CHAPTER – XI

COAL HANDLING AND DISPATCH

11.1.0 Introduction

The Gevra OCP is divided into three sectors namely Eastern sector, Central sector and Western sector. At present, Lower Kusmunda and Upper Kusmunda seams are being worked in the mine. Average parting between Kusmunda Lower and Kusmunda Upper seams is around 60 m. Presently, J-K series/ streams of conveyors and L/R stream of conveyors are working in Central sector. The J-K stream consists of J1/K1, J2/K2 and C1/C2, C3/C4 & C5/C6 conveyors, while L/R stream consists of L1, L2, L3, R1, R2, R3 and R4 conveyors. The J and K series of conveyors are running parallel to each other and one of the streams is working while the other stream is used as standby. However in case of emergency both the streams can be made operational.

11.1.1 Present System of Coal Handling & Dispatch

Silo No.1&2 with storage capacity of 2400 te each are the existing silos of the Gevra project. These silos are working with MGR system for delivery of coal to NTPC Korba. Both, J-K series and L/R stream of belt conveyors feed coal to Silo No.1&2 via a 30000 te ground bunker with C-series of conveyors and a 5000 te surge bunker respectively. Thus, the existing silos with J-K series and L/R stream of belt conveyors are engaged in dispatch of coal to NTPC Korba only. Coal from both Lower Kusmunda and Upper Kusmunda seams comes to the existing silos through the J-K series and L/R stream of belt conveyors. Designed coal handling capacity of this system is 15 Mty.

There are five number of sidings with wharf wall loading system in the project. Junadih Siding Nos. I&II are used by SECL for dispatch of coal to various consumers whereas Siding Nos. III&IV (ACB sidings) and Siding No. V (GEB siding) have been leased out to the washery holders for dispatch of washed coal by them. Each wharf wall siding has coal handling capacity of around 5 Mty. In addition, there are eight number of mini CHPs with Feeder Breaker/ crusher and road weigh bridges for dispatch of coal to various consumers by trucks through road sales.

Gevra project produced around 38.70 Mt & 41 Mt and dispatched around 37.42 Mt & 41 MT of coal during the years 2013-14 and 2014-15 respectively. Break-up of coal dispatch from the project during 2013-14 and 2014-15 is as follows:

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		2013-14	2014-15
NTPC Korba through Silo No.1&2	:	15.26 Mt	14.24 Mt
Other power houses and consumers through Junadih Sidings I&II	:	9.89 Mt	7.93 Mt
Washeries by trucks	:	8.24 Mt	11.64 Mt
Road sales by trucks	:	3.98 Mt	3.32 Mt
Others	:	0.05 Mt	----
Total Dispatch	:	37.42 Mt	37.15 Mt

11.1.2 CHP under Construction

Silo No. 3&4 with Bunker : Silo No. 3&4 with storage capacity of 4000 te each and RLS at the rate of 5500 TPH each are under construction. An overhead RCC bunker with storage capacity of 10000 te is also being constructed along with the silos. It is envisaged that around 10 Mty of coal will be dispatched from these silos. Apart from the silos, two numbers of truck loading stations are also being attached to the overhead bunker for dispatch of coal through trucks to various consumers.

Inpit Conveyor System : The inpit conveyor system is being installed on the floor of Lower Kusmunda seam. In the central sector, two streams of belt conveyors (J and K series) consisting of J1, J2 and K1, K2 already exist. These are of 1400 mm wide belt conveyors. These conveyors are being replaced by 1600 wide belt conveyors at their existing places. In addition, conveyors J3 and K3 each of 1600 mm belt width are being installed at an angle of 175° (i.e. almost in-line) to the alignment of J1, J2 and K1, K2 respectively. Both the streams of belt conveyors will be parallel to each other. In the western sector, two new streams of belt conveyors (P and Q series) consisting of P1, P2, P3 and Q1, Q2, Q3 conveyors of 1600 mm belt width are being installed. Both the streams of belt conveyors will be parallel to each other. P-Q stream of belt conveyors will discharge coal into a 1500 te transfer hopper (TH2) from where coal will be fed to either Silo No. 1&2 or Silo No. 3&4.

