000 MW) (ii) Barh STPS (2000 MW) and (iii) Kahalgaon TPS (1500MW). The Hon'ble Prime Minister of India laid the foundation stone of these mega power projects on 6th March'99.

Two Opencast Projects in N.K. Coalfield Magadh and Amrapali OCPs have been identified for supplying coal to above two STPS. The requirement of power grade coal will be around 10 M.te per annum for each STPS and with these objective in view, the above two OCP's were prepared for a rated capacity of 12 MTPA each. It is envisaged that these two OCPs will be worked at an operating efficiency of not less than 85%.

Project Report for Amrapali OCP (12Mty), CCL with both coal and OB outsourcing variant was approved by CIL Board vide letter no: CIL:XI(D): 04112:2012:3874 dated 23rd February2012.

EMP for Amrapali OCP (12 Mty) was approved and EC was granted by MOEF vide ref no. J-11015/109/2003-IA.II(M) on 03.01.2006. The details of land use as per the approved EC is as given below.

Sl.No.	Item	Forest Land(Ha).	Non - Forest Land (Ha)	Total Land (Ha)
1	Quarry	577.90	283.46	861.36
2	Nala Diversion	2.85	0.25	3.10
3	W/S, S/S Office etc.	14.56	-	14.56
4	Colony including approach road*	2.00	44.70	46.70
5	On Dump	41.20	47.96	89.16
6	CHP	20.33	-	20.33
7	Haul Road	30.00	4.00	34.00
8	Embankment / Garland Drains	0.67	6.68	7.35
9	Diversion of Public road	0.67	7.58	8.25
10	Safety Zone	134.32	162.27	296.59
11	Total	824.50	556.90	1381.40
12	Less Forest in Safety Zone	(-) 134.32	-	(-)134.32
13	Total	690.18	556.90	1,247.08
14	Rly Siding	102.90	76.10	179.00
15	Total including Rly Siding	793.08	633.00	1426.08

The project has started production from 2013-14 and the year wise production details of coal and OB are as given below.

Year	Coal in Mt	OB in Cu.m
2013-14	-	2.54
2014-15	2.55	17.74
2015-16	4.79	6.24
2016-17	6.23	4.19
2017-18	6.50	6.965

b). purpose of this Report

The project has obtained environmental clearance for 12 MTY and 1426.08 Ha project area as per the EIA notification 1994. However, as per the Hon'ble supreme court judgement dated 2nd August 2017 regarding the validity of EC granted for mining projects under EIA notification 1994, the MoEF&CC has issued a notification vide no: S.O 1530 (E) dt. 16.04.2018 in which it was said that "The mining projects which were granted EC under EIA notification 1994 and but not obtained EC for expansion/ modernization/ amendment under the EIA notification 2006 shall make an application in Form I within six months from the date of issue of this notification for grant of EC under the provisions of the EIA notification, 2006".

Therefore, this pre-feasibility report is being prepared for the rated capacity of 12 MTPA and within the revised project area of 619.87 Ha.

CHAPTER-III

3.0 LOCATION, COMMUNICATION, TOPOGRAPHY AND CLIMATE

3.1 Location:

The proposed Amrapali OCP is located in the northern fringe of the N.K. coalfield and lies in the Chatra District of Jharkhand. The Amrapali block covering an area of 10.11 sq.Km (coal bearing 9.28 sq. Km) is bounded by Latitude $23^{\circ} 51' 31''$ & $23^{\circ} 53' 38''$ N and Longitude $85^{\circ} 00' 05''$ & $85^{\circ} 02' 07''$ E. The Kishanpur block (5.89 sq. Km) having coal bearing area of 5.45 Sq.Km is limited by the Latitude $23^{\circ} 51' 58''$ & $23^{\circ} 53' 30''$ N and Longitude $84^{\circ} 58' 55''$ and $85^{\circ} 00' 05''$ E. The Amrapali OCP is enclosed by Pachra block on the east and Koed block on the west. The block is covered by Survey of India Topo Sheet No.73-A/13(RF 1:50000) and special sheet no. 12 & 13 (RF 1:10000). The surface contours and other surface features of the OCP have enlarged photographically from the above topo sheets.

