

### **EXPLANATORY NOTE**

**Name of the Work :- Asansol Division: Provision of Automatic block signalling in Andal- Sitarampur section on HDN route of Howrah-Delhi(Phase-II).(Balance Work)**

<b>Sl. No.</b>	<b>Description of works</b>
1.	Work involve for installation, testing, commissioning, electrical connection, transportation, loading and unloading of CLS panel fixed on floor with proper size MS angel with suitable base made of proper masonry work with fine surface finishing or grouting on wall with proper size nut bolt or MS clamp made of MS flat of size (40x6) mm by cement concrete of ratio 1:2:4 (cement : sand: stone chips as per requirement on site. Paint should be done by one coat of red oxide before execution and 2 coats of Aluminium paint. Necessary connections should be made by using thimble / PG clamp / nuts & bolts / metallic gland of suitable size. The material supplied of reputed make should confirm to relevant IS or equivalent international standard followed by PUBLIC PROCUREMENT POLICY (MAKE IN INDIA) as per Preliminary condition. All materials required for execution of work to be supplied by the firm. Decision of Railway administration over the standardisation of the job & make of the material will be final.
2.	Work involve for cable trenching laying & filling with bricks & sand. As per Sr. DEE(G)'s Drg. No. 777/87 or latest, with necessary connections using thimble / PG clamp / nuts & bolts / metallic gland of suitable size should confirm to relevant IS or equivalent international standard followed by PUBLIC PROCUREMENT POLICY (MAKE IN INDIA) as per Preliminary condition. Decision of Railway administration over the standardization of the job & make of the material will be final. All materials required during execution of work to be supplied by the firm. Cable laying as per latest IS standard.
3.	Work involves for cable trenching, laying on wall / concrete / tiles by groove cutting with well surface finish. Necessary electrical connections should be done using thimble / PG clamp / nuts & bolts / metallic gland of suitable size should confirm to relevant IS or equivalent international standard followed by PUBLIC PROCUREMENT POLICY (MAKE IN INDIA) as per Preliminary condition. Decision of Railway administration over the standardization of the job & make of the material will be final. All materials required during execution of work to be supplied by the firm.
4.	Work involves supply of GI pipe 50 mm dia. medium gauge & cable trenching laying through the pipe for track / road / drain crossing. As per Sr. DEE(G)'s Drg. No. 777/87, with necessary connections using thimble / PG clamp / nuts & bolts / metallic gland of suitable size should confirm to relevant IS or equivalent international standard followed by PUBLIC PROCUREMENT POLICY (MAKE IN INDIA) as per Preliminary condition. Decision of Railway administration over the standardization of the job & make of the material will be final. All materials required during execution of work to be supplied by the firm.
5.	Work involves for cable laying on wall / structure with suitable size MS clamp made of MS flat (40x6)mm and nuts & bolts. The nuts should be grouted on wall by cement; sand, stone chip Necessary connections should be done using thimble / PG clamp / nuts & bolts / metallic gland of suitable size. The material supplied of reputed make should confirm to relevant IS or equivalent international standard followed by PUBLIC PROCUREMENT POLICY (MAKE IN INDIA) as per Preliminary condition. Decision of Railway administration over the standardization of the job & make of the material will be final. All materials required during execution of work to be supplied by the firm. Cable laying as per latest IS standard.
6.	Work involves for supply of GI pipe, medium gauge 50 mm dia ,3 m long & cable laying with necessary connections using thimble / PG clamp / nuts & bolts metallic gland of suitable size on Rail pole / wall with necessary clamp made of MS flat of (40x6)mm -5Nos, 3Nos. clamps on pipe & 2 Nos. on cable with suitable size nuts & bolts. 3m long GI pipe medium gauge 50 mm dia should be provided for cable protection should confirm to relevant IS or equivalent international standard followed by PUBLIC PROCUREMENT POLICY (MAKE IN INDIA) as per Preliminary condition. Decision of Railway administration over the standardization of the job & make of the material will be final. All materials required during execution of work to be supplied by the firm. Cable laying as per latest IS standard.