Conveyor K1 of J-K series of conveyors will discharge coal into the transfer house TH3 whereas conveyor J1 will continue to discharge in the existing transfer house TH1. Coal form TH3 will be discharged onto M1/M2 belt conveyors for feeding it to Silo No.

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3&4 via an overhead RCC bunker of 10000 te capacity. Truck loading stations TLS1 and TLS2 will also be attached to the bunker for dispatch of coal by trucks.

Total designed coal handling capacity of J-K and P-Q series combined will be 25 Mty (peak capacity 20% extra) which will be dispatched through the four number of silos - Silo No. 1&2 (existing) and Silo No. 3&4 (under construction). Construction of Silo No. 3&4 along with the 10000 te overhead bunker and the inpit conveyor systems (J1/K1, J2/K2 & J3/K3 and P1/Q1, P2/Q2 & P3/Q3) is expected to be completed by the end of 2015.

11.2.0 BASIC DATA

Basic data considered for planning and design of coal handling plant are as follows :

a)	Target output	70 Mty	
b)	Life of the mine	21 years	
c)	Quality of coal	Non-coking	GCV Band G-10
d)	Mine operation	Shifts/day	3
e)	CHP operation	Shifts/day	3
f)	Customer	Power houses, misc.	
g)	Mode of transport to CHP capacity & series of belt conveyors	by Rear Dumpers (coal body) of 60 te	
h)	Dispatch of coal	through rail	
i)	Weighing arrangement of coal	by pre-weigh bins below silos	
j)	End product for dispatch	(-) 100 mm	

11.3.0 PROPOSED COAL HANDLING AND DISPATCH SYSTEM

(Plate No.-M1)

11.3.1 In-pit Conveying System (Central Sector)

Coal won by surface miners in the lower Kusmunda seam will be transported by two pairs of series of belt conveyors viz. J-K series and A-B series located in the central corridor left for belt conveyors and haul road in the central sector.

J-K Series : J-K series will consist of conveyors J1/K1, J2/K2, J3/K3, J4/k4, J5/K5 and J6/K6. All the conveyors of this series will be with 1600 mm belting. Modified J1/K1 & J32/K2 and new J3/k3 is expected to be commissioned by the end of 2015. Conveyors J4/K4, J5/K5 and J6/K6 will be additional provision for the 70 Mty expansion project and

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will be installed in phases. Accordingly, the truck receiving station at the tail of conveyors J3/K3 will be shifted at the tail of the last pair of conveyors. Each of J and K series will be of 2300 TPH capacity. One of them will be working while the other will be stand by. However, in case of peak demand or failure of other circuit, both J and K series may be required to run simultaneously.

A-B Series : A-B series will be a new set of conveyors consisting of A1/B1, A2/B2, A3/B3, A4/B4 and A5/B5 conveyors with 2000 mm width belting and 5000 TPH capacity. A-B series will be installed in the central corridor adjacent to the J-K series. A series and B series will parallel to each other. One of the A and B series of conveyors will be working while the other series will be stand by. However, in case of peak demand or failure of other circuit, both A and B series may be required to run simultaneously. Conveyors A1/B1, A2/B2, A3/B3 & A4/B4 will be installed in the first phase whereas conveyors A5/B5 will be installed at a later stage. Conveyors A4/B4 will be fed by shiftable conveyors from the face. However, conveyors A4/B4 will be directly fed by Chain Feeders installed near the tail of the conveyors which will be shifted to the tail of A5/B5 after its installation at a later stage. These Chain Feeders will be partially used to receive coal from the nearby locations by trucks and will be fully utilized in case of any breakdown in the shiftable conveyors circuit. Conveyor A1 will discharge coal either on TH-2 through a fixed tripper or on the existing L-series of conveyors of 1400mm belt width and 3 m/s speed, whereas conveyor B1 after crossing the L-series will discharge coal to conveyor B0 of 2000 mm belting and 5000 TPH capacity. Conveyor B0 will discharge coal through a two-way chute to the tripper conveyors D7/D8 over the 50000 te overhead RCC bunker of the western circuit.