3.2 Communication:

The metalled road connecting Tandwa with Hazaribagh (80 Km.) via Semarie passes through the block. Another metalled road connects Tandwa with Hazaribagh (50 Km.) via Barkagaon. Tandwa is also connected to Ranchi (92 Km.) via Khalari (28 Km.) and Bijupara by metalled road.

Nearest railhead is Ray Station at a distance of about 34 Km. from the block on Barkakana Dehri-on-sone loop line of the eastern railway. Tori is another nearby Railway Station located south of the block at a crow fly distance of about 52 km.

3.3 Topography

The Amrapali and Kishanpur blocks are characterised by more or less flat terrain with gentle undulation. In general ground slopes towards south. The maximum and minimum elevation is 497, 440m and 501m, 449m respectively.

Chundru and Barki rivers flowing west to east and north to south respectively control the drainage of the block. The Chundru River marks the Southern boundary of the block whereas Barki River is the eastern limit of the property. Besides, there are

some small seasonal nalas, which discharge their load into main nalas of the block. All the nalas of the block are seasonal except Chundru and Barki River, which are perennial. The drainage of Kishanpur Block is controlled by Chundru river and Bahutchua nala flowing west to east and north to south respectively.

3.4 Climate:

The climate is tropical with severe summer. The temperature during summer (March to June) goes as high as 45⁰ C. The summer is very hot and dusty. But nights are generally pleasant. The winter (November to February) is cold and minimum temperature is 1⁰C. The rainy season is generally from June to October. The total rainfall in a year on an average is about 1011 mm of which 69% precipitation is during rainy season.

CHAPTER-IV

4.0 MINE DESCRIPTION

4.1. Geology of Mining Area

a) Geology : Amrapali opencast mine has been planned from two contiguous blocks, Amrapali and Kishanpur to exploit coal up to a depth of around 135m keeping seam-I Bottom as base seam & I Middle +Bottom/I Top+ I Middle +I Bottoms where the I Bottom seam combines with upper seams to form the composite seam .The base seam I Bottom has been proved in Amrapali block up to a depth of 255 m and up to 225 m depth in Kishanpur block respectively .

Sequence of Coal seam and Parting:

Table-2.0

Amrapali Geological Block				East -Quarry		Kishanpur Geological Block				West -Quarry	
Seam/ Parting	Interse ction	Thickness Range (Inband)	General Th (Metre)	Thickness / Parting	Inte rsec tion	Seam/ Parting	Thickness Range (Inband)	Interse ction	General Th (Metre)	Thickness/ Parting	Interse ction
V Top							0.28-0.45	2			
Parting							5.69				
V Bottom							0.8-0.87	3			
Parting							121.69- 131.84				
IV	44	3.99-7.15	5.0-6.5	4.40-7.15	27	IV	3.54-7.77	27	5.0-7.0	3.54-7.45	11
Parting*		1.65-9.47		3.0-7.15		Parting*	5.55-18.68			5.55-6.36	
III Top	3	2.83-4.55	3.5	2.83	1	III Top	2.09-2.58	2	2.0	2.09-2.58	2
Parting		Nil-2.22		0-1.20		Parting	0-2.27			0-2.27	
III Bottom	3	3.62-4.55	4	3.62	1	III BOT	3.23-5.23	3	4.0-5.0	3.23-5.23	3
III Comb.	42	4.68-10.24	6-8	5.0-10.24	28	III Com.	5.78-12.31	29	7.0-9.0	5.78-9.95	14
Parting		5.24-16.72		6.51-16.72		Partings	1.17-18.1			1.17-3.78	
II Top	50	1.09-3.42	2-3	1.65-3.34	34	II Top	0.21-4.50	30	0.5-2.0	0.16-2.77	15
Parting		1.80-18.90		1.80-14.01		Parting	1.28-17.39			6.99-17.39	
II Bottom	50	0.44-5.67	2-4	0.45-5.67	35	II BOT	0.20-4.16	42	0.7-2.0	0.20-4.16	27
Parting**		4.35-32.97		4.35-30.87		Parting**	0.51-17.91			1.24-17.91	
I Top	20	1.53-9.44	3-6	1.53-9.44	9	I Top	1.85-9.33	41	4-.0-7 .0	1.85-9.33	26
Parting***		Nil-22.64		Nil-2.16		Parting	0-18.47			0-18.47	

