

# **SECTION – 9**

## **PRICE SCHEDULES**

**(FINANCIAL BID)**

### **EPC TENDER**

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K-RIDE

**DOUBLING PROJECT (DL)**  
**PRICE SCHEDULES (FINANCIAL BID)**  
**EPC TENDER.**

**Tender No: KRIDE/DL/17/2021**

**“Design, Supply, Erection, Testing & Commissioning of 25 KV, AC, 50 Hz, Single Phase, Traction Over Head Equipment for Railway Electrification of Baiyyappanahalli Cabin A (km 205.5) (Excluding) – Hosur (km 159) (Including) Section (62 Track Kilometer approximately) of Bangalore division including any Modification in Existing Overhead Equipment if required.”**

1. The Price Schedule shall be read in conjunction with the Instructions to Tenderers, Conditions of Contract, Notice Inviting Tender, Technical Specifications, Tender Drawings, Schedule, Annexures and Addendums.
2. The Amount are to be quoted in each sections of the Price Schedule (i.e. Schedule-A: Overhead Equipment Work-(Open Section-39 TKM), Schedule-B: Overhead Equipment Work-(Yard Section-23 TKM), Schedule-C: Modificaton in Feeder Post/SP/SSP(1TSS+4SSP+1SP), Schedule-D: Auxiliary Transformer stations & CLS Panel, Schedule-E: Tools & Plants, Schedule-F: Emergency mast, Schedule-G consists of Lump sum provision to be operated for incidental and unforeseen items likely to require while execution of work. These items will **be executed under schedule of rates 2019-20 or latest, published by Government Departments KPTCL/BESCOM/KPWD/USSOR/CPWD/ BWSSB**). The cost under this Schedule (Schedule-G) will stand fixed as Rs 25,00,000/- and this amount of Rs. Twenty Five Lakhs already provided as fixed amount in the summary of Financial Bid/Price Schedule.
  - I. The Contractor should quote Lumpsum price for each schedule.
    - Schedule -A : Lumpsum price for Total TKM of Open Route
    - Schedule -B : Lumpsum price for Total TKM of Yard Section
    - Schedule -C : Lumpsum price for Total No. of Modifications in Feeder Post/SP/SSP
    - Schedule -D : Lumpsum price for Total No. of Auxiliary Transformer stations & CLS Panel
    - Schedule -E : Lumpsum price for all Tools & Plants(as per Annexure - a)
    - Schedule -F : Lumpsum price for Emergency mast(as per Annexure - b)
  - II. The quoted Amount are for completed and finished items of work and complete in all respects. Which shall be inclusive of constructional plant, tools, machinery, labour, supervision, materials, fuel, oil, consumables, electric power, water, transportation, all leads and lifts, dewatering, all temporary works and false works, construction of temporary stores and buildings, fencing, watering, lighting, erection maintenance, night working, inspection facilities, safety measures at work sites/casting yard for workmen and road users, preparation of design and drawings etc. establishment and overhead charges, labour camps, insurance costs for labour and works, contractor’s profit, all taxes, royalties, duties, cess, octroi, GST and other levies and other charges together with all general risks, liabilities and obligations set out or implied in the contract and including remedy of any defects during the Defect Liability Period, unless otherwise provided in Price Schedule.
3. Providing concrete for all works deemed to be inclusive of the cost towards production of concrete by batching plant, transit mixer, transportation of concrete with all leads and lifts, form work, shuttering including staging as required, pouring of concrete by pump/tower crane to all heights /depths, compaction by vibrators, curing

by approved means such as water, steam or curing compound and all labour, tools, plants, machinery required for execution of work complete in all respects including de shuttering after completion of work.

4. The amount for various Schedules and Summary of Price Schedule shall be quoted in Indian Rupees both in figures and in words.
5. The whole cost of complying with the provisions of the Contract shall be deemed to have been included in the quoted Amount.
6. All columns in the "Summary of Price Schedule" - shall be filled in ink or typewritten and the total tender amount shown in the bottom. The person authorized to sign on behalf of the Tenderer shall digitally sign on E-proc.
7. General directions and description of works and materials are not necessarily repeated or summarized in the Price Schedule.
8. The method of measurement of completed work for payment shall be in accordance with the requirements as stated in the individual sections of the Technical Specifications and Conditions of Contract.
9. Shuttering required for concrete work shall be of steel except wherever there are site constraints as decided by Engineer.
10. In the defined grade of concrete mix, the first figure defines the strength of concrete and second figure defines the maximum size of coarse aggregates to be used for production of particular concrete mix, E.g. M 15/20 means "M-15" is the grade of concrete and "20" is the maximum size of coarse aggregate in mm to be used.
11. Tenderer may please note that to perform this contract, nothing extra shall be payable on account of field constraints, availability of front, preparation of detailed scheme for taking necessary clearance and approval from the concerned authority and other local bodies etc.
12. If work is stopped due to non-shifting of utilities, no claim shall be entertained on this account.
13. The Tenderer's offer shall be inclusive of all taxes and duties payable by them. Income Tax and any other statutory taxes to be deducted at source, if any, will be deducted by the Employer in accordance with the Income Tax Act and any other acts in force and in accordance with instructions issued by the Authorities on this behalf, from time to time.
14. The Tenderer is required to furnish the PAN for all members of Group.

