THE SINGARENI COLLIERIES COMPANY LIMITED  
(A GOVERNMENT COMPANY)  
KOTHAGUDEM COLLIERIES  

TECHNICAL SPECIFICATIONS AND TERMS & CONDITIONS FOR THE PRE WEIGH TYPE TRUCK LOADING SYSTEMS PROPOSED AT KTK LONGWALL CHP, Bhupalapalli Area.

INTENT OF THE TENDER AND SCOPE OF SUPPLY

The intent of this tender is to place the order on complete Turn key basis for

i. Design, Manufacture, testing, supply of equipment to site, site fabrication, erection, installation of equipments, field piping and commissioning of the complete Pre-Weigh Bin Truck Loading systems – 02 nos. with required Gantries for accommodating Belt Conveyors. Tenderer shall carry out all required performance guarantee tests prior to commissioning of the systems for loading coal into trucks of different capacities.

ii. Installation of 2x125 K.W., 1400 mm wide Belt Conveyor Drive unit, loop take up, discharge drum, tail end drum, snub / diversion pulleys and intermediate Belt conveyor structures (stringers and stools), idlers, Conveyor belting etc. for each Pre-Weigh Truck Loading system and commissioning of the complete conveyor systems on the Gantry for loading Coal into the Surge Hopper. All required foundations, fabrications of chutes etc. are to be carried out by the Tenderer. Required Conveyor drive, drums, structures, idlers, belting etc. will be provided by SCCL.

iii. Except length of Steel Gantry for each of the Truck Loading system the technical details, scope of work, terms & conditions remain same for both the Truck Loading systems proposed.

a) For the Pre-Weigh Truck Loading system – 1 length of Gantry is 130 metres

b) For the Pre-Weigh Truck Loading system – 2 length of Gantry is 152 metres

I) DESIGN BASIS

2. Weigh Hopper capacity : 40 Tonnes
3. Material to be loaded : Crushed coal of less than 200 mm size
4. Bulk density of coal : 0.8 Tonnes / Cu. Metre
5. Moisture content : About 15%
6. No. of loading points : One

Contd…
7. Mode of measurement : By Weight
8. Rate of loading into Trucks : Upto 1000 TPH
9. Type of Trucks : All types of Trucks upto 40 Tonnes carrying capacity
10. Loading schedule : 24 hours per day and all 365 days throughout the year
11. Power supply : 550 V AC, 50 HZ, 3 phase
12. Ambient temperature : 50 Degree Centigrade
13. Loading accuracy : +/- 1% of Target weight or +/- 250 kg. Per truck whichever is higher.
14. Weighing Accuracy : +/-0.05% per Truck load

II) SCHEME

Tenderer shall provide the loading system that shall weigh and load coal into trucks through the equipment specified hereunder.

III) SYSTEM DESCRIPTION

Suitable capacity Conveyor feeds – 200mm size coal into the 150 Cu.Mtrs. capacity Surge Bunker. The system shall be designed to load the truck of capacity upto 40 Tonnes. The system shall have the capacity to load number of trucks continuously, provided the input conveyor fills sufficient quantity of coal in the Surge Hopper.

- Surge bunker shall be designed for a capacity of 150 Cu.mtr. (about 120 Tonnes of crushed ROM Coal). The Surge bunker shall have two outlets with one no. discharge gate of suitable size for each outlet to discharge Coal into the Pre-Weigh Hopper. The discharge gates of the Surge Hopper shall discharge a column of coal into the 40 Tonne capacity Weigh Hopper as per the pre-determined/programmed quantity.

- A Pre-Weigh Hopper of 40 Tonnes capacity, located directly below the discharge gates of the Surge Hopper, shall be provided for discharging the pre-weighed quantity of Coal into the Trucks placed below it. The Weigh Hopper shall be designed to rest on 4 (four) Load Cells to facilitate accurate measurement of quantity of Coal to be loaded into the Trucks. The Weigh Hopper shall be provided with one Cut-off discharge gate with a suitable swing chute assembly for discharging Coal into the Trucks. The discharge gate of the Weigh Hopper and the Swing chute beneath the discharge gate shall be suitably fabricated and bolted to the Weigh hopper.

Contd…
The Swing chute assembly shall be designed and to be positioned conveniently for loading Coal into different types of Trucks and also to keep the swing clear of the approaching Truck cabin to avoid collision.

