

**NAME OF WORK:** Ratlam Division - Electrical work in connection with raising of platforms at Pachwan (PF01), Parbati (PF01) and 04 meter wide Foot Over Bridge with 02 ramp landings at PNWN and PRB.

**Schedule-A**

<b>Sr.</b>	<b>Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Rate</b>	<b>Total</b>
1	Supply of material & wiring of LightPoint/ceiling rose point by 1.5mm <sup>2</sup> copper PVC cable casing-capping pipe/PVC pipe with earth wire without switch.	Nos.	180	130.05	23409.00
2	Supply of material & wiring of ceiling rose/ light point by 1.5mm <sup>2</sup> copper PVC cable casing-capping pipe/PVC pipe with earth wire.	Nos.	20	279.57	5591.40
3	Supply & fixing of Switch board as per specification.	Nos.	8	127.14	1017.12
4	Supply & fixing of Switch board as per specification.	Nos.	4	50.83	203.32
5	Supply & fixing of 6Amp Cap. Plug socket 5Pin on existing board including connection.	Nos.	8	54.40	435.20
6	Supply & fixing of 6Amp Cap. Plug socket 5Pin on separate board with wiring by copper cable PVC 2.5mm <sup>2</sup> including connection.	Nos.	18	249.12	4484.16
7	Supply & fixing of 6/16 Amps Cap. Power Plug socket 5Pin on Separate board with wiring by copper cable PVC 2.5mm <sup>2</sup> including connection.	Nos.	4	284.60	1138.40
8	Supply & fixing Double pole MCB On board including connection as per specification.	Nos.	18	292.73	5269.14
9	Supply of materials & wiring of sub main by copper cable PVC 2x2.5mm <sup>2</sup> with earth wire in PVC casing-capping/PVC pipe including connection.	Meter	150	39.64	5946.00
10	Supply of materials & wiring of sub main by copper cable PVC 2x4mm <sup>2</sup> with earth wire in PVC casing-capping/PVC pipe including connection.	Meter	100	87.79	8779.00
11	Supply and laying PVC Truncking system 50X50mm for sub main wiring as per specification.	Meter	50	167.88	8394.00

12	Supply & Fixing of LED Tube Light fitting 18/20W including connection as per specification.	Nos.	10	733.72	7337.20
13	Supply & Fixing of LED Tube Light fitting 40W including connection as per specification.	Nos.	180	1845.35	332163.00
14	Supply of material and providing maintenance free pipe earthing as per technical specification.	Nos	6	11694.67	70168.02
15	Transportation, erection, testing & commissioning of 5- 7 Mtr Octagonal pole with pit foundation as per specification.	Nos	60	3571.18	214270.80
16	Supply & fixing of LED Street light 45 W including connection as per specification.	Nos.	10	3090.53	30905.30
17	Supply and fixing of Control panel 100Amp with MCCB& MCB's etc. as per specification.	Nos.	2	15143.89	30287.78
18	Supply & fixing of Distribution box 63 Amp. complete as per specification.	Nos.	2	10829.01	21658.02
19	Supply of material, erection, testing & commissioning of cable junction box with bus bar as per specification.	Nos.	20	2032.27	40645.40
20	Supply of material, erection, testing & commissioning of cable junction box with 5 cut out/MCB as per specification.	Nos	20	1078.96	21579.20
21	Supply and laying of Perforated GI cable Tray 100x50mm as per specification.	Meter	480	387.73	186110.40
22	Laying of 4core 70sqmm UGAC with heat resisting insulation PVC Insulated and strip type Sheathed Armoured Aluminium Conductor cable with 1x8SWG GI wire in existing trench/Pipe/ in air	Meter	500	19.67	9835.00
23	Laying of four Core 25sqmm UGAC with heat resisting insulation PVC Insulated and strip type Sheathed Armoured Aluminium Conductor cable with 1x8SWG GI wire in existing trench/Pipe/ in air as per specification.	Meter	1000	19.67	19670.00
24	Laying of four Core 16sqmm UGAC with heat resisting insulation PVC Insulated and strip type Sheathed Armoured Aluminium Conductor cable with 1x8SWG GI wire in existing trench/Pipe/ in air as per specification.	Meter	500	19.67	9835.00

25	Supply and laying of 65 mm dia. DWC pipe complete as per specification.	Meter	1000	52.43	52430.00
26	Supply of double walled corrugated HDPE Pipes of size 120mm Outer dia & 103mm inner dia. as per specification.	Nos	5	1382.54	6912.70
27	Digging of trench	Meter	200	111.10	22220.00
28	Digging of Pacci trench	Meter	1275	284.01	362112.75
<b>Total: - Fifteen Lakh Two Thousand Eight Hundred Seven and Thirty-One Paise Only.</b>					<b>1502807.31</b>

**-: special conditions of contract: -**

1. This works contract and shall be governed by “General conditions of contract-Apr-2022”
2. The Completion period will be **12 months** from the date of issue Letter of Acceptance (LOA).
3. The work shall be carried out as per the technical specification attached below.
4. Conditional tender will not be accepted.
5. The work shall be supervised by railway representative authorized by Sr. DEE/P/RTM.
6. The work, if required; can be executed anywhere over Ratlam Division with the prior approval of Sr. DEE/P/RTM, if required.
7. Railway can terminate the contract at any time by giving a notice as per rules & regulations of Railway's G.C.C. applicable, in the case of dispute arising out during the course of contract, the decision of Sr. DEE (P) –RTM shall be final & binding.
8. The quantities shown in the schedule are on approximate basis. However, the payment shall be made on actual quantity executed.
9. The contractor shall take all safety aspects into consideration. Railway shall not be responsible for any personal injury or loss to the representative of the firm or any other loss to the firm.
10. Sample of all material used needs to be submitted for approval from Sr. DEE/P or railway representative authorized by Sr. DEE/P.
11. The leaflet, catalog & Technical specification should be submitted along with the tender.
12. LED fittings shall conform to WR Specification No. WR/CCG/Specification/P/001 (Rev-01)/2018 dated 28-02-2018.
13. The OEM test report / delivery challans of OEM/ Authorized dealer for materials used should be supplied to the site engineer of the work. A copy of the same should be submitted to the office by the site engineer.
14. Space/Room for keeping material to be used by Contractor will be provided free of cost by Railway subject to availability.
15. Released materials should be handed over to Railway with joint receipt note if any.
16. Any item of the work of minor nature whether specifically mentioned in the scope of work or not but necessary for the completion of the work as per site requirement and for proper functioning or commissioning of the equipment will be supplied by the contractor free of cost.
17. **Electrical Contractors License: The tendering firm must have valid Electrical Contractors License issued by any State Government in their own name or in the name of the firm. A copy of the license shall be uploaded along with the tender offer failing which the offer shall be summarily rejected. The license must be valid as on the date of opening of the tender. If the Electrical Contractors License has expired as on the date of opening of tender, the license renewal documents must be uploaded along with the copy of the license. The Contractor shall possess valid Electrical Contractor License throughout the currency of the contract and the Consignee shall confirm the same. The contractor shall ensure timely renewal of license.**
18. All loading/ unloading and transportation that may be required for successful completion of work, shall be done by the contractor at his own cost. Any damage to plaster or any other item of railway during the course of execution of work shall be made good by the contractor and restoring it to match the general décor of the wall/ceiling etc. No extra payment on any account would be admissible.