**Important Notice:**

**THE TENDERER SHOULD QUOTE HIS AMOUNT AGAINST EACH SCHEDULE OF PRICE SCHEDULE.**

<b>SUMMARY OF PRICE SCHEDULE.</b>				
<b>EPC TENDER</b>				
<b>NAME OF WORK:</b> Design, Supply, Erection, Testing & Commissioning of 25 KV, AC, 50 Hz, Single Phase, Traction Over Head Equipment for Doubling of Baiyyappanahalli Cabin A (km 205.5) (Excluding) – Hosur (km 159) (Including) Section (62 Track Kilometer approximately) of Bangalore division including any Modification in Existing Overhead Equipment if required.”				
<b>Tender no:</b> K-RIDE/DL/17/2021 <b>Date --</b> 19.10.2021				
Sl. No.	Schedule	Description	Quoted by Tenderer	
			Quoted Amount in INR (Lumpsum Cost)	
			In Figures	In Words
1	2	3	4	5
1	<b>Schedule – A*</b>	<p><b>Overhead Equipment Work (Open Section)</b></p> <p>Design, supply, erection, testing and commissioning of 25 KV, 50 Hz, AC Overhead equipment including Foundations, Auxiliary Transformer Foundations, Masts, AT Masts, Structures and all ancillary equipment &amp; Cut-in Connection etc. along with PTFE neutral section, false catenary wire under over line structure, Protective screens on over line structure, Structure arrangement on bridge piers, feeder wire, all types of caution, warning, instruction and protection boards at required locations, anti-theft charging arrangement, Traction Station Working Rule along with sectioning diagram at required locations (TPC, Traffic control, OHE Depot, AEE office etc.), Modification works in the existing OHE work in open routes based the approved plans. This includes Power blocks works and NI works, shifting of exiting PTFE, IOL, UIOL, FTA, Feeder wire Mast, Anticreep wire, large span wire, ATD's and modifications of section insulator, slewing of equipment, Dismantling of Mast/Structure by cutting, breaking of foundations, Catenary and contact splicing, if any etc.</p>		
2	<b>Schedule – B*</b>	<p><b>Overhead Equipment Work (Yard Section)</b></p> <p>Design, supply, erection, testing and commissioning of 25 KV, 50 Hz, AC Overhead equipment including Foundations, Auxiliary Transformer Foundations, Masts, AT Masts, Structures and all ancillary equipment etc. along with PTFE neutral section, false</p>		

		catenary wire under over line structure, Protective screens on over line structure, Structure arrangement on bridge piers, feeder wire, all types of caution, warning, instruction and protection boards at required locations, anti-theft charging arrangement, Traction Station Working Rule along with sectioning diagram at required locations (TPC, Traffic control, OHE Depot, AEE office etc.), Modification works in the existing OHE work in Yards based the approved plans. This includes Power blocks works and NI works, shifting of exiting PTFE, IOL, UIOL, FTA, Feeder wire Mast, Anticreep wire, Large span wire, ATD's (including shifting on existing on Platforms) and modifications of section insulator, Slewing of equipment, Dismantling of Mast/Structure by cutting, Breaking of foundations, Catenary and contact splicing, if any etc.		
3	<b>Schedule -C</b>	<p><b>25 KV Traction Sub Station (TSS), Sectioning post (SP) and sub-sectioning post (SSP)</b></p> <p>Design, supply, erection, testing and commissioning of single phase, 25 KV, 50 Hz, AC Traction Sub Station(TSS), Switching Stations (SP/SSP) including Foundations, Structures and all ancillary equipment etc. along with (Earth work, retaining wall if required), Potential Transformers, Disconnecter, Double pole Isolators, Lighting Arresters, Vacuum type Interrupters, Fencing Up rights and Internal Wiring with switch/fittings/ Equipments, Modification works( Busbars, Jumpers, Terminal connectors, Lighting Arresters, Gantry etc ), Shifting of feeder wire under power block, All types of caution, warning, instruction, protection, location/Name and schematic diagram boards, earthing stations, Safety items</p>		
4	<b>Schedule -D**</b>	<p><b>I. Auxiliary transformer stations</b> Design, supply, erection, testing and commissioning of single-phase Auxiliary Transformer Station of different capacity complete with all structures and fittings etc. along with anti-climbing device and Dropout fuse switch &amp; all types of caution, warning, Modification works, instruction, protection boards and location/Name boards, junction box, Dismantling of existing ATs</p> <p><b>II. CLS Panel</b> Supply, erection, testing and commissioning of Control and distribution panel for colour light</p>		

