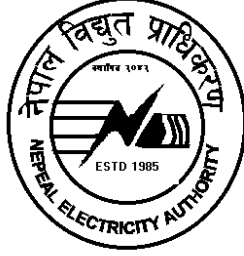


NEPAL ELECTRICITY AUTHORITY
Distribution and Consumer Services
Sindhuli Distribution Center
Sindhuli



NEA- SDC 2074/075-09SQ(E-Bidding)

SEALED QUOTATION DOCUMENTS
FOR
“११ के.भि एच.टि/एल.टि लाइन निर्माण कार्य”

सिलबन्दी दरभाउपत्र

दरभाउपत्र नं. NEA-SDC २०७४/०७५ -०९SQ(E-Bidding)

दरभाउ पत्र खरिदकर्ताको नाम :

ठेगाना :

प्रथमपटक सूचना प्रकाशित मिति : २०७४/११/२४ गते

दरभाउपत्र खरिद अन्तिम मिति र समय : २०७४/१२/०८ गते कार्यालय समय भित्र

दरभाउपत्र दाखिला गर्ने अन्तिम मिति र समय : २०७४/१२/०९ गते दिनको १२:०० बजे सम्म

दरभाउपत्र खोल्ने मिति र समय : २०७४/१२/०९ गते दिनको २:०० बजे



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Invitation for Bids (IFB)
Nepal Electricity Authority
Janakpur Regional Office, Mujeliya, Janakpur
Sindhuli Distribution Centre, Sindhuli

First date of Publication: 2074/11/24

National Competitive Bidding

Sealed Quotations are invited for the following Scheme of Nepal Electricity Authority, Sindhuli Distribution Centre, Sindhuli.

Sealed Quotation No:	Description of Works/Jobs	Cost of Sealed Quotation Document (Bank Deposit)	Sale of Sealed Quotation Documents available and available till date (Office time)	Last Date of Bid Submission, Opening Time and Place	Bid Security Bid Bond (Bank Deposit/Bank Guarantee)	Sealed Quotation Documents Available From	Estimate in NRs. (Including VAT)	Bank A/C No.
NEA-SDC-2074/075-09SQ (E-bidding)	Construction of HT/LT Line work.	NRS 1000.00	Sindhuli Distribution Centre, Sindhuli and 2074/12/08	2074-12-09, at or before 12:00 noon and 14:00 Hrs Respectively at NEA, Sindhuli Distribution Centre, Sindhuli	NRS 20,000.00 valid for 75 Days.	2074/11/25	771136.24	Deposit A/C No. 10600084101 Rastriya Banijiya Bank, Sindhuli

For the further details, Please visit the following website : <http://www.nea.org.np>, Contact Tel.No. 047-521105, 520550



2. SEALED QUOTATION FORM

Subject: Sealed for the **“11 KV HT/LT Line Extension work at KA.NA.PA 8 Paire, Dhapsar and Marin Gaunpalika Telni Bhanjyang.**

To,
Sindhuli Distribution Centre
Nepal Electricity Authority
Sindhuli

Sir,
Having examined the terms and conditions of contract, specifications, design and drawing and schedule for the **“11 KV HT/LT Line Extension work at KA.NA.PA 8 Paire, Dhapsar and Marin Gaunpalika Telni Bhanjyang.**

We undersigned, offer to construct whole works in conformity with following clauses, terms and conditions of contract, specification, design and drawing and schedule for the sum of Nepalese Rupees.

..... (In Figure)

..... (In Words)

1. We enclose here with a bank deposit receipt for a sum of two and half percent (2.5-3%) of the SEALED QUOTATION amounts acceptable and payable to you as SEALED QUOTATION guarantee.
2. We undertake if our SEALED QUOTATION is accepted to commence the construction immediately after receiving your letter of acceptance and to complete construction of the whole works comprised in the contract before the given time period.
3. Unless and until a formal agreement is prepared and executed this SEALED QUOTATION together with your written acceptance there of shall constitute a binding contract between us.
4. We understand that you are not bounded to accept the lowest or any SEALED QUOTATION you may receive and may reject any or all SEALED QUOTATION without assigning any reason whatsoever.
5. If Our SEALED QUOTATION is accepted we will furnish a bank deposit receipt/bank guarantee for in sum of five percent (5%) of the accepted SEALED QUOTATION amount within the seven calendar days of the receipt of letter of acceptance.

Dated Day of 2074.....

Signature in the Capacity of

Duly authorized to sign the SEALED QUOTATION for and on behalf of

Name of Company:

Address of Company:

Corporate seal:



3. TERMS AND CONDITIONS OF CONTRACT

3.1 GENERAL

Sindhuli Distribution Centre, Nepal Electricity Authority (NEA) intends to do **“11 KV Line Extension work at Fikkal KA.NA.PA 8 Paire, Dhapsar and Marin Gaunpalika Telni Bhanjyang”**.
in its Distribution Networks from its internal resources.

3.2 QUALIFICATION OF SEALED QUOTATION

SEALED QUOTATION will be accepted from qualified, reliable and experienced contractors. The SEALED QUOTATION shall have sound financial and technical capabilities for performing the works specified without any trouble. The following documents must be attached along with the SEALED QUOTATION document.

1. An official document certifying valid license registration of the business as contractors and certificate of income tax clearance up to 2073/074 & VAT certified.

3.3 PREPARATION OF SEALED QUOTATION

- i. SEALED QUOTATION is expected to examine carefully the site conditions, information and the entire SEALED QUOTATION document and the terms and conditions there in. Failure to do so will be at the SEALED QUOTATION risk. If SEALED QUOTATION has any doubt concerning the meaning or interpretation of any part of the SEALED QUOTATION document, he/she should contact the NEA for clarification.
- ii. SEALED QUOTATION shall be prepared carefully and shall be completed in every respect as per the SEALED QUOTATION document. The SEALED QUOTATION shall fill in fully the SEALED QUOTATION sum along with total prices and item wise prices of all the items as per schedules.
- iii. SEALED QUOTATION should clearly mention commencement date and completion period of the entire work. The work schedule must be submitted.

3.4 SUBMISSION AND OPENING OF SEALED QUOTATION

- i. SEALED QUOTATION shall be submitted to the Sindhuli Distribution Centre Sindhuli by 12:00 hours on date of published notice and will be opened at 2:00 PM of the same day. The purchasing, submission and opening of the SEALED QUOTATION shall be done on the next working day at the same time if the scheduled day happens to be holiday.

The SEALED QUOTATION shall be submitted in envelope marked SEALED QUOTATION do **“11 KV Line Extension work at KA.NA.PA 8 Paire, Dhapsar and Marin Gaunpalika Telni Bhanjyang**.

- ii. and shall be duly signed by the SEALED QUOTATION or his authorized representative and stamped.
- iii. SEALED QUOTATION shall be opened in the presence of SEALED QUOTATION or their authorized representatives. But the absence of any or all SEALED QUOTATION or their authorized representative will not prevent the opening of the SEALED QUOTATION.



3.5 SCOPE OF WORK

The Bill of quantities has been prepared as per tentative estimate. Field work quantities may vary as per site conditions, office needs and public disputes. But contractor has to work in same unit rate. **Contractor has to make touch with local bodies and people for executing work. NEA will write letters to local bodies if it becomes necessary.**

3.6 BID BOND

The SEALED QUOTATION shall submit together with his SEALED QUOTATION a bid bond in the form of Bank guarantee of at least 75 days (from opening date of bid) from any of the bank cash deposited in Sindhuli Distribution Center "deposit account no. 106000084101 "Rastriya Banijya Bank Sindhuli" for a value of two and half percent to three (2.5-3%) of the total quoted price. An unsuccessful BIDDER's Bid Security will be released / returned as promptly as possible upon award of CONTRACT to the successful bidder

3.7 PERFORMANCE BOND:

The successful bidder shall submit a performance bond in the form of a bank guarantee or receipt of cash deposited Sindhuli Distribution Centre "deposit account no. 106000084101 "Rastriya Banijya Bank Sindhuli" for a value of 5% of quoted value within seven calendar days from the receipt of letter of acceptance and valid until the expiration of warranty period. If he/she failed to do so, his SEALED QUOTATION shall be cancelled and bid bond is forfeited. The performance bond shall be released after the expiration of warranty period. If the contractor's performance is not satisfactory, the contract may be cancelled and his bond shall be forfeited.

