

Class of Work Specification for Overhead Electrical Distribution Work

Table of Contents

1.0	Scope	4
2.0	Work Included / Not Included	4
3.0	Materials Supplied by BC Hydro	4
4.0	Work Changes.....	5
5.0	City, Municipality or Ministry of Transportation & Highway Requirements.....	5
6.0	Removal of Parked Vehicles	6
7.0	Subsurface/Surface Structures and Properties	6
8.0	Safety and the Environment	6
8.1	General	6
8.2	Contractor Employee Training, Safety & Health.....	7
8.3	Contractor Employee Competencies – Environment.....	8
8.4	Relevant Standards.....	8
9.0	Supervision, Competency, Training and Pre-Job Conferences *	8
9.1	Supervision and Proof of Competency.....	8
9.2	Training	8
9.3	Work Schedule.....	8
9.4	Pre-Job Conference *	8
10.0	Charges	9
11.0	Outages *	9
12.0	Communications Equipment	10
13.0	Field Survey	10
14.0	Tree and Brush Clearing and Trimming *	10
15.0	Excavation Material *	10
15.1	Common Excavation.....	10
15.2	Rock Excavation	11
15.3	Backfill *	11
16.0	Poles *	11
16.1	Wood Poles *	11
16.2	Concrete Poles *	11
17.0	Conductor.....	12
17.1	Stringing.....	12

17.2 Damaged Conductor 12

17.3 Splices and Repair Sleeves 12

18.0 Phasing 12

19.0 Reinstatement and Clean-up * 12

* Indicates revision

1.0 Scope

This specification covers the standard requirements for the construction, installation, alternation and maintenance of overhead electrical distribution plant up to and including 34.5 kV. All work shall be done in a substantial, complete and professional manner, and in accordance with the Contract Documents, BC Hydro Overhead Standards ES43 Series (latest edition), BC Hydro “Environmental Information and Guidelines for Contractors” and any further details, instructions and drawings which may be issued by BC Hydro’s representative during the work; providing that these additional instructions do not substantially change the contract. The Contractor must not omit any details necessary for the proper performance and completion of the work even if specific mention of such details is not made in the Contract Documents.

2.0 Work Included / Not Included

The Contractor shall be required to provide qualified supervision labour, trucks, tools and any special equipment that may be necessary to construct, alter and maintain the overhead electrical distribution plant as detailed in the Contract Documents.

The Contractor shall provide all expendable material items required, not listed in the Project Specification as being supplied by BC Hydro. The Contractor shall be responsible for ensuring that adequate materials are on hand to complete the work.

3.0 Materials Supplied by BC Hydro

BC Hydro shall, without charge, supply the Contractor with all expendable material items as detailed in the Project Specifications and/or drawings. These materials shall be listed on appropriate material documents, supplied from the appropriate BC Hydro stores, and shall be properly accepted by the Contractor.

The Contractor shall be responsible for the sorting, bundling, handling and transporting of all material supplied by BC Hydro from the BC Hydro store or other supply points to the job site. The contractor shall be responsible for the care and safekeeping of all BC Hydro material from the time it is issued to the Contractor, until all work is completed and any excess material is returned.

The Contractor shall be responsible for returning all excess new material supplied by BC Hydro to the appropriate BC Hydro stores in good order within 72 hours of completion of the work. All new material returned will be documented and acknowledged by BC Hydro’s Storekeeper.

The Contractor shall be responsible for returning all empty conductor reels, poles, timber, steel stubs, wire and cable and other material salvaged from the project to the appropriate BC Hydro store. All salvaged material returned, including poles, timbers,

etc. shall be sorted by the Contractor, and will be documented and acknowledged by BC Hydro's Storekeeper.

All distribution transformers or other oil filled equipment removed from service shall be marked with the removal date and job number. All units shall be returned to the appropriate BC Hydro store the same day or the next day to meet the Provincial Government, Ministry of Environment Special Waste Regulations.

At all reasonable times, the Contractor shall permit representatives of BC Hydro to inspect, audit, and inventory all BC Hydro material in the Contractor's possession.

4.0 Work Changes

BC Hydro's representatives may order the Contractor to perform any additions, revisions, or deletions to the work, or to perform any necessary work in an emergency and, in that event, either party may request an equitable adjustment of the contract price.

Charges or credits to BC Hydro for any work changes shall be determined by Unit Prices quoted in the Tender Documents. If Unit Prices for the work changes have not been tendered, a fair and reasonable adjustment will be negotiated in accordance with Terms and Conditions of the Contract Documents.

5.0 City, Municipality or Ministry of Transportation & Highway Requirements

The Contractor shall determine from the respective agency the extent to which streets, lanes or roads may be utilized or occupied, traffic control requirements and the order and timing of street, road or land closures if required.