Shiftable Face Conveyors : Shiftable conveyors S1, S2 and S3 will be installed in series at the face for transportation of coal from face to A-B series of conveyors. S1 and S2 will be of fixed length whereas length of S3 will vary according to the position of the conveyors S1 and S2 with respect of the transfer point at the A-B series of conveyors. Conveyor S3 will be provided with a radial swiveling belt conveyor S0 with discharge chute which can be set to discharge coal onto either A or B conveyor. The radial swiveling belt conveyor for transfer of coal from conveyor S3 to A or B conveyor will be shifted from A4/B4 conveyors to A5/B5 conveyors after few extensions of the shiftable conveyor S3. After installation of conveyor A5/B5, orientation of conveyor S3 may change

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and it may also become almost in-line with S1 and S2 conveyors. In that case, location of the two truck receiving stations at the coal face may be spread out to bring one of them nearer to S3. All the shiftable conveyors will mounted on slippers and rail tracks will be laid along the conveyors to facilitate their shifting. Shifting of the conveyors will be done with the help of crawler mounted conveyor shifting machine.

Coal won by surface miners will be loaded into trucks by pay loaders and dumped into Chain Feeders of about 2000 TPH capacity. Two number of Chain Feeders will be provided with each of the shiftable conveyors S1 & S2 for receipt of coal from the trucks (Ref. Plate No. M6). Three out of the four Chain Feeders will be working whereas one will be stand by. In case of concentration of coal winning in a smaller patch, all the three working Chain Feeders may be deployed to discharge coal onto either of S1 and S2 conveyors. Shifting of the conveyors S1 & S2 along with the Chain Feeders and extension/shifting of the conveyor S3 will be done to maintain a minimum clearance between the OB dump and the conveyors and an optimum lead for the tipping trucks.

11.3.2 Surface Conveying System

Two circuits of surface belt conveyors along with bunkers and silos have been envisaged along the western and eastern boundaries of the mine in the western and eastern sectors respectively for transportation of coal won by surface miners in the Upper Kusmunda seam and other upper seams viz. D (Bottom) & D (Top) seams and E, F & EF seams. Coal from the face will be transported by trucks upto the truck receiving stations of both the circuits. However, possibility of deployment of High Angle Conveyors (HAC) for transportation of coal from Upper Kusmunda seam to the surface may be explored in the future. Capital provisioning for studies and trial of HAC has been made Appendix3.6.

11.3.2.1 Western Circuit

Western circuit of surface conveyors will consist a truck receiving station with two sets of 5 x 8m x 8m x 120 te steel hoppers (4 working & 1 standby) along with 1000 TPH vibratory feeders, two series of belt conveyors (D series) of 2000 mm belting parallel to each other, one overhead RCC bunker of 50000 te capacity and two silos of 4000 te capacity each. One of the five hoppers in each set will be standby One series of surface conveyors will consist of conveyors D1 & D3 whereas the other series will consist of surface conveyors D2 & D4 of 4000 TPH capacity each. One of them will be working while the other will be stand by. However, in case of peak demand or failure of other circuit both the series may be required to run simultaneously. Conveyors D3/D4 will

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discharge coal onto the tripper conveyors D5/D6 of 5000 TPH capacity each over the 50000 te bunker. Coal from the bunker will be reclaimed by plough feeders of 5000 TPH capacity and will be discharged onto the reclaim conveyors D7/D8 of 5000 TPH capacity each. Two number plough feeders will be installed over each of the two reclaim conveyors D7 & D8. Conveyors D7/D8 will discharge coal into Silo No.5 through two-way chutes. Conveyors D9/D10 of 5000 TPH capacity each will receive coal from the two-way chutes at Silo No.5 and discharge it to the adjoining Silo No.6. Both the silos i.e. Silo No.5 and Silo No.6 will be fitted with double discharge chutes and pre-weigh hoppers. Minimum self-flowing capacity of the pre-weigh hoppers will be 72 te each. Double railway lines will pass under each of the silos such that each of the chutes of the silos will be placed over separate railway lines.