I Top & Middle	24	8.28-17.13	11-14	12.42-17.13	18	I Top & Middle	11.16-13.58	4	11.5-12.5	11.16-13.58	4
I Middle	14	0.90-8.53	3.5-7.0	5.41-7.61	4	I Middle	0.26-7.61	46	1.0-4.0	0.26-7.61	31
Parting#		Nil-6.02		NIL-4.92		Parting	1.47-33.62			2.13-29.65	
I Bottom	43	3.87-11.98	6-9	5.0-11.68	22	I BOT	4.85-12.61	52	7.0-10	4.85-12.61	35
I Middle Bottom	+10	13.51-19.59	14-18	13.51-19.59	4						
ITop Middle Bottom	+120	19.36-27.14	23-25	20.19-27.14	12						
Parting#				63.5-71.53							
Karharbari				3 impersistent thin coal seam							

b) Reserves- A total of 486.50 M.Tes of reserve has been proved in Amrapali geological block up to a depth of around 255.m & a total of 203.31 of M.Tes of geological reserve has been proved in Kishanpur geological block up to a depth of around 225 m.

A total of 689.81 mt of net quarriable reserve (486.50 mt from Amrapali Geological block +203.31 mt of net quarriable reserve from kishanpur Geological block) is available from these two geological blocks up to southern leasehold boundaries of these blocks. The quarriable reserve for both geological blocks has been considered up to the dip most geological boundary of the block.

From the available combined 689.89 Mt of net quarriable reserve from these two above blocks of which 291 mt of mineable reserve is planned in **Amrapali OCP** up to a depth of 135 m . The balance reserve falling in the dip side of the quarry may be planned for exploitation in second phase subject to techno economical viability of mining.

The seam-wise, Cut-off wise details of the proved net quarriable reserve available from the above two geological blocks along with Sp Gr considered for different seams have been summarized in Table No.2.1.

Table No.4.1

Seam-wise Quarriable Reserves in Amrapali and Kishanpur Geological Blocks:

Seam	Net Geological Reserve	Cut-off wise Net Geological Reserves	Sp Gr
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		<1:2	1:2-1:3	1:3-1:4	1:4-1:5	>1:5	
Amrapali							
IV	58.83	16.34	21.42	11.37	5.14	4.64	1.61
III	78.84	23.1	27.75	14.64	6.81	6.54	1.65
III Top	1.8	0.13	1.12	0.32	0.23		1.63
III Bot.	1.98	0.16	1.29	0.33	0.2		1.68
II Top	23.04	8.64	7.28	3.66	1.64	1.82	1.66
II Bot.	30.64	14.51	10.57	3.56	1.6	0.4	1.71
I Top	29.75	6.5	5.63	7.42	5.32	4.88	1.72
I Mid.	25.97	7.9	6.81	6.22	3.59	1.45	1.69
ITop+I Mid.	60.25	27.6	21.17	10.57	0.91		1.71
I Bot.	72.48	31.31	20.84	12.91	6.02	1.4	1.71
I Mid+IBot	19.45	9.48	1.72	4.7	2.97	0.58	1.72
I Top+iMid+IBot.	83.47	38.67	38.1	4.47	1.53	0.7	1.72
Total	486.5	184.34	163.7	80.17	35.96	22.33	
Kishanpur							
IV	25.893	1.379	3.234	7.809	5.786	7.78	1.62
III Top	1.431		0.272	0.963	0.196		1.58
III Bot.	2.651		0.59	1.528	0.533		1.66
III Com.	42.539	2.632	5.886	12.489	8.524	13.008	1.66
II Top	4.126	0.66	0.535	1.214	0.83	0.887	1.65
II Bot.	4.219	0.356	0.673	1.689	0.678	0.823	1.70
I Top	31.395	2.181	5.194	10.752	6.967	6.301	1.69
I Mid.	14.813	2.711	4.249	4.596	1.576	1.681	1.70
ITop+I Mid.	6.66	3.893	2.745	0.022			1.72
I Bot.	69.49	8.409	13.263	21.842	11.334	14.641	1.68
Total	203.31	22.221	36.641	62.904	36.424	45.116	

