

Scope of work & General Terms & Conditions

(To be submitted in Technical Bid in ONLINE form & it is mandatory)

For every item in the Price Bid Schedule -B, sub-order will be issued as and when required for any sub division office under MGVCL Vishwamitri East Division Office.

- The scope of work of extension of: As per Annexure attached herewith and as per Schedule-B., condition of contract, technical specification therein and construction drawing released from time to time as per requirement and as per engineer in charge's directions . The work covered by the specifications shall include furnishing all materials including cement, labour supervision, plants and equipments and tools, tackles etc., as may be required for the execution and satisfactory completion of the work.
- You shall be required to perform the work accordance with the final construction and /or additional and general drawings, specification etc., and in a manner acceptable to EIC (Engineer in charge) who shall have power to reject any work or materials which in his judgment is not in fully conformity therewith. You should not make any alteration in the drawings without, prior written approval of EIC. In case of any conflict regarding interpretation of meaning of the drawings or specifications, the EIC shall interpret such meaning which will be final and binding to you. In no case, work shall be preceded with any uncertainty. All doubts must be clarified with the EIC at once.
- You shall rectify & make good all defective work during the guarantee period as mention in the tender from the date of successful completion of the work.
- All other work not specifically mentioned above/in Schedule-B but indicated in the drawings, which are necessary for the satisfactory completion of the works as a whole.
- Erection & Maintenance work of HT , LT & TC shall be executed as per MGVCL standard terms and conditions / REC Construction Standard, MGVCL U/G cable drawing as per IS: 1255 for U/G cable laying under the supervision of Dy./ Jr. Engineer of concerned Sub-Division / Division which also includes following:
 1. Work shall be required to be executed under any Sub-Division of Vishwamitri East DIVISION Office under any scheme.
 2. Any amount of sub-order for any Sub-Division will be issued which shall be acceptable to the contractor and accordingly work shall be done within the time frame as mentioned in sub work order.
 3. Execution Permission from all local body/Govt./pvt./concerned departments will be in the scope of contractor.

4. No damages shall be done to any existing utilities having already executed / laid underground equipments / pipes / cables etc. i.e. Water/ Telephone/ OFC/Gas/Drainage/TV Channel & Internet Cable of other departments otherwise necessary claim charges shall be borne and settled by contractor.
5. All required materials like Conductors Drums, Transformers & fabrication materials from MGVCL will be issued from divisional stores of MGVCL for which no extra payment towards transportation will be made to the contractor.
6. Necessary shutdown for connection/jumpering of Newly Erected lines with existing network will be provided as per availability or convenience of the MGVCL which shall be acceptable to the contractor & contractor shall try to complete the work in minimum time.
7. All erection shall be done properly in good alignment with details marked on it correctly.
8. Work may be required to be executed in any 66/132/220KV Sub-Stations also.
9. Contractor must get the requisition, three days well in advance before they require the material on site, from Engineer-in-charge.
10. Utilization of material procured by contractor must of ISI mark / standard when no ISI / BIS certification available & must be got examined from the Engineer In charge before utilization.
11. Length quantity and distance mentioned may vary site to site. The scope of work at site in all respects as per Schedule -B / Sub work order.
12. All safety precautions must be taken while working by your personnel / supervisor/ any staff / labors, to avoid any accident at site.
13. Any claim arising due to accident at site will be borne and settled by contractor. No claim will be entertained by MGVCL.
14. Contractor shall deploy qualified Supervisors at site during execution of work at site for day-today coordination with the MGVCL Engineer's.
15. Only experience labors shall be deployed by contractor at site. Copy of "Labour license" issued by the licensing authority under the provision Contract Labour (Regulation and Abolition) Act, 1970 will be submitted if applicable.
16. Required machinery shall be used for execution of work.