3.8 ACCEPTANCE AND REJECTION OF SEALED QUOTATION:

SEALED QUOTATION shall be normally considered on the basis of his quoted price but factors, such as reliability of Construction Company and completion period shall also be taken into consideration. However, the employers neither bind himself to accept the lowest bid nor assign any reason what so ever for the rejection of any SEALED QUOTATION. NEA reserves all right to reject fully or partially any SEALED QUOTATION submitted without giving any reason. The SEALED QUOTATION shall be rejected if:

- a. The SEALED QUOTATION is not signed and any properly sealed.
- b. The SEALED QUOTATION proposal submitted by the SEALED QUOTATION contradicts or does not satisfy any conditions laid in SEALED QUOTATION document which are considered essential.
- c. The SEALED QUOTATION bond is not enclosed.
- d. The SEALED QUOTATION is received by NEA after the deadline for submission of Bid.
- e. Proposed work schedule showing completion dates more than NEA's requirement.
- f. The Contractor has not purchased and returned the original document issued by NEA.
- g. The SEALED QUOTATION fails to satisfy that Bid is fully cognizant of the scope and details of the work involved.



- h. The SEALED QUOTATION is not wax sealed.
- i. The SEALED QUOTATION is not signed and stamped by the BIDDER.
- j. The SEALED QUOTATION Document is issued in the name of one firm and SEALED QUOTATION proposal submitted by another firm.
- k. The contractor is blacklisted in its contractual obligations in past NEA contracts.
- l. The contractor does not offer all the items and quantity specified in Price Schedule.
- m. The SEALED QUOTATION has price escalation clause.

3.9 COMPLETION PERIOD:

Early completion of the work will be appreciated but the works is supposed to be completed within 45 days from the date of signing the agreement.

3.10 DELAYS:

In the event of the contractor fails to comply with completion period the contractor will have to request for the extension giving sufficient reasons for the causes. If the cause requested is found to be reasonable, the completion period may be extended as required, if not reasonable the contractor shall pay penalty at the rate of 0.05 percent of Bid amount per day but such payment shall not exceed 10% of the total Bid amount. If the delay is prolonged in addition to penalty charge the owner shall have right to withdraw the work partly or wholly by giving notice to the contractor. The bonds of such contractor shall be forfeited.

3.11 FORCE MAJEURE

In case of force majeure the CONTRACTOR is entitled to an extension of time of completion. By force majeure, it is understood acts of god, fires, war or war like condition, riot civil commotion, non availability of transport due to the circumstances beyond the control of contractor. A part from extension of time of completion, force majeure does not entitle.

3.12 GUARANTEE

The SEALED QUOTATION shall guarantee that construction work will be free from any defects in workmanship.

3.143 WARRANTY PERIOD

The warranty period shall be 1 year from the date of completion of the entire work.

3.14 FAULTS AND DEFECTS DURING WARRANTY PERIOD:

It is responsibility of the contractor to remedy as soon as possible all the faults and defects of works occurring during warranty period resulting from faulty construction faulty materials or other violations of contractor's obligations.



If the contractor does not attend to such faults within two week, the owner is entitled to execute the necessary repairs at the risk and the expenses of the contractor without the contractor being released from his responsibility for the proper fulfillment of his warranty obligation.

3.15 TAXES AND DUTIES

1. Government of Nepal shall impose on the contractor the following taxes, duties, fees and levies but not limited to and deemed to be included in the contract price and shall be payable by the contractor to concerned tax office of Government of Nepal except in so far mentioned otherwise elsewhere in this SEALED QUOTATION document.
2. All taxes and duties in the country of origin of materials shall be paid by the contractor.
3. All other taxes, duties, fees and levies including income tax to be imposed by Government of Nepal on the contractor shall be paid by the contractor.

3.16 PRICE AND CURRENCIES.

The rates shall be firm and valid for the entire implementation period of the work. The price variation clause will not be accepted.
The bidder shall fill in unit prices for each item both in figures as well as in words. Total bid prices against each item shall also be clearly indicated. In case of any discrepancies the bid price in words shall govern. The quoted price shall be in Nepalese Rupees.

3.17 DEVIATIONS FROM THE SPECIFICATION.

The SEALED QUOTATION shall quote as per Bill of Quantities and Specifications specified in the SEALED QUOTATION document. If there are any deviations from the specifications, they must be specifically mentioned in the SEALED QUOTATION.

3.18 PROGRESS REPORT AND MODE OF PAYMENT:

The contractor shall submit the progress report to the owner. He/She shall keep progress report of day to day works. The payment will be made to the contractor as per NEA^{IS} rules and regulations. After work completion, the report & work must be supervision by the site incharge / engineer and approved by the Office Chief. Payment is only done when the work completed report approved by NEA officials is submitted to the NEA Sindhuli Office . If the payment is delayed to the contractor , Contractor will not be able to claim interest or any other amount for that delayed payment.

3.19 TOOLS AND EQUIPMENT

The contractor shall at his own expense supply all tools, equipments and transport required for the satisfactory execution of the work.

3.20 SAFETY PRECAUTIONS.

The contractor is fully responsible for the safety of the workmen engaged on the job and the materials at site. He/She shall take precautionary measures to prevent accident or loss or damage to any person or any material at site. It will be the responsibility of the contractor to compensate adequately to the laborers/workmen in case of accident and injury to them He/She shall provide necessary watchmen for the protection of men and materials.



3.21 ALTERATION/ADDITIONS AND OMISSION.

The owner reserves the right to make any variation in the nature, quality and quantity of the works as follows:

1. Increase or decrease in the quantity of works.
2. Omit any such work
3. Change the quality or kind of such work.
4. Change the level, lines, position and dimensions of any part of the work.

But the contractor shall not make any such variations without written approval of the owner. The owner shall determine the cost of such variations provided if not included in the original contract.

3.22 TERMINATION OF CONTRACT

The owner may without any prejudice terminate the contract as a whole or any part thereof by giving seven days notice for the reason or default in any of the following cases.

1. The contractor being an individual or a firm shall at any time become bankrupt to his creditors.
2. The contractor being an organized association shall go into liquidation or receive the court order for liquidation.
3. The contractor refuses or persistently neglects to any comply with a notice in writing from the owner requiring him to remove defective works or materials.
4. Fails to comply with any terms and conditions of the contract even after seven days notice in writing with orders properly issued there under.
5. If the contractor assigns, transfers or sublets any portion of the woks without prior written approval of the owner.

Whenever the owner terminates the Contract under these conditions the owner shall complete the work by any means at the contractor's risk and expenses. The contractor shall be entitled to receive payment for the work performed by him to the contract value thereof less the cost of completion of the work in his default as certified by the owner whose certification shall be final, binding and conclusive.

- 3.23** Any item which is missing in the bill of quantities or specification but necessary for the completion of the works shall be supplied by the contractor. The unit price of such item shall be quoted separately.



BID SECURITY FORM

WHEREAS _____
(Hereinafter called "the Bidder") has submitted its bid dated _____
_____ for construction of _____
_____.

KNOW ALL MEN by these presents that WE _____
_____ of _____

Having our registered office at _____
hereinafter called "the Bank") are bound unto Nepal Electricity Authority, Distribution and Consumer Services, Sindhuli Distribution Center (hereinafter called the NEA) in the sum of *(Amount of the Guarantee in Words and Figures)*, for which payment well and truly to be made to the said NEA, the Bank binds itself, its successors and assigns, by these presents. Sealed with the Common Seal of the Bank this _____ day of _____, 20____.

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 NEA during the period of bid validity:
 - (a) Fails or refuses to execute the Contract Form, when requested; or
 - (b) Fails or refuses to furnish the Performance Security, in accordance with the Instructions to Bidders:

We undertake to pay to the NEA up to the above amount, according to, and upon receipt of, its first written demand, without the NEA having to substantiate its demand, provided that in its demand the NEA will note that the amount claimed by it is due to it owing to the occurrence of one or both of the two above stated conditions, specifying the occurred condition or conditions.

(NAME OF BANK)

by _____
(Title)
Authorized Representative

(Signature of Witness)

Name of Witness _____
Address of Witness _____



Performance Security Form

To: Nepal Electricity Authority
Sindhuli Distribution Center
Sindhuli, Bara
NEPAL

WHEREAS (Name of the Contractor)

Hereinafter called "the Contractor" has undertaken to supply of _____ in pursuance of Contract No. _____ dated _____ 20 ____, hereinafter called "the CONTRACT", AND WHEREAS it has been stipulated by you in the said CONTRACT that the CONTRACTOR shall furnish you with a Bank Guarantee by a recognized Bank for the sum specified therein as security for compliance with the CONTRACTOR's performance obligations in accordance with the CONTRACT.

