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REVISIONS: UPDATED LEGAL ACKNOWLEDGEMENT FORM. FD MAR '16

DESIGNED J. AGNOLIN	RECOMMENDED  F. DENNERT	ACCEPTED  G. REIMER	ENGINEER OF RECORD 	NOTICE FROM THE EXECUTIVE VICE PRESIDENT TRANSMISSION AND DISTRIBUTION AND CUSTOMER SERVICE		
DISTRIBUTION STANDARDS 		ISSUED: MAR 2016 REPLACES: MAY 2004 ORIGINALLY ISSUED: NOV 1980				PAGE 1 OF 2

Scope

This manual is one of a series containing standards for construction of the BC Hydro electrical distribution plant within the service area of BC Hydro. A new distribution plant shall be designed, constructed, owned, operated, maintained and repaired to these standards.

Purpose of Standards

BC Hydro objectives require standardization to:

- a) Ensure uniform safety requirements comply with BC statutes and regulations.
- b) Provide uniform system reliability.
- c) Provide uniform operating practices.
- d) Permit economic bulk purchasing of materials.
- e) Achieve optimum life cycle cost of plant construction.
- f) Effect efficient quality assurance.

Responsibility

The Distribution Standards Department prepares these standards and verifies that specified plant and procedures will perform adequately under all normally expected conditions encountered throughout the province of British Columbia. These standards are approved by Professional Engineers. It is the responsibility of BC Hydro Managers to ensure that the standards are followed unless abnormal conditions are encountered that require variations. These variations should be kept to a minimum and their performance shall be the responsibility of the Professional of Record in charge of the project, who will record and seal the variation based on satisfactory qualifications and experience to do so. As per the latest revision of the BC Hydro Distribution Owner's Engineer Guide, these variations must be accepted by BC Hydro's Owner's Engineer.

Use of Stock Materials

The electrical distribution plant covered by these standards is built using stock materials approved by a Professional Engineer as required by law. The use of non-stock materials for special and unusual situations must be approved by Distribution Standards or the BC Hydro Engineer responsible for the project.

Revisions to Manual

These standards are revised from time to time to improve the safety, performance, workability, cost effectiveness or appearance of the plant. The existing plant built to previous standards need not be updated unless so specifically advised by BC Hydro. When maintenance or other work, such as voltage conversion or conductor change is being done, updating plant to current standards is encouraged.

Mailing Addresses

The manual has been issued to a corporation or firm rather than to an individual. The corporation or firm is responsible for the safekeeping of the manual, and for keeping it current. Changes of address or in number of copies required must be reported promptly.

Suggestions for changes in the manual, or required changes of address may be made on the pre-addressed comment sheet included in the Manual and with each issue of revision.

REVISIONS: UPDATED LEGAL ACKNOWLEDGEMENT FORM. FD MAR '16

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DISTRIBUTION STANDARDS BC Hydro		ISSUED: MAR 2016 REPLACES: MAY 2004 ORIGINALLY ISSUED: NOV 1980		PAGE 2 OF 2	ES43/53/54/55/65 A1-01.02	R 4

Application

This standard applies to poles with cable dips where the poles are solely owned by BC Hydro, and jointly owned by BC Hydro and TELUS.

Information on the location of pilasters and the required minimum pole class based on pilaster sizes and pole height is provided.

Revision Notes

R5 – Added reference tables for pole class selection based on pilaster sizes. Ground wire relocated. Pilaster location drawings updated

R6 – Clarified minimum pole class requirements for pole renewal and climbing space

Supersedes

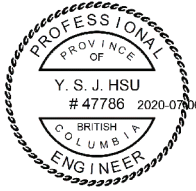
ES43 M1-10 R5

Reference Standards

ES43 M1-01	Terminal Poles General Notes
ES53 M1-01	Structures on Wood Poles Guard and Cover Installation Details
ES54 M0-02	General Notes
ES54 M1-01	Pilaster on Wood Poles
JUB 12	Risers (Dips/Laterals) on Joint Poles

Requirements

1. Dips for communication systems and supply (power) systems are not permitted to occupy the same quadrant when they are located on the same pole.
2. Dips from communication systems and supply systems on the same pole should be avoided where practicable.
3. Depending on the size of the pilasters and the size (circumference) of the pole, more than one pilaster may be permitted on a Joint Use pole. However, there shall only be one pilaster per quadrant, and no more than two quadrants shall be utilized.
4. When a second quadrant on a pole is used, the two quadrants must be adjacent to each other on a pole with adequate circumference to meet space requirements for climbing and pole renewal below:
 - i. Pole Renewal: 200° minimum of free pole space is required at ground line to facilitate future pole replacement. (refer to Table 2 below for minimum pole class)