7.	Work involves for erection, testing, electrical connection and commissioning of indoor T8 LED (1 x 18 W) fitting complete with lamp. Fittings should be fixed on wall/structure by 2 Nos of MS Clamp / round / square / rectangular block of wood ( as desired by Railway). The MS Clamp block should be fixed with wall / structure separately by 1 ½" MS screw/nut bolts with the help of wooden chips and detofix. The fitting should be fixed with round block by suitable size MS screw. Connection to be done with flexible wire 2 core through flexible PVC pipe of reputed make with relevant IS or equivalent international standard followed by PUBLIC PROCUREMENT POLICY (MAKE IN INDIA) as per Preliminary condition. All materials required during execution of work to be supplied by the firm. Decision of Railway administration over the standardization of the job & make of the material will be final.
8.	Work involves for fixing of LED 9 watt Bulb in BS-22 base as per site requirement. The material supplied should be of reputed make and relevant IS or equivalent international standard followed by PUBLIC PROCUREMENT POLICY (MAKE IN INDIA) as per Preliminary condition. All materials required during execution of work to be supplied by the firm. Decision of Railway administration over the standardization of the job & make of the material will be final.
9.	Work involves for fixing of AC Ceiling Fan & Regulator and electrical connection through PVC flexible pipe of suitable size and length by HTR FR PVC insulated Heavy Duty Industrial PVC single core 2 X 1.5mm <sup>2</sup> multi strand copper wire(1100V)grade with multi strand 1mm <sup>2</sup> copper wire (1100V grade) for earthing conforming to latest relevant IS standard. . PVC flexible pipe should be medium gauge. The material supplied should be of reputed make and relevant IS or equivalent international standard followed by PUBLIC PROCUREMENT POLICY (MAKE IN INDIA) as per Preliminary condition. Decision of Railway administration over the standardization of the job & make of the material will be final. All materials required during execution of work to be supplied by the Firm.
10.	Work involves for fixing and commissioning of exhaust fan by cutting on wall at suitable place and cutting portion should be plaster properly by cement and sand. Louver should be fixed outside the wall to protect the exhaust fan and electrical connection through PVC flexible pipe of suitable size and length by HTR FR PVC insulated Heavy Duty Industrial PVC single core 2 X 1.5mm <sup>2</sup> multi strand copper wire(1100V)grade with multi strand 1mm <sup>2</sup> copper wire (1100V grade) for earthing conforming to latest relevant IS standard. PVC flexible pipe should be reputed make should confirm to relevant IS or equivalent international standard followed by PUBLIC PROCUREMENT POLICY (MAKE IN INDIA) as per Preliminary condition. Decision of Railway administration over the standardization of the job & make of the material will be final. All materials required during execution of work to be supplied by the firm.
11.	Work involves for supply of wiring materials and concealed / PVC conduit wiring of light point /Fan point/Ex. Fan point with modular switch through PVC conduit by HTR FR PVC insulated Heavy Duty Industrial PVC single core 2 X 1.5mm <sup>2</sup> multi strand copper wire (1100V)grade with multi strand 1mm <sup>2</sup> copper wire (1100V grade) for earthing conforming to latest relevant IS standard. PVC pipe should be of medium gauge and reputed make should confirm to relevant IS or equivalent international standard followed by PUBLIC PROCUREMENT POLICY (MAKE IN INDIA) as per Preliminary condition. Decision of Railway administration over the standardization of the job & make of the material will be final. (Length of wiring as desired by Rly.)
12.	Work involve for supply of all wiring materials and concealed / PVC conduit wiring of 5A Plug point with modular switch (should be made of NylonePA6 material along with glass fibres, Non-Flammable insulating parts & very high Insulating resistance after Humidity test) by HTR FR PVC insulated Heavy Duty Industrial PVC 2 x 2.5 mm <sup>2</sup> multistrand copper wire (1100V Grade) with multistrand copper wire 1 mm <sup>2</sup> for earthing conforming to latest relevant IS standard (1100V Grade ). PVC pipe should be of med. gauge and reputed make should confirm to relevant IS or equivalent international standard followed by PUBLIC PROCUREMENT POLICY (MAKE IN INDIA) as per Preliminary condition. Decision of Railway administration over the standardization of the job & make of the material will be final. (Length of wiring as desired by Rly.)