19. The contractor shall carry out the electrical work as per IE Rule 1956 & CEAR-2023 (Central Electricity Authority Regulations-2023).
20. One railway Electrical Technician / assistant will be deputed time to time for shut down, jumpering etc. Site In-charge will ensure proper shutdown procedure.
21. The work shall be done during day time and afterwards with the prior approval of concerned supervisor depending on the local conditions.
22. Rly will provide all sites for erection as and when available due to various Concern departments Work Progress.
23. **Payment Condition:** - Payment shall be made on actual quantity executed as per Railways' tender terms and conditions only after erection, testing and commissioning of those items which are to be installed, erected and commissioned and fulfillment of conditions of Railways' Standard General Conditions of Contract and after successfully completion certification by site engineer.
24. All taxes, duties, GST and other Govt. levies etc. shall be liable to be deducted as per rules in force at the time of preparation of bill and contractor shall have no objection in this regard. The rates quoted by tenderer shall be inclusive of all taxes, duties, GST and other Govt. levies etc.
25. Contractor shall have to mandatory updating of Labour data on Railway's **Shramik Kalyan portal**.
26. The contractor shall ensure strictly to submit **Police verification** of each contractual labor/ staff provided during course of contract.
27. The Contractor shall be responsible to ensure, compliance with the provision of the **Minimum Wages**.
28. **Maintenance/Warranty/Guarantee Period:** -
  - i. For Schedule A – Item Nos. 12, 13 and 16 (LED), the warranty/ guarantee/ maintenance period shall be **sixty (60) months** from the date of successful completion of work, as certified by the concerned SSE. The Security Deposit shall be released accordingly.
  - ii. All items shall be warrantied/ guaranteed / maintenance period shall be twelve (12) months from the date of successful completion of work as certified by concerned SSE and Security Deposit shall be released accordingly except Schedule A –12, 13 and 16.
  - iii. In case any item fails during the warranty/guarantee/maintenance period, the contractor must attend to the defect within **seven (7) days** from the date of intimation by the Railway. Failing which, a penalty as decided by the Sr. DEE/P/RTM shall be imposed and deducted from the contractor's Bills/Security Deposit.

**Technical specification of Schedule- A**

**Name of work:** Ratlam Division - Electrical work in connection with raising of platforms at Pachwan (PF01), Parbati (PF01) and 04 meter wide Foot Over Bridge with 02 ramp landings at PNWN and PRB.

<b>item No. 01</b>	<b>Supply of material &amp; wiring of light point/ceiling rose point by 1.5mm<sup>2</sup> copper PVC cable casing-capping pipe/PVC pipe with earth wire without switch.</b>
Explanation	<p>This includes supply of materials and wiring of ceiling rose point with 1.5mm<sup>2</sup> single core copper stranded PVC insulated unsheathed FRLS cable in PVC pipe / PVC casing capping using separate PVC pipe/PVC casing capping. Tapping should be taken from Junction Box. This will include ceiling rose on Surface mounting plastic box of suitable size. All points shall be provided with earth wire 1.5mm<sup>2</sup> flexible copper conductors PVC insulated FRLS cable green colour inside PVC pipe /PVC casing-capping for earth and connected to general earthing arrangement.</p> <p><u>Make: - 1 PVC CABLE:</u> The PVC cable for wiring shall be 1.5mm<sup>2</sup> to 16mm<sup>2</sup> stranded copper 1100 Volt grade conforming to IS 694 &amp; of PARAGON \ FINOLEX \ KEI \ HAVELLS \ PARALITE \ EMPIRE \ POLYCAB\ HPL \RR KABEL\ NEO-CAB\ NICCO\ ECOTEK\ ASIAN\ L&amp;T\ AVOCAB\ ANCHOR/ BENLO make and ISI marked</p> <p>2. PVC PIPE: The PVC pipe should be 19 mm to 25mm-dia, minimum thickness 2mm, gray/Cream colors and conforming to IS 9537 part –III. The PVC pipe shall be fixed straight on saddles rowel plug &amp; junction box and bends are to be provided for inspection. PVC pipe should be PLAZA/ SHRINATH/ CROWN/ KINZEL/ PRECISION/ MODI /BENLO/ KING make.</p> <p>3. PVC CASING CAPPING: The PVC casing capping heavy duty double lock type of minimum 1inch of cream Colour/white Colour conforming to IS 14927 part-II and ISI marked. The make shall be PLAZA/ SHRINATH/ CROWN /KINZEL/ PRECISION/ MODI/ BENLO/ KING only.</p> <p>4. ALL ACCESSORIES Like Switch, Plug Socket, Ceiling Rose, Holder (Angle / Batten Type) make shall be SSK / ANCHOR / HAVELLS / LEADER / CONA / HPL/ KOLORS/ NORTHWEST/ SCHNEIDER/ C&amp;S/RIDER/ JAINEX/ LEGRAND/ BENLO/ KING/ Wattera.</p> <p>5. PVC Box &amp; Modular plate make shall be SSK / ANCHOR / HAVELLS / LEADER / CONA / HPL/ KOLORS/ NORTHWEST/ SCHNEIDER/ C&amp;S /RIDER/ JAINEX/ LEGRAND/ BENLO/KING/ Wattera.</p>
<b><u>Item No. 02</u></b>	<b>Supply of material &amp; wiring of ceiling rose/ light point by 1.5mm<sup>2</sup> copper PVC cable casing-capping pipe/PVC pipe with earth wire.</b>
Explanation	<p>This includes supply of materials and wiring of Ceiling Rose / Light point with 1.5mm<sup>2</sup> single core copper stranded PVC insulated unsheathed FRLS cable in PVC pipe / PVC casing capping using separate/existing PVC pipe/PVC casing capping. This will include Ceiling Rose / Batten Holder on Surface mounting plastic box of suitable size &amp; a modular switch on existing board / separate Surface mounting plastic box of size single module complete with cover plate. Modular switch and Batten holder/Ceiling rose shall be 6 Amp rating capacity minimum. All points shall be provided with earth wire 1.5mm<sup>2</sup> flexible copper conductor PVC insulated FRLS cable green color inside PVC</p>

