	<h1 style="margin: 0;">Ground Disturbance Protocol for Service Providers</h1>	
<b>Document Type:</b> Protocol	<b>Document Owner:</b> Operational EH&S	<b>Date reviewed:</b> April 12, 2019

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### 1.0 Purpose

This protocol defines Encana’s minimum standards and expectations for Ground Disturbance at all Encana field worksites. This protocol provides Service Provider requirements for Ground Disturbance located in Encana’s Ground Disturbance Practice

### 2.0 Scope

Ground disturbance is defined as any work, operation or activity that results in a disturbance of the earth. Ground disturbance activities can include, but are not limited to excavating, digging, trenching, rig anchor installation, drilling, boring/tunneling, auguring, blasting, topsoil stripping, land leveling, clearing, driving a ground rod, fencing and hydrovac excavating.

Specific activities that are not considered ground disturbance include ground penetration less than the depth required by local state or province One-Call requirements, driving non-metallic lathe or stakes less than 30 cm/12 inches, hand digging less than 15 cm/6 inches to bury cords or lines, using drag equipment to level or remove debris from a graded surface, and moving or handling stockpiled soil without disturbing the original surface. The scope of this Procedure is limited to Ground Disturbance conducted on Encana locations or on behalf of Encana. Local regulations may supercede this document.

### 3.0 Ground Disturbance requirements

The relationship between the terms search area, Hand Expose Zone (Figure 1), and Tolerance Zone (Figure 2) is graphically depicted below. These terms are used throughout this document.

