

Tender Notification for**Scheme No: EW21ML1015**

PARTIAL CONVERSION OF 66 KV D/C O/H DJB - MATIYALA CKT 1&2 TOWER LINE BY LAYING OF 1CX1000 SQ.MM. XLPE CABLES (8 NOS CABLE) FROM GANTRY STRUCTURE (METRO PILLAR NO 798) TO TOWER NO 13 AT RANAJI ENCLAVE HAVING ROUTE LENGTH-1350 M 4 GRID NEAR GOLF RESIDENCY APARTMENT) (ROUTE LENGTH-3.8 KM)

NIT NO CMC/BR/21-22/RB/CR/AG/0964**Dated 11.11.2021****Due Date for Submission of Tender: 01.12.2021****BSES RAJDHANI POWER LIMITED,****BSES Bhawan, Nehru Place, New Delhi-110019****Corporate Identification Number: U40109DL2001PLC111527****Telephone Number: +91 011-4910 7235,****Website : www.bsedelhi.com**

INDEX**SECTION – I: REQUEST FOR QUOTATION****SECTION – II: INSTRUCTIONS TO BIDDER****SECTION – III: COMMERCIAL TERMS AND CONDITION****SECTION – IV: BILL OF QUANTITY/PRICE FORMAT****BID FORM****TERMS & CONDITIONS FOR REVERSE AUCTION****PROFORMA OF CONTRACT PERFORMANCE BANK GUARANTEE****FORMAT FOR EMD BANK GUARANTEE****SECTION – V: TECHNICAL SPECIFICATIONS**

SECTION I
REQUEST FOR QUOTATION

1.1 GENERAL:-

BSES Rajdhani Power Limited invites sealed tenders in 2 envelopes for “

1.00 PARTIAL CONVERSION OF 66 KV D/C O/H DJB - MATIYALA CKT 1&2 TOWER LINE BY LAYING OF 1CX1000 SQ.MM. XLPE CABLES (8 NOS CABLE) FROM GANTRY STRUCTURE (METRO PILLAR NO 798) TO TOWER NO 13 AT RANAJI ENCLAVE HAVING ROUTE LENGTH-1350 M 4 GRID NEAR GOLF RESIDENCY APARTMENT) (ROUTE LENGTH-3.8 KM)

1.01 The bidder must qualify the requirements as specified in clause 1.3 stated below. **The sealed envelopes shall be duly superscribed as-**

“ PARTIAL CONVERSION OF 66 KV D/C O/H DJB - MATIYALA CKT 1&2 TOWER LINE BY LAYING OF 1CX1000 SQ.MM. XLPE CABLES (8 NOS CABLE) FROM GANTRY STRUCTURE (METRO PILLAR NO 798) TO TOWER NO 13 AT RANAJI ENCLAVE HAVING ROUTE LENGTH-1350 M 4 GRID NEAR GOLF RESIDENCY APARTMENT) (ROUTE LENGTH-3.8 KM)”“NIT NO CMC/BR/21-22/RB/CR/AG/0964”.

1.02 BRPL invites sealed tenders from eligible tenderers for the above-mentioned work (clause 1.01).

| | |
|--------------------------------------------------|---------------------------|
| ESTIMATED COST OF WORK | Rs. 2.24 Crores |
| EARNEST MONEY DEPOSIT | Rs. 4.48 Lakhs |
| COST OF TENDER FORM (NON- REFUNDABLE) | Rs.1180/- (Including GST) |
| COMPLETION PERIOD OF THE WORK | 60 DAYS |
| TENDER DOCUMENTS ON SALE | 11/11/2021 (working days) |
| DATE & TIME OF SUBMISSION OF TENDER | 01/12/2021 1530 HRS |
| DATE & TIME OF OPENING OF TECHNICAL BID (PART-A) | 01/12/2021 1545 HRS |

The tender document can be obtained from address given below against submission of non-refundable demand draft of **Rs.1180/-** drawn in favour of BSES Rajdhani Power Ltd, payable at Delhi:

Head of Department
Contracts & Material Deptt.
BSES Rajdhani Power Limited
I Floor, Tender Room,
BSES Bhawan, Nehru Place

Details of BRPL for tender fee submission are as under:

Beneficiary Name: BSES Rajdhani Power Limited

Bank Name : Bank of Baroda

A/c No. : 10590200001560

IFSC Code : BARB0NEHRUP

The tender papers will be issued on all working days upto the date mentioned in clause 1.01. The tender documents & detail terms and conditions can also be downloaded from the website www.bsesdelhi.com. In case tender papers are downloaded from the above website, then the bidder has to enclose a separate demand draft covering the cost of bid documents.

1.2 POINTS TO BE NOTED

1.2.1 Works envisaged under this contract are required to be executed in all respects up to the period of completion mentioned above.

1.2.2 Only those agencies, who fulfill the qualifying criteria as mentioned in clause 1.3 should submit the tender documents.

1.2.3 Tender document consists of the following:

- a. Request for quotation/ Notice Inviting Tender
- b. Instructions to Tenderers
- c. Commercial Terms & conditions
- d. Bill of Quantities/ Price Format

1.2.4 The Contract shall be governed by the documents listed in para 1.2.3 above.

1.2.5 BSES Rajdhani Power Ltd reserves the right to accept/reject any or all Tenders without assigning any reason thereof and alter the quantity of materials mentioned in the Tender documents at the time of placing purchase/ work orders. Tender will be summarily rejected if:

- (i) If Earnest Money Deposit (EMD) of requisite amount is not deposited in shape of Bank Draft/Pay Order/BG drawn in favour of BSES Rajdhani Power Ltd, payable at Delhi as per below: Please note that bank details as below have been provided only for the purpose of making BG for EMD.

Beneficiary Name: BSES Rajdhani Power Limited

Bank Name : State Bank of India

A/c No. : 40214783615

IFSC Code : SBIN0009601

- (ii) If Tender is received after due date and time

1.3 Qualifying Criteria: - Technical & Commercial

The prospective bidder must qualify all of the following requirements to be eligible to participate in the bidding.

Technical Qualifying Criteria:

- a) Bidder must provide experience certificate of having successfully laid minimum 10 KM cable of rating 33 KV, 3C XLPE Power Cables and higher voltages preferably for electricity utility or govt. organizations during the last five years in Delhi/NCR area or any other Metropolitan City, India
- b) The bidder must enclose order copies along with performance certificates in support of relevant experience. Experience credential as a joint venture / subcontract/ consortium will not be considered.
- c) For Existing vendors of BRPL, performance shall be measured on earlier executed similar works/ other works and will be taken into account in technical evaluation for qualification of bids.
- d) Bidders should have basic testing equipments like PC Set, Sheath Fault measurement Kit etc available with his company & shall submit the list of tools & tackles, with Sl No, Make & Calibration certificates suitable for carrying out the specified job tendered for.

Please note: For Existing vendors of BRPL, Technical evaluation will also include the performance in the existing contracts. BRPL reserves the right to qualify or disqualify their bid based on the performance in spite of them meeting the above qualifying criteria.

Commercial Qualifying Criteria

- i. Bidder must provide proof of having average annual turnover of Rs. 3 Crore during the last three financial years (18-19 & 19-20, 20-21). In case the audited balance sheet is not available with the bidder for 20-21, the bidder shall submit the audited balance sheet for FY 17-18 or turnover certified by the auditor of the firm for FY 20-21.
- ii. Bidder must provide proof of having solvency of an amount equal to Rs. 50 Lacs from any nationalized/ scheduled commercial bank. (Not older than 1st April 2021)
- iii. Bidder should have valid Registration No. of GST.
- iv. Bidder should have PAN No & should fulfill all statutory compliances like PF, ESI registration
- v. Bidder should have a valid Electrical License issued by Delhi Govt. for doing electrical works in Delhi region.
- vi. Entities that have been debarred/ blacklisted in other utilities in India will not be considered; in this regard a written statement has to be provided on bidder's letter head along with other documents.
- vii. The bidder should submit an undertaking for "No Litigation" is pending with BRPL or its Group Companies. Bidders having any litigation/ legal case pending with BRPL shall not be considered qualified for this tender.
- viii. The bidder should give an undertaking on their letterhead that all the documents/certificates/information submitted by them against the tender are genuine/true/correct and the copies of documents have been made from the original document/s. Further in case any of the documents/certificates/information submitted by the bidder is found to be false or forged, BRPL at its sole discretion shall be free to take all actions as permitted under law, including forfeiture of EMD and disqualification from participation in the future tenders for 1 year in BRPL & its group companies.

Please note that by participation in tender and submission of bid, the bidder authorize BRPL to verify the bidder's credentials like work order copies, performance certificates etc. submitted by the bidder from the respective issuing client. If required, BRPL may also direct

the bidder to provide the required contact details of the client who can confirm the authenticity of the documents submitted to facilitate the verification process within the timelines provided by BRPL. That upon demand the bidder shall be providing such details to BRPL within timelines provided by BRPL. Further in case any of the documents/certificates/information submitted by the bidder is found to be false or forged or the default from the side of bidder in providing the details for verification, BRPL at its sole Discretion shall be free to take all actions as permitted under law, including forfeiture of EMD disqualification from participation in the future tenders for 1 year in BRPL & its group companies.

- ix. The bidder should give an undertaking on the company's letter head that all the documents/certificates/information submitted by them against the tender is genuine.

The bidder shall submit all necessary documentary evidence to establish that the Bidder meets the above qualifying requirements.

Please note that BRPL will verify the bidder's credentials like work order copies, performance certificates etc. submitted by the bidder from the respective issuing client, in case any of the documents/certificates/information submitted by the bidder is found to be false or forged, action as deemed fit, including forfeiture of EMD & blacklisting may be initiated by BRPL. If required, BRPL may direct the bidder to provide the required contact details of the client who can confirm the authenticity of the documents submitted to facilitate the verification process within the timelines provided by BRPL

Please Note:

- a) Firms who are debarred/ blacklisted in other utilities in India will not be considered.
- b) No Joint ventures / consortiums are allowed
- c) Company reserves the right to carry out technical capability/ infrastructure assessment of the Bidders by factory/office inspection or by any other means and company's decision shall be final in this regard.

Also, the Bidder shall furnish the following commercial & technical information along with the tender:

- a) Last three Financial Year (FY 18-19, 19-20 & 20-21) audited balance sheet.
- b) Bidder to submit CA Certificate (along with UDIN no.) showing that upto date no statutory compliance dues like GST/ PF and ESI are pending.
- c) Detail of Banker & Cash Credit limit.
- a) Details of constitution of the company (Proprietary/ Limited/Pvt Ltd. Along with details).
- b) Memorandum & Articles of Association of the Company
- c) Organization Chart of the company
- d) Experience details with credentials
- e) Turnover certificate issued by auditors (along with UDIN no.) for the last three Financial Years.



BSES RAJDHANI POWER LTD.

Please note: For Existing vendors/ registered vendors of BRPL, evaluation will also include the past performance in the contracts via-a-vis performance in terms of HR issues, all statutory Compliance parameters and wages disbursement by Vendors. BRPL reserves the right to disqualify their bid based on the above performance parameters in spite of them meeting the above qualification criteria.

BRPL reserves the right to disqualify any bidder in spite of the bidders meeting the above Qualifying requirements. The decision of BRPL shall be final & binding on the bidder.

BRPL may ask for any other document as may be required to substantiate/ justify the submissions made by bidders.

1.4 Bidding and Award Process:-

Bidders are requested to submit their offer strictly in line with this tender document. NO DEVIATION IS ACCEPTABLE. BRPL shall response to the clarifications raised by various bidders and the same will be distributed to all participating bidders through website.

1.4.1 BID SUBMISSION:

The bidders are required to submit the bid in 2 (two) parts and submit in original + one copy to the following address

Head of Department
Contracts & Material Deptt.
BSES Rajdhani Power Ltd
I Floor, Tender Room, BSES Bhawan
Nehru Place
New Delhi-110019

PART A: TECHNICAL BID comprising of following:

- EMD of requisite amount
- Non-refundable separate demand draft for Rs. 1180/- In case the forms are downloaded from the website
- Documentary evidence in support of qualifying criteria
- Technical Literature if any.
- Any other relevant document
- Acceptance to Commercial Terms and Conditions viz Delivery schedule/period ,Payment terms, BG etc
- Acceptance to Technical Specifications

The bidder should submit complete tender document signed and stamped with bidder's seal as an acceptance of all the terms & conditions of the Tender.

PART B: FINANCIAL BID comprising of

* Prices strictly in the Format enclosed in SECTION IV :

TIME SCHEDULE

| S. No. | Steps | Comprising of | Due date |
|--------|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| 1 | Technical Queries, if any | All Queries related to RFQ to be send on For Technical queries: Mr. N K Pandey (EHV- P&C) Mail id: nirjendu.pandey@relianceada.com For Commercial Queries: Mr. Ananda Raj (Head Contracts), Mail id : ananda.raj@relianceada.com Contact No 011-49209014 Ms. Anima Gaur (C&M) Mail id: anima.gaur@relianceada.com Contact No: 011-49209429 | 29.11.2021 |
| 2 | PART A - Technical Bid | EMD of requisite amount Non-refundable demand draft for Rs. 1180/- In case the forms are downloaded from the website Documentary evidence in support of qualifying criteria Technical Literature/ list of makes etc Any other relevant document Acceptance to Commercial Terms and Conditions viz Delivery schedule/period, Payment terms, BG etc. | 01.12.2021 |
| 3 | PART B - Financial Bid | Price strictly in the Format enclosed(Section IV) indicating Break up regarding basic price, taxes & duties etc. | 01.12.2021 |

This is a two part bid process. Bidders are to submit the bids in 2(two) parts.

Both these parts should be furnished in separate sealed covers super scribing NIT no. DUE DATE OF SUBMISSION, with particulars as PART-A TECHNICAL BID & COMMERCIAL TERMS & CONDITIONS and Part-B FINANCIAL BID and these sealed envelopes should again be placed in another sealed envelope which should be super scribed with —“Tender Notice No. & Due date of opening”. The same shall be submitted before the due date & time specified.

Part – A: Technical Bid should not contain any cost information whatsoever and shall be submitted with in the due date After technical evaluation, the list of qualified tenderers will be posted immediately on BSES website.

PART B: This envelope will be opened after technical evaluation and only of the qualified bidders

FINANCIAL BID EVALUATION THROUGH REVERSE AUCTION:

Reverse auction shall be conducted for finalization of contract and the details of the price bid shall not be shared with bidders.

The qualified bidders will participate in reverse auction through SAP-SRM tool. The reverse auction process shall be governed by the terms and conditions enclosed as Annexure-A in this tender document. Training/details shall be provided to bidders before participation in auction.

Notwithstanding anything stated above, the Company reserves the right to assess bidders' capability to perform the contract, should the circumstances warrant such assessment in the overall interest of the Company. In this regard the decision of the Company is final.

In case RA is not concluded/conducted for any reasons, a "final no regret" financial bid in a sealed envelope will be called for from all qualified bidders

1.4.2 Award Decision

- a) Company intends to award the business on a lowest bid basis, so contractors are encouraged to submit the bid competitively. The decision to place order/LOI solely depends on Company on the cost competitiveness across multiple lots, quality, delivery and bidder's capacity, in addition to other factors that Company may deem relevant.
- b) The Company reserves all the rights to award the contract to one or more bidders so as to meet the delivery requirement or nullify the award decision without any reason.
- c) Please note that abnormally higher or abnormally lower bids shall not be considered with respect to estimated cost. The criteria decided by BRPL on this shall be final and binding on the bidders.
- d) In case any contractor is found unsatisfactory during the execution process, the award will be cancelled and BRPL reserves the right to award other contractors who are found fit.
- e) "Nil/Zero" Margin or Administrative Service Charges of Bidders will be considered as "Unresponsive". Abnormally higher or abnormally lower bids shall not be considered with respect to estimated cost. The criteria decided by BRPL on this shall be final and binding on the bidders and will not be open for discussion under any circumstances. Therefore, the bidding firms are advised to quote their Margin / Administrative Service Charges accordingly. BRPL reserves the right to reject the bids quoted with abnormally higher or abnormally lower individual activity rates. The criteria decided by BRPL on this shall be final and binding on the bidders.
- f) BSES reserves the right to split the tender quantity amongst techno-commercially qualified bidders on account of delivery requirement in tender, quantity under procurement etc.

BRPL reserves the right to reject the bids quoted with abnormally higher or abnormally lower individual activity rates. The criteria decided by BRPL on this shall be final and binding on the bidders.

Market Integrity

We have a fair and competitive marketplace. The rules for bidders are outlined in the Terms & Conditions. Bidders must agree to these rules prior to participating. In addition to other remedies available, we reserves the right to exclude a bidder from participating in future markets due to the bidder's violation of any of the rules or obligations contained in the Terms & Condition. Bidders who violate the market place rules or engage in behavior that disrupts the fair execution of the marketplace restricts a bidder to length of time, depending upon the seriousness of the violation. Examples of violations include, but are not limited to:

- Failure to honor prices submitted to the market place.
- Breach of the terms of the published in Request for Quotation/NIT.

1.4.3 Confidentiality

All information contained in this RFQ is confidential and may not be disclosed, published or advertised in any manner without written authorization from BRPL. This includes all bidding information submitted.

All RFQ documents remain the property of BRPL and all bidders are required to return these documents to BRPL upon request.



BSES RAJDHANI POWER LTD.

Bidders who do not honor these confidentiality provisions will be excluded from participating in future bidding events.

1.5 Contact Information

Technical clarification, if any, as regards this RFQ shall be sought in writing and sent by post/courier to following address

| | Technical | Commercial |
|----------------|------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| Contact Person | Head (P&C), BRPL Copy to :Head (C&M) | Head (C&M) |
| Address | BSES Rajdhani Power Ltd , BSES Bhawan. Nehru Place, New Delhi - 110019 | C&M Deptt. 1 st Floor , C-Block, BSES Rajdhani Power Ltd BSES Bhawan, Nehru Place, New Delhi 110019 |

SECTION – II: INSTRUCTION TO BIDDERS

1.0 GENERAL

BSES Rajdhani Power Ltd, hereinafter referred to as “The Company “are desirous of awarding work for “

Scheme No/ Name

Scheme No: EW21ML1015- PARTIAL CONVERSION OF 66 KV D/C O/H DJB - MATIYALA CKT 1&2 TOWER LINE BY LAYING OF 1CX1000 SQ.MM. XLPE CABLES (8 NOS CABLE) FROM GANTRY STRUCTURE (METRO PILLAR NO 798) TO TOWER NO 13 AT RANAJI ENCLAVE HAVING ROUTE LENGTH-1350 M 4 GRID NEAR GOLF RESIDENCY APARTMENT) (ROUTE LENGTH-3.8 KM)

” The scheme for this project has been framed. The Company has now floated tender for this work in BRPL as notified earlier in this bid document

2.0 SCOPE OF WORK

The scope shall include material transportation, digging of trench, cable laying, supply of HDPE pipe, cable cover etc.

3.0 DISCLAIMER

- 3.01 This Document includes statements, which reflect various assumptions, which may or may not be correct. Each Bidder/Bidding Consortium should conduct its own estimation and analysis and should check the accuracy, reliability and completeness of the information in this Document and obtain independent advice from appropriate sources in their own interest.
- 3.02 Neither Company nor its employees will have any liability whatsoever to any Bidder or any other person under the law or contract, the principles of restitution or unjust enrichment or otherwise for any loss, expense or damage whatsoever which may arise from or be incurred or suffered in connection with anything contained in this Document, any matter deemed to form part of this Document, provision of Services and any other information supplied by or on behalf of Company or its employees, or otherwise arising in anyway from the selection process for the work.
- 3.03 Though adequate care has been taken while issuing the Bid document, the Bidder should satisfy itself that Documents are complete in all respects. Intimation of any discrepancy shall be given to this office immediately.
- 3.04 This Document and the information contained herein are Strictly Confidential and are for the use of only the person(s) to whom it is issued. It may not be copied or distributed by the recipient to third parties (other than in confidence to the recipient’s professional advisors).

4 COST OF BIDDING

The Bidder shall bear all cost associated with the preparation and submission of its Bid and the company will in no case be responsible or liable for those costs.

5. BIDDING DOCUMENTS

5.01 The Scope of Work, Bidding Procedures and Contract Terms are described in the Bidding Documents. In addition to the covering letter accompanying Bidding Documents, the Bidding Documents include:

| | |
|--------------------------------|----------------|
| Request for Quotation (RFQ) | - Section - I |
| Instructions to Bidders (ITB) | - Section - II |
| Commercial Terms & Conditions | - Section -III |
| Bill of quantity /Price Format | - Section IV |
| Technical Specifications | - Section V |

5.02 The Bidder is expected to examine the Bidding Documents, including all Instructions, Forms, Terms and Specifications. Failure to furnish all information required by the Bidding Documents or submission of a Bid not substantially responsive to the Bidding Documents in every respect will may result in the rejection of the Bid.

6.0 AMENDMENT OF BIDDING DOCUMENTS

- 6.01 At any time prior to the deadline for submission of Bids, the Company may for any reasons, whether at its own initiative or in response to a clarification requested by a prospective Bidder, modify the Bidding Documents by Amendment.
- 6.02 The Amendment shall be part of the Bidding Documents, pursuant to Clause 5.01, and it will be notified in writing by Fax/e-mail to all the Bidders who have received the Bidding Documents and confirmed their participation to Bid, and will be binding on them.
- 6.03 In order to afford prospective Bidders reasonable time in which to take the Amendment into account in preparing their Bids, the Company may, at its discretion, extend the deadline for the submission of Bids.

7.0 PREPARATION OF BIDS

7.0 LANGUAGE OF BID

The Bid prepared by the Bidder, and all correspondence and documents relating to the Bid exchanged by the Bidder and the Company, shall be written in the English Language. Any printed literature furnished by the Bidder may be written in another Language, provided that this literature is accompanied by an English translation, in which case, for purposes of interpretation of the Bid, the English translation shall govern.

8.0 DOCUMENTS COMPRISING THE BID

The Bid prepared and submitted by the Bidder shall comprise the following components:

- (a) Bid Form ,Price & other Schedules (STRICTLY AS PER FORMAT) and Technical Data Sheets completed in accordance with Technical Specification.
- (b) All the Bids must be accompanied with the required EMD as mentioned in the Section-I against each tender.

9.0 BID FORM

9.01 The Bidder shall submit"Original"Bid Form and the appropriate Price Schedules and technical specifications enclosed with the Bidding Documents.

The bidder shall furnish, as part of its bid, an EMD of requisite amount as already specified in the Section-I. The EMD is required to protect the Company against the risk of Bidder's conduct which would warrant forfeiture. The EMD shall be denominated in any of the following form:

- (a) Demand Draft/Pay Order drawn in favour of BSES Rajdhani Power Ltd, payable at Delhi.
- (b) BG from nationalized / Scheduled bank in favour of BSES Rajdhani Power Limited valid for 6(six) months after last date of receipt of tenders

The bidders who are not technically qualified, EMD shall be refunded after price bid opening. Earnest money given by all the bidders who are techno commercially qualified except the lower bidder shall be refunded within 8 (Eight) weeks after award of the work. The amount of EMD by the successful bidder shall be returned on submission of CPBG as per tender terms.

The EMD may be forfeited in case of:

- (a) If the Bidder withdraws its bid during the period of bid validity specified by the Bidder in the Bid Form or
 - (b) in the case of a successful Bidder, if the Bidder does not
 - (i) Accept the Purchase Order/Work Order, or
 - (ii) furnish the required performance security BG.
- (c) If the bidder is found to have submitted false or forged any of the documents/certificates/information.

10.0 BID PRICES

- 10.01 Bidders shall quote for the entire Scope of work with prices for individual items. The tenderer is required, at his expense, to obtain all the information he may require to enable him to submit his tender including necessary visits to the site to ascertain the local conditions, procurement of necessary materials, labour, etc., requirements of the local/government/public authorities in such matters. Prices quoted by the Bidder shall be "Firm" and not subject to any price adjustment during the performance of the Contract. **A Bid submitted with an adjustable price/PVC will be treated as non-responsive and rejected.**

11.0 BID CURRENCIES

Prices shall be quoted in Indian Rupees Only.

12.0 PERIOD OF VALIDITY OF BIDS

- 12.01 Bids shall remain valid & open for acceptance for a period of 120 days from the date of opening of the Bid.
- 12.02 Notwithstanding Clause 12.01 above, the Company may solicit the Bidder's consent to an extension of the Period of Bid Validity. The request and the responses thereto shall be made in writing and sent by

13.0 ALTERNATIVE BIDS

Bidders shall submit Bids, which comply with the Bidding Documents. Alternative Bids will not be considered. The attention of Bidders is drawn to the provisions regarding the rejection of Bids in the terms and conditions, which are not substantially responsive to the requirements of the Bidding Documents.

14.0 FORMAT AND SIGNING OF BID

- 14.01 The original Bid Form and accompanying documents(as specified in Clause 9.0),clearly marked "Original Bid", must be received by the Company at the date, time and place specified pursuant to Clauses15.0 and16.0.
- 14.02 The original copy of the Bid shall be typed or written in indelible ink and shall be signed by the Bidder or a person or persons duly authorized to sign on behalf of the Bidder. Such authorization shall be indicated by written Power-of-Attorney accompanying the Bid.
- 14.03 The Bid shall contain no interlineations, erasures or overwriting except as necessary to correct errors made by the Bidder, in which case such corrections shall be initialed by the person or persons signing the Bid.