The loading system shall be designed to operate by a suitable high speed hydraulic system electronically controlled with the help of PLC, batch weighing digitizer and various sensors etc. for smooth and accurate loading of different Trucks. A hydraulic power pack assembly shall be provided to operate all the related gates and the chute to have smooth, speedy and consistent operation.

A microprocessor based PLC system shall be provided to control the weighing & loading and to generate the necessary reports.

The following is, in general, the detailed technical specification for each of the weighing and loading systems proposed for KTK Longwall CHP. The tenderers are, however, advised to inspect the site for ascertaining the conditions required for an acceptable system design.

1) **SURGE HOPPER**

The tenderer shall design & erect the surge hopper of 150 Cu.mtr. capacity. The enclosed GA diagram of the loading arrangement shall be the reference and detailed design shall be the responsibility of the tenderer. The tenderer shall estimate and carry out the necessary civil foundations required for the structurals and also the control room as required.

The required head room clearance of 4.0 metres (minimum) and width of 3.2 metres (minimum) for the Trucks including Cabin height (suitable for 40 Tonnes Trucks) shall be considered while designing the Surge Hopper and Weigh Hopper.

**A) CONSTRUCTIONAL DETAILS**

- **a.** Vertical sides : 12 mm thick IS 2062 plate with 8 mm thick Sailhard / equivalent wear resistant plate (190 – 220 BHN)
- **b.** Slopping sides : 12 mm thick IS 2062 plate with 8 mm thick Sailhard / equivalent wear resistant plate (190 – 220 BHN)
- **c.** Slope Angle : 70°
- **d.** Top cover : 8 mm thick chequered plate.
- **e.** Bottom opening : Two openings of suitable size, flanged to match the discharge gate. Inspection doors to be provided above the openings.

**B) TOP – DISCHARGE GATE (Batch up gate)**

Quantity : 2 Nos.
Size : To suit the flow rate

Type : Hydraulic operated double bladed, Rolling slide gate.

Actuation : Through Hydraulic cylinder.

A rolling double blade overlapping slide gate, having a suitable opening, operated by two heavy duty hydraulic cylinders shall be fitted on the opening flanges at the bottom of the Surge Hopper. This gate blade shall be made of 20mm IS 2062 with a 12mm plug welded abrasion resistant steel liner (Sailhard or equivalent with 190 – 220 BHN). This gate shall be mounted on anti friction rollers of the needle type regreasable cam rollers. The discharge gate shall be separated by suitable flexible boot connectors with Weigh hopper. The gate construction shall be capable of withstanding the high speed operational requirement of the system. The design of the gates shall be made such that while opening and closing of the gates escape of fine dust into the surrounding area outside the bunker shall be totally prevented.

2) **PRE - WEIGH HOPPER**

The Weigh Hopper is to be fabricated and installed as per the design requirements, positioned below the 150 Cu.Mtrs capacity Surge Hopper. The Weigh Hopper shall have a designed volume to accommodate 40 Tonnes of Coal and it shall be positioned below the discharge gates of the Surge bunker on 4 nos. Load Cells for accurate measurement and discharging pre determined / programmed quantity of Coal into the Trucks. The Weigh Hopper shall be provided with one Cut-off discharge gate with a suitable swing chute assembly for discharging Coal into the Trucks.

A) **CONSTRUCTIONAL DETAILS**

a). Vertical sides : 12 mm thick IS 2062 plate with 8 mm thick Sailhard / equivalent wear resistant plate (190 – 220 BHN)

b). Sloping sides : 12 mm thick IS 2062 plate with 8 mm thick Sailhard / equivalent wear resistant plate (190 – 220 BHN)

c). Slope angle : 70°

d). Top cover : 8mm thick IS 2062 plate

e). Bottom opening : Opening of suitable size, flanged to match the bottom discharge gate (cut-off gate). Inspection door to be provided above the opening.

B) **TOP OPENING**

a) Two openings with flexible boot type connector

b) Suitable provision with air escape vent pipe suitably masked to prevent escape of dust into the atmosphere to avoid pollution.

Contd…
c) Adjustable tie rods shall be provided on all four sides.

d) Load cells, load cell mounting brackets to be provided.