		signalling supply in 25 kV AC traction system of different capacity, complete with suitable cable termination box for terminating the LT cable of AT & local EB supply and outgoing cable for signal equipment at Cabin/Station building, necessary cable glands, fasteners, grouting bolts and clamps required for fixing/grouting of panel board and dismantling of existing CLS Panel.		
5	<b>Schedule -E</b>	Tools and Plants (OHE & PSI).		
6	<b>Schedule -F</b>	Emergency Mast		
7	<b>Schedule -G***</b>	Miscellaneous Items for works which are not covered in Schedule A - F. (Items not covered in Schedule A - F are to be executed under schedule of rates 2019-20 or latest, published by Government Departments KPWD/USSOR/CPWD/BWSSB/BESCOM/KPTCL).	25,00,000/-	Twenty Five lakhs

\* In case there is a reduction / increase in quantity of the work executed (in TKM) for schedule – A & B, the proportionate increase or decrease in the total quoted price shall be done after dividing the total quoted price against each schedule with the total TKM of open route and yard respectively and multiplying with the total TKM reduced or increased.

\*\* In case there is a reduction / increase in quantity of the work executed for Schedule – D, the proportionate increase/ decrease in the total quoted price shall be done according to the Weightage of Each Location for interim payments is as mentioned in below table for auxiliary transformers with CLS panels.

\*\*\* Tenderer should not quote any value against Schedule – G.

**Note:-**

- 1) **Work Done under Power Block :** The above quoted cost for schedule A to D covers working under Line and Power Block, no extra payment shall be given for work done under blocks. Contractor to take this cost into account while quoting. The rates quoted for schedule A to D is including works done under Power & Line Block.
- 2) The above quoted cost covers all items of the work as detailed in the “Employer’s Requirement” contained in Section 8A as well as conforming to all Technical Specifications in Section 8B and stipulations laid down in the Bid Document including all addenda/corrigenda thereof till the date of submission of Bids.
- 3) It is inclusive of all costs on Design, Drawings, Reports, Survey, Site Facilities, Construction, Equipment, Plants, Instruments, Labour, Supervision, Materials, Supply, Erection, Testing,

Commissioning, Modification, Maintenance, Temporary Works, Site Access, Safety, Security, Defect Rectification, Insurance, Profit duties, Taxes, Levies, Royalties as per applicable law together with all general risks, liabilities and obligations set out or implied in the contract.

- 4) Schedule-G consists of Lump sum provision to be operated for incidental and unforeseen items likely to require while execution of work. These items will be executed under schedule of rates 2019-20 or latest, published by Government Departments KPWD/USSOR/CPWD/ BWSSB/BESCOM/KPTCL). The cost under this Schedule (Schedule-G) will stand fixed as Rs 25,00,000/- and this amount of Rs. Twenty Five Lakhs already provided as fixed amount in the summary of financial bid.
- 5) Total section length is 62 Tkm (approximate)
- 6) Schedule for which no rate or price has been entered in will not be paid for by the Employer when executed and shall be deemed covered by the other rates and prices in the Price Schedule (refer: ITB Clause 11.2 and CC Clause 37.2).
- 7) Lumpsum Amount shall be quoted by the Tenderer in Indian Rupees.
- 8) Where there is a discrepancy between the rate in figures and words, the lower of the two will govern. [ITT Clause 24.1]
- 9) No Tower Car, BRN Wagon, Crane etc, shall be provided for Mast Erection, Wiring & Adjustment of OHE. Tower Car shall provided for only joint checking with Railway Officials.