The Contractor shall supply BC Hydro with copies of all purchase orders and instructions he/she may give to or received from the agency pertaining to the work. BC Hydro will not entertain claims by the Contractor for any additional costs incurred from the requirements or changes to the requirements of the City, Municipality or Ministry of Transportation and Highways.

The Contractor is to notify the Inspection Department of the appropriate agency at least 48 hours prior to commencing work, or as otherwise required by the appropriate agency.

All work permits required are to be obtained by the Contractor at no additional cost to BC Hydro.

6.0 Removal of Parked Vehicles

The Contractor shall be responsible for the installation and maintenance of “No Parking” signs as required to complete each day’s work. If vehicles are found in violation and are obstructing the work the Contractor may, after making a reasonable effort to contact the owner, have the vehicle removed. In the interest of public relations the vehicle is to be moved to a visible, safe location within 100 metres of the original location.

The Contractor shall remove or cover “No Parking” signs when not required with 12 hours.

The erection of signs and removal of vehicles shall be at the Contractor’s expense.

7.0 Subsurface/Surface Structures and Properties

The Contractor shall consult and cooperate with owners of adjacent structures which may be endangered, or whose gardens and shrubs require protection or alteration in order to perform the work during the construction period. The Contractor shall exercise all possible caution to protect said items from damage and is fully responsible for damages caused by his/her operations. Under no circumstances shall the Contractor permit his/her forces, materials or equipment to encroach on private properties adjacent to the work without the express consent of BC Hydro’s representative and the landowner.

The Contractor shall prevent any interference with telephone, gas, water, sewer, electrical, railway or other services. The Contractor shall give at least 48 hours’ notice to the appropriate party when operations are to be carried out that might interfere with another party.

If the Contractor damages any services he/she shall notify the party concerned without delay and immediately take all necessary steps for the restoration of service. The Contractor is fully responsible for damages caused by his/her operations and the resulting expenses.

8.0 Safety and the Environment

8.1 General

The Contractor, as an independent Contractor, has the duty at all times to exercise due care, skill and diligence in connection with the work to protect against harm to human life, property of any person or the natural environment.

The Contractor, and its servants, agents or subcontractors, shall at all times be knowledgeable of and comply with:

- i. the Workers Compensation Act, the Workers Compensation Board Occupational Health and Safety Regulations, and

- ii. the Safety Practice Regulations (SPR), Power Systems Safety Protection (PSSP) and all other relevant regulations, standards, practices instructions, bulletins, directives or orders issued from time to time by BC Hydro in connection with safety.

The Contractor shall promptly attend all meetings required by BC Hydro's representative at any time in connection with matters of safety or environmental protection.

The Contractor shall immediately make safe, or stop all or part of the work, upon notice in writing, or otherwise, given by BC Hydro's representative that a situation on or about the site is or is likely to become unsafe or liable to cause damage to property or to the natural environment.

8.2 Contractor Employee Training, Safety & Health

The Contractor / Tenderer shall provide the BC Hydro issuing office with a document for each Power Line Technician working on the project, confirming that he/she has had grounding and limits of approach training/review within the last 12 months and is authorized to the appropriate PSSP category.

In awarding contracts, BC Hydro seeks assurance that the Safety & Health Program of the successful Tenderer coincides with BC Hydro's Safety Program, and that this is demonstrated in the Tenderer's safety record. Tenderers who do not meet this standard will be rejected.

The following information is to be attached:

- Tenderer's company published Safety & Health Policy.
- Tenderer's Safety Program currently in place.
- Tenderer's company lost time frequency for the last three years (calendar or fiscal).

Contracts / Tenders that involve the issuing of a Live-Line Permit, will require the person in charge of each crew (usually a Subforeman/woman) at the work site to have a certificate indicating he/she has received approved live line training.

Contractor's Power Line Technicians who were previously employed by BC Hydro in the line trade, and are now acting as Subforeman/woman for live line work, may be exempt from the live line training program provided that:

- i. they received equivalent live line training while an employee of BC Hydro, and
- ii. during their employment with BC Hydro, their regular duties included sufficient live line experience to qualify them to receive live line permits

To obtain this exemption the Contractor/Tenderer shall provide supporting documentation. Acceptable documentation shall be in writing from a BC Hydro Line Manager outlining the Power Line Technician's live line experience or training while

employed with BC Hydro. The length of time the Power Line Technician has been away from BC Hydro must also be considered.

8.3 Contractor Employee Competencies – Environment

The Contractor/Tenderer shall ensure that each worker on the project has acquired competencies commensurate with the project's environmental requirements.

8.4 Relevant Standards

Relevant standards shall include BC Hydro's Overhead Distribution Standards ES43 (latest edition).