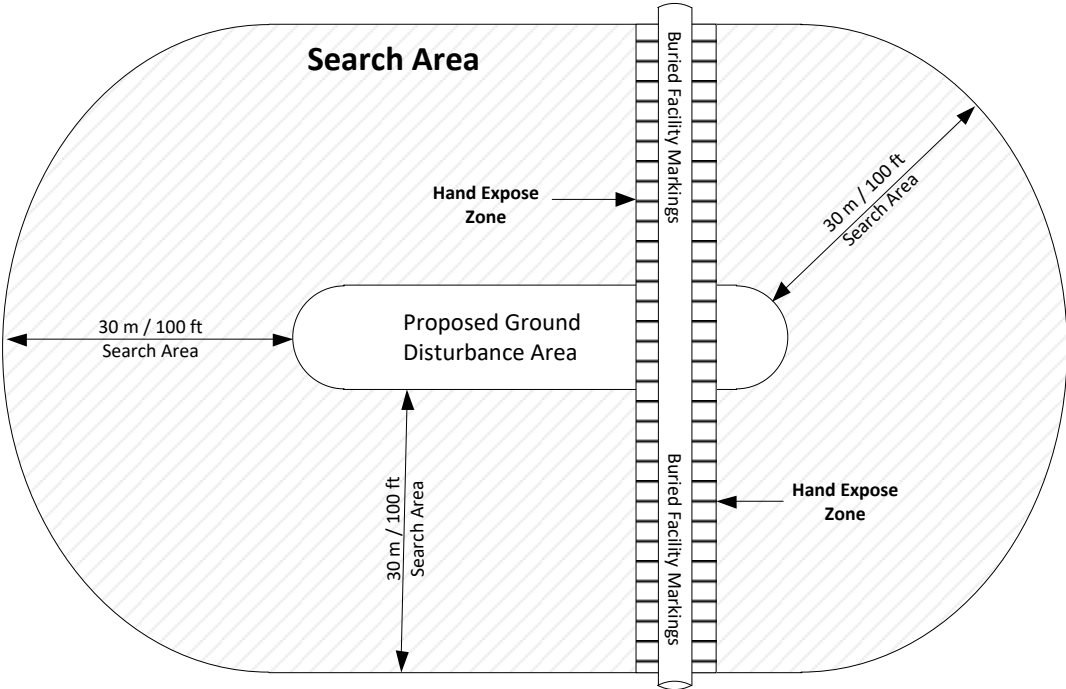


Figure 1 - Search Area, Hand Expose Zone

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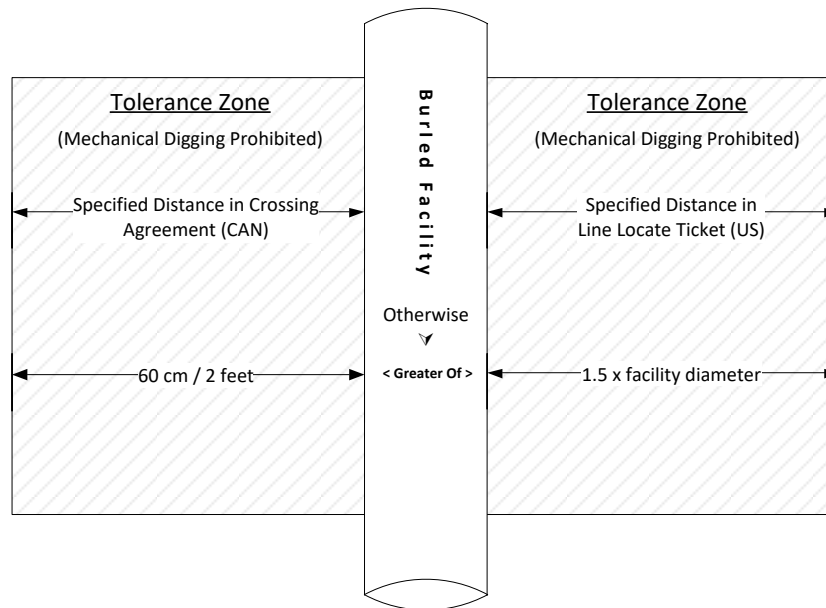


Figure 2 - Tolerance Zone

### 3.1 Service providers

The Encana service provider performing ground disturbance activities shall:

- submit a One-Call locate request for the proposed ground disturbance activity
- seek clarification concerning any Encana practice through their Encana representative
- initiate work only after an Encana *Ground Disturbance Authorization* has been completed and approved by the Encana Ground Disturbance Supervisor
- ensure all service provider staff involved in ground disturbance activities have completed the *Encana Ground Disturbance Orientation* prior to the initiation of ground disturbance activities
- ensure internal competency requirements are established and followed for equipment operators and spotters

### 3.2 Equipment operator

The equipment operator performing ground disturbance activities shall:

- adhere to the specified requirements and limitations of the established Tolerance Zone
- use a competent spotter when performing ground disturbance in the Hand Expose Zone and maintain continuous communication with the spotter
- perform hand digging or hydrovacating prior to mechanical excavation in any Hand Expose Zone, and perform hand digging or hydrovacating **ONLY** within a Tolerance Zone
- work within the conditions of the *Ground Disturbance Authorization Form*

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- STOP WORK and immediately contact the Encana site representative upon any buried facility being contacted, or if an unidentified buried facility is encountered, AND that all work will remain stopped until a new *Ground Disturbance Authorization* is completed
- understand and comply with the locate ticket information provided
- ensure exposed buried facilities are properly supported.

### 3.3 Spotter

The spotter shall:

- establish a mutually understood method of communication with the equipment operator and maintain continuous communication with the equipment operator
- prevent mechanical excavation equipment from coming within the Tolerance Zone
- signal the equipment operator to immediately stop excavation activities in the event a buried facility is spotted or suspected
- signal the equipment operator to immediately stop excavation activities and shut down all equipment in the event contact with a buried facility occurs or is suspected

### 3.4 Line locator

The line locator shall:

- perform site walkover activities as described in section 3.9, including the marking of identified above-ground facilities

### 3.5 One-Call buried facility locates

Call before you dig! Before initiating ground disturbance activities, a facility locate shall be requested from the One-Call Center specific to the state/province where the work is to be conducted. Facility locates shall be in accordance with state/province advance notice requirements. Specific information for each state/province's One-Call Center is provided in section 8.0. See Appendix 1 for *Uniform Colour Code for Marking Buried Facilities*.

- if multiple service providers are supervising ground disturbance work at a single Encana location, each service provider shall be responsible for ensuring locates are performed for their specific ground disturbance work
- When a known One-Call program participant has not responded to the locate request, the Encana Ground Disturbance Supervisor shall ensure notification of the One-Call Center and that a second locate is requested. If no response is received after a second locate request, the service provider or Encana Ground Disturbance Supervisor must request escalated One-Call Center assistance.
- There are some buried facility owners that do not receive notification (i.e., a locate ticket) of planned ground disturbance from the One-Call centers. Contact information for some of these owners is maintained by the One-Call centers. Notification shall be made to these owners and any other owners where information is available, of the planned ground disturbance.

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### 3.6 Site walkover

A site walkover shall be completed by a competent line locator (Encana staff or service provider) prior to commencement of ground disturbance activities. Experienced Encana operations personnel from the facility or plant shall be present during the walkover. At a minimum, the site walkover shall include:

- assessment of buried facility markers not included in the One-Call tickets
- an assessment by the line locator of the search area using tool(s) designed to locate buried facilities not previously identified by utility owners as part of the One-Call process
- investigation of visible surface anomalies that may indicate the facility's presence including:
  - disturbed or settling soils
  - patched asphalt or concrete
  - service risers (e.g., gas and electric)
  - changes in vegetation
  - locations where facility service lines enter buildings
- additional precautionary measures, such as the additional risk controls listed in the last question on the Ground Disturbance Authorization Form, if one encounters an anomaly in the information collected

### 3.7 Exposing and verifying facilities

If the planned excavation crosses or passes within a Hand Expose Zone, the depth and direction of the buried facility shall be identified through hand digging or hydrovac excavation prior to initiating any mechanical ground disturbance work.