	<p>pipe /PVC casing-capping for earth and connected to general earthing arrangement through main board / Sub board earth terminals.</p> <p><u>Make: - 1 PVC CABLE:</u> The PVC cable for wiring shall be 1.5mm<sup>2</sup> to 16mm<sup>2</sup> stranded copper 1100 Volt grade conforming to IS 694 &amp; of PARAGON \ FINOLEX \ KEI \ HAVELLS \ PARALITE \ EMPIRE \ POLYCAB\ HPL \RR KABEL\ NEO-CAB\ NICCO\ ECOTEK\ ASIAN\ L&amp;T\ AVOCAB\ ANCHOR/ make and ISI marked</p> <p>2. PVC PIPE: The PVC pipe should be 19 mm to 25mm-dia, minimum thickness 2mm, gray/Cream colors and conforming to IS 9537 part –III. The PVC pipe shall be fixed straight on saddles rowel plug &amp; junction box and bends are to be provided for inspection. PVC pipe should be PLAZA/ SHRINATH/ CROWN/ KINZEL/ PRECISION/ MODI/KING make.</p> <p>3. PVC CASING CAPPING: The PVC casing capping heavy duty double lock type of minimum 1inch of cream Color/white Color conforming to IS 14927 part-II and ISI marked. The make shall be PLAZA/ SHRINATH/ CROWN /KINZEL/ PRECISION/ MODI/KING only.</p> <p>4. ALL ACCESSORIES Like Switch, Plug Socket, Ceiling Rose, Holder (Angle / Batten Type) make shall be SSK / ANCHOR / HAVELLS / LEADER / CONA / HPL/ KOLORS/ NORTHWEST/ SCHNEIDER/ C&amp;S/RIDER/ JAINEX/ LEGRAND/KING/ Wattera.</p> <p>5. PVC Box &amp; Modular plate make shall be SSK / ANCHOR / HAVELLS / LEADER / CONA / HPL/ KOLORS/ NORTHWEST/ SCHNEIDER/ C&amp;S /RIDER/ JAINEX/ LEGRAND/KING/ Wattera.</p>
<b>Item No. 03</b>	<b>Supply &amp; fixing of Switch board medium size as per specification.</b>
Explanation	<p>This includes supply of material &amp; fixing of Surface mounting plastic board with modular cover Plate of 8-12 Module as per site requirement suitable to fix fan regulator, switches, plug sockets etc. complete with internal wiring. PVC box shall be as per IS14772. All cables are 2.5mm<sup>2</sup> flexible copper conductor FRLS PVC insulated cable inside should be provided between switches &amp; plugs. Board should be fixed on wooden Gitties /PVC rowel plug with screws. The board &amp; Cover plate shall be Off white / White Color. Modular Cover plate shall be glaze finished.</p> <p><u>Make: - 1 PVC CABLE:</u> The PVC cable for wiring shall be 1.5mm<sup>2</sup> to 16mm<sup>2</sup> stranded copper 1100 Volt grade conforming to IS 694 &amp; of PARAGON \ FINOLEX \ KEI \ HAVELLS \ PARALITE \ EMPIRE \ POLYCAB\ HPL \RR KABEL\ NEO-CAB\ NICCO\ ECOTEK\ ASIAN\ L&amp;T\ AVOCAB\ ANCHOR/ make and ISI marked</p> <p>2. PVC PIPE: The PVC pipe should be 19 mm to 25mm-dia, minimum thickness 2mm, gray/Cream colors and conforming to IS 9537 part –III. The PVC pipe shall be fixed straight on saddles rowel plug &amp; junction box and bends are to be provided for inspection. PVC pipe should be PLAZA/ SHRINATH/ CROWN/ KINZEL/ PRECISION/ MODI/KING make.</p> <p>3. PVC CASING CAPPING: The PVC casing capping heavy duty double lock type of minimum 1inch of cream Color/white Color conforming to IS 14927 part-II and ISI marked. The make shall be PLAZA/ SHRINATH/ CROWN / KINZEL/ PRECISION/ MODI/KING only.</p> <p>4. ALL ACCESSORIES Like Switch, Plug Socket, Ceiling Rose, Holder (Angle / Batten Type) make shall be SSK / ANCHOR / HAVELLS / LEADER / CONA</p>

	<p>/ HPL/ KOLORS/ NORTHWEST/ SCHNEIDER/ C&amp;S/RIDER/ JAINEX/ LEGRAND/KING/Wattera.</p> <p>5. PVC Box &amp; Modular plate make shall be SSK / ANCHOR / HAVELLS / LEADER / CONA / HPL/ KOLORS/ NORTHWEST/ SCHNEIDER/ C&amp;S/RIDER/ JAINEX/ LEGRAND/KING/Wattera..</p>
<b>Item No. 04</b>	<b>Supply &amp; fixing of Switch board small size as per specification.</b>
Explanation	<p>This includes supply of material &amp; fixing of Surface mounting plastic board with modular cover Plate of 3-4 Module as per site requirement suitable to fix fan regulator, switches, plug sockets etc. complete with internal wiring. PVC box shall be as per IS14772. All cables are 2.5mm<sup>2</sup> flexible copper conductor FRLS PVC insulated cable inside should be provided between switches &amp; plugs. Board should be fixed on wooden Gitties/PVC rowel plug with screws. The board &amp; Cover plate shall be Off white / White Color. Modular Cover plate shall be glaze finished.</p> <p>Make: - 1 PVC CABLE: The PVC cable for wiring shall be 1.5mm<sup>2</sup> to 16mm<sup>2</sup> stranded copper 1100 Volt grade conforming to IS 694 &amp; of PARAGON \ FINOLEX \ KEI \ HAVELLS \ PARALITE \ EMPIRE \ POLYCAB\ HPL \RR KABEL\ NEO-CAB\ NICCO\ ECOTEK\ ASIAN\ L&amp;T\ AVOCAB\ ANCHOR make and ISI marked</p> <p>2. PVC PIPE: The PVC pipe should be 19 mm to 25mm-dia, minimum thickness 2mm, gray/Cream colors and conforming to IS 9537 part –III. The PVC pipe shall be fixed straight on saddles rowel plug &amp; junction box and bends are to be provided for inspection. PVC pipe should be PLAZA/ SHRINATH/ CROWN/ KINZEL/ PRECISION/ MODI/KING make.</p> <p>3. PVC CASING CAPPING: The PVC casing capping heavy duty double lock type of minimum 1inch of cream Color/white Color conforming to IS 14927 part-II and ISI marked. The make shall be PLAZA/SHRINATH/ CROWN / KINZEL/ PRECISION/ MODI/KING only.</p> <p>4. ALL ACCESSORIES Like Switch, Plug Socket, Ceiling Rose, Holder (Angle / Batten Type) make shall be SSK / ANCHOR / HAVELLS / LEADER / CONA / HPL/ KOLORS/ NORTHWEST/ SCHNEIDER/ C&amp;S/RIDER/ JAINEX/ LEGRAND/KING/Wattera..</p> <p>5. PVC Box &amp; Modular plate make shall be SSK / ANCHOR / HAVELLS / LEADER / CONA / HPL/ KOLORS/ NORTHWEST/ SCHNEIDER/ C&amp;S/RIDER/ JAINEX/ LEGRAND/KING/Wattera..</p>
<b>Item No.05</b>	<b>Supply &amp; fixing of 6Amp Cap. Plug socket 5Pin on existing board including connection.</b>
Explanation	<p>This includes supply of material, fixing and commissioning of modular 6 Amps 5Pin socket with separate modular switch on existing board including connections.</p> <p>Make: - All Plug Socket &amp; switch shall be SSK / ANCHOR / HAVELLS / LEADER / CONA / HPL/ KOLORS/ NORTHWEST/ SCHNEIDER/ C&amp;S/RIDER/ JAINEX/ LEGRAND/KING/Wattera..</p>
<b>Item No. 06</b>	<b>Supply &amp; fixing of 6Amp Cap. Plug socket 5Pin on separate board with wiring by copper cable PVC 2.5mm<sup>2</sup> including connection.</b>
Explanation	<p>This includes supply of material &amp; commissioning one modular 5 pin,6 Amps socket with separate modular switch including wiring in PVC pipe / PVC casing capping by 2x2.5 Sq. mm single core copper stranded PVC insulated FRLS cable with 2.5 Sq. mm flexible copper conductor, PVC insulated FRLS</p>