D. SUBMISSION OF BIDS**15.0 SEALING AND MARKING OF BIDS**

- 15.01 Bid submission: One original (hard copies) of all the Bid Documents shall be sealed and submitted to the Company before the closing time for submission of the bid.
- 15.02 The Technical Documents and the EMD shall be enclosed in a sealed envelope and the said envelope shall be superscribed with — Technical Bid & Commercial Terms & Conditions “. The price bid shall be inside another sealed envelope with superscribed —“Financial Bid “. Both these envelopes shall be sealed inside another big envelope. All the envelopes should bear the Name and Address of the Bidder and marking for the Original. The envelopes should be superscribed with —“Tender Notice No. & Due date of opening“.
- 15.03 The Bidder has the option of sending the Bids in person. Bids submitted by Email/Telex/Telegram /Fax will be rejected. No request from any Bidder to the Company to collect the proposals from Courier/Airlines/Cargo Agents etc shall be entertained by the Company.

16.0 DEADLINE FOR SUBMISSION OF BIDS

- 16.01 The original Bid must be timely received by the Company at the address specified in Section-I
- 16.02 The Company may, at its discretion, extend the deadline for the submission of Bids by amending the Bidding Documents in accordance with Clause 9.0,in which case all rights and obligations of the Company and Bidders previously subject to the deadline will there after be subject to the deadline as extended

17.0 ONE BID PER BIDDER

Each Bidder shall submit only one Bid by itself. No Joint Venture/Consortium is acceptable. A Bidder who submits or participates in more than one Bid will cause all those Bids to be rejected.

18.0 LATE BIDS

Any Bid received by the Company after the deadline for submission of Bids prescribed by the Company, pursuant to Clause 16.0, will be declared "Late" and rejected and returned unopened to the Bidder.

19.0 MODIFICATIONS AND WITHDRAWAL OF BIDS

19.01 The Bidder is not allowed to modify or withdraw its Bid after the Bid's submission.

E. EVALUATION OF BID**20.0 PROCESS TO BE CONFIDENTIAL**

Information relating to the examination, clarification, evaluation and comparison of Bids and recommendations for the award of a contract shall not be disclosed to Bidders or any other persons not officially concerned with such process. Any effort by a Bidder to influence the Company's processing of Bids or award decisions may result in the rejection of the Bidder's Bid.

21.0 CLARIFICATION OF BIDS

To assist in the examination, evaluation and comparison of Bids, the Company may, at its discretion, ask the Bidder for a clarification of its Bid. All responses to requests for clarification shall be in writing and no change in the price or substance of the Bid shall be sought, offered or permitted.

22.0 PRELIMINARY EXAMINATION OF BIDS / RESPONSIVENESS

22.01 Company will examine the Bids to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished, whether the documents have been properly signed, and whether the Bids are generally in order.

22.02 Arithmetical errors will be rectified on the following basis. If there is a discrepancy between the unit price and the total price per item that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price per item will be corrected. If there is a discrepancy between the Total Amount and the sum of the total price per item, the sum of the total price per item shall prevail and the Total Amount will be corrected.

22.03 Prior to the detailed evaluation, Company will determine the substantial responsiveness of each Bid to the Bidding Documents including production capability and acceptable quality of the Goods offered. A substantially responsive Bid is one, which conforms to all the terms and conditions of the Bidding Documents without material deviation.

22.04 Bid determined as not substantially responsive will be rejected by the Company and/or the Company and may not subsequently be made responsive by the Bidder by correction of the non-conformity.

23.0 EVALUATION AND COMPARISON OF BIDS

23.01 The evaluation of Bids shall be done based on the delivered cost competitiveness basis.

23.02 The evaluation of the Bids shall be a stage-wise procedure. The following stages are identified for evaluation purposes: In the first stage, the Bids would be subjected to a responsiveness check. The Technical Proposals and the Conditional ties of the Bidders would be evaluated.

Subsequently, the Financial Proposals along with Supplementary Financial Proposals, if any, of Bidders with Techno-commercially Acceptable Bids shall be considered for final evaluation.

23.03 The Company's evaluation of a Bid will take into account, in addition to the Bid price, the following factors, in the manner and to the extent indicated in this Clause:

- a) Work completion schedule
- b) Conformance to Qualifying Criteria
- c) Deviations from Bidding Documents

Bidders shall base their Bid price on the terms and conditions specified in the Bidding Documents.

The cost of all quantifiable deviations and omissions from the specification, terms and conditions specified in Bidding Documents shall be evaluated. The Company will make its own assessment of the cost of any deviation for the purpose of ensuring fair comparison of Bids.

23.04 Any adjustments in price, which result from the above procedures, shall be added for the purposes of comparative evaluation only to arrive at an "Evaluated Bid Price". Bid Prices quoted by Bidders shall remain unaltered.

F. AWARD OF CONTRACT

24.0 CONTACTING THE COMPANY

24.01 From the time of Bid opening to the time of contract award, if any Bidder wishes to contact the Company on any matter related to the Bid, it should do so in writing.

24.02 Any effort by a Bidder to influence the Company and/or in the Company's decisions in respect of Bid evaluation, Bid comparison or Contract Award, will result in the rejection of the Bidder's Bid.

25.00 THE COMPANY'S RIGHT TO ACCEPT ANY BID AND TO REJECT ANY OR ALL BIDS

The Company reserves the right to accept or reject any Bid and to annul the Bidding process / reject all Bids at anytime prior to award of Contract, without thereby incurring any liability to the affected Bidder or Bidders or any obligation to inform the affected Bidder or Bidders of the grounds for the Company's action.

26.0 AWARD OF CONTRACT

The Company will award the Contract to the successful Bidder whose Bid has been Determined to be the lowest-evaluated responsive Bid, provided further that the Bidder has been determined to be qualified to satisfactorily perform the Contract. Company reserves the right to award order other bidders in the tender, provided it is required for progress of project & provided he agrees to come to the lowest rate.

Please note that abnormally higher or abnormally lower bids shall not be considered with respect to estimated cost. The criteria decided by BRPL on this shall be final and bound on the bidders.

"Nil/Zero" Margin or Administrative Service Charges of Bidders will be considered as "Unresponsive". Abnormally higher or abnormally lower bids shall not be considered with respect to estimated cost. The criteria decided by BRPL on this shall be final and binding on the bidders and will not be open for discussion under any circumstances. Therefore, the bidding firms are advised to quote their Margin /

Administrative Service Charges accordingly.

27.0 THE COMPANY'S RIGHT TO VARY QUANTITIES

The Company reserves the right to vary the quantity i.e. increase or decrease the numbers/quantities without any change in terms and conditions during the execution of the Order.

28.0 LETTER OF INTENT/ NOTIFICATION OF AWARD

The letter of intent/ Notification of Award shall be issued to the successful Bidder whose bids have been considered responsive, techno-commercially acceptable and evaluated to be the lowest (L1). The successful Bidder shall be required to furnish a letter of acceptance within 7 days of issue of the letter of intent /Notification of Award by Company.

29.0 CORRUPT OR FRAUDULENT PRACTICES

29.01 The Company requires that the Bidders observe the highest standard of ethics during the procurement and execution of the Project. In pursuance of this policy, the Company:

(a) Defines, for the purposes of this provision, the terms set forth below as follows:

"Corrupt practice" means behavior on the part of officials in the public or private sectors by which they improperly and unlawfully enrich themselves and/or those close to them, or induce others to do so, by misusing the position in which they are placed, and it includes the offering, giving, receiving, or soliciting of anything of value to influence the action of any such official in the procurement process or in contract execution; and

"Fraudulent practice" means a misrepresentation of facts in order to influence a award process or the execution of a contract to the detriment of the Company, and includes collusive practice among Bidders (prior to or after Bid submission) designed to establish Bid prices at artificial non -competitive levels and to deprive the Company of the benefits of free and open competition.

- (b) Will reject a proposal for award if it determines that the Bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question ;
- (c) Will declare a firm ineligible, either indefinitely or for a stated period of time, to be awarded a contract if it at any time determines that the firm has engaged in corrupt or fraudulent practices in competing for, or in executing, a contract.

29.02 Furthermore, Bidders shall be aware of the provision stated in the Terms and Conditions of Contract.

SECTION – III: TERMS AND CONDITIONS**1.0 General Instructions:**

- 1.01** All the Bids shall be prepared and submitted in accordance with these instructions.
- 1.02** Bidder shall bear all costs associated with the preparation and delivery of its Bid, and the Company will in no case shall be responsible or liable for these costs.
- 1.03** The Bid should be submitted by the Bidder in whose name the bid document has been issued and under no circumstances it shall be transferred/ sold to the other party.
- 1.04** The Company reserves the right to request for any additional information and also reserves the right to reject the proposal of any Bidder, if in the opinion of the Company, the data in support of RFQ requirement is incomplete.
- 1.05** The Bidder is expected to examine all instructions, forms, terms & conditions and specifications in the Bid Documents. Failure to furnish all information required in the Bid Documents or submission of a Bid not substantially responsive to the Bid Documents in every respect may result in rejection of the Bid. However, the Company's decision in regard to the responsiveness and rejection of bids shall be final and binding without any obligation, financial or otherwise, on the Company.
- 1.06** Quantity mentioned in SECTION-IV is the total quantity. The company reserves the right to split the order among various successful tenderers in any manner he chooses without assigning any reason whatsoever

2.0 COMMERCIAL TERMS & CONDITIONS:**1. Definition:**

The following terms & expressions as used in this work order shall have the meaning defined and interpreted here under:

1.1. Company: The terms "Company" shall mean BSES Rajdhani Power Limited

Corporate Identification Number: U40109DL2001PLC111527

Telephone Number : +91 011-4910 7235

Website: www.bsedelhi.com

Having its office at BSES Bhawan, Nehru Place, New Delhi-110019 and shall include its authorized representatives, agents, successors and assigns.

1.2 Contractor: contractor shall mean the successful Tenderer / vendor to whom the contract has been awarded

1.3 Rate: The unit rates for the work to be carried out at site shall be as per finalized unit rates through tender. The Invoice of the Contractor will be processed as per the actual work done and the quantities of each items performed by the Contractor as per the site requirement to be certified by Engineer In-charge.

The finalized rates shall be firm for the entire duration of work to be carried out by the Contractor under the work order and are not subject to escalation for any reason whatsoever.

1.4 Work Order Specification: The terms "work order Specification" shall mean the Technical specification of the work as agreed by you and description of work as detailed in ANNEXURE enclosed and all such particulars mentioned directly/referred to or implied as such in the work order.

1.5 Site: The terms "Site" shall mean the working location mentioned in the work order.

2. ENGINEER IN-CHARGE:

The term "Engineer In-Charge" shall mean the Company's nominated representative for the purpose of carrying out the work.

3. EXAMINATION OF SITE AND LOCAL CONDITIONS:

The contractor is deemed to have visited all the sites comes under BRPL licensed area under the work order and ascertained therefore all site conditions and information pertaining to his work. The company shall not accept any claim whatsoever arising out of the difficulties at site/terrain/local conditions, if any.

4. LANGUAGE AND MEASUREMENT:

The work order issued to the contractor by the company and all correspondence and documents relating to the work order placed on the Contractor shall be written in English language. Metric System shall be followed for all dimension, units etc.

5. SCOPE OF WORK:

The scope of work shall be

"Scheme No: EW21ML1015- PARTIAL CONVERSION OF 66 KV D/C O/H DJB - MATIYALA CKT 1&2 TOWER LINE BY LAYING OF 1CX1000 SQ.MM. XLPE CABLES (8 NOS CABLE) FROM GANTRY STRUCTURE (METRO PILLAR NO 798) TO TOWER NO 13 AT RANAJI ENCLAVE HAVING ROUTE LENGTH-1350 M 4 GRID NEAR GOLF RESIDENCY APARTMENT) (ROUTE LENGTH-3.8 KM)

Note:

While carrying out trenchless / open digging works the existing underground cables are liable to get damaged leading to High Risk Safety Hazard to the working people.

To arrest above problem to the best degree possible, there are technology support available, like Cable Route Tracer which is an important tool to detect the live / dead cables underground to the depth upto 3 meters, comfortably. The vendor must employ Cable Route Tracer before start of excavation / trenchless job and submit reports to the Engineer-in-charge for clearance to start the job. The above will minimize the risk of cable damage and improve safety of the working people.

It may please be noted that in case bidders have no "Cable Route Tracers" with him, as a basic necessity tool. Heavy penalty will be imposed on the vendors, if the vendor damages the cables. The preferable make for the Cable route tracer shall be 3M or equivalent make.

Also, attached are the technical specifications for cable laying.

The contractor has to obtain Electrical Inspectorate's clearance of the installation.

All the labour, cranes, power, tool and tackles, technical supervision etc. are including in your scope of work. Adequate number of engineers, supervisors and labours shall be posted at site and the list of the same along with certificate of Qualification of technical staff should be submitted by the Contractor to the Company for checking the adequacy immediately (with in seven days) after award of contract.

However, Engineer In-Charge shall arrange any permission like Road cutting clearance etc. from the Delhi Civic authorities like MCD, DDA, PWD, DJB and Traffic Police. However, the contractor shall make follow up with local authorities and other connected persons that may be required to carry out the job under this order.

All loading/ unloading of materials at work-site shall be your responsibility. Involvement of Crane/Hydra/Tractor/Trailer for this type of work shall be in your scope. Adequate weather protection shall be provided by the contractor to keep the materials safe from sun & rain by providing covered storage space as well as using tarpaulins.

6. ADDITIONAL SCOPE / WORK:

Any additional work beyond the scope enumerated in the work order above shall be carried out as per the instructions of Engineer-In Charge. The company shall not entertain any claim or increase in the Work Order value due to execution of such additional work if the same is not approved by Engineer In Charge

7.0 VALUE OF THE WORK ORDER:

Value of work order will be worked out on the basis of finalized rates

The cost of insurance during loading/unloading of materials/ equipments during its storage and handling/erection at site for installation is included in the contractor's scope and value will be included in the work order value. The unit rates are also inclusive of barricading charges and watch & ward charges during execution and no separate charges shall be paid for the same.

8.0 TAX & DUTIES:

Prices are inclusive of all taxes and duties including labour cess (except GST) However, IT as per applicable rate will be deducted from your bills as Tax Deduction at Source (TDS).

GST at actual shall be paid on submission of GST Registration and self declaration on your letter head stating that you have deposited/or will deposit the Tax as per the applicable GST laws. You shall furnish your GST registration number.

Any statutory variations i.e. increase/decrease in Taxes / Duties introduces by central Govt. / State Govt. of shall be reimbursed/recovered to/from Contractor against documentary evidence and proof.

9.0 CONTRACT PERFORMANCE BANK GUARANTEE:

9.1 CONTRACTOR shall furnish the Contract Performance Bank Guarantee in the prescribed format (Appendix I) within 15 days from the date of issue of Order for due performance of the provisions of Work Order.

9.2 The contract Performance Bank Guarantee shall be of 10% of the total value of order and shall be valid till the completion of defect liability period, plus three (3) months towards claim period.

9.3 The Contract Performance Bank Guarantee shall be issued from any Scheduled /nationalized bank as per company format.

9.4 The Company shall reserve the right to invoke the bank guarantee unconditionally and without recourse to the Contractor, if there is failure to perform any part of the Contract for whatsoever reason. This clause is pertaining to performance of contractual obligations and the decision of Company shall be final in this regard.

9.5 In the event, in Company sole judgment, the Contractor has fulfilled all its obligations under this Contract, Company shall release the Contract performance bank guarantee without interest, within seven (7) days from the last date up to which the performance bank guarantee is to be kept valid or if it is assessed by the Company that Contractor has not fulfilled its obligation then the performance bank guarantee shall be extended by the Contractor till that period as requested by the Company.

10. TERMS OF PAYMENT:

Payment shall be made to you as under:

- i) 80% payment shall be released on submission of bill and certification of work completion by Engineer-In-charge. The bill shall be paid within 30 days on receipt of such bills at our office.
- ii) 10% against submission of Electrical Inspectorate's & QC clearance certificate.
- iii) Balance 10% shall be paid on testing and commissioning of entire scheme, work completion certificate issued by our Engineer In charge.

The contractor shall submit the invoice along with the checklist duly filled in Invoice shall be processed and payment shall be made to contractor on certification of Engineer-In Charge for compliance to check points given in check list.

11. COMPLETION PERIOD:

You are required to mobilize your manpower within 7 days of receipt of WO and commence the activity as per instructions of Engineer In-charge. The entire work should be completed within 60 days from the date of issue of order.

The detailed schedule and milestone completion dates would be as per the contract schedules given from time to time by Engineer In-charge at site. Formal road cutting clearance from MCD is made available to you. You shall submit a weekly progress report to Engineer In charge.

12.0) STAFF AND WORKMAN:

(I) It shall be responsibility of contractor

(a) To obtain Contract Labour License from the concerned authorities and maintain proper liaison with them. Necessary Forms for obtaining Labour License would be issued by the company. However you will bear all expenses for obtaining Labour license and registration in PF Department for your scope of work. You will deposit PF of your staff/laborer each month and all related documents should be furnished to us.

b) To obtain workman insurance cover against deployment of workers etc.

(II) To maintain, proper records relating to workmen employed, in the form of various Registers, namely,

- a) Register of workmen.
- b) Register of muster roll.
- c) Register of overtime.
- d) Register of wages.
- e) Any other register as per latest amendment Labour Act.

The records shall be in the prescribed formats only.

(III) To disburse monthly wages to your workers/ supervisors in time and in the presence of Company representatives or as directed by the Labour authorities.

(IV) To maintain proper liaison with the Project authorities, local police and all other government and local bodies.

(V) To pay your workmen at least not less than the minimum prescribed wages as per state/Central Labour laws as may be, applicable. The contractor shall, be responsible for compliance of all the provisions of minimum Wages Act, PF, ESIC Act workmen Compensation Act and Contract Labour Regulation & Abolition Act the rules made there under. In case of non- compliance of the statutory requirements. The company would take necessary action at the risk and cost of the Contractor.

(VI) To employ required number of skilled/semi-skilled and unskilled workmen as per site requirement to complete the entire project as per schedule. To provide safety shoes, safety helmets, safety belts, gloves etc. to your worker/staff as per requirement during erection work.

(VII) To employ necessary engineering and supervisory staff for completion of the Project in time. While day-to-day management of the site and supervision of the works shall be the responsibility of your Engineer - In charge, he will report to the Engineer in charge to assist him to discharge the overall responsibility of the execution of the project.

13.0) CLEANLINESS & PRECAUTIONS TO BE TAKEN WHILE DOING WORK AT SITE TO PREVENT DUST POLLUTION.

All debris shall be removed and disposed of at assigned areas on daily basis. Surplus excavated earth shall be disposed of in an approved manner. In short, the contractor shall be fully responsible for keeping the work site clean at all times. In case of non- compliance, company shall get the same done at Contractor's risk and costs. While carrying out any civil work including road/ pit digging, plinth/ fence making, road restoration etc contractor shall adhere to below mentioned guidelines.

1. No construction material/ debris shall be stored on metalled road.
2. Wind breakers of appropriate height on all sides of ear marked area using CGI sheets shall be raised to ensure that no construction material dust fly outside ear marked area.
3. The construction material i.e. coarse sand, stone aggregates, excavated earth, cement and any other material to and from the site shall be transported under wet and covered condition to ensure their non-slippage en-route to avoid air contamination.
4. The contractor shall provide mask and helmet to every worker working on the construction site and involved in loading/unloading and carriage of construction material and construction debris to prevent inhalation of dust particles.
5. Over loading of vehicles shall be strictly prohibited
6. The construction material at site shall be stored under wet and covered condition.
7. The dumping sites for temporarily storing the excavated earth shall be properly levelled, watered and rehabilitated by plantation to avoid flying of dust.
8. The worker at the site shall be sensitized to adopt / observe the dust controlled measures in true spirit.
9. If any C&D waste is generated at site the same will be transported to the C&D waste site only and the record for the same will be maintained by the agency.
10. Wet jet in grinding and stone cutting is being permitted at site.

11. The necessary record for dust control is being maintained by the department on day to day basis and being monitored regularly.

GUIDELINES REGARDING INSPECTION & MAINTENANCE OF PITS/ DUG AREA WHILE DOING WORK AT SITE IN BRPL AREA

The contractor shall ensure strict compliance of the following directions:

- a) The sites of all manholes, pits, holes, tanks or any other opening in the ground of any kinds shall be regularly inspected and maintained.
- b) Schedule and protocols of inspections and maintenance shall be drawn up and notified to BRPL.
- c) These sites shall be cordoned off to render them inaccessible to the public.
- d) The existence of these sites shall be clearly & visibly marked by the display of signboards/signages.
- e) If they are required to be covered, it shall be ensured that the covers are in place.

The Execution vendors shall be responsible for all the preventive and protective environmental steps as per guidelines. Any violations from the above guidelines have been viewed very seriously by the authorities. Concerned agency is liable for the penalties / other action by the authorities, The Agency shall indemnify BRPL from all liabilities on this account

Guidelines for working in Covid19 situation:

Looking to the present Covid19 situation, Vendor will ensure that the work carried out in the field by their staff shall be as per the guidelines issued by BRPL & MHA from time to time. Further vendor shall be required to provide to their staff masks/ sanitizers/ all PPE required for working in Covid19 situation. The vendor shall further ensure to work as per the guidelines of BRPL Engineer in charge.

14.0) WORK COMPLETION CERTIFICATION, HANDING OVER AND MATERIAL RECONCILIATION:

The work carried out by the Contractor under this order has to be certified by Engineer In-charge for satisfactory completion of work allotted to the contractor with respect to specifications / Field Quality Procedures as per applicable standards. In case of modification/correction to be carried out, contractor shall carry out the said modifications/correction without additional cost. The Contractor shall remain in close contact with Engineer In-Charge at site to report the general findings of the fieldwork during the initial as well as later stage of the work at site.

The contractor shall be solely responsible for any shortage or damage of materials issued to them handling of and / or in storage and erection at site and cost of the same will be recovered from the contractor as certified by Engineer In-Charge. Contractor must submit a material reconciliation statement in the approval format with Bill raise by him. The contractor shall maintain an accurate and exhaustive record detailing out the list of all items received by him for the purpose of erection and keep such record open for the inspection of the company.

15. PENALTY AND LIQUIDATED DAMAGES:

15.1 Penalty: A penalty of 2.5% of bill amount shall be levied in each case of non-compliance of safety practices and site cleanliness.

15.2 Liquidated Damages: In the event of any delay in completion of the work beyond the stipulated time given by in order due to reasons solely attributable to the Contractor, the Contractor shall pay to the Company liquidated damages.

If the Contractor failed perform the services within the time period specified in the order, the Company shall, without prejudice to its other remedies under the contract, deduct liquidated damages a sum equivalent to 2.0% of the billed amount of final work executed for each week or part there of delay until the actual date of completion up to a maximum deduction of 20% of billed amount of final work executed. Once the maximum is reached to Company may consider termination of contract without any liabilities to Company.

In case the contractor has not mobilized / taking up the job as per the direction of Engineer In-charge, the company have all rights to cancel / re-allocate the work allotted to the contractor.

Engineer In charge should specifically mention the amount of LD levied on the bill of contractor for this job.

16.0 WARRANTY / DEFECT LIABILITY PERIOD

The Contractor shall be liable to rectify all defects in the materials or works done by the Contractor under this Contract, or from any act or omission of the contractors for a period of Twelve (12) months from date of final work completion certification by the Engineer in-charge.

If any defect noticed and system can not be used by reason of any defect, the defect liability period shall be extended by the period equal to the period during which the system is not in operation.

In respect of any warranty work performed by the Contractor, the period during which a claim may be made for such warranty work shall be extended by an additional period of twelve (12) months from the completion of such portion of warranty work.

17. LABOUR, POWER AND WATER:

During the tenure of this work order all tools, tackles, camp facilities shall be arranged by the Contractor at his cost without any liabilities to the Company.

The company shall provide Electricity power free of cost at work site if possible.

18. SECURITY:

Adequate number of trained Security Guards shall be deployed both at the storage yard and stores as well as places of work to prevent theft and pilferage of material and accessories and various other materials. All security rules and safety rules enforced at site by company shall be strictly observed.

19. Environmental, Health & Safety Plan

Contractor will make ensure that the Environment, Health & Safety (EHS) requirements are clearly understood and faithfully implemented at all levels at site as per instruction of Company.

Contractors must comply with these requirements:

- a) Comply with all of the elements of the EHS Plan and any regulations applicable to the work
- b) Comply with the procedures provided in the interests of Environment, Health and Safety
- c) Ensure that all of their employees designated to work are properly trained and competent
- d) Ensure that all plant and equipment they bring on to site has been inspected and serviced in accordance with legal requirement and manufacturer's or suppliers' instructions
- e) Make arrangements to ensure that all employees designated to work on or visit the site present themselves for site induction prior to commencement of work
- f) Provide details of any hazardous substances to be brought onsite
- g) Ensure that a responsible person accompanies any of their visitors to site

All contractor's staff are accountable for the following:

- 1. Use the correct tools and equipment for the job and use safety equipment and protective clothing supplied, e.g. helmets, goggles, ear protection, etc. as instructed
- 2. Keep tools in good condition
- 3. Report to the Supervisor any unsafe or unhealthy condition or any defects in plant or equipment
- 4. Develop a concern for safety for themselves and for others
- 5. Prohibit horseplay
- 6. Not to operate any item of plant unless they have been specifically trained and are authorized to do so.
- 7.