13.	Work involves for supply, of all wiring materials and concealed / PVC conduit wiring of 5/15A Power plug point (5 in one) with modular switch (should be made of NylonePA6 material along with glass fibres, Non-Flammable insulating parts & very high Insulating resistance after Humidity test) by HTR FR PVC insulated Heavy Duty Industrial PVC single core 2 x 4 mm <sup>2</sup> multistrand copper wire(1100V)grade with multi strand 1 mm <sup>2</sup> copper wire (1100V grade) for earthing conforming to latest relevant IS standard. PVC pipe should be of medium gauge and reputed make should confirm to relevant IS or equivalent international standard followed by PUBLIC PROCUREMENT POLICY (MAKE IN INDIA) as per Preliminary condition. Decision of Railway administration over the standardization of the job & make of the material will be final. (Length of wiring as desired by Rly.).
14.	Work involves for supply of all wiring materials and concealed / PVC conduit wiring of main wiring by HTR FR PVC insulated Heavy Duty Industrial PVC single core 2 x 6 mm <sup>2</sup> multistrand copper wire (1100V grade) with multi strand S/C 1.5 mm <sup>2</sup> PVC insulated copper wire(1100V grade) for earthing conforming to latest relevant IS standard. PVC pipe should be of medium gauge and reputed make should confirm to relevant IS or equivalent international standard followed by PUBLIC PROCUREMENT POLICY (MAKE IN INDIA) as per Preliminary condition. Decision of Railway administration over the standardization of the job & make of the material will be final. (Measuring should be done point to point basis).
15.	Work involves for supply of all wiring materials and concealed / PVC conduit wiring of sub main wiring by HTR FR PVC insulated Heavy Duty Industrial PVC single core 2 x 4 mm <sup>2</sup> multistrand copper wire (1100V grade) with multi strand S/C 1 mm <sup>2</sup> PVC insulated copper wire (1100V grade) for earthing conforming to latest relevant IS standard. PVC pipe should be of medium gauge and reputed make should confirm to relevant IS or equivalent international standard followed by PUBLIC PROCUREMENT POLICY (MAKE IN INDIA) as per Preliminary condition. Decision of Railway administration over the standardization of the job & make of the material will be final. (Measuring should be done point to point basis).
16.	Work involves for supply, erection and commissioning of 3Ph.outdoor type junction box made of GI sheet of 16SWG with 15mm thick bakelite bar with 2 stud of suitable dia along with fuse base and grips 02Nos - 32A.The GI box should be of (350 x 250 x 150)mm & should be provided with hinge type door and locking arrangement. The GI box should be fixed with wall / pole by clamp made of MS flat (40x6)mm& nuts & bolts. The MS flat should be painted by one coat of red oxide and 2 coats of aluminium paint. Outdoor type Junction Box as per Sr. DEE (G) Drg. no 02/2011 or latest. Decision of Railway administration over the standardization & make of the material will be final. All materials required during execution of work to be supplied by the firm.
17.	Work involves for erection, testing, electrical connection and commissioning loading & un-loading of main switch 63A (TPN) as desired by Railway on MS clamp made of MS flat of size (40x6) mm. The clamp should be grouted on wall by cement concrete of ratio 1:2:4 (cement : sand: stone chips.). Paint should be done by one coat of red oxide before execution and 2 coats of Aluminum paint. Necessary electrical connections should be made using thimble / P G Clamp/Nut &bolt / metallic gland of suitable size. All materials required during execution of work to be supplied by firm. The material supplied reputed make should confirm to relevant IS or equivalent international standard followed by PUBLIC PROCUREMENT POLICY (MAKE IN INDIA) as per Preliminary condition. Decision of Railway administration over the standardization of the job & make of the material will be final.
18.	Work involves for transportation, shifting, erection by casting foundation & making of muffing 0.6mtr of GI Tubular pole 7 mtr long with. cement concrete ratio of 1:3:6 should be used for erection of Tubular pole. Erection should be done as per Sr. DEE(G) Drg no 1276/98 or latest. The material supplied should be of reputed make and relevant IS or equivalent international standard followed by PUBLIC PROCUREMENT POLICY (MAKE IN INDIA) as per Preliminary condition. Decision of Railway administration over the standardization of the job & make of the material will be final. All materials required during execution of work to be supplied by the firm.

19.	Work involves for erection, fixing, electrical connection, testing, commissioning, loading & un-loading of LED outdoor street light fitting complete with accessories and lamp with suitable size GI clamps, nuts & bolts in existing GI pipe or modification of existing pipe with secured manner on tubular pole or wall as per site requirement. All released materials to be submitted to concern supervisor-in-charge with firms own cost. All materials required during execution of work to be supplied by the firm. The material supplied should be of reputed make and relevant IS or equivalent international standard followed by PUBLIC PROCUREMENT POLICY (MAKE IN INDIA) as per Preliminary condition. Decision of Railway administration over the standardization of the job & make of the material will be final.
20.	Work involves for supply of all wiring materials & wiring of street light point on pole or wall or structure as per site requirement with HTR FR PVC insulated Heavy Duty Industrial PVC S/C 2 x 2.5 mm <sup>2</sup> multi strand copper wire (1100V grade) with multi strand S/C 1 mm <sup>2</sup> PVC insulated copper wire (1100V grade) for earthing conforming to IS: 694 or latest as per requirement. Wiring should be done through tubular pole with necessary rubber gasket or as per site requirement and junction box to the fitting of reputed make should confirm to relevant IS or equivalent international standard followed by PUBLIC PROCUREMENT POLICY (MAKE IN INDIA) as per Preliminary condition. Decision of Railway administration over the standardization & make of the job will be final. All released materials to be submitted to concern store-in-charge with firms own cost. All materials required during execution of work to be supplied by the firm.
21.	Work involve for supply, installation, commissioning & testing of Earthing arrangement by 50mm dia 3m long ISI marked GI pipe medium gauge with connection lead of 4SWG GI wire (or as per requirement of site) confirm to Sr. DEE/G's Drg.No.1240/98 or latest IS as per Railway complete with socketing at both end from earth electrode to main switch/panel complete as per site requirement with masonry work and net plastering. The earth pit should be encased with charcoal, salt with proper alternate layer along with necessary brick work of inside area 1 sq.ft. & it should be of 5 inch width & 12 inch height from ground level with both side plaster & net polish finishing at outside. The earth value in Ohms should be marked on MS plate with date by white painting work and the MS plate should be hold with earth pipe properly by MS flat of(50x6)mm and suitable size nuts and bolts. The MS plate and MS flat should be painted by red oxide one coat & two coat of red paint of reputed make. Earth value testing shall be in presence of Railway supervisor. Firm shall have related equipment/instrument. Execution of work should be of reputed make confirm to relevant IS or equivalent international standard followed by PUBLIC PROCUREMENT POLICY (MAKE IN INDIA). All materials required during execution of work to be supplied by the firm. Decision of Railway administration over the standardization of the job & make of the material will be final.