	<p>cable green color for separate earth wire in separate Surface mounting plastic board with modular cover Plate of suitable Module.</p> <p>PVC box shall be as per IS14772. All cables are 2.5mm<sup>2</sup> flexible copper conductor FRLS PVC insulated cable inside should be provided between switches &amp; plugs. Board should be fixed on wooden Gitties/PVC rowel plug with screws. The board &amp; Cover plate shall be Off white / White Color. Modular Cover plate shall be glaze finished.</p> <p>Make: - 1 PVC CABLE: The PVC cable for wiring shall be 1.5mm<sup>2</sup> to 16mm<sup>2</sup> stranded copper 1100 Volt grade conforming to IS 694 &amp; of PARAGON \ FINOLEX \ KEI \ HAVELLS \ PARALITE \ EMPIRE \ POLYCAB\ HPL \RR KABEL\ NEO-CAB\ NICCO\ ECOTEK\ ASIAN\ L&amp;T\ AVOCAB\ ANCHOR make and ISI marked</p> <p>2. PVC PIPE: The PVC pipe should be 19 mm to 25mm-dia, minimum thickness 2mm, gray/Cream colors and conforming to IS 9537 part –III. The PVC pipe shall be fixed straight on saddles rowel plug &amp; junction box and bends are to be provided for inspection. PVC pipe should be PLAZA/ SHRINATH/ CROWN/ KINZEL/ PRECISION/ MODI/KING make.</p> <p>3. PVC CASING CAPPING: The PVC casing capping heavy duty double lock type of minimum 1inch of cream Color/white Color conforming to IS 14927 part-II and ISI marked. The make shall be PLAZA/ SHRINATH/ CROWN / KINZEL/ PRECISION/ MODI/KING only.</p> <p>4. ALL ACCESSORIES Like Switch, Plug Socket, Ceiling Rose, Holder (Angle / Batten Type) make shall be SSK / ANCHOR / HAVELLS / LEADER / CONA / HPL/ KOLORS/ NORTHWEST/ SCHNEIDER/ C&amp;S/RIDER/ JAINEX/ LEGRAND/KING/Wattera..</p> <p>5. PVC Box &amp; Modular plate make shall be SSK / ANCHOR / HAVELLS / LEADER / CONA / HPL/ KOLORS/ NORTHWEST/ SCHNEIDER/ C&amp;S/RIDER/ JAINEX/ LEGRAND/KING/Wattera..</p>
<b><u>Item No.07</u></b>	<b>Supply &amp; fixing of 6/16 Amps Cap. Power Plug socket 5Pin on Separate board with wiring by copper cable PVC 2.5mm<sup>2</sup> including connection.</b>
Explanation	<p>This includes supply of material &amp; commissioning one modular 5 pin, 6/16 Amps socket with separate switch including wiring in PVC pipe / PVC casing capping by 2x2.5 Sq. mm single core copper stranded PVC insulated FRLS cable with 2.5 Sq. mm flexible copper conductor, PVC insulated FRLS cable green color for separate earth wire, in separate Surface mounting plastic board with modular cover Plate of suitable Module.</p> <p>PVC box shall be as per IS14772. All cables are 2.5mm<sup>2</sup> flexible copper conductor FRLS PVC insulated cable inside should be provided between switches &amp; plugs. Board should be fixed on wooden Gitties/PVC rowel plug with screws. The board &amp; Cover plate shall be off white / White Color. Modular Cover plate shall be glaze finished.</p> <p>Make: - 1 PVC CABLE: The PVC cable for wiring shall be 1.5mm<sup>2</sup> to 16mm<sup>2</sup> stranded copper 1100 Volt grade conforming to IS 694 &amp; of PARAGON \ FINOLEX \ KEI \ HAVELLS \ PARALITE \ EMPIRE \ POLYCAB\ HPL \RR KABEL\ NEO-CAB\ NICCO\ ECOTEK\ ASIAN\ L&amp;T\ AVOCAB\ ANCHOR make and ISI marked</p> <p>2. PVC PIPE: The PVC pipe should be 19 mm to 25mm-dia, minimum</p>

