

DESIGN, DETAIL ENGINEERING, MANUFACTURE, SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF 25 KV AC TRACTION (RIGID OHE), 33 KV AUXILIARY SUB STATIONS (ASS), ASSOCIATED CABLING AND SCADA SYSTEMS FOR UNDERGROUND CORRIDORS OF JAIPUR MASS RAPID TRANSPORT SYSTEM PROJECT PHASE-1B

CONTRACT PACKAGE – JP/EW/1B/E2

Part-2

Auxiliary Sub Stations

BILL OF QUANTITIES

Corridor - Chand Pole to Badi Chaupar

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PREAMBLE**1.1 General Requirements**

The Bidders's attention is drawn to the General Conditions of Contract, Special Conditions of Contract, Employer's Requirements (General specifications and Technical specifications) and Drawings, which are to be read in conjunction with the Bill of Quantities. This Preamble shall serve as a definitive guide to the measurement of quantities and payment.

This is a Contract for Supply, Installation, Testing and Commissioning (including Integrated Testing and Commissioning) of 33kV ring main, Auxiliary Sub Stations and SCADA Integration for underground sections of JP/EW/1B/E2 as given in scope of work.

The Scope shall include and not limited to the following:

- The construction studies and drawings,
- The procurement of the whole equipment including :
 - spare parts,
- The on-site erection and setting of electrical fixed installations and technical buildings described in relevant Basic Design documents,
- The in-plant testing, and acceptance tests,
- The on-site testing,
- The commissioning of installation, and acceptance protocols,
- The supply of relevant documentation mainly including :
 - Installation, execution, and as-built drawings,
 - Test procedures,
 - Maintenance operation manuals:- The contractor is required to submit soft copies of all the documents,
- The abroad and on-site training sessions.
- Any other item of work as may be required to be carried out for completing the work under this Contract in all respects in accordance with the provisions of the Contract and/or to ensure the safety of installation during and after execution.

Bid Prices

The Bidder is required to note the provisions of relevant clauses of SCC 6.

Bidder shall note that prices shall be quoted against each item in the Bills of Quantities even if Quantity indicated is NIL against them. The quoted price against these items should be comparable with the rates quoted against the items where quantities have been specified. These rates will not be made part of the evaluation process. The final accepted prices of these items can be utilized by the Employer at the time of Variation (if required) even if the present Quantity is NIL.

1.2 Quantities

For the purpose of this Contract, all unit quantities given in the Bills of Quantities are the estimated quantities of the Works and are intended in the first instance to provide a common basis for Bidding and Bid Evaluation. When a contract has been entered into, the function of priced Bills of Quantities is to provide for the valuation of the work executed. No alteration of any rate or price shall be allowed on account of any difference between the quantities billed and the actual quantities measured from the drawings.

The Bidder shall make himself completely acquainted with all conditions, obligations, specifications, drawings, etc. of the Bid Documents before giving his prices. He shall have no right to claim any price revision on the basis of ignorance of the Bid Documents or local conditions, or to make any claims as regards the integrity of the unit prices of the Bills of Quantities.

1.3 Units and Currency

All sizes and quantities entered in the Bills of Quantities are in metric units.

The Bidder shall fill in each column with unit rate or lump sum, whichever the case may be, for each item of the various bills on the basis of the Bid Documents and pre-tender survey.

1.3.1 Rates and Sums to be for Work Complete

Bidders shall be deemed to have read the Employer's Requirements and other parts of the Bid Documents and reviewed the Drawings to ascertain the full scope of the requirements included in each item prior to filling in the rates and prices. The entered rates and prices shall be deemed to include for the full scope of the Contract, including overheads and profits and shall bear a proper relationship to the cost of carrying out the work described.

Notwithstanding any limits that may be implied by the wording of the individual items and/or the explanations in the Preamble, the rates and sums, which the Bidder enters in the Bill of Quantities, shall be for the work finished complete in every respect.

The Bidder shall be deemed to have taken full account of all requirements, liabilities, obligations and risks, whether expressed or implied, and to have priced the items accordingly. The Items in the Bills of Quantities are the only items against which payment will be made. The cost of any item of work not specifically described or measured in the Bills of Quantities but required for the execution of the Contract shall be included in the unit rates for the measured items in the Bills of Quantities. The rates and sums shall therefore include for all incidental and contingent expenses and risks of every kind necessary to supply, install, test and commission (including Integrated Testing and Commissioning) complete, and remedying any defects in the whole of the Works in accordance with the Contract.

1.3.2 Allowances in rates

Full allowance shall be made in the rates and sums against the various items in the Bills of Quantities for all costs involved in performing the following except to the extent that work is specifically described and paid for in the Bills of Quantities. The list below is not exhaustive and the Bidders are expected to take all costs involved while quoting the rates that will not be subject to variation on any account.