The above schedule is indicative in nature. However, work may be in line of relevant RDSO's or IS or PCEE/ER's specification & design, **Electrical General Service Manual ,Volume-I (Power Supply) & latest** or OEM Standardisation or equivalent international standard for detail technical specification and all other clauses, terms & conditions for design, manufacture, testing, supply, installation and commissioning followed by statutory rules and common prudence and shall confirm to the rules & regulations of Railways. **Electrical equipments must have provision of Over-current protection, Short-circuit protection, Ground Fault protection, Instantaneous protection, Over voltage protection, Under Voltage protection and all additional protection as per site requirement for smooth running of electrical equipment. The decision of Railway Administration over the standardisation & make for execution of the work will be final.**

The eligible contractor must furnish the detail of material which is proposed to be supplied or used inevitably got approved from Sr.DEE(G)/ASN or Sr.SE/Elect/G- the Supervision-in-charge of the work or authorized representative of Sr. SE/Elect/G before commencement of work. Decision of Railway administration over the standardisation& make of all the material for the items of work schedule will be final.

**PUBLIC PROCUREMENT POLICY (MAKE IN INDIA):** Bidder must follow Public Procurement Policy (Make in India) Order 2017, dated 15/06/2017, issued by Department of Industrial Promotion and Policy, Ministry of Commerce, circulated vide Railway Board letter no. 2015/RS(G)/779/5 dated 03/08/2017 and 27/12/2017. The definition and calculation of local content in accordance with the Make in India policy as approved by PCEE/ER is 50% of Minimum Local Content (MLC).

**GUARANTEE / WARRANTY:**

All equipments supplied should have the Guarantee / Warranty as per the concerned Specification / Modification Sheet or as per concerned Manufacturer's Guarantee / Warranty clause or one year from the date of fitment whichever is more. The equipment shall be warranted for satisfactory performance for a period as mentioned in Tender documents or as per Railway. The equipment found defective/failed within the above warranty period shall be replaced or repaired by the firm free of cost within stipulated time specified by higher authority from Railway. **The decision of Railway Administration over the matter will be final.**

**DRAWINGS, DATA AND MANUALS:**

General Arrangement Drawing, Foundation Drawing, Structural Drawing or any other required drawing (if any) must be got approved by Sr. DEE/G/ASN or AEE/G/ASN before inspection & supply of items. These Drawings should have proper spaces for signature of checking authority & approval authority.

**INSPECTION:-**

1. Supply items ( likes P&M items, Luminaries and any special items included in LOA having bid value more than Rs. 5,00,000/- should be inspected / tested by RITES (as per Railway Board's Circular) with firm cost at manufacturer's premises / site as decided by Railway.
2. Material supplied should be as per the description, scope and specification in the tender document. Contractor will intimate in advance for readiness of materials for inspection.
3. Manufacturers test certificates for the different test carried out should be submitted by the tenderer.

**The decision of Railway Administration for inspection of supply items by RITES / Consignee by firm own cost over the matter will be final.**

These technical details / general specifications are indicative only. In case of any ambiguity in the General specification or Technical Details it may be collected from Sr. DEE (G)/Asansol's office if required. All items pertaining to Electrical should confirm to relevant IS or equivalent international standard. Any deviation must be got approved by Sr.DEE/G/ASN.

Any typographical error shall not be construed to be benefit of the Contractor. In all cases the interpretation and decision of Sr.DEE/G/ASN shall be final and binding upon the contractor.

The issues not covered under these tender documents shall be governed by General Conditions of Contract April-2022, or its time to time latest amendments if any, Railway Board Circular or its latest amendments & Letters issued in Zonal PHOD.

**Sr. Divisional Electrical Engineer(Gen.)  
Eastern Railway/ Asansol Division**