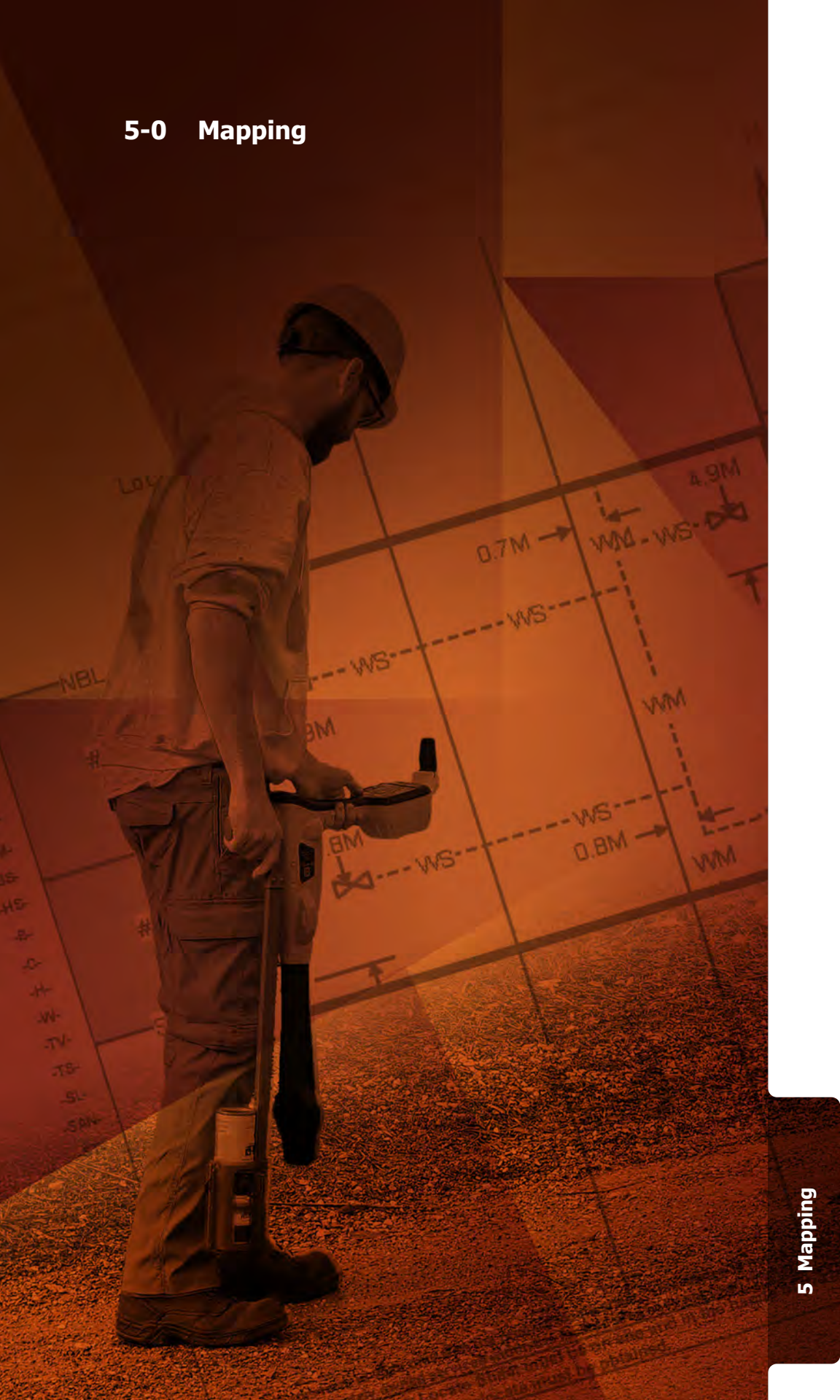


# 5-0 Mapping



## 5-0 Mapping Best Practices

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### 5-1: Notification Service Responsibilities and Use of Mapping

**Practice Statement:** The land base used by the notification service mapping system should be accurate and kept up to date with new information as it becomes available from source suppliers. Facility owners should provide regular updates of their notification mapping coverage to ensure the most current information is utilized in the system. Ideally, the land base used is available to the public and can produce a ticket for the smallest practical geographical area utilizing ; e.g., Street Address, Street Name, Subdivision & lot number, land description and/or latitude/longitude (GPS / UTM), to describe the location.

**Practice Description:** The provincial land base should be the most current, precise and contain the most complete coverage available. It should be geographically correct to a reasonable degree as well being cost effective. The meta-data information should be available to permit two way conversion and/or exchange of data. A single standard geographic reference should be utilized.

