

**TECHNICAL SPECIFICATION (FOR OVERHEAD LINES)**

1. The work shall strictly confirm to RESPO manual which can be seen on any working day in the office of the undersigned.
2. Excavation of pit for foundation will also include back filling, ramming and dressing after erection of the structure and shall be done as per instruction of Engineer Incharge, Variation in size of pit will be done if required as per direction of Engineer Incharge without any extra cost.
3. Cement concreting shall be done by using cement coarse sand and 40 mm size brick ballast in the ratio 1 : 4 : 8.
4. The work shall include assembling of the insulator and hardware fitting on the ground and checking for cracks and chips before they are hoisted and fitted on the support.
5. The contractor shall take proper care in handling of ACSR conductors, So that the conductor does not develop twist wrinkles or rough surfaces. The conductor should not be dragged on the ground.
6. Painting shall be done by first cleaning the surface to be painted, applying one coat of red oxide metal primer followed by two coats of synthetic enamel paint by brush. Paint/Primer as per actual requirement shall be provided free of cost by the contractor.
7. 12 mm thick plastering of plinth shall be done by using cement and coarse sand in the ratio 1 : 4.
8. The contractor will have to repair and replace free of cost water pipes sewage pipe, cable already laid in the ground, which are damaged during, execution of the work in the shortest possible time.
9. For curing of civil work, curing must be done for at least 10 days.
10. While erection or dismantling, extra care must be taken for so that the insulators are not damaged.
11. During, stringing of ACSR conductor temporary stays have to be fixed as directed by the Engineer of the contract.
12. The work shall be carried out as per condition laid down in the ISS 1255/1967 with latest modification under the supervision of Engineer Incharge.
13. Stringing of conductor must be done on roller. Direct dragging of conductor on ground or on steel cross arms will not be permitted.
14. Any theft of material from work side or from contractor's store or from erected live will totally be the responsibility of the contractor.

**TECHNICAL SPECIFICATION (FOR CABLE LAYING WORK)**

The cable trench is to be dug in normal soil, pucca (concrete road) bricks pavement/asphalt road) upto a depth of 1250 mm from the ground level and width of cable trench for single cable should not be less than 500 mm and for double cable width of trench should not be less than 800 mm. The cable will be laid in the trench after making an arrangement for proper handling of cable on rollers avoiding loop or twist in the cable. Bricks will be used continuously on top sides of the cable as per drawing. For double cable in the same trench, separate bricks will be laid for each cable. Sufficient quantity of Ganga sand will be filled so that cable is properly covered with sand. Bricks will be laid above 70 mm above from the cable to safe and guard it. The cable trench will then be filled in with excavated soil properly. Surplus soil that may be available after filling the trench will be spread over the trench. Where cable is laid in metal pipes or in conducts. It must be efficiently bonded and earthed as per relevant ISS by the contractor free of cost. All material will be supplied by the administration except sand and bricks which will be arranged by the contractor.

The work shall be carried out as per conditions laid down in the ISS : 1255/1967 with latest modification under the supervision of Engineer-in-charge.

High voltage testing will be got done by the contractor if required by Engineer In-charge with the equipment, arranged by department in accordance with the relevant ISS, after completion of all jointing work to the entire satisfaction of the Engineer-In-charge of the Contract.