20.0) QUALITY:

Contractor shall ensure that strict quality is maintained in the Performa and execution of works under this Work Order and Works are executed in conformity with the Specification.

All tools, tackles, instruments and other equipments used in the execution of the Works shall be duly calibrated as required and Contractor shall maintain proper records of such tools, tackles, instruments and / or equipment.

Contractor shall prepare the quality plan as per the specifications and shall strictly monitor compliance with the approved quality plan during the entire period of this Work Order.

21.0) SAFETY CODE:

The Contractor shall ensure adequate safety precautions at site as required under the law of the land to facilitate safe working during the execution of work and shall be entirely responsible for the complete safety of their workmen as well as other workers at site and premises during execution of contract.

The contractor shall observe the safety requirements as laid down in the contract and in case of sub-contract (only after written approval of company), it shall be the responsibility of main contractor that all safety requirements are followed by the employees and staff of the sub-contractor.

The contractor employing two hundred employees or more, including contract workers, shall have a safety co-ordinator in order to ensure the implementation of safety requirements of the contract and a contractor with lesser number of employees, including contract workers, shall nominate one of his employees to act as safety co-ordinator who shall liaise with the safety officer on matters relating to safety and his name shall be displayed on the notice board at a prominent place at the work site.

The contractor shall be responsible for non-compliance of the safety measures, implications, injuries, fatalities and compensation arising out of such situations or incidents.

In case of any accident, the contractor shall immediately submit a statement of the same to the owner and the safety officer, containing the details of the accident, any injury or casualties, extent of properly damage and remedial action taken to prevent recurrence and in addition, the contractor shall submit a monthly statement of the accidents to the owner at the end of each month..

22.0) STATUTORY OBLIGATIONS:

The Contractor shall take all steps as may be necessary to comply with the various applicable laws/rules including the provisions of contract labour (Regulation & Abolition Act) 1970 as amended, Minimum wages Act, 1948, Workman Compensation Act, ESI Act, PF Act, Bonus Act and all other applicable laws and rules framed there under including any statutory approval required from the Central/State Governments, Ministry of Labour. Broadly, the compliance shall be as detailed in ANNEXURE I enclosed.

Before commencing the work it would be mandatory for the Contractor to furnish the company the permanent PF code no and ESI of the employees.

23.0) WORKMEN COMPENSATION:

The Contractor shall take insurance policy at his own cost under the Workman Compensation Act to cover such workers who are not covered under ESI and PF by the CONTRACTOR however engaged to undertake the jobs covered under this order and a copy of this insurance policy will be given to Company for reference and records. This insurance policy shall be kept valid at all times. In case there are no worker involve other than those who are covered under ESI and PF by the CONTRACTOR, the CONTRACTOR shall certify for the same.

The CONTRACTOR shall keep the COMPANY indemnified at all times, against all claims of compensation under the provisions of Workmen Compensation Act 1923 as amended from time to time or any compensation payable under any other law for the time being involving workmen engaged by the CONTRACTOR in carrying out the job involved and against costs and expenses, if any, incurred by the COMPANY in connection therewith and without prejudice to make any recovery.

The COMPANY shall be entitled to deduct from any money due to or to become due to the CONTRACTOR, moneys paid or payable by way of compensation as aforesaid or cost or expenses in connection with any claims thereto and the CONTRACTOR shall abide by the decision of the COMPANY as to the sum payable by the CONTRACTOR under the provisions of this clause.

24.0) THIRD PARTY INSURANCE:

The Contractor shall, before the commencement of work, take a Third Party Insurance of an adequate value, at his own cost and expenses, securing all the risks/losses/damages which may be caused to any third party and/or BRPL and/or its employees/associates, because of the omission/performance of tasks by the contractor under this agreement. The full and final settlement of claims raised by third parties shall be the sole responsibility of the contractor without any liability to BRPL.

It is further agreed by the contractor that in case of defect/damage to the system because of default on the part of the contractor, the contractor shall, at its own cost, be liable to replace/rectify the same at the earliest or make good the loss suffered by BRPL.

25.0) ACCIDENTAL INSURANCE POLICY FOR LIFE COVER:

Before commencing the execution of the work the CONTRACTOR shall take Accidental insurance policy for the staff engaged by him for this work to insure against any loss of life which may occur during the contract for the work of the COMPANY. The policy shall have coverage of Rs. 10 Lacs (Table C- Death + Permanent Total Disability + Partial permanent Disability due to external accidents). The Contractor shall be responsible for on the spot same day claim settlement with the victim's legal heirs without waiting for settlement by insurance claim without any liability on BRPL. The premium amount for such life cover policy shall be borne by the contractor. The contractor shall furnish copy of policy when demanded by BRPL.

26.0) C. Insurance for Covid 19:

Before commencing the execution of the work the CONTRACTOR shall take insurance policy for covering death against Covid 19 for the staff engaged by him for this work to insure against any loss of life which may occur during the contract. The contractor has to take "No fault liability policy" which shall have coverage of Rs. 10 Lacs per employee. The Contractor shall be responsible for on the spot same day claim settlement with the victim's legal heirs without waiting for settlement by insurance claim without any liability on BRPL. The premium amount for such policy shall be borne by the contractor. The contractor shall furnish copy of policy when demanded by BRPL.

27.0) SUB-CONTRACTING / SUBLETTING:

CONTRACTOR shall not assign or transfer the whole or any part of this Work Order or any other benefits accruing there from nor shall it subcontract / sublet the whole or any part of the Works

28.0) INDEMNITY:

Contractor shall indemnify and save harmless COMPANY against and from any and all liabilities, claims, damages, losses or expenses arising due to or resulting from:

- a) any breach non-observance or non-performance by contractor or its employees or agents of any of the provisions of this Work Order.
- b) any act or omission of contractor or its employees or agents.
- c) any negligence or breach of duty on the part of contractor, its employees or agents including any wrongful use by it or them of any property or goods belonging to or by COMPANY.

Contractor shall at all times indemnify COMPANY against all liabilities to other persons, including he employees or agents of COMPANY or contractor for bodily injury, damage to property or other loss which may arise out of or in consequence of the execution or completion of Works and against all costs charges and expenses that may be occasioned to COMPANY by the claims of such person.

29.0) EVENTS OF DEFAULTS:

COMPANY may, without prejudice to any of its other rights or remedies under the Work Order or in law, terminate the whole or any part of this Work Order by giving written notice to the Contractor, if in the opinion of COMPANY, contractor has neglected to proceed with the works with due diligence or commits a breach of any of the provisions of this work order including but not limited to any of the following cases:

- a) Failing to complete execution of work within the terms specified in this work order.

- b) Failing to complete works in accordance with the approved schedule of works.
- c) Failing to meet requirements of specifications, drawings, and designs as approved by COMPANY.
- d) Failing to comply with any reasonable instructions or orders issued by COMPANY in connection with the works.
- e) Failing to comply with any of the terms or conditions of this work order.

In the event COMPANY terminates this work order, in whole or in part, on the occurrence of any event of default, COMPANY reserves the right to engage any other subcontractor or agency to complete the work or any part thereof, and in addition to any other right COMPANY may have under this work order or in law including without limitation the right to penalize for delay under clause 15.0 of this work order, the contractor shall be liable to COMPANY for any additional costs that may be incurred by COMPANY for the execution of the Work.

30.0) RISK & COST :

If the Contractor fails to execute the work as per specification / as per the direction of Engineer's In-charge within the scheduled period and even after the extended period, the contract shall get cancel and company reserves the right to get the work executed from any other source at the Risk & Cost of the Contractor. The Extra Expenditure so incurred shall be debited to the Contractor.

31.0) ARBITRATION:

To the best of their ability, the parties hereto shall endeavor to resolve amicably between themselves all disputes arising in connection with the proposed Agreement. If the same remain unresolved, within fifteen (15) days of the matter being raised by either party, either party may refer the dispute for settlement by arbitration. The arbitration to be undertaken by a sole arbitrator to be appointed by the company. The decision of the arbitrator is final and binding upon both the parties. The arbitration proceeding shall be conducted in accordance with the provisions of the Indian Arbitration & Conciliation Act, 1996 and the venue of such arbitration shall be New Delhi only.

32.0) FORCE MAJEURE:

The conditions of Force Majeure shall means the events beyond control of the parties effected such as act of God, Earthquake, Flood, Devastating fire, War, Civil Commotion, Cyclone, Industrial Lockout and Statutory Act of the Government having bearing on the performance of the Contract.

The party affected by Force Majeure shall be obliged to notify the other party within 48 hours, by fax/cable, of the commencement and the end of the Force Majeure circumstances preventing its performance of all or any of its obligations under this order.

If performance of obligations under this order is delayed for more than one months due to a continuous Force Majeure, the party not affected by Force Majeure may at any time thereafter while such Force Majeure continues, by notice in writing forth with terminate all or any part of the unperformed portion this order.

If this order or any portion thereof is terminated under Force Majeure conditions, the Contractor shall be liable to the COMPANY for any damages, losses or liabilities as result thereof.

33.0) SECRECY CLAUSE:



BSES RAJDHANI POWER LTD.

The technical information, drawing and other related documents forming part of order and the information obtained during the course of investigation under this order shall be the COMPANY's exclusive property and shall not be used for any other purpose except for the execution of the order. The technical information drawing, records and other document shall not be copied, transferred, or divulged and/or disclosed to third party in full/part, not misused in any form whatsoever except to the extent for the execution of this order. These technical information, drawing and other related documents shall be returned to the COMPANY with all approved copies and duplicates including drawing/plans as are prepared by the Contactor during the executions of this order, if any, immediately after they have been used for agreed purpose.

In the event of any breach of this provision, the contractor shall indemnify the COMPANY against any loss, cost or damage or claim by any party in respect of such breach.

34.0) TERMINATION:

Without prejudice to the rights and remedies available to BRPL under this order BRPL reserves the absolute right to terminate this agreement giving one month notice to the contractor without assigning any reason whatsoever.

35.0) VENDOR CODE OF CONDUCT

Vendor confirms to have gone through the Policy of BRPL on legal and ethical code required to be followed by vendors encapsulated in the "Vendor Code of Conduct" displayed on the official website of BRPL (www.bsesdelhi.com) also, which shall be treated as a part of the contract.

Contractor undertakes that he shall adhere to the Vendor code of Conduct and also agrees that any violation of the Vendor Code of Conduct shall be treated as breach of the contract.

In event of any such breach, irrespective of whether it causes any loss/damage, company (BRPL) shall have the right to recover loss/damage from Contractor.

The Contractor hereby indemnifies and agrees to keep indemnified the company (BRPL) against any claim/litigation arising out of any violation of Vendor Code of Conduct by the Contractor or its officers, agents & representatives etc.

36.0) ACCEPTANCE:

Acceptance of this order implies and includes acceptance of all terms and conditions enumerated in this work order in the technical specification and drawings made available to you consisting of general conditions, detailed scope of work, detailed technical specification & detailed equipment, drawing. Complete scope of work and the Contractor's and COMPANY's contractual obligation are strictly limited to the terms set out in the order. No amendments to the concluded order shall be binding unless agreed to in writing for such amendment by both the parties.

ANNEXURE I

The Contractor should obtain and must submit the following to Engineer-In-Charge before commencement of work and these shall renewed from time to time:

- a) An Electrical license issued by Govt.of Delhi.
- b) PF Code No. and all employees to have PF A/c No. under PF every Act, 1952.
- c) All employees to have a temporary or permanent ESI Card as per ESI Act.
- d) ESI Registration No.
- e) GST registration number
- f) PAN No.
- g) Work Contract Tax Registration Number/ VAT Registration.
- h) Labour License under Contract Labour Act (R & A) Act 1970

(All Engineer-in-charge responsible for execution of the job should obtain a copy of Labour License as per guidelines of HR department before start of the work by the contractor.)

The Contractor must follow:

- a) Third party Insurance Policy before start of work.
- b) To follow Minimum Wages Act prevailing in the state.
- c) Salary / Wages to be distributed in presence of representative of Company's representative not later than 7th of each month.
- d) To maintain Wage- cum - Attendance Register.
- e) To maintain First Aid Box at Site.
- f) Latest P.F. and E.S.I. challans pertaining to the period in which work was undertaken along with a certificate mentioning that P.F. and E.S.I. applicable to all the employees has been deducted and deposited with the Authorities within the time limits specified under the respective Acts.
- g) Workman Compensation Policy.
- h) Labour license before start of work.

SECTION-IV: BILL OF QUANTITY/ PRICE FORMAT

| BOQ: Scheme No: EW21ML1015 | | | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------------|-------------|---------------|
| Work annexure for Partial conversion of 66 kV D/C O/H DJB - MATIYALA CKT 1&2 Tower line by laying of 1Cx1000 sq.mm. XLPE Cables (8 nos cable) from Gantry structure (metro pillar no 798) to Tower no 13 at Ranaji Enclave having Route length-1350 M 4 Grid near Golf residency apartment) (Route length-3.8 KM) | | | | | |
| SR.NO. | DESCRIPTION | UNIT | QTY | Rate | AMOUNT |
| 1 | Transportation of electrical equipment from store/any site in Delhi to site of work in Delhi including loading and unloading at both ends manually.(Considering max lead of 50KM) | TRP | 25 | | |
| 2 | Transportation of electrical equipment I.e.CB,CT,PT,ISOLATORS,LA,CABLE DRUMS etc. from store/any site in Delhi to site of work in Delhi including loading and unloading at both ends by using T & P such as Tripod/cranes etc.(Considering max lead of 50KM) | TRP | 30 | | |
| 3 | Transportation of Empty cable drum from site to site or from site to store any where in Union territory of Delhi. | TRP | 30 | | |
| 4 | Transportation of various material like 40 mm dia Rod 12-15 mtrs long by 25 T trailer from store/any site in Delhi to site of work in Delhi including loading and unloading at both ends manually.(Considering max lead of 50KM) | TRP | 10 | | |
| 5 | Survey include final survey of material , marking of location route length and super impose GPS co-ordinate before start work | KM | 1.35 | | |
| 6 | Check survey and final Peg marking on route length | KM | 1.35 | | |
| 7 | Digging of cable trench as per specification and drawings. Rate is inclusive of digging and backfilling. Measurement shall be as per actual depth excavated . For Dense Carpeted bituminous Road. | CUM | 675 | | |
| 8 | Digging of cable trench as per specification and drawings. Rate is inclusive of digging and backfilling. Measurement shall be as per actual depth excavated . For Ordinary Soil. | CUM | 225 | | |
| 9 | Removal of Malba including Loading / Unloading on own vehicle. The payment shall be restricted to the quantity of sand laid. | CUM | 337.5 | | |

| | | | | | |
|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-------|--|--|
| 10 | Providing and Laying Sand cushioning for cable route as per BRPL/BYPL specification and drawing. | CUM | 337.5 | | |
| 11 | Laying of under ground cable in trench ,covering with RCC cable cover,covering with sand ,Sand cushion will be min 75mm below and 75mm above the cable, fixing of cable identification tags (9" X 4") at every 30 Mtrs, Laying of warning tape above 250mm of the docket, refilling the trench and ramming the surface & removal of malba if any, including watch and ward till charging of cable (This activity includes only labour jobs) for 66 KV single core cable Running Mtr | M | 10800 | | |
| 12 | Supply and fixing of Cable Route/Joint Marker as per approved drawing.For 33/66 KV cables. | EA | 40 | | |
| 13 | ETC of active ball marker for 66 kv at every joints | EA | 24 | | |
| 14 | ETC of Passive ball marker for 66 kv at every 50 m | EA | 30 | | |
| 15 | Fixing of RCC Coffin cover for joints as per BRPL specification and filling sand inside cover | EA | 24 | | |
| 16 | Providing and laying in position specified grade of reinforced cement concrete excluding the cost of shuttering,centring,finishing and reinforcement-All work upto plinth level : 1:2:4 (1cement :2 coarse sand :4 graded stone agg.20mm nominal size.) | CUM | 60 | | |
| 17 | Crossing of roads by trench-less technology by laying of HDPE pipe excluding supply of pipe .Laying by HDD Machine Moling. Drilling and laying. 200mm dia. | M | 6480 | | |
| 18 | Charges for providing continous steel barricade 1.2 mtr high including cost of all material plant consumables transport and labour for shifting placing painting and regular maintenance.40% qty for selected portion | M | 1350 | | |
| 19 | Digging of cable trench/joint pit/test pit by Pneumatic jack hammer | CUM | 196 | | |
| 20 | Digging of earth pit upto depth of 10 ft. inrocky/ semi rocky as per feasibility at site of embedding 600 x600mm earth plate with M.S Flate 50 x8 mm running the same through 3/4 " dia G.I. grouting pipe. Earth Plate to be covered by charcoal 200kg. And 100 Kg. Sodium chloride in the earth pit and refilling etc. NOTE: Charcoal, commonsalt, earth plate, G.I. Pipe, MS flat, Badarpur, Cement and bricks to be supplied by the contractor | EA | 28 | | |

| | | | | | |
|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|------|--|--|
| 21 | Making of civil goomitties around GI earthpipe as per standard design of BSES. Supply of necessary bricks, cement, badarpur, sand, C1 cover of size 1'x1' and providing the same at the top of goomitties. | EA | 28 | | |
| 22 | Laying of HDPE pipe for crossing small Nallas in the cable route or in the existing trenches | M | 960 | | |
| 23 | Painting of any M.S.Structure with one coat of Red oxide and two coats of AL.paint ISI marked including supply of paint by contractor. | KG | 4100 | | |
| 24 | Erection of MS as well as galvanised structure for different equipment like isolator, C.T.'s, P.T.'s, CVT, LA's , ISO etc, cable supporting structure, 33kV/66 kV GI gantry structure , Tower Structure i/c consumables , welding electrode ,tack welding & hacksaw blades etc. | MT | 4.1 | | |
| 25 | Reseting, mounting and connection of cable structure and dismounting of 6Nos 1X1000MM cables end boxes from its structure and installtion of cleats & post insulators | EA | 16 | | |
| 26 | Making termination in the existing line i/c.sagging and jumpering complete for 6Nos.Conductors with one earth wire. | EA | 2 | | |
| 27 | Stringing of ACSR GOAT Conductor, Earthwire, Insulator & Hardware Fittings i.e.Single Tension String Insulator fittings with single tension clamp for single GOAT conductor ,Single Tension String Insulator fittings with double tension clamp for twin GOAT conductor,Double Tension String Insulator fittings with single tension clamp for single GOAT conductor,Single Suspension String Insulator fittings with single drop/tension clamp for single GOAT conductor, Single Suspension String Insulator fittings with double drop/tension clamp for twin GOAT conductor,Single Suspension String Insulator fittings with single suspension clamp for single GOAT conductor,Single Suspension String Insulator fittings with double suspension clamp for twin GOAT conductor ,Bolted type 'T' Connector suitable for single GOAT conductor,Vibration Damper for GOAT Conductor, Repair Sleeve for GOAT, Mid span compression joint for ACSR GOAT, Rigid Type Spacers for twin GOAT PER CIRCUIT INCLUDING EARTH WIRE(PER CIRCUIT MEANS 3 CONDUCTORS AND ONE EARTH WIRE INCLUDING HARDWARE FITTINGS AND ACCESSORIES) | KM | 0.1 | | |

| | | | | | |
|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-------|--|--|
| 28 | Erection of electrical equipment Including supply of T & P, all consumable items such as welding rods, hacksaw blades etc and minor modification in support structure for fixing as required.For 66 kV LA's with or without surge counter | EA | 12 | | |
| 29 | Fabrication of MS structure as well as galvanised for different equipment like isolator, C.T.'s, P.T.'s, CVT, LA's etc, cable supporting structure including supply of nuts and bolts, consumables , welding electrode, hacksaw blades etc. excluding supply of steel. | MT | 4.1 | | |
| 30 | Charges for Hi pot test - Testing equipment to be provided by the contractor. For 66 KV cables | EA | 8 | | |
| 31 | Extra for handling of 66KV Cable from cable drum. Note:If the Drum length is more than 250Mtr. | M | 10800 | | |
| 32 | Watch & Ward Charges. | DAY | 150 | | |
| 33 | Dismantalling of ACSR GOAT Conductor, Earthwire, Insulator & Hardware Fittings i.e.Single Tension String Insulator fittings with single tension clamp for single GOAT conductor ,Single Tension String Insulator fittings with double tension clamp for twin GOAT conductor,Double Tension String Insulator fittings with single tension clamp for single GOAT conductor,Single Suspension String Insulator fittings with single drop/tension clamp for single GOAT conductor, Single Suspension String Insulator fittings with double drop/tension clamp for twin GOAT conductor,Single Suspension String Insulator fittings with single suspension clamp for single GOAT conductor,Single Suspension String Insulator fittings with double suspension clamp for twin GOAT conductor ,Bolted type 'T' Connector suitable for single GOAT conductor,Vibration Damper for GOAT Conductor, Repair Sleeve for GOAT, Mid span compression joint for ACSR GOAT, Rigid Type Spacers for twin GOAT PER CIRCUIT INCLUDING EARTH WIRE(PER CIRCUIT MEANS 3 CONDUCTORS AND ONE EARTH WIRE INCLUDING HARDWARE FITTINGS AND ACCESSORIES) | KM | 1.2 | | |
| 34 | Dismantling of MS as well as galvanised structure for different equipment like isolator, C.T.'s, P.T.'s, CVT, LA's , ISO etc, cable supporting structure, 33kV/66 kV GI gantry and tower structure including consumables , welding electrode & hacksaw blades etc. | MT | 10 | | |
| 35 | Laying of Optical Fiber cable | M | 2800 | | |
| 36 | Laying of 40mm dia HDPE Duct in open trench | M | 2800 | | |

| | | | | | |
|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|------|--|--|
| 37 | Laying of 40mm dia, HDPE Duct through trenchless method using HDD machine | M | 1620 | | |
| 38 | Splicing and making of joint of optical fiber 48F (36 SINGLE MODE, 12 MULTI MODE) | NOS | 10 | | |
| 39 | Providing and fixing of Anti climbing device. | EA | 6 | | |
| 40 | Providing and Fixing of Danger plates. | EA | 6 | | |
| 41 | Providing and Fixing of number plates . | EA | 6 | | |
| 42 | Providing and Fixing of Phase plates . | EA | 12 | | |
| 43 | Providing and Fixing of circuit plates . | EA | 12 | | |
| 44 | Laying of MS flat in the excavatd trench including risers, equipment earthing, overlapping of MS flat at the joints by twice of its width and welding of over lapping and cross joints including supply of electrodes, red oxide/bitumin compound , paint etcand Laying of GI earth strip for equipment earthing, along the wall, trench, cable trays etc including fabrication of supports/cleats and fixing with wall bolts, welding works, painting of earth strip and riser with red oxide paint/bitumin compound and final. For 50X6 sqmm | M | 200 | | |
| 45 | Supply of warning tape per BSES Design specification (Width=150mm, Thickness=0.3u) | M | 1200 | | |
| 46 | Supply of RCC Cable protection cover as per BYPL/BRPL specification & drawing. (50 Thick 550 mm wide) | EA | 1400 | | |
| 47 | Supply and fixing of Cable Route/Joint Marker as per approved drawing.For 33/66 KV cables. | EA | 40 | | |
| 48 | Supply of PVC Tie having Length=750mm,Width=9mm & Thickness=2.1mm for fastening of 66 KV,1x630/1000 sq.mm.XLPE Cable. | EA | 200 | | |
| 49 | Supply and fixing of wire mesh fencing 2.65 mtr height with gate frame of 3 mtr x 2.5 mtr with complete material including painting eg angle,chain link,wire mesh and civil material etc complete as per specification,drawing no.Angle iron size 50x50x6 mm & MS strip 50 x 3 mm wire mesh 1"x3", 8 SWG wire to be used for wire-mesh with providing support at 1.25 distance. | SQM | 160 | | |
| 50 | Supply of RCC Coffin for joints (Dimension of each coffin shall cover complete joints) | EA | 24 | | |
| 51 | Supply of Optical Fiber Cable | M | 2800 | | |

| | | | | | |
|----|-----------------------------------------------------------------------------------------------------------------|-----|------|--|--|
| 52 | Supply of HDPE Duct-40mm | M | 2800 | | |
| 53 | Supply of LIU 96F fully loaded for OFC final termination | NOS | 2 | | |
| 54 | Supply & fixing of RCC chamber for OFC S/Through Joint | NOS | 4 | | |
| 55 | Supply of joint encloser suitable for 48 F (36 Single mode,12 multimode) as per BRPL drawing | NOS | 8 | | |
| 56 | Supply of RFID Electronic Passive Ball Marker 3M Make | NOS | 30 | | |
| 57 | Supply of RFID Electronic Active Ball Marker 3M Make | NOS | 24 | | |
| 58 | Supply of Cable identification tag (Aluminum) | NOS | 300 | | |
| 59 | Supply of Galvanized Nut & Bolts | KG | 150 | | |
| 60 | Making optical fibre S/Through joint | NOS | 8 | | |
| 61 | Installation of LIU including Patch cord | NOS | 2 | | |
| 62 | Supply & Fixing of fencing around Link Box Panel including Locking arrangement and painting etc. as per drawing | NOS | 2 | | |
| 63 | Supply & Installation of Link Box Panel along with Base structure including grouting etc. as per drawing | NOS | 2 | | |
| 64 | Supply & ETC of Chemical Earthing | NOS | 4 | | |
| 65 | Erection, Testing & Commissioning of Cross Bonding Kits, SVL & Link Box | EA | 6 | | |
| 66 | Supply of HDPE pipes as per IS 4984,PN 6 class PE 80 - 200mm dia | M | 7440 | | |
| 67 | supply of S/throught joit for Optical Fiber Cable | NOS | 8 | | |
| 68 | supply of END BOX for Optical Fiber Cable | NOS | 4 | | |
| | Total | | | | |
| | GST@ 18% | | | | |
| | Grand Total | | | | |



BSES RAJDHANI POWER LTD.

