

## **EXPLANATORY NOTES FOR THE SCHEDULE**

**1.3.1.1 NAME OF WORK:** - “Design, Drawing, Supply and Erection of 25 KV OHE and allied electrical Works in connection with (i) Re-girdering of Br. No. 19CCR between station BLYG- BLYH on UP & DN Main Line of Sealdah Division; (ii) Platform at DAKE PF-1 & PF-2 can be extended to 600 mtr. and affected tension length under Jurisdiction of SSE/Tr-D/NKG of Sealdah Division”.

**1.3.1.2 SCOPE OF WORK:** - “Design, Drawing, Supply and Erection of 25 KV OHE and allied electrical Works in connection with (i) Re-girdering of Br. No. 19CCR between station BLYG- BLYH on UP & DN Main Line of Sealdah Division; (ii) Platform at DAKE PF-1 & PF-2 can be extended to 600 mtr. and affected tension length under Jurisdiction of SSE/Tr-D/NKG of Sealdah Division”.

### **1.3.2 GENERAL**

- i) Unless specifically indicated Railway will not supply any other materials and contractor has to arrange his own tools and tackles for carrying out the work.
- ii) As the work is to be carried out in electrified running lines, contractors has to take all safety precautions for his staff and Railway shall not be responsible for any accidents or injuries to contractors labour during execution of work.
- iii) Contractors shall take due care and caution to avoid any damage to Railway property during execution of work. Any damage /loss to Railway property due to negligent working of contractor shall be realized from the payments due to him.
- iv) Safety of materials against theft after erection till the final charging shall be contractor’s responsibility. This clause equally applies to materials supplied by Railway to the Contractor for erection.
- v) Railway reserves the right to undertake, any of the items covered under this schedule departmentally in case of urgency/accident etc. Contractor shall not have any claim on such work done by the Railway.
- vi) All the materials should be supplied as per latest RDSO approved specification.

### **1.3.3 PROGRAMME FOR EXECUTION**

After carrying out the survey the contractor shall submit detailed program for execution. The contractor shall locate proper site to set up his depot for supply of materials, subject to approval of the purchaser engineer.

### **1.3.4 INSPECTION**

- a) All items shall be procured from CORE/RDSO approved manufacturers only and contractor shall produce documentary evidence for the same. Supply items may be inspected/tested by M/s RITES or authorized representative of purchaser at manufacturer’s premises, if required by Railways before supply of lot. Charges of RITES inspection will be borne by Railway. The Contractor shall intimate in advance to the purchaser for arranging inspection.
- b) All works shall be carried out as per specification and contractor shall offer for stage-wise inspection of items carried out. Any work rejected by inspecting official shall be rectified / replaced as per instruction and decision of site in-charge shall be final in this regard.
- c) Contractor has to arrange all measuring and testing instruments, inspection tools and tackles for final commissioning.

## **EXPLANATORY NOTE FOR SCHEDULE OF PRICE**

**Note:** - Transportation of all materials (Railway supply or Contractor's supply) and released materials will be arranged by the contractor without any extra cost unless specified otherwise.

### **Schedule - A - Re-girdering of Br. No. 19CCR between stations BLYG- BLYH on UP & DN Main Line of Sealdah Division**

#### **Item No. - 1 - General (Non-Power Block Work)**

**Sl. No. 1: Foot by foot survey & preparation of OHE pegging plan.** The price shall cover on a flat rate basis. The price shall cover survey, investigation of soil bearing pressure, preparation of OHE pegging plan for suitable regulated type OHE indicating all locations with chain-age by conducting foot by foot survey of the section and preparation of survey report in all respect with design aspect. The contractor has to submit soil investigation report before preparation of the drawings. All the drawings are to be prepared on Auto CAD with multicolour impression. The price shall cover supply of original tracing and 08 Nos. ammonia prints after approval of original tracing by the competent authority.

**Sl. No. 2: Preparation of Design & Drawing of Overhead Equipment.** The price shall cover submission of design and drawing of overhead equipment suitable for regulated type indicating location of structures, chain-age, type of foundation, type of mast, stagger, versine, implantation and all location covering engineering object like bridge, culvert, shed, cabin station building, hut, shelter, shed, road, walls, pathways etc. and signal pole throughout the section. All the drawings are to be prepared on Auto CAD with multicolour impression. The price shall also include the following.

- (i) Making minor modification with the approval of the purchaser of the layout of structures and overhead equipment, if necessary and submission of overhead equipment layout plans, including stagger, location of cut in insulators etc. The layout drawing submitted should also show the OHE layout of existing track/s in the vicinity if any.
- (ii) Preparation of cross section drawings and structure erection drawings for each structure locations.
- (iii) Choice of type and size of foundations to suit soil and loading conditions, except for the ones which are considered as 'Works under other agencies'
- (iv) Preparation of long section drawings of overhead equipment where such drawings are required including detailed study of over line structures such as foot over bridges, road over bridges etc. for maintaining the specified height of contact wire and requisite clearance.
- (v) Preparation of other designs and drawings including drawings of small parts steel work (other than those for which R.D.S.O. standard drawings are available) and detailed designs for L.T. supply transformer stations.
- (vi) Supply of copies of all drawings, including copies of Ammonia Prints and finally "As erected drawings" are to be supplied along with original tracing are as follows:
  - (a) Layout Plan-12 copies Ammonia Print (Coloured as per tracing by colour pencil or any ink).
  - (b) SED- 08 copies Ammonia Print
  - (c) Special drawings - 08 copies.
  - (d) OHE Profile drawings - 08 copies.

The price shall also include supply of working rule diagram and sectioning diagram one copy each in tracing paper and 10 copies each in Ammonia print. Data for the diagram will be supplied by Railway during execution.

As Erected OHE layout plans, SED and other relevant drawings shall be supplied in 4 sets including 2 Sets of RTF.

All as erected drawings shall also be submitted in Compact Disk (CD) in duplicate.

All other requirements specified in Chapter – VII, Part-V should be complied.

In the case of preparation of the overhead equipment pegging plans by the purchaser, if there is delay for any part of the section, the contractor may be asked to prepare pegging plans for the section. No extra payment will be made for the preparation of such pegging plans. The total length of track for which the contractor may be asked to prepare such pegging plans will not exceed 2% of the final total quantity against this item.

This price shall also cover soil investigation and testing in an approved manner.

Notes for Measurement: For the purpose of payment against this item, the length of track shall be measured as under.