	<p>thickness 2mm, gray/Cream colors and conforming to IS 9537 part –III. The PVC pipe shall be fixed straight on saddles rowel plug &amp; junction box and bends are to be provided for inspection. PVC pipe should be PLAZA/ SHRINATH/ CROWN/ KINZEL/ PRECISION/ MODI/KING make.</p> <p>3. PVC CASING CAPPING: The PVC casing capping heavy duty double lock type of minimum 1inch of cream Color/white Color conforming to IS 14927 part-II and ISI marked. The make shall be PLAZA/ SHRINATH/ CROWN / KINZEL/ PRECISION/ MODI/KING only.</p> <p>4. ALL ACCESSORIES Like Switch, Plug Socket, Ceiling Rose, Holder (Angle / Batten Type) make shall be SSK / ANCHOR / HAVELLS / LEADER / CONA / HPL/ KOLORS/ NORTHWEST/ SCHNEIDER/ C&amp;S/RIDER/ JAINEX/ LEGRAND/KING/Wattera..</p> <p>5. PVC Box &amp; Modular plate make shall be SSK / ANCHOR / HAVELLS / LEADER / CONA / HPL/ KOLORS/ NORTHWEST/ SCHNEIDER/ C&amp;S/RIDER/ JAINEX/ LEGRAND/KING/Wattera..</p>
<b>Item No. 08</b>	<b>Supply &amp; fixing Double pole MCB On board including connection.</b>
Explanation	<p>This includes supply of material and fixing of mini/Modular type double pole MCB 5-32 Amp capacity in existing main/sub-board including connections. MCB Shall be as per IS/IEC 60898-1.</p> <p><b>Make: -</b> All MCBs shall be SSK / ANCHOR / HAVELLS / LEADER / CONA / HPL/ KOLORS/ NORTHWEST/ SCHNEIDER/ C&amp;S/RIDER/ JAINEX/ LEGRAND.</p>
<b>Item No.09</b>	<b>Supply of materials &amp; wiring of sub main by copper cable PVC 2x2.5mm<sup>2</sup> with earth wire in PVC casing-capping / PVC pipe including connection.</b>
Explanation	<p>This includes supply of material &amp; wiring by 2x2.5mm<sup>2</sup> single core copper stranded PVC insulated FRLS cable in separate or existing PVC pipe / PVC casing capping from one board to another with separate earth wire 2.5mm<sup>2</sup> flexible copper conductor PVC insulated FRLS cable green Color inside PVC pipe /PVC casing-capping for earth and connected to general earthing arrangement.</p> <p>Make: - 1 PVC CABLE: The PVC cable for wiring shall be 1.5mm<sup>2</sup> to 16mm<sup>2</sup> stranded copper 1100 Volt grade conforming to IS 694 &amp; of PARAGON \ FINOLEX \ KEI \ HAVELLS \ PARALITE \ EMPIRE \ POLYCAB\ HPL \RR KABEL\ NEO-CAB\ NICCO\ ECOTEK\ ASIAN\ L&amp;T\ AVOCAB\ ANCHOR make and ISI marked</p> <p>2. PVC PIPE: The PVC pipe should be 19 mm to 25mm-dia, minimum thickness 2mm, gray/Cream colors and conforming to IS 9537 part –III. The PVC pipe shall be fixed straight on saddles rowel plug &amp; junction box and bends are to be provided for inspection. PVC pipe should be PLAZA/ SHRINATH/ CROWN/ KINZEL/ PRECISION/ MODI/KING make.</p> <p>3. PVC CASING CAPPING: The PVC casing capping heavy duty double lock type of minimum 1inch of cream Color/white Color conforming to IS 14927 part-II and ISI marked. The make shall be PLAZA/ SHRINATH/ CROWN / KINZEL/ PRECISION/ MODI/KING only.</p> <p>4. ALL ACCESSORIES Like Switch, Plug Socket, Ceiling Rose, Holder (Angle / Batten Type) make shall be SSK / ANCHOR / HAVELLS / LEADER / CONA / HPL/ KOLORS/ NORTHWEST/ SCHNEIDER/ C&amp;S/RIDER/ JAINEX/ LEGRAND/KING/Wattera.</p> <p>5. PVC Box &amp; Modular plate make shall be SSK / ANCHOR / HAVELLS /</p>

	LEADER / CONA / HPL/ KOLORS/ NORTHWEST/ SCHNEIDER/ C&S/RIDER/ JAINEX/ LEGRAND/KING/Wattera.
<b>Item No.10</b>	<b>Supply of materials &amp; wiring of sub main by copper cable PVC 2x4mm<sup>2</sup> with earth wire in PVC casing-capping/PVC pipe including connection.</b>
Explanation	<p>This includes supply of material &amp; wiring by 2 x 4 mm<sup>2</sup> single core copper stranded PVC insulated FRLS cable in separate or existing PVC pipe / PVC casing capping from one board to another including separate earth wire 4mm<sup>2</sup> flexible copper conductor PVC insulated FRLS cable green Color inside PVC pipe /PVC casing-capping for earth and connected to general earthing arrangement.</p> <p>Make: - 1 PVC CABLE: The PVC cable for wiring shall be 1.5mm<sup>2</sup> to 16mm<sup>2</sup> stranded copper 1100 Volt grade conforming to IS 694 &amp; of PARAGON \ FINOLEX \ KEI \ HAVELLS \ PARALITE \ EMPIRE \ POLYCAB\ HPL \RR KABEL\ NEO-CAB\ NICCO\ ECOTEK\ ASIAN\ L&amp;T\ AVOCAB\ ANCHOR make and ISI marked</p> <p>2. PVC PIPE: The PVC pipe should be 19 mm to 25mm-dia, minimum thickness 2mm, gray/Cream colors and conforming to IS 9537 part –III. The PVC pipe shall be fixed straight on saddles rowel plug &amp; junction box and bends are to be provided for inspection. PVC pipe should be PLAZA/ SHRINATH/ CROWN/ KINZEL/ PRECISION/ MODI/KING make.</p> <p>3. PVC CASING CAPPING: The PVC casing capping heavy duty double lock type of minimum 1inch of cream Color/white Color conforming to IS 14927 part-II and ISI marked. The make shall be PLAZA/ SHRINATH/ CROWN / KINZEL/ PRECISION/ MODI/KING only.</p> <p>4. ALL ACCESSORIES Like Switch, Plug Socket, Ceiling Rose, Holder (Angle / Batten Type) make shall be SSK / ANCHOR / HAVELLS / LEADER / CONA / HPL/ KOLORS/ NORTHWEST/ SCHNEIDER/ C&amp;S/RIDER/ JAINEX/ LEGRAND/KING/Wattera..</p> <p>5. PVC Box &amp; Modular plate make shall be SSK / ANCHOR / HAVELLS / LEADER / CONA / HPL/ KOLORS/ NORTHWEST/ SCHNEIDER/ C&amp;S/RIDER/ JAINEX/ LEGRAND/KING/Wattera..</p>
<b>Item No.11</b>	<b>Supply and laying PVC Truncking system 50X50mm for sub main wiring.</b>
Explanation	<p>The price shall cover for supply, fixing, testing and commissioning of ISI marked PVC Maxi Trunking (casing caping) of size 50 x 50 mm with all accessories. The PVC Maxi trunking shall be fixed at site by fabricated clamp of 18 SWG GI sheet at distances not more than 1.5 meters by machine screw/GI nut bolts, washers etc. The existing power cables shall be laid in the PVC Maxi trunking properly dressed and secured by means of suitable clamps/fasteners etc.</p> <p>The make shall be PLAZA/ SHRINATH/ CROWN / KINZEL/ PRECISION/ MODI/ BENLO</p>
<b><u>item No. 12</u></b>	<b>Supply &amp; Fixing of LED Tube Light fitting 18/20Watt including connection.</b>
Explanation	<p>This includes supply of material, fixing, testing &amp; commissioning of 1 x 18/20-Watt LED batten fitting with luminous efficacy <math>\geq 100</math>. The fixture shall be of CRCA channel finished with white polyester powder coating with high UV and corrosion resistance. The fixture shall be equipped with end caps, push fit type lamp holders and mains connector to directly fix 4 feet long LED tube. The LED lamp shall be of 18/20 Watt as per Western Railways' specification no.</p>