BID FORM

To

Head of Department
Contracts & Material Deptt.
BSES Rajdhani Power Ltd
I Floor, "C" Block, BSES Bhawan
Nehru Place, New Delhi-110019
Sir,

- 1 We understand that BRPL is desirous of carrying out in it's licensed distribution network area in Delhi
- 2 If our Bid is accepted, we under take to provide our services as per completion schedule mentioned in the tender document from the date of award of work order/letter of intent.
- 3 If our Bid is accepted, we will furnish a performance bank guarantee as mentioned in the RFQ for due performance of the Contract in accordance with the Terms and Conditions.
- 4 We agree to abide by this Bid for a period of 120 days from the due date of bid submission and it shall remain binding upon us and may be accepted at any time before the expiration of that period.
- 5 Unless and until Letter of Intent is issued, this Bid, together with your written acceptance there of, shall constitute a binding contract between us.
- 6 We understand that you are not bound to accept the lowest, or any bid you may receive.
- 7 There is provision for Resolution of Disputes under this Contract, in accordance with the Laws and Jurisdiction of Contract.

Dated this..... day of..... 2021

Signature..... In the capacity of

.....duly authorized to sign for and on behalf of

(IN BLOCK CAPITALS)

TERMS & CONDITIONS FOR REVERSE AUCTION

In a bid to make our entire procurement process more fair and transparent, BRPL intends to use the reverse auctions through SAP-SRM tool as an integral part of the entire tendering process. All the bidders who are found as techno commercially qualified based on the tender requirements shall be eligible to participate in the reverse auction event.

Reverse auction shall be governed by following terms and conditions:

1. BRPL shall provide the user id and password to the authorized representative of the bidder. (Duly signed Authorization Letter in lieu of the same shall be submitted along with the bid).
2. BRPL will make every effort to make the bid process transparent. However, the award decision by BRPL would be final and binding on the bidder.
3. The bidder agrees to non-disclosure of trade information regarding the purchase, identity of BRPL, bid process, bid technology, bid documentation and bid details.
4. The bidder is advised to understand the auto bid process to safeguard themselves against any possibility of non-participation in the auction event.
5. Bidders are further advised to ensure availability of the entire infrastructure as required at their end to participate in the auction event. Inability to bid due to telephone line glitch, Internet response issues, software or hardware hangs; power failure or any other reason shall not be the responsibility of BRPL.
6. In case the bidder fails to participate in the auction event due any reason whatsoever, it shall be presumed that the bidder has no further discounts to offer and the initial bid as submitted by the bidder as a part of the tender shall be considered as the bidder's final no regret offer. Any offline price bids received from a bidder in lieu of non-participation in the auction event shall be out rightly rejected by BRPL.
7. The bidder shall be prepared with competitive price quotes on the day of the bidding event.
8. The prices as quoted by the bidder during the auction event shall be inclusive of all the applicable taxes, duties and levies and shall be FOR at BRPL site/ store .
9. The prices submitted by a bidder during the auction event shall be binding on the bidder.
10. No requests for time extension of the auction event shall be considered by BRPL.
11. The discount received after the RA and final negotiation, w.r.t. the initial financial bid shall be applied on all the items on a pro rata basis.
12. In case RA is not conducted /concluded for any reasons, a "final no regret" financial bid in a sealed envelope will be called for from all qualified bidders.

APPENDIX-I**PROFORMA OF CONTRACT PERFORMANCE BANK GUARANTEE**

(TO BE ISSUED ON RS 100/- STAMP PAPER)

Bank Guarantee No.

Place:

Date:

To

BSES Rajdhani Power Limited

Whereas BSES RAJDHANI POWER LTD (hereinafter referred to as the "Purchaser", which expression shall unless repugnant to the context or meaning thereof include its successors, administrators and assigns) has awarded to M/s.. with its Registered/ Head Office at

(here in after referred to as the "Supplier" which expression shall unless repugnant to the context or meaning thereof, include its successors administrators, executors and assigns), a contract no. dated (the Contract);

And whereas the value of the Contract is Rs. (The Contract Value).

And whereas it is a condition of the Contract that the Supplier shall provide a Performance Bank Guarantee for the due and faithful performance of the entire Contract for a sum equivalent to - % of the Contract Value to the Purchaser on or before

And whereas the Bank under instructions from the Supplier has agreed to guarantee due performance of the Contract.

Now it is agreed as follows:

1. we (Name of the Bank) having its Head Office at

(hereinafter referred to as the Bank, which expression shall unless repugnant to the context or meaning thereof, include its successors, administrators, executors and assigns) shall indemnify and keep indemnified the Purchaser for, and guarantee and undertake to pay to the Purchaser immediately on written demand, a sum equivalent to % of the Contract Value

as aforesaid at any time upto (day/month/year) without any demur, reservation,

contest, recourse or protest and/or without any reference to the Supplier, against all losses, damages, costs and expenses that may be caused to or suffered by the Purchaser by reason of any default on the part of the Supplier in performing and observing any and all the terms and conditions of the Contract or breach on the part of the Supplier of terms or conditions of the Contract.

2. The demand shall consist only of an original letter issued by Purchaser stating that the Supplier has failed to fulfill its obligations under the Contract. Such demand made by the Purchaser on the Bank shall be conclusive and binding notwithstanding any difference or dispute between the Purchaser and the Supplier or any difference or dispute pending before any Court, Tribunal, Arbitrator or any other authority.

3. The Bank undertakes not to revoke this guarantee during its currency without previous written consent of the Purchaser and further agrees that the guarantee herein contained shall continue to be enforceable during the period that



BSES RAJDHANI POWER LTD.

would be taken for satisfactory performance and fulfillment in all respects of the Contract or in the event of any dispute between the Purchaser and Supplier until the dispute is settled (provided that d1e claim! demand under this guarantee is lodged /referred during the currency of this guarantee) or till the Purchaser discharges this guarantee whichever is earlier.

4. The Purchaser shall have the fullest liberty without affecting in any way the liability of the Bank under this guarantee from time to time to extend the time for performance of the Contract by the Supplier. The Purchaser shall have the fullest liberty, without affecting the liability of the Bank under this guarantee, to postpone from time to time the exercise of any powers vested in them or of any right which they might have against the Supplier, and to exercise the same at any time in any manner, and either to enforce or to forbear to enforce any covenants, contained or implied, in the Contract. or any other course or remedy or security available to the Purchaser. The Bank shall not be released of its obligations under these presents by any exercise by the Purchaser of its liberty with reference: to the matters aforesaid or any of them or by reason of any other act or forbearance or other acts of omission or commission on the part of the Purchaser or any other indulgence shown by the Purchaser of by any other matter or thing whatsoever which under law would, but for this provision, have the effect of relieving the Bank.

5. The Bank agrees that the Purchaser and its option shall be entitled to enforce this guarantee against the Bank as a principal debtor, in the first instance without proceeding against the Supplier and notwithstanding any security or other guarantee that the Purchaser may have in relation to the Supplier's liabilities.

6. Notwithstanding anything contained hereinabove the liability of the Bank under this guarantee is restricted to a sum equivalent to % of the Contract Value ie. Rs.(Rupees) and it shall remain in force upto and including . Unless a demand to enforce a claim under this guarantee is made against the Bank within 3 months from the the above date of expiry i.e. up to all the rights of the Purchaser under the said guarantee shall be forfeited and the Bank shall be released and discharged from all liabilities thereafter.

7. This Performance Bank Guarantee shall be governed by the laws of India.

Dated this Witness

day of 2021 at

1. For Bank

2. Signature Name Power of Attorney No:

Banker's Seal

FORMAT FOR EMD BANK GUARANTEE

(To be issued in a Non Judicial Stamp Paper of Rs.50/-purchased in the name of the bank)

Whereas [name of the Bidder] (herein after called the "Bidder") has submitted its bid dated [date of submission of bid] for the supply of [name and/or description of the goods] (here after called the "Bid").

KNOW ALL PEOPLE by these presents that WE [name of bank] at [Branch Name and address], having our registered office at [address of the registered office of the bank] (herein after called the "Bank"), are bound unto BSES Rajdhani Power Ltd., with its Corporate Office at BSES Bhawan, Nehru Place, New Delhi-110019, (herein after called —the "Purchaser") in the sum of Rs. (Rupees only) for which payment well and truly to be made to the said Purchaser, the Bank binds itself, its successors, and assigns by these presents.

Sealed with the Common Seal of the said Bank this ____ day of _____ 2021 ____.

THE CONDITIONS of this obligation are:

- 1 If the Bidder withdraws its Bid during the period of bid validity specified by the Bidder on the Bid Form ; or
2. If the Bidder, having been notified of the acceptance of its Bid by the Purchaser during the period of bid validity:
 - (a) fails or refuses to execute the Contract Form ,if required; or
 - (b) fails or refuses to furnish the performance security, In accordance with the Instructions to Bidders/ Terms and Conditions;

We undertake to pay to the Purchaser up to the above amount upon receipt of its first written demand, without the Purchaser having to substantiate its demand, provided that is its demand the purchaser will note that amount claimed by it is due to it, owing to the occurrence of one or both of the two condition(s), specifying the occurred condition or condition(s).

This guarantee will remain valid for 6(six) months after last date of receipt of tenders, and any demand in respect thereof should reach the Bank not later than the above date.

(Stamp & signature of the bank)

Signature of the witness

Communication Details

Bidder should furnish the below details for future communication:-

| | |
|-----------------------------------|--|
| <u>GENERAL INFORMATION</u> | |
| NAME OF COMPANY | |
| POSTAL ADDRESS | |

| | | |
|------------------------------|-----------|--------------|
| FOR TECHNICAL QUERY: | | |
| CONTACT PERSON & DESIGNATION | NAME | DESIGNATION |
| E-MAIL | MOBILE NO | TELEPHONE NO |

| | | |
|------------------------------|-----------|--------------|
| FOR COMMERCIAL QUERY: | | |
| CONTACT PERSON & DESIGNATION | NAME | DESIGNATION |
| E-MAIL | MOBILE NO | TELEPHONE NO |

SECTION-V

TECHNICAL SPECIFICATIONS



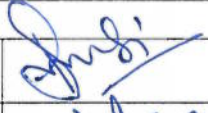
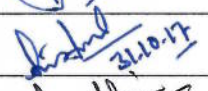
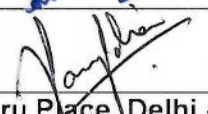
TECHNICAL SPECIFICATION

FOR

LAYING OF 66 kV / 33 kV / 11 kV / 1.1 KV GRADE
PVC / XLPE CABLES

Specification no: GN101-03-SP-06-03

BSES RAJDHANI POWER LTD

| | | | |
|-------------|----------------|--------------------------------------------------------------------------------------------------|-------------------|
| Prepared by | Pronab Bairagi |  | Rev : 03 |
| Reviewed by | Amit Tomar |  31.10.17 | Date : 31.10.2017 |
| Approved by | Vijay Panpalia |  | Pages : 44 |

Registered Office: BSES Bhavan, Nehru Place, Delhi - 110019

Index

| | |
|-----------------------------------------------------------------|----|
| General Specification | 3 |
| 1.0.0 Codes & standards | 3 |
| 2.0.0 Design Guidelines & Parameters for Cable laying..... | 3 |
| 3.0.0 General Guidelines for Laying Cables..... | 7 |
| 4.0.0 Testing | 14 |
| 5.0.0 Progress Reporting | 15 |
| 6.0.0 Drawing, Data & manuals..... | 15 |
| 7.0.0 Deviations..... | 16 |
| | |
| Annexure # 1 – DEVIATION REPORT FORMAT..... | 16 |
| Annexure # 2 – DC HIGH VOLTAGE TEST | 16 |
| Annexure # 3 – CABLE TRENCH DETAILS | 17 |
| Annexure # 4 – STANDARD ROAD PROFILE | 18 |
| Annexure # 5 – ROAD RESTORATION SECTIONAL DRAWINGS..... | 20 |
| Annexure # 6 – DRAWINGS (CABLE TRENCH AND RCC CABLE COVER)..... | 23 |
| Annexure # 7 – BARRICADING AND SAFETY..... | 38 |
| Annexure # 8 – ROUTE MARKER AND BARRICADING DRAWING..... | 38 |
| Annexure # 9- NOTE FOR HDPE PIPE DIAMETER IN CABLE LAYING..... | 43 |

General Specification**1.0 Codes & standards**

Materials, equipment and methods used in the Laying of 11/33/66KV Cable shall conform to the latest edition of following –

| S. No. | Reference No. | Name of Standard |
|--------|------------------|----------------------------------------------------------------------------------------------------------------|
| 1 | | Indian Electricity Rules, 1956 |
| 2 | | Indian Electricity Act, 1910 |
| 3 | | Indian Electricity Supply Act, 1948 |
| 4 | | Electricity Laws Act, 1991 |
| 5 | | National Electrical Code (Indian standards Institution) |
| 6 | IS 1255 | Code of practice for installation and maintenance of Power Cable upto and Including 33KV rating. |
| 7 | IS 1554 | PVC Insulated Electrical Cables upto 11KV |
| 8 | IS 2274 | Code of Practice for electrical wiring installation – system voltage exceeding 650V |
| 9 | IS 7098 Part II | Crosslinked Polyethylene Insulated PVC sheathed cables for working voltages from 3.3KV upto and including 33KV |
| 10 | IS 7098 Part III | Crosslinked Polyethylene Insulated PVC sheathed cables for working voltages from 66KV upto and including 220KV |
| 11 | IS 5820 | Specification of precast concrete Cable cover. |

2.0 Design guidelines and Parameter for cable laying-

| S. No. | Parameter | Details |
|--------|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2.1 | Selection of Cable Route | The cable route selection shall be done by the concerned supervising engineer by first conducting route survey and selecting a route along with contractor keeping followings in mind: -The side of road which presents the least obstacles and the fewest roadways crossings. -The future consumers and existing cables in the route may influence the cable route. -Railway, road crossings, MCD and other government agencies may also influence in selection of cable route. -Plans for future building projects should be considered. -The route shall be as far as possible away from parallel running gas, water pipes and telephone/telecommunication cables. |
| 2.2 | Site Preparation | a) Barricading: <ul style="list-style-type: none">• The identified cable route shall be barricaded continually before excavation.• Barricading shall be as drawing laid• Open Trench method shall be adopted as far as possible for trench preparation. b) Excavated Earth: |

| | | |
|------------|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | <ul style="list-style-type: none"> The excavated earth shall be so stored at site, that it shall not cause trouble to running traffic All excavated earth shall be stored within the barricaded area. <p>c) Full height fence, barriers, barricades etc. shall be erected around the site in order to prevent the working area from the risk of accidents due to speedy vehicular movement. Same the way barricades protect the road users from the danger due to construction equipment and temporary structures.</p> <p>d) The structure dimensions of the barricades , material and composition, its colour scheme, BSES logo and details shall be in accordance with specification and drawing laid down in the tender documents.</p> <p>e) All the barricades shall be erected as per the design requirements of employer, numbered painted and maintained in good condition and also barricade in charge maintain a barricade register at site.</p> <p>f) All barricades shall be conspicuously seen in the dark/night time by the road users so that no vehicle hits the barricades. Conspicuity shall be ensured by affixing retro reflective strips of required size and shape at appropriate angle at bottom and middle portion of the barricades at a minimum gap of 1000 mm. In addition minimum one red light /red blinker and red beacon light should be placed at the top of each barricade.</p> <p>g) PPP to be provided by vendor to all workers and engineers.</p> <p>h) Also refer Annexure- 7: Barricading and Safety</p> |
| 2.3 | Clearance | <p>The desired minimum clearances are as follows –</p> <ul style="list-style-type: none"> - Power cable to power cable – A minimum clearance equal to diameter shall be maintained. Trench drawings shall be referred to for guidance. - Power Cable to control cables – 0.2 M - Power cable to communication cable – 0.3M - Power cable to gas/water main – 0.3 M |
| 2.4 | Depth of Cable Laying | <p>The desired minimum depth of laying from ground surface to the top of cable shall be:</p> <p>650 / 1100V grade XLPE Cables – 75 cm</p> <p>6.35 / 11KV grade XLPE Cables – 90 cm</p> <p>Low voltage and Control cable - 75 cm</p> <p>19 / 33KV grade XLPE Cables - 1.2 M</p> <p>38 / 66KV grade XLPE Cables - 1.5 M</p> <p>Cables at Road crossing - 1.0 M (min.)</p> <p>Cables at railways level crossings (measured from bottom of sleepers to the top of Pipe) - 1.0 M (min.)</p> <p>Whenever there is any obstacle at the laying depth, the cable should be lowered/ raised to cross the obstacle. However variation in the depth is to be approved by BSES. The Contractor shall provide the same in deviation report.</p> |
| 2.5 | Width of Cable | The width and depth of Cable Trenches shall depend upon number of |

| | | |
|------------|-------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | trenches | circuits and Voltage Grade. Annexure # 3 and drawings of this specification shall be followed. |
| 2.6 | Bending Radius of Cables | <p>While pulling of the Cable from the drum or during laying following minimum bending radius shall be maintained so that the cable, in particular the insulation does not get damaged –</p> <p>A) Single Core Cables (PVC & XLPE) Upto 1.1KV grade – 15 X D Above 11KV grade - 20 X D</p> <p>B) Multi Core Cables (PVC & XLPE) Upto 1.1KV grade - 12 X D Above 1.1KV grade – 15 X D</p> <p>Where 'D' is overall diameter of the cable.</p> |
| 2.7 | Maximum permissible Tensile Strength for Cables | <p>For cables pulled with Stocking PVC and XLPE SWA Armoured cables $P = 30 \times D$ PVC and XLPE AWA Armoured cables $P = 20 \times D$ Where P= pulling force in Kgrm, D= Diameter of Cable in mm</p> <p>For Cables pulled by Cable eyes Aluminium conductor – $30 \text{ N/mm}^2 = 3 \text{ Kg/sq. mm}$ Copper conductors - $50 \text{ N/mm}^2 = 5 \text{ Kg/sq. mm}$</p> <p>Permissible force is calculated by multiplying the above values by cross sectional area (CSA) of conductor of each core and then number of cores.</p> |
| 2.8 | Methods of Laying | <p>a) Cables shall be laid in direct in ground, in trenches excavated therein and shall be protected with covers as given in the drawing. Cables shall also be drawn into pipes of ducts or laid in the formed trenches or troughs or on racks or supported in trays or cleats as required by the site exigencies. Where the cables are laid in the formed trenches, the installation shall include removal and replacement of the trench covers and the provision of temporary protective covers on the trenches where they cross the access ways.</p> <p>b) HDPE (PN6,PE80) or RCC ducts shall be used where cable cross roads and railways tracks. Spare ducts for future extensions should be provided. Spare duct should be sealed off. Buried ducts or ducting blocks shall project into footpath or upto the edge of road, where there is no footpath, to permit smooth entry of cable without undue bending. The diameter of the cable conduit or pipe or duct should be at least 1.5 times the outer diameter of the cable. Angular alignment of the duct across road crossings shall be predetermined to maintain safe bending radius when direction of cable trench changes before or after the road.</p> <p>c) The contractor shall lay cable by Horizontal direct drilling (HDD) in main roads and highway with heavy traffic, passage to public property where excavation is not possible. Contractor shall take approval for laying of cable by means of HDD wherever required from the supervising engineer. The cable laid by HDD shall be</p> |

| | | |
|------------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | <p>minimized so that it doesn't exceed by 12% of total route length. This is to avoid De-rating of Cables.</p> <p>d) Unless approved by BSES, the contractor shall lay the cables, direct in ground, in single layer. The cables shall be laid with the pre-determined and approved cable route.</p> <p>e) Spacing shall be maintained uniformly between the cables all along the length including the bends, as approved by BSES. To maintain the spacing, suitable non-metallic formers shall be placed uniformly with spacing not exceeding 5 meters. Every bend shall have at least one spacer.</p> <p>f) 75 mm of the sand bed shall be placed at the bottom of cable trench.</p> <p>g) After the cables have been laid the trench shall be filled with the sand and shall be well rammed to a level not less than 75 mm above the top of the cables all throughout the route.</p> <p>h) To protect the cables against external mechanical damage, which may be caused by other agencies, the cable shall be protected by suitable cover. (for drawing of RCC cable cover refer annexure VI).</p> <p>i) The type of the covers shall be as under</p> <ul style="list-style-type: none"> - 1.1KV Cables – Single layer of brick thickness not less than 75 mm (3 inch) - 11KV Cables – sand stone of thickness not less than 75mm (3 inch). - 33KV Cables shall be protected by reinforced concrete cover of width 300 mm as per attached drawing with thickness not less than 50mm. - 66KV Cables shall be protected by reinforced concrete cover as per attached drawing with thickness not less than 50mm. <p>The RCC cable cover shall be embossed as "BSES EHV CABLE".</p> <p>j) Back fill to be filled up to 75mm and the warning tape shall be installed continuously. The tape shall be yellow in colour with Black / Red lettering of minimum 20mm height. The approved warning message shall be written in English and Hindi/ local language. The minimum thickness and width of the tape should be 300 microns and 150 mm respectively.</p> <p>k) The trench shall be filled-up by loose soft soil (300mm) and Excavated soil as indicated in drawings.</p> |
| 2.9 | Cable over | On Bridges the cables are generally supported on wooden cleats and |

| | | |
|------|-----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | Bridges | clamped on steel supports at regular intervals. The cables laid on bridges shall be provided with Sun shield. Approval from appropriate authorities (PWD/railways) as applicable shall be taken by contractor. |
| 2.10 | Laying of Single Core Cables | <ul style="list-style-type: none"> a) The single core cables shall be laid in trefoil formation. Single core cables can be laid individually in HDPE pipe in case of HDD only. (Details of HDPE Pipe as per Annexure-9) b) For single core cables laid in trefoil formation, plastic cable ties shall be used at interval of 1.0 (one) meter throughout the cable length to maintain the trefoil arrangement. c) To balance the inductance, the phase sequence in trefoil format shall be maintained by vendor (for double circuit) d) To prevent magnetic losses (eddy current and hysteresis losses), the base plate of the panels or the terminal box of the equipments, shall have aluminium plate. In case the entry into the building is through GI pipe, a "slit" in the GI pipe shall be necessary. Alternatively GI pipes may altogether be avoided and non-metallic pipes such as PVC or HDPE pipe shall be used. Concrete pipes having steel reinforcement (RCC pipe) are not to be used. |
| 2.11 | Earthing of Single Core Cables | <ul style="list-style-type: none"> a) Single point bonded earthing shall be employed to prevent flow of induced circulating current in the armour and screen and consequential de-rating of cables for feeder less than 2.0 KM. b) For feeder length more than 2 KM, mid point earthing shall be provided. |
| 2.12 | Violation of barricading guideline and safety norms | On violation of barricading guideline and safety norms, a fine of Rs.5000 /day shall be imposed. BRPL inspector/engineer in-charge shall be empowered to impose the above penalty. |