- 17 As per RE Standards and safety norms generally 30-40mtr span should be kept on HT/LT line in such a way as to have minimum sag.
- 18 All road crossings must be provided with guarding arrangement and minimum 22 feet clearance must be kept between conductor and road level
- 19 D.E. /J.E of MGVCL will inspect the work at site
- 20 Work Progress report / information should be submitted timely.
- 21 No excess work shall be carried out without prior approval of the competent authority.
- 22 Delay on account of getting permission from any department no extra charges will be paid by MGVCL.
- 23 For Live Electric line crossing & on the line work, work should be carried-out after Power Cut-off and both side earthing of line & under supervision of local S/Dn staff only & follow all safety measures.
- 24 In case of any ambiguity, discrepancy or dispute the decision of Supdt. Engineer (O &M), MGVCL, Baroda City circle, Vadodara will be final and shall be binding to the tenderer.
- 25 The payment to the contractor through R.A. bill will be to the extent of 100% of the value of the work done provided the contractor furnishes the material account in respect of the previous R.A. Bill before the next R.A. Bill is paid. If this is not complying by the contractor, the payment through R.A. Bill shall be made only to extent of 80% of the total value of the work done. The amount so with held will be released on furnishing by the contractor the materials account of the relative R.A. bill.
- 26 For annual contracts, the contractor will be given separate order for each work on the basis of the rate contract order. The date of commencement and date of completion of work will stipulated in the order which the contractor has to agree otherwise the penalty will be leviable for late completion of work as per company's standard condition.
- 27 Any other items not specifically mentioned in the specifications but which are required for installation, testing, commissioning and satisfactory operation of the system as per Indian standards / IE Rules / IE Act and local authority regulations are deemed to be included in the scope of the specification and no deviation in this regard shall be accepted.

28 The Contractor shall also be responsible for the overall co-ordination with internal / external agencies, project management, training of Company's manpower, loading, unloading, handling, moving to final destination for successful erection, testing and commissioning of the 11 KV HT/LT Line, TC & 11 KV Cable.

29 Contractor will have to provide complete technical supervision during installation of Lines / cables, right from transport up to testing and commissioning. The contractor shall arrange for the services of fully qualified and competent supervisors / engineers for monitoring the whole job. Competent and well versed Semi skill laborers shall be deployed for execution.

30 Contractor shall charge any commissioned work / erection work in presence of Engineer-In-Charge or MGVCL representative. Any consequences / damaged caused by charging such network in absence of MGVCL representative shall be recovered from the contractor.

**Seal & Sign of Contractor
With Rubber Stamp.**

**Executive Engineer (O&M)
Vishwamitri East Division**

SPECIFICATION AND GENERAL CONDITION FOR ERECTION OF H.T. / L.T.
LINE & LAYING OF UG CABLE

- The work entrusted as per the contract should be speedily executed in accordance with the best practice & should be present neat appearance when completed. All the works have to be carried out according to the drawing and specifications and as per the instructions of Engineer-in-charge. There should not be any damage to Company's material or to other's property during transport or erection otherwise damages will be at the cost of contractor & decision of the Ex.Engr. will be final.
- Before commencing erection of lines the contractor will provide with the pole schedule and layout map of the area, which will give one of the location marked, in the layout map. The pole, guy and earthing locations will be shown by Engineer-in-charge. Other drawings referred to the pole schedule will be available for consultation with the Company's staff at the site or at the S/Dn, Office. Cutting of tree branches which come in the way of the line will have to be arranged by the contractor at no extra cost.
- Marshy or water logged locations must be avoided as far as possible. If it becomes inevitable to locate poles at such point, special precautions about foundations will have to be taken and work carried out as per instructions of the Engineer-in-charge by the contractor at the tendered rate.
- The spans shall be as specified in the pole schedule and the between the power conductors and neutral shall be as shown in approved drawing.

1) SUPPLY OF MATERIAL:

- (a) All material such as rails, RS joints, or other poles {except PSC} fabricated material, All aluminum alloy conductor, insulators, Guy wire, etc. required for erections will be supplied at MGVCL's store at Baroda. PSC poles for line supports will be transported and stacked by the Company's along road side for HT/LT line and at one place near the site of work within a range of 5kms.
- (b) The line supports may be Rail/Girder, PSC or any other type and be 8 Mtr to 13 Mtr in length and weight 200 to 650 Kgs. The conductor will be different sizes of all aluminum alloys& different sizes of LT AB/PVC& HT AB Cables. The conductor /cable will be supplied in coils or in drums as per standard packing received from suppliers. The rolls/ **Drums** should be returned to the Store and stacked at the directed place. For damaged or lost empty crates/drums of

conductor recovery @ applicable scrap rates for each will be affected. Anti-climbing device like GI barbed wire & Danger Board should be supplied by the contractor. Lugs will be supplied by the Company.