	<p>WR/CCG/Specification/P/001 (Rev-01)/2018 of Dt. 28-02-2018. The tube shall be of polycarbonate material. The entire fixture shall be of reputed quality and make.</p> <p>The price shall also cover for fixing testing and commissioning of the complete fitting at site by means of bracket made from GI flat of 25 x 3 mm with nuts, bolts and washers or on heavy duty, ISI marked PVC square box as per site requirement. Connection shall be given by means of 24/0.2 mm three-core flexible copper wire through connector and heavy-duty flexible PVC conduit</p>
<b>Item No.13</b>	<b>Supply &amp; fixing of LED Tube Light fitting 40W including connection</b>
Explanation	<p>This includes supply of material, fixing, testing &amp; commissioning of 4 feet long 40-Watt SMD LED luminary fitting suitable to works on 230 V AC 50 Hz with luminous efficacy minimum 100. The fixture shall be of CRCA channel finished / polycarbonate body with high UV and corrosion resistance diffuser. driver efficiency &gt;85%, THD &lt; 10%, CCT &gt; 6000 deg K, CRI&gt;75, IP-65, surge protection approx. 3 KV &amp; ISI marked confirming to IS 10322 or latest, surface/ hanging mounting with LM 79, LM 80 reports. The fitting shall be as per Western Railways' specification no. WR/CCG/Specification/P/001 (Rev-01)/2018 of Dt. 28-02-2018.</p> <p>The price shall also cover for fixing testing and commissioning of the complete fitting as per site feasibility. Connection shall be given by means of 24/0.2 mm three-core flexible copper wire through connector and heavy-duty flexible PVC conduit.</p>
<b>Item No. 14</b>	<b>Supply of material and providing maintenance free pipe earthing as per technical specification.</b>
Explanation	<p>This item includes, Supply of material &amp; providing of Maintenance free earthing complete with all accessories shall be as per RDSO no. RDSO/PE/SPEC/PS/0109(REV.0)-2008, Amendment '1', Maintenance free earthing shall consist of the following: -</p> <ol style="list-style-type: none"> <li>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.</li> <li>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.</li> <li>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. &amp; date of manufacture. Certificates from NABL approved labs shall be submitted with test results, for at least following parameters. <ul style="list-style-type: none"> <li>i) Composition of Earth Enhancement compound</li> </ul> </li> </ol>

	<p>ii) Resistivity: &lt;2 Ohm-meters  iii) pH value: &gt;7 but &lt;9  iv) Moisture retain capacity :&gt; 10% at 105 degree Celsius.  v) Water solubility: &lt; 5%</p> <ol style="list-style-type: none"> <li>4. Backfill material: Good quality soil or excavated soil free from sand, gravel and stones shall be used for backfilling.</li> <li>5. Earth pit of size 5ft x 5ft x 10ft or min 300 mm bore up to 10ft using earth auger shall be made.</li> <li>6. Inspection chamber: A concrete box of 300X300X300 mm (inside dimension) &amp; 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.</li> <li>7. On backside of the cover, date of the testing and average resistance value shall be written with yellow paint on black background.</li> <li>8. Instead of copper busbar &amp; strips mentioned in the drawing, a GI main busbar of min. size 300mm x 75mm x 8mm to be installed on nearby wall etc. It shall be connected to earthing with two GI strips of 50mm x 6mm size each, upto a distance of 10 mtrs from earth busbar, minimum 3 meters x 2 nos. GI strips to be supplied.</li> <li>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.</li> <li>10. The earth value shall be measured &amp; 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.</li> <li>11. Earthing performance after a year of installation shall be jointly checked &amp; measured. It should be less than 2 Ohm.</li> <li>12. General arrangement of the earth system shall be as per following sketch -</li> </ol>
--	---

	<div data-bbox="521 121 1507 163" data-label="Page-Header"> Page 15 of 15   Effective from Nov. 2010   RDSO/PE/SPEC/PS/0109-2008 (REV'0'), Ann </div> <div data-bbox="1403 197 1507 226" data-label="Text">Annexu</div> <div data-bbox="764 239 1344 289" data-label="Section-Header"> <h3>General Arrangements for Earth System</h3> </div> <div data-bbox="667 373 1419 947" data-label="Diagram"> </div>
Item No. 15	<b>Transportation, erection, testing &amp; commissioning of 5- 7 Mtr Octagonal pole with pit foundation as per specification.</b>
Explanation	This item includes the all-type transportation, re-installation and commissioning of existing 5–7-meter length octagonal poles with Single/Double arm. This also includes removal of existing poles and transport to new desirable location as instructed by SSE/P. For re-installation of the octagonal poles the suitable new Nut/bolts/plates shall be supplied by contractor as per recommendation by OEM and Construction of suitable shallow foundation (or as per manufacture design) with 1:2:4 concrete for the octagonal pole 1 meter $\pm 10\%$ depth with all materials and labour with 3 days curing.
Item No. 16	<b>Supply &amp; fixing of LED Street light 45 W including connection as per specification.</b>
Explanation	<p>This includes supply, Erection, testing &amp; commissioning of aesthetically designed outdoor 45-Watt LED Street Light fitting with luminous efficacy <math>\geq 100</math> made from pressure die-cast LM6/ADC12/LM24 housing with optimal heat sink for better thermal dissipation and toughened glass or UV stabilized polycarbonate cover with high transmission index for superior light output. The fitting shall be as per Western Railways' specification no. WR/CCG/Specification/P/001 (Rev-01)/2018 of Dt. 28-02-2018. The fitting shall be designed for IP: 65 class protection.</p> <p>The price shall also cover for fixing, testing and commissioning of the above</p>



