Montana Excavation Safety Handbook (MESH)
Preface

This handbook for safe digging contains certain sections of Montana code, regulations, and the entire dig law – MCA 69-4-5. In addition it contains information, provided by the Montana Utilities Coordinating Council (MUCC), a nonprofit organization established in 1988, on using the 811 call center, as well as details on how to comply with the Montana dig law. Links to national best practices for damage prevention are also included. With increased numbers of utilities installed underground, the MUCC works to achieve the orderly planning and installation of buried facilities.

This handbook is a compilation of items from various sources. It is intended to provide guidelines for safe excavation, particularly involving underground utilities. It does not provide guidelines for workers working in and around trenches and equipment. For guidelines please refer to your company’s policy, OSHA or other reliable source.

Where this is mainly intended for excavation professionals, we also acknowledge this can be used by laymen and underground locate professionals.

We acknowledge the contribution of the Common Ground Alliance (CGA) who’s Best Practices Version 11.0 is used in the contents of the handbook. For a complete copy of the CGA Best Practices you can go to www.commongroundalliance.com. It is available for download in pdf format or for hardcopy order.

This booklet is available to all in the state of Montana as a means to help reduce damage to utilities, avoid interruption of service, and to protect the worker and the general public.

We want to know how you use this booklet! What information is useful and not useful? How often do you use it? If a future printing occurs, what would you like added? What would you like removed?
Please send feedback to Montana 811 or the MUCC

Montana811—Call Center
Call—Dial “811” or “1-800-424-5555”
Online—Montana811.org

Montana811—Questions Clint Kalfell
Call—406-442-3070
Email—Clint.kalfell@montana811.org

Copy of Submitted Ticket
www.managetickets.com

General Excavation Safety Guidance
www.osha.gov/SLTC/trenchingexcavation/

Acknowledgments:

Version 1.0, Printed December 2014.
## Contents

- Important Numbers .................................................. 7
- Guidelines for a Safe Excavation ................................. 8
  - Limits of Locating and Marking ................................ 8
    - Private Property .................................................. 8
  - Six Basic Steps to a Safe Dig: ................................... 8
  - Single Point Excavation Markings ............................... 10
  - Pre-excavation Meeting or Meet on Site ...................... 12
  - Large Non-Continuous Work Areas (i.e. Highway Signage Project or delineator installation) ......................... 13
    - Large Area – Low Density Example ............................ 13
    - Smaller Area – Hi Density ....................................... 13
  - Large, Multiple Contactor Projects (i.e. Community wide Fiber Optic Installation, Sewer Replacement Projects) ... 14
  - Large Continuous Work Area (i.e. Fiber Optic Long Haul installation, Transmission Pipeline Construction, Road Construction) .................................................. 15
  - Separate Locate Requests ........................................ 15
  - Underground Facility Location Markings ....................... 16
  - Locate Verification .................................................. 17
  - Facility Owner/Operator Failure to Respond ................. 18
  - Maintain the Marks ............................................... 18
  - Best Practices for Maintaining Locate Marks ................ 19
  - Documentation of Marks ......................................... 19
  - Work Site Review with Company Personnel .................. 20
  - Facility Avoidance ................................................. 20
  - Excavation Observer ................................................ 21
  - Locate Mark Expiration ........................................... 21
Excavation Tolerance Zone ........................................... 22
Excavation within Tolerance Zone ................................ 22
Vacuum Excavation ..................................................... 23
Service Laterals .......................................................... 24
Excavations Near Pipelines ........................................... 24
Mismarked Facilities .................................................... 25
Exposed Facility Protection ........................................... 25
Locate Request Updates .............................................. 26
Facility Damage Notification ....................................... 27
Notification of Emergency Personnel ......................... 28
Emergency Excavation ............................................... 29
Backfilling ................................................................. 29
As-built Documentation ............................................... 29
Trenchless Excavation ............................................... 30
Emergency Coordination with Adjacent Facilities .......... 31
Additional Safety and Excavation Information ............... 32
  Natural Gas Pipeline Safety ....................................... 32
    Natural Gas Demands Respect .................................. 32
    Natural Gas Incidents ............................................. 33
    Work Practices ..................................................... 33
    Supporting Exposed Gas Pipeline ......................... 34
    Backfilling Natural Gas Pipelines and Hazardous Liquid Pipelines .................................................. 35
    Backfill for General Construction ....................... 35
    Compaction .......................................................... 35
  Electricity .............................................................. 36
    Electricity Demands Respect .................................. 36
    Basic Rules for Electrical Safety .......................... 37
Legal Clearance ................................................................. 37
In the Event Electrical Contact Occurs with Equipment ...... 38
Underground Power-line Safety ........................................... 39
Water, Sewer and Storm Lines ............................................. 40
  Bends, Tees, Caps and Thrust Blocks .................................. 40
  Water Services .................................................................... 41
  Sanitary Sewer Lines .......................................................... 41
  Manholes ............................................................................ 42
Excavation and backfill practices near sewer main and 
services .................................................................................. 42
Fiber Optic Lines ..................................................................... 43
  Fiber optic systems ............................................................... 43
  Safety .................................................................................. 43
Always call for locates ............................................................ 43
Contact is key .......................................................................... 44
Damage .................................................................................. 44
Glossary of Terms and Definitions ....................................... 45
Uniform Color Code and Marking Guidelines ....................... 55
  Tolerance Zone ..................................................................... 55
Guidelines for Excavation Delineation ................................ 56
  Single Point Excavations Markings ....................................... 56
  Single Stake Marking Center Point of Excavation Site .......... 57
  Trenching, Boring, or Other Continuous-Type Excavations .. 57
  Continuous Excavation Marking ............................................ 57
  Stake, Flag, or Whisker Excavation Markers ....................... 58
Guidelines for Operator’s Facility Field Delineation .......... 59
  Operator markings of facilities include the following: .......... 59
Common Abbreviations ......................................................... 66
69-4-501. Definitions. The following definitions apply to this part:

69-4-502. Information to be sought before excavation -- notification -- exceptions.

69-4-503. Notification -- locating and marking.

69-4-504. Information to be part of architects' and engineers' plans.

69-4-507. Public authority -- liability.

69-4-508. Emergency location and excavation.

69-4-509 through 69-4-510 reserved.

69-4-512. Judicial review.

69-4-514. Incident histories.
**Important Numbers**

**Before You Dig: CALL 811 or 1.800.424.5555**

You can request a locate online, using ITIC or ITIC Mobile for tablets and smartphones. Visit [www.callbeforeyoudig.org](http://www.callbeforeyoudig.org), select **Montana State**, and then choose **contractor or homeowner**. Professional excavators must sign up by providing contact info and choosing a user name. Once a staff member at the Call Center emails you a password, you are good to go. Homeowners will have to provide an email address. In both cases, no more waiting on the phone!

For a Life or Death Emergency call - **911**

**“Call 811 (or the online option) Before You Dig”** is abbreviated as CBYD.

**“Notice”** Two full business days before commencing any excavation (exceptions can be found in the dig law); the excavator shall call 811 or 1.800.424.5555 to provide notice of their scheduled start of excavation. On busy days (M-W) hold time can be very lengthy. Entering your locate request online, via ITIC, eliminates the hold time. To learn more about ITIC visit [www.callbeforeyoudig.org](http://www.callbeforeyoudig.org).
Guidelines for a Safe Excavation

Limits of Locating and Marking

Private Property

The utilities will only mark the lines to their own meters. Underground lines beyond the meter or service entrance belong to the property owner, and are that person’s responsibility (e.g., apartment houses, mobile home parks, schools, etc.) Private locators are available to provide this service for a fee. A list of private locators can be found at: www.montana811.org.

Six Basic Steps to a Safe Dig:

1. Identify your excavation area and obtain location descriptions. It is recommend to outline / mark your planned dig site in white marking paint or flags. Ensure access is made available to the locators.

2. Two business days before you dig, CALL 811 (Remember, the day you call does not count)

3. Do not dig until all known utilities are marked

4. Maintain the marks

5. Determine the precise location of the marked utilities by hand digging

6. Dig safely using proven excavating methods

Identify your proposed dig site on a map, taking note of city, county, and obvious landmarks. Determine distance and direction from nearest cross street, proximity of planned work to overhead electric lines, location of right-of-way and easements, and if no specific street or address is applicable, the township, range, section, and quarter-section of the work site. Accurate and timely locates are crucial for a successful dig. All owner/operators of buried facilities should endeavor to provide current as-built plans to their locators. Markings
should follow industry recommendations (see Single Point Excavation Markings illustration below).