The brief detail covering cut off wise Net Quarriable geological reserve and OB Amrapali & Kishanpur Geological blocks are summarized below:

Block	Total Quarriable net Geo Reserves	<1:2		1:2-1:3		1:3-1:4		1:4-1:5		>1:5	
		Coal Mt.	OB Mm3	Coal Mt.	OB Mm3	Coal Mt.	OB Mm3	Coal Mt.	OB Mm3.	Coal Mt.	OB Mm3
Amrapali	486.50	184.54	174.6	163.7	264.69	80.17	186.57	35.96	101.90	22.13	109.0

			5							9
Kishanpur	203.31	22.221	25.14 9	36.64 1	61.821	62.904	149.313	36.424	109.435	45.116 189.3 01

c) Quality :

The product mix quality of the Amrapali OCP will be grade F (Avg. UHV 2659 K. Cal/Kg & Avg. CV 4038 K.Cal/Kg) with corresponding average ash of 40.61%. With the assumed dilution while mining 0.15m of non-combustible material at roof and floor, there will be addition of ash and the weighted average ash of the product mix will be 42.16%. Even with this dilution the Product Mix Quality is likely to be grade-F (UHV around 2447 K.Cal/Kg)

Mineable Reserves

The mineable reserves within the proposed project area of 691.87 Ha. is about 124.79 Mte. The details of Coal and OB along with the calendar plan is as given below.

	COAL	OB	REHANDLING	TOTAL OB	Stripping Ratio
Y1	12.00	11.00	1.00	12.00	0.917
Y2	12.00	11.00	2.00	13.00	0.917
Y3	12.00	11.00	3.00	14.00	0.917
Y4	12.00	12.00	3.00	15.00	1.000
Y5	12.00	12.00	3.00	15.00	1.000
Y6	12.00	13.00	1.44	14.44	1.083
Y7	12.00	13.00		13.00	1.083
Y8	12.00	13.00		13.00	1.083
Y9	12.00	13.00		13.00	1.083
Y10	12.00	13.00		13.00	1.083
Y11	4.79	3.24		3.24	0.676
TOTAL	124.79	125.24	13.44	138.68	1.004

4.2 Mining details

a) Mine boundary details for OC : The **northern floor boundary** has been fixed along the incrop of seam-I (B)/(IB+IM+IT) Combined. **The eastern surface boundary** has been fixed leaving a surface barrier of 60m from Barki River. The **western surface boundary** has been fixed leaving a surface barrier of 60m from Bahut Chuha nala. **The Southern surface boundary** has been fixed limiting the quarry boundary within the acquired forest land of 531.64 ha.

b) Coal seams which are proposed for working: A total no. of 8 coal seams are

occurring within the proposed quarry area. Out of these, seam-I(B),seam-I(C),& seam-III(C) are the thickest and most prominent seams. The coal horizons are dipping at a gradient of 3⁰-7⁰ towards the south.