C) **BOTTOM - DISCHARGE GATE (Batch down gate)**

<table>
<thead>
<tr>
<th>Quantity</th>
<th>1 No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>To suit the flow rate</td>
</tr>
<tr>
<td>Type</td>
<td>Hydraulic operated double bladed, rolling slide gate</td>
</tr>
<tr>
<td>Actuation</td>
<td>Through hydraulic cylinder, power pack operated.</td>
</tr>
</tbody>
</table>

A rolling double bladed overlapping slide gate, having a suitable opening, operated by two heavy duty hydraulic cylinders shall be fitted on the opening flange at the bottom of the weigh hopper. This gate blade shall be made of 20mm IS 2062 with a 12mm plug welded abrasion resistant steel liner (Sailma or equivalent). This gate shall be mounted on anti friction rollers of the needle type regreasable cam rollers. The gate construction shall be capable of withstanding the high speed operational requirement of the system.

3) **SWING CHUTE**

<table>
<thead>
<tr>
<th>Size</th>
<th>Suitable for loading different type of Trucks without spillage.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantity</td>
<td>1 No.</td>
</tr>
</tbody>
</table>

The Swing chute shall be designed suitably to discharge coal into different types of trucks. The Swing chute assembly shall be bolted at the bottom flange of Weigh hopper discharge gate and shall have the following features.

- The swing chute shall be made of 12 mm thick IS2062 plate with 12 mm thick plug welded abrasion resistant steel liner (Sailhard or equivalent with 190 – 220 BHN).
- The chute shall swing in the direction of Truck travel and the swinging action of the chute shall ensure control over the positioning of chute.
- The chute shall be designed to form a uniformly profiled heap of Coal in the Truck.
- The operation of the chute shall be controlled by heavy duty hydraulic cylinders properly cushioned at both the ends.

4) **HYDRAULIC SYSTEM**

- A complete set of hydraulic system shall be provided for the loading operation. There shall be a pump & motor and the power pack has to operate the hydraulic cylinders of various gates / chute. It shall be complete...
with shut off valves, solenoid controlled directional valves, flow control valves, piping etc. and suitable electrical interlocks to prevent mal operation. The hydraulic system shall have oil cooling system air / water.

- This hydraulic power pack shall consist of a hydraulic oil tank, fixed displacement type pump, unloading, relief valve assembly, filters, set of accumulators and standard accessories like level gauges, level switch, filler breather, temperature gauges etc. Pressure transducer and temperature transducer shall be provided with the power pack to show the system pressure and temperature at the operator console by digital indicators.

- Tenderer shall design and manufacture the valve stands with necessary DC valve, check valve, flow control valves, etc. which are required to control different gates and swing chute. These valve stands shall be mounted near to the load outs and shall be interconnected by using suitable dia. seamless pipes and high pressure hoses with the power pack. Tenderer shall use necessary manifold to house various valves.

- The complete system shall be sized to provide rapid action of all cylinders to achieve the required / controlled opening / closing. Heavy duty hydraulic cylinders shall be provided to operate the gate. Necessary high pressure hoses and ball valve shall be provided to the cylinder lines.

- Hydraulic accumulators shall be used for the safety purpose and also to increase the speed of operation of opening & closing of the gates. The accumulator shall have sufficient capacity to close gates in the event of power failure and also to raise the chute to store position. Accumulators shall also close the discharge gates for fail safe operation.

- Power pack safety inputs such as Oil level low, oil temperature high, pressure low etc. shall be taken care in the PLC system.

- The hydraulic system shall have the following major components.
  - Hydraulic system utilizing standard petroleum based mineral oil
  - 1 No. hydraulic oil tank of suitable capacity
  - 1 No. main hydraulic pump of fixed displacement type
  - 1 No. electric motor to drive the main pump (3 phase, 550 V AC).
  - 1 No. standby hydraulic pump of fixed displacement type
  - 1 No. standby electric motor to drive the standby pump (3 phase, 550 V AC).
  - Set of accumulator for high speed and fail safe operation.
  - Set of shut-off valves, flow control valves, solenoid type directional valves, pressure relief valve, etc. to suit the system requirement.
  - Set of hydraulic cylinders
  - Pressure & return line filter.