11.3.2.2 Eastern Circuit

Eastern circuit of surface conveyors will consist a truck receiving station with two sets of 4 x 8m x 8m x 120 te steel hoppers (3 working & 1 standby) along with 1000 TPH vibratory feeders, two series of belt conveyors (G series) of 1600 mm belting and 2800 TPH capacity parallel to each other, one overhead RCC bunker of 30000 te capacity and two numbers rail load out systems with 500 te capacity surge bin and 100 te capacity weigh bin each. One series of surface conveyors will consist of conveyors G1 & G3 whereas the other series will consist of surface conveyors G2 & G4. One of them will be working while the other will be stand by. However, in case of peak demand or failure of other circuit both the series may be required to run simultaneously. Conveyors G3/G4 will discharge coal onto the tripper conveyors G5/G6 over the 30000 te bunker. However, Conveyors G1/G2 & G3/G4 will come after about ten years, the tripper conveyors G5/G6 will be fed by another pair of belt conveyors G9/G10 which will reclaim coal from a nearby truck receiving station consisting of two sets of 4 x 8m x 8m x 120 te steel hoppers (3 working & 1 standby) along with 1000 TPH vibratory feeders. This truck receiving station will be dismantled after installation of conveyors G1/G2 & G3/G4 and reinstalled at the tail end of G1/G2. Coal from the bunker will be reclaimed by plough feeders of 4000 TPH capacity and will be discharged onto the reclaim conveyors G7/G8. Conveyors G7/G8 will be of 4000 TPH nominal capacity. Two number plough feeders of 4000 TPH nominal capacity each will be installed over each of the two reclaim conveyors G7 & G8. Conveyors G7/G8 will discharge coal into the surge bins of the two numbers rail load out

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systems. The surge bins will be fitted with weigh bins and telescopic chutes for discharge of coal into rail wagons.

11.3.3 Coal Storage and Dispatch System

11.3.3.1 Overhead RCC Bunkers

Two no. of overhead RCC bunkers of 50000 te and 30000 te capacity have been envisaged in the western and eastern sectors of the mine respectively. The tripper conveyors, reclaim conveyors and plough feeders of the 50000 te bunker will of 5000 TPH capacity whereas tripper conveyors for the 30000 te bunker will be of 2800 TPH capacity and the plough feeders and the reclaim conveyors of this bunker will be of 4000 TPH capacity. The 50000 te bunker will be attached to Silo No. 5&6 whereas the 30000 te bunker will be attached to two numbers 500 te surge bins of two numbers rail load out systems. The bunkers will be fitted with high level and low level indicator switches.

11.3.3.2 Rapid Loading Systems

11.3.3.2.1 Western Sector

Rapid Loading Systems in the western sector will consist of two numbers of silos i.e. Silo No.5&6 of 4000 te capacity each. The silos will be of RCC construction and fitted with double discharge chutes and pre-weigh hoppers for weighment of coal. The RLS will load coal into railway wagons.

The slanting surface of the silos will be lined with 10 mm thick stainless steel liners (SS 409) and will be extended upto 3 m in vertical section. The remaining vertical portion will be lined with epoxy based ferrosite/ ironite lining of 25 mm thick for easy flow of coal. The silos will be designed and constructed on mass flow concept to reduce the possibility of rat holing /arching taking place during the evacuation /loading process. For this, proper slopes will be provided in the slanting faces of the silos. Provision for installation of air blasters/ air cannons will be made at suitable locations to keep the coal agitated to avoid rat holing and arching inside the silo so that continuous coal flow is ensured. Both the silos will be fitted with ultrasonic type high level limit switches to stop the plough feeder below the bunker if a pre-determined high level is reached in the silo. Low level limit switches will be provided to close the silo discharge gates if a predetermined low level is reached i.e. approx. 600 te in the silo. Temperature monitoring devices will also be provided at various levels in the silo to monitor temperature of coal inside the silo and give audio-visual alarms in the control room for necessary action.

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These will operate through battery in case of power failure. Inspection trolley with cage will be provided above the silo for inspection of outer and inner surfaces of the silo.

Below each silo eight numbers of hydraulically operated emergency gates will be provided. This will be used in emergencies during the maintenance of the equipment below the silos. Eight numbers of hydraulically operated silo discharge gates will be provided below the emergency gates. Discharge through the silo discharge gates will be into two nos. of steel hopper of minimum 72 te live capacity mounted on four numbers of load cells to weigh the coal before it is discharged. Under each pre-weigh hopper a telescopic chute gate with a flow control valve will be provided by which the wagons will be loaded. The wagons will be moved by means of a creep controlled diesel engine/ electric engine while they are being loaded. Track logic system will be provided on the rail lines to identify the rail wagons and send signal to the central processing unit for operating the chute. During the period when there is no wagon loading the pre-weigh hopper will be filled in. LED based aviation light will be provided over one of the two silos in the western circuit. Lightning arrestors will also be provided on the silos.

11.3.3.2.2 Eastern Sector

Rapid Loading Systems in the eastern sector will consist of two numbers of load out systems each primarily consisting of one surge bin of 500 te capacity, one weigh bin of 100 te capacity and a traversing/telescoping chute (Plate no.M9). Coal will flow into the weigh bin from the surge bin through four numbers bin charging gates and will be loaded into rail wagons through the telescopic chute. The telescopic chute will be of traversing type and will be parked aside for allowing loco to pass and then will be brought to the central position for facilitating coal loading into the wagons.

The surge bins and the weigh bins will be fabricated of minimum 10 mm thick carbon steel plates and will be lined with minimum 12 mm thick chromium carbide wear liner. The chute will be of heavy duty design for coal application. The structure will be designed to be in compliance with the current Indian standards and specifications. The structural system will include stairs system, access floors as well as the floor where the system feed conveyors lands on the building etc. All structural steel design will be as per suitable IS. All structural connections will be designed to be field bolted. All structural framing connections shall utilize high tensile strength bolts. All bracings girt connections will be designed and fabricated for field bolting. Proper sheeting of the building shall be done and a roof over the structure will be provided.

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Temperature monitoring devices will also be provided at various levels in the surge bins to monitor temperature of coal inside the surge bins and give audio-visual alarms in the control room for necessary action. These will operate through battery in case of power failure. Inspection trolley with cage will be provided above the surge bins for inspection of outer and inner surfaces of the surge bins.

A high wagon/collision sensor will be attached to the load out chute which will automatically close (if open) the control gate above the load out chute and retract the chute in up position to allow passage of a high wagon. Suitable calibration/testing systems will be provided with the load out systems. In general a load out system will consist of the following (the list is not comprehensive rather a general overview):

a. One 500 metric tonne capacity surge bin
b. One 100 metric tonne capacity weigh bin
c. Four dual ended shear beam load cells of required capacity with mounting assemblies
d. One digital weigh indicator
e. One surge bin level monitoring system
f. One batch controller system with HMI located in the control room for controlling and monitoring the loading process
g. Four dustless double bladed surge bin discharge control gates
h. One double bladed, dustless weigh bin discharge gate
i. One traversing/telescopic load out chute with collision sensor and breakaway section

A suitable self-contained hydraulic power unit consisting of the reservoir of required capacity and all necessary components will be provided to operate the system and provide sufficient energy reserve to perform failsafe operation of the system (close/open discharge gates, raising/lowering/traversing of the discharge chute).

The load out system is a computer controlled operator attended - automatic weighing and loading system capable of static loading accuracies within ±0.05%. The load out system will feature three modes of attended operation: automatic, semi-automatic and manual. The wagons will be moved by means of a creep controlled diesel engine/ electric engine while they are being loaded. Track logic system will be provided on the rail lines to identify the rail wagons and send signal to the central processing unit

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for operating the chute. During the period when there is no wagon loading the weigh bin will be filled in.

Control logics and associated I/O modules will be provided in the Main Loadout PLC Control Cabinet to operate all load out I/O, including load out gates, hydraulic power unit and load out chute. This unit will interface with the load out application software. This system will communicate the surge bin level signal, plus the tonnes required to complete the loading of the rake ("Tons to Go"), to the PLC of the reclaim system of the associated bunker i.e. the plough feeders and the reclaim conveyors, to enable proper control and to coordinate the reclaim rate with the loading rate of the load out chute. A modem with the necessary software will be provided for remote support of the load out system and for providing system upgrades without a service man requiring to attend the site. Lightning arrestors will also be provided on the surge bins. All limit switches, pressure switches, temperature switches and all other electrical components and enclosures will have a IP65 or better rating.