AND WHEREAS we have agreed to give the CONTRACTOR a Guarantee:

THEREFORE WE hereby affirm that we are Guarantors and responsible to you, on behalf of the CONTRACTOR, up to a total of (*Amount of the Guarantee in Words and Figures*), and we undertake to pay you, upon your first written demand declaring the CONTRACTOR to be in default under the CONTRACTOR, and without cavil or argument, any sum or sums as specified by you, within the limit of (*Amount of Guarantee*) as aforesaid, without your needing to prove or to show grounds or reasons for your demand of the sum specified therein.

This guarantee is valid until the _____ day of _____, 20 _____.

(NAME OF GUARANTOR)

By _____

(Title)

Authorized Representative

Date: _____

Address: _____



TECHNICAL SPECIFICATION OF WORKS

CONSTRUCTION STANDARD

CONSTRUCTION WORKS

1. General

- 1.1 These Construction Standards shall govern the performance of the Works and shall be the basis for inspection and acceptance of the Works by the NEA.
- 1.2 These Construction Standards shall be considered as mutually inclusive, and the conditions stated in each shall supplement the other as appropriate.
- 1.3 All these specifications shall be followed at all times by the Contractor unless specifically accepted in writing by the NEA, or unless some aspects of the work covered by these specifications are not required by the scope of work.

2. Route of Circuits

- 2.1 The line routes shown on line route drawings are provisional and subject to finalization by the Contractor. To the greatest extent practicable, all overhead circuits should be located along streets or traveled ways ordained by the Village Development Committee or required authority as public property, except as required for service drops and circuits to individual consumers.
- 2.2 To the greatest extent practicable, all facilities should be located on public property, and in no case shall private property be occupied unless specifically authorized by the NEA. Community shall be responsible for providing right of way.

3. Surveys and Staking

- 3.1 All structures should be located at the outer limits of public property along streets or travelled ways. Structures should also be located along streets at property lines of adjacent private property. Structures and stays running parallel or perpendicular to the line route shall not block portions of streets, travelled ways, drives, passages, or gates.
- 3.2 All structures shall be so located as to reduce, to the greatest extent practicable, obstacles to pedestrian and vehicular traffic.
- 3.3 Where underground facilities are indicated by surface conditions, or where such facilities can be located, structures and stays shall be so located as to avoid conflict with such facilities during construction.

4. Material Storage

- 4.1 The Contractor shall manage all labor, equipment, and vehicles to load and transport said materials and equipment to the worksites.

4.2 Worksite

- (a) Extended storage of materials along the routes of lines will not be permitted.
- (b) Conductor reels may be spotted at the worksites for a short period prior to installation provided that crating and reel lagging are intact to protect the items. Poles may be spotted at structure locations for short periods prior to setting.
- (c) All poles, and conductor placed at the worksites shall be located so that the items are not subject to damage and do not impede pedestrian or vehicular traffic.



- (d) Any damage caused by imprudent placement of equipment and materials by the Contractor at the worksites shall be corrected by the Contractor, in a manner acceptable to the NEA, at the Contractor's cost.

4.3 **Contractor's Storage Facility**

The Contractor shall be financially responsible for the secure and proper storage of materials, prior to installation of the materials and equipment, to prevent loss or damage to any materials. However Contractor may use NEA sub-stations premises subject to approval of concern NEA/Substation Authorities.

5. **Poles and Cross Arms**

5.1 **Pole Framing**

Pole and structures shall generally be framed in accordance with Construction Standards and the construction SDS. Where special framing requirements are necessary, the Site Incharge or Engineer shall provide framing instructions for the specific structure.

Each cross-arm shall be attached to the pole by a pole clamp or by machined bolts of sufficient length to pass completely through the holes provided on the pole and cross-arms and receive their full complement of nuts.

During the erection work at the field there may be necessity to modify galvanized steel hardware and may have to be drilled, reamed, filed or cut. Under such a condition the area of the steel exposed, after these modifications, shall be coated with a zinc-rich paint to protect the steel from corrosion.

5.2 **Excavation**

All excavations made for the installation, or demolition, of facilities shall be accomplished in a timely manner according to the scheduled installation. Required excavations shall be opened, material installed, and backfill placed, as specified, in a continuing operation to the greatest extent practicable.

Any excavation left open during discontinuous construction, which is accessible to the public or along public thoroughfare, shall be covered or barricaded, and marked by suitable visual means, to prevent a public hazard.

All excavations shall be backfilled with excavated material, or as specified for the installation. Backfill shall be free of foreign materials and shall be well tamped with excess backfill graded over the excavated area to prevent depressions resulting from eventual natural compaction. The Contractor if so directed by NEA shall remove large amounts of excess backfill from the site. If so directed by NEA, the Contractor shall provide suitable backfill materials for excavations where existing removed materials is insufficient, or inappropriate, to provide suitable grading of the excavated area.

5.3 **Pole Setting**

Poles shall be set in accordance with the appropriate Sections of the Construction Standards.

Pole holes shall be dug large enough in diameter to admit a tamping bar all around the periphery of the pole and shall have a uniform dimension as per the type of pole used at the top and bottom. Poles shall be planted in the ground to the depth specified in construction. Drawings before planting a pole, the bottom of the hole made for planting the pole, shall be cleaned of free soil and firmly tamped, to prevent the hole from settling.

The stability of a pole, particularly a pole without stay, is greatly influenced by the size of the pole hole, the nature of the soil and the care exercised in back filling and tamping. Two active hand tampers and one slow shovel shall result in good compaction.



Poles shall be set to stand perpendicular except at terminals, angles and other points of excessive strain where they shall be given a rake not to exceed 10 centimeters against the direction of strain. Poles located at the sides of banks or other locations, where washouts may occur, shall be protected by suitable cribbing, or shall be referred to the Engineer for recommended action.

After the pole is in position and the hole is back filled and tamped, soil shall be piled and packed firmly around the pole. Pole setting shall be inspected prior to acceptance and any back fills that have sunk shall be refilled.

Where it is necessary to set poles at locations where the soil has very low bearing value, or in swampy conditions, a pole may be fitted with a bog shoe in accordance with construction drawings the engineer may specify that type of construction.

6. Stays

6.1 Stay leads specified in construction documents are defined as the horizontal distance from the centerline of the pole at ground line to the point where the anchor rod should enter the ground assuming the ground to be level. For the correction in stay leads for uneven ground see construction drawing.

The Engineer, upon request, may designate the actual location of stay anchor rods on slope of hills. The stay stake indicates the point where the anchor rod enters the ground. The anchor hole shall be dug accordingly.

The attachment of one stay shall not overlap that of another stay when 2 or more stays are carried to a pole or anchor. Each shall be entirely independent of the other. This does not prevent the use of multiple eye rods for nuts designed for such use.

All stays to be installed on a pole line shall be placed and drawn reasonably taut before the conductors are tensioned. After the conductors are tensioned and sagged to their final position, the stays shall be carefully inspected to see that each is carrying its share of the load on the pole as intended. If multiple stays are not carrying equal strain, the slack stay shall be pulled up until it is sharing load as intended.

Stay anchors must be installed full depth and set to pull against undisturbed soil to develop full tension. An anchor not properly installed will move and allow movement of the top of the pole, thus slacking the conductors. Stay anchors installed in soft or unstable earth shall be placed at specified depth and back filled with 5 cm. maximum size crushed stone placed to a depth of 1 meter from the bottom of the pole.

6.2 Installation of Stays

Where stays are installed on a line angle structure, line of stay shall bisect the outside line angle.

The span of stay extending between poles shall not be greater than 60 meter.

Anchor and anchor rods shall be set so that the axis of the rod and line of stay shall be straight. The portion of the anchor rod above the ground shall not be bent at an angle to connect a stay wire. If this occurs, anchor and anchor rod shall be reset. The anchor rod shall not be exposed for more than 15 centimeters above the ground after the anchor is set.

If gravel back fill is required to set anchor in soft or unstable soil, as per construction drawing the Contractor will have to carry out the gravel back fill as directed by Engineer.

If a stay is installed on a pole where low voltage conductor is dead ended or double dead ended and extends past stay, a piece of plastic hose slit along the length shall be placed over the stay wire extending from the upper stay attachment to 200 mm below lowest low voltage conductor. After installation, the hose shall be wrapped with plastic tape and the hose shall be secured to the upper stay bolt with tie wire.

6.3 Stay Insulators



Stay insulators shall be installed on all stays in accordance with the construction drawings.

7. Conductor

Aluminum Conductor Steel Reinforced (ACSR) conductor shall be used for 11 KV overhead lines.

7.1 Sagging

Conductors shall be sagged appropriately.

