



**Electrical
Safety
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Guideline for Excavating in the Proximity of Underground Distribution Lines

Version 3.1

Ontario Regulation 22/04 Electrical Distribution Safety

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Guideline for Excavating in the Proximity of Underground Distribution Lines

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This document contains GUIDELINES ONLY to assist members of the industry in understanding roles and responsibilities under Ontario Regulation 22/04 - Electrical Distribution Safety and Ontario Electrical Safety Code under subsection 113(1) of Part VIII of the Electricity Act, 1998 S.O. 1998, c.15, sched.A. These Guidelines are intended for professional education and may be used for informational, non-commercial purposes only.

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Guideline for Excavating in the Proximity of Underground Distribution Lines

Definitions

Abandoned distribution lines means those *distribution lines* that have been identified by the *distributor* in the *locate* as abandoned.

Blanket Locate or Alternate Locate Agreement means permission to excavate, subject to the terms and conditions outlined by a written agreement between the *Excavator* and the *Distributor*.

* *Note a locate is still required through Ontario One Call.*

Boundary Limits means the volume of soil contained by vertical planes placed 1.0 metre each side of the centre line of the marked *distribution line* or 1.0 metre on either side of the marked limits of an underground structure.

Distribution line means an electricity distribution line, transformers, plant or equipment used for conveying electricity at voltages of 50,000 volts or less.

Distributor means the individual, partnership, corporation, public agency, or other entity that is licensed to operate an electric distribution system under the *Ontario Energy Board Act*.

Excavator means the individual, partnership, corporation, public agency, or other entity that digs, bores, trenches, grades, excavates or breaks ground with mechanical equipment or explosives in the vicinity of a *distribution line*. This includes homeowners and other members of the public.

Hand dig means to excavate using a shovel with a wooden or insulated handle, not including picks, bars, stakes or other earth piercing devices.

* *Note a locate is required for hand digging applications.*

Live means electrically connected to a source of voltage difference or electrically charged so as to have a voltage different from that of the earth,

Locate means identification on the ground of the position of the *distribution line(s)* based on records or electronic locating equipment and includes provision of necessary documentation such as a locate sheet.

Mechanical Excavation means equipment operated by means of mechanical, hydraulic, electrical, or pneumatic power, other than vacuum excavation equipment, engaged in ground disturbance; including hand held augers, picks, bars, stakes or any other device that may damage the *distribution line*.

* *Note a locate is required for mechanical excavation applications.*

Vacuum Excavation (Hydrovac) means the use of pressurized water or compressed air to loosen soil and a vacuum system to remove it.

Guideline for Excavating in the Proximity of Underground Distribution Lines

1.0 General

- 1.1 The guidelines described herein are prepared to assist *distributors* and *excavators* in complying with Ontario Regulation 22/04 for the safety of the general public and workers who are carrying out the excavation in the vicinity of *distribution lines*, and for the prevention of damage to *distribution lines* owned by the *distributor*.
- 1.2 For best practices in all aspects of excavation, please refer to the current version of **the Underground Infrastructure Damage Prevention Best Practices** produced by the Canadian Common Ground Alliance (CCGA).

2.0 Locate Request

- 2.1 Prior to excavation the person responsible for the work shall obtain a *locate* as required by Ontario Regulation 22/04. (see Appendix 1- Section 10.3)
- 2.2 In order to obtain a *locate* in Ontario, the *excavator* shall contact “Ontario One Call” and request a *locate* in the areas where excavation will take place. The *excavator* must receive the *locate* prior to commencing any excavation.
- 2.3 When requesting a *locate*, the *excavator* shall provide the information required by Ontario One Call to complete the *locate* process.

Contact Information for Ontario One Call:

Website: www.OntarioOneCall.ca

Telephone: 1-800-400-2255

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3.0 Locate Provision

- 3.1 The distributor shall provide the *locate* within a reasonable time. (see Section 3.2 and Appendix 1- Regulation 22/04 Section 10.4 for more information).
- 3.2 The distributor shall make every reasonable effort to respond to locate requests by providing locates as per the current version of the **Ontario Underground Infrastructure Notification System Act**. In emergency excavations, shall complete the *locate* using methods documented in the current version of the **Underground Infrastructure Damage Prevention Best Practices** produced by the Canadian Common Ground Alliance (CCGA).
- 3.3 The *distributor* shall complete the *locate* using methods documented in the current version of the **Underground Infrastructure Damage Prevention Best Practices** produced by the Canadian Common Ground Alliance (CCGA).
- 3.4 When requested by either party, the *distributor* and the *excavator* shall meet on site to confirm details of the excavation and the location of the *distribution line*.
- 3.5 Where there are no *distribution lines* in the defined area of the proposed excavation the *distributor* will provide written confirmation to the *excavator*.
- 3.6 In the event that the *distributor* does not locate lines in an area (e.g. within the footprint of a building, private property, etc...), the *distributor* will, at minimum, provide notice that locates will not be performed in that area and alternative arrangements shall be made by the *excavator*.

4.0 Locate Expiration

- 4.1 The *distributor* shall indicate the length and conditions of the expiration period on the *locate* form or diagram and provide the *distributor's* contact information.
- 4.2 *Excavators* shall not use expired *locates*. Where delays occur beyond the expiry date or where the *locate* markings become unclear, a new *locate* must be requested by the *excavator*.
- 4.3 Where the *distributor* has ascertained that no changes have taken place since releasing the locate information and the *locate* markings are still clear, the *distributor* may provide a new expiry date in writing.