1. General: By the difference in the chain-age of the length under consideration, as incorporated in the lay out plans.
2. Turnouts: The track taking off shall be deemed as starting from the toe of the switch of the turnout.
3. Crossovers: The length of track shall be taken as the difference in the chain-age of the toes of switches of the two turnouts constituting the cross over.
4. Diamond crossing with or without slips: The two tracks crossing each other shall be measured independently as per note 1 above as though there were no crossing. No extra shall be provided for slip points.
5. Dead ends and tops of loops: The lengths for payment under this item shall be up to the chain-age of anchor mast of the terminating OHE.

#### **Item No. - 2 - General (Power Block Work)**

**Sl. No. 1: Slewing and put - back of OHE under Power Block.** The price shall cover cost for slewing and put-back of OHE (under power block). The work will be executed as per instruction of railway's representative.

**Sl. No. 2: Adjustment of OHE & Tower wagon checking of existing OHE including minor modification.** The price shall include the shifting of OHE load to the newly erected cantilever with supply of dropper wire (as required) and necessary adjustment of erected OHE and also tower wagon checking for all the newly erected section and existing section where work is executed under power block.

**Sl. No. 3: Dismantling of OHE mast/Head Span Mast under Power Block and transportation from site to railway's store.** The price shall cover the cutting of traction masts/Portal upright/Head span mast by using gas-cutter only. Care should be taken at the time of execution of the work; no damage to Railway property takes place. The cut masts shall be handed over to the purchaser's depot. For cutting the mast necessary arrangement and precautions have to be taken by the contractor beforehand. The work will have to be carried out as per the instruction of the purchaser. During cutting of mast if power block is required on critical adjacent location, the same will be permitted by the purchaser.

**Sl. No. 4: Dismantling of cantilever under power block and transportation from site to railway's store.** The price shall cover the dismantling of cantilever assembly from the existing system. Care should be taken that during dismantling of cantilever assembly the OHE should not be dislocated. The dismantled equipment shall be handed over to the purchaser's depot. The work will have to be carried out under power block. Dismantling of pull off, if any will be treated as a cantilever.

**Sl. No. 5: Dismantling of guy rod assembly under Power Block and transportation from site to railway's Store.** The price shall cover dismantling of guy rod assembly of various lengths including guy rod fitting anchor bolt, nut

washer and V bolt etc. under power block and transportation from site to railway's store or as per guidance and instruction of railway's representative.

**Sl. No. 6: Dismantling of SPS under Power Block and transportation from site to railway's Store.** The price shall cover cost of dismantling of SPS under power block condition and transportation of the same from site to railway's Store or as per guidance and instruction of railway's representative. The work should be executed as per guidance and instruction of Railway's Representative.

**Sl. No. 7: Dismantling of old RE and guide tube assembly under P/B and transportation from site to railway's Store.** The price shall cover cost of dismantling of Regulating Equipment assembly with balance weight complete under power block condition and transportation from site to railway's store or as per guidance and instruction of railway's representative. The work should be executed as per guidance and instruction of Railway's representative.

**Sl. No. 8: Dismantling of termination fittings under power block.** The price shall cover dismantling of all the parts of Terminal fittings. The dismantled equipment shall be handed over to the purchaser's depot as specified above.

### **Item No. - 3 - Concreting**

**Sl. No. 1: Cement concrete Foundation 1:2:4.** The price shall cover excavation, supply and handling of all materials and accessories, temporary arrangements for excavation in hard soil and concrete/masonry drains/walls requiring use of Chisel and Hammer. Casting concrete by using M-15 type foundation including frame work where necessary, tamping of concrete, grouting of masts and finishing the top of concrete foundation or anchor blocks. The price also includes dismantling of all connected temporary arrangements, back filling with earth and compacting the same to the required height and width as per drawing to ensure safety of foundation, confirming the expose height of foundation block to within 10 cm, and removal of soil. The price also includes the cost of cements. All other requirements of Chapter -VII, Part-II should be complied by the contractor. The price also includes the cost of temporary diversion of drain, if any, and its rebuilding.

**Sl. No. 2: Reinforced Concrete for Foundation and trench.** The price shall cover excavation and all reinforced concrete work for foundations including supply of steel for reinforcement and other materials including bending, binding, laying of the reinforcement, shoring where necessary, casting concrete including framework where necessary, grouting and finishing the tops of foundation blocks. The price shall also include dismantling of all connected temporary arrangements (including cable trench if required), back filling as required and removal of soil. The price shall also cover all concrete works for foundation or anchor blocks on bridge piers, irrespective of whether they are actually reinforced or not, and those for cast-in-site piles foundation and counter weight foundations. Rails and fasteners required for counter weight foundations shall be supplied by the purchaser free at the contractor's depot or work spot according to the convenience of the purchaser. The volume of cast-in-situ piles shall be added to the volume of foundation block for the purpose of payment. Dowel bars as may be required for bond with bridge structures shall be supplied and erected free of cost by the purchaser. Dowel bars will not be considered as reinforcement for the purpose of this item. The price shall include the cost of cement and all accessories for concreting. NOTE: Nominal reinforcement will be necessary in black cotton soil foundations. Such nominally reinforced foundations in black cotton soil will be payable under item 1(i). The steel for nominal reinforcement will be arranged by the contractor and the concrete mixture shall, in such a case shall be as for normal foundations 1:2:4 (see Para 7.2.4).

**Notes for Sl. No. - 1 & 2.**

1. The prices shall be same for any shape or size of concrete blocks. In calculating the individual volume of concrete, fraction of a cubic meter beyond the third decimal shall be rounded off to the next nearest third decimal.
2. The prices shall apply for concreting of all foundations for masts, gantries; portals anchor blocks for guy rod.
3. For purpose of computation of volume of concrete, the volume of steel work embedded in the foundation block and muff shall be ignored.
4. For purpose of computation of volume of concrete, the volume of concrete shall include the volume of sand and bitumen in sand cored foundation. However, for the purpose of computation, of quantity of cement utilized in sand erected foundations, the volume of the sand and bitumen used in core hole should be deducted from the total volume of the foundation.
5. For purposes of computation of volume of concrete the volume of each muff for all masts shall be taken as 0.02 cu.m. except for masts with balance weight and for each column of portal, each head span mast & 2 or 3 track cantilever masts, and special fabricated masts for which the volume of muff shall be taken as 0.08 Cum irrespective of the size and shape of muff on a flat basis.
6. The prices under item 28 shall also include the cost of concrete cable trenches and trench covers at the switching stations as well as embankment of drain pipes, where required.
7. The prices under item 28 shall also cover the cost of diversion of masonry / earth drain wherever necessary for casting of foundations and will also cover cost of removal of infringement using chisel and hammer.
8. The depth of excavation shall be measured from the formation level to the maximum excavated point. The prices shall also include restoring of platform surface for formation on platform.
9. For the purpose of excavation, JCB has to be arranged by the firm.
10. The make of cement used must be: ACC, Ambuja, Binani, Birla Gold, Century Gold, Lafarge and Ultra Tech.

