



## **MINE PROFILE / DATA DOSSIER OF PIPLA COLLIERY MINE**

### **1.0 GENERAL INFORMATION**

#### **1.1 LOCATION OF THE MINE**

Pipla Colliery Mine is located in Kanhan (Walni) and Pipla Inclines Geological Block under the administrative control of Nagpur Area of WCL. This mine is in Nagpur District of Maharashtra State. The Pipla Colliery Mine is situated immediately west and southwest of Silewara Mine property.

The present leasehold of Pipla Colliery Mine is 190.00 hectares, and the area proposed for mining by MDO will be within the lease hold area itself. The Pipla Colliery Mine falls in the geological block viz. Consolidated Geological Report on the area covered by Kanhan (Walni) and Pipla Inclines Kamptee Coalfield prepared by the Geological Department of CMPDI in March 1976. The area of the proposed boundary for MDO operator falls in Kanhan (Walni) and Pipla Inclines Geological Block. The proposed Pipla Colliery Mine boundary is delineated in the plans appended with this profile as follows:

- North : Incrop of Seam-II (on the western side of inclines) and Extracted & Stowed Panels – O, T, U3, U2 & U1
- South : Pipla Colliery Southern Boundary Line corresponding to B.H. – NCKMT 25, NCKMT 67, NCKMT 89, NCKMT 63 & KMT 131
- East : Pipla Colliery Eastern Boundary Line corresponding to B.H. – KMT 136, KMT 120, NCKMT 11, KMT 117 & NCKMT 10
- West : Pipla Colliery Eastern Boundary Line corresponding to B.H. – NCKMT 40, NCKMT 19, NCKMT 5 & NCKMT 18

The Kanhan (Walni) and Pipla Inclines Geological Block is covered by Survey of India Toposheet No. 55-O/3 and is bounded by

Latitude : 21° 17' to 21° 20'

Longitude : 79° 02' to 79° 08'

## **1.2 MINE ACCESSIBILITY**

Nearest Airport : Nagpur at a distance of about 30 km

Nearest Railway Station : Pipla Halt & Patansaongi at a distance of around 2 & 7 km respectively

Approach by Road : 3 km from Dahegaon and 8 km from Patansaongi on NH-47

Nearest Seaport : Vishakhapatnam and Mumbai at a distance of about 780 km and 825 km respectively.

## **1.3 HISTORY OF THE MINE / PROJECT**

### **1.3.1 History of mining, mine operators and date of abandonment: -**

Pipla Colliery Mine was opened in April 1971 with a pair of inclines and an airshaft upto Seam-II which is the bottom most seam. In the original Feasibility Report prepared in 1971, the extraction of coal was envisaged by Longwall Method of Mining with Stowing. This had been suggested assuming the strata above the coal seam to be water bearing and water charged resulting in heavy make of water even during development. However, during the actual development, the workings have not indicated any unusual flow of water from the top strata.

The preliminary hydrogeological studies carried out in adjacent Silewara Colliery in December 1975 and Mahakali Colliery indicated an inflow of water within manageable capacity and the quantity of water flowing through the indicatory boreholes diminished with time. Therefore, based on development done till 1979, changed geological structure, latest hydrogeology and technological advances during this period, price escalation and experience gained over the period, the sequence and technology of mining were revised in the RPR prepared in March 1979.

Pipla Colliery Mine was opened with 2 inclines and an airshaft. This mine is having four workable seams namely Seam-V, Seam-IV (Bottom), Seam-III and Seam-II having a thickness range (excluding band) of about 2.31m - 4.60m, 2.02m - 4.00m, 1.29m - 2.77m and 2.96m - 6.97m respectively.

Bord & Pillar method of mining in conjunction with stowing has been adopted in Pipla Colliery Mine till its discontinuance. Production from this mine was on declining trend with 75045 tonnes in 2012-13 and 4250 tonnes in 2016-17. Ultimately the mine was discontinued in 2016.

### **1.3.2 Reasons of discontinuity:**

Due to heavy losses and very less production, steep gradient, water bearing Kamptee series, poor RMR, geological disturbances in Pipla Colliery Mine, the workings of this mine were discontinued and ultimately closed in August 2016 and May 2019 respectively.

### **1.4 COMMUNICATION FACILITIES AVAILABLE:**

The block is well connected by both road and rail. The mine is approachable from from Dahegaon (3 kms) and Patansaongi (8 kms) and is in turn connected to Nagpur via Dahegaon on Chhindwara Road. Pipla Halt & Patansaongi railway stations are at a distance of around 2 & 7 kms respectively under South-eastern Railway respectively from the mine.

### **1.5 CLIMATE**

The area is characterized by Tropical Climate. The day temperature during summer months (lasting from March to May) rises to as high as 48° C but winters (November to February) are generally pleasant with minimum temperatures going down to 10° C. The average annual rainfall in the area varies from 800 mm to 1200 mm. The average relative humidity varies from 45% to 60%.

### **1.6 TOPOGRAPHY AND DRAINAGE:**

The area is generally very flat with elevation ranging between 291m and 300m above MSL. The drainage of the area is controlled by two perennial rivers i.e., Kolar River in the south and Kanhan River in the north. There are a number of small nallahs which traverse the area and discharge their water in Kolar and Kanhan Rivers during the rainy season. The mine area lies well above the Highest Flood Level. The HFL of Kanhan River is 288.65m recorded in the year 1942.

## 1.7 STATUS OF MINING LEASE

### 1.7.1 Lease-hold area :-

The present leasehold of Pipla Colliery Mine is 190.00 hectares approximately.

### 1.7.2 Land use pattern:-

The total leasehold of Pipla Colliery Mine is 190.00 hectares approximately. The land acquisition status under different heads is given as follows:

Sl. No.	Type of Land	Area (in ha)
1	Tenancy Land	163.37
2	Forest Land	0.00
3	Government Land	9.72
4	Acquired Land of WCL (Tenancy Land)	16.91
	<b>TOTAL</b>	<b>190.00</b>

## 2.0 GEOLOGY

### 2.1 GEOLOGY OF THE COALFIELD

The following stratigraphic sequence has been established in Kamptee Coalfield on the basis of the drilling data obtained from various agencies:

Age	Formations	Lithology	Range of Thickness (m)
Sub recent to recent	Detrital Mantle	To black cotton soil, clayey soil, sandy soil, medium & coarse grained sand, pebbles and boulders of metamorphics, Deccan traps and sandstone	7.80 - 53.20
UNCONFORMITY			
Upper Permian	Kamthis	Very fine grained, medium to coarse grained sandstone. Frequently ferruginous and silicified, pink, red, purple and yellow in colour. The clays are generally red & greyish green	50 - 100
OVERLAD			
Middle Permian	Moturs	Green grey, chocolate brown, variegated clays, greenish chloritic and micaceous sandstones, carbonaceous shales and rarely thin bands of coal	250 - 300
Lower Permian	Barakars	Grey, white fine coarse grained and gritty sandstone, intercalations of shale and sandstone, sandy shale, grey shale, carb. shale and coal seams	250 - 270
Upper Carboniferous	Talchirs	Greenish and calcareous shales and sandstones	Not known
UNCONFORMITY			
Archean		Not encountered in any Borehole	

2.2.1 The individual formations are described as below:

**a) DETRITAL MANTLE**

Kanhan - Pipla Inclines area like the adjacent Silewara Mine area is entirely covered by the thick detrital mantle or alluvium. The thickness of detrital mantle varies from 5.00m to 53.20m. The detrital mantle consists of black cotton soil, layers of medium and coarse grained sand with pebbles and boulders of quartzite, metamorphics and deccan trap.