2) POLE ERECTION:

(a) The work includes carting / transferring of supports particularly PSC poles from the stacking place, to the site of actual work excavation of pit, fixing of top insulator fitting, cross arms, clamps numbering etc. complete inclusive of painting, fixing of danger board caution plates and fitting anti-climbing devices for double or four, pole structures, Railway or River crossing or trans- former structures etc. The work further includes fixing cross arms packing cross bracing etc., mounting of AB switch DO or HG type fuse units. Poles must not be erected along the edge of cutting or embankments or where the soil is liable to be washed away, unless, special precautions are taken to ensure durable foundation when setting the pole. The pit shall be of ample size to allow easy entrance of the pole and base plate without any damage to it. After pole is erected vertically the pit is to be refilled with the excavated earth and properly rammed. The erection, cost, of single or double pole structures, stay sets and pipe or plate type earthing is inclusive of excavation of pit refilling of excavated earth and cost of coke & salt in earthing arrangement as specified. All the poles must be in plumb, fabrication fitting on pole must be tight **as per REC Standard**.

3) PAINTING AND NUMBERING:

RAIL Poles, RSJ, Steel tubular poles or all the, steel mounting shall be, given one coat of **branded manufacturer's** red oxide paint and two coats of **branded manufacturer's** aluminum paint. There should be sufficient interval between every coat, of paint. The bolts and nuts shall be dipped in anti-corrosive liquid before insertion, and all over-lapping surface of steel should be given a fine coat, of red oxide paint before bolting. For the rails and RSJ/Steel tubular poles the lower portion up to three feet above ground level shall be cleared of rust. Where concreting is not to be done, this ground surfaces should be given a base coat of red oxide and additional coat of black bitumen paint which should extend up to 3ft, above ground level of muffing before inserting in ground. The rest of the surface of the rails of RSJ/Tubular pole shall be cleaned of all rust and painted with one coat of red oxide and two finishing coats of approved aluminum paint. The paint which should be ISI marked should be got approved by the Engineer-in-charge before using on works and will have to be arranged by the tenderer,

as painting is included in the offer. Every pole after erections shall be numbered in bold black figures both in English and Gujarati at a height of about 8ft. from the ground level as per instruction of Engineer-in-charge. PSC poles need not be painted but they should be properly cleaned and fabrications on PSC need be only painted as specified above.

4) CONCRETING/MUFFING:

The proportion of concrete mixture and the quality of the sand metal should as under.

a)Cement concrete proportion for concreting of Rail/RSJ/Tubular steel poles should be cement one part, sand three parts 1 ½% “ metal six parts{1:3:6}

Dimension of Concreting: Providing cement concrete foundation for above poles of size is 0.8 mtr. x 0.6 mtr. x 2.15 mtr. deep with 1:3:6 cement concrete ratio with duly plastered plinth. Muffing from ground may at height of 12” dia x 24” total height {12” below 12” above ground level} or as per instruction of Engineer-in-charge. The plastering should be done with approved quality cement with proper curing etc. complete. The work should be carried out as per the instructions of the Engineer.

b) The sand shall be clean, grippy and composed of hard, strong & durable grains, it shall be free from-clay or organic matter. If there is any trace of earthy matter, the sand must be washed, before using sand for concreting work it should be got approved from the Engineer-in-charge.

c) Metal should be hard and durable stone, to pass through a mesh of 1 ½ as far as possible. All metal must be perfectly clean, being washed, necessary and free from any Sulphur. Size of metal must be got approved from the Engineer-in-charge.

d)Unless otherwise specified the concrete shall be mixed in the above proportions and should be thoroughly mixed at least three times in a dry state before water is added, and finally wet mixture be used. All concrete must be mixed on a water tight platform. In vessel any case, finished work, must be absolutely true inline and level and finished-off smooth. One finishing coat of cement paste should be applied on outer surface of the muffing. The concrete block must be kept wet continuously for a period of seven days.

e) If the Engineer-in-charge of the works or the. Supervisors, finds that cement concrete is not of the quality and as specified, the same will be rejected.

f) The contractor should procure metal, and sand himself as specified above. Only steel poles are to be muffed and the size of muffing for steel poles should be 12" dia x 24" total height {12" below 12" above ground level} or as per instruction of Engineer-in-charge.

5) STRINGING OF CONDUCTOR:

Stringing of standard All Al. Alloy conductor include the erection of necessary HT & LT strain and pin insulators, jumpering & binding wire, jointing etc. The rate quoted, should be per conductor route kilometer inclusive of the above. Appropriate, tools should be used and proper scientific methods are to be applied to protect against cuts, scratches or kinks, He should particularly follow the instructions of Engineer-in-charge while making jumper, joints and bindings. While executing this work equipments & tools like turn table or draw vice etc, should be arranged by the contractor. For stringing of All aluminum alloy conductor, aluminum or wooden pulley must be used for supporting contact on poles. Generally 30-40 meter span should be kept on HT/LT line.