13665 - F11W11 and 1 KB Raising of FT and FCB

	street light fitting on pole/truss/roof/wall by fabrication and supply of 'B' class G.I. pipe of required length, diameter and shape and fixed with M.S. clamps made from M.S. flat of 40 x 5 mm size duly painted with nut, bolts and washers of 12 mm diameter. The connection shall be carried out through ISI marked, PVC insulated, flexible three-core copper wire of size 24/0.20 mm from the existing overhead line/catenaries/junction box as per site conditions. The connection cord shall be protected by suitable size of heavy-duty flexible PVC conduit.																					
Item No. 17	<b>Supply and fixing of Control panel 100A cap. with MCCB&amp; MCB's etc.</b>																					
Explanation	<p>This includes design, fabrication, supply, erection, testing and commissioning of 3 Phase LT panel, Front accessible, cubical type, totally enclosed and vermin proof, fully compartmentalized with concealed type hinged cover on front. All hinged door and covers shall be provided with gasket. The Panel shall be Indoor type, wall mounted, compact size, Powder coated with both sides properly ventilated &amp; having sufficient space for maintenance. The panel shall be fabricated with 16 SWG MS sheet.</p> <p>The LT control panel shall comprise of: -</p> <table><tr><th>Sr.</th><th>Description</th><th>Unit/Qty</th></tr><tr><td><b>A</b></td><td><b>Incoming circuit</b></td><td></td></tr><tr><td>1</td><td>MCCB Four pole 100 Amps, 25KA, 415V, 50Hz</td><td>01 No.</td></tr><tr><td>2</td><td>Phase indication LED Type lamps with /holders</td><td>03 Nos.</td></tr><tr><td><b>B</b></td><td><b>Outgoing Circuit</b></td><td></td></tr><tr><td>1</td><td>MCB Three Pole, 63 Amps, 16 KA, 50Hz</td><td>04 Nos.</td></tr><tr><td>2</td><td>MCB Single Pole, 6-32Amps., 10KA, 50Hz</td><td>04 Nos.</td></tr></table> <p>a) One set of 3 Phase and 1 Neutral copper bus bar of suitable capacity, colour coated on epoxy support insulator shall be provided.</p> <p>b) Internal wiring shall be done through copper stranded PVC insulated cables of suitable size, ISI marked, IS 694 with suitable copper terminal ends.</p> <p>c) Two earthing terminals and danger board shall be provided.</p> <p>d) Suitable lugs and cable glands for all incoming and outgoing cables shall be provided.</p> <p>e) The size of cable chamber shall be adequate and sufficient to accommodate and connect the various cables according to the rating of the MCCB's / MCB's provided in the panel and sufficient space shall be available.</p> <p>f) Labeling for identification of each feeder shall be fixed.</p> <p>g) All MCB, MCCBs shall be confirming to latest suitable IS.</p> <p><b>Make: - All MCBs</b> shall be HPL / HAVELLS / L&amp;T /SIEMENS / CROMPTON / STANDARD/ BCH/C&amp;S/HAGER/LEGRAND/INDO ASIAN/BENLO</p>	Sr.	Description	Unit/Qty	<b>A</b>	<b>Incoming circuit</b>		1	MCCB Four pole 100 Amps, 25KA, 415V, 50Hz	01 No.	2	Phase indication LED Type lamps with /holders	03 Nos.	<b>B</b>	<b>Outgoing Circuit</b>		1	MCB Three Pole, 63 Amps, 16 KA, 50Hz	04 Nos.	2	MCB Single Pole, 6-32Amps., 10KA, 50Hz	04 Nos.
Sr.	Description	Unit/Qty																				
<b>A</b>	<b>Incoming circuit</b>																					
1	MCCB Four pole 100 Amps, 25KA, 415V, 50Hz	01 No.																				
2	Phase indication LED Type lamps with /holders	03 Nos.																				
<b>B</b>	<b>Outgoing Circuit</b>																					
1	MCB Three Pole, 63 Amps, 16 KA, 50Hz	04 Nos.																				
2	MCB Single Pole, 6-32Amps., 10KA, 50Hz	04 Nos.																				
Item No. 18	<b>Supply &amp; fixing of Distribution box 63Amp complete</b>																					
Explanation	<p>This includes supply, erection, testing, and commissioning of. LT Distribution Panel Company make, made from MS sheet indoor, wall mounting, double door type duly Powder coated. The internal wiring of panel board shall be done with suitable size of flexible copper cable, MS glands of suitable size for incoming/outgoing cable &amp; panel to be secured on regbolts. The danger board</p>																					

TS605 - TN-WN and TN-KB Raising of TT and TCB

	shall be fixed /provided on front cover. The incoming/ outgoing cable shall be provided with crimped terminal lugs. The board shall comprise of following: -		
	<b>S r.</b>	<b>Item Description</b>	<b>Unit/Qty</b>
	<b>A</b>	<b>Incoming circuit</b>	
	i	MCB 3 pole 63 Amp, 50Hz	01 Nos.
	ii	Earthing terminals	02 Nos.
	<b>B</b>	<b>Outgoing Circuit</b>	
	i	MCB SP 6 to 32 Amp, 50Hz	08 Nos
	<b>Make:</b> -1. All Distribution panel shall be Company make shall be HPL / HAVELLS / L&T /SIEMENS / CROMPTON / STANDARD/ BCH/ C&S/ HAGER/ LEGRAND/ INDO ASIAN/ BENLO. All Accessories of same make of Panel.		
<b>Item No. 19</b>	<b>Supply of material, erection, testing &amp; commissioning of cable junction box with bus bar as per specification.</b>		
<b>Explanation</b>	<p>This includes supply, erection, testing and commissioning of thermoplastic, IP-66 minimum, cable Junction box size approx. 295 x 225 x 122 mm (± 15% of Size), Halogen free &amp; weather proof for outdoor installations with metric knockouts for cable entry with supply and fixing of well finished 04 Nos. copper Bus bars of 15mm X3mm size approx., suitable for 16/25mm<sup>2</sup> cable with lead sealing and with lug arrangement at each cable ends &amp; labeling for circuit system. Junction boxes to be fixed on the pole/Covering shed or as per site with two Nos. clamps of suitable size. PVC Cable single core copper stranded PVC insulated unsheathed FRLS cable of suitable capacity in PVC pipe to connect both the junction box.</p> <p>The size of junction box shall be selected according to items to be erected/fixed, proper space for required connections and heat dissipation.</p> <p><b>Make:</b> - Rittal, Schneider, Hensel, GE Vynecker, Connectwell, BCH, Siemens, Precision, CAPE spelsberg, Safybox.</p>		
<b>Item No. 20</b>	<b>Supply of material, erection, testing &amp; commissioning of cable junction box with 5 cut out/MCB as per specification.</b>		
<b>Explanation</b>	<p>This includes supply, erection, testing and commissioning of thermoplastic cable junction box Halogen free &amp; weather proof for outdoor installations with metric knockouts for cable entry, IP65/66 Junction box size approx. 260 x 210 x 116 mm (± 15% of Size) with supply and fixing of 16 Amp. 05 Nos. Cutouts/suitable MCB and neutral link of 15mm X 3mm size. Junction boxes to be fixed on the pole/Covering shed or as per site with two Nos. clamps of suitable size.</p> <p>The size of junction box shall be selected according to items to be erected/fixed, proper space for required connections and heat dissipation.</p> <p><b>Make:</b> - Rittal, Schneider, Hensel, GE Vynecker, Connectwell, BCH, Siemens, Precision, CAPE spelsberg, Safybox.</p>		
<b>Item No. 21</b>	<b>Supply and laying of Perforated GI cable Tray 100x50mm as per specification.</b>		