The importance of careful sagging of conductors cannot be over emphasized. Conductors have definite characteristic that control their behavior resulting from changes of temperature, wind speed and additional load due to ice or wet snow.

Conductors must not be sagged too tightly (less than specified sag) as unspecified extra tensions may result in failure of conductor structure.

Conductors sagged too loosely (more than specified sag) may contact adjacent conductors hardware or any structure. Excess sag can reduce clearance beneath the line with the ground to the point of danger.

7.2 Damaged Conductor

Damaged conductors shall be repaired by using a repair sleeve provided that no more than 2 strands of the outer aluminum layer are damaged and further provided that none of the sleeve core strands are damaged. For a conductor damaged in excess of the above conditions, the damaged section of the conductor shall be cut out and a tension splice installed.

When cutting out damaged section of conductor, no more than 1 tension splice shall be permitted in a span and no splice is made within 8 meters of an insulator attachment.

7.3 Conductor Attachment

Conductors shall be secured to pin insulators with pre-formed conductor ties or with tie wire. Insulator ties, except at jumper supports in structures, shall be made with pre-formed ties when available.

Conductors shall be connected to dead end assemblies with tension set.

7.4 PG Clamps

PG clamps are furnished in a full range of sizes for application in the non-tension connection in 11 kV circuits. The PG clamps are designed for general use in making tap and jumper connections of various types.

In all applications of PG clamp fittings, the conductor metal shall be wire -brushed to a bright condition to remove surface oxidation on the conductor.

7.5 Line Construction

Arrangement of Conductor

The standard position of 11 kV phase conductors on the cross-arm in the normal triangular configuration looking from the normal source of power supply shall be seen as:

Red (R) on top of the pole, Yellow (Y) on right hand end of the cross-arm and Blue (B) on left hand end of the cross arm.

Attachments to Poles

Bolt holes are provided on poles for cross-arms, cross-arm braces and stay bolts.

Conductor Ties



Pre-formed ties and grips shall be used for attaching conductors to structures when available.

If pre-formed materials are not available, the wire shall be soft conductor so that when made up, the tie wire will bind the conductor tightly. No tie wire shall be used for a second time.

Tie wire shall be of the same metal as that of the bare conductor to which the tie is applied.

Conductor Support

The conductor supports on straight lines shall be carried on the top wire groove of the pin insulator. Conductors shall be attached to the side conductor groove of pin insulator on the outside of angles so that transverse conductor tension will tend to hold the conductor in the insulator groove.

Conductor ties shall not hold a conductor on the insulator when uplift exists. If uplift is found, it is required to consult with the Site Engineer or the Engineer to determine remedial action to be taken.

8. Installation Criteria

8.1 The line alignment should be as straight as possible to minimize requirements for stays.

The basic span shall be maintained within the following limits:-

11 kV line: 50m to 55 m

8.2 The entire construction works shall be performed as per the construction units specified. Whenever the construction unit does not cover any specific activity, the Contractor and the NEA shall mutually settle the cost as per the man-hour involvement for the same and according to the labor rate quoted by the Contractor in his Bid.

8.3 All types of line clearances shall be maintained as per the construction standards provided to the Contractor. Deviations from the standards may be allowed only for unique or special conditions.

8.4 Safety rules of the NEA shall be strictly observed at all times by the NEA and the Contractor and their personnel. Special care shall be taken to maintain the optimum conductor sag to provide adequate safety to the construction and the property or people.

8.5 All fastenings (e.g. preforms, nut bolts, stays and the like) shall be so installed that the constructed line components shall not fail to remain within the safety margin while maximum working load is applied.

8.6 If the Contractor requires clarification of any construction standard or unit or he feels any doubt in his interpretation of construction activities he should clarify the points with the NEA in writing and the decision thus made shall be valid for further work.

8.7 HV Insulators: The Contractor shall use HV pin insulators in the alignment of the line where the break angle does not exceed the limits provided hereafter,

S.N.	Conductor Size in mm ²	Minimum Break Angle in Degrees
1	100 (Dog)	7
2	50 (Rabbit)	15.5
3	30 (Weasel)	24.5

In the case where the break angle exceeds the above values the Contractor shall make dead end at the angle structure and use disc insulator fittings.

9. Installation of Stays

9.1 The Contractor, in general, shall install at least one stay for the supports in the following cases



- (a) Dead end structure
- (b) Tee-off (Tap) structure

For conditions different from the above, the Contractor shall provide calculations showing the number of stays necessary and get approval from NEA prior to installation.

10. Safety

- 10.1 The Contractor shall take all measures required to safeguard the public, public and private property from any hazard to life, limb, or property, which may arise during the performance of the construction of the works. Such measures shall include, but not be limited to barricades, signs, newspaper announcements, traffic control by police, or other advisory and control methods deemed appropriate.
- 10.2 The Contractor shall provide his work force with all tools and equipment in sufficient numbers and quality to perform all aspects of the works in a safe manner. The Contractor shall provide protective headgear for all members of his workforce, and shall provide protective clothing as required for specific tasks. The Contractor shall instruct his work Force in proper and safe construction techniques and shall continuously monitor compliance with safety instructions throughout the period of the Contract.
- 10.3 The Contractor shall provide, and require use of, protective grounding equipment when:
 - a) Work is being performed on lines adjacent, either in extension of, or parallel to, energized circuits.
 - b) Work is being performed on isolated circuits after conductors have been installed
- 10.4 The Contractor shall maintain all tools and equipment in good working order. All mechanized equipment shall have adequate safety mechanisms and guards in place and be fully operational. Operators of such equipment shall be skilled and fully trained in the operation of such equipment.
- 10.5 The Contractor shall provide and maintain emergency medical supplies to cover with accidents and snakebites for his work force on a readily available basis. The Contractor shall also instruct all supervisory personnel in the action to be taken in the event of serious injury, and the sources and locations of professional medical assistance, which shall be employed in such cases.
- 10.6 The Contractor shall apply all accidental insurance policies to his work force for an accident occurring during the working period of the construction.

11. Demolition

- 11.1 The Contractor shall perform the removal of all existing facilities in accordance with the specific directions of the Authorized Personnel. All materials removed shall remain the property of NEA and the Contractor shall deliver all salvaged materials to the NEA warehouse, or as specifically directed by the Branch Chief in writing.

12. Cleanup

- 12.1 The Contractor shall ensure that all worksites shall be free of all manner of debris resulting from the construction activity.
- 12.2 All crating, conductor reels, packaging materials, conductor scraps, and other miscellaneous items are removed from the workplace. All holes resulting from removal of facilities shall be filled. If trees or



brush have been cut or trimmed, all cuttings shall be removed. The worksites shall be left in clean natural conditions.

13. Tree Cutting and Trimming

13.1 Any tree cutting or tree trimming shall be accomplished by the Contractor in coordination with CBO.

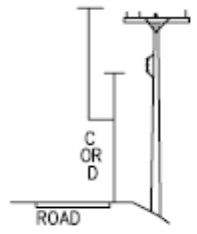
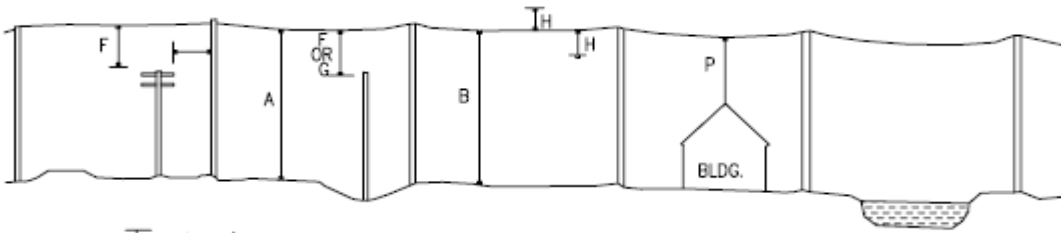
13.2 All cutting shall be removed by the Contractor with disposition of cutting as specified by NEA.

14. Interruptions to Existing Service

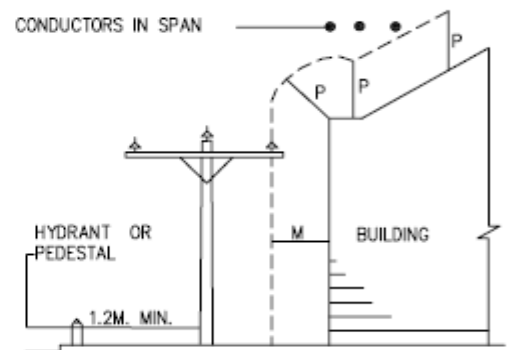
14.1 The Contractor shall arrange for interruptions of service to existing lines with NEA. Every effort shall be made to limit such interruptions to the minimum.