5) **PLC**

PLC shall be provided for the control of the weighing and loading system.
PLC shall receive all the inputs namely proximity switches, control desk inputs, hydraulic field inputs through a set of input modules. These inputs shall be processed and through output module, outputs shall be driven, namely, MCC hydraulic system valves, operator control console etc. PLC shall monitor all the inputs and initiate proper response. PLC shall also generate fail safe operation based on the inputs.

PLC shall be connected to a supervisory computer. This in turn connected with batching electronics to generate sequence control, data logging, printing data display and dynamic mimic display.

PLC shall have redundancy arrangement.

SAP connectivity to be provided with loading control and all the loading operations shall be initiated, monitored and controlled from SCCL SAP server.

230 V AC, single phase, 50 HZ will be made available by SCCL.

6) **TOUCH SCREEN BASED CONTROL DESK**

**Quantity : 1 No.**

The function of control desk is to provide the necessary controls and indications for the operator of the equipment. The control desk shall have the following controls and indications.

1. Control power on / off selector switch.
2. Emergency stop large mushroom push buttons
3. Mode select switch
4. Start / stop loading switch push switch
5. Alarm push to silence push switch
6. Alarm reset-push switch
7. Alarm test- push switch
8. Hydraulic main pump start
9. Hydraulic pump stop
10. Swing chute raise or lower joy stick (2 way)
11. Oil low level
12. Pressure switch
13. High temperature
14. Bottom discharge gate open / close –2 way joy stick operation
15. Top discharge gates push switch
16. Indicator lights shall be provided for the following:

   a) Control power on
   b) Weigh hopper ready
   c) Hydraulic pump on individual light
   d) Hydraulic pump off-Individual light
   e) System ready
   f) Top discharge gate – open / close
   g) Bottom discharge gate open / close
   h) Chute – up
   i) Chute - down

Contd…
17. Two way communication system with microphone and loud speakers between operator cabin and outside the bunkers in the vicinity of Truck loading.

18. Suitable laser printer shall be provided.

7) **BATCH WEIGHING ELECTRONICS**

<table>
<thead>
<tr>
<th>Quantity</th>
<th>1 No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity</td>
<td>Shall be able to read up to 40 Tonnes</td>
</tr>
</tbody>
</table>

The loading system shall have a microprocessor based weighing system. The micro processor based weighing system shall have 4 Nos. shear beam / compression type load cells and system shall also have in built self check, auto zero, auto gain facilities. The system shall be capable of operating at 230 V, 50 HZ single phase power, junction boxes for termination of cables from load cells shall be provided.

8) **SEQUENCE OF OPERATION**

Sequence of operation shall be as follows.

- The following details shall be entered manually by the operator through the keyboard of the graphic user interface.
  
  A). Truck number to be loaded  
  B). Target weight to be loaded into the Truck  
  C). Destination.  
  D). Provision shall be made for entering any other information that may be needed in future.

- Operator desk shall indicate the readiness of the system on receipt of communication from the PLC / Computer.

- Switch on the main pump of the hydraulic system. Within couple of minutes system should be in a position to operate the gates and chute.

- The swing chute shall be in store position and bottom cut-off gate shall be in closed position. After energizing the Traffic signal 'ON' (Green light) switch from the operator console, outside the Surge bunker necessary traffic signal lamp shall be energized to enable the truck driver to place the truck below the chute.

- After the truck cabin passes the loading point, chute shall be brought down to the loading position through the operator console.

- Operator shall press “start loading” through the control desk and as per the target weight PLC shall allow necessary amount of Coal into the pre weigh hopper and ‘Load Ready’ signal shall enable the operator to open the bottom discharge gate manually. The bottom discharge gate shall close automatically on discharge of required coal into the Trucks.

Contd…
Tenderer shall submit the detailed operation sequence and elaborate the same wherever necessary. During the truck loading, the operation shall be minimum and user friendly.

Photo eyes shall be used to detect the position of the truck and this shall be used as an interlock for opening the bottom discharge gate.

The printer shall print the following.

A. CHP detail & truck number to be loaded
B. Date and time of entry for loading
C. After loading of each truck, printer shall print the amount of coal loaded into the truck in a suitable format specified by SCCL.

The tenderer shall design the system in such a way that the loading accuracy of +/- 1% of target weight or +/- 250 Kg. Per truck whichever is higher shall be achieved.