Explanation	<p>The contractor shall have to supply and fix the perforated GI tray on Wall/ roof/as per site requirement for cable laying.</p> <ol style="list-style-type: none"> <li>1. The fixing arrangement shall be robust and the fixing shall have to be done by Angle at an interval of minimum 1.5-meter, nut, bolt, clamp or welding on Wall/ roof/as per site requirement.</li> <li>2. Cable tray shall not be less than 100X50 mm. and Cable tray perforated shall be Approx 2 mm thick minimum with cover. In case non-availability of the required size next higher size can be used.</li> <li>3. The cable tray shall be firmly fixed /supported on the Wall/ roof/as per site requirement.</li> <li>4. The design&amp; fixing arrangement shall have to be approved by Railway before fabrication and installation.</li> <li>5. Provide proper clamping arrangement for cables laid on it.</li> </ol>
<b>Item No. 22, 23 &amp; 24</b>	<b>Laying of 4core 70/25/16 Sqmm UGAC with heat resisting insulation PVC Insulated and strip type Sheathed Armored Aluminum Conductor cable with 1x8SWG GI wire in existing trench/Pipe/ in air</b>
Explanation	<p>This includes laying of 1100V grade, PVC insulated Armored aluminum Circular armored AL. PVC 1100 V grade Cable of size 4 CORE 70/25/16 SQMM with supplying &amp; laying of 1 x 8 SWG GI mild wire, properly secured in pipe/ trench/ walls/ poles/ Platform shed/ trays etc. including connections at both ends along with suitable type and size lugs, bolts etc. At locations where cable is passed through pipes on walls / poles the same shall be secured with MS clamps of suitable size and hardware and proper size &amp; type's glands shall be provided at the entrance of cable in panel junction box etc. The end of cable lead shall be properly lugged as per site requirement. The various sizes LT armored cables will be issued by Railway from the store depot of SSE-Stores (Power-GS) RTM free of cost, Necessary arrangements for loading and transportation of cables to site shall be made by contractor. (In One Trench single GI Wire for Earth Shall be acceptable). Supply &amp; laying of 1x8swg GI mild wire shall be done by contractor</p>
<b>Item No. 25</b>	<b>Supply and laying of 65 mm dia. DWC pipe complete as per specification.</b>
Explanation	<p>This includes Supply &amp; Laying of double walled corrugated (DWC) pipes of minimum size 65mm as per IS-16205 or latest suitable and this item is also including coupler etc. for joint two lengths of pipe.</p>
<b>Item No. 26</b>	<b>Supply and laying of double walled corrugated DWC Pipes of size 120mm Outer dia &amp; 103mm inner dia as per specification.</b>
Explanation	<p>This includes Supply &amp; Laying of double walled corrugated (DWC) pipes of minimum size 120mm Outer dia. &amp; 103mm inner dia. as per IS-14930 or latest and this item is also including coupler etc. for joint two lengths of pipe. The length of DWC pipe shall be 6 meters with anti-rodent and fire-retardant properties.</p>
<b>Item No. 27</b>	<b>Digging of trench.</b>
Explanation	<p>This item includes excavation of trench in all type of hard/soft soil for laying of cables on a bedding of sand at the bottom of trench and covered the cable with layer of sand. The bricks / RCC slab shall be provided at sides &amp; top of cable along full length of trench.</p> <p>The desired minimum depth of trench for laying cable shall be as under-</p>

	<p>The minimum depth of trench for laying low voltage cable below 3.3 KV shall be 0.75 meter. If, laying cable at Railway level crossing/track (shall be laid in RCC pipe / HDPE Pipe Grade PE-80 &amp; Class PN-4 of suitable Dia as per IS 4984-1995 or latest), the minimum depth from bottom of sleepers to the top of pipe shall be 01 meter.</p> <p>After laying the cable, the trench should be refilled, re-leveled &amp; restored to original shape. At locations, where required digging is not feasible, RCC/GS/MS pipe shall be laid below the track the payment will be made in proportionate to actual depth &amp; length dug. There is no need to keep bricks/RCC slabs in trench where cable is passed through RCC pipe/ GI/HDPE pipe. Quality of bricks/ RCC slabs shall be got approved by Railway engineer in-charge of work.</p> <p>This also includes cable route indicator with IR engraved and welded on 10mm MS rod at the center of cable route marker and "J" type hook designed at bottom of rod. The cable route marker shall to be provided at every 10 -15 meters length. The length of cable route marker shall be 1 Meter.</p> <p>It must be ensured that, Brick thickness should not be less than 4" and provided in full length of trench at sides &amp; top of cable. Excavation for laying of cable underground should be as per IS 1255-1967.</p> <p><b>Note:</b> - If the prescribed brick size is not available the approval to different bricks may be taken from site in charge / Sr DEE (P) RTM.</p>
<b>Item No. 28</b>	<b>Digging of Pakki trench.</b>
Explanation	<p>This item includes excavation of trench in cement Pebble block / CC Flooring for laying of cables on a bedding of sand at the bottom of the trench and covered the cable with layer of sand.</p> <p>The desired minimum depth of trench for laying cable shall be as under- the minimum depth of trench for laying low voltage cable below 3.3 KV shall be 0.75 meter. If, laying cable at Railway level crossing/track (shall be laid in RCC pipe / HDPE Pipe Grade PE-80 &amp; Class PN-4 of suitable Dia as per IS 4984-1995 or latest), the minimum depth from bottom of sleepers to the top of pipe shall be 01 meter.</p> <p>This covers excavation of trench for laying of cable in all type of cemented flooring / Platform / Pebble block. In trench different sizes Cables shall be laid horizontally together &amp; then all these cables shall be covered by 100mm thick layer sand at bottom &amp; top of the cable. There is no need to keep bricks in Pakki trench. After laying the cable the trench should be refilled by Gritties (grommets) &amp; reflooring by cement, sand mixture / Pebble block or as per site requirement. At locations where digging is not feasible, payment will be made in proportional to actual depth &amp; length dug and there is no need to keep bricks in trench where cable is passed through RCC pipe / HDPE Pipe / GI pipe.</p>