**b) KAMTHIS**

The Kamthi formation is the youngest formation of the lower Gondwana met within this coalfield but they do not contain any workable coal seams. This formation consists of medium to coarse grained and gritty argillaceous sandstones and red ferruginous shales. The sandstones occur in different shades of pink, buff, purple and yellow colour. The sandstones are generally very soft, porous and friable but at places have become very hard, compact and silicified. They are characterized by dark ferruginous streaks and bands. The other member of this formation is red coloured shales or clays. The green, grey and white shales are also observed but they are not very common in this area.

In Pipla Incline area, Kamthis have been proved in almost whole of the middle part. They overlie the Barakars sandstones or sometimes lie directly on the coal seams. Because of the soft, porous, friable and coarse grained to gritty nature of the sandstones, the Kamthi rocks were expected to be water bearing, but the hydrogeological studies carried out at Mahakali Colliery with Kamthi rocks in the strata above the coal seam do not show any abnormal inflow of water from Kamthis. Borehole water study at Silewara also indicates limited water inflow only.

**c) MOTURS**

The moturs are underlain conformably by the Barakars and overlain unconformably by the Kamthis and consist of greenish chloritic and micaceous sandstones separated by clay beds of different shades of green, grey, chocolate brown to buff red and variegated.

The clays are highly plastic. As a result when they come in contact with water they have swelling and caving tendency. The sandstones are generally fine to medium grained with light green tinge. They are more micaceous, very soft and friable. The moturs also contain dark grey carbonaceous shales with very thin coal bands. The maximum thickness of the moturs encountered in Pipla Incline area is 104.05m.

**d) BARAKARS**

The Barakars overlie the Talchirs and underlie the Moturs conformably. On the basis of lithological characteristics, they can be divided into three – Upper Barakar, Middle Barakar and Lower Barakar.

**The Upper Barakar** is mainly composed of medium to coarse grained sandstone. It is generally loose, friable and completely devoid of any coal seams. The thickness is generally around 50m to 60m.

**The Middle Barakar** is the most important as it contains all the five coal seams. The thickness is usually around 106m to 120m.

**The Lower Barakar** is characterized by the very fine grained sandstone with thin coal bands but is devoid of any workable coal seams.

The detailed lithological succession of the Barakars in the descending order is given in the following table:

<b>Lithology</b>	<b>General Range of Thickness</b>
Sandstones	50m - 80m
Coal Seam - V	5.0m - 7.0m (Workable section - 1.5m - 5.0m)
Parting (mainly sandstone)	19m - 41m
Coal Seam-IV (Top)	0.5m - 2.0m
Parting (predominantly sandy shale, alternate shale and sandstone, thin coal bands and carbonaceous shale)	6.0m - 12.0m
Coal Seam-IV (Bottom)	2.4m - 3.0m
Parting (generally sandstone)	25m - 38m
Coal Seam-III	1.5m - 2.0m
Parting (generally sandstone and sandy shale)	13m - 26m
Coal Seam-II	3.5m – 6.5m
Parting consisting of alternate shale and SSt	2m - 3m
Coal Seam – I (top)	0.5m - 1.0m

<b>Lithology</b>	<b>General Range of Thickness</b>
Parting of sandy shale or alternate shale and sandstone	2m - 6m
Coal Seam-I (Bottom)	0.28m - 1.0m
Predominantly sandstone with thin coal bands but devoid of any workable seams	70m - 100m

## 2.2 EXPLORATION STATUS

The proposed mine boundary falls in Kanhan (Walni) and Pipla Inclines Geological Block of Kamptee Coalfield. About 57 boreholes have been drilled by different agencies in these blocks. The summarized details of exploration in these blocks are as follows:

<b>Name of Block</b>	<b>No. of Boreholes</b>	<b>Period</b>	<b>Block Area (sq.km.)</b>	<b>Seams intersected</b>
Kanhan (Walni) and Pipla Inclines Block	17 (IBM)	1968 - 1970	6.0	Seams – V, IV (Top), IV (Bottom), III, II, I (Top) & I (Bottom)
	30 (NCDC)	Upto 1970		
	49	Upto 1978		
<b>TOTAL</b>	<b>96</b>		<b>6.0</b>	<b>7 Seams / Seam sections</b>

Note: The area offered for working by MDO has approximately 36 exploration boreholes in the leasehold area proposed for mining by MDO is approximately 1.90 sq. km. The borehole density comes to 19 BH/sq. km.

## 2.3 DIP AND STRIKE

The floor contour plans prepared for the various seams indicate that the seams are striking NW – SE to WNW – ESE. The beds are dipping at angles varying between 10° and 15° towards WSW to due south.

## 2.4 INCROP / OUTCROP OF COAL SEAM (S)

Seam-V, Seam-IV (Top), Seam-IV (Bottom), Seam-III and Seam-II incrop in the proposed leasehold boundary.

## 2.5 COAL SEAMS

07 (seven) coal seams / seam sections viz. Seam-V, Seam-IV (Top), Seam-IV (Bottom), Seam-III, Seam-II, Seam-I (Top) and Seam-I (Bottom) are present in Kanhan (Walni), Pipla Inclines Geological Block.

The sequence of Coal Seams with their thickness and parting as per the geological report is as follows:

Seam / Parting	Seam Thickness (m)	Remarks
V	5.0 - 7.0	Workable Section is 1.5m to 5.0m
Parting	19 - 41	Mainly Sandstone
IV (Top)	0.5 - 2.0	Unworkable Seam section
Parting	6.0 - 12.0	Predominantly Sandy Shale, Alternate Shale & Sandstone, thin coal bands and carb. shale
IV (Bottom)	2.4 - 3.0	Workable Seam section
Parting	25.0 - 38.0	Generally Sandstone
III	1.5 - 2.0	Workable Seam
Parting	13.0 - 26.0	Generally Sandstone and Sandy Shale
II	3.5 - 6.5	Workable Seam
Parting	2.0 - 3.0	Alternate Shale and Sandstone
I (Top)	0.5 - 1.0	Unworkable Seam section
Parting	2.0 - 6.0	Sandy Shale and alternate Shale & Sandstone
I (Bottom)	0.28 - 1.0	Unworkable Seam section

### 2.5.1 Description of Coal Seams in the Mining Area

The Pipla Colliery Mine was opened with two inclines and an airshaft. The mining area in Pipla Colliery is having four workable seams/seam sections namely Seam-V, Seam-IV (Bottom), Seam-III and Seam-II. Seam section-IV (Top), Seam section-I (Top) and Seam section-I (Bottom) are unworkable owing to less thickness and reserves.