3.0 General guidelines for Laying Cables

| S. No. | Parameter | Details |
|--------|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3.1 | General | <ul style="list-style-type: none"> a) Laying of the cables and handling of the same shall be undertaken, at all times, by adequate staff suitably trained and supplied with all the necessary plant, equipment and tools. b) The contractor shall be responsible for all the route survey, establishment of the position of the joints as per the site exigencies and the drum lengths of cables to be laid. While carrying out the route survey the contractor shall take into account the obstacles on the route whether above or below ground. The cable shall be planned to be laid in an orderly formation, free from unnecessary bends and crossings c) The contractor shall submit a drawing for the complete scheme |

| | | |
|------------|----------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | <p>showing the entire route, road crossings, location of joints and also the arrangement of cables to be laid. In case due to site exigencies, cables have to cross over within the trench, the same shall be shown in the drawing. For each and every job, these drawings shall be approved by BSES, prior to commencement of work.</p> <p>d) BSES shall arrange for all the material and manpower required for jointing and end termination. The Contractor shall provide pit, carry out excavation for creation of working space required for jointing by the jointer. All civil works, structural work, clamping and earthing shall be carried out by the contractor, so that the cables and accessories perform satisfactorily during the entire life time.</p> <p>e) The entry and exit of the cables into the building shall be through RCC or GI pipe except for single core cables, which shall be properly sealed and shall be duly supported as per the method and technique approved by BSES, so that the outer sheath of the cable does not get damaged at the entry and exit points. The sealing should be of adequate length so that it minimizes the risk of spreading of fire or ingress of water.</p> |
| 3.2 | Handling and Storage of Cable drums (All empty drums are returnable) | <p>a) The cable drums shall be transported upright, so that the weight is distributed on both the flanges. Under no circumstances the cable drum may be laid on its side. During transportation the drums must be properly secured. The cable drums should never be dropped from Lorry or a trailer, so as to prevent damage to the cable drum and also to the cable. Ramp may be used for unloading. The drums may be rolled over short distance, provided the correct direction of rolling as provided on the drum is observed. Alternatively, a mobile crane should be used for lifting and lowering the drum. A chain-pulley arrangement may also be used to lift the drums and deposit the same on ground if required.</p> <p>b) In case the drums are to be stored prior to cable laying, they should be arranged in such a way to leave some space between them for air circulation. It is desirable that the drums stand on battens placed directly under the flanges. Overhead covering is not essential except in heavy rainfall areas or during monsoon. Cable should however be protected from direct rays of sun by leaving the battens on or by providing some form of sunshade. In no case the drums shall be stored in a flat position with flanges horizontal.</p> <p>c) For transportation of the cable drums from storage site to work site, the drum should be mounted on a trailer or an open lorry and unloaded by mobile cranes.</p> <p>d) After cable laying, empty cable drums shall be taken return back by vendor from site at their own risk and cost. Cost of empty drums shall be deducted from vendor account during final settlement.</p> |
| 3.3 | Cable Laying | <p>a) The ground over which the drum is positioned at site should be</p> |

| | | |
|------------|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | <p>properly consolidated and jacks placed on both sides of the drum to make the pay-off arrangement stable. Suitable arrangement be made to stop the drum rotation, during cable laying preferably by square wooden poles kept temporarily pivoted over cable roller under the flanges which when required can be applied on the flange as a brake by personnel manning the drum.</p> <p>b) The cable should always be paved off from the top of the drum. The drum must be positioned in such a way that the arrow on the drum points opposite to the direction of rotation marked on the drum.</p> <p>c) It must be ensured that the cable is not dragged over sharp object or on the road surface, so as to avoid damage to the outer sheath of the cable.</p> <p>d) The pulling method to be used shall be approved by BSES. Cable supplier's recommended maximum pulling tension shall not be exceeded.</p> <p>e) Rollers shall be placed at intervals and the cable shall be pulled over the rollers. The rollers shall be kept lubricated so that they rotate freely, minimize friction to the cable in motion. Rollers shall be positioned at the bends to minimize side wall friction. The contractor shall ensure that PVC/HDPE sheath of cable is free from damage due to abrasion.</p> <p>f) The cable should not be pulled out from the drum by lifting of the coil while the drum is lying flat on the flange. This leads to twisting of the armour and cores resulting in permanent damage to the cable.</p> <p>g) To avoid ingress of moisture, it must be observed that the end capping of the cables is not damaged. Cut pieces of the cables must be capped immediately, before laying of the same is taken-up.</p> |
| 3.4 | Excavation of the Trenches | <p>a) The excavation of the trenches shall be commenced, with proper co-ordination with BSES, so that all the necessary clearances for the route are already obtained from the competent authorities, well in time.</p> <p>b) Before opening of the section of the trench, the contractor shall satisfy himself that the line of the trench is clear of underground obstructions, by taking out trial pits on the line of the trench.</p> <p>c) The exact location of each trench shall be approved on site by BSES. The trenches shall be kept as straight as possible and each trench shall be excavated to approved formation and dimensions. If necessary, the trenches shall be adequately shored by wooden planks and bracing to avoid trench cave-ins which would cause injury to the persons and also damage the cables laid.</p> <p>d) The bottom of each trench shall be firm and of smooth contour. The contractor shall take reasonable precautions to prevent damage to the highway or ground surface from a slip or breaking away of the sides of the trench.</p> <p>e) The trench excavation and filling in shall be so executed that all</p> |

| | | |
|------------|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | <p>walls, roads, sewers, drains, pipes, cables, structures, places and things shall be reasonably secured against risk of subsidence or injury and shall be carried out to the satisfaction of the authorities concerned. Should, however, a damage to an existing or other services be made, the Contractor will arrange and pay for any necessary repair, to make good the damages.</p> <p>f) Where trenches pass from a footway to a roadway or at other positions where a change of level is necessary, the bottom of the trench shall rise or fall gradually. The rate of rise or fall shall be approved by BSES.</p> <p>g) Contractor shall ensure that during excavation and until restoration has been completed, for reasonable access of persons and vehicles to property or places adjacent to the route.</p> <p>h) When the excavation of the trenches has been accurately executed, the contractor shall inform BSES for approval. Laying of cables or building of structure shall not be started until the contractor has been advised by BSES to proceed with the work.</p> |
| 3.5 | Excavated material | <p>a) The materials excavated from each trench shall be placed so as to prevent nuisance or damage to adjacent ditches, drains fences, gateways and other property or things. Excavated material shall be stacked so as to avoid undue interference with traffic.</p> <p>b) Where, owing to traffic or for reasons of safety or other considerations, this is not permissible, the excavated material shall be removed from the site and returned for refilling the trench on completion of laying; surplus material shall be disposed off by the contractor at his own cost.</p> |
| 3.6 | Pipes and Ducts | <p>a) Care shall be taken to make the bend of the pipes or duct lines as easy as practicable and in no case of radius less than 3 meters. Where approved, split pipes may be used on bends, the pipes being fitted round the cable after laying.</p> <p>b) All road crossings shall be ducted. This applies to present and future roads as indicated on the route plans. The pipes and the ducts shall be laid in an approved manner and shall be surrounded by 150 mm of PCC (1:2:4)</p> <p>c) Ducts under the road shall be provided by the contractor, by non-disruptive method, if road cutting is not permitted by the concerned authorities Cable laying shall be done by Horizontal Direct drilling method (HDD).</p> <p>d) The cables shall be suitably protected at entry and exit from the pipes, so that the outer sheath does not come in contact with the edges of the pipes / ducts. The pipes and ducts shall have slope so that the seepage water can drain through the small opening provided on the lower side of the pipe sealing.</p> <p>e) The pipes and ducts shall be secured to the base at both ends and at regular interval, throughout the length, so that at no point the ducts or pipes get suspended over the threaded cable, and damage the same, thus defeating the very purpose of providing the pipe / duct.</p> |

| | | |
|-------------|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | <p>f) At all road crossings at least one spare duct / pipe shall be provided for future use. The pipe shall be thoroughly cleaned of obstructions. A draw wire or rope shall be left in each pipe to facilitate the drawing in of the cables. The duct end shall be sealed temporarily to prevent the entry of foreign matter. End caps and permanent markers shall be placed flush with footpath / roadways at both the ends. The pipes and ducts shall be cleaned again immediately before the cables are drawn in.</p> <p>g) The internal diameter of the pipe / duct should be such that the cables occupy only 40% of the area of the pipe / duct to avoid de-rating.</p> |
| 3.7 | Joint Bays | The contractor shall provide all help so as to enable jointers to carry out their work efficiently and expeditiously. The method of securing and supporting cable joints and cables also the bonding and earthing thereof, shall be detailed on the drawing. The details shall be approved by BSES prior to commencement of work. The joint position should be staggered. |
| 3.8 | Back filling of trenches | <p>a) Filling in of trenches shall not be commenced until BSES has inspected and approved the cables and accessories at site. The inspection should be got done on daily basis so that the trenches do not remain open unnecessarily, to avoid inconvenience to public.</p> <p>b) The trench shall be backfilled after putting all protections for cables.</p> <p>c) Soft soil shall be backfilled for 300 mm above the cable protection cover.</p> <p>d) Caution Tape shall be laid all along the cable route above the soft soil filling.</p> <p>e) Complete backfilling shall be done above the caution tape.</p> |
| 3.9 | temporary Reinstatement | <p>a) Where cables routes are in public highways, footpaths, gardens etc., the method of reinstatement will be subject to approval by MCD. All costs incurred will be at the contractor's expenses.</p> <p>b) The contractor shall be responsible for proper permanent reinstatement of the upper levels, which shall be carried out to the satisfaction of BSES and the MCD authorities concerned.</p> <p>c) Before finally leaving site, permanent reinstatement shall be executed by the contractor to the approval of MCD and the property owners and all costs incurred shall be to the contractor's account.</p> |
| 3.10 | Permanent Reinstatement of Public Road, | <p>a) In public roads and footways the surfaces and foundations shall be temporarily reinstated by the contractor. After settlement, temporary reinstatement material shall be removed as necessary and the permanent reinstatement shall be carried out to the approval of the appropriate highway authority / MCD. Stone and pre-cast concrete paving kerbs and channels shall also be finally reinstated by the contractor.</p> <p>b) Temporary reinstatement shall be maintained by the contractor until commencement of final reinstatement to ensure that the surface is always safe for the passage of pedestrians and vehicular traffic.</p> |

| | | |
|-------------|---------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3.11 | Identification | All cables shall be identified below the gland at each end, at joint position and at approved positions by means of bands engraved or punched with cable no. feeder name, size of cable, number of cores, phase colour etc. The bands shall be secured fastened in a permanent manner, and shall be made of material able to resist corrosion, dampness and mechanical damage. |
| 3.12 | Cable Route Markers | All cables routes shall have markers at suitable location with a gap not exceeding 30 meters. The route markers shall be approved design. Additional markers shall be provided at joint locations with approved markings. |
| 3.13 | Cable supports / Clamps | <ul style="list-style-type: none"> a) The contractor shall supply and install all the supports, racks, trays, cleats, saddles, clips and other parts required to carry and secure the cables, without risk so that there is no undue mechanical load or stress due to weight of the cable at each end. Cleats, saddles and clips shall be of the design as approved by BSES. No cable shall be laid on the trench floor. They shall be run in a neat and orderly manner and the crossing of cables within the trench shall be avoided as far as possible. Where cable runs unavoidably cross, a suitable supporting arrangement shall be provided to maintain an adequate gap between the cables b) Every cable shall be supported at a point not more than 500 mm from its termination. |
| 3.14 | Installation of Cables in tunnels / basement / below the panels etc | <ul style="list-style-type: none"> a) The design of cable support for cables installed in air in cable tunnels, basements etc. shall consist of vertical steel members spaced at approved interval and secured to the walls, floors and ceilings as necessary by means of bolts either cemented in position or expanded into cored holes. Each vertical support shall have bolted to it a number of steel brackets spaced at the intervals and designed to support and retain trays constructed of galvanized sheet steel of adequate section to carry the weight of the cables, plus space for an additional quantity of future cables at least 25% by weight and dimensions in excess of the cables installed under the contract and an additional load of 100 kg at the extremity without distortion. The trays shall be designed with raised edges to retain the cables and shall incorporate an interlocking feature so as to prevent movement between supports. b) The design and construction of all cable cleating and supporting arrangements shall suit the cable system design. The spacing of cable supports shall be approved by BSES. c) Cable run on trays shall be neatly dressed and where not provided with cleats shall be secured by heavy gauge, type approved metal reinforced, clips or saddles. Not more than six cables shall be embraced by one clip. d) Mild steel of appropriate sections, duly painted in an approved manner, shall be used for fabrication of cable supports. The steel shall be free from blisters, scales, laminations or other defects. Before final painting, the steel sections shall be provided with double coat of red primer. |

| | | |
|-------------|----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3.15 | Cable Protection at overhead Towers or Poles | Where the cables terminate on overhead line poles or towers located outside substation compounds the contractor shall provide suitable cable supporting galvanized steel work attached to the pole or tower and comprising backboard, runners, sheet, steel cover of not less than 3.0mm thickness, stays, cable cleats, anti climbing guard and all incidental items to provide secure protection for the cables. Isolators and Lightning arrestor if required to be installed shall be provided as free issue item to the contractor, however the erection and steel structure required shall be in scope of the contractor. |
| 3.16 | Sun Shades | All cables shall be protected from direct solar radiation by ventilated sun shields as approved by BSES. |
| 3.17 | Route Plan | <ul style="list-style-type: none"> a) BSES intends to show all the cable routes, location of joints and other underground obstructions on a GPS map. b) During the progress of the contract works the contractor shall record on a set of route plans and cross section drawings of an approved form, these details so that the same can be transferred on the GPS maps. Such particulars will allow an accurate reference to be made in the case of any fault or projected modification. These records shall show, amongst other data, both indoors and outdoors the exact position of every joint, cable end termination and also the particulars of the depth of the trench, the arrangement of the cables, with cable numbers and the position of all obstructions revealed during the course of excavations. These completed records shall be submitted to BSES within 15 days of completion of any particular route/feeder. The final bill shall not be processed by BSES unless this activity has been completed to the entire satisfaction of BSES |
| 3.18 | Site Facilities to be maintained by the Contractor | <ul style="list-style-type: none"> a) The contractor shall arrange for all the tools and tackles required for cable laying as per this specification. BSES shall arrange for all the material and manpower required for jointing and end termination. b) Illumination and Power supply shall be arranged by the contractor so that the work can be carried out round the clock. c) The contractor shall maintain functional dewatering pumping facility with suitable power supply so as to protect the cables and the joints from ingress of water due to rain or otherwise d) The contractor shall make arrangement to provide suitable scaffolding arrangement to carry out the termination work e) The contractor shall carry out proper barricading of the dug cable route and the joint bays and shall take all necessary precautions to avoid any public hazard f) Also refer Annexure-7: Barricading and Safety. |
| 3.19 | Type of Roads and guidelines for road restoration | <p>The typical section of type of Roads (based on width) under PWD and MCD are :-</p> <ul style="list-style-type: none"> - 20 Feet Wide road - 30 Feet wide road - 40 to 60 Feet Road - Other (which include Kota stone, Agra stone, Cement concrete, interlocking paving tiles, brick road, chequered tiles |

| | | |
|--|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | <p>and asphalted road)</p> <p>The drawing are shown in annexure IV</p> <p>The guidelines for road restoration for various type of roads and surfaces are indicated in annexure V as :-</p> <ul style="list-style-type: none"> - Bituminous road Type I (category I & II) - Bituminous road Type II (category III) - Cement concrete road - Kota/Rajasthan stone Road - Brick Road - Interlocking paving tiles. - Agra stone road - Chequered tiles road - Asphalted road |
|--|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

4.0 Testing

| S. No. | Parameter | Details |
|--------|---------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4.1 | Tests to be carried out during and after completion of Cable Laying | <p>Testing of cable before jointing –</p> <ul style="list-style-type: none"> - Cable shall be tested for Insulation Resistance prior to laying by opening the end and resealing end properly. <p>Testing on complete Cable Installation –</p> <ol style="list-style-type: none"> a) Insulation resistance of each core shall be measured against all the other cores and the metal screen connected to earth. b) The resistance of the conductor shall be measured. c) DC High voltage. For old cables test voltage shall be 1.5 times rated voltage or less depending on age of cable.(refer annexure # 2 for values) d) Charging of Cable at No-Load at Nominal working voltage for 24 Hours. e) After laying and before termination of cable a sheath test shall be conducted for 66KV Single core Cable as under :- <p>At both ends the cable shall be raised from ground. From the end graphite coat applied over the outer PVC jacket shall be removed with a piece of glass for a length of 300mm. A spiked steel rod with an eye for attaching a wire shall be driven into the ground and connected to a nearby water or hydrant pipe. Insulation resistance of PVC jacket shall be measured between the aluminium wire armour and the spike with a 500/1000V insulation tester. Measured resistance shall not be less than 2.5M OHM per KM. Thereafter 10KV DC shall be applied for one minute in the same way. After the test the armour shall be kept earthed to the steel spike for 15 minutes for discharging residual charge.</p> |
| 4.2 | Statutory | <ol style="list-style-type: none"> a) Road cutting permission |

| | | |
|--|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | clearance | Road cutting permission shall be taken from competent authority by vendor. How ever official fees shall be paid by BRPL. b) Electrical inspector clearance Electrical Inspector clearance shall be in vendor scope. How ever official fees shall be paid by BRPL. |
|--|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

5.0 Progress Reporting:

| S. No. | Parameter | Details |
|--------|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5.1 | Detailed Progress report | Progress report to be submitted by Contractor to BSES once in a Week containing i) Excavation status ii) Cable laying status iii) Status of preparedness for Jointing iv) Reason for any delay in total programme v) Details of damage to cable during laying. vi) Progress on final completion / Constraints / Forward path |

6.0 Drawing, Data & Manuals:

| S. No. | Parameter | Details |
|--------|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6.1 | To be submitted After Completion of the Job | As the works is completed the following reports in quadruplicate shall be submitted to BSES for record purpose and shall be incorporated in the 'As constructed Records'. a) Feeder details (sending end, receiving end, SAP number of project etc) - Type of cables, cross section area, rated voltage. Details of construction, cable number & drum number. - Year and month of laying. - Actual total route length, cable length, length between joint to joints or end. - Location of cables and joints in relation to certain fixed reference points, for example buildings, hydrant, boundary stones etc. - Jointing reports detailing the date, weather conditions, jointers and supervising Engineers names, details of type of cable and type of joint or termination, location and joint bay number, ambient temperature. - Results of original electrical measurements and testing on cable installation. - Full written reports will be required of any damage occurring to cable or equipment together with remedial action proposed which will be subject to the approval of BSES. |
| 6.2 | Drawing and document sizes | Standard size paper A0, A1, A2, A3, A4 |

7.0.0 Deviations

Deviations from this Specification shall be stated in writing by the contractor. Written approval shall be obtained from BSES by the contractor. In absence of such a statement, it will be assumed by BSES that the Contractor complies fully with this specification during execution of the job.

Deviation mentioned in any other submitted tender docs like in GTP, QAP, Old PO, old WO, BRPL Standard, vendor standards etc. shall not be considered as a deviation at any stage of contract.

The format for approval of deviation attached in annexure # 1

Annexure # 1 – DEVIATION REPORT FORMAT

| S. NO. | Clause No. of Specification | Details about deviation | Reason for deviation | Approved by (Sign & Name) |
|--------|-----------------------------|-------------------------|----------------------|---------------------------|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Annexure # 2 – DC HIGH VOLTAGE TEST

| Rated Voltage of cable in KV | Test Voltage Between | | Duration in Min. |
|------------------------------|-----------------------------------------------------|------------------------------------------------|------------------|
| | Any conductor and metallic sheath / Screen / armour | Conductor to conductor (for unscreened Cables) | |
| 0.65 / 1.1 | 3 | 3 | 15 Min |
| 6.35 / 11 | 18 | 30 | |
| 19 / 33 | 60 | ---- | |
| 38 / 66 | 90 | ---- | |

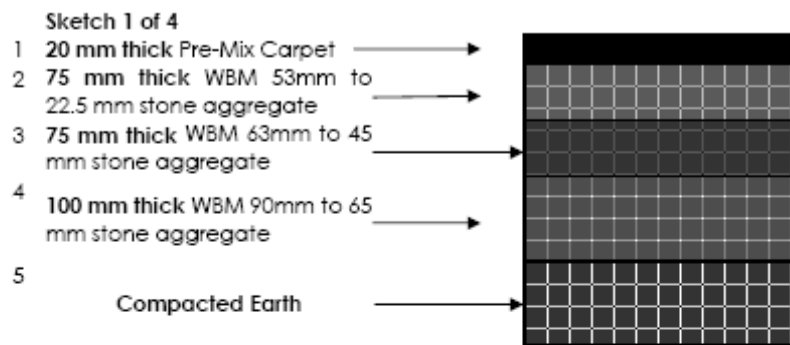
Reference value for DC High voltage Test.

Annexure # 3 – CABLE TRENCH DETAILS

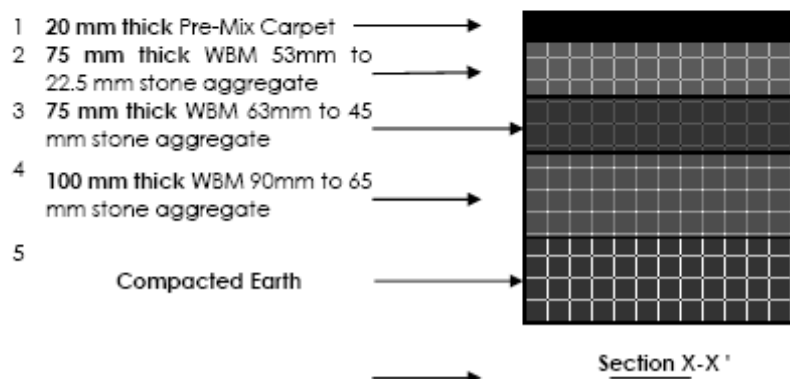
| S. No. | Cable Size | Trench | | Cable Trench drawing reference |
|----------|-----------------------------------------------|-------------|-------------|--------------------------------|
| | | Width (mm) | Depth (mm) | |
| 1 | 1.1 kV LT Cables | | | |
| a | 3.5Cx150 mm ² - Single Circuit | 400 | 875 | A – 1 (Drg. # 9) |
| b | 3.5Cx150 mm ² - Double Circuit | 400 | 875 | A – 1 (Drg. # 9) |
| c | 3.5Cx150 mm ² - Triple Circuit | 400 | 875 | A – 1 (Drg. # 9) |
| d | 3.5Cx300 mm ² - Single Circuit | 400 | 875 | A – 1 (Drg. # 8) |
| e | 3.5Cx300 mm ² - Double Circuit | 400 | 875 | A – 1 (Drg. # 8) |
| f | 3.5Cx300 mm ² - Triple Circuit | 400 | 875 | A – 1 (Drg. # 8) |
| | | | | |
| 2 | 11 KV Cables | | | |
| a | 3Cx150 / 300 mm ² - Single Circuit | 400 | 1055 | A – 2 (Drg. # 6) |
| b | 3Cx150 / 300 mm ² -Double Circuit | 650 | 1055 | B – 1 (Drg. # 7) |
| | | | | |
| 3 | 33 kV Cables | | | |
| a | 3Cx400 mm ² - Single Circuit | 400 | 1235 | A – 3 (Drg. # 3) |
| b | 3Cx400 mm ² - Double Circuit | 650 | 1235 | B – 2 (Drg. # 4) |
| c | 3Cx400 mm ² - Quadruple Circuit | 650 | 1235 | B – 2 (Drg. # 5A) |
| d | 3Cx400 mm ² - Quadruple Circuit | 650 | 1545 | B – 3 (Drg. # 5B) |
| e | 3Cx400 mm ² - Quadruple Circuit | 1200 | 1235 | C – 1 (Drg. # 5C) |
| | | | | |
| 4 | 66 kV Cables | | | |
| a | 1Cx630/1000 mm ² - Single Circuit | 650 | 1445 | B – 4 (Drg. # 1) |
| b | 1Cx630/1000 mm ² - Double circuit | 1200 | 1445 | C – 2 (Drg. # 2) |
| c | 3Cx300 mm ² - Double circuit | 1200 | 1445 | C – 2 (Drg. # 2A) |

Annexure # 4 – Standard Road Profile

STANDARD ROAD PROFILE 20' - 00" FEET WIDE ROAD (Road type 1)

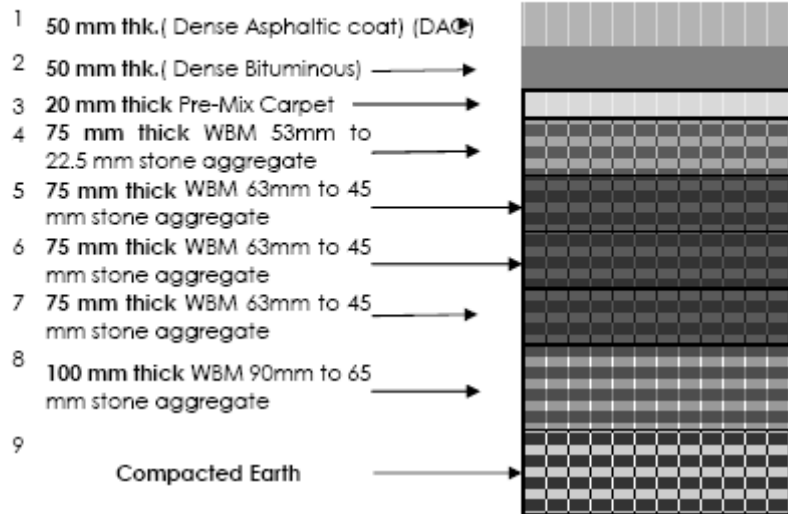


Sketch 2 of 4 30' - 00" FEET WIDE ROAD (ROAD TYPE II)



Sketch 3 of 4

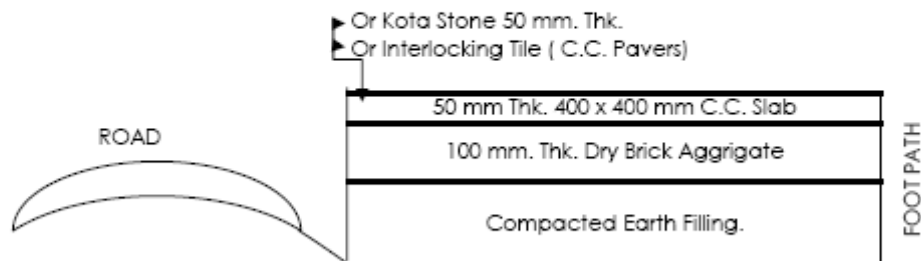
40'-00" TO 60'-00" FEET WIDE ROAD



Section A-A'

Sketch 4 of 4

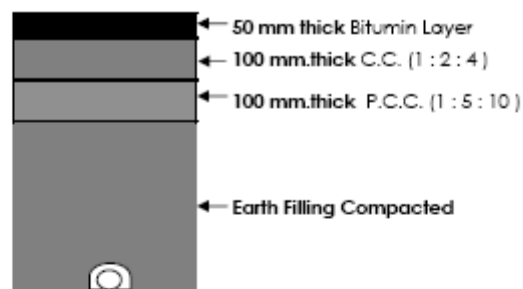
General drawing for cases other than roads.