Drawing



POLES ADJACENT TO ROADS



MINIMUM CLEARANCE FROM BUILDINGS

CROSSING OVER	VOLTAGE OF CIRCUIT CROSSING	METER
A ROAD, STREET, HIGHWAY OR LIMITED ACCESS HIGHWAY	230/400 V - 11 KV*	5.80
	11 KV** - 33 KV	6.10
B AREAS ACCESSIBLE TO PEDESTRIANS ONLY	230/400 V - 11 KV*	4.60
	11 KV** - 33 KV	5.20
LINE ALONG SIDE OF		
C MAIN HIGHWAYS, STREETS OR ALLEYS	230/400 V - 11 KV*	5.50
	11 KV** - 33 KV	5.80
D RURAL ROADS NO VEHICLE CROSSING UNDER	230/400 V - 11 KV*	4.60
	11 KV** - 33 KV	5.20

LOCATION	VOLTAGE	CLEARANCE (METER)
Min. Horizontal Clearance from Buildings, M	230/400 V - 11 KV**	1.25
	11 KV* - 33 KV	2.00
Min. Vertical Clearance from tallest pt. of Garage, Hut or Wall, P	230/400 V	3.00

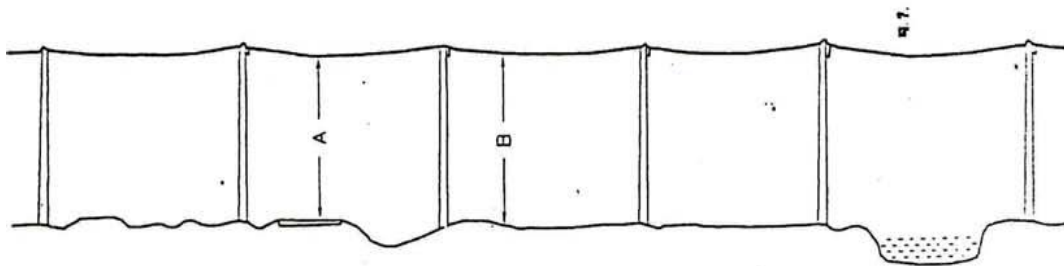
CLEARANCE M ALSO SPECIFIED HORIZONTAL CLEARANCE FROM BALCONIES.

* Exclusive ** Inclusive

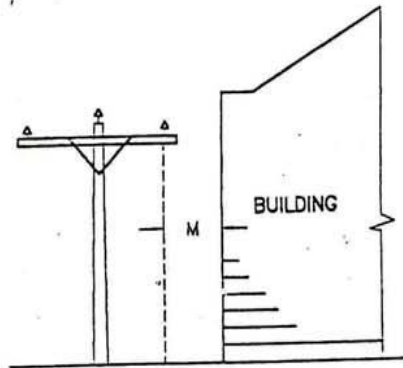
CONDUCTORS AT LOWER LEVEL	CONDUCTORS AT HIGHER LEVEL	SERVICE DROP 0 - 650 V	OPEN SUPPLY WRES			STAYS AND SUPPLY CABLES ON GROUNDED MESSENGER
			0 - 650V	651 - 11000 V	33000 V	
F	COMMUNICATION WRES	0.60 M.				
	COMMUNICATION CABLES AND MESSENGER	0.6 M. OVER 1.2 M. UNDER	1.38	2.15	—	0.60
G	SUPPLY CABLES ON EFFECTIVE GROUNDED MESSENGER	0.6 M. OVER 1.2 M. UNDER	0.60	0.60	—	0.60
H	OPEN SUPPLY 0 - 650 V.	—	1.30	1.80	2.70	0.60
	WRES 651 - 11,000 V.	—	—	1.20	—	1.20
	GUYS SERVICE DROPS 0 - 650 V.	0.60	0.60	1.20	—	—

Drawing CSG-CLR-01	Conductor Clearance	NEPAL ELECTRICITY AUTHORITY Technical Services / Commercial Department Distribution and Consumer Services
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CONDUCTOR CLEARANCES



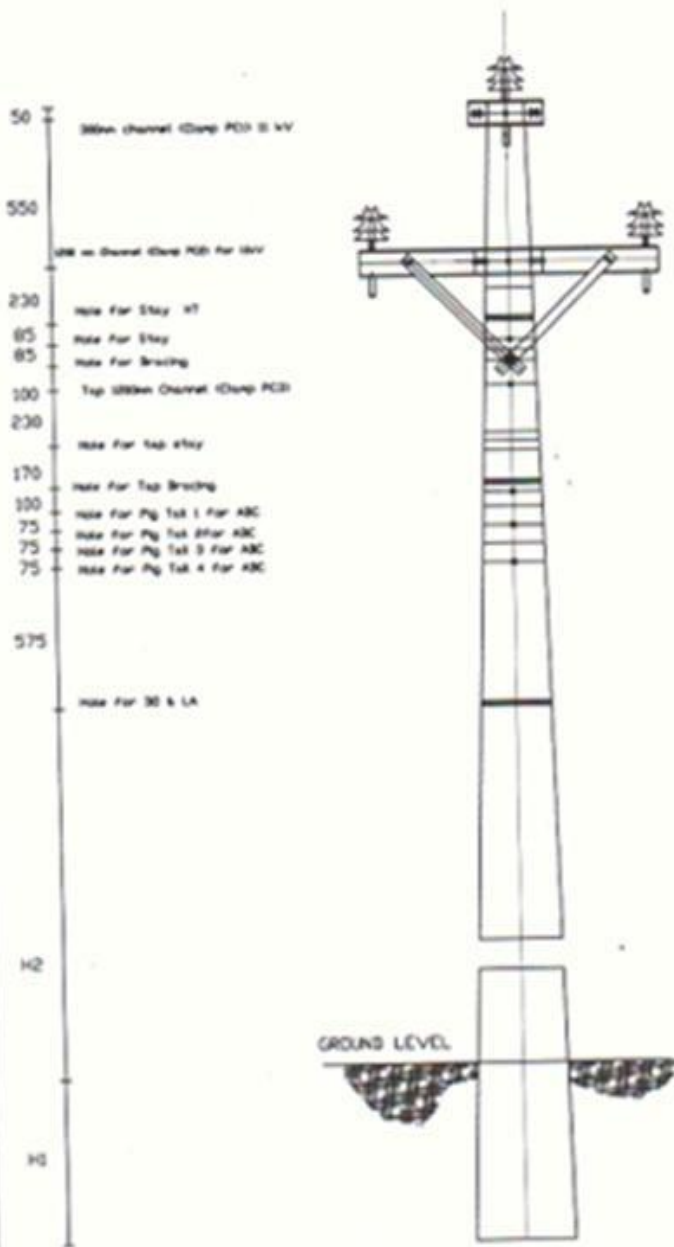
MINIMUM CLEARANCES FROM BUILDINGS

	CROSSING OVER	VOLTAGE OF CIRCUIT CROSSING	METER
A	ROAD, STREET HIGHWAY OR LIMITED ACCESS HIGHWAY	400/230 V	5.8
		11 KV	6
B	AREAS ACCESSIBLE TO PRÉDESTRANS ONLY	400/230 V	4.6
		11 KV	4.6