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DISTRIBUTION STANDARDS 		ISSUED: JULY 2020 REPLACES: MAY 2020 ORIGINALLY ISSUED: JAN 1986		PAGE 1 OF 5	ES43 M1-10.01	R 6

- ii. Climbing Space: 240° or 500mm minimum circumference must be kept clear at the top of the lowest cable cover as per ES43 M1-01. Both BC Hydro and TELUS agree that unless specific permission is granted by Joint Use Coordinating Committee, all joint poles shall remain climbable. (refer to Table 3 below for minimum pole class)
5. For the design of new pole lines or addition of dips onto an existing pole where climbing space exemption has been granted for either case, the requirements in Table 2 shall be met, otherwise, the requirements in Table 3 should be met. Replacement of existing dip poles that do not meet the requirements of Table 2 or 3 is permitted as long as the dips do not cause any safety or operational issues.

Table 1 – Dimensions of TELUS and BC Hydro Pilasters and Cable Covers

Type of cable cover	Width of pilaster at ground level (mm)	Width of cable cover at top of guard (mm)
BCH - Large	270	185
BCH - Small	270	135
TELUS - Large	250	170
TELUS - Medium	180	80
TELUS - Small	180	65

NOTES: Refer to ES54 M0-02 for size of BC Hydro pilaster required

Table 2 – Minimum Pole Class to Facilitate Future Pole Renewal

Pilaster Size Combination		Minimum Pole Class by Pole Height		
BCH	TELUS	40'	45'	50'
Large	Large	-	1	2
Large	Medium	2	3	3
Large	Small	2	3	3
Small	Large	-	1	2
Small	Medium	2	3	3
Small	Small	2	3	3

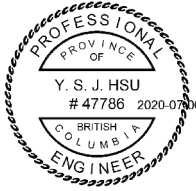
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Table 3 – Minimum Pole Class to Provide Climbing Access

Pilaster Size Combination		Minimum Pole Class by Pole Height		
BCH	TELUS	40'	45'	50'
Large	Large	-	1	1
Large	Medium	2	2	2
Large	Small	2	2	2
Small	Large	-	1	1
Small	Medium	2	2	2
Small	Small	2	2	3

Quadrant Orientation

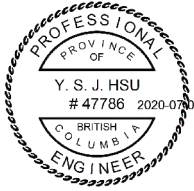
In recognition of the higher public safety risk inherent with supply risers, quadrant use should give priority to protect supply risers from traffic as shown in Figures 1 – 4 below

- The preferred orientation, shown in Figure 1, shall be used unless site specific constraints require Figures 2, 3, or 4.
- Figure 2 is a rotation of Figure 1 and is to be used where the communication pilaster is not permitted to project past road side of pole. Rotate quadrants accordingly.
- Figure 3 can be used where duct access to the quadrant locations shown in Figure 1 would require additional infrastructure such as pull boxes and there is a low probability of vehicles striking the pole.
- Figure 4 is a rotation of Figure 3 and is to be used where the communication pilaster is not permitted to project past road side of pole. Rotate quadrants accordingly.

Design of quadrant orientations that are different than those shown in Figures 1 - 4 requires approval by a professional engineer, consultation with both BC Hydro and TELUS, and acceptance by both parties. Risers must be located such that the risk of damage by traffic is minimized and should be positioned to avoid conflicts with overhead cables/conductors and/or other equipment at the top of the pole.

Notes:

- Dips installed by a local city or municipality for secondary power services are to be installed in the power supply quadrants.
- 600mm horizontal separation is required between supply/communication cable and poles supporting overhead supply/communication lines.

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REVISIONS: R. 6 - CLARIFIED MIN POLE CLASS REQUIREMENTS FOR POLE RENEWAL AND CLIMBING SPACE, JUL '20 JH.