Seam-V is having an in-band thickness of 1.74m - 4.60m and ex-band thickness of 2.31m - 4.60m. A very small area has been developed in Seam-V below the 15m hard cover line. Depillaring has not been done in Seam-V. Leaving aside the developed pillars, a few panels have been drawn in Seam-V where development and depillaring reserves have been estimated. Also the depillaring reserves have been estimated in the pillars which are standing in Seam-V.

Seam-IV (Bottom) is having an in-band thickness of 2.12m and ex-band thickness of 2.02m to 4.00m. Nearly half the area has been developed in Seam-IV (Bottom) below the 15m hard cover line. Depillaring has not been done in Seam-IV (Bottom). Leaving aside the developed pillars, a few panels have been drawn in the virgin area of Seam-IV (Bottom) where development and depillaring reserves have been estimated. Also the depillaring reserves have been estimated in the pillars which are standing in Seam-IV (Bottom).



Seam-III is having an in-band thickness of 1.40m to 2.16m and ex-band thickness of 1.29m to 2.77m. Nearly more than half the area has been developed in Seam-III below the 15m hard cover line. About three panels were depillared in Seam-III. Leaving aside the developed and depillared pillars, a few panels have been drawn in the virgin area of Seam-III where development and depillaring reserves have been estimated. Also the depillaring reserves have been estimated in the pillars which are standing in Seam-III.

Seam-II is having an in-band thickness of 4.79m to 6.97m and ex-band thickness of 2.96m to 6.97m. Almost whole of the area has been developed in Seam-II below the 15m hard cover line. About eighteen panels/sub-panels were depillared in Seam-II and only a panel is left out for depillaring on the western boundary of the mine. No fresh panels could be drawn in the virgin area of Seam-II as there is no place left out in Seam-II. Therefore, development and depillaring reserves have not been estimated. The depillaring reserves have been estimated in the pillars in the only panel which is standing in Seam-II.

## 2.5.2 Faults

The Kanhan-Pipla incline area is dissected by as many as 20 faults. The details of individual faults crossing into the working limit of Pipla Inclines are discussed below:

**Fault F<sub>6</sub>-F<sub>6</sub>** is a major fault originating in Silewara Mine area and extends towards west upto borehole NCKMT 2 in the Pipla Incline area. The fault trends WNW – ESE in Pipla Incline area and has down throw of about 90m towards north. The northern area of this fault is directed by a number of faults and it may not be possible to develop this area.

**Fault F<sub>9</sub>-F<sub>9</sub>** originates from a major fault F<sub>6</sub>-F<sub>6</sub> and joins fault F<sub>13</sub>-F<sub>13</sub>. The fault is trending almost west in the western portion but takes a north easterly trend from borehole KMT-125. The fault has down throw towards north and the throw varies from 15m towards east to 30-35m in the centre.

**Fault F<sub>10</sub>-F<sub>10</sub>** is an oblique fault and originates from a major fault F<sub>6</sub>-F<sub>6</sub> north of borehole KMT-103. It runs parallel to fault F<sub>9</sub>-F<sub>9</sub> and ultimately joins fault F<sub>9</sub>-F<sub>9</sub>. The fault heads towards south and throw varies from 10m to 30m.

**Fault F<sub>11</sub>-F<sub>11</sub>** is more or less a strike fault trending east - west and has a down throw of about 5 to 10m towards north. The fault originates from fault F<sub>10</sub>-F<sub>10</sub> and joins fault F<sub>13</sub>-F<sub>13</sub>.

**Fault F<sub>12</sub>-F<sub>12</sub>** is more or less an oblique fault trending north east - south west and heading towards south east. The throw of this fault is of the order of 12 to 15m. This fault is emanating from the major fault F<sub>6</sub>-F<sub>6</sub> and abuts against fault F<sub>11</sub>-F<sub>11</sub>.

**Fault F<sub>13</sub>-F<sub>13</sub>** is a major oblique fault running almost north west - south east direction on the northern side while it changes its trend near NCKMT-25 borehole and runs almost north south in the southern part. It has a down throw of about 70 to 90m towards west.

**Fault F<sub>14</sub>-F<sub>14</sub>** is an oblique fault trending towards ENE - WSW direction and has a down throw of about 8 to 16m. This fault abuts against fault F<sub>13</sub>-F<sub>13</sub> in the south west.

**Fault F<sub>17</sub>-F<sub>17</sub>** is more or less a strike fault and sympathetic to fault F<sub>13</sub>-F<sub>13</sub>. He fault has a down throw of about 5 to 10m.

**Fault F<sub>18</sub>-F<sub>18</sub>** is trending almost NW - SE and abuts against fault F<sub>11</sub>-F<sub>11</sub> and fault F<sub>9</sub>-F<sub>9</sub>. The fault has a down throw of about 5 to 10m.

**Fault F<sub>20</sub>-F<sub>20</sub>** is actually met within the workings of Seam-II in Pipla Mine. It originates west of borehole NCKMT-61 and trends ENE - WSW and joins fault F<sub>11</sub>-F<sub>11</sub>. It has a throw of 3 to 4m towards NNW.

Many faults which are minor in nature with a throw upto 5m which may not have been dissected during exploration may have been encountered in the mine.

### **2.5.3 Intrusives**

A big dyke on the eastern side of the inclines (near boreholes KMT-135 and NCKMT-43) has been encountered in the workings of three workable seams i.e., Seam-IV (B), Seam-III and Seam-II. This dyke may continue on the dip side also in all the workable seams for which the Geological Structure needs to be established.

#### **2.5.4 Other geological disturbances**

The mining area is crisscrossed and dissected by many faults and dyke. However, occurrence of minor faults and dykes cannot be ruled out.

#### **2.5.5 Immediate roof and floor of coal seam(s)**

Immediate Roof and Floor status of Seam-V, Seam-IV (B), Seam-III and Seam-II in Kanhan (Walni), Pipla Inclines Geological Block area is as below:

##### **SEAM-V:**

- a) Roof : Mainly sandstone
- b) Floor : Mainly sandstone

##### **SEAM-IV (Bottom):**

- a) Roof : Mainly Sandy Shale and Carbonaceous Shale
- b) Floor : Sandy shale, Medium to Coarse Grained Sandstone

##### **SEAM-III:**

- a) Roof : Grey medium to coarse grained Sandstone or alternate Shale and Sandstone
- b) Floor : Sandstone or Sandy Shale

##### **SEAM-II:**

- a) Roof : Medium to coarse grained Sandstone or rarely Sandy shale or Carbonaceous Shale
- b) Floor : Carbonaceous Shale, Sandy Shale or rarely alternate Shale & Sandstone

#### **2.6 PHYSICO-MECHANICAL PROPERTIES**

The Physico-Mechanical properties are not available for this mine

#### **2.7 PROXIMATE & ULTIMATE ANALYSIS**

**2.7.1** The Proximate Analysis (In-band & Ex-band) results on 60% R.H. and at 40° C in Kanhan (Walni), Pipla Inclines Geological Block is given in the following table:

Seam / Seam Section	In-band Thickness (m)	Moisture (%)	Ash (%)	Gross C.V. (k. Cal./kg)	U.H.V. (k. Cal./kg)
V	1.74 - 4.60	6.1 - 8.7	28.8 - 39.0	3890 - 4535	2657 - 3595
IV (Bottom)	2.12	7.3	29.1	4370	3760
III	1.40 - 2.16	7.4 - 8.5	20.7 - 22.5	5145 - 5165	4731 - 4748
II	4.79 - 6.97	7.6 - 8.1	17.4 - 21.1	5100 - 5485	4849 - 5456

Seam / Seam Section	Ex-band Thickness (m)	Moisture (%)	Ash (%)	Gross C.V. (k. Cal./kg)	U.H.V. (k. Cal./kg)
V	2.31 - 4.60	5.8 - 9.6	26.9 - 35.7	4115 - 4540	3600
IV (Bottom)	2.02 - 4.00	6.6 - 10.4	17.5 - 27.2	4557 - 5398	4700
III	1.29 - 2.77	8.2 - 9.5	13.6 - 25.7	4700 - 6082	4900
II	2.96 - 6.97	7.6 - 9.2	14.7 - 20.2	5180 - 5705	5100

2.7.2 The Ultimate Analysis was also carried out on coal samples of different coal seams and the results of analysis are summarized below:

Seam / Seam Section	Thickness Range (m)	C%	M%	O%	N%	S%
V	2.06 - 6.41	77.71-80.65	4.62-5.82	12.75-15.00	1.57-1.78	0.23-0.69
IV (Bottom)	2.12 - 3.04	77.67-80.37	4.51-4.93	13.03-15.90	1.53-1.70	0.08-0.69
III	1.38 - 2.16	77.40-81.37	4.24-4.85	12.16-16.30	0.21-0.78	-
II	2.20 - 6.62	78.54-81.70	4.10-4.44	12.18-15.40	0.31-1.51	-

## 2.8 OTHER TEST AND ANALYSIS

The coal cores were also subjected to studies of ash fusion temperatures. The results are summarized below:

Seam / Seam Section (Particulars)	NCKMT / KMT Borehole Nos.							
<b>Seam - V</b>								
Softening Point (°C)	Over 1400							
Hemispherical Temp (°C)	Over 1400							
Flow Temperature (°C)	-							
<b>Seam - IV (Bottom)</b>	<b>35</b>	<b>46</b>	<b>69</b>	<b>70</b>	<b>73</b>			
Softening Point (°C)	1380	1340	1400	1400	1300			
Hemispherical Temp (°C)	1400	1400	1400	1400	1400			
Flow Temperature (°C)	-	-	-	-	-			
<b>Seam - III</b>	<b>125</b>	<b>131</b>	<b>35</b>	<b>44</b>	<b>69</b>	<b>70</b>	<b>73</b>	<b>74</b>
Softening Point (°C)	1230	1250	1320	1390	1300	1320	1380	>1400
Hemispherical Temp (°C)	1370	>1400	1400	1400	1400	1400		
Flow Temperature (°C)	>1400	-	-	-	-	-	-	-
<b>Seam - II</b>	<b>135</b>	<b>35</b>	<b>41</b>	<b>57</b>	<b>62</b>	<b>69</b>		
Softening Point (°C)	1160	1320	1280	1310	1400	1290		
Hemispherical Temp (°C)	1250	1400	1400	1400	1400	1400		
Flow Temperature (°C)	1300	-	-	-	-	-		

### **3.0 COAL RESERVES**

The minimum balance Extractable Reserves in Four Workable Seams i.e., Seam-V [Standing on Pillars + Virgin Area], Seam-IV (Bottom) [Standing on Pillars + Virgin Area], Seam-III [Standing on Pillars + Virgin Area] and Seam-II [Standing on Pillars] works out to approximately 3.71 Mt.

### **4.0 GEO-MINING CHARACTERISTICS**

#### **4.1.1 Gassiness of coal seam(s)**

Degree of gassiness of all the workable seams is Degree - I.

#### **4.1.2 Water regime**

The preliminary hydrogeological studies carried out in adjacent Silewara Colliery in December 1975 by putting two boreholes each of 75mm into mine workings have indicated an inflow of water within manageable capacity of the mine and the quantity of water flowing through these boreholes diminished with time. The detailed hydrogeological studies carried out by the central ground water board at Mahakali Colliery which has also the top strata similar to those of Silewara and Pipla Collieries and thicker beds of Kamthis have also revealed only small quantities of water which could flow into the mine.

#### **4.1.3 Incubation period of coal seam(s)**

The mine workings in Pipla Colliery are discontinued in August 2016 and therefore the incubation period of workable seams is not available.

#### **4.1.4 Cavability of coal seams**

Data of cavability characteristics of coal seams is not available.

#### **4.1.5 Important surface features**

- a. Incline No. 5 & 6
- b. Airshaft
- c. Officer's quarters
- d. Service Buildings
- e. Hospital and Police Station
- f. 11 kV H.T. Line
- g. Irrigation Canal
- h. State Highway Road / Public Road
- i. Aerial Ropeway
- j. Railway Line

## **5.0 MAJOR CONSTRAINTS**

### **a) Surface Constraints**

1. Incline No. 5 & 6 and Airshaft exists on the surface of the mine.
2. State Highway Road, Public Road, Colliery Roads, HT Power Line, Railway Line, Aerial Ropeway Irrigation Canal etc are passing through the Mine area.
3. Service and Residential Buildings are lying beyond the mine boundary.

### **b) Underground Constraints**

1. Gradient of coal seams is steep (1 in 4 to 1 in 6).
2. All the workable seams are geologically disturbed with many number of faults, cleats, slips and a big dyke etc crisscrossing the area.
3. The pillars in all the workable seams are standing since long time and may be water logged.
4. In Pipla Colliery Mine area, sufficient area has been developed and the pillars which are standing since long time are water logged pillars due to which pillars may be in very bad shape and condition.
5. Workings of Walni Underground Mine are adjoining to workings of Pipla Underground Mine and therefore there would be a possibility danger of underground inundation. A sufficient barrier has been kept in the workable coal seams to avoid the danger.
6. Seam-V is overlain by Kamptee series which is known to be water bearing strata.

## **6.0 PRESENT STATUS**

### **6.1 MINE ENTRIES**

Pipla Colliery Mine is having three mine entries i.e., two inclines and one airshaft which are shown in the following table:

Sl. No.	Entry	Length/Depth (m)	Cross-section (m x m)	Gradient	Purpose
1.	Incline No. 5	170	3.6 x 2.5	1 in 4.0	Main intake and belt conveyor roadway
2.	Incline No. 6	170	3.6 x 2.5	1 in 4.0	Main intake and haulage roadway.
3.	Airshaft	49 (Approx.)	4.5 m dia.	Vertical	Main return airway.

## 6.2 MINING METHOD

In all the workable seams of Pipla Colliery Mine, Semi-mechanised Bord & Pillar method was adopted with development and depillaring in conjunction with hydraulic sand stowing.

## 6.3 STATUS OF MINING

Date of opening, discontinuance and closing of the Pipla Colliery Mine is 19.04.1971, 26.08.2016 and 28.05.2019 respectively. Reason for discontinuity is said to be heavy losses.