6) ERECTION OF STAY SET:

The erection of stay set may be completed with stay clamp, binding of GI stay wire at either end turn buckle, anchor plate with rod. The binding of stay wire for guy insulator at both the ends should be done properly. The stay shall be erected suitably for local conditions. The rate should be quoted for erection of complete set inclusive of excavation of pit and refilling of earth and painting. Stay Rod pit must be as per instruction.

7) EARTHING:

The earthing device shall be of the coil type or pipe type or plate type as indicated in the pole schedule. The work of earthing must be carried out as per instructions of Engineer-in-charge and at the places selected by the field Engineer. The coke or charcoal powder and salt will have to be procured by the contractor should preferably use earth auger excavation of earth pit. The contractor should satisfy himself as well as to supervisor for satisfactory earthing by carrying out test using earth tester. All earthing is to be covered up to 2 mtr from ground-level by earthing pipes, the earthing to be provided in a separate pit i.e. other than that of pole. All conductors, earth wire and stay sets must be tight.

8) GUARDING:

Guard cradle will be provided below HT line/LT line. The guarding must also be provided where railway trucks, telephone line, and licensees HT, LT lines are passing below Company's HT lines. The guarding for the above comprises of GI main bearer wire GI lacing wire and GI binding wire, etc, complete. The work has to be carried out as per instruction of Engineer-in-charge. The cradle guard consists of 2 Nos., of SWG No.8 GI wire for binding, guarding for railway crossing is to be carried out as per instruction of the Engineer-in-charge. All road crossings must be provided with guarding arrangement and minimum 22 feet clearance must be kept between conductor and road level.

9) ERECTION OF TRANSFORMER SUBSTATION:

Transformer sub-station will be of outdoor type & will consist of the following erection.

- a) 05 to 500KVA transformer complete with its accessories.
- b) One set of HT distribution type lightning arrestors.
- c) One distribution box with necessary wiring.
- d) The contractor should lay the cable as per instruction of Engineer-in-charge & use crimping lugs for termination of cable as per requirement and the crimping tools to be arranged by contractor.
- e) One set of DTR meter along with meter box for accounting of energy.

Pipe earthing should be provided on either side of the transformer center, providing earth wire for lightning arrestor, transformer body and Dist. Box and two separate wires of distinct earthing for neutral with T/C SWG-8 copper or GI Wires. The rate should be quoted inclusive of painting of structure & transportation from the Company's Store to the site of erection. Separate earthing pit should be provided for neutral earthing.

10) LAYING OF SINGLE PHASE SERVICE LINES AND THREE PHASE LINES.

This will consists of lying of over head service line with G.I. bearer wire, pipe fixing or fixing of meter, MMB, earthing etc.

1 The twin or single core wire will have to be utilized with G.I. Wire No.8 or 10 and reel insulator would be provided at equal intervals & at both side of GI wire Egg insulator shall be provided.

2. There should not be any joints in the service line. Meter should be earthed properly.

3. Conduit PVC pipe should be fixed in decent way in the premises of the consumer and damage occurring to the promises due to fixation of pipe of taking the service line into premises shall be borne by the contractor.
4. In case of 1 PH / 3 Ph service line would have to be laid up to metering point only. The metal meter box should be fixed up as per directive of Engineer-In-Charge & provided earthing.

11) Laying of Under Ground Cable:

1. All cables before lay shall be tested with megger. The cable cores shall be tested for continuity absence of cross phasing, insulation resistance between conductor to earth/sheath/armor and insulation resistance between conductors.
2. Length quantity and distance mentioned may vary site to site. The scope of work at site in all respects as per Schedule -B / Sub work order.
3. Cables shall be charged by Contractor satisfactorily after completion of work & testing in consultation with MGVCL. The completion of work shall be recognized only after charging of cable.
4. For Cable kit Make (Brand) you have to submit C.P.R.I./ERDA Lab Type test certificate not older than Seven years and as per IS 13573:2011.
5. The sealing of cable ends during the storage, execution till jointing work is completed, shall be in the scope of Contractor. In no circumstances, the cable ends shall be kept open. The damages done because of water / moisture ingress or penetration in the cables / conductors during execution shall be recovered from the Contractor. It will be the responsibility of the Contractor to make them good or replace free of cost without affecting the completion schedules.
6. The cables shall be completely surrounded by a layer of sand having low thermal Resistivity (selected sand) about 300 mm throughout the width of cable Trench as per Drawings of MGVCL.
7. The new cable end seals shall be applied before starting of laying cable and shall be checked after laying and if found damaged shall immediately be resealed. Sufficient number of heat shrinkable cable end sealing caps shall be stocked at site stores for testing and jointing work. Cable end caps shall be in the scope of the Contractor.
8. The Contractor shall have total responsibility for the entire materials stored, loose, Semi assembled and/or erected by him at site in his custody. The Contractor shall make suitable security arrangements at his own cost to