LOCATION	VOLTAGE	CLEARANCE (METER)
M	400/230 V	1.25
	11000 V	1.25

CLEARANCE M ALSO SPECIFIES HORIZONTAL

<p>ISSUED Ashad 2050 REVISION (01)</p>	<p>STANDARDS CONDUCTOR CLEARANCES</p>	<p>TECHNICAL SERVICES DEPARTMENT DCS/NEA</p>
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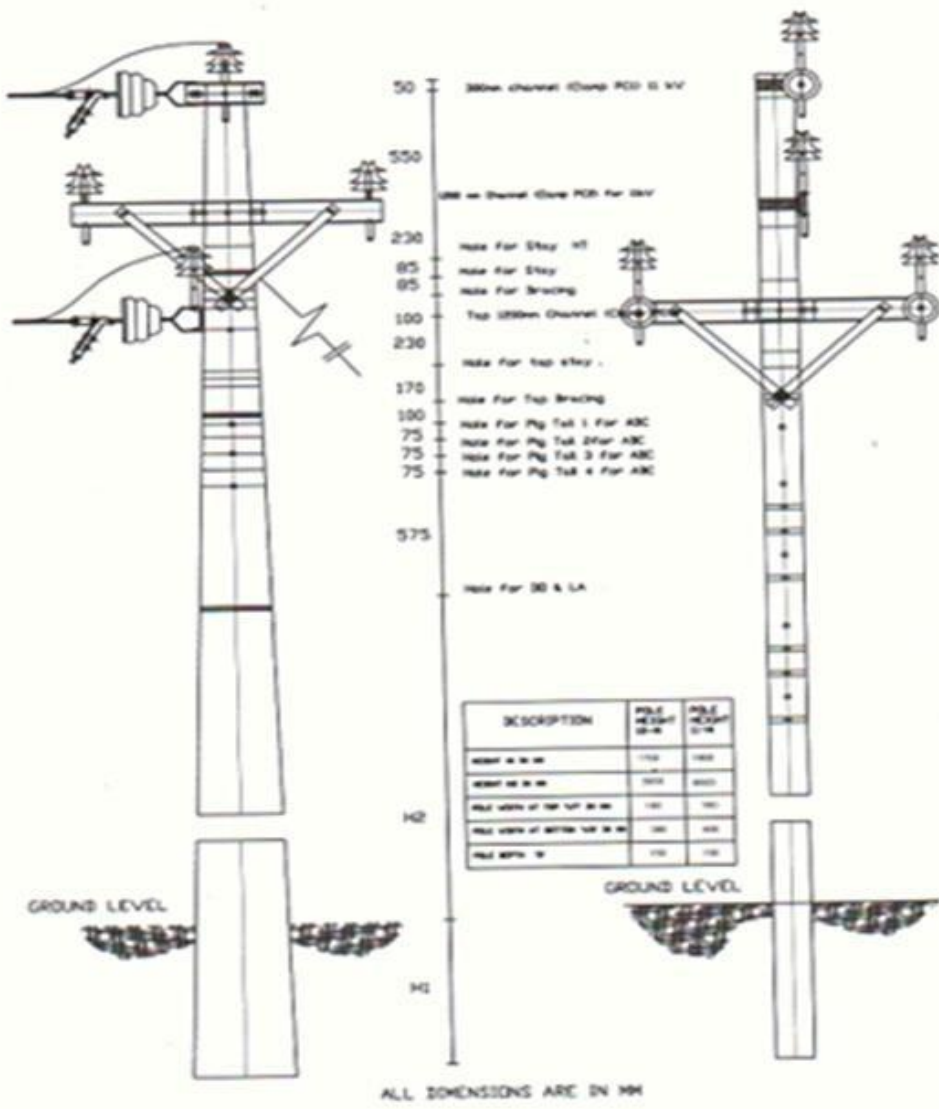


DESCRIPTION	PILE HEIGHT D-W	PILE HEIGHT U-W
HEIGHT H1 IN MM	1700	1800
HEIGHT H2 IN MM	5900	6000
PILE WIDTH AT TOP W1 IN MM	180	180
PILE WIDTH AT BOTTOM W2 IN MM	300	400
PILE WIDTH W	150	150

ALL DIMENSIONS ARE IN MM

Drawing 11kV, 10/11 m PSC Pole
 CS11-PSCP-04 Single Arm Structure



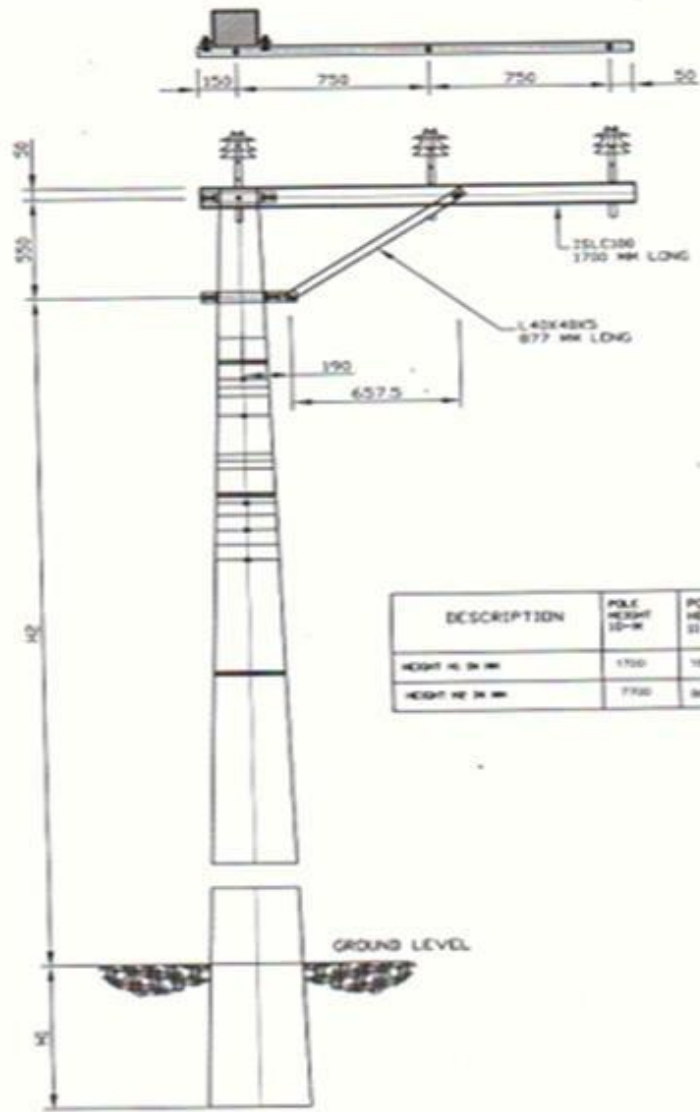


ALL DIMENSIONS ARE IN MM

Drawing
CS11-PSCP-06

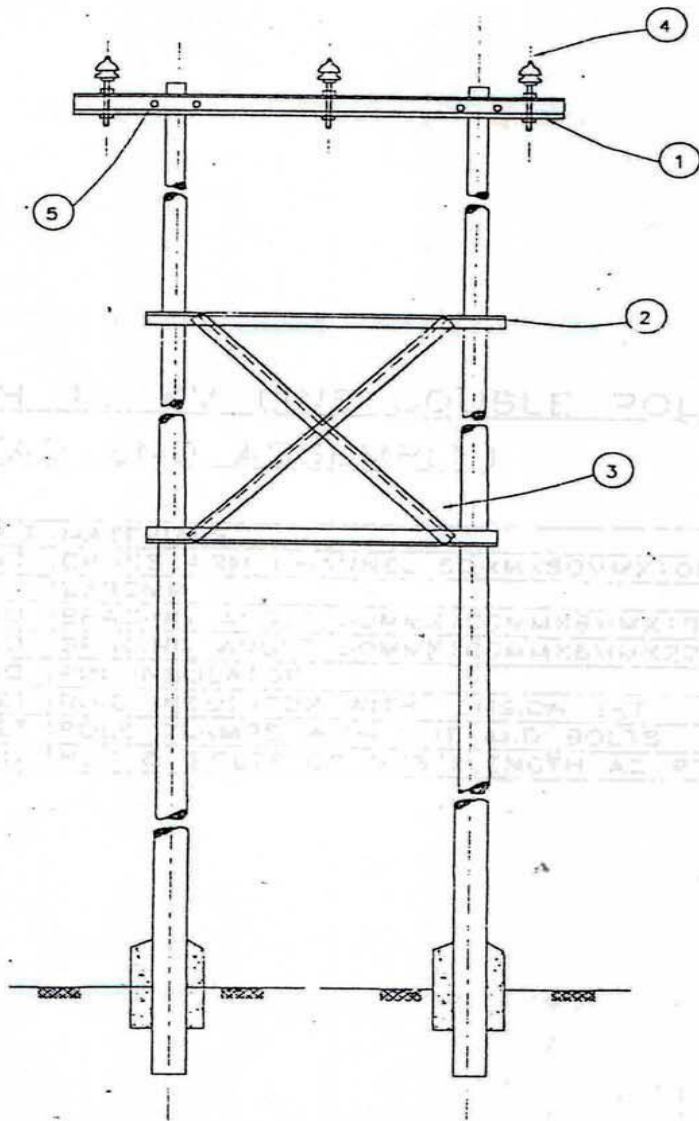
11 kV, 10/11 m PSC Pole
Tap Off Structure