**Item No. - 4 – Ferrous (Non-Power Block Work)**

**Sl. No. 1: Supply of fabricated Galvanized Steel Structure i.e. traction mast/other special masts (BFB/RSJ/B-series etc. as required).** The price shall cover cost of Supply of traction masts, gantry masts and masts for L.T supply transformer stations whether rolled or fabricated including emergency masts & those for head spans with galvanisation of 1000 gm/Sq.mtr. The price shall also include the loading, unloading & transportation of traction mast whatsoever required at site.

Note: For the purpose of payment, the weights of individual traction mast / other special masts shall be determined for each type on the basis of the latest weight schedule as instructed by Rly. Bd./CORE/RDSO etc.

**Sl. No. 2 & 3: Supply & Erection under Non-Power Block of Fabricated Galvanized Steel Works (SPS) other than Mast including MCC, Chair etc.** The price shall cover cost of supply & erection, alignment and setting before grouting, wherever required with galvanization of 1000 gm/Sq.mtr, of drop arms, standard super mast and suspension of brackets for feeders and return conductor, dwarf mast or stub masts for anchoring, complete with anchor plates drilled and welded in position, multiple cantilever cross arms, chairs, adopters for bracket assemblies suitable for regulated type OHE and all other small part steel works, the erection of which if carried out by the Contractor irrespective of whether they are supplied by the purchaser or the contractor.

The price shall also cover cost of erection, alignment and setting before grouting, wherever required for gantries/steel work for feeders for switching station, suspension brackets for feeders, and all other small part steel work i.e. supporting steel work for isolator, PT, interrupter fuse switches, lightening arrestors etc, the

erection of which is carried out by the contractor irrespective of whether they are supplied by the purchaser or the contractor. The prices shall also include supply and erection of galvanized steel, bolts, nuts, washers wherever required as per the approved designs and drawings. The calculated weight to be considered for payment under this item shall be included in relevant drawings at the time of submitting designs.

For standard fabricated steel work for which R.D.S.O.'s approved drawings are available, the weight of steel work as specified in R.D.S.O.'s drawings shall be considered for payment. However, in case the unit sectional weight of any member indicated in R.D.S.O.'s drawing is not in conformity with the unit sectional weight as per the latest specification, the weight of the fabricated steel work shall be calculated on the basis of latest B.I.S. specification and the same will be considered for payment. For the non-standard fabricated steel work, the weight to be considered for payment under this item shall be indicated in the relevant drawing as submitted for approval of the purchaser. The basis of weight will be as per latest sectional weight drawing.

**Sl. No. 4: Supply of Anchor & Guy rod assembly complete.** The price shall cover supply of guy rod assembly of various lengths for traction masts, feeder line towers or supports complete with mast guy rod fittings, guy rod with adjustments and part/s with grouted in the anchor block. The price shall not include the cost of supply of a dwarf or stub mast with anchor plates drilled and welded in position, where required, for anchorage, and small parts steel work, complete with bolts and nuts etc., if any for attaching the mast guy rod fittings to the masts/structure which shall be paid for separately under the relevant items. Prices indicated against all other items should be exclusive of the price of supply of guy rod, if any which will be paid for under this item.

#### **Components Required**

Railway ID No.	Description of components	Qty. / Unit
3232/3234/3242	Mast guy rod fittings (welded) complete with 4 short bolts, nuts, lock nuts and washers for attachment to masts/SPS including appropriate fittings.	As required
5001/5001-1/5001-3	Anchor bolts (complete with nuts, lock nuts and split pins)	As required
5002	Guy rod stirrup	As required
5004 or 5005 or 5006-1 for 9070 or 9071	Guy rod with nut, washer and split pin.	As required
5007-1	Anchor Vee bolt.	As required
5008	Anchor loop	As required
5220	Guy rod double strap assembly	As required

Note: 1. In case the contractor desires to adopt a different design for guy rod assembly, the same shall be indicated by him in the tender and the components required should be clearly listed under this item as deviation.

2. Supply and erection of guy rod assembly at anti-creep points will also be paid for under this item.

**Sl. No. 5: Supply of Single bracket assembly complete (without insulator).** The price shall cover cost of supply of any bracket assembly suitable for polluted zone excluding insulators suitable for regulated type OHE on a traction mast or support on drop arm, and shall include those on high level platforms/Sheds, in the vicinity of turnouts, over bridges or overlaps and at locations with reduced encumbrance or terminating wires. The price shall cover on a flat rate basis. The price shall include the cost of supply of all components including galvanized steel tubes but excluding copper wires and small part steel work complete with bolts and nuts etc., if any. However, this does not include the anti-creep arrangement at mats/structures. Bracket components like catenary suspension bracket,

mast fitting for hook insulator, mast bracket fitting assembly, register arm hook, tubular stay sleeve, register arm eye piece and drop bracket assembly should be of forged type as per latest RDSO/CORE drawing/specification. After adjustment of OHE and SED checking, cost of cantilever erection will be paid.

**Sl. No. 6: Supply of Regulating Equipment 3-Pulley type with balance weight, S. S. Wire Rope complete.** The price shall cover cost of supply of counter weight assembly confirming to RDSO's drawing no: TI/DRG./OHE/ATD/RDSO/00001/99/1, including adjustor (as required by the purchaser) with double strap assembly and normal / anti theft guide tube assembly, the supply of regulating equipment and stainless steel wire rope required at the regulating equipment and small part steel work, if any. The price shall not include supply of termination, which will be paid other mentioned items of the schedule.

**Sl. No. 7: Supply of materials for termination of double overhead equipment (excluding 9-tonne insulator).** The price shall cover cost of supply of all materials required for the termination of double OHE (regulated) except 9 tonne insulator.

**Components Required**

Railway ID No.	Description of components	Qty. / Unit
3231/3233/3241	Mast anchor fittings (welded) complete with 4 short bolts, nuts, lock nuts and washers for attachment to masts	As required
1120	Catenary ending clamp (65)	As required
1110-2	Contact Ending Clamp(107)	As required
5020	9-tonne adjusters	As required
5030	Anchor double strap assembly	As required
5040	Clevis assembly	As required
5191	T/Compensating Plate	As required
5192	Equalizing plate	As required
5183	Double eye distance rod	As required

**Sl. No. 8 & 9: Supply and erection of MS flat 40 X 6 mm for each bond complete.** The price shall cover supply of all materials including mild steel flat (40 x 6 mm) required to provide a structure bond connecting a traction mast or structure to the nearest non-track circuited rail, or earth electrode, including all fastenings at both ends. The price shall include shaping and drilling of the bond and rail and erection of all materials including the bond. The price shall also include provision of heat shrinkable PVC tube for structure bond under track-circuited rail. This would also cover connection to earthing terminals of equipments like L.T. transformers with structures and then rails as per approved drawing.