Two train traffic light signals, each traffic light consisting of one red and one green light with mounting assembly will be provided. One train traffic control light system will be mounted prior to the entrance to the load out facility. The second train traffic control light will be mounted on the exit end of the load out structure. These lights will provide the train driver an indication of when it is safe to begin loading. Upon approach of train, signal will be set to red, signaling the train to stop prior to the load out station. When the system is set and ready to load, the control room operator will notify the train driver by switching the traffic signal to green, signaling the train driver to spot the first wagon under the loading position. Once the train is in position and the load out chute is positioned out over the rail wagon, the second train traffic light control will signal the train driver to begin the loading process.

11.3.3.3 Sampling System

Automatic sampling system consisting of primary sample collector, belt feeders, crusher, secondary sampler, tertiary sampler, sample collector, bucket elevator etc. will be provided near silos. The primary samplers will collect coal from the discharge streams of belt conveyors D7/D8 at Silo No. 5 and from conveyors G7/G8 for the load out systems of the eastern sector. The sample size and number of samples per hour will be in accordance with relevant Indian/ International Standards.

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11.3.3.4 Dust suppression arrangement

Dust suppression arrangement will be provided to suppress dust at all transfer points, over the RCC bunkers, over the silos, over truck receiving hoppers etc. Dust suppression system with by plain water jets at truck receiving hoppers and by high pressure fog type system at vibratory feeders, transfer houses, bunker top, silo top, surge bin top and wagon loading points have been envisaged to have efficient dust suppression. Necessary full cone nozzles, filters, pipes, pumps will be provided. Water treatment arrangement (RO system) will also be provided with the fog type dust suppression system. High pressure fog type system or Dust extraction system will be provided for controlling dust near plough feeders.

11.3.3.5 Fire Fighting Arrangement

Fire fighting arrangement along with fire detection and alarm system will be provided as per the statutory requirements at the truck receiving pits, bunkers, silos, surge bins, conveyors, sub-stations etc. Fire extinguishers and sand buckets will also be provided in control room, substation/MCC rooms, compressor room, pump house, drive houses etc. to put-off fires whenever required.

11.4.0 POWER SUPPLY & ILLUMINATION

All the equipment in the CHP will operate at 3300/6600V/415V/230V. In the approved PR (25-35 Mty) of Gevra OCP, it was proposed to install 2 nos. 33/6.6 kV quarry substations (2x16 MVA capacity each) for catering quarry loads (including pumps) and inpit conveyor system. One no. 33/3.3 kV substation (2x5 MVA capacity) was proposed for CHP loads. All the three substations were proposed to be drawing power at 33 kV (DCDS line drawn on towers) from 132/33 kV Gevra Central Substation.

The existing 132/33 kV Central substation of Gevra is around 28 years old and has completed its rated life. This substation shall be phased out. It has been decided to install 2x100 MVA,220/33 kV substation which shall cater power demand of Gevra OCP and additional emergency power demand of Dipka / Kusmunda OCP (if required) and some mines of Korba Area. After commissioning of 220/33 kV substation, all the loads shall be transferred to this substation.

In the expn. PR for 35-70 Mty the additional loads on quarry, CHP and Inpit conveying systems have been assessed. It is proposed to install 3 nos. 33/6.6 kV substations (2x16 MVA capacity each) for catering quarry HEMM, CHP and Inpit conveying loads along with E&M and Excavation Workshop and lighting. ALL the six 33

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kV substations shall receive power at 33 kV from newly proposed 220/33 kV substation to be located at suitable place near existing 132/33 kV central. The CHP and inpit conveying system loads have been divided based on the vicinity of these 33 kV substations and sufficient nos. of 6.6 kV feeders have been kept to cater the power demand of CHP & Inpit conveying system.

For feeding power to CHP & Inpit conveying system, 6.6 kV/ 3.3 kV switch boards, power transformers, lighting transformers, 3.3 kV/ 6.6 kV/415V MCC (as required), lighting switch boards etc. will be provided along with required protection for over current, short circuit, earth fault etc. at all the substations to be constructed separately for CHP, Silos and Inpit Conveying system. Conveyor gantries, transfer houses, drive houses, truck receiving hoppers, various floors of the bunkers, load out systems with silos and surge bins, various buildings and CHP area etc. will be properly illuminated.

Equipment working in the coal flow system and load out systems shall be operated and controlled sequentially depending on requirement. For this purpose, required nos. of control rooms shall be provided.

Required earthing system, lightning protection system, lighting system, safety equipment, communication equipment shall be provided. There shall be pressurized ventilation system for individual CHP/Inpit sub-stations along with air conditioning facility in the control rooms and Engineers room.

11.5.0 RAILWAY SIDING AND DISPATCH

11.5.1 Western Siding with Silos based Loadout Systems

There will be two silos namely Silo No.5 and Silo No.6 in the western circuit. Each of the silos will be fitted with double discharge chutes. Railway rakes will be loaded below the silos through rapid loading systems for dispatch of coal to various consumers. Double railway lines will pass under each of the silos such that there will be one discharge chute over each of the four railway tracks. The two silos will be placed between the NTPC MGR bulb and the existing store complex of the Gevra project and just north of the railway line going to Dipka from Gevra project as shown in the key plan of the proposed CHP (Plate No.-M1). Lines for Silo No.5 and Silo No.6 will be branched out from the Gevra - Dipka line just after crossing the conveyors feeding to Silo No.1. Other end of the siding will be connected to the proposed East – West rail corridor for facilitating unidirectional movement of rakes form both sides under these silos. The siding for the

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Silo No.3 and Silo No.4 may also be connected to the proposed East – West rail corridor for unidirectional movement of the rakes under these silos also. Spur points on the East – West corridor for connecting the siding will be such that sufficient length for empty and loaded rakes will be available. After commissioning of Silo Nos. 3&4, two nos. of wharf wall siding i.e. Siding No. III & Siding No. IV will be discontinued as was also mentioned in the PR for Gevra OC Expn (25-35 Mty). However, Siding No. III & Siding No. IV may continue to work till the track alignment of Silo Nos. 3&4 for uni-directional movement is not done. A portion (northern half) of the existing store complex of the Gevra project may have to be cleared for accommodating the railway tracks of Silos Nos.5&6 and Silos Nos.3&4. The line from Gevra to Dipka may also be accommodated in this space or it may be shifted north of the Gevra project branching from the proposed East – West rail corridor. The store facility may be shifted to the eastern part of the mine (Laxman side). Minimum height of the roof of the basement of Silo No.5 and Silo No.6 will be provided to create sufficient headroom to facilitate passing of electric loco under the silos. Detailed planning of the siding along with connectivities of the siding to the proposed East – West rail corridor is to be done by a separate agency such as M/s IRCON or M/s RITES.

11.5.2 Eastern Siding with Surge Bin based Loadout System

There will be two load out systems with surge bins namely SB1 & SB2 in the western circuit. Railway rakes will be loaded below the surge bins through rapid loading systems for dispatch of coal to various consumers. Railway lines will pass under both the surge bins. One escape line may also be provided in the siding. The load out systems will be placed near the south eastern corner of the NTPC yard between Laxman Nagar and Adarsh Nagar colonies. Both ends of the siding will be connected to the proposed East – West rail corridor and there will be unidirectional movement of rakes form both sides under the load out systems. Minimum height of the roof of the basement of the load out systems will be provided to create sufficient headroom to facilitate passing of electric loco under the systems. Detailed planning of the siding along with connectivities of the siding to the proposed East – West rail corridor is to be done by a separate agency such as M/s IRCON or M/s RITES.

A maintenance shed will be provided near the siding for maintenance and repair of the diesel engines and standage of the diesel loco. Required EOT crane will also be provided in the shed.

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11.6.0 MANPOWER REQUIREMENT

The details manpower required for operation and maintenance of CHP are shown in Appendix B.

11.7.0 CAPITAL REQUIREMENT

The capital requirement, phasing of the capital, brief specifications of the equipment for CHP has been shown in Annexure A.3.5, while the capital requirement for railway sidings and railway line, phasing of the capital, brief specification of the equipment are shown in Annexure A.5.