- a) all setting out and survey work;

- b) temporary access roads and bridges, fencing, watching and security , lighting;
- c) paying fees and giving notices to Authorities;
- d) payment of all patent rights and royalties;
- e) reinstatement of the Site, road restoration after making of cable path;
- f) safety precautions and all measures to prevent erosion and suppress fire and other hazards;
- g) interference to the Works by persons, vehicles, and the like being legitimate users of the facilities on or in the vicinity of the Site;
- h) the protection and safety of JMRC trains and services;
- i) the protection and safety of Northern Railway trains and services on adjacent tracks;
- j) supplying, maintaining and removing on completion, the Contractors own accommodation, offices, depots, stores, workshops, transport, welfare services and other facilities including telephones and facsimile machines and all charges in connection therewith;
- k) the supply, inspection, testing, packaging and transportation of materials and of the Works as specified including the provision and use of equipment and arrangements for the Engineer's Inspectors and others;
- l) maintaining public thoroughfares and footpaths, and maintaining access upon existing recognised routes;
- m) providing, transporting to the Site, setting to work, operating (including all fuel and consumable stores), maintaining and removing from the Site upon completion all Construction Plant and Contractor's Equipment necessary for the execution of the Works and including the cost of all tests and other requirements in respect of such; plant and equipment;
- n) working adjacent to or across existing services and installations;
- o) complying with the requirements of the Employer in regard to Safety and Health, Quality Assurance, Environmental, and project implementation plans and making periodical submissions;
- p) co-ordination and interference to the Works by the works of Designated Contractors and others employed by JMRC being legitimate users of the facilities on or in the vicinity of the Site;
- q) remedying of defects and shrinkage, and works of amendment, reconstruction, replacement of other faults, fair wear and tear excepted, during Defects Liability Periods;
- r) Protections to be implemented against Electro magnetic interference effects following line energisation.;
- s) Insurance, including all risks in supply, erection, storage, transit, third party, Workmen's Compensation and others;
- t) All tools, and equipment required for all tests prior and after delivery, and for testing and commissioning installed systems;

- u) Carrying out all modifications to the given drawings, preparing construction detailed drawings and supplying originals, copies, and electronic files in accordance with employer's requirement.
- v) Marine Insurance
- w) All risk Insurance after arrival of goods in India
- x) Custom clearance / Port Clearance
- y) Handling at Port of arrival in India
- z) Inland transportation from port of arrival to site of work
- aa) Various warranties/ undertakings

1.3.3 Non-priced Items

Items against which no rate or sum is entered by the Bidder, whether quantities are stated or not, shall be regarded as covered by other rates in the Bills of Quantities.

1.3.4 Bid Pricing

The Bidder shall take regard of the actual site conditions and the estimated quantities entered in the various bills. The Bidder shall price his bid accordingly and the unit prices entered against a bill line item shall be the full and only price paid for all work performed against that item except as described in the Bid Documents.

The Bidder shall price the Bills of Quantities in Indian Rupees, and/or in freely convertible international trading currencies only as specified in clause ITB 19.1 stated in BDS.

1.3.5 Measurement and Payment

- 1) This Contract is primarily a measurable contract with items that are described herein. For these items the total price paid for a work item will be varied by the quantities actually performed. The contract also contains some lump sum items for which special payment terms are described.
- 2) The measurement and payment described is for the purpose of making a valuation of the work acceptable to the Engineer, and Interim Payments to the Contractor, as work proceeds. The works as executed will be measured for assessment of progress for interim payments in accordance with the method adopted in the Specification, the Bills of Quantities and under the items as set forth notwithstanding any custom to the contrary.
- 3) Building works will be measured in accordance with the local practice as proposed by the Contractor and accepted and approved by the Employer. For the measurement of "Numbers" and "Sets" these shall be by count, using dimensions and contents as described in the specifications.
- 4) For the purposes of making interim payment for Lump Sum items and line items not subject to re-measure, such as described as "Lot", the Contractor shall submit with his bid a breakdown of the rates making up the total for those items for which the Contractor may wish to receive interim payments. These breakdowns shall be subject to the approval of the Engineer, and no interim payment shall be made on such items until the breakdown has been approved, with the approval of Engineer. The items described as 'set' may also be broken down in a maximum of two lots for the purpose