Drawing
CS11-PSCP-09

11 kV, 10/11 m PSC Pole
Offset Pole Structure

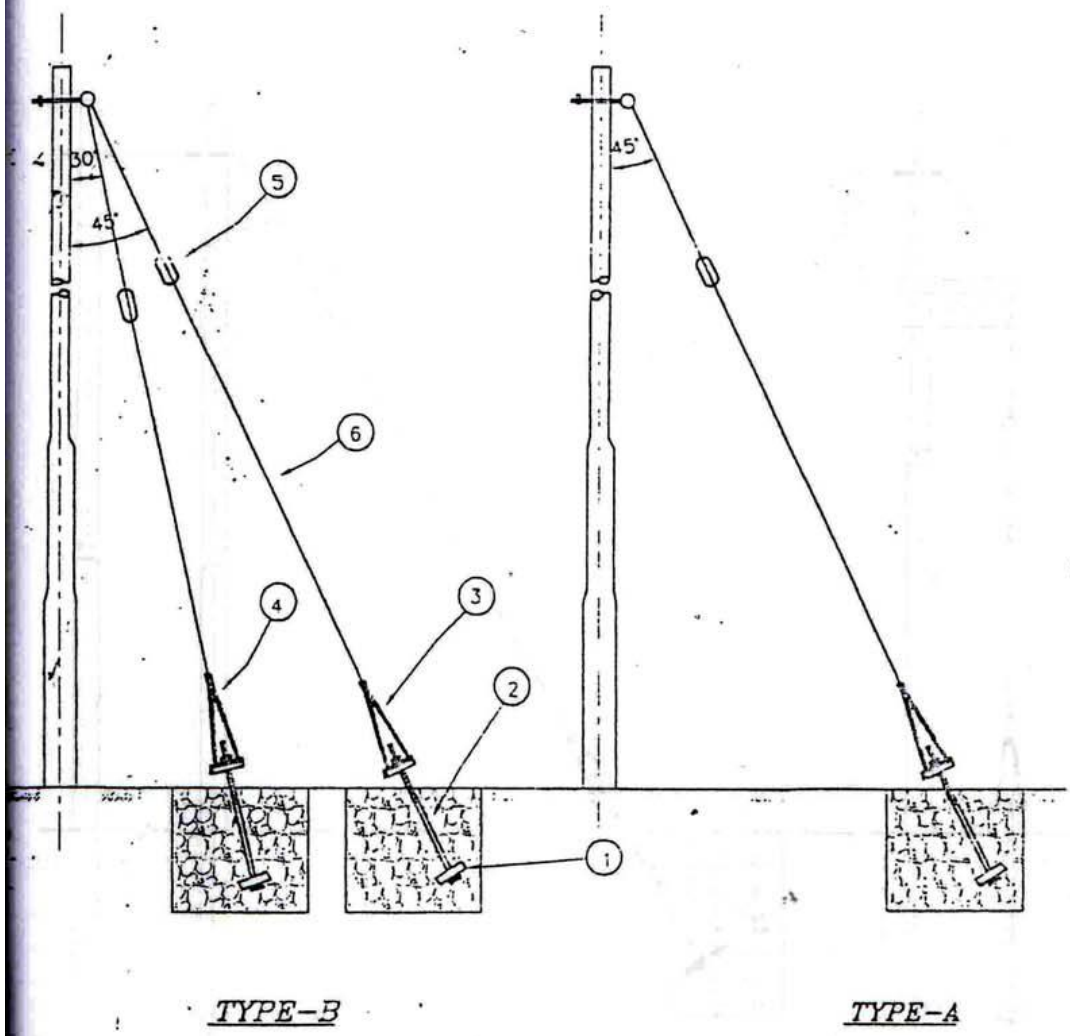


ISSUED
Ashad 2050
REVISION
DB

11 KV O/H LINE DOUBLE
POLE HORIZONTAL
CONFIGURATION

TECHNICAL SERVICES DEPARTMENT
DCS/NEA





TYPE-B

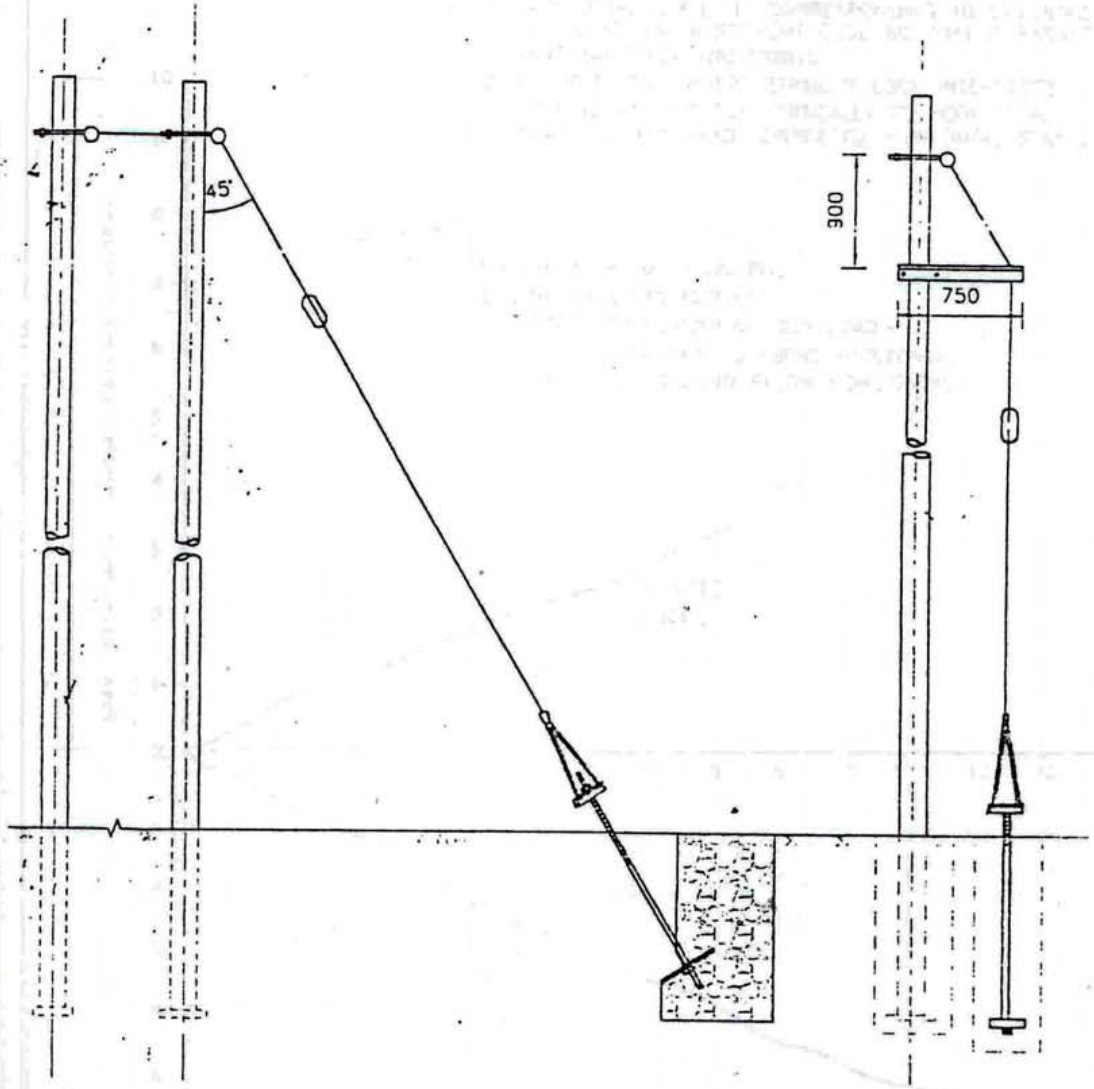
TYPE-A

ISSUED
March 2050
REVISION
(21)