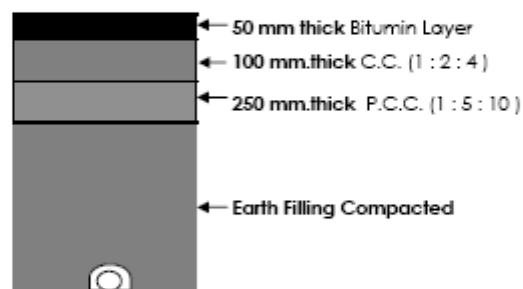
Details of Foot Path Along roads under PWD & MCD.

Annexure # 5 – Road Restoration Sectional Drawing

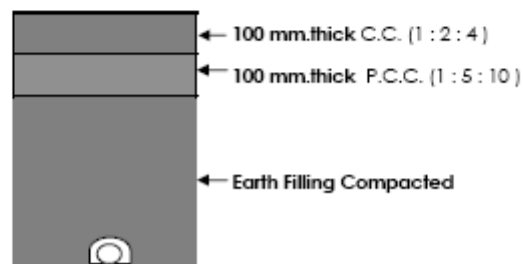
ROAD RESTORATION SECTIONAL DRAWINGS



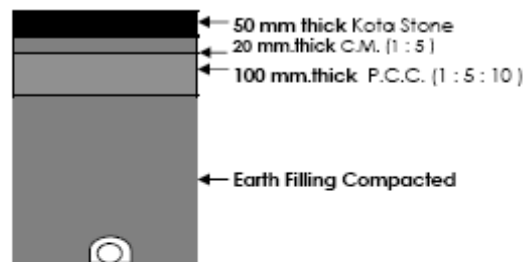
Bituminous Road Type - I (Category 1 & 2) Road width 20 to 30 feet and 30 to 40 feet.



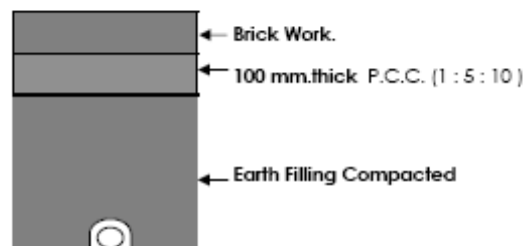
Bituminous Road Type - II (Category 3)



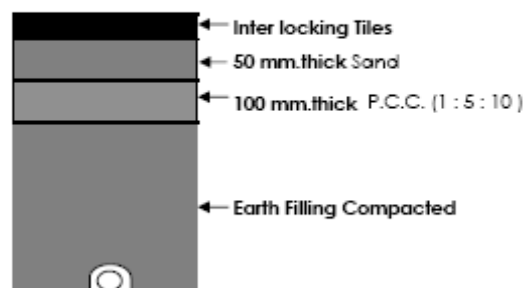
Cement Concrete Road



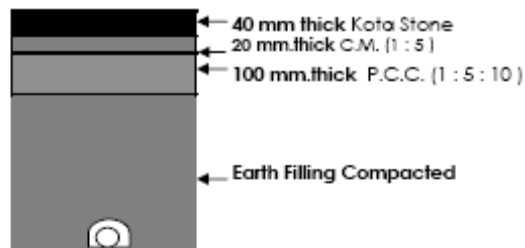
Kota / Rajasthan stone Road



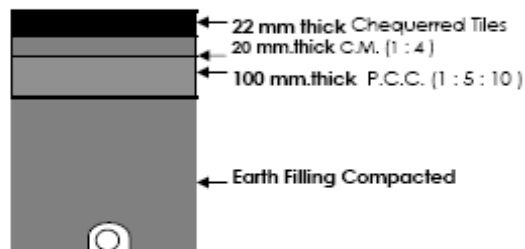
Brick Road



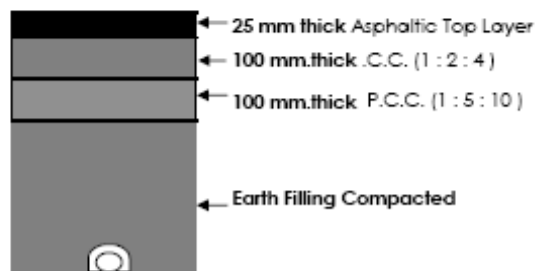
Interlocking Paving Tiles



Agra stone Road .



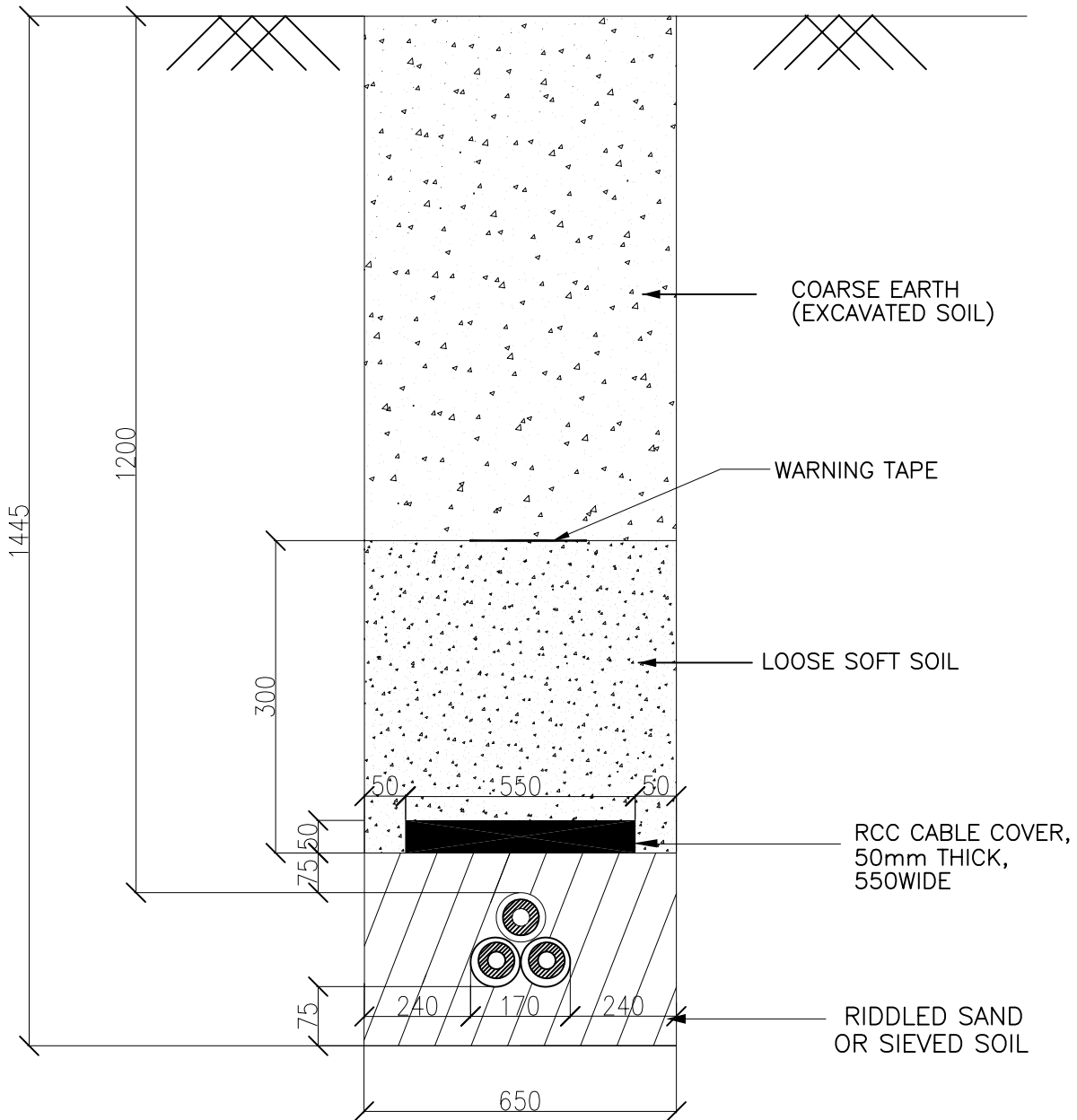
Chequerred Tiles .



Asphaltic Road .

Annexure # 6 – DRAWINGS (CABLE TRENCH AND RCC CABLE COVER)

DRAWING # 1



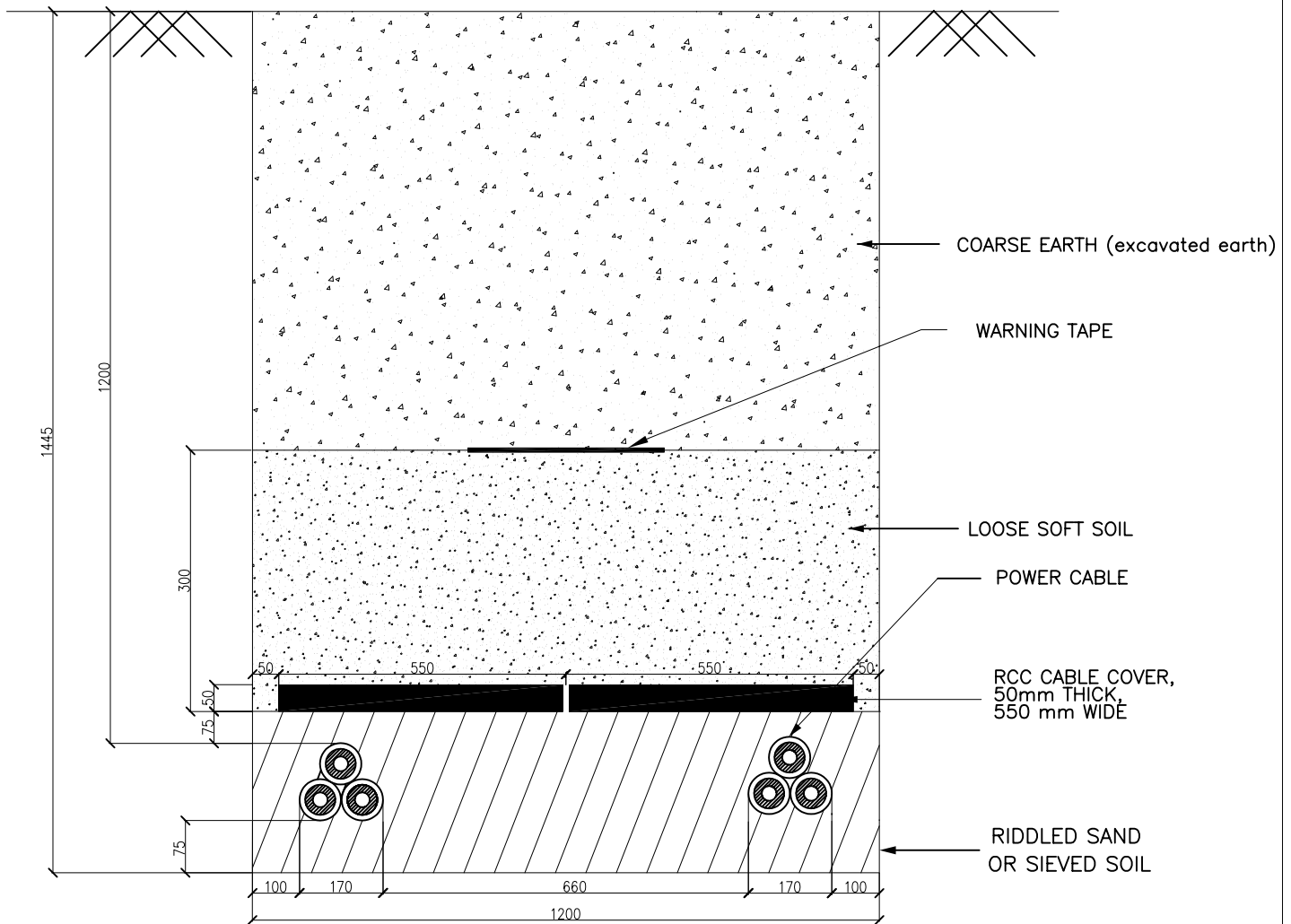
TYPICAL DETAILS FOR 66KV BURIED CABLE FOR SINGLE CIRCUIT
TYPE – B 4

| | | |
|---------|--------|---------------------|
| DRAWN | DS | TITLE:— |
| CHECKED | SGD | TRENCH DRAWING FOR |
| APPD. | D.GUHA | 1C X 630 Sq. mm |
| DATE | | 66KV SINGLE CIRCUIT |
| SCALE | | XLPE CABLE |

BSES

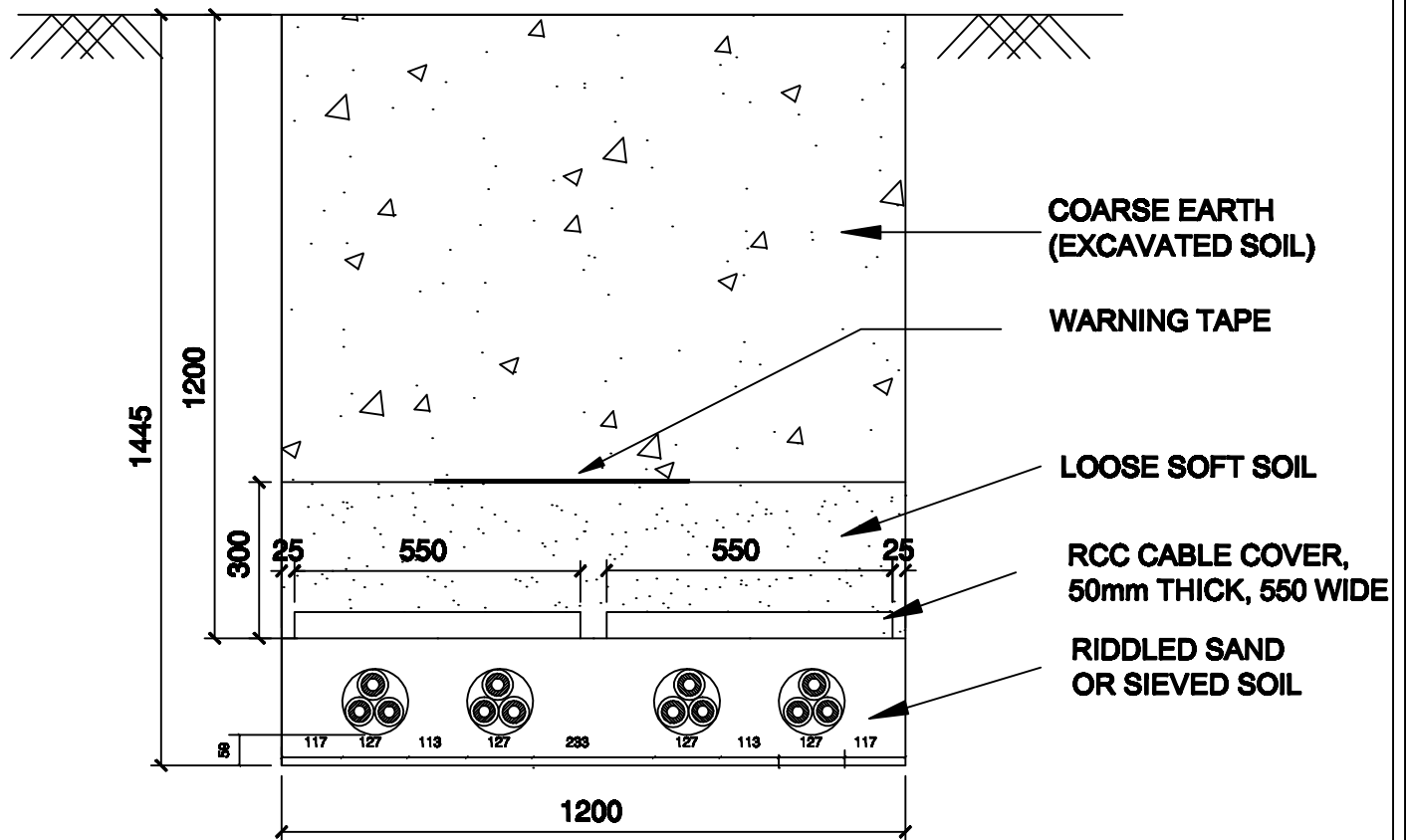
REV.
00

DRAWING # 2




| | | | |
|---------|--------|---------------------|----------------------------------|
| DRAWN | DS | TITLE:— | <h1 style="margin: 0;">BSES</h1> |
| CHECKED | SGD | TRENCH DRAWING FOR | |
| APPD. | D.GUHA | 1C X 630 Sq. mm | |
| DATE | | 66KV DOUBLE CIRCUIT | |
| SCALE | | XLPE CABLE | |
| | | | REV. 00 |

DRAWING # 2 A

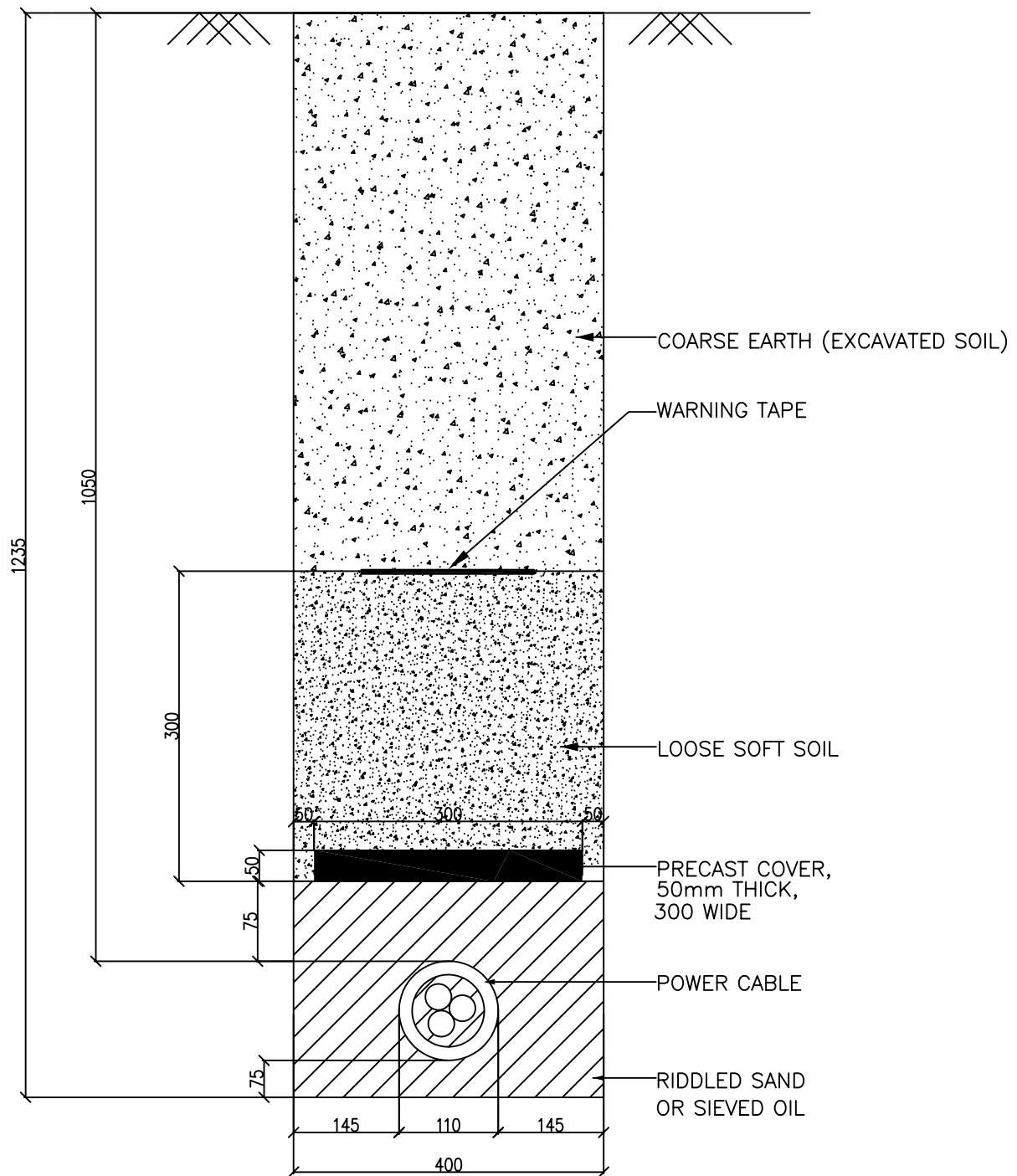


**TYPICAL TRENCH SECTION DETAILS FOR 66KV SINGLE
CORE 300 Sq. mm. BURIED CABLE FOR DOUBLE CIRCUIT**

TYPE - C 2

| | | | | |
|---------|----------|-----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|------------|
| DRAWN | SAURABH | TITLE:-- |  BSES Rajdhani Power Limited | REV. 00 |
| CHECKED | A.S | TYPICAL TRENCH SECTION DETAILS FOR 66KV SINGLE CORE 300 mm BURIED CABLE FOR DOUBLE CIRCUIT | | |
| APPD. | K.S | | | |
| DATE | 09.01.15 | | | |
| SCALE | | | | |

DRAWING # 3



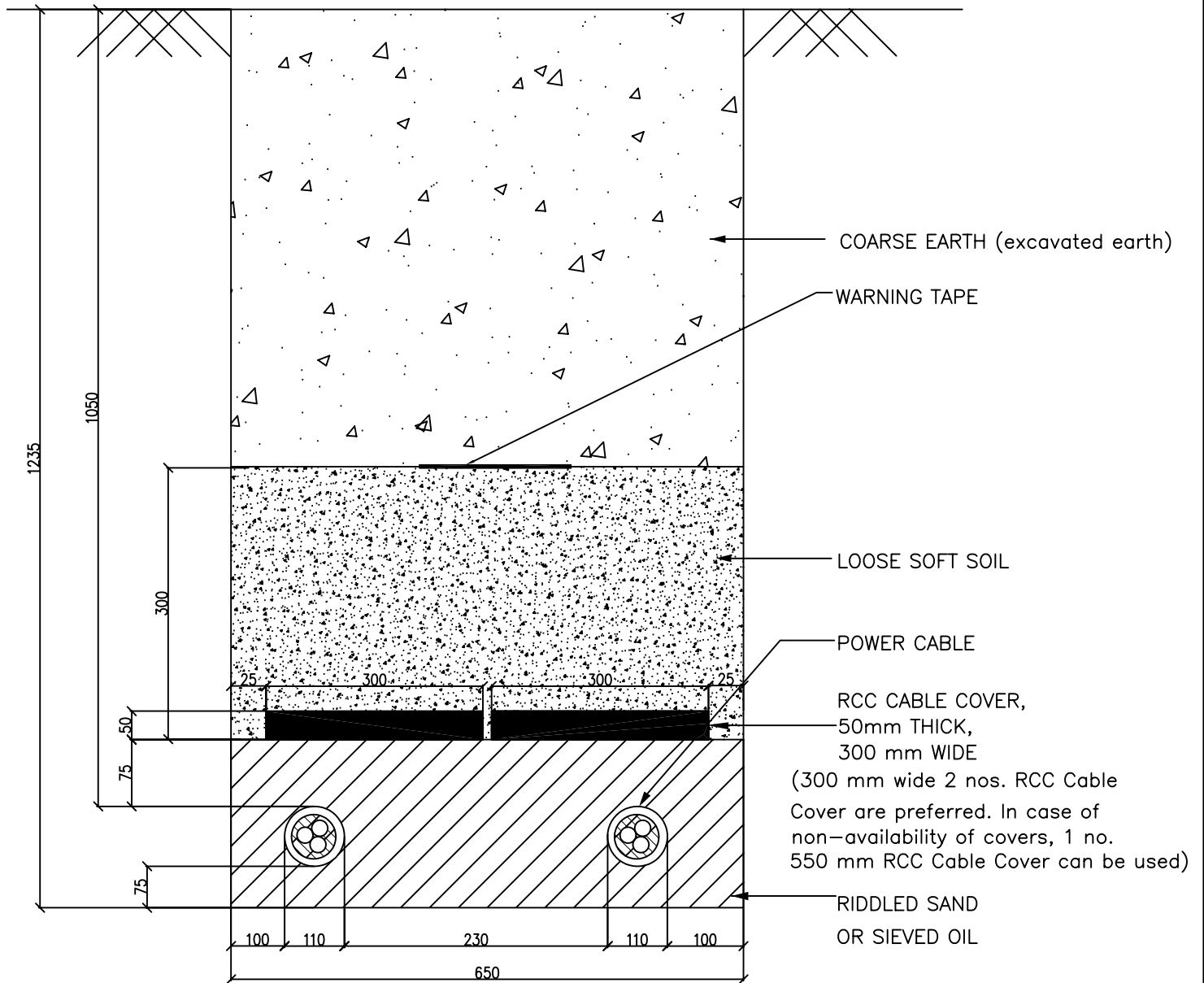
TYPICAL DETAILS FOR 33KV BURRIED CABLE FOR SINGLE CIRCUIT
TYPE – A 3

| | | |
|---------|--------|--------------------------------------------------------------------------------------|
| DRAWN | DS | TITLE:– TRENCH DRAWING FOR 33KV 3CX 400 mm sq. SINGLE CIRCUIT XLPE CABLE |
| CHECKED | SGD | |
| APPD. | D.GUHA | |
| DATE | | |
| SCALE | | |