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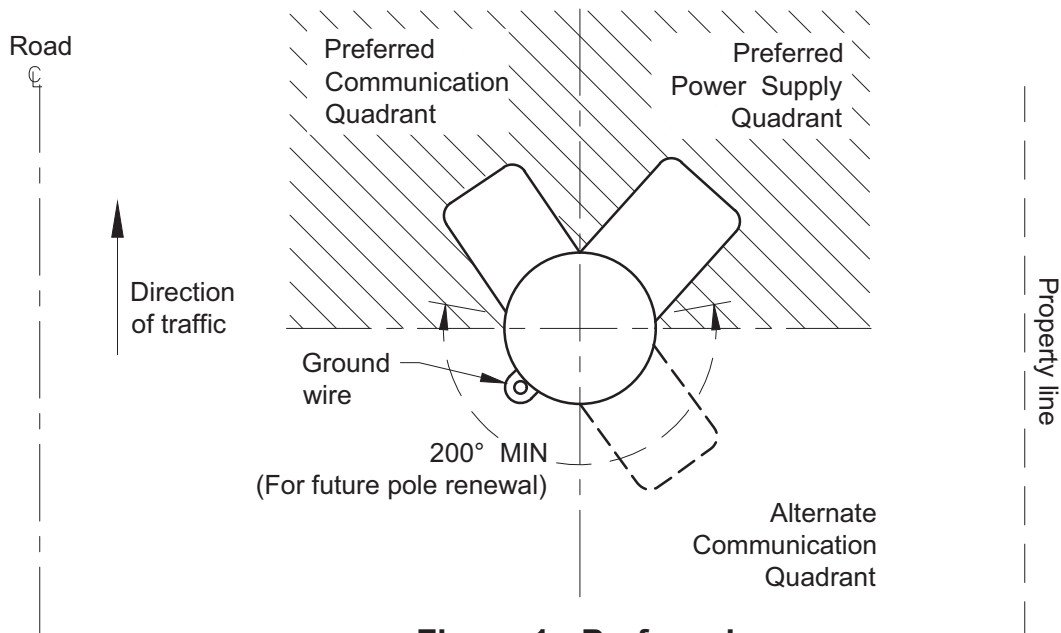


Figure 1 - Preferred

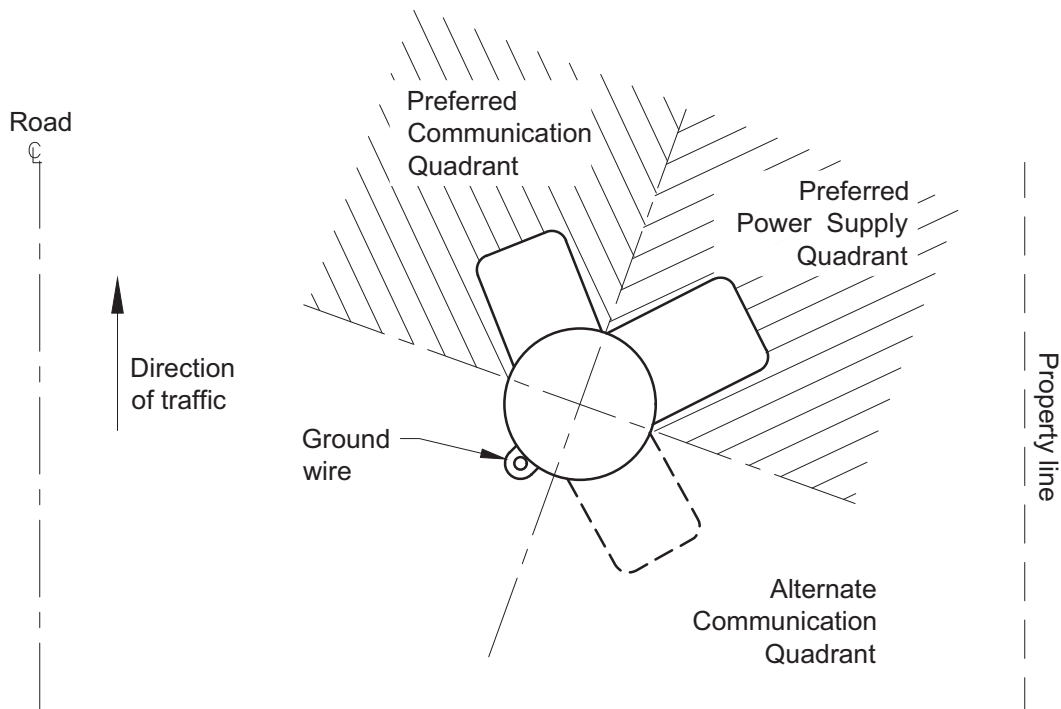
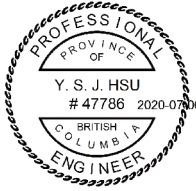


Figure 2 - Preferred, Rotated

Use where communication pilaster is not permitted to project past road side of pole. Rotate quadrants accordingly.