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**DETAILS OF THE SCHEDULES****SCHEDULE -A & B****ITEM NO 1 & 2: Overhead Equipment Work (Open Section & Yard Section).**

Design, supply, erection, testing and commissioning of 25 KV, 50 Hz, AC Overhead equipment including Foundations, Auxiliary Transformer Foundations, Masts, AT Masts, Structures and all ancillary equipment & Cut-in Connection etc. as per following details along with PTFE neutral section, false catenary wire under over line structure, Protective screens on over line structure, Structure arrangement on bridge piers, feeder wire, all types of caution, warning, instruction and protection boards at required locations, anti-theft charging arrangement, Traction Station Working Rule along with sectioning diagram at required locations (TPC, Traffic control, OHE Depot, AEE office etc.), Modification works in the existing OHE work in open routes and Yards based the approved plans. This includes Power blocks works and NI works, shifting of exiting PTFE, IOL, UIOL, FTA, Feeder wire Mast, Anticreep wire, large span wire, ATD's(including shifting on existing on Platforms) and modifications of section insulator, slewing of equipment, Dismantling of Mast/Structure by cutting, breaking of foundations, Catenary and contact splicing, if any etc.

Safety items (i.e. key box, First aid box, shock treatment chart, Collar ring, men at work board etc) at required locations, construction of contractor's depot & sidings and all necessary documentation for EIG sanction and CRS Inspection. Breakdown attention till CRS inspection.

**Regulated conventional type OHE with Normal contact wire height 5.80 Metre for open Route**

S.NO	From Station to Station	km to km	Total Track km	Remarks
1	Hosur(Incl.) – Baiyyappanahalli Cabin A(Excl.)	159/000.00- 205/500.00	62	I.Open Route-39 km II.Yard-23 km Note: Yard Limit to be considered from starting Top point of Yard to Ending Top point.

**Regulated Tramway type OHE with normal contact wire height 5.80 metre**

Station	km to km	Total Track km	Remarks
NIL	NIL	NIL	NIL

**NOTE:** For schedule A &B.

1. Yard Limit to be considered from starting Top point of Yard to Ending Top point.
2. For all foundation works in OHE/Feeder/PSI works – M-15 concrete shall be used and for core – M – 20 concrete shall be used with 20mm ballast for both the concrete.
3. For every 50 m3 of concrete casted, three samples of test cubes of size 15x15x15 cm shall be made and tested for crushing strength after 28 days at any government approved agency/colleges. If any sample test cube fails, the performance of the foundations will be observed for a period of one year from the date of casting for any crack or disintegration; if found satisfactory, payment for that batch will be made after the

observation period.

4. Muffing of OHE mast/structures should be done along with grouting in order to ensure homogeneous bonding between Muffing and grouting concretes.
5. All bolts and nuts below 14 mm dia on current carrying parts of OHE shall be stainless steel.
6. All type of insulators shall be tested at site for Mechanical Proven test in the presence of TRD Staff before execution of work.
7. Proper soldering should be required both sides of the jumper ends (H, G, C, F, Anti theft jumpers) etc.
8. Contractor should be provide **PACKING SADDLE** each and every Cantiliver.
9. The contractor shall provide composite insulator in the vandal prone area/polluted areas instead of porcelain insulator as directed by engineer in-charge.
10. While doing power block works proper bonding is required for OHE structure.
11. The Contractor should provide heat shrinkable PVC sleeve of minimum length of 40cm for structure bond under track circuited rail.
12. The OHE traction bonds should be fixed to the rail and connected in such a way that they do not interfere with tamping machine during tamping.
13. Drilling of holes in the rails shall be done only with prior approval of authorized Railway official and drilling should be done in the presence of nominated Railway official.
14. All the released equipment, fittings, SPS Steel works shall be returned to the OHE Depot.
15. While releasing OHE Structures (Masts, Boom, Up-Rights, TTU's, Gantry mast etc.) proper care shall be taken.

**SCHEDULE -C****ITEM NO 3: 25 KV Traction Sub Station(TSS), Sectioning post (SP) and sub-sectioning post (SSP)**

Design, supply, erection, testing and commissioning of single phase, 25 KV, 50 Hz, AC Traction Sub Station(TSS), Switching Stations (SP/SSP) including Foundations, Structures and all ancillary equipment etc. as per following details along with (Earth work, retaining wall if required), Potential Transformers, Double pole Isolators, Lighting Arresters, Vacuum type Interrupters, Fencing Up rights and Internal Wiring with switch/fittings/ Equipments, Modification works( Busbars, Jumpers, Terminal connectors, Lighting Arresters, Gantry etc), Shifting of feeder wire under power block, All types of caution, warning, instruction, protection, location/Name and schematic diagram boards, earthing stations, Safety items, and all necessary documentation for EIG sanction and CRS Inspection, breakdown maintenance till CRS inspection.