Table-4.2

GEOLOGICAL AND MINING CHARACTERISTICS

Sl.	Particulars	Unit	Sections	
			Eastern	Western
I.	Thickness of Coal Seams (Ex- band thickness)	m		
1	I (B.)	m	4-8	6-10
2	I (M.)	m	5-7	6-7
3	I (T)	m	3-8	2-4
4	I (C)	m	14-20	-
5	II (B.)	m	1-2	1-2
6	II (T)	m	1-2	1-2
7	III (C)	m	6-10	6-10
8	IV	m	4-6	3-6
II	Thickness of OB & Parting			
1	Top OB	m	5-80	6-70
2	Part. bet.I (B) & I(M)	m	4-16	0-3
3	Part. bet.I (M) & I (T)	m	0-2	0-2
4	Part. bet.I (T) & II (B)	m	5-27	5-31
5	Part. bet. II (B) & II (T)	m	10-14	2-12
6	Part. bet. II (T) & III (Comb.)	m	6-10	6-8
7	Part. bet. III (Comb.) & IV	m	6-9	5-8
III	Quarry Parameters			
1	Dip of the seams	Degree	3-6	6-8
2	Strike length	Km	2.4	2.2
3	Width	Km	1.4	1.4
4	Area of Excavation	Ha.	289.28	135.94
5	Maximum depth	m	110	70

c) Proposed OB dumps:

The total volume of OBR is estimated as 138.68 M cum including 13.44 Mcum proposed to be re-handled. 16.86 Mcum is proposed to be placed in the external dump and balance 121.82 Mucm will be backfilled in the excavated quarry/ mine void.

4.3. Mining Methods:

Considering the above mining and geological conditions, the mine is proposed to be worked by surface miner and shovel-dumper combination of mining systems.

Coal Winning

Loading and transportation of coal using machines, blast hole drilling in coal and face preparation have been proposed to be outsourced and hence HEMM for coal winning have not been provided in this PR. However, common equipment such as grader, water sprinkler, crane etc. is considered in this project. Further it is proposed to carry out a detail exercise to decide the mode of coal winning compatible with the calendar programme of OB removal.

4.4 Land Details:

Land details in Core Zone as per present proposal is as under :

Item	Total Area in Ha.
Quarry	425.22
Dump	89.16
Nala Diversion	3.10
WORKSHOP	14.48
CHP	6.27
SUB STN./OFFICE	6.00
HAUL ROAD	34.00
SAFETY ZONE	18.92
vaccant land	22.72
total	619.87

* Total forest land within the project area is 534.64 Ha. obtained Stage II clearance vide letter no. J-11015/109/2003-IA.II(M) on 03.01.2006.

4.4. Infrastructure details

a) POWER SUPPLY, DISTRIBUTION, ILLUMINATION & COMMUNICATION

It has been proposed to establish one no. 132/33KV, 2x50 MVA sub-station, which will be centrally located from the proposed Amrapali and Magadh mining projects and proposed Regional 33KV switching station , at Magadh & Amrapali.

c) RAILWAY SIDING

At present, the coal is being transported by tipping trucks to newly commissioned Balumath railway siding which is at a distance of 25 km from the project boundary. Further, a new Amrapali railway siding is under implementation for coal transportation from Amrapali OCP. The status of construction of railway siding is as under:

- DPR for construction of Amrapali Railway Siding approved by EC Railways.
- CCL has awarded the construction work of railway siding to M/s RITES Limited. Tender is under finalization by RITES and work order will subsequently be issued by RITES to its sub-agencies.

e) Road & Buildings

a. Buildings

Residential Buildings

It is proposed to construct a residential colony as required. These houses at the integrated Township located by the side of proposed Balumath - Tandwa road.

Service Buildings

Service buildings including PO office, pit office, magazine and other statutory buildings has already been established as makeshift arrangement. Construction of these buildings to commence in near future.