There must be a process in place to keep the land base current (both graphics and attributes) with regular updates and maintenance. This process should be as automated as possible to avoid user errors while being cost effective. The database is promptly updated as information is provided or becomes available from the owner. The system should be able to accept information in standard file format with minimal human intervention. (The graphic database refers to the member notification area coverage)

The mapping system should be able to produce a ticket for the smallest practical geographical area suitable to the member's requirements. There needs to be flexibility within the system to handle the various sources of information contained.

Land base should be made available for public viewing (excavators, project owners, homeowners, etc.) to validate limits of dig areas. The land base and database should also be available to the notification service membership for the update of member database information.

### 5-2: Locator Responsibilities and Use of Mapping

**Practice Statement:** Locators use maps to assist in finding the excavation site and to assist in determining the general location of the buried facility. Where discrepancies occur between mapping and facilities location determined by equipment, the locator should notify the facility owner.

**Practice Description:** It is critical that the locators are trained in reading facilities distribution maps and associated symbology to assist in determining the location of the buried facilities. The locator utilizes both locating equipment and mapping to provide locates. Where there is a discrepancy between the mapping and the location as determined by locating equipment, the locator must notify the facility owner of the issue. The facility owners should be responsible for verifying any such discrepancies as part of editing their mapping databases.

### **5-3: Excavator’s Responsibilities and Use of Mapping**

**Practice Statement:** The excavator provides accurate excavation location information to the notification service.

**Practice Description:** The excavator takes responsibility for giving accurate excavation location information to the notification service. This information includes street address, street intersection, legal description, or other acceptable format and latitude/longitude if feasible. A list of requirements is found in Best Practice 2-16.

If the excavator cannot meet the above criteria, the excavator directly coordinates with the notification to establish the excavation area for the purposes of description on the locate form. At times, it may also be required for the excavator to coordinate with the facility locator in order to establish the location.

### **5-4: Owner Responsibilities for Mapping Records**

**Practice Statement:** The owner should collect and maintain records for the location of its buried facilities.

**Practice Description:** The owner should ensure that its records are of sufficient detail and accuracy, and referenced to a defined datum system (e.g. permanent physical markers, survey monuments, GPS coordinate systems, etc.), in order that the location of its buried facilities can be re-established at a later date and that subsequent users have an adequate level of confidence to:

1. determine the areas to which records apply
2. correctly identify the facilities being described
3. determine the spatial accuracy of the facilities' stated position
4. determine the completeness of the record (e.g. all facilities shown, only trunk lines shown, abandoned facilities not shown, etc.).

The owner should provide the notification service and associated locate service providers and design consultants with data (e.g. electronic or paper records, fiche, or other indexing of underground facilities) that will allow proper ticket creation and notification of excavation activities near the owners' infrastructure and allow the locator to accurately mark the underground facility.

The mapping system standards and data specifications should be consistently applied across the owner's facilities and communicated to those involved in data exchange or data integration processes. The process of collecting, storing and managing the mapping records should be clearly documented and whenever possible the location of buried facilities should be established during the installation process when these are still visible and their positions can be most accurately measured and recorded. Generally the owner should capture the following information to ensure safety and success in the planning, design, construction, documentation, location, and maintenance of their facilities:

- a. horizontal and vertical position of buried facility;
- b. cross-sectional size of duct bank or cable trench;
- c. number and size of conduits, pipes, or number of direct buried cables if not in cable trench; and
- d. facility's external material type that would be first encountered if exposed.

**Current Practice:**

- Notification service accepts digital or hard copy information of single line data with digital information preferred. For acceptable file formats and additional mapping options, please contact your regional notification service. The onus is on the facility owner to provide updates in the accepted formats.
- Facility information is currently provided to locate service providers in varying formats as determined by owners.
- Some larger municipalities have developed composite utility mapping systems (e.g. Toronto DMOG) that display multiple utility infrastructure in the area on an accurate common base map for use in the planning, design and construction of new infrastructure projects.

## **5-5: Project Owner Responsibilities and Use of Mapping**

**Practice Statement:** The project owner provides accurate information on the scope of work and determines the starting and ending points, ideally by providing basic coordinates which define the centreline or area of construction.

**Practice Description:** The project owner provides the excavator with accurate location information on the proposed excavation area and scope of work. This information includes: a street address, street intersection, legal description, a starting point, ending point and on which side of the property (North, South, East, West, front, back, rear, sides, etc.) distance from nearest intersection or other acceptable format and latitude/longitude if feasible.

**Current Practice:**

- Project owner provides information to excavator which is referenced to the notification service map.
- Today, “starting and ending points” tend to be descriptions - not coordinates; however greater use of mapping technologies will facilitate this information being provided.
- There is currently a variety of referencing methods for tying-in proposed construction (C/L, P/L, etc.) which is facility owner specific and may/may not be tied to universal survey control points.

**References:**

- CSA S250-11, Mapping of Underground Utility Infrastructure