**TECHNICAL SPECIFICATIONS (FOR SUB-STATIONS)**

1. The work shall strictly confirm to RESPO Manual which can be seen on any working day in the office of the undersigned.
2. Excavation of pit for foundation will also include back filling ramming and dressing after Erection of the structure and shall be done as per instruction of Engineer incharge. Variation in size of pit will be done if required as per direction of Engineer-In-charge.
3. The work shall include assembling of all insulator and heard ware fitting on the ground and checking for cracks and chips before they are hoisted and fitted on the support.
4. The Earth mat shall be laid strictly as per drawing. Each 36 mm dia 3.5 Mtr. long earth Electrode shall be driven in the ground by Hammering, welding of 35x6 mm and 50x6 mm M.S. flat shall be done by lap jointing to the Electrode. Top of the electrode will be 600 mm below ground level.
5. The contractor shall take proper care in handling of ACSR Conductor, so that the conductor does not develop twist clinks, or rough surfaces. The conductor should not be dragged on the ground.
6. Painting shall be done by first cleaning the surface to be painted, applying one coat of red oxide metal primer followed by two coats of synthetic enamel paint by brush. Paint/Primer as per actual requirement shall be supplied free of cost to the contractor.
7. 12 mm thick plastering of plinth shall be done by using cement and coarse sand in the ratio 1 : 4.
8. For earthing of equipment/structure, the work shall includes, cutting, bending, laying and welding of M.S. flat risers from main mat to Equipment/structure etc.
9. The contractor shall make adequate arrangement for proper handling of cables directly on rollers without making any loop and twist in the cable.
10. The contractor will have to repair and replace free of cost water pipes, sewage pipe, cable already laid in the ground, which are damaged during execution of the work in the shortest possible time.
11. The route for cable laying shall be decided by the Engineer of the contractor.
12. For cutting of civil works, curing must be done for at least 10 days.
13. The work of H.T. cable laying shall comprise of excavation of trench laying of cable and covering of cables with Bricks or stone slabs as directed by the Engineer-In-charge.
14. While Erection or dismantling, extra care must be taken so that the insulators are not damaged.
15. During stringing of ACSR Conductor Temporary stay will have to be fixed as directed by the Engineer of the contract. These temporary stay shall be removed after final sag.
16. Making plinth and plaster of Structure/Gantry with ratio 1 : 4 : 8 (Cement, coarse sand & brick ballast).
  - a) For terminal gantry plinth size- 1.4 x 0.75 x .15 mtr.
  - b) For Bus bar gantry plinth size – 0.75 x 0.75 x 0.15 mtr.
  - c) For Isolator structure plinth size- 0.09 x 0.30 x 0.15 mtr.
  - d) For Lightening Arrestor and PT Structure – 0.30 x 0.30 x 0.15 mtr.
  - e) For M.S. Rail/Round pole Support – 0.45 x 0.45 x 0.45 mtr.
17. The terminal gantry is fabricated from M.S. channel or R.S. joist and M.S. Angel as per drawing No. RESPO-38.
18. The Bus-Bar Gantry is fabricated from 6.5 meter long M.S. Rail as per drawing No. RESPO-38.
19. The Bus Isolator/Line Isolator structure is fabricated from M.S. channel and angle iron 3.5 meter long (RESPO-39).
20. LA/PT structure is fabricated from M.S. channel/joist and angle iron 3.5 Mtr. long (RESPO-39).

**TECHNICAL SPECIFICATION FOR LAYING AB CABLE**

1. Design, manufacturing / supply of the material specified in bill of quantity, hereinafter referred to as BOQ, its insurance, safe storage, up-keep and transportation to the work site.
2. De-energisation of L.T. System of the site as decided by Engineer incharge before taking up to work. It shall be the sole responsibility of the contractor to ensure that the line is de-energized and safe in all respect before start of the work.
3. Dismantling of existing L.T. bare conductors, consumer service lines, other fixtures e.g. insulators, clamps nuts and bolts etc. its stacking and safe transportation to the Kesco. Store as per the decision of the Engineer Incharge.
4. Erection, stringing and sagging and commissioning of Aerial Bunched Cable on existing L.T. poles including fixing of necessary hard-ware / fittings like Suspension, Clamps, Suspension hooks, Poles Clamps Dead end Clamps Dead end hooks. However, it shall be the responsibility of the Contractor to supply and erect L.T. poles wherever required and instructed by Engineer Incharge.
5. Installation of suitable L.T. connectors and distribution boxes and reconnection of service line connections on phase and street light conductors through distribution boxes with the help of the power cable as per guide lines of site Engineer. The distribution box shall be suitable for mounting/fixing on round pole. Number of such distribution boxes to be mounted on one pole shall depend on the number of service connections to be given from the pole as per instructions of Engineer Incharge/Site Engineer. There shall be proper clamping & tightening arrangements for each of the outgoing service cable. The distribution box shall be of such construction that rain water does not enter into it and there must be proper sealing arrangement of the box cover.
6. Installation of L.T. connectors for jumpering wherever required. The connection to street light shall be through ON/OFF switch already existing. In case it is not provided the same has to be provided by the contractor. Dismantling of existing L.T. bare conductors consumer service lines, other line fixtures e.g. insulators, clamps, nuts and bolts etc. its stacking and safe transportation to the KESCO. stores as per the decision of the Engineer Incharge.
7. Energisation of Aerial Bunched Cable and subsequent energisation of L.T. distribution boxes/ kiosk and consumer service lines.
8. The scope covers supply, erection grouting and planting of L.T. poles at some places wherever required, along with its civil work. This includes erection of adequate number of stays with its nuzzling and grouting. The pole earthing shall be done as per UPPCL rules.
9. L.T. Poles damaged / rusted at the bottom shall be identified and intimated by the site engineer to the contractor for repairing the same at site by welding M.S. Angle 50x50x6 mm, 0.70 mm long 3 to 4 Nos. The contractor shall do this job and shall constructed adequate size plinth for such pole by concreting in the ration 1:3:6 cement, sand and brick ballast and curing the same.
10. These replacement of the L.T. bare lines by Aerial Bunched cable are to be done in selected area of the KESCO. which are congested / densely populated and have lesser clearances between lines and the houses and are prone to theft of electricity. The bidders may visit the Kanpur City before bidding and may contact the Chief Executive Officer (Const.) Kesco. Kesa House, Kanpur for identifying the proposed site.
11. Any other relevant work, if arises during execution of work, shall be done by the contractors as instructed by Engineer Incharge/ Site Engineer.