9.0 **Supervision, Competency, Training and Pre-Job Conferences ***

9.1 Supervision and Proof of Competency

The Contractor shall provide a supervisor who is qualified to direct and control all labour, equipment and methods used in connection with the work. In addition, for all work on distribution lines and electrical equipment, the Contractor must meet the qualification and registration requirements under B.C Electrical Safety Regulations.

9.2 Training

All personnel working on or about live or de-energized distribution lines shall be fully trained and have appropriate BC Hydro Power Systems Safety Protection (PSSP) authorization. In addition, personnel shall have completed Training Module 1A of PSSP if customer isolation is required and Training Module 1B of PSSP if the customer isolation involves connections at 60 kV or above, or connections with customer in-feeds.

9.3 Work Schedule

Within 5 days of receiving the Purchase Order the Contractor shall submit a progress schedule for the BC Hydro representative's approval showing the proposed commencement and completion dates of the major items of work.

9.4 Pre-Job Conference *

Prior to commencing the work the Contractor shall attend a Pre-Job Conference with BC Hydro's representative to discuss scheduling, material supply, safety rules, environmental requirements and power outage arrangements when working on or about live or de-energized distribution lines. The Contractor employee who attends the Pre-Job Conference will be deemed by BC Hydro to be the Contractor Representative for the contract/project. A standardized Pre-Job Conference document will be used by all BC Hydro offices. The discussion on safety rules, methods and procedures shall include the requirements of the applicable Training Modules of PSSP and the WCB OH&S Regulation. The discussion on environmental requirements shall include

Contractor compliance with the BC Hydro's environmental requirements and any project-specific environmental concerns and procedures/controls to mitigate possible environmental impacts.

For all projects involving the removal of old conductors using Live Line Methods, a BC Hydro Trades Training Instructor, BC Hydro Field Operations Manager, or a BC Hydro Power Line Technician familiar with the procedures for removal of old conductor (and delegated by the Field Operations Manager and the Trades Trainer), shall attend a Pre-Job conference with the Contractor Representative to review the methods to be used for conductor removal. The discussion shall include the applicable SPR clauses and the appropriate sections of BC Hydro's Live Line Procedure Manual.

The discussion on material supply shall include BC Hydro project material list and the supply source. It shall be the contractor's responsibility to review the list and advise the local Storekeeper within 24 hours of the Pre-Job Conference, unless otherwise stated in the outside agreement / contract, if modifications to the material list are required. The Storekeeper will then source the material and advise the Contractor of the expected available date for the material.

10.0 Charges

Any charges by a third party for Traffic Control, Guards, Police Patrol, Signalmen, Roadmen, or any other charges made in connection with executing the work shall be at the Contractor's expense (Site reinstatement and clean-up is covered in Clause 19).

11.0 Outages *

It is the policy of BC Hydro that all line work shall be carried out with a minimum of interruption to service. The Contractor shall become familiar with the circuit conditions in the vicinity of the work and carry out his/her operation in such a manner as to achieve this policy. All outages shall require the prior approval of BC Hydro's representative as to time of day and duration.

Where it becomes necessary to de-energize secondary lines, the contractor shall first notify BC Hydro Restoration Office of the time and duration of the outage and shall also notify all customers affected.

All energized work shall be carried out using approved work methods.

Where primary circuit outages are necessary, arrangements for this work shall be made by BC Hydro's representative, unless otherwise stated in the outside agreement/contract. The Contractor shall coordinate his/her work to suit the outage arrangements.

Where the work crosses or parallels existing energized transmission or distribution lines the contractor shall ensure that the security of these lines and the safety of all personnel

engaged in the work are not endangered. No disruption of service, including outage, on these existing lines, will be permitted without the express written consent of BC Hydro's representative. The Contractor shall request in writing such outages, as needed, a minimum of 7 working days prior to commencing work at that location.

12.0 Communications Equipment

For the purpose of communicating with the local BC Hydro Control Centre or District personnel, the Contractor shall keep communication equipment satisfactory to BC Hydro's representative on the work site at all times during working hours.

13.0 Field Survey

BC Hydro's representative shall set or specify the locations of all stakes for poles and anchors. Setting of additional reference hubs or stakes that may be required by the Contractor shall be at the Contractor's expense. The Contractor shall take every reasonable precaution to protect and preserve all lot and subdivision posts and witness marks, all stakes and pins marking property lines and limits of rights-of-way, and all hubs and stakes. If any such marker is lost or misplaced, the Contractor shall have it replaced at his/her own expense by a registered British Columbia Land Surveyor or a Dominion Land Surveyor, whichever is applicable.

14.0 Tree and Brush Clearing and Trimming *

Tree and brush clearing or trimming is not part of the work, unless otherwise stated in the Project Specifications. If vegetation clearing work is required, contact BC Hydro Vegetation Department, Project and Contract Management.