**Sl. No. 10: Supply and erection of various types of caution boards/name plate etc. including schematic diagram board (To be supplied as per RDSO specifications).** The price shall cover supply, painting, lettering and fixing of various types of 25 KV caution board/name plate including schematic diagram board under these items is to be supplied & erected as per RDSO's specification and/or as per instruction of purchaser's engineer. The price shall also cover for supply and erection of all accessories for all type of boards.

**Sl. No. 11 & 12: Supply and Erection of Number plate.** The price shall cover Supply and Erection of Number plate for locations. The price shall include supply of number plate as per RDSO specification and SPS, nut, bolt etc

whichever is required for fixing the number plate. The work will be executed as per instructions of railway's representative.

**Sl. No. 13 & 14: Supply and Erection of Single Earth Electrode comp. with earth pit box & Cover Complete.** The price shall cover supply of earth electrode conforming to RDSO's drg no. ETI/OHE/P/7020, mod-3, lugs and MS flat of minimum size (40 mm x 6mm for OHE and 50 mm x 6mm for Switching station) of required length. The price shall cover erection of earth electrode by driving or otherwise complete with construction of concrete box & cover, earthing the structure/equipment with MS Flat conforming the code for bonding and earthing for 25 KV A.C. 50 Hz. Single phase traction System "conforming to RDSO's code no. ETI/OHE/71/ (11/90) A&C No. 2(3/93). The price shall cover filling of charcoal & salt in earth pit & supply and erection of all additional materials required for embedding the earth pipe as per RDSO specification. Value of earth resistance to be painted over the top of earth pit box with yellow paint. The top cover should have proper lifting handle.

#### **Item No. - 5 – Ferrous (Power Block Work)**

**Sl. No. 1: Erection under power block of fabricated Galvanized Steel Structure i.e. traction mast / other special masts (BFB/RSJ/B-series etc. as required).** The price shall cover cost of erection, alignment and setting before grouting of individual traction masts, gantry masts and masts for L.T supply transformer stations whether rolled or fabricated including emergency masts & those for head spans with galvanisation of 1000 gm/Sq.mtr. The price also includes the cost of OHE parameters to be indicated in the structures.

**Sl. No. 2: Erection under Power Block of Fabricated Galvanized Steel Works (SPS) other than Mast including MCC, Chair etc.** The price shall cover cost of erection, alignment and setting before grouting wherever required of drop arms, standard super mast and suspension of brackets for feeder and return conductor, dwarf mast or stub mast for anchoring complete with anchor plated drilled and welded in position, multiple cantilever cross arm, adopters for bracket assemblies and all other small part still work, the erection of which is carried out by the contractor irrespective of whether they are supplied by the purchaser or the contractor. The price shall also cover the cost of erection of all fabricated steel works on the traction mast including galvanized bolts, nut, and fasteners where ever required as per approved design and drawings. During erection of SPS, if power block is required on critical locations, the purchaser will permit the same.

**Sl. No. 3: Erection under power block of Anchor & Guy rod assembly complete.** The prices shall cover erection of guy rod assembly of various lengths for traction masts complete with mast guy rod fittings, guy rod with adjustment and parts be grouted in the anchor block.

**Sl. No. 4: Erection under power block of Single bracket assembly complete (with insulator).** The price shall cover erection of cantilever assembly as per site requirement. The cost of erection shall include erection of stay and bracket insulators also. After adjustment of OHE and SED checking, cost of cantilever erection will be paid.

**Sl. No. 5: Erection under power block of Regulating Equipment 3-Pulley type with balance weight, S. S. Wire Rope complete.** The price shall cover erection of 3 pulley type regulating equipment and counter weight assembly including 9-Ton adjuster with double strap assembly, anti theft guide tube assembly, hex tie rod and other necessary equipment excluding SPS and fasteners. This shall also cover adjustment of entire regulating equipment assembly.



**Sl. No. 6: Erection under power block of materials for termination of double overhead equipment (including 9-Tonne insulator).** The price shall cover erection of all materials necessary for the termination of double conductor overhead equipment or terminating wire on a traction mast or structure, including appropriate mast anchor fittings clevis assembly adjuster, anchor double straps, ending clamp for the Catenary or contact wire or terminating wire and fittings and including 9-tonne insulator assembly and terminating wire, if any.

**Item No. - 6 - Non-Ferrous (Non-Power Block Work)**

**Sl. No. 1: Supply of any type of Copper Jumper.** The price shall cover on a flat rate basis, the supply of all components and fittings required for providing a flexible copper jumper connection including parallel clamps, bimetallic ALCU strips wherever required and terminal or tee clamps at either end, but excluding jumper wire.

**Item No. - 7 - Non-Ferrous (Power Block Work)**

**Sl. No. 1: Erection under power block of any type of Copper Jumper.** The price shall cover on a flat rate basis cost of the erection of all components and fittings required for providing a flexible copper jumper connection including parallel clamps, bimetallic and ALCU strips, wherever required and terminal or tee clamps at either end. The price shall cover the erection of the copper jumper assembly including jumper wire.

**Item No. - 8 – Insulators (Non-Power Block Work)**

**Sl. No. 1: Supply of Bracket Insulator (Porcelain).** The price shall cover supply of porcelain type Bracket insulator under this item. All materials supplied shall be strictly as per specification mentioned for respective item or Governing RDSO/CORE specification for the item. All items are to be procured from CORE/ RDSO approved manufacturer only and contractor shall produce documentary evidence for the same. All the insulators shall be inspected and tested by authorized representative of RITES at manufacturer's premises. The contractor shall intimate in advance for readiness of material for inspection. The minimum Creep-age Distance of Bracket insulators shall be 1050 mm.

**Sl. No. 2: Supply of Stay Insulator (Porcelain).** The price shall cover supply of porcelain type Stay insulator under this item. All materials supplied shall be strictly as per specification mentioned for respective item or Governing RDSO/CORE specification for the item. All items are to be procured from CORE/RDSO approved manufacturer only and contractor shall produce documentary evidence for the same. All the insulators shall be inspected and tested by authorized representative of RITES at manufacturer's premises. The contractor shall intimate in advance for readiness of material for inspection. The minimum Creep-age Distance of Stay insulators shall be 1050 mm.