BSES

REV.
00

DRAWING # 4

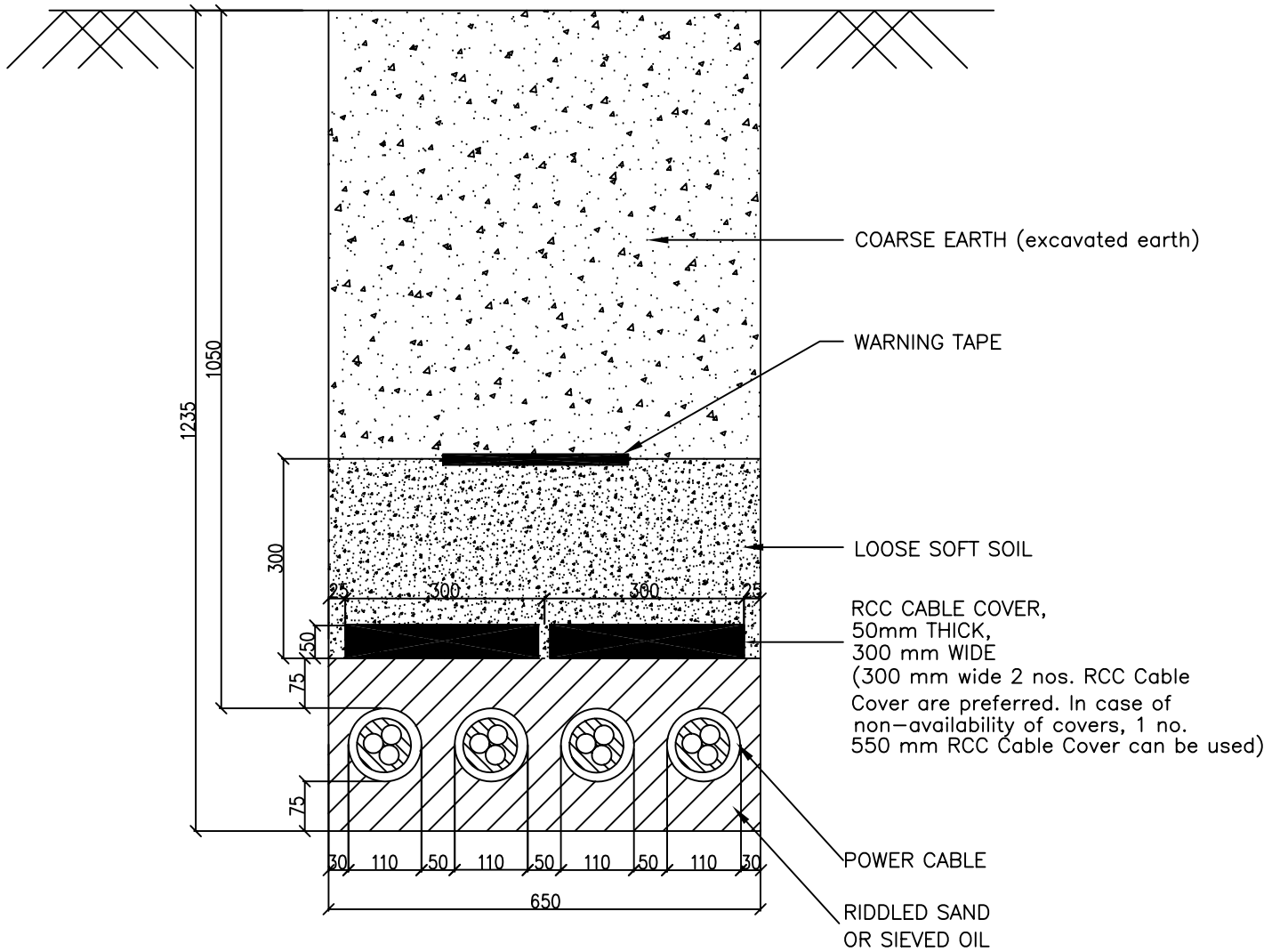


TYPICAL DETAILS FOR 33KV BURRIED CABLE FOR TWO CIRCUIT
TYPE – B-2

| | | |
|---------|--------|-------------------------------------------------------------------------------------|
| DRAWN | DS | TITLE:-- TRENCH DRAWING FOR 3C X 400MM2, 33KV DOUBLE CIRCUIT XLPE CABLE |
| CHECKED | SGD | |
| APPD. | D.GUHA | |
| DATE | | |
| SCALE | | |

BSES

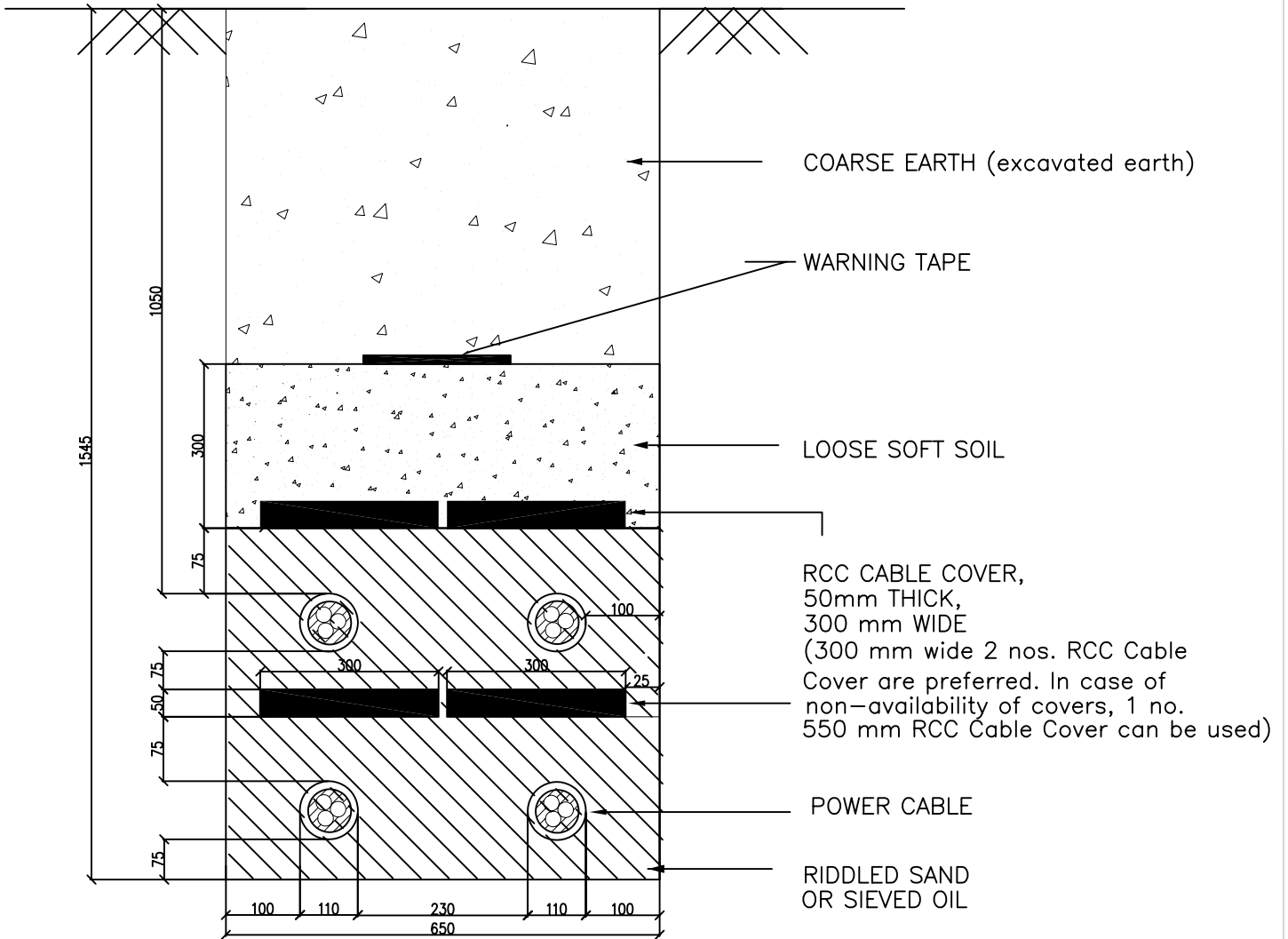
DRAWING # 5 A



TYPICAL DETAILS FOR 33KV BURRIED CABLE FOR FOUR CIRCUIT
TYPE – B 2

| | | | | |
|---------|--------|--------------------------------------------------------------------------------------|------|------------|
| DRAWN | DS | TITLE:— TRENCH DRAWING FOR 3C X 400MM2, 33KV FOUR CIRCUIT XLPE CABLE | BSES | |
| CHECKED | SGD | | | |
| APPD. | D.GUHA | | | |
| DATE | | | | REV. 00 |
| SCALE | | | | |

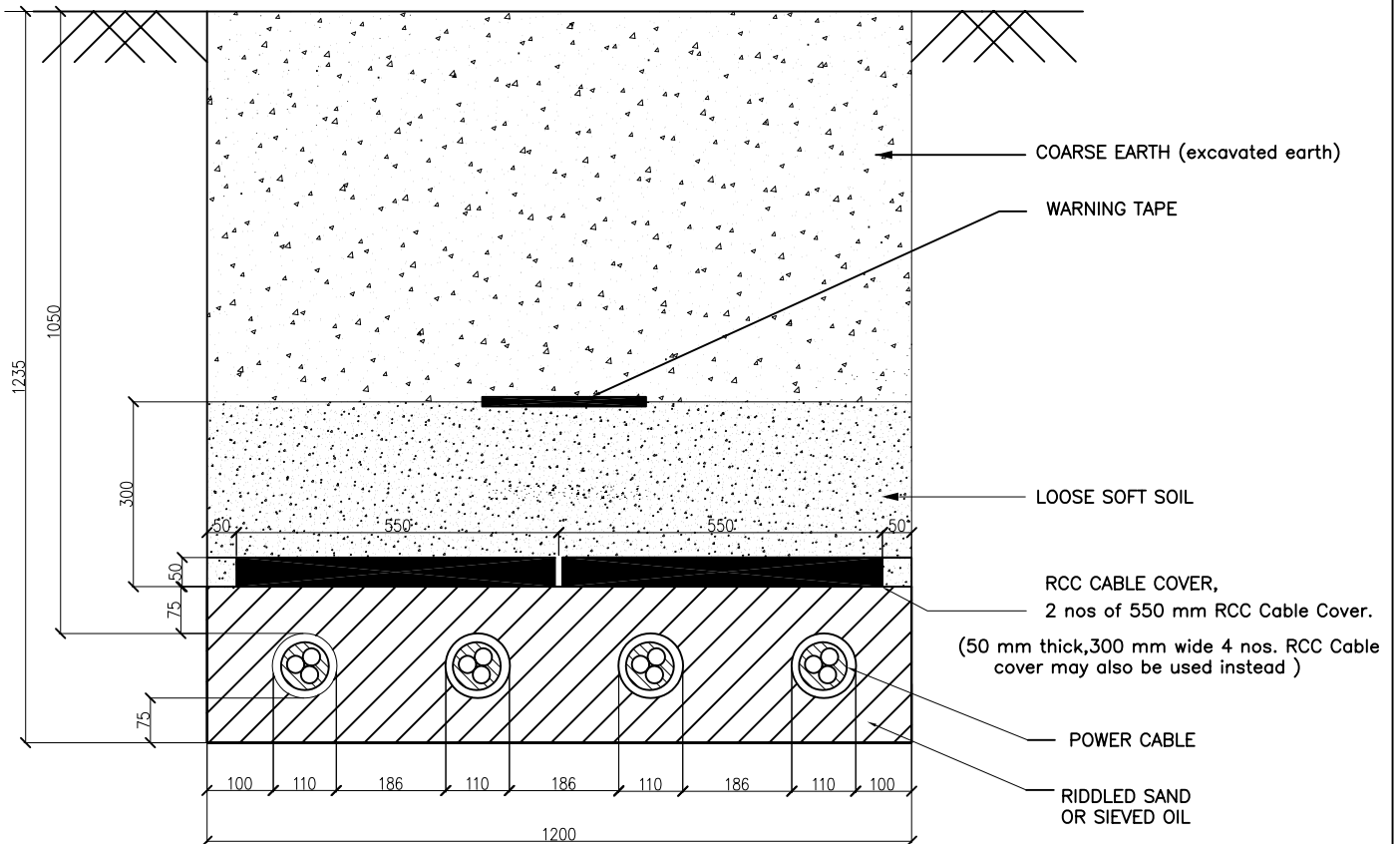
DRAWING # 5 B



TYPICAL DETAILS FOR 33KV BURIED CABLE FOR FOUR CIRCUIT
TYPE – B 3

| | | | | |
|---------|--------|--------------------|--------------------------------------------------------------------------------|----------------------------------------------------------------------|
| DRAWN | DS | TITLE:— | <div style="text-align: center; font-size: 2em; font-weight: bold;">BSES</div> | <div style="text-align: right; font-weight: bold;">REV. 00</div> |
| CHECKED | SGD | TRENCH DRAWING FOR | | |
| APPD. | D.GUHA | 3C X 400MM2, 33KV | | |
| DATE | | FOUR CIRCUIT | | |
| SCALE | | XLPE CABLE | | |

DRAWING # 5 C



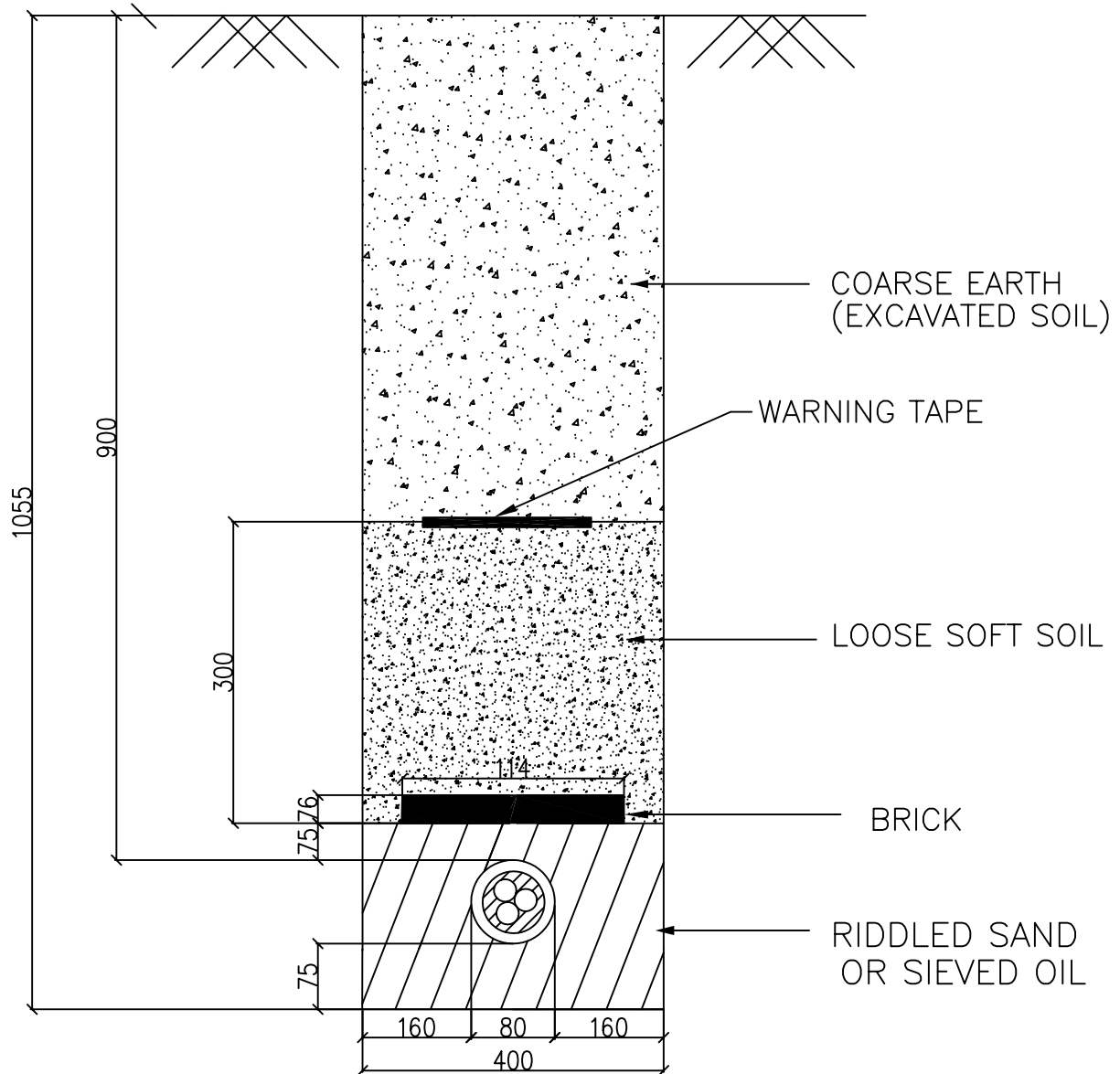
TYPICAL DETAILS FOR 33KV BURIED CABLE FOR FOUR CIRCUIT
TYPE – C 1

| | | |
|---------|--------|--------------------|
| DRAWN | DS | TITLE:– |
| CHECKED | SGD | TRENCH DRAWING FOR |
| APPD. | D.GUHA | 3C X 400MM2, 33KV |
| DATE | | FOUR CIRCUIT |
| SCALE | | XLPE CABLE |

BSES

REV.
00

DRAWING # 6



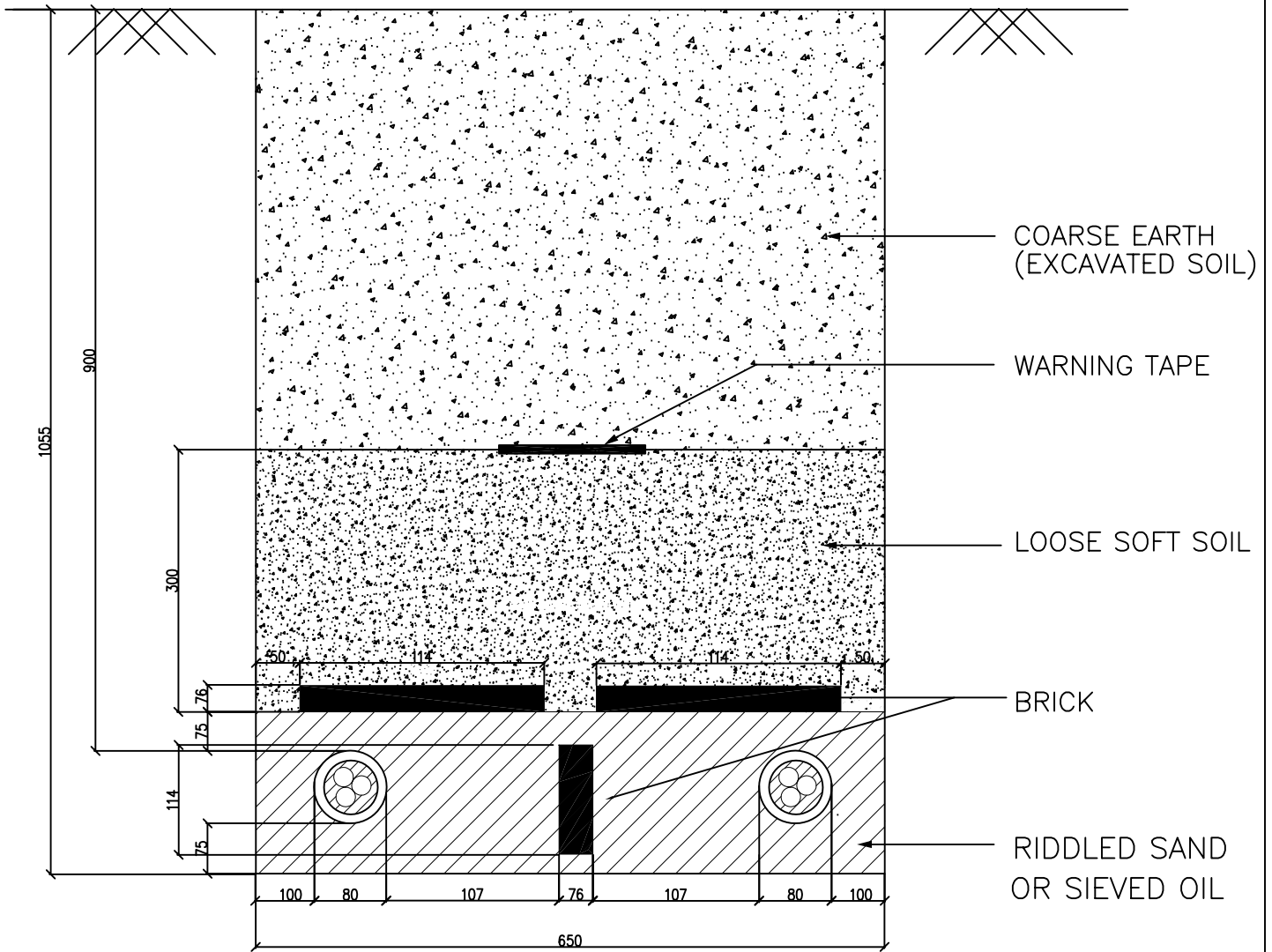
TYPICAL DETAILS FOR 11KV BURRIED CABLE FOR SINGLE CIRCUIT
TYPE – A 2

| | | |
|---------|--------|---------------------|
| DRAWN | DS | TITLE:- |
| CHECKED | SGD | TRENCH DRAWING FOR |
| APPD. | D.GUHA | 3C X 300 Sq. mm |
| DATE | | 11KV SINGLE CIRCUIT |
| SCALE | | XLPE CABLE |

BSES

REV.
00

DRAWING # 7



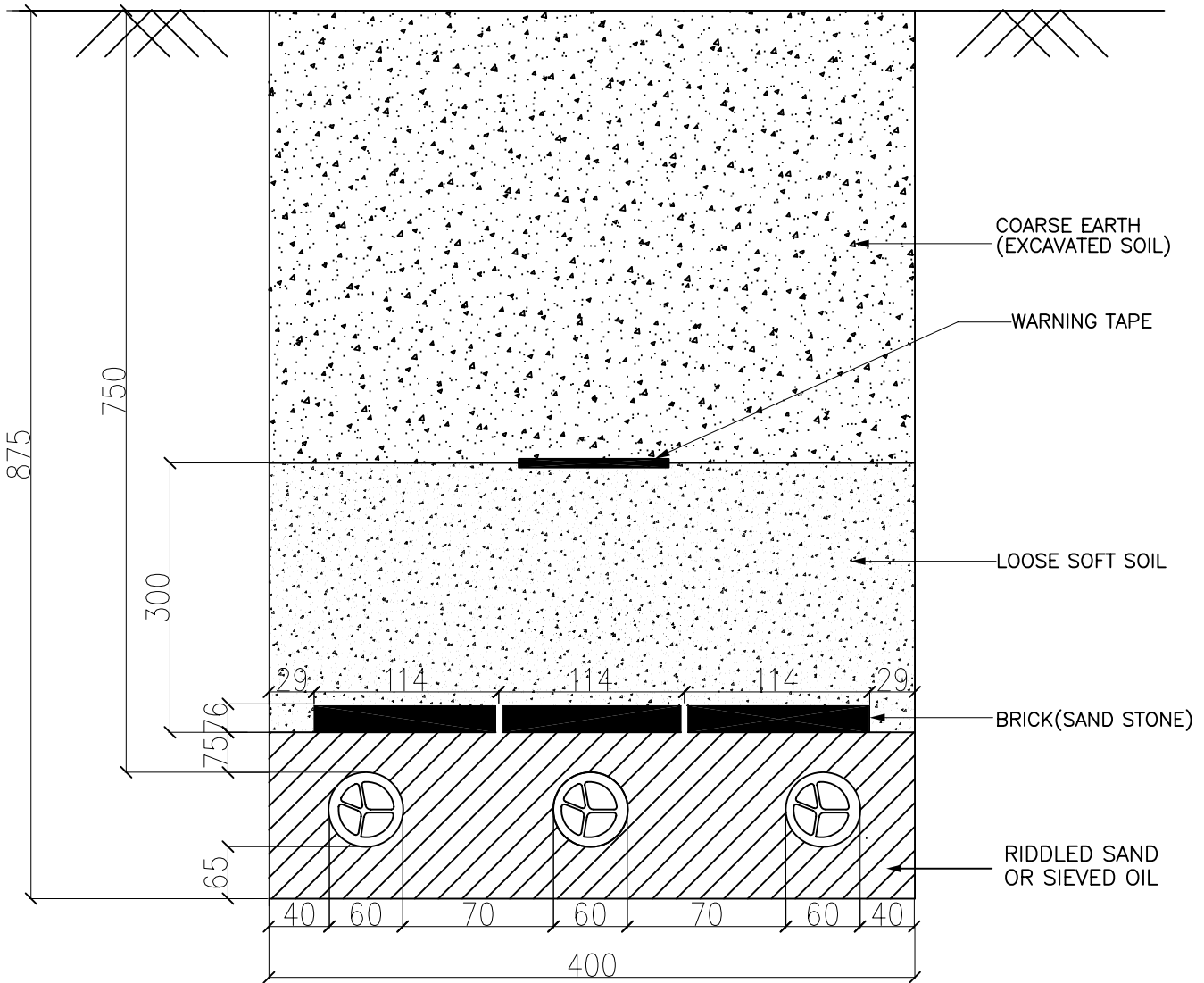
TYPICAL DETAILS FOR 11KV BURIED CABLE FOR TWO CIRCUIT
TYPE – B 1

| | | |
|---------|--------|----------------------|
| DRAWN | DS | TITLE:- |
| CHECKED | SGD | TRENCH DRAWING FOR |
| APPD. | D.GUHA | 3C X 300 mm Sq. or |
| DATE | | 3C X 150 mm sq |
| SCALE | | 11 KV DOUBLE CIRCUIT |
| | | XLPE CABLE |