Weighing accuracy for each Truck shall be +/-0.05% of the Truck capacity or for the amount of coal loaded whichever is higher. Tenderer shall confirm this.

Software and system shall be capable of accepting target weight for Trucks, based on the target weight, the respective truck should be loaded.

Surge bunker level shall be monitored by a suitable Ultrasonic level sensor & Indicator and the level of surge hopper shall be interfaced with surge bunker loading conveyor.

Test Weight blocks measuring 4 tonnes should be part of the system for calibration and checking of the Pre-Weigh Bin system. This test weight made of casting should be hydraulic operated and when energized should become part of the pre-weigh bin to check the known weight with actual reading.

Provision shall be made to operate all the discharge gates and swing chute independently, in manual mode, for the purpose of carrying out maintenance and repairs.

Arrangement shall be made for padlocking of Weight indicator and control panel to avoid access to the unauthorized personnel so that the complete weighing system including the software will be tamper proof.

V) MIS FACILITIES

System shall have sufficient memory capacity to store the loading details up to a max. of 1000 trucks or six months data whichever is earlier.

Software shall have following facilities:

1). ‘N’ No. of loading reports-Generation.
2). “Shift wise” loading reports generation.

Contd…
3). “Day wise” loading reports generation.
5). “Monthly” loading reports generation.
6). Report generation from a specific date to a specific date
7). Data logging facility with date and time to be provided and it shall have the following provision.

   a). Whenever manual mode is put “ON”. Access to the manual mode operations shall be password protected.
   b). Number of times Top discharge gate -1, Top discharge gate -2 and bottom discharge gate operated in manual mode with recording weight.
   c). Calibration data for recording the details of calibrations carried out such as date, time, duration, name of the person etc.

VI) CCTV System

Tenderer shall provide minimum 5 cameras and the same shall be mounted suitably at the conveyor discharge floor, load cell floor, loading point (approach side & exit side) etc. to observe the activities at the respective areas from the Operator cabin.

VII) STEEL GANTRY

Tenderer shall design, supply, fabricate and erect 3.8 metres wide steel gantry (length of 130 metres for PWTLS-1 and 152 metres for PWTLS-2) as shown in the layout drawing. This includes the civil foundation works for the gantry support structures.

The gantry shall start at height of 1.2 metres and should connect to the Surge bunker brim level. It should withstand the wind load at the respective site.

8 mm chequered plate shall be provided on bottom of the gantry and the roof & side sheeting with coloured powder coated MS corrugated sheets with required transparent / translucent sheets for providing natural lighting during day time. The height of the roof shall be 3 metres from floor level of the gantry.

While designing the gantry care shall be taken for the static and dynamic loads of the Conveyor.

A copy of the tentative layout of the proposed system is enclosed.

VIII) CIVIL AND STRUCTURAL WORK

Tenderer shall carryout necessary civil foundations for the complete structures, construction of pre-fabricated control room, structural fabrication & erection, roof and side cladding with powder colour coated M.S. sheets required for the complete structure. The pre-fabricated control room size shall have the following.

1). The size shall be a minimum of 3500 mm X 3500 X 3500, to be constructed at a suitable elevation.
2). It shall have false ceiling and anti static flooring.
3). Construction of cabin shall ensure dust proof, water proof and sound proof design.

4). Double flooring shall be considered for cabling in the bottom floor, floor top plate (removable for cable laying) shall be covered with non skid type rubber mat for electrical insulation.

5). Necessary concealed electrical wiring with fixtures like 2T Split type Air Conditioner, Ceiling Fans, Flush mounted light fittings with CFLs shall be provided in the control room by the tenderer. All electrical fittings shall be suitable for 230 Volts power supply.

6). Stair case shall be provided wherever necessary, till the top of the surge bunker.