**Sl. No. 3: Supply of 9-tonne Insulator (Porcelain).** The price shall cover supply of porcelain type 9-tonne insulator under this item. All the insulators will be of porcelain type including cut-in insulators used for section insulator assembly. All materials supplied shall be strictly as per specification mentioned for respective item or Governing RDSO/CORE specification for the item. All items are to be procured from CORE/RDSO approved manufacturer only and contractor shall produce documentary evidence for the same. The price is also applicable to the supply of porcelain type 9 Tonne insulator assembly (RI-6020) for suspension of 25KV copper feeder wire required for switching station. All the insulators shall be inspected and tested by authorized representative of RITES at manufacturer's premises. The contractor shall intimate in advance for readiness of material for inspection. The minimum Creep-age Distance of 25KV 9-tonne insulator shall be 1050 mm.

**Schedule - B - Platform at DAKE PF-1 & PF-2 can be extended to 600 mtr.**

**Item No. - 1 - General (Non-Power Block Work)**

**Sl. No. 1: Foot by foot survey & preparation of OHE pegging plan.** The price shall cover on a flat rate basis. The price shall cover survey, investigation of soil bearing pressure, preparation of OHE pegging plan for suitable regulated type OHE indicating all locations with chain-age by conducting foot by foot survey of the section and preparation of survey report in all respect with design aspect. The contractor has to submit soil investigation report before preparation of the drawings. All the drawings are to be prepared on Auto CAD with multicolour impression. The price shall cover supply of original tracing and 08 Nos. ammonia prints after approval of original tracing by the competent authority.

**Sl. No. 2: Preparation of Design & Drawing of Overhead Equipment.** The price shall cover submission of design and drawing of overhead equipment suitable for regulated type indicating location of structures, chain-age, type of foundation, type of mast, stagger, versine, implantation and all location covering engineering object like bridge, culvert, shed, cabin station building, hut, shelter, shed, road, walls, pathways etc. and signal pole throughout the section. All the drawings are to be prepared on Auto CAD with multicolour impression. The price shall also include the following.

(i) Making minor modification with the approval of the purchaser of the layout of structures and overhead equipment, if necessary and submission of overhead equipment layout plans, including stagger, location of cut in insulators etc. The layout drawing submitted should also show the OHE layout of existing track/s in the vicinity if any.

(ii) Preparation of cross section drawings and structure erection drawings for each structure locations.

(iii) Choice of type and size of foundations to suit soil and loading conditions, except for the ones which are considered as 'Works under other agencies'

(iv) Preparation of long section drawings of overhead equipment where such drawings are required including detailed study of over line structures such as foot over bridges, road over bridges etc. for maintaining the specified height of contact wire and requisite clearance.

(v) Preparation of other designs and drawings including drawings of small parts steel work (other than those for which R.D.S.O. standard drawings are available) and detailed designs for L.T. supply transformer stations.

(vi) Supply of copies of all drawings, including copies of Ammonia Prints and finally "As erected drawings" are to be supplied along with original tracing are as follows:

(a) Layout Plan-12 copies Ammonia Print (Coloured as per tracing by colour pencil or any ink).

(b) SED- 08 copies Ammonia Print

(c) Special drawings - 08 copies.

(d) OHE Profile drawings - 08 copies.

The price shall also include supply of working rule diagram and sectioning diagram one copy each in tracing paper and 10 copies each in Ammonia print. Data for the diagram will be supplied by Railway during execution.

As Erected OHE layout plans, SED and other relevant drawings shall be supplied in 4 sets including 2 Sets of RTF.

All as erected drawings shall also be submitted in Compact Disk (CD) in duplicate.

All other requirements specified in Chapter – VII, Part-V should be complied.

In the case of preparation of the overhead equipment pegging plans by the purchaser, if there is delay for any part of the section, the contractor may be asked to prepare pegging plans for the section. No extra payment will be made for the preparation of such pegging plans. The total length of track for which the contractor may be asked to prepare such pegging plans will not exceed 2% of the final total quantity against this item.

This price shall also cover soil investigation and testing in an approved manner.

Notes for Measurement: For the purpose of payment against this item, the length of track shall be measured as under.

1. General: By the difference in the chain-age of the length under consideration, as incorporated in the lay out plans.
2. Turnouts: The track taking off shall be deemed as starting from the toe of the switch of the turnout.
3. Crossovers: The length of track shall be taken as the difference in the chain-age of the toes of switches of the two turnouts constituting the cross over.
4. Diamond crossing with or without slips: The two tracks crossing each other shall be measured independently as per note 1 above as though there were no crossing. No extra shall be provided for slip points.
5. Dead ends and tops of loops: The lengths for payment under this item shall be up to the chain-age of anchor mast of the terminating OHE.

**Sl. No. 3: Dismantling of foundation.** The price shall include dismantling of any kind of foundation infringing for laying of track up-to the portion needed for insertion of sleeper. Price shall also include the clearing of site i.e. disposal of dismantled concrete to safe distance. During pre-NI or NI work, the firm has to arrange JCB to execute this work.

**Sl. No. 4: Anti bird disc (Poly Corroborate & flammability rating of V-2 or higher as per UL-94) suitable for porcelain type Bracket/Stay/9 Tonne insulator as per RDSO Drawing No. TI/DRG/OHE/ABD/RDSO/ 00000/19/0 or latest. As per revised special maintenance instruction No. TI/MI/0059 Rev.3 or latest for provision of Anti - bird disc.** – The price shall cover cost for supply of Anti bird disc (Poly Corroborate & flammability rating of V-2 or higher as per UL-94) suitable for porcelain type Bracket/Stay/9-Tonne insulator as per RDSO Drawing No. TI/DRG/OHE/ABD/RDSO/ 00000/19/0 or latest. As per revised special maintenance instruction No. TI/MI/0059 Rev.3 or latest for provision of Anti -bird disc.

#### **Item No. - 2 - General (Power Block Work)**

**Sl. No. 1: Adjustment of OHE & Tower wagon checking of existing OHE including minor modification.** The price shall include the shifting of OHE load to the newly erected cantilever with supply of dropper wire (as required) and necessary adjustment of erected OHE and also tower wagon checking for all the newly erected section and existing section where work is executed under power block.

**Sl. No. 2: Dismantling of OHE mast/Head Span Mast under Power Block and transportation from site to railway's store.** The price shall cover the cutting of traction masts/Portal upright/Head span mast by using gas-cutter only. Care should be taken at the time of execution of the work; no damage to Railway property takes place. The cut masts shall be handed over to the purchaser's depot. For cutting the mast necessary arrangement and precautions have to be taken by the contractor beforehand. The work will have to be carried out as per the instruction of the purchaser. During cutting of mast if power block is required on critical adjacent location, the same will be permitted by the purchaser.

**Sl. No. 3: Dismantling of cantilever under power block and transportation from site to railway's store.** The price shall cover the dismantling of cantilever assembly from the existing system. Care should be taken that during dismantling of cantilever assembly the OHE should not be dislocated. The dismantled equipment shall be handed

over to the purchaser's depot. The work will have to be carried out under power block. Dismantling of pull off, if any will be treated as a cantilever.

**Sl. No. 4: Dismantling of old RE and guide tube assembly under P/B and transportation from site to railway's Store.** The price shall cover cost of dismantling of Regulating Equipment assembly with balance weight complete under power block condition and transportation from site to railway's store or as per guidance and instruction of railway's representative. The work should be executed as per guidance and instruction of Railway's representative.

**Sl. No. 5: Dismantling of guy rod assembly under Power Block and transportation from site to railway's Store.** The price shall cover dismantling of guy rod assembly of various lengths including guy rod fitting anchor bolt, nut washer and V bolt etc. under power block and transportation from site to railway's store or as per guidance and instruction of railway's representative.

**Sl. No. 6: Dismantling of SPS under Power Block and transportation from site to railway's Store.** The price shall cover cost of dismantling of SPS under power block condition and transportation of the same from site to railway's Store or as per guidance and instruction of railway's representative. The work should be executed as per guidance and instruction of Railway's Representative.

**Item No. 7: Supply & erection of PVC Net for Portal/TTC to avoid bird nest on OHE mast/Boom.** The price shall cover supply & erection of PVC Net for Portal/TTC to avoid bird nest on OHE mast. The items are to be supplied & erected as per RDSO's specification no. TI/MI/0050 dated 06.09.2017 and/or as per instruction of purchaser's engineer. The price shall also cover for supply and erection of all accessories required for fixing of Net on Portal/TTC/Fabricated OHE structures.

**Sl. No. 8: Dismantling of termination fittings under power block.** The price shall cover dismantling of all the parts of Terminal fittings. The dismantled equipment shall be handed over to the purchaser's depot as specified above.

### **Item No. - 3 - Concreting**

**Sl. No. 1: Cement concrete Foundation 1:2:4.** The price shall cover excavation, supply and handling of all materials and accessories, temporary arrangements for excavation in hard soil and concrete/masonry drains/walls requiring use of Chisel and Hammer. Casting concrete by using M-15 type foundation including frame work where necessary, tamping of concrete, grouting of masts and finishing the top of concrete foundation or anchor blocks. The price also includes dismantling of all connected temporary arrangements, back filling with earth and compacting the same to the required height and width as per drawing to ensure safety of foundation, confirming the expose height of foundation block to within 10 cm, and removal of soil. The price also includes the cost of cements. All other requirements of Chapter -VII, Part-II should be complied by the contractor. The price also includes the cost of temporary diversion of drain, if any, and its rebuilding.

**Sl. No. 2: Reinforced Concrete for Foundation and trench.** The price shall cover excavation and all reinforced concrete work for foundations including supply of steel for reinforcement and other materials including bending, binding, laying of the reinforcement, shoring where necessary, casting concrete including framework where necessary, grouting and finishing the tops of foundation blocks. The price shall also include dismantling of all connected temporary arrangements (including cable trench if required), back filling as required and removal of

soil. The price shall also cover all concrete works for foundation or anchor blocks on bridge piers, irrespective of whether they are actually reinforced or not, and those for cast-in-site piles foundation and counter weight foundations. Rails and fasteners required for counter weight foundations shall be supplied by the purchaser free at the contractor's depot or work spot according to the convenience of the purchaser. The volume of cast-in-situ piles shall be added to the volume of foundation block for the purpose of payment. Dowel bars as may be required for bond with bridge structures shall be supplied and erected free of cost by the purchaser. Dowel bars will not be considered as reinforcement for the purpose of this item. The price shall include the cost of cement and all accessories for concreting. NOTE: Nominal reinforcement will be necessary in black cotton soil foundations. Such nominally reinforced foundations in black cotton soil will be payable under item 1(i). The steel for nominal reinforcement will be arranged by the contractor and the concrete mixture shall, in such a case shall be as for normal foundations 1:2:4 (see Para 7.2.4).

**Notes for Sl. No. - 1 & 2.**

1. The prices shall be same for any shape or size of concrete blocks. In calculating the individual volume of concrete, fraction of a cubic meter beyond the third decimal shall be rounded off to the next nearest third decimal.
2. The prices shall apply for concreting of all foundations for masts, gantries; portals anchor blocks for guy rod.
3. For purpose of computation of volume of concrete, the volume of steel work embedded in the foundation block and muff shall be ignored.
4. For purpose of computation of volume of concrete, the volume of concrete shall include the volume of sand and bitumen in sand cored foundation. However, for the purpose of computation, of quantity of cement utilized in sand erected foundations, the volume of the sand and bitumen used in core hole should be deducted from the total volume of the foundation.
5. For purposes of computation of volume of concrete the volume of each muff for all masts shall be taken as 0.02 cu.m. except for masts with balance weight and for each column of portal, each head span mast & 2 or 3 track cantilever masts, and special fabricated masts for which the volume of muff shall be taken as 0.08 Cum irrespective of the size and shape of muff on a flat basis.
6. The prices under item 28 shall also include the cost of concrete cable trenches and trench covers at the switching stations as well as embankment of drain pipes, where required.
7. The prices under item 28 shall also cover the cost of diversion of masonry / earth drain wherever necessary for casting of foundations and will also cover cost of removal of infringement using chisel and hammer.
8. The depth of excavation shall be measured from the formation level to the maximum excavated point. The prices shall also include restoring of platform surface for formation on platform.
9. For the purpose of excavation, JCB has to be arranged by the firm.
10. The make of cement used must be: ACC, Ambuja, Binani, Birla Gold, Century Gold, Lafarge and Ultra Tech.

**Item No. - 4 – Ferrous (Non-Power Block Work)**

**Sl. No. 1: Supply of fabricated Galvanized Steel Structure i.e. traction mast/other special masts (BFB/RSJ/B-series etc. as required).** The price shall cover cost of Supply of traction masts, gantry masts and masts for L.T supply transformer stations whether rolled or fabricated including emergency masts & those for head spans with galvanisation of 1000 gm/Sq.mtr. The price shall also include the loading, unloading & transportation of traction mast whatsoever required at site.

Note: For the purpose of payment, the weights of individual traction mast / other special masts shall be determined for each type on the basis of the latest weight schedule as instructed by Rly. Bd./CORE/RDSO etc.

**Sl. No. 2 & 3: Supply & Erection under Non-Power Block of Fabricated Galvanized Steel Works (SPS) other than Mast including MCC, Chair etc.** The price shall cover cost of supply & erection, alignment and setting before grouting, wherever required with galvanization of 1000 gm/Sq.mtr, of drop arms, standard super mast and suspension of brackets for feeders and return conductor, dwarf mast or stub masts for anchoring, complete with anchor plates drilled and welded in position, multiple cantilever cross arms, chairs, adopters for bracket assemblies suitable for regulated type OHE and all other small part steel works, the erection of which if carried out by the Contractor irrespective of whether they are supplied by the purchaser or the contractor.

The price shall also cover cost of erection, alignment and setting before grouting, wherever required for gantries/steel work for feeders for switching station, suspension brackets for feeders, and all other small part steel work i.e. supporting steel work for isolator, PT, interrupter fuse switches, lightening arrestors etc, the erection of which is carried out by the contractor irrespective of whether they are supplied by the purchaser or the contractor. The prices shall also include supply and erection of galvanized steel, bolts, nuts, washers wherever required as per the approved designs and drawings. The calculated weight to be considered for payment under this item shall be included in relevant drawings at the time of submitting designs.

For standard fabricated steel work for which R.D.S.O.'s approved drawings are available, the weight of steel work as specified in R.D.S.O.'s drawings shall be considered for payment. However, in case the unit sectional weight of any member indicated in R.D.S.O.'s drawing is not in conformity with the unit sectional weight as per the latest specification, the weight of the fabricated steel work shall be calculated on the basis of latest B.I.S. specification and the same will be considered for payment. For the non-standard fabricated steel work, the weight to be considered for payment under this item shall be indicated in the relevant drawing as submitted for approval of the purchaser. The basis of weight will be as per latest sectional weight drawing.

**Sl. No. 4: Supply of Anchor & Guy rod assembly complete.** The price shall cover supply of guy rod assembly of various lengths for traction masts, feeder line towers or supports complete with mast guy rod fittings, guy rod with adjustments and part/s with grouted in the anchor block. The price shall not include the cost of supply of a dwarf or stub mast with anchor plates drilled and welded in position, where required, for anchorage, and small parts steel work, complete with bolts and nuts etc., if any for attaching the mast guy rod fittings to the masts/structure which shall be paid for separately under the relevant items. Prices indicated against all other items should be exclusive of the price of supply of guy rod, if any which will be paid for under this item.

#### **Components Required**

Railway ID No.	Description of components	Qty. / Unit
3232/3234/3242	Mast guy rod fittings (welded) complete with 4 short bolts, nuts, lock nuts and washers for attachment to masts/SPS including appropriate fittings.	As required
5001/5001-1/5001-3	Anchor bolts (complete with nuts, lock nuts and split pins)	As required
5002	Guy rod stirrup	As required
5004 or 5005 or 5006-1 for 9070 or 9071	Guy rod with nut, washer and split pin.	As required
5007-1	Anchor Vee bolt.	As required
5008	Anchor loop	As required
5220	Guy rod double strap assembly	As required

Note: 1. In case the contractor desires to adopt a different design for guy rod assembly, the same shall be indicated by him in the tender and the components required should be clearly listed under this item as deviation.  
2. Supply and erection of guy rod assembly at anti-creep points will also be paid for under this item.

**Sl. No. 5: Supply of Single bracket assembly complete (without insulator).** The price shall cover cost of supply of any bracket assembly suitable for polluted zone excluding insulators suitable for regulated type OHE on a traction mast or support on drop arm, and shall include those on high level platforms/Sheds, in the vicinity of turnouts, over bridges or overlaps and at locations with reduced encumbrance or terminating wires. The price shall cover on a flat rate basis. The price shall include the cost of supply of all components including galvanized steel tubes but excluding copper wires and small part steel work complete with bolts and nuts etc., if any. However, this does not include the anti-creep arrangement at masts/structures. Bracket components like catenary suspension bracket, mast fitting for hook insulator, mast bracket fitting assembly, register arm hook, tubular stay sleeve, register arm eye piece and drop bracket assembly should be of forged type as per latest RDSO/CORE drawing/specification. After adjustment of OHE and SED checking, cost of cantilever erection will be paid.

**Sl. No. 6: Supply of Regulating Equipment 3-Pulley type with balance weight, S. S. Wire Rope complete.** The price shall cover cost of supply of counter weight assembly confirming to RDSO's drawing no: TI/DRG./OHE/ATD/RDSO/00001/99/1, including adjustor (as required by the purchaser) with double strap assembly and normal / anti theft guide tube assembly, the supply of regulating equipment and stainless steel wire rope required at the regulating equipment and small part steel work, if any. The price shall not include supply of termination, which will be paid other mentioned items of the schedule.

**Sl. No. 7: Supply of materials for termination of double overhead equipment (excluding 9-tonne insulator).** The price shall cover cost of supply of all materials required for the termination of double OHE (regulated) except 9 tonne insulator.

#### **Components Required**

Railway ID No.	Description of components	Qty. / Unit
3231/3233/3241	Mast anchor fittings (welded) complete with 4 short bolts, nuts, lock nuts and washers for attachment to masts	As required
1120	Catenary ending clamp (65)	As required
1110-2	Contact Ending Clamp(107)	As required
5020	9-tonne adjusters	As required
5030	Anchor double strap assembly	As required
5040	Clevis assembly	As required
5191	T/Compensating Plate	As required
5192	Equalizing plate	As required
5183	Double eye distance rod	As required

**Item No. 8: Supply of materials for termination of single overhead equipment (excluding 9-tonne insulator).** The price shall cover supply of all materials required for the termination of single OHE (regulated) except 9 tonne insulator.

### **Components Required**

Railway ID No.	Description of components	Qty. / Unit
3231/3233/3241	Mast anchor fittings (welded) complete with 4 short bolts, nuts, lock nuts and washers for attachment to masts	As required
1120	Catenary ending clamp (65)	As required
1110-2	Contact Ending Clamp(107)	As required
5020	9-tonne adjusters	As required
5030	Anchor double strap assembly	As required
5040	Clevis assembly	As required
5183	Double eye distance rod	As required

**Sl. No. 9 & 10: Supply and erection of MS flat 40 X 6 mm for each bond complete.** The price shall cover supply of all materials including mild steel flat (40 x 6 mm) required to provide a structure bond connecting a traction mast or structure to the nearest non-track circuited rail, or earth electrode, including all fastenings at both ends. The price shall include shaping and drilling of the bond and rail and erection of all materials including the bond. The price shall also include provision of heat shrinkable PVC tube for structure bond under track-circuited rail. This would also cover connection to earthing terminals of equipments like L.T. transformers with structures and then rails as per approved drawing.

**Sl. No. 11 & 12: Supply and Erection of Single Earth Electrode comp. with earth pit box & Cover Complete.** The price shall cover supply of earth electrode conforming to RDSO's drg no. ETI/OHE/P/7020, mod-3, lugs and MS flat of minimum size (40 mm x 6mm for OHE and 50 mm x 6mm for Switching station) of required length. The price shall cover erection of earth electrode by driving or otherwise complete with construction of concrete box & cover, earthing the structure/equipment with MS Flat conforming the code for bonding and earthing for 25 KV A.C. 50 Hz. Single phase traction System "conforming to RDSO's code no. ETI/OHE/71/ (11/90) A&C No. 2(3/93). The price shall cover filling of charcoal & salt in earth pit & supply and erection of all additional materials required for embedding the earth pipe as per RDSO specification. Value of earth resistance to be painted over the top of earth pit box with yellow paint. The top cover should have proper lifting handle.

**Sl. No. 13: Supply and erection of various types of caution boards/name plate etc. including schematic diagram board (To be supplied as per RDSO specifications).** The price shall cover supply, painting, lettering and fixing of various types of 25 KV caution board/name plate including schematic diagram board under these items is to be supplied & erected as per RDSO's specification and/or as per instruction of purchaser's engineer. The price shall also cover for supply and erection of all accessories for all type of boards.

**Sl. No. 14 & 15: Supply and Erection of Number plate.** The price shall cover Supply and Erection of Number plate for locations. The price shall include supply of number plate as per RDSO specification and SPS, nut, bolt etc whichever is required for fixing the number plate. The work will be executed as per instructions of railway's representative.

### **Item No. - 5 – Ferrous (Power Block Work)**

**Sl. No. 1: Erection under power block of fabricated Galvanized Steel Structure i.e. traction mast / other special masts (BFB/RSJ/B-series etc. as required).** The price shall cover cost of erection, alignment and setting before grouting of individual traction masts, gantry masts and masts for L.T supply transformer stations whether rolled or



fabricated including emergency masts & those for head spans with galvanisation of 1000 gm/Sq.mtr. The price also includes the cost of OHE parameters to be indicated in the structures.

**Sl. No. 2: Erection under Power Block of Fabricated Galvanized Steel Works (SPS) other than Mast including MCC, Chair etc.** The price shall cover cost of erection, alignment and setting before grouting wherever required of drop arms, standard super mast and suspension of brackets for feeder and return conductor, dwarf mast or stub mast for anchoring complete with anchor plated drilled and welded in position, multiple cantilever cross arm, adapters for bracket assemblies and all other small part still work, the erection of which is carried out by the contractor irrespective of whether they are supplied by the purchaser or the contractor. The price shall also cover the cost of erection of all fabricated steel works on the traction mast including galvanized bolts, nut, and fasteners where ever required as per approved design and drawings. During erection of SPS, if power block is required on critical locations, the purchaser will permit the same.

**Sl. No. 3: Erection under power block of Anchor & Guy rod assembly complete.** The prices shall cover erection of guy rod assembly of various lengths for traction masts complete with mast guy rod fittings, guy rod with adjustment and parts be grouted in the anchor block.

**Sl. No. 4: Erection under power block of Single bracket assembly complete (with insulator).** The price shall cover erection of cantilever assembly as per site requirement. The cost of erection shall include erection of stay and bracket insulators also. After adjustment of OHE and SED checking, cost of cantilever erection will be paid.

**Sl. No. 5: Erection under power block of Regulating Equipment 3-Pulley type with balance weight, S. S. Wire Rope complete.** The price shall cover erection of 3 pulley type regulating equipment and counter weight assembly including 9-Ton adjuster with double strap assembly, anti theft guide tube assembly, hex tie rod and other necessary equipment excluding SPS and fasteners. This shall also cover adjustment of entire regulating equipment assembly.

**Sl. No. 6: Erection under power block of materials for termination of double overhead equipment (including 9-Tonne insulator).** The price shall cover erection of all materials necessary for the termination of double conductor overhead equipment or terminating wire on a traction mast or structure, including appropriate mast anchor fittings clevis assembly adjuster, anchor double straps, ending clamp for the Catenary or contact wire or terminating wire and fittings and including 9-tonne insulator assembly and terminating wire, if any.

**Item No. 7: Erection under power block of materials for termination of single overhead equipment (including 9 tonne insulator).** The price shall cover erection of all materials necessary for the termination of single conductor overhead equipment or terminating wire on a traction mast or structure, including appropriate mast anchor fittings clevis assembly adjuster, anchor double straps, ending clamp for the Catenary or contact wire or terminating wire and fittings and including 9-tonne insulator assemble and terminating wire, if any.

#### **Item No. - 6 – Insulators (Non-Power Block Work)**

**Sl. No. 1: Supply of Bracket Insulator (Porcelain).** The price shall cover supply of porcelain type Bracket insulator under this item. All materials supplied shall be strictly as per specification mentioned for respective item or Governing RDSO/CORE specification for the item. All items are to be procured from CORE/ RDSO approved manufacturer only and contractor shall produce documentary evidence for the same. All the insulators shall be

inspected and tested by authorized representative of RITES at manufacturer's premises. The contractor shall intimate in advance for readiness of material for inspection. The minimum Creep-age Distance of Bracket insulators shall be 1050 mm.

**Sl. No. 2: Supply of Stay Insulator (Porcelain).** The price shall cover supply of porcelain type Stay insulator under this item. All materials supplied shall be strictly as per specification mentioned for respective item or Governing RDSO/CORE specification for the item. All items are to be procured from CORE/RDSO approved manufacturer only and contractor shall produce documentary evidence for the same. All the insulators shall be inspected and tested by authorized representative of RITES at manufacturer's premises. The contractor shall intimate in advance for readiness of material for inspection. The minimum Creep-age Distance of Stay insulators shall be 1050 mm.

**Sl. No. 3: Supply of 9-tonne Insulator (Porcelain).** The price shall cover supply of porcelain type 9-tonne insulator under this item. All the insulators will be of porcelain type including cut-in insulators used for section insulator assembly. All materials supplied shall be strictly as per specification mentioned for respective item or Governing RDSO/CORE specification for the item. All items are to be procured from CORE/RDSO approved manufacturer only and contractor shall produce documentary evidence for the same. The price is also applicable to the supply of porcelain type 9 Tonne insulator assembly (RI-6020) for suspension of 25KV copper feeder wire required for switching station. All the insulators shall be inspected and tested by authorized representative of RITES at manufacturer's premises. The contractor shall intimate in advance for readiness of material for inspection. The minimum Creep-age Distance of 25KV 9-tonne insulator shall be 1050 mm.