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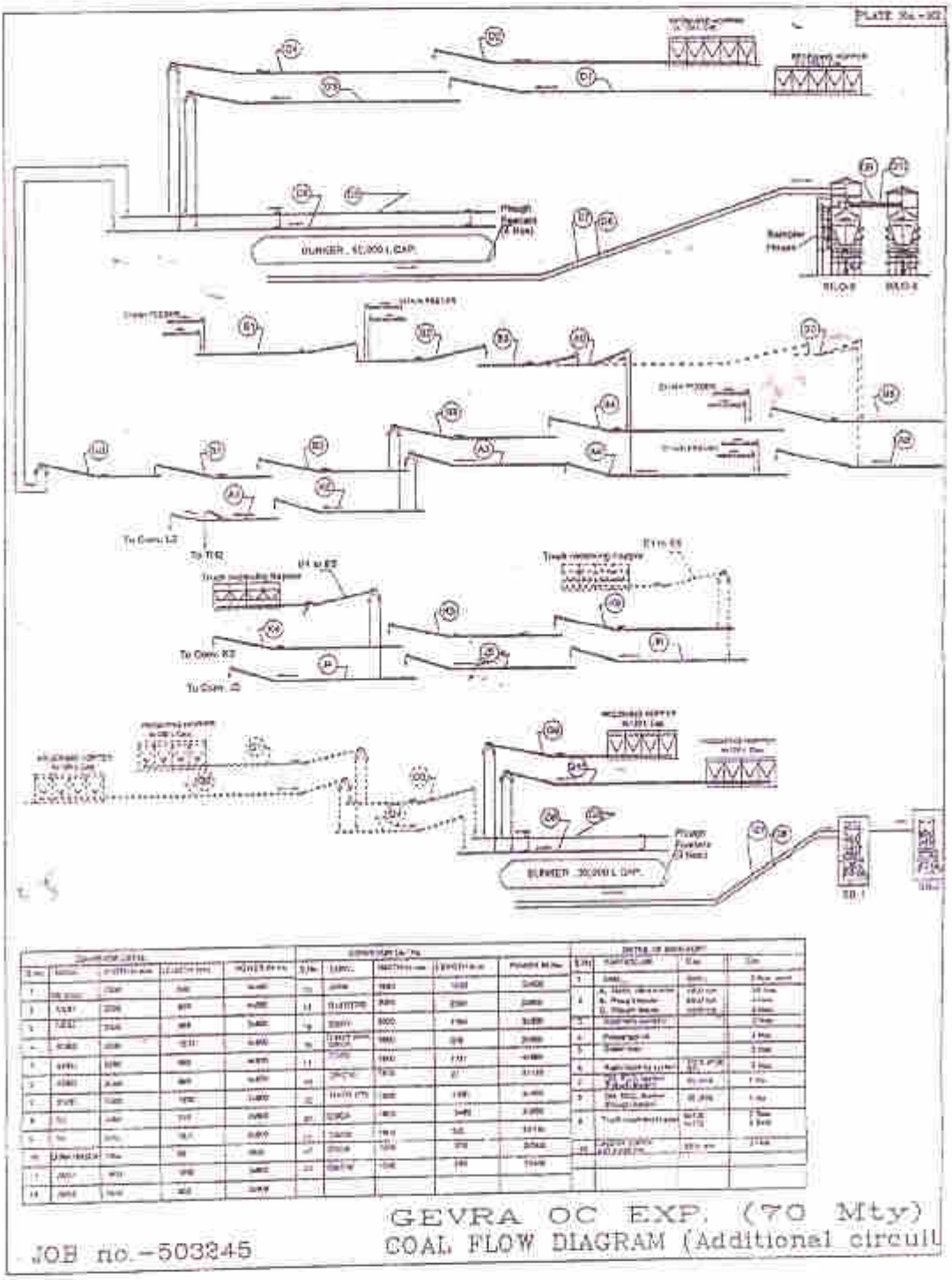

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PLATE No M3

ELEVATION

PLAN

NOTE:

1) All dimensions are in mm.
2) All levels are in m.
3) Civil and structurals shown are indicative and may change during detailed design based on design data and site condition
4) Arrow head on the central line of the conveyor indicates the direction of travel of carrying belt.
5) The details shown are indicative and may change during detailed design.

Customer	SOUTH EASTERN COALFIELDS LIMITED			
Job Title	GEVRA OCP EXPANSION 70 mty.			Job No. 503245
Subject		Activity	Name	Designation / Signature / Date
		Designed		
		Drawn		
		Checked		
		Approved		
CMRDI		Scale	N.T.S	Sheet
		No.		Rev. No.

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