IX) SCOPE OF SUPPLY FOR THE TENDERER

<table>
<thead>
<tr>
<th>S.NO.</th>
<th>ITEM DESCRIPTION</th>
<th>QUANTITY (NO.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Fabrication and erection of structures, Surge Hopper, Weigh Hopper, erection of equipments, field piping &amp; commissioning including painting and G.I. sheeting (color coated)</td>
<td>As required</td>
</tr>
<tr>
<td>2</td>
<td>Top discharge gate (Surge bunker discharge)</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Flexible boot connector</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>Weigh hopper</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>Load cells with mounting brackets &amp; tie rods</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>Bottom discharge gate (Weigh Hoper discharge)</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>Swing chute</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>Test weight block (4 Tonnes)</td>
<td>1 set</td>
</tr>
<tr>
<td>9</td>
<td>Hydraulic power pack comprising of Tank, Hydraulic pump, Electric motor, Control valves, hydraulic oil cooling system etc. including standby arrangement</td>
<td>1 set</td>
</tr>
<tr>
<td>10</td>
<td>Starter panel with E/L &amp; O/L protections for Hydraulic power pack drive motor (shall be provided with indicating lamps, indicating meters as necessary) along with required incoming and outgoing copper PVC power cables</td>
<td>1 set</td>
</tr>
<tr>
<td>11</td>
<td>Accumulators</td>
<td>As required</td>
</tr>
<tr>
<td>12</td>
<td>Valve station (Consists of solenoid operated DC valves, check valves, FC valves etc.)</td>
<td>1 set</td>
</tr>
<tr>
<td>13</td>
<td>Hydraulic cylinders</td>
<td>1 set</td>
</tr>
<tr>
<td>14</td>
<td>Field piping materials</td>
<td>1 Lot</td>
</tr>
<tr>
<td>15</td>
<td>Control desk / Operator console</td>
<td>1 No.</td>
</tr>
<tr>
<td>16</td>
<td>Computer with colour monitor &amp; printer and computer table</td>
<td>1 No.</td>
</tr>
<tr>
<td>17</td>
<td>Batch weighing system</td>
<td>1 No.</td>
</tr>
<tr>
<td>18</td>
<td>Junction boxes</td>
<td>1 set</td>
</tr>
<tr>
<td>19</td>
<td>Proximity switches</td>
<td>1 Lot</td>
</tr>
<tr>
<td>20</td>
<td>Infrared photo light sensors</td>
<td>1 Lot</td>
</tr>
<tr>
<td>21</td>
<td>CCTV Camera with system</td>
<td>1 Lot</td>
</tr>
<tr>
<td>22</td>
<td>PLC with software</td>
<td>1 Lot</td>
</tr>
<tr>
<td>23</td>
<td>5 KVA, 30 minutes UPS</td>
<td>1 No.</td>
</tr>
</tbody>
</table>

Contd…
<table>
<thead>
<tr>
<th>S.NO.</th>
<th>ITEM DESCRIPTION</th>
<th>QUANTITY (NO.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>Pressure transducer with instrument</td>
<td>1 No.</td>
</tr>
<tr>
<td>25</td>
<td>RTD with temperature indicator</td>
<td>1 No.</td>
</tr>
<tr>
<td>26</td>
<td>Level indicator</td>
<td>1 No.</td>
</tr>
<tr>
<td>27</td>
<td>Power, control and signal Cables required for the system</td>
<td>As required</td>
</tr>
<tr>
<td>28</td>
<td>Signal lamps</td>
<td>1 set</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>S.NO.</th>
<th>ITEM DESCRIPTION</th>
<th>QUANTITY (NO.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>29</td>
<td>230 Volts, 70 Watts Metal halide Wellglass dust proof totally enclosed Light Fittings with concealed conduit wiring along the Gantry from tail end to discharge and at different levels of the Hoppers &amp; along the stair case with suitable automatic programmable Timer control and contactors.</td>
<td>20 Nos.</td>
</tr>
<tr>
<td>30</td>
<td>230 Volts, 250 Watts, Metal Halide Flood light fittings for illumination outside the Gantry and Bunkers with suitable programmable Timer control, contactors and cables.</td>
<td>10 Nos.</td>
</tr>
<tr>
<td>31</td>
<td>Two way communication system with suitable microphones and loud speakers</td>
<td>One set.</td>
</tr>
<tr>
<td>32</td>
<td>Steel gantry of approximately 3.8 metres wide</td>
<td>1 No.</td>
</tr>
<tr>
<td>33</td>
<td>Foundation for Conveyor drive unit, loop take up, tail drum etc.</td>
<td>One set.</td>
</tr>
<tr>
<td>34</td>
<td>Suitable ramp for loading area, approach &amp; exit.</td>
<td>As required</td>
</tr>
<tr>
<td>35</td>
<td>Discharge chutes for Gantry Conveyor.</td>
<td>One set.</td>
</tr>
<tr>
<td>36</td>
<td>Installation of Conveyor on Gantry. (Required Conveyor drive unit, drums, structures, idlers, belting etc. will be provided by SCCL.)</td>
<td>One set.</td>
</tr>
</tbody>
</table>