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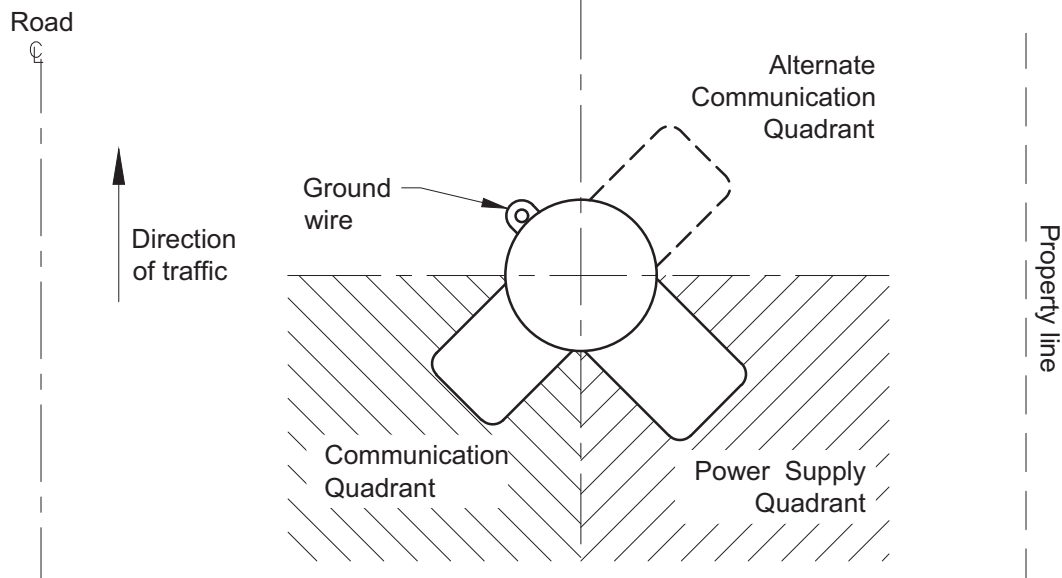


Figure 3 - Alternate

Use where duct access to the quadrant locations shown in Figure 1 would require additional infrastructure such as pullboxes and there is a low probability of vehicles striking the pole.

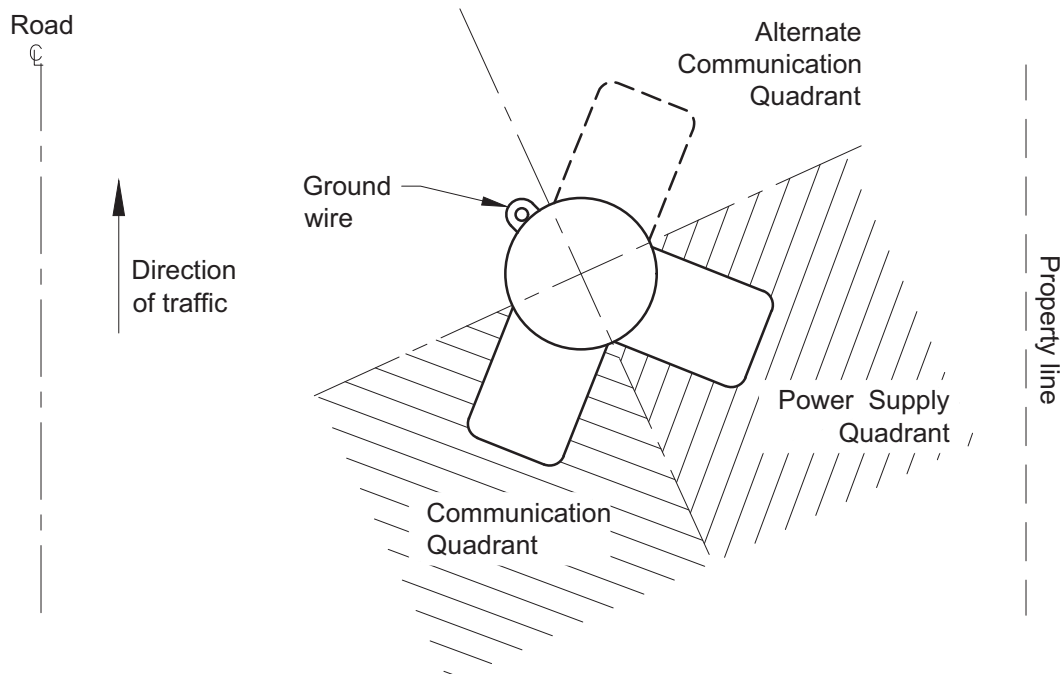


Figure 4 - Alternate, Rotated

Use where communication pilaster is not permitted to project past road side of pole in Figure 3. Rotate quadrants accordingly.

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