Sl. No.	Name of Seam	Status
1	Seam-V	A small area had been developed & standing on pillars.
2	Seam-IV (Bottom)	Half of the area had been developed & standing on pillars.
3	Seam-III	More than half of the area had been developed & standing on pillars. Three panels have been depillared.
4	Seam-II	The whole of Seam-II had been developed and depillared in this seam except one small area.

## 6.4 INFRASTRUCTURE AVAILABLE

### 6.4.1 Land

The leasehold area of Pipla Colliery Mine is 190.00 hectares. The land acquisition status in the Leasehold Area is 16.91 ha acquired by WCL, 163.37 ha of Tenancy Land and 9.72 ha of Government Land.

### 6.4.2 Roads and culverts

The Pipla Colliery Mine is located nearly 2 km from Nagpur - Chhindwara State Highway. The mine and mine entries are well connected by a pucca road of WCL connecting from Incline No. 5 & 6 to Nagpur - Chhindwara State Highway. The mine is having well connected internal roads.

#### **6.4.3 Plants and machinery**

No Plant & Machinery exists in the abandoned/discontinued Pipla Colliery Mine.

No Belts and Haulages along with trackline and signaling system are available on the surface or underground in Pipla Colliery Mine.

Pumps and pipe lines are not available in this mine.

Main Mechanical Ventilator is not available in this mine.

#### **6.4.4 Power supply and distribution**

The source of power supply to Pipla Colliery Mine is 11 kV feeder of MSEB Rohana Sub-station. Presently there is no power supply and supply is disconnected to the mine. No surface and underground sub-station exists in Pipla Colliery Mine.

#### **6.4.5 Coal Handling Plant**

Presently there is no CHP facility near Pipla Colliery Mine.

#### **6.4.6 Water supply and sewerage**

2 Nos. of boreholes are in use for domestic water supply purpose, catering to Walni Hospital and Walni Colony.

#### **6.4.7 Service and Residential Buildings**

Presently, all the service buildings are dismantled in Pipla Colliery Mine. Residential buildings exists but are occupied by the employees of neighboring operating mines.

#### **6.4.8 Railway siding**

Railway Siding doesn't exist in Pipla Colliery Mine.

#### **6.4.9 Present Pumping System**

Water is being discharged to surface through 2 no. of boreholes for domestic water supply purpose catering to Walni Hospital and Walni Colony. Pumping system is not there in Pipla Colliery Mine.



#### 6.4.10 Present Magazine Details

The portable magazine is presently dismantled as the mine is discontinued / abandoned.

#### 6.4.11 Present Manpower Details

Presently, there is no manpower in Pipla Colliery Mine.

#### 6.4.12 Production from Pipla Colliery Mine

Presently, there is no production from Pipla Colliery Mine as this mine is abandoned / discontinued in August 2016 and finally closed in May 2019. The production of 5 years before closing of Pipla Colliery Mine is as follow:

Year 2012-13 - 75045 tonnes

Year 2013-14 - 77500 tonnes

Year 2014-15 - 67825 tonnes

Year 2015-16 - 32860 tonnes

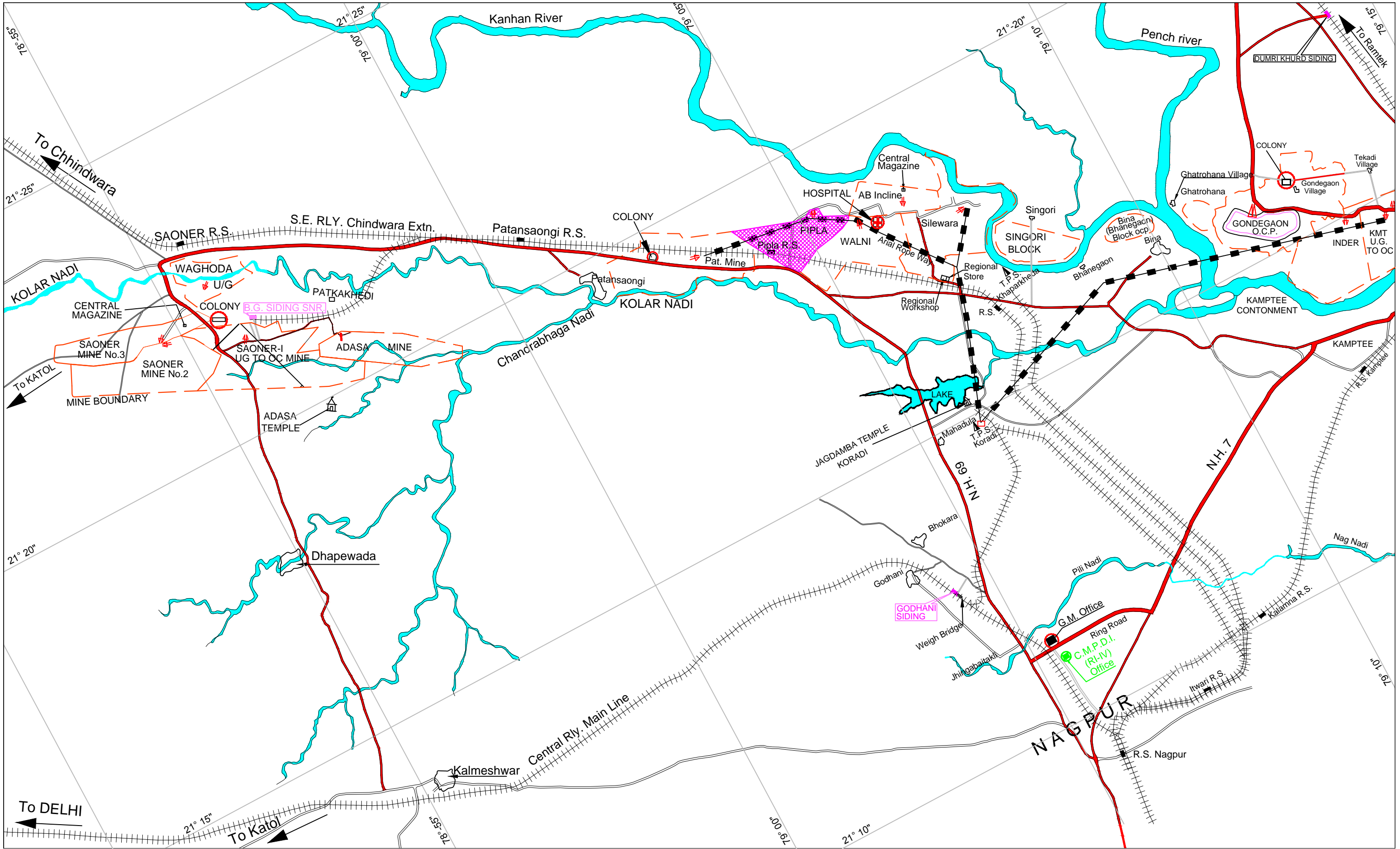
Year 2016-17 - 4250 tonnes

#### 6.4.13 Average Grade of Coal

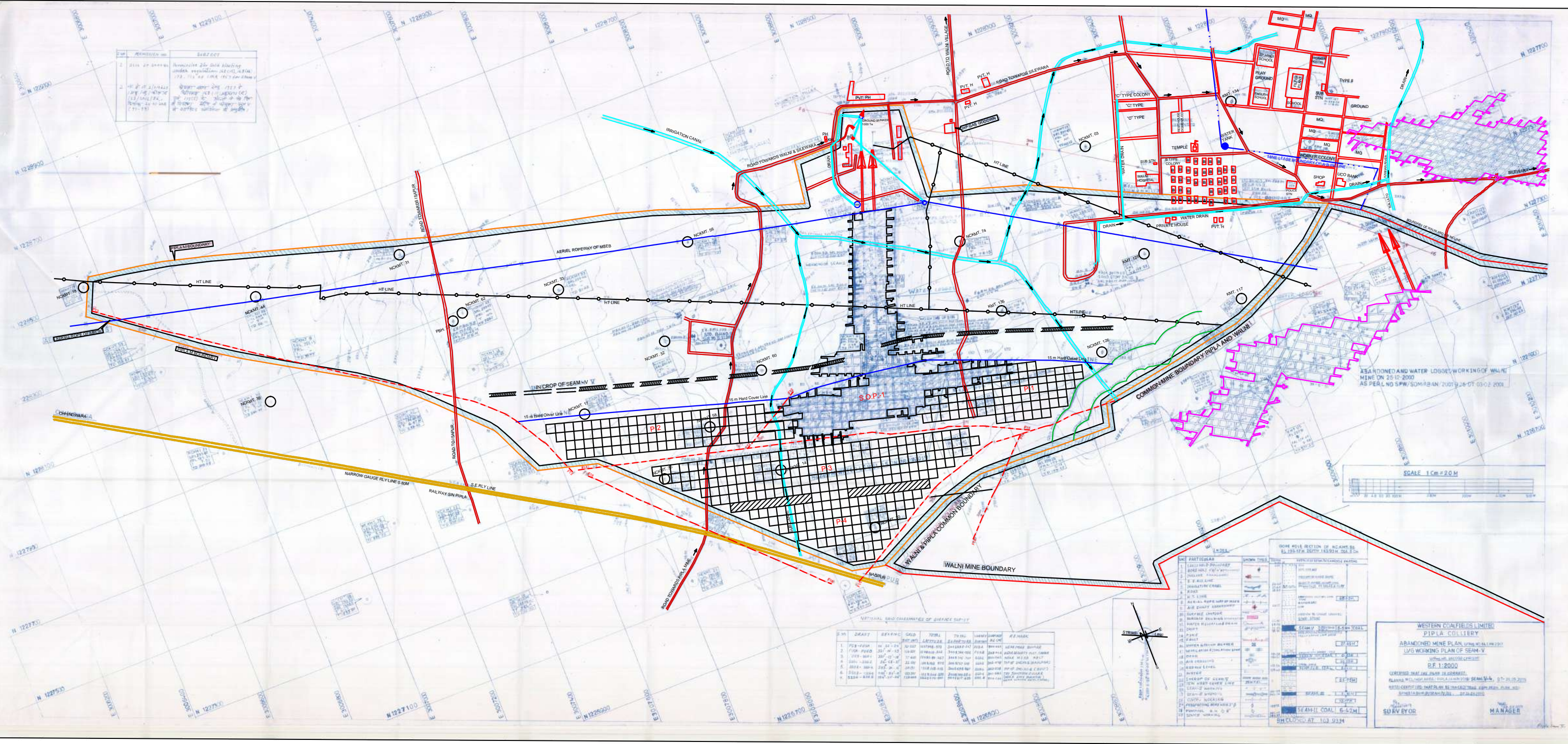
The average grade of coal seams of abandoned / discontinued Pipla Colliery Mine before closing is ' Steam G-5, Slack G-7'.

### 7.0 PLANS

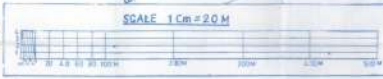
Sl. No.	Description	Scale/R.F.
1	Location Plan	N.T.S.
2	Working Plan of Seam-V	1 : 2000
3	Working Plan of Seam-IV (Bottom)	1 : 2000
4	Working Plan of Seam-III	1 : 2000
5	Working Plan of Seam-II	1 : 2000
6	Khasra Plan	1 : 5000



1. ALL THE WORKS UNDER REGULATION ARE TO BE COMPLETED WITHIN THE PERIOD OF 12 MONTHS FROM THE DATE OF ISSUANCE OF THIS PLAN.  
 2. THE WORKS TO BE COMPLETED WITHIN THE PERIOD OF 12 MONTHS FROM THE DATE OF ISSUANCE OF THIS PLAN.  
 3. THE WORKS TO BE COMPLETED WITHIN THE PERIOD OF 12 MONTHS FROM THE DATE OF ISSUANCE OF THIS PLAN.



ABANDONED AND WATER LOGGED WORKING OF WALN MINE ON 25-12-2000 AS PER L NO SPW/SOM/RIAN/2001/9-24-01 03-02 2001



NATIONAL GRID COORDINATES OF QUANTY TABLE

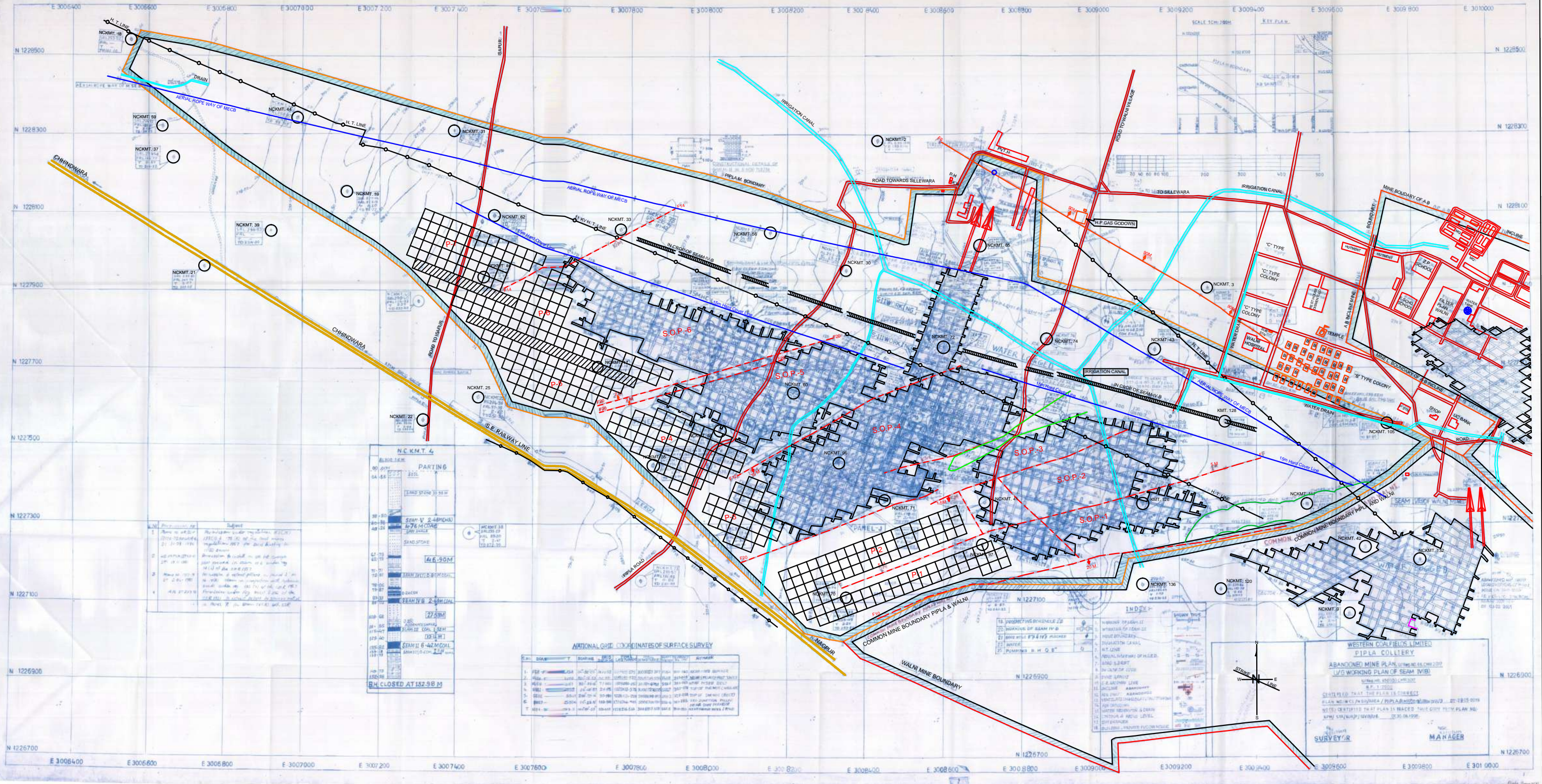
NO	DEPT	SEAM NO	GRID	TO BE	TO BE	TO BE	TO BE	TO BE	TO BE
1	PIPLA	SEAM-V	10 30 00	10 30 00	10 30 00	10 30 00	10 30 00	10 30 00	10 30 00
2	PIPLA	SEAM-V	10 30 00	10 30 00	10 30 00	10 30 00	10 30 00	10 30 00	10 30 00
3	PIPLA	SEAM-V	10 30 00	10 30 00	10 30 00	10 30 00	10 30 00	10 30 00	10 30 00
4	PIPLA	SEAM-V	10 30 00	10 30 00	10 30 00	10 30 00	10 30 00	10 30 00	10 30 00
5	PIPLA	SEAM-V	10 30 00	10 30 00	10 30 00	10 30 00	10 30 00	10 30 00	10 30 00
6	PIPLA	SEAM-V	10 30 00	10 30 00	10 30 00	10 30 00	10 30 00	10 30 00	10 30 00



LEGEND

NO	PARTICULARS	SYMBOL
1	BOUNDARY OF SEAM-V	(Symbol)
2	BOUNDARY OF SEAM-V	(Symbol)
3	BOUNDARY OF SEAM-V	(Symbol)
4	BOUNDARY OF SEAM-V	(Symbol)
5	BOUNDARY OF SEAM-V	(Symbol)
6	BOUNDARY OF SEAM-V	(Symbol)
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36	BOUNDARY OF SEAM-V	(Symbol)
37	BOUNDARY OF SEAM-V	(Symbol)
38	BOUNDARY OF SEAM-V	(Symbol)
39	BOUNDARY OF SEAM-V	(Symbol)
40	BOUNDARY OF SEAM-V	(Symbol)

**WESTERN COALFIELDS LIMITED**  
**PIPLA COLLIERY**  
 ABANDONED MINE PLAN WITH WATER LOGGED WORKING PLAN OF SEAM-V  
 SCALE: 1:2000  
 SURVEYOR: [Name]  
 MANAGER: [Name]



**NATIONAL GRID COORDINATES OF SURFACE SURVEY**

Point	Easting	Northing
1	3006400	1226700
2	3006600	1226700
3	3006800	1226700
4	3007000	1226700
5	3007200	1226700
6	3007400	1226700
7	3007600	1226700
8	3007800	1226700
9	3008000	1226700
10	3008200	1226700
11	3008400	1226700
12	3008600	1226700
13	3008800	1226700
14	3009000	1226700
15	3009200	1226700
16	3009400	1226700
17	3009600	1226700
18	3009800	1226700
19	3010000	1226700

**INDEX**

No.	Description	Remarks
1	SHAFTS	
2	WORKINGS OF SEAM IV B	
3	COMMON MINE BOUNDARY PIPLA & WALMI	
4	WATER	
5	PUMPING STATION	
6	ROAD	
7	RAILWAY LINE	
8	IRRIGATION CANAL	
9	TEMPLE	
10	SCHOOL	
11	HOSPITAL	
12	WATER TOWER	
13	WATER DRAIN	
14	ROAD TOWARDS SILLEWARA	
15	ROAD TO DAMBAR	
16	ROAD TOWARDS HOUSE	
17	ROAD TOWARDS WALKI	
18	ROAD TOWARDS SILLEWARA	
19	ROAD TOWARDS SILLEWARA	
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29	ROAD TOWARDS SILLEWARA	
30	ROAD TOWARDS SILLEWARA	