X) SCOPE OF WORK AND SERVICES

1). Design, Engineering, Civil foundation, fabrication, Erection of structures, surge hopper, weigh hopper, swing chute, equipments, hydraulic piping, test weights, Steel gantry and commissioning of the complete system on turnkey basis including painting.

2). Cable laying, termination etc.

3). Construction of civil foundations for Conveyor drive unit, loop take up, tail drum etc.

4). Installation of Belt Conveyor with all accessories on the Gantry.

5). Construction of suitable ramp for loading area, approach & exit.

6). AMC for three years, after guaranteed performance of two years, shall be quoted as optional.

XI) TENDERER SHOULD SUBMIT / CONFIRM ACCEPTANCE FOR THE FOLLOWING.

Contd…
1) Tenderer should submit fully illustrated technical literature of the system along with General Arrangement drawing showing various levels.

2) Tenderer should submit details of similar Pre-Weigh type Truck Loading / Wagon Loading systems / Silo installed by the firm, order copies and performance certificates.

3) The offered model of the loading system should have been approved under Automatic Gravimetric Filling Instrument and copy of Gazette notification issued by Legal Metrology Department, Government of India, shall be enclosed by the tenderer. Without this model approval certificate the offer will not be considered.

4) The successful tenderer shall carryout detailed survey of the area, sub soil exploration, field and laboratory testing of samples where loading arrangement is proposed to be installed and the test reports shall be submitted.

5) The successful tenderer shall arrange for stamping of the system by Inspector of Weights & Measures, Government of Andhra Pradesh., before handing over the system for regular operation by SCCL.

XII) NOTES:

A. The Civil & structural design drawings (as per relevant latest IS guidelines) shall be approved by any premier Government Institutions like IIT / NI etc.

B. On receipt of Purchase Order, Dimensional and detailed GA drawings of truck loading system, including mechanical equipments, hydraulic control system, electrical system & controls, Gantry, lighting system & controls with all necessary design details shall be submitted for approval of SCCL.

C. The complete system shall be commissioned within 6 months from the date of release of Purchase Order.

D. Tenderer shall indicate the power supply requirement for the entire system. SCCL will provide electrical power for the site fabrication on chargeable basis, as per the existing tariff applicable to temporary contractors of SCCL.

E. Necessary water required for civil construction etc. will be provided by SCCL.

XIII) SITE VISIT

Tenderers should visit the site before submission of offers to get acquainted with the scope of work, place, site to go through the plans / drawings connected to the present work etc. (For this purpose, they should contact concerned General Manager).
Site visit is essential and the tenderers are requested to confirm in the offer that they have visited the site before making offers. The tenderers are requested to see Pre-Weigh Truck Loading system in Operation at KTK.OCP, Bhupalapalli Area for getting clarity.

XIV) SPECIAL TERMS

1) **WARRANTY**

The tenderer shall guarantee the performance of the equipment individually as well as the system as a whole for a period of 24 months from the date of commissioning of whole system.

If any defects developed during the warranty period the firm shall either repair the equipment or replace the defective parts by new at their cost to the satisfaction of SCCL authorities.

2) **PROGRESS REPORT**

Successful tenderer shall submit monthly progress report to the concerned SCCL authorities in duplicate by 5th day of every month showing the progress of manufacturer of equipment, civil construction and other design construction activities along with detailed programme for the next month.

3) **ACCEPTANCE TEST**

a) After satisfactory completion of erection SCCL representatives and contractors representatives jointly inspect the system and record that the plant is ready for commissioning and preliminary acceptance test under no load conditions. The preliminary acceptance test shall be carried out to determine that the plant has been erected as per the design meeting the duty requirements and is capability of taking coal for starter.

b) If there are deficiencies the same shall be jointly recorded. The successful tenderer shall eliminate such deficiencies and shall notify the second joint inspection.