ensure the protection of all materials, equipment and works from theft, fire pilferage and any other damages and loss. It shall be the responsibility of the contractor to arrange for security till the works are finally taken over by the Company.

12. TRENCHING:-

- The trench excavation and filling-in shall be so executed that all walls, roads, sewers, drains, pipes, cables, structures, places and things shall be reasonably secured against risk of injury and shall be carried out to the satisfaction of the authorities concerned. However, if any, damages to existing services made, Contractor shall arrange and pay for any necessary repair, to make good the damages.
- The excavated material shall be properly stored to avoid obstruction to public and traffic movement. Where, owing to traffic or for reasons of safety the excavated material shall be removed from the site and returned for refilling the trench on completion of lying. The contractor at his own cost shall dispose off surplus material.
- The bottom of the excavated trench should be leveled flat and free from any object, which would damage the cables. Any gradient encountered shall be gradual.
- When the excavation of the trenches has been accurately executed, the contractor shall inform engineer in-charge for approval. Lying of cables shall not be started until engineer in-charge approves the trench.

13. REINSTATEMENT:-

- A pre-warning PVC yellow tape 8-Inch wide and 300 microns thick (LDPE) shall also be laid as per the Drawing. The warning tape shall be printed in RED letter (IN ENGLISH AS WELL AS GUJARATI) as “CAUTION: 11000 VOLTS MGVCL CABLE” and to be placed at about 300 mm To 450 mm depth from ground level along the route of cable.

14. CABLE ROUTE/JOINT MARKER/IDENTIFICATION:-

Permanent means of indicating the position of joints and cable route shall be Supplied and lay as per Schedule-B. Pre -cast RCC markers shall be placed as per the field requirement, if the route passes through open fields, markers should be conspicuously visible and above ground surface. The marker should incorporate the following relevant information:

- 1) The name of the owner - MGVCL.
- 2) Voltage - 11 KV Cable
- 3) Distance of cable from the marker.

The interval should be maximum **50** meters between two markers. It should be put at bends, curves, road crossing, etc. of cable route.

15. TESTS AFTER INSTALLATION:-

Pre-commissioning tests on site, to be undertaken by the successful Tenderer shall include the following.

- a) Insulation Resistance of each cable drum length after laying and before jointing.
- b) Before laying of cable, tests for detection of damage to outer sheath, if any.
- c) After laying each cable with end termination shall withstand a voltage of 10KV DC for one minute between each phase to phase & phase to cable earth.
- d) Continuity & Phase confirmation.

16. JOINTING AND TERMINATION OF CABLES:

- The joint bay should be of sufficient dimensions to allow jointers to work with as much freedom of movement and comfort as possible.
- An enclosure or suitable protection cover shall be used in all circumstances wherever jointing work is carried out in the open irrespective of the weather conditions. The joint shall be in dust free, moisture free and clean atmosphere.
- If the cable ends seals or cable ends are found to have suffered damage the cable should not be jointed, without tests and rectification.
- Sufficient length of spare cable shall be left in the ground, for future needs.
- The cable shall be fixed properly using **non-metallic clamps** to be supplied by Contractor through GI pipe dia 4”.
- All the pre commissioning tests shall be carried out by the Bidder If any abnormality found during testing; bidder will have to rectify the same at no extra costs.

17. List of Sub Division under Vishwamitri East Division:

- | | | | |
|-----------------|------------------|--------------|------------------|
| a. Dandia Bazar | b. Tower | c. Panigate | d. Karelibaug |
| e. Mandvi | f. Sardar Estate | g. Indrapuri | h. Khodiyarnagar |

Seal & Signature
of Contractor
Division.

Executive Engineer (O&M)
MGVCL Vishwamitri East