The location, depth and direction of the facility shall be verified by the following methods:

- The location of hand digging or hydrovac excavation within a Hand Expose Zone should be where the suspected or marked buried facility converges with or passes closest to the area of ground to be disturbed. Mechanical digging shall not be used to expose a marked or suspected buried facility within its Tolerance Zone. Hydrovacating is the preferred means of exposing buried facilities.
- hand digging should not include aggressive use or forcible hammering of tools in a manner that could damage a buried facility
- For ground disturbance that parallels an existing buried facility, the required exposure intervals should be included in the buried facility owner's approval or on the locate ticket. If the exposure intervals are not specified by the buried facility owner, the buried facility shall be exposed (at a minimum) at the location nearest to, or crossing the ground disturbance area, or at any point where there may be a change in direction of the ground disturbance or the buried facility.

The minimum size of Encana's Hand Expose Zone is:

- 5 meters (16 feet) for provincially regulated pipelines
- 3 meters (10 feet) for federally regulated pipelines
- 1 meter (3 feet) for other types of buried facilities

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## 4.0 Competency requirements

### 4.1 Service providers

- all Encana service providers involved in ground disturbance shall complete the *Encana Ground Disturbance Orientation* prior to beginning ground disturbance activities
  - Encana's Ground Disturbance Orientation is available through the Online Training Tool in ISNetwork. This method is used to track the assignment and completion of the Ground Disturbance Orientation and allow for rapid update and management of the program. This method also allows Encana's employees to verify compliance in the field.
- ensure internal competency requirements are established and followed for equipment operators and spotters

### 4.2 Line locator

Service Providers providing line locator services for Encana shall complete third-party buried facility locator training incorporating the following objectives:

- proficient in interpreting measurement data
- proficient in calibration and operation of locating equipment
- proficient in properly marking located lines
- knowledge of operating principles and troubleshooting techniques for locating equipment

These requirements can be met in Canada through Enform's Buried Facility Locator course.

## 5.0 References

Owner	Name
<b>Alberta</b>	Pipeline Regulation
<b>British Columbia</b>	<a href="#">Occupational Health and Safety Regulation, Sections 20 and 23</a>
<b>Canada</b>	<a href="#">Enform, Industry Recommended Practice (IRP) 17, Ground Disturbance and Damage Prevention</a>
<b>Encana</b>	<ul style="list-style-type: none"> <li>▪ <i>Ground Disturbance Orientation</i></li> </ul>
<b>Other</b>	<ul style="list-style-type: none"> <li>▪ One-Call Centers               <ul style="list-style-type: none"> <li>- United States, 811</li> <li>- British Columbia, 1-800-474-6886</li> <li>- Alberta, 1-800-242-3447</li> </ul> </li> <li>▪ <a href="#">One-Call State Law Directory</a></li> <li>▪ <a href="#">2012 Excavation Safety Guide &amp; Directory, Infrastructure Resources, LLC</a></li> <li>▪ ANSI Z53.1 – Safety Color Code for Marking Physical Hazards</li> <li>▪ <a href="#">CGA Best Practices - version 9.0</a></li> <li>▪ <a href="#">Specification for Global Positioning System (GPS)</a></li> <li>▪ <a href="#">PHMSA NPS Operator Standards Manual (Jan 2012)</a></li> <li>▪ <a href="#">Common Ground Alliance Damage Information Reporting Tool (DIRT)</a></li> </ul>

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# Appendix 1

## Uniform Colour Code for Marking Buried Facilities (American Public Works Association – APWA)

Limits of proposed excavation*	<b>White</b>
Temporary survey markings	<b>Pink</b>
Electrical power lines, cables, conduits, and ducts or lighting wires and cables	<b>Red</b>
Gas, oil, petroleum, steam, or gaseous material	<b>Yellow</b>
Telephone, communications, cable TV, alarm or signal lines, wires, cable conduits or ducts	<b>Orange</b>
Water lines or pipes	<b>Blue</b>
Sanitary sewer, storm sewer, culvert or drain lines	<b>Green</b>
Irrigation, reclaimed water, slurry lines or pipes	<b>Purple</b>

\*The person proposing the ground disturbance is encouraged to mark the limits of job sites with white flags. Stakes or paint may be used to provide the locators and project personnel with an accurate understanding of the proposed construction area. In winter conditions, black may be used rather than white.