4) **FINAL ACCEPTANCE TEST**

Successful tenderer shall conduct performance guarantee test in the presence of SCCL representatives after 15 days of successful commissioning of the system. From then onwards the performance of the system will be observed for a period of 30 days. During the period the system shall fulfill the guarantee performance in respect of rates loading mentioned elsewhere.

On successful completion of the guarantee test run the system shall be accepted and the warranty of 24 months of the system shall start from final acceptance date.

Contd…
5) **AVAILABILITY**

The tenderer shall guarantee that the system offered will operate round the clock all-round and the guarantee that the system shall achieve minimum 90% availability during the initial period of 24 months from the date of issue of final acceptance test. In the event of system not being able to reach availability of 90% the penalty equivalent to 1% of the contract value for fall of 2% availability will be recovered by SCCL without any legal resources.

The formula for availability shall be as below:

\[
\text{Scheduled shift hours} = 24 \text{ hrs.}
\]

\[
\text{Available hours} = \text{Scheduled shift hours} - \text{Maintenance hours & Breakdown hours}
\]

\[
\text{Percentage availability} = \frac{\text{Scheduled shift hours} - \text{Maintenance hours & breakdown hours}}{\text{Scheduled shift hours}} \times 100
\]

The maximum liquidated damages levied will be 10% and the short fall in availability for more than 20% will not be acceptable in any case and successful tenderer shall guarantee for the same.

If the fall in percentage availability is more than 20% (i.e. less than 70%) SCCL will have the option to reject the equipment, after levying 10% penalty and the manufacturer shall have to replace the complete / part of the equipment, as applicable, at his cost, to meet the guaranteed percentage availability.

The contractor shall warrant that all the equipments will be new and in accordance with the contract documents and free from defective material, workmanship and shall guarantee trouble free operation of the entire pre-weigh bin loading system for a period of 24 calendar months from the date of acceptance test.

**XV) INSTALLATION, TRIAL RUN & COMMISSIONING**

1) **INSTALLATION**

i) All the Mechanical / Electrical equipment installation shall be under the supervision of an experienced, competent and qualified engineer in the line.

ii) All installations of Mechanical / Electrical equipment along its accessories and materials shall conform to the relevant current Indian standard specification and code of practice, where no Indian standard specifications are available, the same shall conform to BSS/DIN/US/Equivalent International standards or generally accepted sound engineering practice.
iii) All the Mechanical / Electrical equipment associated in the system shall be provided with sufficient space around it for approach to the equipment for ease of operation, maintenance and inspection purposes.

iv) All the mechanical / electrical equipment along with its accessories shall be properly secured with proper locking bolts and other means to avoid noise and vibration of the equipment and its different components.

v) All the equipment shall be given proper safety enclosure with sufficient moving space and all the rotating parts shall be covered by suitable enclosures / safety guards.

vi) All chuting etc. at any point shall be installed so as to ensure proper smooth flow of materials without excessive noise and easily dismantable by making it in suitable sections with bolting connections at the joint.

vii) Initial filling of oil and lubricant shall be done as per the requirement of individual equipment.

2) **TRIAL RUN & COMMISSIONING**

i) Individual Mechanical equipment shall be run without load for testing its proper balancing, vibration and noise features and suitable adjustment shall be done for smooth running of equipment.

ii) By trial runs of the complete equipment the temperature rise of its bearing and other parts associated with it shall be tested.

iii) The individual trail run of each mechanical equipment shall be done for rectification of testing trouble and shall be on No–Load.

iv) Group running of the equipment shall be done for testing its sequence operation including the time lag for matching the stipulated objective of the entire system. The synchronizing of all the mechanical / electrical equipment is a very important feature and shall ensure theoretical time lag and operation sequence of all electrical and mechanical equipment.

v) During load trial run the adjustment of all electrical and mechanical equipment shall be done to ensure their desired performance.

vi) The plant personnel responsible for operation / maintenance of the plant have to be properly trained during the erection and commissioning of the plant so that the persons are fully conversant with the assembly and sub-assembly of the equipment, detail circuiting of the electrical control system including hydraulic and sampling system etc. and are in a position to rectify any defects of the equipment developed during the operation of the plant for efficient running with minimum down time. For this purpose the deputation of the personnel will be done by the employer or the trained personnel of the contractor may have to be released if required.