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5.0 Located Area

- 5.1 The *excavator* is not in compliance with Regulation 22/04 if they are excavating outside of the located area, as identified on the locate form.

6.0 Initial Exposure

- 6.1 Where the proposed excavation is to be parallel and within the *located area* of a *distribution line* the *excavator* shall initially expose the *distribution line* by *hand digging* or *vacuum excavation*. Exposing the existing underground infrastructure at sufficient intervals to clearly identify the depth and alignment to avoid damage when the proposed ground disturbance path is parallel to and within the hand expose zone of existing *distribution lines*.
- 6.2 Where the *distribution line* cannot be located following the procedures described above, the *excavator* shall contact the *distributor* for assistance with the *locate*.

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7.0 Excavating After Test Holes Are Completed

- 7.1** Where test holes in an area have been completed and the *distribution line* located, *mechanical excavation* may take place provided, the *mechanical excavation* is not used closer than 0.3 metre (1 foot) in any direction to the *distribution line*.

Note: Excavation within 0.3 metre (1 foot) in any direction of the *distribution line* shall be carried out by *hand digging* or *vacuum excavation*. For detailed procedures for using *vacuum excavation* in the vicinity of electric *distribution lines* see the IHSA Safe Practice Guide “Excavating with Hydrovac in the Vicinity of Underground Electrical Plant”.

- 7.2** Prior to initiating any blasting activities in proximity of *distribution lines* *excavators* shall obtain a locate from the *distributors*.
- 7.3** Instructions for supporting *distribution lines* must be obtained from the *distributor*. The *excavator* shall install temporary support acceptable to the *distributor*.
- 7.4** Temporary support shall remain in place until the backfill material underneath the structure has cured or it has been compacted adequately to restore support.
- 7.5** An *excavator* shall not attempt to move a *distribution line* under any circumstances. Where such a need arises during excavation, the *excavator* shall contact the *distributor* to make the necessary arrangements.

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8.0 Backfilling Trenches

- 8.1 Where trenches are to be backfilled, the following requirements shall be followed:
- backfilling shall be performed in such a manner as to provide firm support under the *distribution lines*;
 - the trench shall be backfilled with clean fill or granular material free of material injurious to the *distribution lines*; and
 - backfilling shall be performed without using tamping equipment directly on exposed *distribution lines* and using extra caution around electric cable splices.

The *excavator* shall complete the backfilling of trenches using methods documented in the current version of **the Underground Infrastructure Damage Prevention Best Practices** produced by the Canadian Common Ground Alliance (CCGA).

9.0 Unidentified and Abandoned Distribution Lines

- 9.1 Where a *distribution line* is found during excavation that was not identified by the *distributor*, but within the area covered by the *locate*, the *excavator* shall never assume the line is an *abandoned distribution line*. The *excavator* shall immediately contact the *distributor* as appropriate, to determine if the line is abandoned or *live*.

10.0 Procedure When Damage Occurs

- 10.1 If damage to the *distribution line* occurs, including damage to the jacket, the *excavator* shall leave the *distribution line* exposed, barricade the area and contact the *distributor* immediately.
- 10.2 If there are any flames or sparks originating from the exposed *distribution line*, the *excavator* shall barricade the area, and keep public and workers away. Call 911 and the *distributor* immediately.
- 10.3 In no case shall the *excavator* attempt to control or make repairs to a damaged *distribution line* or equipment.

11.0 Complaints Process

- 11.1** ESA is independent of any other Regulator's requirements, enforcement policies, and dispute resolution processes. When addressing any complaints against a *distributor* or *excavator*, or resolving any disputes, ESA will first consider the requirements of Ontario Regulation 22/04. Any other applicable regulations, national standards or industry practices may also be considered in the ESA complaints process.
- 11.2** Any *distributor*, *excavator* or third party may log a complaint with ESA regarding Regulation 22/04 compliance. In order to log a complaint with ESA regarding the actions of another party, the complaint shall be submitted in writing to ESA at the following email:
utility.regulations@electricalsafety.on.ca.
- 11.3** The complainant shall provide the following information:
- a) the name and contact information of the complainant;
 - b) identification of the other party or parties involved;
 - c) relevant dates and locations; and
 - d) a detailed description of the issue.
- 11.4** ESA will review the complaint, contact the parties involved if necessary and issue disciplinary actions as required.

Appendix 1

Ontario Regulation 22/04 Electrical Distribution Safety

Section 10 - Proximity to Distribution Lines

- (1) Despite section 5 of CSA Standard C22.3 No. 1-15 Overhead Systems, a person may place an object closer to an energized conductor forming part of a system of overhead distribution lines than the required minimum separations from energized conductors forming part of such a system if the person first obtains an authorization from the distributor responsible for the energized conductor. O. Reg. 22/04, s. 10 (1).
- (2) Despite sections 5 and 6 of CSA Standard C22.3 No. 7-15 Underground Systems, a person may place an object closer to an energized conductor forming part of a system of distribution lines than the required minimum separations from energized conductors forming part of such system if the person first obtains an authorization from the distributor responsible for the energized conductor. O. Reg. 22/04, s. 10 (2).
- (3) Before digging, boring, trenching, grading, excavating or breaking ground with tools, mechanical equipment or explosives, a Excavator, owner or occupant of land, buildings or premises shall, in the interests of safety, ascertain from the distributor responsible for the distribution of electricity to the land, building or premises the location of any distribution line that may be interfered with in the course of such activities. O. Reg. 22/04, s. 10 (3).
- (4) The distributor shall provide reasonable information with respect to the location of its distribution lines and associated plant within a reasonable time. O. Reg.22/04, s. 10 (4).