15.0 Excavation Material *

Unless otherwise specified in the Project Specification the Contractor's Tender shall be prepared on the basis that the entire excavation will be "common excavation" as defined herein and that all excess excavated material will be immediately removed from the site. The Contractor must also quote unit prices for common excavation and rock excavation and he/she will be compensated for any additional excavation as defined herein, at the unit price quoted.

Temporary excavation greater than 1.2 m deep where workers entry is required shall be constructed in accordance with workers Compensation Board (WCB) of British Columbia or as approved in writing on site by a qualified geotechnical engineer, prior to worker entry.

15.1 Common Excavation

Common excavation will include such materials as are commonly called earth, loam, lava, clay, muck, sand, gravel, gumbo, boulders each less than 0.15 m³, angular rock

fragments, hardpan, pavement, and all other materials of every description not specifically classified in Clause 15.2 following.

15.2 Rock Excavation

The term “rock” is hereby defined as “solid formations of dense homogenous sedimentary or igneous material which require in the judgement of BC Hydro’s representative blasting, drilling or wedging for their removal”. In order to qualify for payment under the unit price for rock excavation, material so removed at any one location shall measure at least 0.15 m³ in void (the appropriate volume of an 800 mm diameter hole of 300 mm depth).

The breaking and removing of road or sidewalk pavements or frozen material, regardless of thickness, shall in no case be taken as rock excavation.

Blasting shall not be carried out without prior approval of BC Hydro’s representative. Adequate notice shall be given to BC Hydro’s representative in requesting any approval.

15.3 Backfill *

All backfill shall be thoroughly compacted to the satisfaction of BC Hydro’s representative.

Pole backfill material shall be 19 mm clear crushed rock with not more than 25% by weight smaller than 10 mm size and not more than 5% by weight smaller than 0.075 mm (as indicated in BC Hydro standard ES43 D3-12, note 3), or any alternate backfill material approved by BC Hydro. Any water in the hole shall be removed before backfill placement and excavated area shall be backfilled and compacted conform to BC Hydro Class of Work Specification (COWS) 1322, latest revision. All surplus excavated material shall be disposed by the contractor, as per the requirement of the Authority Having Jurisdiction (AJH), at no cost to BC Hydro. *

16.0 Poles *

16.1 Wood Poles *

All new poles shall be wood poles. All wood poles shall be handled and set in accordance with BC Hydro Overhead Distribution Standards, ES43 Series, Section D

16.2 Concrete Poles *

This clause applies only to the maintenance of concrete poles. All concrete poles shall be inspected for radial cracks, longitudinal cracks and surface rust stains. If any deficiency is found, the Contractor shall notify BC Hydro’s representative.

17.0 Conductor

17.1 Stringing

All Conductor stringing and sagging shall be carried out in accordance with methods outlined in BC Hydro Overhead Distribution Standards, ES43 Series, Section F, or as specified by BC Hydro's representative.

17.2 Damaged Conductor

Any damage to the conductor shall be reported immediately to BC Hydro's representative who will decide if:

- a) New conductor is to be installed;
- b) Damaged conductor is to be cut out and a splice applied;
- c) A repair sleeve is to be installed.

In general, when from one to three of the aluminum strands have parted, a compression type repair sleeve may be used. For damaged strands in excess of this number, the damaged portion of the conductor shall be cut out and a splice applied. Only sleeves and splices supplied by BC Hydro shall be used.

17.3 Splices and Repair Sleeves

The number of splices shall be kept to a minimum. All splices shall be made in accordance with BC Hydro Overhead Distribution Standards, ES43 Series, Section F.

18.0 Phasing

Conductor phasing shall be in accordance with BC Hydro Overhead Distribution Standards, ES43 Series, Section G, unless otherwise specified in the Project Specification or Drawing.

19.0 Reinstatement and Clean-up *

Unless otherwise specified in the Project Specification, the following shall apply:

- 19.1 Where asphalt or concrete surfaces have been disturbed, the Contractor shall restore to the original condition or better.
- 19.2 The Contractor shall remove from the site, from time to time, all rubbish or debris accumulating from the work. All rubbish, debris, scrap materials including damaged hardware, broken insulators and scrap lengths of guy wire shall be removed and, upon completion of the work, the Contractor shall leave the site in a clean and presentable condition.

Site reinstatement and clean up shall be at the Contractor's expense and completed to the satisfaction of BC Hydro's representative.

- 19.3 The contractor shall dispose of all surplus excavated materials as per the requirement of Authority Having Jurisdiction in the area, at no cost to BC Hydro.
- 19.3 Scrap lengths of conductor shall not, at any time, be left on the site or stored in any insecure location accessible to the public.
- 19.4 On completion of the project, the Contractor shall mark up one copy of each drawing provided, to show all the work as built and submit them together with a list (if applicable) of all materials used on the project to BC Hydro's representative.