**A). Details of Vacuum of Vacuum type 25kV Interrupter to be provided:**

S.NO	Location	Chainage	Type of Switching Post	Number of Interrupters	Remarks
1	Hosur Station	158/600-700	TSS	02	
2	Anekal Road	173/837-854	SSP	02	
3	Heelalige	183/620-637	SSP	02	
4	Karmelaram	194/300-318	SSP	02	
5	Belandur Road	198/700-721	SP	03	
6	BYPL A- Cabin	205/50	SSP	02	

**B). Details of 25 kV potential transformer to be provided:**

S.NO	Location	Chainage	Type of Switching Post	Number of potential transformer	Remarks
1	Hosur Station	158/600-700	TSS	02	
2	Anekal Road	173/837-854	SSP	01	
3	Heelalige	183/620-637	SSP	01	
4	Karmelaram	194/300-318	SSP	01	
5	Belandur Road	198/700-721	SP	02	
6	BYPL A- Cabin	205/50	SSP	01	

**C). Details of 42 kV lightning arrester to be provided.**

S.NO	Location	Chainage	Type of Switching Post	Number of lightning arrester	Remarks
1	Hosur Station	158/600-700	TSS	02	
2	Anekal Road	173/837-854	SSP	02	
3	Heelalige	183/620-637	SSP	02	
4	Karmelaram	194/300-318	SSP	02	
5	Belandur Road	198/700-721	SP	02	

6	BYPL A- Cabin	205/50	SSP	01	
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**Note for Schedule C**

1. This includes dismantling of old interrupter, Potential Transformers, Busbar, Pedestal Insulator, Gantries, Double pole Isolator small parts steel if any, Fencing Up rights and Fencing panels from outside the SSP Building and also include releasing of Electrical equipments, Battery chargers, old wirings etc from inside the Released SSP/ SP. All the released equipments are to be handed over to the purchaser as decided.
2. If in any SSP/SP and TSS (feeder gantry) There is less ballast spread then 20 cm the top up of ballast to the extent of 20 cm depth has to be done by the contractor.

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**SCHEDULE -D****ITEM NO 4: A). Auxiliary transformer stations**

Design, supply, erection, testing and commissioning of single-phase Auxiliary Transformer Station of different capacity as per below details, complete with all structures and fittings etc. along with anti-climbing device and Dropout fuse switch & all types of caution, warning, Modification works, instruction, protection boards and location/Name boards, junction box, Dismantling of existing ATs and all necessary documentation for EIG sanction and CRS Inspection. Breakdown attention till CRS inspection.

**5 KVA AT for LC gate**

S.NO	LC NO.	CHAINAGE	Quantity
1	104	160/00-100	01
2	109	167/500-600	02
3	116	177/800-900	01
4	118	180/200-300	01
5	119	180/800-900	01
6	125	185/600-700	01
7	126	187/100-200	02
8	127	187/600-700	01
9	130	191/600-700	01
10	133	197/800-900	01
11	134	199/800-900	01

**5 KVA AT for IB's.**

S.NO	Location	CHAINAGE	Quantity
1	IBs B/w BYPL - BLRR	201/300	02
2	IBS @ CRLM	193/241	01
3	IBs B/w HLE - AEK	177/500	02

**10 KVA AT for Station Buildings:**

S.NO	Location	Building Chainage	Quantity
1	Hosur	158/407	01
2	Maranayakana halli	165/965	01
3	Anekal Road	172/850	01
4	Heelalige	182/791	01
5	Uskur	188/000	02
6	Belandur Road	196/750	02

**Extension of LT power supply for CLS Work****i).For LC Gates.**

<b>S.NO</b>	<b>LC NO.</b>	<b>CHAINAGE</b>	<b>Current Capacity/Size of Conductor</b>
1	104	160/00-100	2*25 sqm
2	109	167/500-600	2*25 sqm
3	116	177/800-900	2*25 sqm
4	118	180/200-300	2*25 sqm
5	119	180/800-900	2*25 sqm
6	125	185/600-700	2*25 sqm
7	126	187/100-200	2*25 sqm
8	127	187/600-700	2*25 sqm
9	130	191/600-700	2*25 sqm
10	133	197/800-900	2*25 sqm
11	134	199/800-900	2*25 sqm

**ii).For IB's.**

<b>S.NO</b>	<b>Location</b>	<b>CHAINAGE</b>	<b>Current Capacity/Size of Conductor</b>
1	IBs B/w BYPL - BLRR	201/300	2*25 sqm
2	IBS @ CRLM	193/241	2*25 sqm
3	IBs B/w HLE - AEK	177/500	2*25 sqm

**iii). For Station Buildings.**

<b>S.NO</b>	<b>Location</b>	<b>Building Chainage</b>	<b>Current Capacity/Size of Conductor</b>
1	Hosur	158/407	2*70 sqm
2	Maranayakana halli	165/965	2*70 sqm
3	Anekal Road	172/850	2*70 sqm
4	Heelalige	182/791	2*70 sqm
5	Uskur	188/000	2*70 sqm
6	Belandur Road	196/750	2*70 sqm

**B). CLS Panels**

Supply, erection, testing and commissioning of Control and distribution panel for colour light signalling supply in 25 kV AC traction system of different capacity as per below details, complete with suitable cable termination box for terminating the LT cable of AT & local EB supply and outgoing cable for signal equipment at Cabin/Station building, necessary cable glands, fasteners, grouting bolts and clamps required for fixing/grouting of panel board and dismantling of existing CLS Panel if any.

**5 KVA CLS Panel for LC's:** As per RDSO technical specifications No. TI/SPC/PSI/CLS/0020 (07/10) with A&C slips No.1 to 4 or latest, connections as required. - For 5 KVA AT.

S.NO	LC NO.	CHAINAGE	Quantity
1	104	160/00-100	01
2	109	167/500-600	01
3	116	177/800-900	01
4	125	185/600-700	01
5	126	187/100-200	01
6	130	191/600-700	01
7	134	199/800-900	01

**5 KVA CLS Panel for IB's:** As per RDSO specification No. TI/SPC/PSI/CLS/0020 with A & C Slip No. 4 (7/2010).

S.NO	Location	CHAINAGE	Quantity
1	IBs B/w BYPL - BLRR	201/300	01
2	IBS @ CRLM	193/241	01
3	IBs B/w HLE - AEK	177/500	01

**10 KVA CLS Panel for Station Buildings:**

S.NO	Location	Building Chainage	Quantity
1	Maranayakana halli	165/965	01
2	Anekal Road	172/850	01
3	Heelalige	182/791	01
4	Uskur	188/000	01
5	Belandur Road	196/750	01

**SCHEDULE - E****ITEM NO 5: Tools and Plants (OHE & PSI).****Annexure - a**

<b>Schedule - E</b>			
<b>Tools &amp; Plants (OHE &amp; PSI)</b>			
<b>Item No</b>	<b>Description</b>	<b>Unit</b>	<b>Qty</b>
1	Tirfor 2.5T/1.5T	Nos	5
2	Tirfor 5T/3T	Nos	5
3	Pull lift 3 T	Nos	5
4	Pull lift 3/4 T	Nos	6
5	Aluminium / Light weight metal conduit Platform ladder trolley	Nos	5
6	Earthing discharge rod complete	Nos	5
7	Aluminium Straight ladder extensive (11 M)	Nos	2
8	Portable Electric Drill 21mm, single phase, 230V (for drilling) Ralli Wolf, Hitachi, Black & Decker makes only	Nos	2
9	First aid box filled with medicines as per standard	Nos	3
10	Two Fold Stretcher Made of high quality aluminium alloy tubes.	Nos	2
11	Fire bucket (10 Ltrs) capacity with one stand and cover for set of 4/6 buckets at each switching station/TSS	Nos	3
12	Portable fire extinguisher powder type	Nos	3
13	D' Shackles set of on each (1", 3/4", 5/8", 1/2")	Set	24
14	Set of Steel sling 19mm Dia with Eye each end of 1M, 2 M, 3 M,4M & 10 M	Set	24
15	Walkie Talkie Sets (2W output)	Nos	9
16	Drop out fuse pull rod	Nos	12
17	1/2" square drive socket set containing 22 sockets with 5 attachments	Set	3
18	Transformer oil Acidity testing Kit	Nos	1
19	Pocket size clip on Tong tester	Nos	3
20	Digital time interval meter 15 - 1000 seconds	Nos	3
21	Insulation tester 2.5 KV	Nos	3
22	Insulation Megger 500 V Megger make or equivalent as approved by Engineer	Nos	3
23	Load cell tester suitable for 40 AH and 200 AH battery	Nos	3
24	Emergency Telephone	Nos	15
25	Spanner set double ended, 24 size 12 pieces set (6mm to 42mm) Gedore or Tapraia make with ISI Mark	Set	5
26	Cogex or Similar 52 pieces socket set (box spanners)	Set	3