STAY SET

TECHNICAL SERVICES DEPARTMENT
DCS/NEA

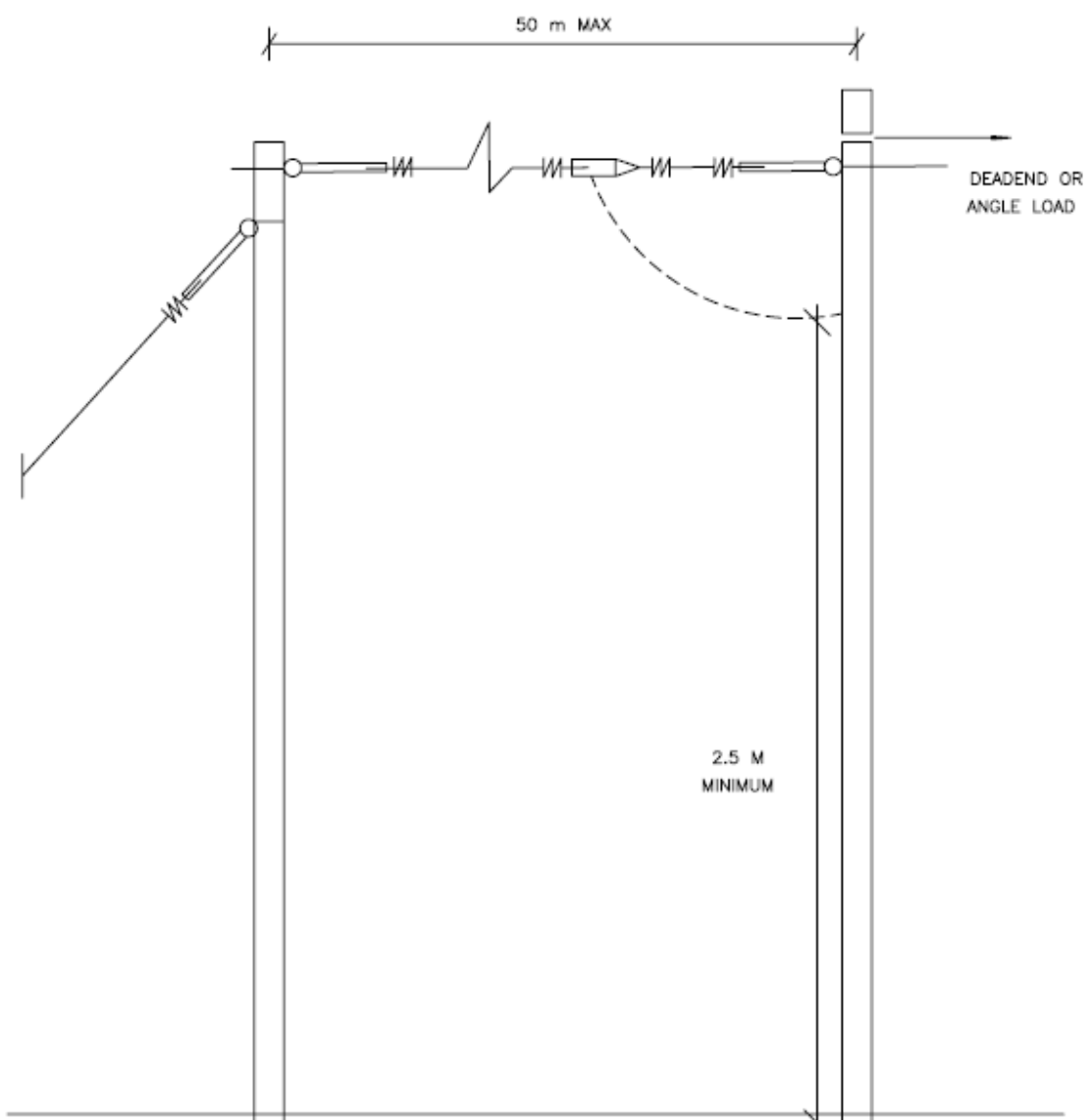




TYPE-C TYPE-D

<p>ISSUED Ashad 2050 REVISION (22)</p>	<p>STAY SET</p>	<p>TECHNICAL SERVICES DEPARTMENT DCS/NEA</p>
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TYPE C

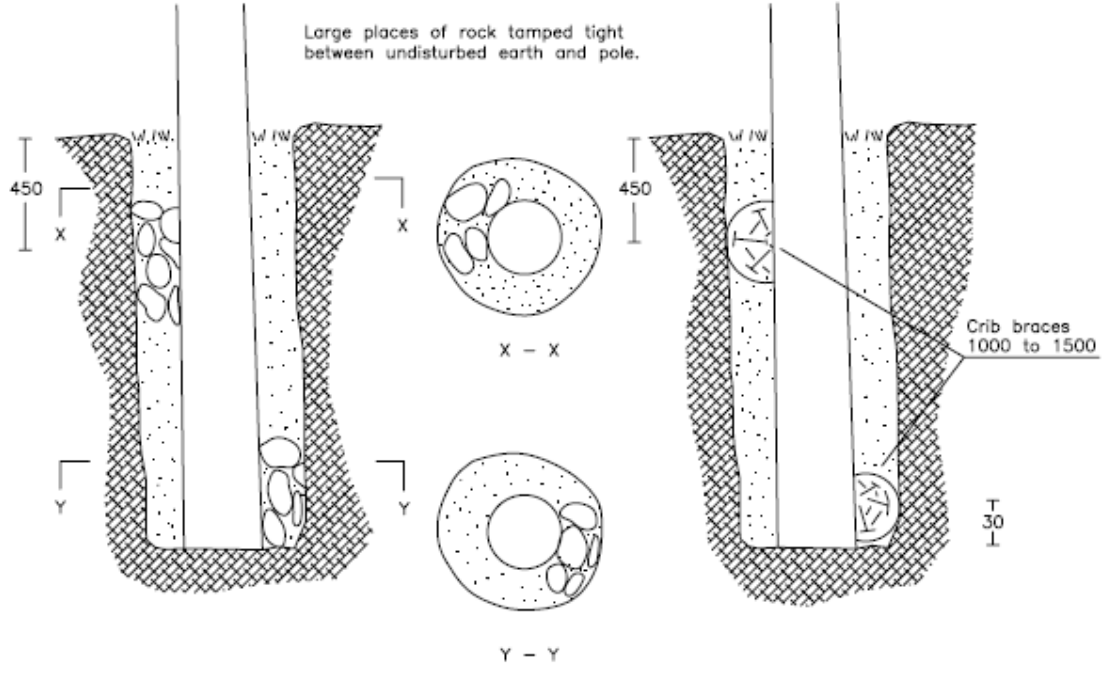


NOTE:
SPAN OF STAY SHALL BE LIMITED TO A MAXIMUM LENGTH OF 50 METERS.

<p>Drawing CSG-STAY-04</p>	<p>Stays and Anchors HT and LT Stay - Type C</p>	<p>NEPAL ELECTRICITY AUTHORITY Technical Services / Commercial Department Distribution and Consumer Services</p>
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← Direction Of STRAIN



For use where ground is solid or compact.

For use where ground is soft

NOTE:
CRIBBING FOR POLES WITHOUT
CONCRETE FOUNDATIONS.

<p>Drawing CSG-POLE-02</p>	<p>Pole Burial</p>	<p>NEPAL ELECTRICITY AUTHORITY Technical Services / Commercial Department Distribution and Consumer Services</p>
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NEPAL ELECTRICITY AUTHORITY
DISTRIBUTION AND CONSUMER SERVICE
Sindhuli DISTRIBUTION CENTRE
F/Y 2074/075

BILL OF QUANTITY

Location:Ka.na.pa 8 Paire, Besare and Marin Gaunpalika Telni Bhanjyang

Seal Quotation No: NEA-SDC-2074/075-09SQ(E-Bidding)

Job: ११ KV HT/LT लाइन निर्माण कार्य ।

S.N	Description	Total QTY	Unit	Rate	Amount	Rate In words	Remarks
A	Labour Charge						
1	Erection work of 8/9 m long steel tubular pole, transportation to working place from site store, digging and pole erection,soil back filling,and ramming to compact	96	Nos				
2	Erection work of 11 m long steel tubular pole, transportation to working place from site store, digging and pole erection,soil back filling,and ramming to compact	4	Nos				
3	Stringing of HT Line 3 wire using 0.05 sq inch ACSR Conductor work includes transportation of material from site store to working place,laying of conductor properly, stringing of conductor with required tension, install it to the insulator and binding with aluminium binding wire properly	1.00	km				
4	Stringing of LT Line 4 wire using 0.03 sq inch ACSR Conductor work includes transportation of material from site store to working place,laying of conductor properly, stringing of conductor with required tension, install it to the insulator and binding with aluminium binding wire properly	0.50	km				
5	Stringing of LT Line 2 wire using 0.03 sq inch ACSR Conductor work includes transportation of material from site store to working place,laying of conductor properly, stringing of conductor with required tension, install it to the insulator and binding with aluminium binding wire properly	1.50	km				
6	Installation of 11/0.4KV 50 KVA Transformer With Complete set	1	set				
7	Installation of Earthing set	3	set				
8	Stay set work includes digging, laying of stay plate,back filling of soil ramming to compact and stringing of stay wire	20	set				
9	Transportation of Pole, Conductor with other related Line Material by truck from store to site per day with fuel	5	Day				
10	Loading and unloading of poles	100	Nos				
Total Amount							
Vat 13%							
Total Cost with VAT in NRS							

Note: Fill the bill of quantity in digit and words

Name of contractor:

Address:

Signature:

Stamp

Date:

