

**Eastern Railway
Elect. Genl. Branch, Asansol**

EXPLANATORY NOTE

Name of the Work : Asansol Division - Augumentation and replacement of Electrical assets of Electric Loco Shed, Asansol.

Sl. No.	Description of works
1	Work involve for supply of distribution transformer outdoor type with copper wound 500 KVA, 11/0.433KV, 3 phase, 50 Hz, complete with all accessories and all standard fitting and accessories as per CEE's Specification or latest followed by implementation of mandatory BEE Certification for Distribution Transformer (DT) as per Circular No.- RITES/QA/NRIO/TR/01, Dt.- 06.02.2026 . 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. Drawing must be approved by competent authority before supply of material. Decision of Railway administration over the standardization of the job & make of the material will be final.
2	Work involves for transportation, loading , un-loading, erection, installation, connection, testing & commissioning of outdoor type copper wound transformer of capacity 500 KVA, 11/0.433KV, 3 phase, 50 Hz, complete with all accessories and all standard fitting on necessary masonry platform with suitable size of base foundation as per site requirement. The wall thickness should be 10" & should be sand packed between the walls. The mortar ratio should be 1:4 (cement: sand).The height of the platform from ground level should be 4' at the top of brick wall there should be PCC floor (8" x 6' x 5') Cement-concrete ratio 1: 2 : 4 (cement : sand : 15mm stone chips). 2 Nos. Rail of 5' each should be grouted with concrete horizontally such that wheels of transformer may rest on the rail ends of rail should be supported on wall. The platform should be covered by fencing of height 4'.Three sides of the platform should be covered by barbed wire through MS angle (65x65x8) mm grouted on the platform covered & one side should be covered by gate made of expanded metal & MS angle of (50x50x6) mm x that should be bolted with grouted angle of suitable size nut & bolts. Total fencing should be painted by one coat of red oxide & 2 coats of aluminum paint. 2Nos danger plate (trilingual) for 11KV should be fixed at suitable place by MS clamp made of MS flat (40x6)mm. The neutral of transformer should be earthed by 2Nos 80mm dia. heavy gauge GI pipe of 2.5mts.long each in parallel connection with GI strip of (25x6)mm complete with pocketing both end. The earth pit should be encased with charcoal & salt along with necessary brick work. The earthing should be done as per Sr. DEE/G's Drg.No.1237/98.A or latest separate parallel earthing should be done for transformer body. The earthing arrangement by 2Nos 50mm dia 3mt.long GI medium gauge in parallel connection (25x6)mm GI strip with earth connection lead of 4SWG GI wire complete with socketing at both end. The earth pit should be encased with charcoal, salt along with necessary brick work. At the earth valve should be marked on MS plate with date by painting work and the MS plate should be hold with earth properly by MS flat(50x6)mm and suitable size nut & bolts. The MS plate, flat etc. should be painted by one coat of red oxide & 2 coats of black paint before erection. The marking should be done by white paint. All materials required for execution of work to be supplied by the firm. Firm shall have related equipment / instrument. Decision of Railway administration over the standardisation of the job & make of the material will be final. Drawing must be approved by competent authority before execution of work.
3	Work involves for supply, erection, testing & commissioning of manually gang operated triple pole GOS 11 KV 400A outdoor pattern. Vertically structure mounted single brake rocking type off load isolator complete with GI channel base, copper fixed contact with phosphor bronze leaf spring, copper moving contact, GI pantograph assembly with flexible copper braided tape, GI square phase coupling shaft ,GI operating pipe ,GI operating handle. The GOS should be equipped with separate Horn gap fuse unit. GOS should be mounted on MS galvanized channel iron base suitable for pole mounting with necessary nut & bolts along with complete manual operating mechanism, handle & arrangement of 'ON' & 'OFF' indication with pad lock provision and nine numbers 11 KV post type insulator. GOS should be as per IS 9921 (Pt 1-VI) of 1985.The GOS set should be provided with 'H' pole by 3 Nos MS channel (100x50x8)mm with MS clamp made of MS flat (50x6)mm with suitable size nuts & bolts.(Pole to pole approximate distance 7', i.e length of each channel should be approx 7'6" length.) The channel, clamp should be painted by one coat of red oxide before execution & 2 coats of Aluminum paint. Test certificate of OEM to be supplied along with the material as per demand of Railway. Decision of Railway administration over the standardisation of the job & make of the material will be final.

4	Work involve for supply of 11KV, 800A, 26.3kA (for 3 sec) 3 unit Indoor type HT VCB panel (1 incoming + 2 outgoing: 1 set), Incoming unit (1 no) VCB CTR: 300-150A/5+5A and Outgoing unit (2 Nos) VCB CTR: 50-100A/5+5A, CU Busbar with power pack should confirm to relevant IS or equivalent international standard followed by PUBLIC PROCUREMENT POLICY (MAKE IN INDIA) as per General Specification Of HT VCB panel and preliminary condition as provided in tender document. Decision of Railway administration over the standardisation of the job & make of the material will be final. Drawing must be approved by competent authority before supply of material.
5	Work involves for transportation, loading , un-loading, erection, installation, connection, testing & commissioning of 11KV HT VCB panel set complete including all accessories with necessary masonry work of cement concert of ratio 1:2:4 (cement :sand: stone chips) and necessary nuts & bolts. Necessary connection to be done by suitable size flexible copper cable with socket and using copper bus bar of suitable size. Marking of all in-coming and out-going of VCB to be done by white paint and date of commissioning to be marked by fixing of suitable plate at top of the panel with well surface finish as per site requirement. Suitable size cable duct should be made behind VCB panel for cable entry by earth excavation & PCC work with net cement polish finishing. Duct should be filled up with sand after cable entry & connection. 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.
6	Work involve for supply of HT cable jointing kit suitable for 11KV (UE) & all other accessories for heat shrink of size 3 core x 50 - 95mm ² (XLPE) indoor types . The supply materials 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.
7	Work involve for supply of HT cable jointing kit suitable for 11KV (UE) & all other accessories for heat shrink of size 3 core x 70 / 95mm ² (XLPE) outdoor types. The supply materials 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.
8	Work involves for supply, fabrication, installation, commissioning, loading, unloading, testing, electrical connection with suitable concrete foundation of cubical type LT panel board of size per site requirement, made of 2.0/1.6mm (min.) CRCA sheet with powder coated paint, floor mounted IEC 61439-1&2 latest standard compliant fully type tested panel with production of type test and design verification certificate from OEM both side Bus alley and back side cable alley, Electrograde type copper busbar 800A, 4 Bar, double door including fixing of following switchgear of microprocessor release based and complying IS/IEC 60947-2 standard having double break mechanism for achieving isolation and lower let through energy, consisting of 630A ACB, 4P, 50kA, MDO as a incomer - 2 nos.(with interlocking system between two incoming feeder) ; 320A MCCB, 4P, 50kA as a outgoing - 2 nos; 200A MCCB, 4P, 36kA as a outgoing - 4 nos; 100A MCCB, 4P, 36kA as a outgoing - 2 nos; 63A MCCB, 4P, 36kA as a outgoing - 2 nos with all outgoing MCCB's microprocessor based with additional protection of adjustable earth leakage protection with suitable Spreader Terminals of both side for MCCB and including internal electrical connection with suitable size of copper wire and with provision of suitable cable alley, extended rotary handle, Supply Auxiliary + trip alarm contact for ON/OFF/TRIP indication, Digital Amp meter, voltmeter, Amp selector switch, Volt selector switch, Supply CT coil 630/5. Supply LED indicator Red, Yellow, Blue. Supply LED indicator for ON/OFF/TRIP, Supply control MCB of suitable rating , digital multimeter module and modular LED indicators and all other accessories with provision of Over-current protection, Short-circuit protection, Ground Fault protection, Instantaneous protection, Over voltage protection, Under Voltage protection etc. as per LT Panel General Specification in "Annexure-A" and preliminary condition as provided in tender document. Erection, installation, testing, electrical connection, commissioning, loading & unloading of LT panel board complete including all accessories with necessary masonry work for construction of suitable size concrete foundation and necessary nuts & bolts including all incoming and outgoing cable glanding, termination, socketing, connection etc. Necessary connection to be done by suitable size flexible copper cable with socket and using copper bus bar of suitable size. Marking of all in-coming and out-going of LT Panel to be done by white paint and date of commissioning to be marked by fixing of suitable plate at top of the panel with well surface finish as per site requirement. Suitable size cable duct should be made behind panel for cable entry by earth excavation & PCC work with net cement polish finishing. Duct should be filled up

	<p>with sand after cable entry & connection. The installation work shall cover assembly of various sections of the panels lining up, grouting the units etc. In the case of multiple panel switch boards after connecting up the bus bars etc., all joints shall be insulated with necessary insulation tape or approved insulation compound. A common earth bar shall be run inside at the back of switch panel connecting all the sections for connection to frame earth system. All protection and other small wirings for indication etc. shall be completed before calibration and commissioning checks are commenced. All relays, meters etc. shall be mounted and connected with appropriate wiring. All materials required during execution of work to be supplied by firm. The material supplied of reputed make panel builder should confirm to relevant IS or equivalent international standard followed by PUBLIC PROCUREMENT POLICY (MAKE IN INDIA) as per Preliminary condition. The LT panel shall be designed, manufactured in switchgear OEM factory or switchgear OEM Licensee Partner factory and all type tested in accordance with the latest relevant IEC (viz. IEC 61439- 1&2: 2020) latest standards. Drawing signed and stamped from OEM must be approved by competent Railway authority before supply of material. Decision of Railway administration over the standardization of the job & make of the material will be final.</p>
9	<p>Work involves for supply of 1.5 TR (1.5 Ton) Inverter type Split Air Conditioner, BEE rating : 5 star, 230V ,1Ph, 50Hz, Compressor Type- Inverter Rotary Compressor, Refrigerant- R32, Condenser Coil-100% Copper, Cooling Capacity- Approx. 5000 W (approx), ISEER- Around 5.05(approx), Convertible Cooling- 5-in-1, Swing- 4-Way Swing, Ambient Cooling- Up to 54°C(approx), Smart Features with Wi-Fi (Optional) with Indoor unit, outdoor unit, remote, drain pipe, mounting accessories with fixing bracket, white in colour with all installation Accessories and Warranty: (a) 1 Year Comprehensive Warranty, (b) 5 Years PCB Warranty , (c) 10 Years Compressor Warranty. The material supplied should be of reputed make and 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 & make of the material will be final.</p>
10	<p>Work involve for Supply & fixing of M. S. angle frame on the wall for outer unit of size approx.: 3' x 4' and made from 1½ inch x 1½ inch x 4 mm thick M.S. angle. Frame should be painted with black Japan paint as per site requirement with well surface finished. The clamp should be grouted on wall by cement concrete of ratio 1:2:4 (cement : sand: stone chips.) with well surface finish. Paint should be done by one coat of red oxide before execution and 2 coats of black Japan paint. The material supplied of reputed make and confirm to 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.</p>
11	<p>Work involves for supply & fixing of AC power unit in enclosure with RCCB DP, 25A, sensitivity 30mA , starter rating G/H/J or equivalent & AC point wiring with 4 Sq.mm HTFR multi strand flexible copper PVC wire with suitable nut & bolt. The nuts should be grouted on wall in appropriate manner with well surface finish. Concealed / PVC conduit wiring by HTR FR PVC insulated Heavy Duty Industrial PVC single core 2 x 4 mm2 multistrand copper wire (1100V grade) with multi strand S/C of standard suitable sq mm. (as per General specification of IE Rule) PVC insulated copper wire(1100V grade) for earthing conforming to latest relevant IS standard. PVC pipe should be of medium gauge. 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). All the released materials must be returned to concern store with firm own cost. Decision of Railway administration over the standardization of the job & make of the material will be final.</p>
12	<p>Work involves for cable laying through GI perforated cable tray of size 200mm x 50mm x 2mm of each length 2500 mm fixing through 40mm x 40mm x 6mm MS Angle with all necessary item for fixing on wall with GI channel and GI flat/angle/channel with GI nut & bolt and coupler plate of reputed make 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.</p>
13	<p>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</p>

	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
14	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.
15	Work involves for cable trenching, laying on wall / floor / 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.
16	Work involves for supply of GI pipe 80 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 & make of the material will be final. All materials required during execution of work to be supplied by the firm.
17	Work involves for supply of GI pipe medium gauge 80 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 80 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 & 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.
18	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.
19	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.
20	Work involve for fabrication, supply, erection, commissioning & electrical connection of LT outdoor type location box made of 16SWG MS sheet. Location box should consist of busbar 4 bar type made of electrolytic copper flat 100A of suitable length. Bus to bus clearance 50mm with suitable size bus insulator. The location box should be double door consisting with locking arrangement (pipe lock) & a separate locking arrangement, with a provision of handle for operation of door. 4 pole HRC Fuse unit of 100 A capacity should be provided on incoming side of reputed IS standard make. Internal

	<p>connection should be done by suitable size cable lead of copper with suitable thimble. The approx size of the LB should be 750mm(H), 450mm(W), 350mm (D). The LB should be erected on masonry work & should be painted by one coat of red oxide & 2 coats of smoke paint before erection. The marking should be done by white paint. Masonry work consists of 10" brick wall & height should be 18" above ground level should be 12" (i.e. total wall height above & below ground should be 30") with necessary excavation work. Cement mortar should be 1:4 (Cement: Sand). The out side wall of LB should be well finished by cement. The location box should be earthed with separate earth pit having earth pipe of 50mm dia. 3mm long GI pipe medium gauge 1 No. with earth connection lead of 4 SWG GI wire complete with socketing at both ends. The earth pit should be encased with charcoal salt along with necessary brick work. The earthing should be done as per Sr. DEE(G)'s Drg. No.1240/98 & confirming to latest IS standard. The earth value should be marked on MS plate with date by painting work & the MS plate should be hold with earth pipe properly by MS flat (50x6)mm& suitable size MS nuts & bolts. The MS plate & MS flat should be painted by one coat of red oxide & 2 coats of red paint before execution 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. Drawing must be approved by competent authority before supply of material.</p>
21	<p>Work involves fabrication, supply, erection, commissioning & electrical connection of LT outdoor type location box made of 2mm CRCA sheet. Location box should consist of busbar 4 bar type made of electrolytic copper flat 200A of suitable length. Bus to bus clearance approx 50mm with suitable size bus insulator. The location box should be double door consisting with locking arrangement (pipe lock) & a separate locking arrangement, with a provision of handle for operation of door. 4 pole HRC Fuse unit of 200A capacity of reputed IS standard make should be provided on incoming side. Internal connection should be done by suitable size cable lead of copper with suitable thimble. The approx size of the LB should be 950mm(H), 500mm(W), 400mm (D). The LB should be erected on masonry work & should be painted by one coat of red oxide & 2 coats of smoke grey paint before erection. Masonry work consists of 10" brick wall & height should be 18" above ground level should be 12" (ie. total wall height above & below ground should be 30") with necessary excavation work. Cement mortar should be 1:4 (Cement: Sand). The out side wall of LB should be well finished by cement. The location box should be earthed with separate earth pit having earth pipe of 50mm dia. 3mm long GI pipe medium gauge 2 nos. with earth connection lead of 4 SWG GI wire complete with socketing at both ends. The earth pit should be encased with charcoal salt along with necessary brick work. The earthing should be done as per as per Sr. DEE(G)'s Drg. No.1240/98 & confirming to latest IS standard. The earth value should be marked on MS plate with date by painting work & the MS plate should be hold with earth pipe properly by MS flat (50x6)mm& suitable size MS nuts & bolts. The MS plate & MS flat should be painted by one coat of red oxide & 2 coats of red paint before execution 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. Drawing must be approved by competent authority before supply of material</p>
22	<p>Work involves for supply, erection, testing, electrical connection & commissioning of single phase MCB type distribution board (4+2) ways. The MCB type distribution board should be sheet steel. Outgoing should consist of 4 nos SP MCB (6-32)A as per requirement & 1 no 40A DP isolator. The distribution box should be grouted on wall by cement concrete ratio 1:2:4 (cement: sand: stone chips) with necessary wall cutting or as per site requirement should confirm to relevant IS or equivalent international standard of reputed make switchgears provision of all protection as per site requirement 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.</p>
23	<p>Work involve for supply of indoor T8 (1 X 18W) / T8 (1 X 20W) LED tube light fitting including build- in- driver and LED batten and all accessories as per General Specification "Annexure M" and preliminary condition as provided in tender document 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 & make of the material will be final. All materials required during execution of work to be supplied by the firm. (LED luminaires should conform to min.IP:20)</p>
24	<p>Work involves for erection, testing, electrical connection and commissioning of indoor T8 LED (18 W/20W) fitting complete with lamp. Fittings should be fixed on wall/structure by 2 Nos of MS</p>

	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. All released materials to be submitted to concern consignee store with own cost. 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.
25	Work involve for supply of High efficiency BLDC fan with Modular BLDC Regulator (without remote), having sweep size 1200MM, operating voltage 140V-270V maximum power consumption 26 watt(+/- 10%) with double ball bearing and airflow CMM210, white colour with 5-years warranty. 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 & make of the material will be final. All materials required during execution of work to be supplied by the Firm.
26	Work involves for fixing of BLDC Fan & Regulator with 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 ² multi strand copper wire(1100V)grade with multi strand 1mm ² 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.
27	Work involves for supply of single phase propeller type ISI marked ventilating fans (Exhaust Fans) number of pole :4, sweep size (mm) : 300. 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 & make of the material will be final.
28	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 2.5mm ² multi strand copper wire(1100V)grade with multi strand 1mm ² 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.
29	Work involves for fixing, installation, commissioning, electrical connection, transportation , loading & Un-loading of fixing, installation & commissioning of industrial Wall mount Air Circulator Fan of sweep size 750mm, 230Volt, AC with all accessories as per site requirements with grouted on wall with proper size nut & bolt by cement concrete ratio 1:2:4 (cement: sand: stone chips) with necessary wall cutting and well surface finish 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 2.5mm ² multi strand copper wire(1100V)grade with multi strand 1mm ² 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.
30	Work involves for supply of wiring materials and concealed / PVC conduit wiring of light point /Fan point/Ex. Fan 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) through PVC conduit by HTR FR PVC insulated Heavy Duty Industrial PVC single core 2 X 1.5mm ² multi strand copper wire (1100V)grade with multi strand 1mm ² 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 & make of the material will be final. (Length of wiring as desired by Rly.)

31	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 ² multistrand copper wire (1100V grade) with multi strand S/C 1.5 mm ² 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).
32	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 ² multistrand copper wire (1100V grade) with multi strand S/C 1 mm ² 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).
33	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 ² multistrand copper wire (1100V Grade) with multistrand copper wire 1 mm ² 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.)
34	Work involves for supply, of all wiring materials and concealed / PVC conduit wiring of 5/15A-20A 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 ² multistrand copper wire (1100V) grade with multi strand 1 mm ² 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.)
35	Work involves for supply, erection, commissioning, testing & electric connection 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 or as per Railway approved. 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. Drawing must be approved by competent authority before supply of material.
36	Work involves for supply, erection, commissioning, testing & electric connection of 3Ph. indoor type junction box made of GI sheet of 16SWG with (25x6)mm bakelite bar with 4 stud of suitable dia. The GI box should be of (350x250x150)mm (or as per site requirement) & should be provided with hinge type door and locking arrangement. The junction box should be fixed with wall / pole / structure 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. Indoor type Junction Box as per Railway approved. 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. Drawing must be approved by competent authority before supply of material.
37	Work involve for supply, installation, erection, testing , commissioning, transportation, shifting, loading, unloading of 5 mtr long GI octagonal pole (sheet thickness 3mm)), minimum internal & external surface of the pole shall be hot dip galvanised to 65 micron thickness with top dia 70mm, bottom dia 130mm and base plate (min.) 220x220x12mm, PCD-220 welded with the pole with four numbers stiffeners between the bolt holes to ensure elimination of helical stress concentration and

	<p>500 mm overhang each side standard double arm bracket (as per site requirement) and arm cap with suitable size GI pipe, cable terminal board for internal connection of cables with foundation bolts set(4 nos.M20 X 600mm long) complete with all accessories. It should be provision of inbuilt junction box i.e flush door cutout with four pole stud fitted on bakelite sheet inside of flush door cutout. Bakelite sheet should be properly mounted inside cutout. Erection, testing, commissioning, loading, unloading of 5 mtr GI octagonal pole with suitable RCC foundation with cement :sand: concrete ratio of (1:3:6) & 8 mm TMT bar by 4 nos foundation bolt as per standard drawing which should be approved by competent authority for Octagonal Pole complete with all accessories. 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. Drawing must be approved by competent authority before execution of work.</p>
38	<p>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 mm² multi strand copper wire (1100V grade) with multi strand S/C 1 mm² 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 of the job & make of the material 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.</p>
39	<p>Work involves for supply of 72W LED Street Light Luminaries with lamp with lens and all accessories, pressure die-cast housing and min. IP 66 protection , energy saving, environmental friendly, long life, exclusive innovative with high power LEDs as light source as per General Specification “Annexure M” and preliminary condition as provided in tender document of reputed make with 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 material will be final.</p>
40	<p>Work involves for provision of maintenance free earthing as follows:</p> <p>General Technical specification for maintenance free earthing--</p> <p>Contractor shall provide Maintenance free earthing complete with all accessories shall be as per RDSO Spec No. RDSO/PE/SPEC/PS/0109(REV.0)-2008, Amendment ‘1’ or latest which should be downloaded from the internet by the contractor.</p> <p>Maintenance free earthing shall consist of the following: -</p> <ol style="list-style-type: none"> 1. High tensile-low carbon steel rod having diameter not less than 17mm complying with requirements of BS 4360 Grade 43A or EN10025:2-004 S275JR, molecularly bonded by 99.99% pure high conductivity copper on outer surface with copper coating thickness of 250 micron or more, Length 3000 mm (minimum). Certificates from NABL approved labs shall be submitted with test results. 2. Copper earth busbar of size 250 mm x 50 mm x 6 mm having electrical conductivity of 101% IACS, minimum 99.9% copper content shall be exothermically welded to rod with 4 holes of 12 mm dia. (2 on each side) for connecting earthing conductor. 3. Earth Enhancement compound should have characteristics as mentioned in the RDSO specs., should have low resistivity preferably below 0.2 Ohm-meters, supplied in sealed bags, minimum 75Kgs per pit for 5” x5” x10” size pit and minimum 50Kgs per pit for 300mm bore type pit. The bags shall be marked with manufacturer’s name or trade name, quality, batch no. & date of manufacture. Certificates from NABL approved labs shall be submitted with test results, for at least following parameters. <ol style="list-style-type: none"> i. Composition of Earth Enhancement compound. ii. Resistivity : <2 Ohm-meters iii. pH value : >7 but <9 iv. Moisture retain capacity :> 10% at 105 degree Celsius. v. Water solubility : < 5% 4. Backfill material: Good quality soil or excavated soil free from sand, gravel and stones shall be

used for backfilling.

5. Earth pit of size 5ft x 5ft x 10ft or min 300 mm bore up to 10ft using earth auger shall be made.

6. Inspection chamber: A concrete box of 300X300X300 mm (inside dimension) & 50mm thickness of wall, with smooth cement plaster finish shall be provided on the top of the pit. A concrete lid, painted black, approx. 50 mm. thick with pulling hooks, shall be provided to cover the earth pit. PVC sleeve shall be provided in concrete wall to take out earthing connections.

7. On backside of the cover, date of the testing and average resistance value shall be written with yellow paint on black background.

8. A copper main busbar of size 300mm x 25mm x 6mm to be installed on nearby wall etc. and must be connected with two copper strips of 25mm x 3mm size each, up to a distance of 05 mtrs from earth busbar.

9. Earthing shall generally be carried out in accordance with the requirement of I.E. rules, 1956, as amended from time to time and shall confirm to IS: 3043 of 1987 with latest amendment.

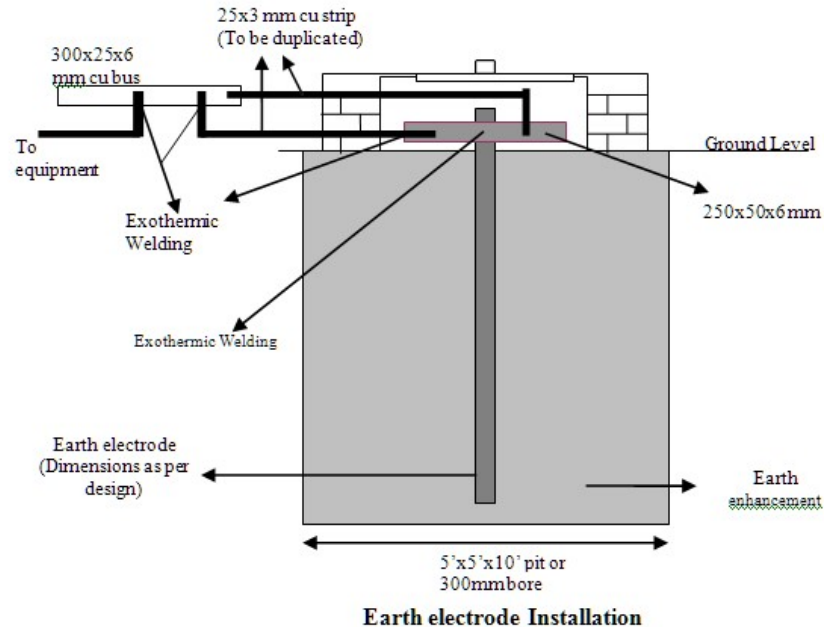
10. The earth value shall be measured & recorded at the site by painting on earth pit or nearest wall, along with date of testing. It shall be less than 2 ohms and neutral to earth voltage shall be less than 3 volts.

11. Earthing performance after a year of installation shall be jointly checked & measured. It should be less than 2 Ohm.

12. General arrangement of the earth system shall be as per following sketch.

Annexure - A

General Arrangements for Earth System



13. 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.

41 Work involves for supply, installation, erection, testing, commissioning, transportation, loading, and unloading of suitable size spikes lighting arrester complete fixed with proper manner with continuous copper strip suitably grouted with wall / structure as per site requirement with proper arrangement and fixed appropriate manner with 02 nos earthing arrangement (made with GI pipe 50mm dia. 3 mtr. long medium gauge) with suitable size nut , bolt & washer made of copper should confirm to

	relevant IS or equivalent international standard followed by PUBLIC PROCUREMENT POLICY (MAKE IN INDIA) as per Preliminary condition. The bidder should submit the complete test reports as and when demand of Railway. Decision of Railway administration over the standardization of the job & make of the material will be final.
42	Work involves for Supply and fixing of iron box 8X10 inch with top Bakelite seat cover & 15A switch and socket- 1 set & 6A switch socket - 2 sets Piano type of reputed make with 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. Drawing must be approved by competent authority before execution of work.
43	Work involves for dismantling of old main cable and sub main cable, unused wiring , light point and return to consignee store with firm cost. Exposed Cables to be cleared or buried in to the ground with well surface finish. Decision of Railway administration over the standardization of the job will be final.
44	Work involves for dismantling & shifting of existing LT Panel (i) Old main panel dismantling -1 no. (ii) Sub main panel-02nos and return to consignee store with firm cost. Exposed Cables to be cleared or buried in to the ground with well surface finish. Decision of Railway administration over the standardization of the job will be final.
45	<p>Work involves for supply, fabrication, installation, commissioning, loading, unloading, testing, electrical connection with suitable concrete foundation of cubical type LT panel board of size per site requirement, made of 2.0/1.6mm (min.) CRCA sheet with powder coated paint, floor mounted IEC 61439-1&2 latest standard compliant fully type tested panel with production of type test and design verification certificate from OEM both side Bus alley and back side cable alley, Electrograde type copper busbar standard suitable capacity, 4 Bar, double door including fixing of following switchgear of microprocessor release based and complying IS/IEC 60947-2 standard having double break mechanism for achieving isolation and lower let through energy, consisting of 1250A ACB, 4P, 50kA, MDO as a incomer - 2 nos.(with interlocking system between two incoming feeder) ; 400A MCCB, 4P, 50kA as a outgoing - 5 nos; 200A MCCB, 4P, 36kA as a outgoing - 5 nos; 125A MCCB, 4P, 36kA as a outgoing - 2 nos with all outgoing MCCB's microprocessor based with additional protection of adjustable earth leakage protection with suitable Spreader Terminals of both side for MCCB and including internal electrical connection with suitable size of copper wire and with provision of suitable cable alley, extended rotary handle, Supply Auxiliary + trip alarm contact for ON/OFF/TRIP indication, Digital Amp meter, voltmeter, Amp selector switch, Volt selector switch, Supply CT coil 1250/5. Supply LED indicator Red, Yellow, Blue. Supply LED indicator for ON/OFF/TRIP, Supply control MCB of suitable rating , digital multimeter module and modular LED indicators and all other accessories with provision of Over-current protection, Short-circuit protection, Ground Fault protection, Instantaneous protection, Over voltage protection, Under Voltage protection etc. as per LT Panel General Specification in "Annexure-A" and preliminary condition as provided in tender document. Erection, installation, testing, electrical connection, commissioning, loading & unloading of LT panel board complete including all accessories with necessary masonry work for construction of suitable size concrete foundation and necessary nuts & bolts including all incoming and outgoing cable glanding, termination, socketing, connection etc. Necessary connection to be done by suitable size flexible copper cable with socket and using copper bus bar of suitable size. Marking of all in-coming and out-going of LT Panel to be done by white paint and date of commissioning to be marked by fixing of suitable plate at top of the panel with well surface finish as per site requirement. Suitable size cable duct should be made behind panel for cable entry by earth excavation & PCC work with net cement polish finishing. Duct should be filled up with sand after cable entry & connection. The installation work shall cover assembly of various sections of the panels lining up, grouting the units etc. In the case of multiple panel switch boards after connecting up the bus bars etc., all joints shall be insulated with necessary insulation tape or approved insulation compound. A common earth bar shall be run inside at the back of switch panel connecting all the sections for connection to frame earth system. All protection and other small wirings for indication etc. shall be completed before calibration and commissioning checks are commenced. All relays, meters etc. shall be mounted and connected with appropriate wiring. All materials required during execution of work to be supplied by firm. The material supplied of reputed make panel builder should confirm to relevant IS or equivalent international standard followed by PUBLIC PROCUREMENT POLICY (MAKE IN INDIA) as per Preliminary condition. The LT panel shall be designed, manufactured in switchgear OEM factory or switchgear OEM Licensee Partner factory and all type tested in accordance with the latest relevant IEC</p>

	(viz. IEC 61439- 1&2: 2020) latest standards. Drawing signed and stamped from OEM must be approved by competent Railway authority before supply of material. Decision of Railway administration over the standardization of the job & make of the material will be final.
46	<p>Work involves for supply, fabrication, installation, commissioning, loading, unloading, testing, electrical connection with suitable concrete foundation of cubical type LT panel board of size per site requirement, made of 2.0/1.6mm (min.) CRCA sheet with powder coated paint, floor mounted IEC 61439-1&2 latest standard compliant fully type tested panel with production of type test and design verification certificate from OEM both side Bus alley and back side cable alley, Electrograde type copper busbar standard suitable capacity, 4 Bar, double door including fixing of following switchgear of microprocessor release based and complying IS/IEC 60947-2 standard having double break mechanism for achieving isolation and lower let through energy, consisting of 400A MCCB, 4P, 50kA as a incomer - 2 nos.(with interlocking system between two incoming feeder) ; 160A MCCB, 4P, 36kA as a outgoing - 2 nos, 100A MCCB, 4P, 36kA as a outgoing - 5 nos with all outgoing MCCB's microprocessor based with additional protection of adjustable earth leakage protection with suitable Spreader Terminals of both side for MCCB and including internal electrical connection with suitable size of copper wire and with provision of suitable cable alley , digital multimeter module and modular LED indicators and all other accessories with provision of Over-current protection, Short-circuit protection, Ground Fault protection, Instantaneous protection, Over voltage protection, Under Voltage protection etc. as per LT Panel General Specification in "Annexure-A" and preliminary condition as provided in tender document. Erection, installation, testing, electrical connection, commissioning, loading & unloading of LT panel board complete including all accessories with necessary masonry work for construction of suitable size concrete foundation and necessary nuts & bolts including all incoming and outgoing cable glanding, termination, socketing, connection etc. Necessary connection to be done by suitable size flexible copper cable with socket and using copper bus bar of suitable size. Marking of all in-coming and out-going of LT Panel to be done by white paint and date of commissioning to be marked by fixing of suitable plate at top of the panel with well surface finish as per site requirement. Suitable size cable duct should be made behind panel for cable entry by earth excavation & PCC work with net cement polish finishing. Duct should be filled up with sand after cable entry & connection. The installation work shall cover assembly of various sections of the panels lining up, grouting the units etc. In the case of multiple panel switch boards after connecting up the bus bars etc., all joints shall be insulated with necessary insulation tape or approved insulation compound. A common earth bar shall be run inside at the back of switch panel connecting all the sections for connection to frame earth system. All protection and other small wirings for indication etc. shall be completed before calibration and commissioning checks are commenced. All relays, meters etc. shall be mounted and connected with appropriate wiring. All materials required during execution of work to be supplied by firm. The material supplied of reputed make panel builder should confirm to relevant IS or equivalent international standard followed by PUBLIC PROCUREMENT POLICY (MAKE IN INDIA) as per Preliminary condition. The LT panel shall be designed, manufactured in switchgear OEM factory or switchgear OEM Licensee Partner factory and all type tested in accordance with the latest relevant IEC (viz. IEC 61439- 1&2: 2020) latest standards. Drawing signed and stamped from OEM must be approved by competent Railway authority before supply of material. Decision of Railway administration over the standardization of the job & make of the material will be final.</p>
47	<p>Work involve for supply, fabrication, erection, installation, testing, electrical connection, commissioning, loading & unloading of LT panel board, 8 way, CRCA sheet, 2.0/1.6 mm (or as per site requirement) with both side Bus alley and back side cable alley, Electrograde type standard suitable copper busbar, 4 Bar, double door consisting of microprocessor release based and complying IS/IEC 60947-2 standard 200A MCCB, 4P, 50kA as a incomer - 2 nos. (with interlocking system between two incoming feeder) ; 100A MCCB, 4P, 25kA as a outgoing - 4 no, 63A MCCB, 4P, 25kA as a outgoing - 4 nos, 125A MCCB, 4P, 25kA as a outgoing - 2 nos with suitable Spreader Terminals of both side for MCCB including Over-current protection, Short-circuit protection, Ground Fault protection, Instantaneous protection, Over voltage protection, Under Voltage protection with internal electrical connection with suitable size of copper wire and Electrograde type copper busbar and provision of digital multimeter module and modular LED indicators with provision of standard suitable size cable alley etc. as per LT Panel General Specification in "Annexure-A" and preliminary condition as provided in tender document. The material supplied of reputed make panel builder should confirm to relevant IS or equivalent international standard followed by PUBLIC PROCUREMENT POLICY (MAKE IN INDIA) as per Preliminary condition. Drawing must be approved by competent authority before supply of material. Decision of Railway administration over the standardization of the job & make of the material will be final. Erection, installation, testing,</p>

	<p>electrical connection, commissioning, loading & unloading of mini LT panel board complete including all accessories with necessary masonry work for construction of suitable size concrete foundation and necessary nuts & bolts including all incoming and outgoing cable glanding, termination, socketing, connection etc or as per site requirement. Necessary connection to be done by suitable size flexible copper cable with socket and using copper bus bar of suitable size. Marking of all in-coming and out-going of LT Panel to be done by white paint and date of commissioning to be marked by fixing of suitable plate at top of the panel with well surface finish as per site requirement. A common earth bar shall be run inside at the back of switch panel connecting all the sections for connection to frame earth system. All protection and other small wirings for indication etc. shall be completed before calibration and commissioning checks are commenced. All relays, meters etc. shall be mounted and connected with appropriate wiring. All materials required during execution of work to be supplied by firm. The material supplied of reputed make panel builder should confirm to relevant IS or equivalent international standard followed by PUBLIC PROCUREMENT POLICY (MAKE IN INDIA) as per Preliminary condition. Drawing must be approved by competent authority before execution of the work. Decision of Railway administration over the standardization of the job & make of the material will be final.</p>
48	<p>Work involve for supply of 100 watt LED flood light with lens , high pressure diecast housing, IP66 including built in –driver complete with all accessories, energy saving, environmental friendly, long life, exclusive innovative with high power LEDs as light source as per General Specification “Annexure M” and preliminary condition as provided in tender document of reputed make with 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 material will be final.</p>
49	<p>Work involves for erection, testing, electrical connection and commissioning of LED outdoor type light fitting along with lamp. Erection of light fitting should be done by 25mm dia medium gauge 1.0mt long GI pipe. The GI pipe should be bend properly as per requirement. The GI pipe should be fixed with Rail pole / Wall / Structure with GI clamp made of GI flat and GI nuts & bolts of suitable size. Supply of all wiring materials & wiring of street light point by HTR FR PVC insulated Heavy Duty Industrial PVC S/C 2 x 2.5 mm² multi strand copper wire (1100V grade) with multi strand S/C 1 mm² PVC insulated copper wire (1100V grade) for earthing conforming to IS: 694 or latest as per requirement. The supply materials 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 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.</p>
50	<p>Work involve for supply of 200 watt LED highbay light fitting robust with PDC housing suitable for ceiling mounting with system efficacy upto 150 lumen/watt with complete accessories with lens and proper driver, energy saving, environmental friendly, long life, exclusive innovative IP66 min. with high power LEDs as light source as per General Specification “Annexure M” and preliminary condition as provided in tender document of reputed make with 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 material will be final.</p>
51	<p>Work involves for erection, fixing, electrical connection, testing, commissioning, loading & unloading of LED light fitting complete with lamp with suitable size clamps, nuts & bolts in existing GI pipe or modification of existing pipe with secured manner on tubular pole or wall as per site requirement. Decision of Railway administration over the standardization of the job will be final. 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.</p>
52	<p>Work involves for supply of insulated plug socket 63 Amp, 3P+N+E , IP 67 industrial interlocking socket with SS enclosure with MCB module available 8, Earth- contact position 6h . The material supplied should be of reputed make and 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 material will be final.</p>
53	<p>Work involves for supply of C’ Series MCB rating 63A , 4P (In accordance with IS/IEC 60898-1 &</p>

	IS/IEC 60947-2) 240 V/415 V, 50 Hz, 10 kA. The material supplied should be of reputed make and 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 material will be final.
54	Work involve for erection, testing, electrical connection & commissioning of insulated plug socket MCB 63 AMP , 3P+N+E or MCB 63 A, 4P with SS enclosure along with MCB provision with suitable nut & bolt. The box should be fixed with wall / pole / pillar (as per site requirement) by clamp made of MS flat (40x6)mm with suitable size nuts & bolts. The MS flat should be painted by one coat of red oxide and 2 coats of aluminum paint. The nuts should be grouted or fixed in appropriate manner with well surface finish. All materials required during execution of work to be supplied by the firm. The material supplied should be of reputed make and 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 material will be final.
55	Work involves for supply of MCB rating 32A , 4P (In accordance with IS/IEC 60898-1) 415 V, 50 Hz, breaking capacity 10 kA. The material supplied should be of reputed make and 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 material will be final.
56	Work involves for supply of MCB rating 63A , 3P (In accordance with IS/IEC 60898-1) 415 V, 50 Hz, breaking capacity 10 kA. The material supplied should be of reputed make and 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 material will be final.
57	Work involves for supply of MCB rating 32A , 3P (In accordance with IEC 60898-1) 415 V, 50 Hz, breaking capacity 10 kA. The material supplied should be of reputed make and 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 material will be final.
58	Work involves for supply of MCB rating 63A , 4P (In accordance with IS/IEC 60898-1) 415 V, 50 Hz, breaking capacity 10 kA. The material supplied should be of reputed make and 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 material will be final.
59	Work involves for supply of MCCB rating 100A , 4P (In accordance with IEC 60947-2) 415 V, 50 Hz, breaking capacity 25 kA. The material supplied should be of reputed make and 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 material will be final.
60	Work involves for supply of MCCB rating 400A , 4P (In accordance with IEC 60947-2) 415 V, 50 Hz, breaking capacity 50 kA. The material supplied should be of reputed make and 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 material will be final.
61	Work involves for supply of MCCB rating 250A , 4P (In accordance with IS/IEC 60947-2) 415 V, 50 Hz, breaking capacity 36 kA. The material supplied should be of reputed make and 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 material will be final.
62	Work involves for supply, erection, testing, electrical connection & commissioning of single phase MCB type distribution board (8+2) ways. The MCB type distribution board should be sheet steel. Outgoing should consist of 8 nos SP MCB (6-32)A as per requirement & 1 no 40A DP isolator. The distribution box should be grouted on wall by cement concrete ratio 1:2:4 (cement: sand: stone chips) with necessary wall cutting or as per site requirement should confirm to relevant IS or equivalent

	international standard of reputed make switchgears provision of all protection as per site requirement 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. Drawing must be approved by competent authority before supply of material.
63	Work involves for supply, erection, testing, electrical connection & commissioning of three phase, double door MCB type distribution board 12 ways. The MCB type distribution board should be sheet steel. Outgoing should consist of 8 nos SP MCB (6-32)A as per requirement & 1 no 100A TPN isolator. The distribution box should be grouted on wall by cement concrete ratio 1:2:4 (cement: sand: stone chips) with necessary wall cutting or as per site requirement should confirm to relevant IS or equivalent international standard of reputed make switchgears provision of all protection as per site requirement 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. Drawing must be approved by competent authority before supply of material.
64	Work involves for Supply of Switch disconnector fuse , 3 Pole + Neutral (TPN) , (panel mounting cubicle type) 125Amp, 415V, fuse type - HBC fuse compatible, In accordance with IEC 60947-3. The material supplied should be of reputed make and 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 material will be final
65	Work involves for Supply of Switch disconnector fuse (panel mounting cubicle type) 250Amp,415V, 3 Pole + Neutral (TPN) , fuse type - HBC fuse compatible, In accordance with IEC 60947-3. The material supplied should be of reputed make and 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 material will be final
66	Work involve for supply of Digital AC Clamp meter 400A, 600V as per GENERAL TECHNICAL SPECIFICATION SHEET Annexure CM 2 . The material supplied should confirm to relevant IS or equivalent international standard of reputed make followed by PUBLIC PROCUREMENT POLICY (MAKE IN INDIA) as per Preliminary condition. Decision of Railway administration over the standardization & make of the material will be final.
67	Work involve for supply of 500 mega ohm hand driven metal body generator type insulation tester megger 500V with all accessories as per GENERAL TECHNICAL SPECIFICATION SHEET Annexure IT-2 . The material supplied should confirm to relevant IS or equivalent international standard of reputed make followed by PUBLIC PROCUREMENT POLICY (MAKE IN INDIA) as per Preliminary condition. Decision of Railway administration over the standardization & make of the material will be final.
68	Work involve for Analog Earth Tester 0-100 Ohm hand driven with all accessories as per GENERAL TECHNICAL SPECIFICATION SHEET Annexure ET-1 . The material supplied should confirm to relevant IS or equivalent international standard of reputed make followed by PUBLIC PROCUREMENT POLICY (MAKE IN INDIA) as per Preliminary condition. Decision of Railway administration over the standardization & 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 of the job & 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 standardization & 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 that 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**