27	Rail jumpers set with clamps at both ends along with RITES inspection certificate. Set consisting of: (a) 13 Mtrs Long one Number, (b) 5 Mtrs Long One Number and © 3 Mtrs. Long Two Nos. as per RDSO Drg. No: RE/DNR/EL/TP/07.		
	(a) 3 Mtrs Length	Nos	45
	(b) 5 Mtrs Length	Nos	10
	(b) 13 Mtrs Length	Nos	6
28	Come-along clamps for Catenary suitable for 19/2.65 mm conductor	Set	6
29	Come-along clamps for contact wire 107 mm	Set	6
30	Come-along clamps for Aluminium "SPIDER" Conductor (20 mm)	Set	6
31	Come-along clamps for earth wire (19/2.5 mm) Galvanised steel	Set	3
32	Contact Wire cutter 36"	Nos	3
33	Dropper Wire Cutter 12"	Nos	6
34	Single Sheave Pulley Block 3 1/2"x1/2" Groove Steel	Nos	12
35	Single sheave Pulley Block 3 1/2"x1/2" Groove Fiber for drawal of Contact Catenary wire	Nos	12
36	Single Sheave Pulley Block 6"x1"Groove Steel	Nos	8
37	Contact Wire twist-cum-bender 6"	Nos	3
38	Portable electric drilling machine 13 mm	Nos	1
39	Mobile aluminium ladder 36'	Nos	3
40	Aluminium Straight ladder (8 m) with hook on top	Nos	6
41	Crimping tool up to 6 mm <sup>2</sup> size	Nos	6
42	Chain pulley block 3.0 ton cap	Nos	3
43	Safety electrical Rubber Hand Gloves 33 Kv	Pairs	60
44	Supply and commissioning of OLIVIR-G Plus system (Overhead line inspection with video recording and GPS making system for current collection test) as per RDSO specification No. TI/SPC/OHE/OLIVIR/0051 or latest	Each	1
45	Thermal Infra Red Vision Camera CEM Model DT-9885 or similar	Each	1

**SCHEDULE - F****ITEM NO 6: Emergency masts****Annexure-b**

	SCHEDULE - F		
	Emergency Mast		
Si.No	Description	Unit	Qty
1	Fabrication and supply of heavy duty emergency OHE mast made of MS Raw materials complete as per SCR/SC Sketch No. TRD/SC/SO14289( Section weight Approx weight (1 set 650 kgs x6 sets=3900 kgs) with enclosed Drawing Accepted Offer . As above, Make/Brand OEM.	nos	2

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Name of the work: "EPC Tender for Design, Supply, Erection, Testing & Commissioning of 25 KV, AC, 50 Hz, Single Phase, Traction Over Head Equipment for Doubling of Baiyyappanahalli Cabin A (km 205.5) (Excluding) – Hosur (km 159) (Including) Section (62 Track Kilometer approximately) of Bangalore division including any Modification in Existing Overhead Equipment if required.

1. Proportions of the Contract Price for different stages of Railway Electrification work shall be as specified below:

Si No.	Item Description	Stage for Payment	Percentage weightage	Payment Procedure
<b>Schedule - A</b>				
1	<b>Overhead Equipment Work (Open Section)</b>	1.1 Completion of Design & drawing and Foundation work including block sections.	8.95%	Payment for each stage shall be made after completion of a previous stage, measured in track kilometer (TKM) pro rata with reference to the total TKM.  For item 1.2 and 1.5 of stage payment, payment for supplies for additional sections, to the extent of maximum 10% of the total TKM, in addition to the payment admissible under item 1.0 above may be done. Payment against supplies under this item shall be made for quantities as per the approved layout, on receipt of material at contractor depot and production of inspection certificates and other documents and BG of 105% of the amount against supply of material.
		1.2 Supply of steel (Mast and portals components only) for a Block section.	20.43%	
		1.3 Completion of Steel erection (Mast & Portal) & grouting with painting of location Numbers.	2.12%	
		1.4 Completion of erection of Bracket, Guy Rod, anticreep (Complete pre wiring activity), protection screen, Provision of wire and Bonding.	16.13%	
		1.5 Supply of Contact and		

		Catenary wire only	37.85%	
		1.6 Completion of wiring along with erection of balance weight, dropping & clipping including antitheft charging & Power block works.	9.52%	
		1.7 commissioning.	5.0%	For item No. 1.7 Stage payment will be released on completion of work under item no. 3.2 and item 4.3 & 5.1,6.1.
		<b>Total</b>	<b>100 %</b>	

SL No	Item Description	Stage for Payment	Percentage weightage	Payment Procedure
<b>Schedule-B</b>				
2	<b>Overhead Equipment Work (Yard Section including Modification Works)</b>	<p>2.1 Completion of Design &amp; drawing and Foundation work for block sections</p> <p>2.2 Supply of steel (Mast and portals components only)</p> <p>2.3 Completion of Steel erection (Mast &amp; Portal) &amp; grouting with painting of location Numbers</p> <p>2.4 Completion of erection of Bracket, Guy Rod, anticreep (Complete pre wiring activity), protection screen, Provision of wire and Bonding.</p> <p>2.5 Supply of Contact &amp; Catenary wire only</p> <p>2.6 Completion of wiring along with erection of balance weight, dropping &amp; clipping including antitheft charging and Modification of Yard works.</p>	<p>7.6%</p> <p>27.82%</p> <p>2.80%</p> <p>13.90%</p> <p>32.72%</p> <p>10.16%</p>	<p>Payment for each stage shall be made after completion of a previous stage, measured in track kilo metre(TKM) pro rata with reference to the total TKM.</p> <p>For item 2.2 and 2.5 of stage payment, payment for supplies for additional sections, to the extent of maximum 10% of the total TKM, in addition to the payment admissible under item 2.0 above may be done. Payment against supplies under this item shall be made for quantities as per the approved layout, on receipt of material at contractor depot and production of inspection certificates and other documents and BG of 105% of the amount against supply of material.</p>

		2.7 Commissioning	5.0%	For item No. 2.7 Stage payment will be released on completion of work under item no. 3.2 and item 4.3 & 5.1,6.1.
		<b>Total</b>	<b>100 %</b>	

## Note:

- i) Payment will be made on certification of the Engineer for various items.
- ii) ESP, L-section, SIP etc. shown in indicative plan (Tender Drawings) are indicative which may change as per design and Employer's requirements. However, stage payment shall be made as per approved drawings such as LOP, CSD, SED etc.
- iii) Yard Limit to be considered from starting Top point of Yard to Ending Top point.

SL No	Item Description	Stage for Payment	Percentage weightage	Payment Procedure
<b>Schedule - C</b>				
3	<b>Switching Posts /Traction Sub Station.</b>	3.1 Completion of all Works	90.0%	Payment shall be made for this stage after completion of each switching post work measured in number of switching posts on pro rata basis with reference to the total switching posts for the Railway Project
		3.2 Commissioning and charging at 25kv.	10.0%	
		<b>Total</b>	<b>100 %</b>	

Weightage of Each Switching Post for interim payments is as mentioned below.

Sl. No.	Description	Percentage breakup(weightages)
1	Hosur -TSS	17.00%
2	Anekal Road - SSP	16.00%
3	Heelalige - SSP	16.00%
4	Karmelaram - SSP	16.00%
5	Belandur Road- SP	20.00%
6	Baiyyappanahalli Cabin A - SSP	15.00%

SL No	Item Description	Stage for Payment	Percentage weightage	Payment Procedure
<b>Schedule - D</b>				
4	<b>Auxiliary Transformers &amp; CLS Panels</b>	4.1 Completion of Auxiliary Transformer works including testing.	50.0%	Payment shall be made for each stage after completion of each auxiliary transformer, and related work on pro rata basis with reference to the total of the auxiliary transformer stations for the Railway Project.
		4.2 Completion of CLS Panels works.	40.0%	Payment shall be made for each stage after completion of each CLS panel and related work on pro rata basis with reference to the total of the CLS Panels for the Railway Project.
		4.3 Commissioning	10.0%	
		<b>Total</b>	<b>100 %</b>	



Weightage of Each Location for interim payments is as mentioned below.

S.NO	LOCATION	Percentage breakup(weightages)
1	Hosur	3.951%
2	Maranayakanahalli	4.951%
3	Anekal Road	4.951%
4	Heelalige	4.951%
5	Uskur	8.951%
6	Belandur Road	8.951%
7	IBS B/W BYPL-BLRR	6.951%
8	IBS @ CRLM	3.951%
9	IBS B/W HLE-AEK	6.951%
10	LC 104	3.951%
11	LC 109	6.951%
12	LC 116	3.951%
13	LC 118	2.951%
14	LC 119	2.951%
15	LC 125	3.951%
16	LC 126	6.951%
17	LC 127	2.951%
18	LC 130	3.951%
19	LC 133	2.951%
20	LC 134	3.931%

<b>Schedule – E</b>				
<b>SL No</b>	<b>Item Description</b>	<b>Stage for Payment</b>	<b>Percentage weightage</b>	<b>Payment Procedure</b>
5	<b>Tools and Plants As per Annexure-a</b>	5.1 All tools and Plants to be handed over to TRD	100%	Payment shall be made after complete hand over of all TRD related tools and Plants.
		<b>Total</b>	<b>100 %</b>	

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<b>Schedule - F</b>				
<b>SL No</b>	<b>Item Description</b>	<b>Stage for Payment</b>	<b>Percentage weightage</b>	<b>Payment Procedure</b>
6	<b>Emergency masts – 02 nos As per Annexure-b</b>	6.1 All tools and Plants to be handed over to TRD	100%	Payment shall be made after complete hand over of mast in good condition.  Note: The emergency mast (2 nos) shall be used by the contractor till the completion of the project and then shall be handed over to TRD in good condition
		<b>Total</b>	<b>100 %</b>	