BSES

REV.
00

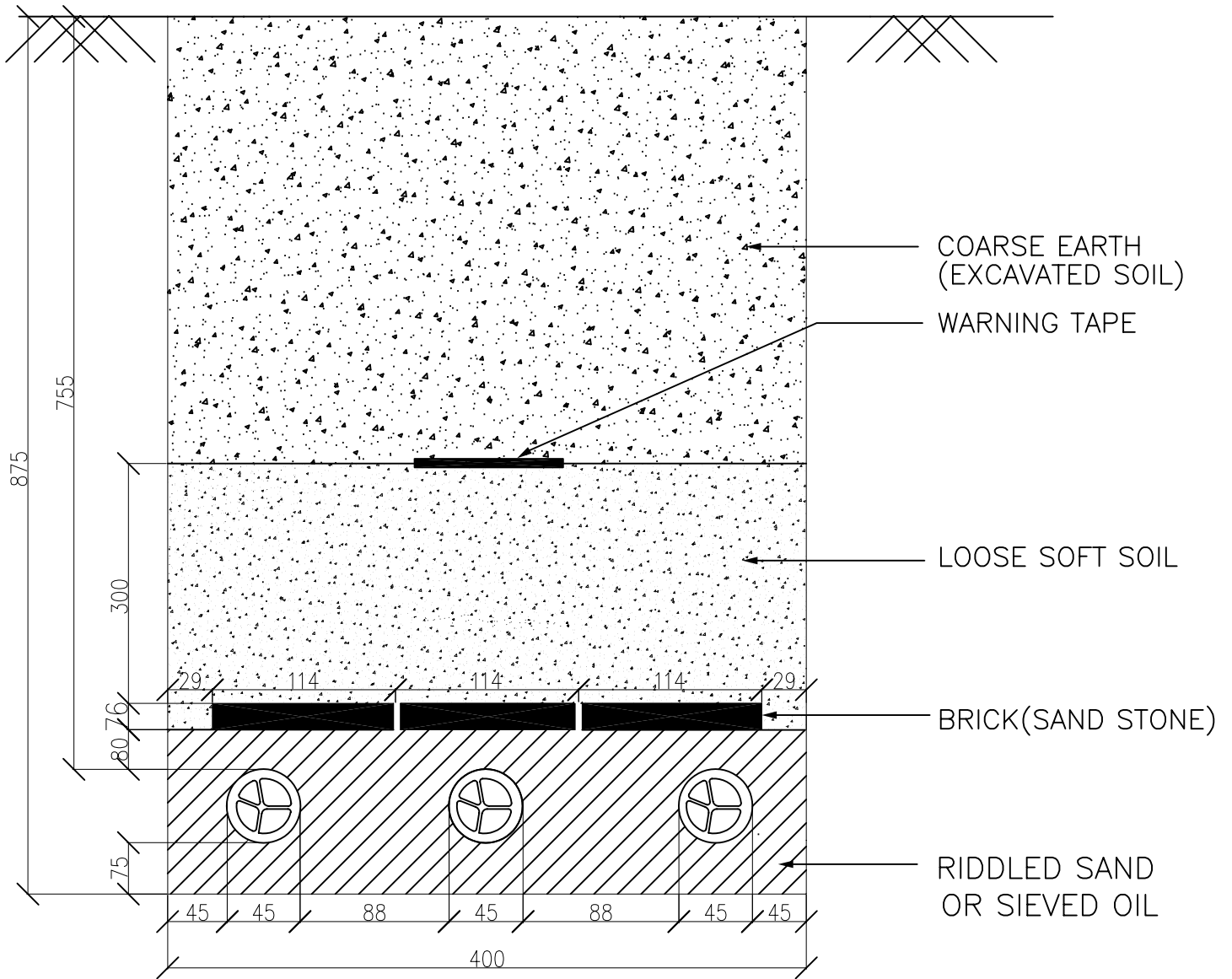
DRAWING # 8



TYPICAL DETAILS FOR 1.1KV BURIED CABLE
TYPE – A 1

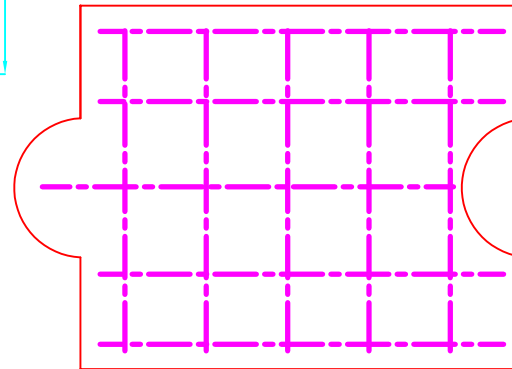
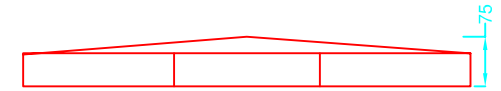
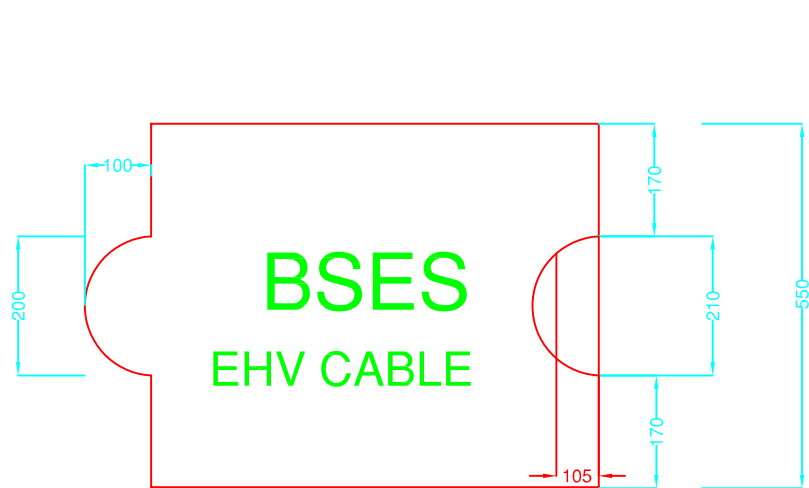
| | | | |
|---------|--------|---------------------|------------------------------------|
| DRAWN | DS | TITLE:– | <div>BSES</div> <div>REV. 00</div> |
| CHECKED | SGD | TRENCH DRAWING FOR | |
| APPD. | D.GUHA | 3.5Cx300Sqmm 1.1 KV | |
| DATE | | XLPE CABLE | |
| SCALE | | | |

DRAWING # 9



TYPICAL DETAILS FOR 1.1KV BURRIED CABLE
TYPE – A 1

| | | | |
|---------|--------|---------------------|------------------------------------|
| DRAWN | DS | TITLE:– | <div>BSES</div> <div>REV. 00</div> |
| CHECKED | SGD | TRENCH DRAWING FOR | |
| APPD. | D.GUHA | 3.5Cx150Sqmm 1.1 KV | |
| DATE | | XLPE CABLE | |
| SCALE | | | |



NOTE -

- (i) All dimensions are in MM.
- (ii) Concrete Mix 1 : 2 : 4
- (iii) MS rod - 6 MM Ø

CABLE COVER FOR EHV CABLES TYPE - A.

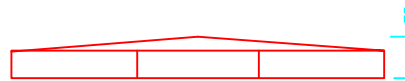
1. STEEL ROD - AS PER IS 432/1139
2. CONCRETE MIX SHALL BE NOT LESS THAN M200 GRADE AS PER IS 456.
3. MOULDING SHALL BE WITH COMPACTION NOT LESS THAN 7 MN/Sq.m.(70 kgf/Sqcm)



PLAN

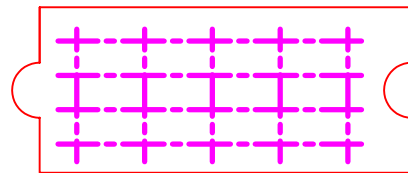


ELEVATION



SIDE VIEW

1. STEEL ROD - AS PER IS 432/1139
2. CONCRETE MIX SHALL BE NOT LESS THAN M200 GRADE AS PER IS 456.
3. MOULDING SHALL BE WITH COMPACTION NOT LESS THAN 7 MN/Sq.m.(70 kgf/Sqcm)



NOTE -

- (i) All dimensions are in MM.
- (ii) Concrete Mix 1 : 2 : 4
- (iii) MS rod - 6 MM Ø

CABLE COVER FOR EHV CABLES TYPE B.

Annexure-7: Barricading and Safety

1. Dimensions of barricading- Height- 2 mtr, Length- 1.5 mtr. Refer drawing enclosed with tech spec for more details.
2. There shall not have any gap in between two barricades. Edge to edge shall be intact.
3. LED Bacon light shall be placed at 1st and 4th barricade and same shall be continue
4. Name, painting, colour, clean ness etc. shall be done on regular basis.
5. Vendor to ensure that traffic management shall not be excuse of work execution. The contactor shall not undertake loading and unloading at carriageways obstructing the free flow of vehicular traffic and encroachment of existing roads by the contactor applying the excuse of work execution.
6. Full height fence, barriers, barricades etc. shall be erected around the site in order to prevent the working area from the risk of accidents due to speedy vehicular movement. Same the way barricades protect the road users from the danger due to construction equipment and temporary structures.
7. The structure dimensions of the barricades , material and composition, its colour scheme, BSES logo and details shall be in accordance with specification and drawing laid down in the tender documents.
8. All the barricades shall be erected as per the design requirements of employer, numbered painted and maintained in good condition and also barricade in charge maintain a barricade register at site
9. All barricades shall be conspicuously seen in the dark/night time by the road users so that no vehicle hits the barricades. Conspicuity shall be ensured by affixing retro reflective strips of required size and shape at appropriate angle at bottom and middle portion of the barricades at a minimum gap of 1000 mm. In addition minimum one red light /red blinker and red beacon light should be placed at the top of each barricade.
10. No dust deposit at the front side of barricades.
11. Cable drum shall be returnable and vendor shall take it back (by bye back process) from site at their own risk and cost.
12. Once cable lying complete of a drum, within two days empty drum shall be removed from site by bye back process.
13. Trained traffic marshal with all PPE and traffic control light (Red and Green) shall be placed at site for 24x7.
14. No excuse of theft (beyond 6 hrs. of FIR) shall be acceptable.
15. During execution of job, any damage to other agency's properties shall be counted in vendor account and necessary action shall be taken by vendor to recover, repair etc.
16. Excess earth shall be removed from site after back filling. Site to be cleared to avoid flowing of dust. Barricades to be removed from site with in 24 hrs. after completion of job.
17. During non working hrs. vendor to ensure presence of supervisor for controlling any event from locals.
18. PPEs

- Helmets

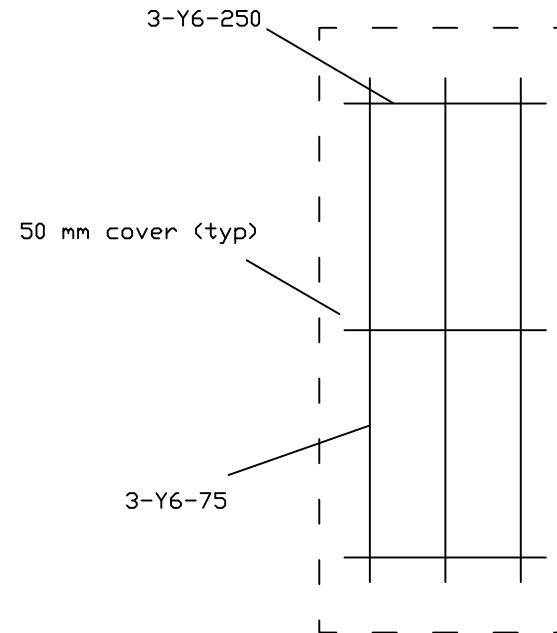
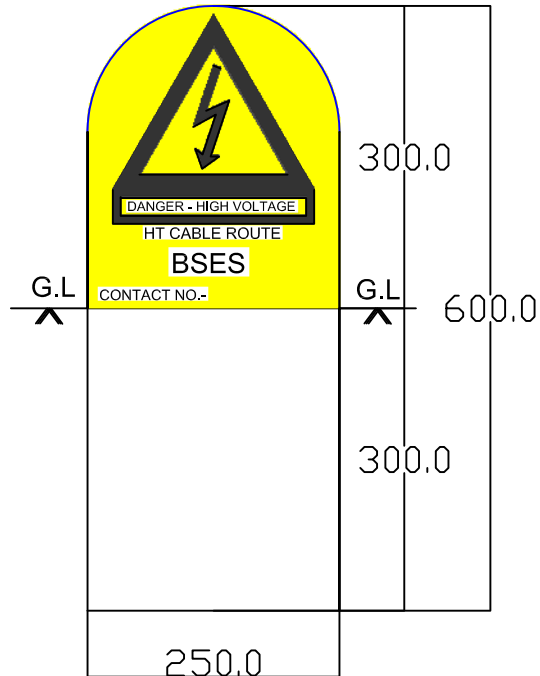
- Mask
- Jacket
- Shoes
- First Aid Box etc.

Shall be available at site 24x7. Zero tolerance on absence of PPEs to the working personnel. No excuse shall be acceptable in this regards.

19. GPR/Scanning shall be done by vendor of whole the route and same shall be submitted to BRPL. This work shall be done by vendor before execution of job.
20. Jointing TAT- Jointing to start within 48 hrs. and shall be completed by 96 hrs.+1 day.
21. Lifting of cable drums with hydraulic machine, pulling of cable from top end of drum with pulling machine (hydraulic winch) is mandatory.
22. Violation on barricading guideline and safety norms, a fine of Rs.5000 /day shall be imposed. BRPL inspector/engineer in-charge shall be empowered to impose the above penalty.


Annexure # 8 – ROUTE MARKER AND BARRICADING DRAWING

DETAIL OF HT CABLE ROUTE MARKER (RCC) - BSES



Notes:-

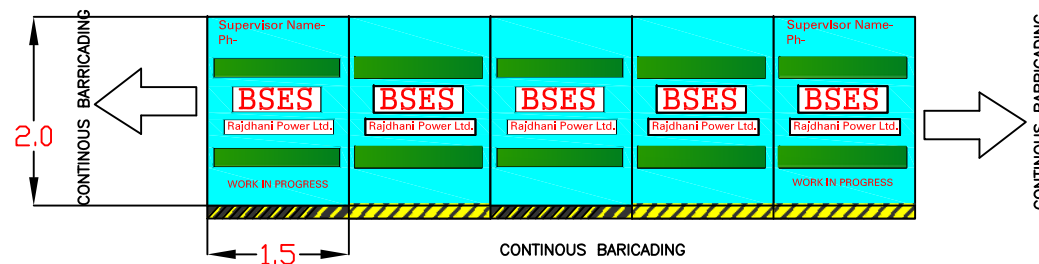
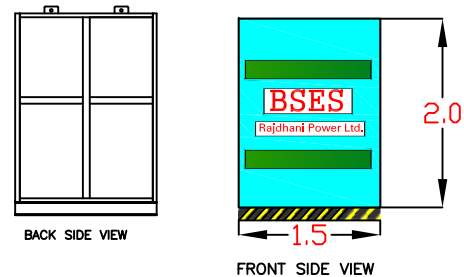
| | |
|---|-----------------------------------------------------------------------------------|
| 1 | RCC Cable route marker with 6 mm Dia. Road and M25 concrete grade. |
| 2 | The litter/number shall be engraved on both the side route marker. |
| 3 | All dimentions are in mm unless specified. |
| 4 | Thickness of RCC shall be 75mm. |
| 5 | Yellow colour shall be visible above ground level. |
| 6 | Each route marker to be placed at an internal 50 mtr. and at every turn of route. |
| 7 | All kind of paint on route marker shall be in the scope of manufacturer. |


| | | | |
|----------|----------|---------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| DRAWN | R.K.JANA | TITLE:- DETAIL OF HT CABLE ROUTE MAKER (RCC). |  BSES Rajdhani Power Ltd. |
| CHECKED | P.B | | |
| REVIEWED | M.B | | |
| APPO. | K.A | | |
| DATE | 16.08.16 | | |
| | | | DWG. NO. BSES-RM-RCC-01, R0 |

BARRICADING FOR CABLE LAYING WORK

NOTE:

1. Barricading shall provided through out the route length as well as project location.
2. Plate shall be MS
3. Supervisor name, ph no, work in progress, shall be mentioned at every 1st and 4th plate of barricading through out the route.
4. Beacon Light shall be provided through out the length.
5. Traffic marshal shall be Provided for traffic control by vendor.
6. Violation of safety norms and barricading shall be reviewed by BRPL and shall impose fine of Rs.5000/day as well as termination of work and short close of award.
7. After finishing of job vendor shall take return all the plate at their own risk and cost.
8. PPE's like Helmet, Mask, Jacket, safety boot etc. shall be provided vendor to all worker.



| | | | | |
|----------|----------|----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|--|
| DRAWN | R.K.JANA | TITLE:— DRAWING—BARRICADING FOR CABLE LAYING WORK |  BSES Rajdhani Power Limited | |
| CHECKED | P.B. | | | |
| REVIEWED | A.S. | | | |
| APPD. | V.P. | | | |
| DATE | 29.06.17 | | | |
| | | | | |

Annexure#9-Note for HDPE Pipe Diameter in Cable Laying

- 1) Primarily our intent for laying cable will be through open trench only.
- 2) Trench dimensions shall be as per the standards which mentioned as below table

| Sl. no. | Cable | Trench Details (mm) | | |
|---------|----------|-------------------------------|--------------------|--------------------|
| | | Depth (single and double run) | Width (Single Run) | Width (Double Run) |
| 1 | LT Cable | 875 | 400 | 400 |
| 2 | 11 kv | 1055 | 400 | 650 |
| 3 | 33 kv | 1235 | 400 | 650 |
| 4 | 66 Kv | 1445 | 650 | 1200 |

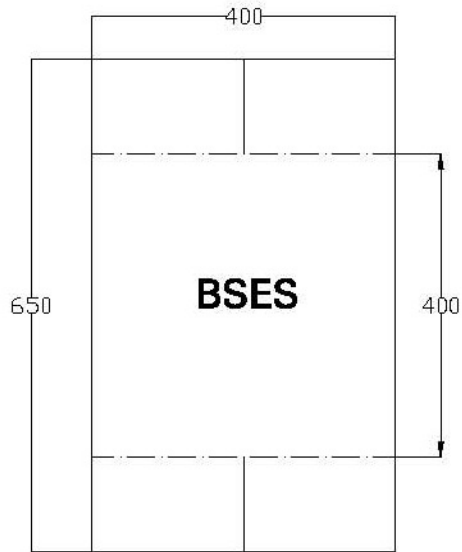
- 3) QC team will do stage inspection after completion of digging to validate the depth of trench and will give approval for issuing of cable.
- 4) Execution in charge to ensure the cable laying work.
- 5) QC team will also inspection the laying work to validate the laying as per standards before back filling.
- 6) In case of site constraints, trench less cable laying shall be allowed as per the followings-
 - a) Cable laying up to 50 mtr through trenchless will be allowed with approval of circle head (O&M) for road crossing or site constraints. Site photos of constraints shall be reviewed before approval by circle head.
 - b) Absence of permission for digging- written disapproval by road owing agency and appropriate approval by circle head (for O&M Jobs), by O&M head (for 11kV, P&C job) and by EHV head (for EHV Jobs)
 - c) The size of HDPE (PN6, PE80) pipe shall be as per the guidelines of IS-1255, 1983, clause no-6.3.4.3. Details mentioned below in below table-

| Sl. No | Cable | Recommended Dia of HDPE pipe (mm) |
|--------|---------------|-----------------------------------|
| 1 | 66kV, 3CX300 | 225 |
| 2 | 66kV, 1CX630 | 180 |
| 3 | 66kV, 1CX1000 | 180 |
| 4 | 33kV, 3CX400 | 180 |
| 5 | 11kV, 3CX300 | 160 |
| 6 | 11kV, 3CX150 | 160 |

- d) In-case of using lower size of HDPE pipe due to site conditions, the deviation for using lower HDPE pipe from above table, written approval must be taken through technical committee. Photos of the challenges while apparently the same will be reviewed by technical committee.

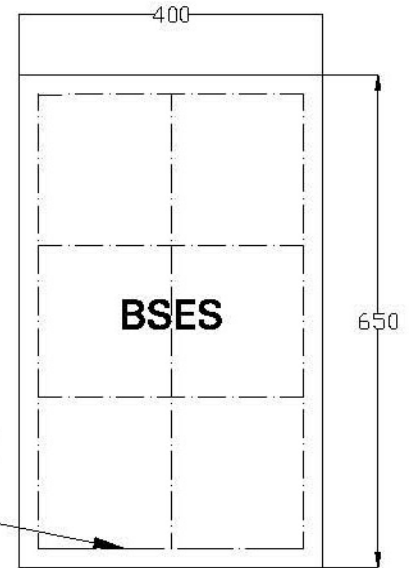
(However, HDPE pipe size with less than 1.5XOD of cable shall not be allowed at any stage)

DRAWING OF COFFIN FOR JOINTS

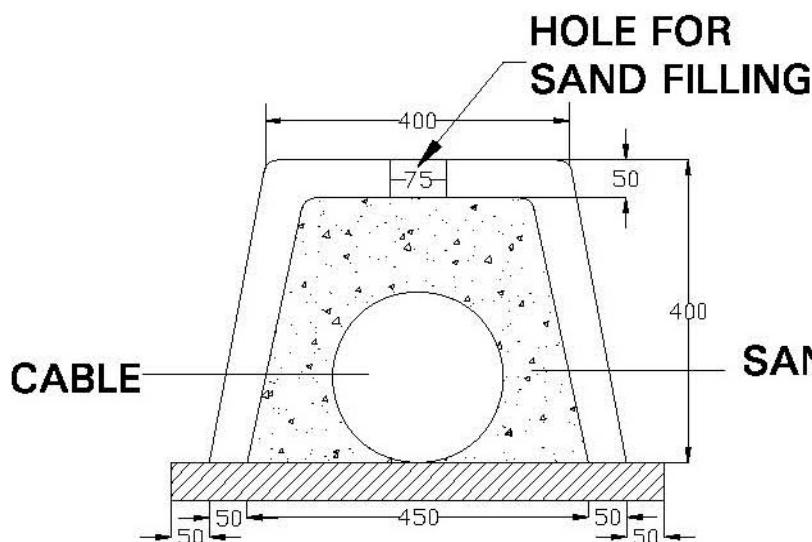


A. PLAN

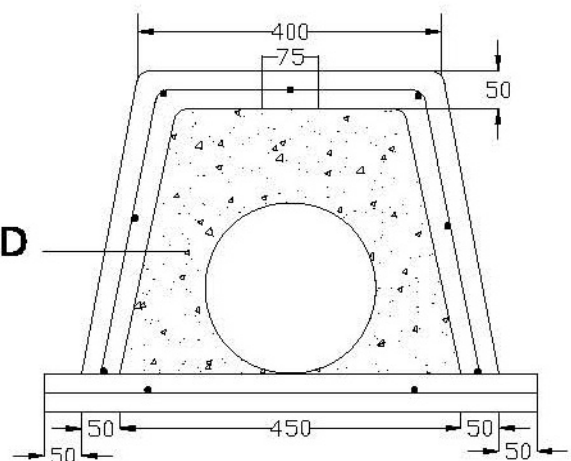
3 NOS. 8MM
DIA BARS



**B. REINFORCEMENT
DETAILS 300 MM**



D. ELEVATION



**E. REINFORCEMENT
DETAILS**

NOTES :-

1. ALL DIMENSIONS ARE IN MM
2. CONCRETE MIX 1:1.5:3
3. LENGTH OF COFFIN FOR CONSTRUCTIONAL PURPOSE ONLY. ONE COFFIN SHOULD COVER ENTIRE LENGTH OF JOINT

| | | | |
|---------|----------|-------------------------------------------------------------------------------|--------------------------------------------|
| DRAWN | SUMIT | TITLE :- DRAWING OF COFFIN COVER AT CABLE JOINTS | BSES BSES Rajdhani Power Limited |
| CHECKED | ABHAY | | |
| REVIWED | A.T | | DRAWING NO. |
| APPD. | V.P | | |
| DATE | 30.01.18 | | |