- of interim payment under exceptional circumstances when it is established that the contractor is not able to complete the 'set' for reasons not attributable to him.
- 5) Notwithstanding anything stated herein the Engineer retains the right to withhold payment on any pay item due for payment when the service to be performed is not performed, or is not carried out to the Engineer's satisfaction.
 - 6) Prices for documents, drawings, design calculations, test procedures, interface co-ordination documents, operation and maintenance manuals and the like for review by the Engineer shall be the full compensation for documents and the like in accordance with the specifications. Compensation shall include for the preparation, submission, and all subsequent revisions, changes required and re-submittals as necessary as required by the specifications until accepted by the Engineer.
 - 7) Prices for training of Employer's staff shall be full compensation for the training of Employer's staff in different disciplines overseas and inside India in accordance with the specifications. Compensation shall include for preparation, submittal and revisions as required by the Engineer of training manuals and curricula, employment of approved training staff and all associated costs and travel costs; provision of all manuals for each training course; provision and maintenance of training facilities. Payment shall be made at the quoted man-week rate for each attendee on completion of training.
 - 8) Prices for Maintenance Supervision shall be full compensation for the supervision by the Contractor of the Employer's maintenance staff in different disciplines in accordance with the specifications. Compensation shall include for the approval of the supervisors and replacement as required by the Employer, employment of approved staff including salaries, overtime, airfares, lodging allowances, their office expenditure, telephones/mobile bills, local travel costs to and from site, training materials, income tax and other taxes deducted at source. Payment shall be made at the quoted man-month rate for each approved supervisor who is at site.
 - 9) Prices for Integrated Testing and Commissioning shall be full compensation for the integrated testing and commissioning of plant and equipment supplied under the Contract in accordance with the drawings and specifications. Compensation shall include for preparation, submittal, and revisions as required by the Engineer of testing plans and procedures; co-ordination with other Designated Contractors; conduct of approved tests as directed by the Engineer on equipment, sub-systems, and systems; revisions, re-testing, fault finding, adjustments and reworking as necessary; submittal of all test reports and other documents all to the approval of the Engineer. Payment will be made for each Section after certification by the Contractor and acceptance of the Employer's representatives that the sub-systems and systems, including all equipment have successfully completed the test procedures, and have been set-to-work and all test results and other documentation, as described in the specifications.
 - 10) Prices for spares shall be full compensation for supplying the spare parts for the equipment, sub-systems, and systems provided under the Contract in accordance with the specifications. Compensation shall include provision of all spare parts and lists as required by the specifications, complete in every respect, fully catalogued and marked for identification purposes for each discipline and to the approval of the Engineer.

- Payment shall be made when all spare parts and associated documentation have been delivered to the Employer and accepted by the Engineer.
- 11) Prices for Tools shall be full compensation for supplying all tools, special tools and special test instruments and equipment in accordance with the specifications. Compensation shall include provision of tools etc., as required by the specifications, complete in every respect with operating instructions as necessary. Payment shall be made when all tools have been delivered to the Employer and accepted by the Engineer.
 - 12) Prices for As-Built drawings shall be full compensation for the provision of As-Built drawings in accordance with the specifications. Compensation shall include for the preparation, submission, and all subsequent revisions, changes required and re-submittals as necessary as required by the specifications until accepted by the Engineer. Payment shall be made when all the As-Built drawings for each discipline have been reviewed and accepted by the Engineer.
 - 13) Prices for supply items shall be for the full compensation (refer 14 below) for supplying the items in accordance with the drawings and specifications. The Bill items covered by this clause are:

Bill No.	Item Covered
	1,2, 4.1.1

- 14) Compensation for items listed at 13 above, shall include for all costs incurred in procurement/ manufacture, testing, inspection, shipping, hauling, off-loading, storing at site in Jaipur. Payment will be made for the items delivered and stored in a place and manner approved by the Engineer. Payment will be made on the basis of 75% on delivery to Contractor's depot in Jaipur, and further 15 % after installation and balance 10% after testing, commissioning and handover to the employer as certified by the Engineer under Item 17 below against quoted BOQ rates. Payment on delivery will be made against the following documents:
 - certification of Factory Acceptance Tests;
 - provision of Indemnity Bond;
 - proof of insurance; and
 - Packing list
- 15) Prices for supply of plant, equipment and materials not covered by the items given in 13 above shall include the full compensation for the plant, equipment and materials in accordance with the drawings and specifications. Compensation shall include all costs incurred in procurement/manufacture; testing, inspection, and shipping; hauling, off-loading, and moving to approved depot or point of installation/erection, all to the approval of the Engineer. Payment for supply shall be made for 75% of the line item on delivery and after erection at site. Balance of supply payment of 25% shall be made when the plant, equipment is tested and commissioned and eligible for payment under point 17 below against quoted BOQ rates.

- 16) Prices for installation/erection of items of plant and equipment shall be for the full compensation for the installation/erection of plant and equipment in accordance with the drawings and specifications. Compensation shall include for all costs incurred for transporting to location, off-loading and moving to point of installation/erection; provision of specified foundations; preparing for installation/erection and mounting on foundations; supply of left out items, aligning, fastenings and securing devices; adjusting as necessary, making good and clearing the location on completion, all to the approval of the Engineer. Payment will be made for each item of installed plant and equipment completed and accepted by the Engineer.

Testing and commissioning shall be full compensation for the testing and commissioning of Plant and equipment forming the Works in accordance with the specifications. Compensation shall include for all testing and putting-to-work of all equipment, sub-systems, and systems; re-testing, fault finding, adjustments and reworking as necessary; submittal of all test reports and other documents all to the approval of the Engineer. Payment will be made after certification by the Contractor and acceptance by the Engineer that the sub-systems and systems, including all equipment have successfully completed the test procedures, and have been set-to-work and that all test results and other documentation, as described in the specifications, have been approved by the Engineer.