**WESTERN COALFIELDS LIMITED**

**DIPLA COLLIERY**

**ABANDONED MINE PLAN (SEAM IV B)**

**WORKING PLAN OF SEAM IV B**

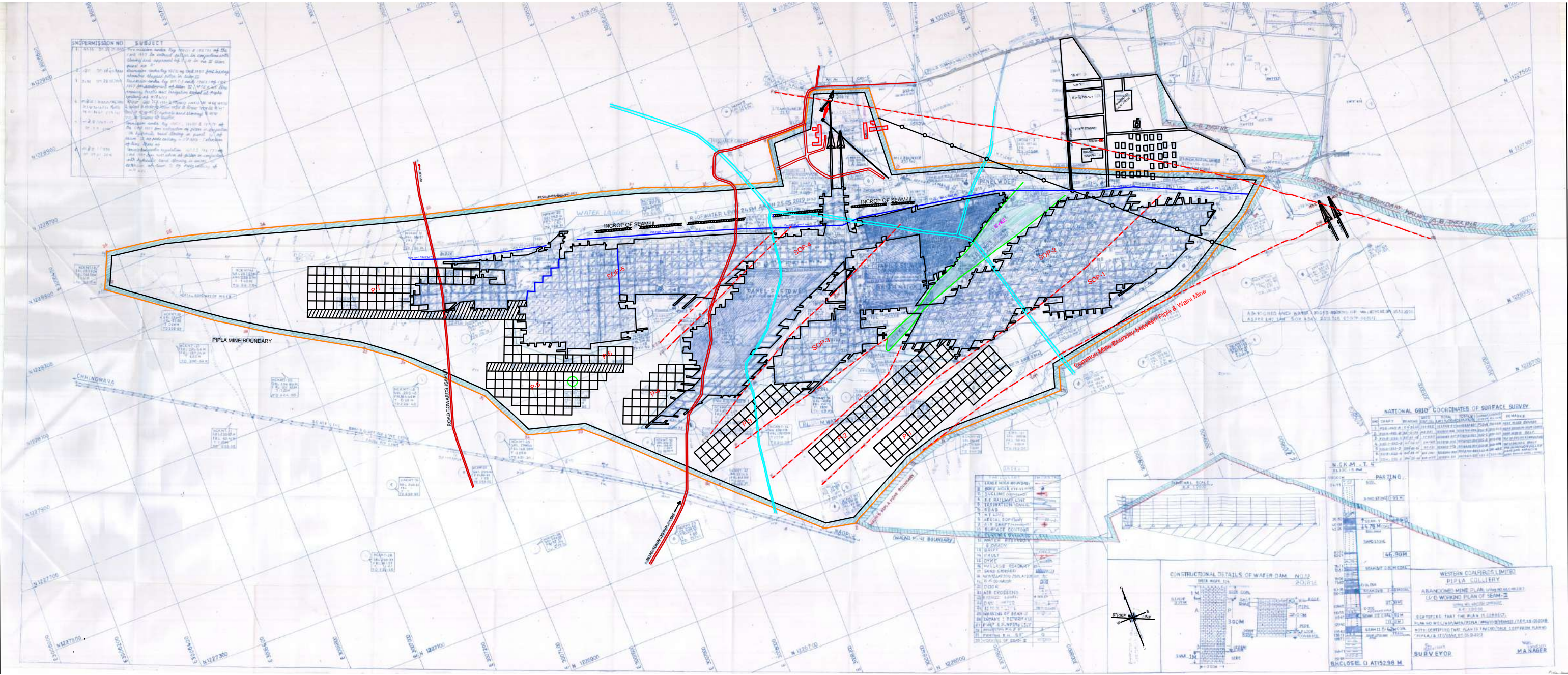
**SCALE 1:50,000**

**DATE: 1958**

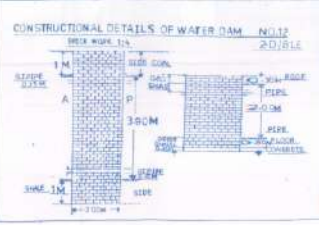
**SURVEYOR: [Name]**

**MANAGER: [Name]**

SNO	PERMISSION NO	SUBJECT
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- 1. FENCE
- 2. BORE HOLE
- 3. TUGLINE
- 4. E.E. DRAINAGE LINE
- 5. ISOPERIMETRIC CURVE
- 6. ROAD
- 7. T. L.P.
- 8. SPECIAL SIGNPOST
- 9. SURFACE SIGNPOST
- 10. WATER PIPING
- 11. BUSHY
- 12. CLAY
- 13. DIRT
- 14. W. L. S. SIGNPOST
- 15. SAND
- 16. W. L. S. SIGNPOST
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**NATIONAL GRID COORDINATES OF SURFACE SURVEY**

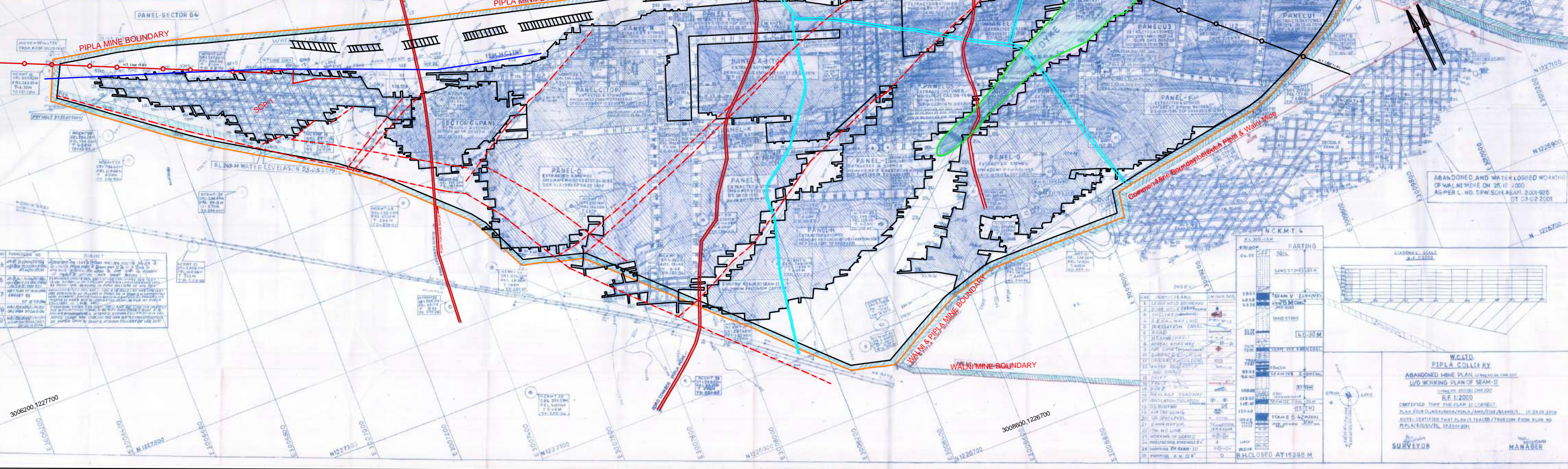
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**WESTERN COLLIERS LIMITED**  
**PIPLA COLLIERY**  
**ABANDONED MINE PLAN OF SEAM III**  
**U.O. WORKING PLAN OF SEAM III**

DATE: 10/10/2010  
 DRAWN BY: ...  
 CHECKED BY: ...  
 SURVEYOR: ...  
 MANAGER: ...

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PERMISSION NO.	SUBJECT
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**W.C.T.D. PIPLA COLLIERY**  
 ABANDONED MINE PLAN (BY REGULATIONS) 1/10 WORKING PLAN OF SEAM-II  
 RE: 1/2000  
 CERTIFIED THAT THE PLAN IS CORRECT  
 PLAN FOR SEAM II, PIPLA COLLIERY, DISTRICT OF...  
 NOTE: CERTIFIED THAT PLAN IS TAKEN FROM PLAN NO. PIPLA/1000/1000  
 SURVEYOR: [Signature]  
 MANAGER: [Signature]



ISAPUR

PIPLA

PIPLA UG MINE

WALNI

RANALA

ROHANA

KAVDAS

BIKAWDAS

PARDI KHAPA

DAHEGAON BANGARI

INDEX	
	SHOWN THIS
1) LAND ACQUIRED UNDER I.A. ACT -	<span style="background-color: yellow; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span>
2) LAND ACQUIRED UNDER DIRECT PURCHASE -	<span style="background-color: orange; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span>
3) LAND ACQUIRED UNDER M.L.R.C -	<span style="background-color: pink; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span>
4) MINE BOUNDARY PIPLA MINE	<span style="border-bottom: 2px solid green; width: 15px; display: inline-block;"></span>

**WESTERN COALFIELDS LIMITED  
NAGPUR AREA**

SUB-KHASRA PLAN OF PIPLA MINE

SCALE:- 1:5000

COLLIERY SURVEYOR  
SILEKHARA MINE

COLLIERY MANAGER  
SILEKHARA MINE

PLAN No. - WCL/SL/SURVEY/22/04 DATE - 02-04-2022  
This plan prepared on the basis of available maps at the mine.