When the excavation site cannot be clearly and adequately identified on the locate ticket, the excavator designates the route and/or area to be excavated using white premarking prior to the arrival of the locator. **Excavators are required to mark the boundary of the excavation area if requested by a locator.** (MCA 69-4-503(6)). The route of the excavation is marked with white paint, flags, stakes, or a combination of these, to outline the dig site prior to notifying the one call center and before the locator arrives on the job. Premarking allows the excavators to accurately communicate to facility owners/operators and their locator where excavation is to occur. The 1997 safety study “Protecting Public Safety through Excavation Damage Prevention” by the National Transportation Safety Board reached the conclusion that premarking is a practice that helps prevent excavation damage. Facility owners/operators can avoid unnecessary work created when locating facilities that are not associated with planned excavation.
Single Point Excavation Markings

Provide notice of the scheduled excavation to owner/operators of buried utilities at least two full business days in advance, but we recommend no sooner than ten business days by CALLING 811, 1.800.424.5555, or online at www.callbeforeyoudig.org.

Be prepared to provide details as shown in Guidelines Step 1 on page 9, as well as the nature of the work, the date and time you plan to begin digging, the name of your customer, and a number where you can be reached. When finished, you will be given an excavation confirmation number, or ticket number. The ticket number is proof that you called. If you need to call back for any reason, you will be asked for the ticket number – please keep it handy. Utility companies might require your ticket number or Locate Reference Number\(^1\) if you contact them about your locate.

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\(^1\) The excavator receives and maintains a reference number from the one call center that verifies that the locate was requested. All calls from excavators processed by the one call center receive a unique message reference number, which is contained on all locate request messages. The excavator records this number; it is proof of notification to the members. The computer-generated request identifies the date, time, and sequence number of the locate.
request or excavation plans. You might also be required to provide your ticket number to inspectors or law enforcement personnel. When you call before digging the CBYD personnel will provide a list of member utility operators who will be notified of your intent to excavate. Those members have two business days to locate and mark their locatable buried facilities, or provide reasonably available information on their lines that are un-locatable

Montana law requires that all underground facility operators be members of the CBYD system. (MCA 69-4-502(2)(a)). If you discover a nonmember facility, contact Montana811 or UDIG in Flathead and Lincoln Counties.

Wait two full business days after the day you give notice before beginning your excavation. Please remember, the day of your call doesn’t count.

request. Each locate request ticket (notification) is assigned a unique number with that one call center, the requestor, and the facility owner/operator. This number distinguishes this ticket from all other tickets so that it can be archived and retrieved upon request to provide the details of that request only.
Pre-exavation Meeting or Meet on Site

When practical, the excavator requests a meeting with the facility locator at the job site prior to marking the facility locations. An on-site pre-excavation meeting between the excavator, facility owners/operators, and locators (where applicable) is recommended on major or large projects. This includes projects such as road, sewer, water, or other projects that cover a large area, that progress from one area to the next, or that are located near critical or high-priority facilities. Such facilities include, but are not limited to, high-pressure gas, high-voltage electric, fiber-optic communication, and major pipe or water lines.

If a pre-excavation meeting or meet on site is requested, it does not obligate a locator to complete their markings at that time. The completion of the meeting will not affect the requirement to have the locates completed within 2 business days.

NO digging is to take place until ALL known utilities are marked or otherwise accounted for with information provided by the facility operator. (MCA 69-4-503(5)).

Any excavator that violates these rules, and damages buried lines, may be liable for fines and penalties and be held responsible by the owner to pay to restore the damaged facility.
Large Non-Continuous Work Areas (i.e. Highway Signage Project or delineator installation)

The preference on how to submit locate requests largely depends on the density of the work or excavation areas. In most cases it is recommended that the locate request should not be larger than 750 ft.; however in some cases it may be more logical and convenient to have a larger area. In all cases the excavator will need to designate the starting and ending points of the route, along with each point along the way. If you are unsure of how to proceed, call into the Call Center and request the Help Desk to assist you with making the locate request work for everyone involved.

Large Area – Low Density Example

If you have a highway sign project that covers 11.1 miles of roadway and has only 9 points along that route where excavation is taking place, it usually means there will be further distance between locations and make it difficult to manage and describe the locations of each. In this case it is recommended that you to submit a separate ticket for each excavation location.

Smaller Area – Hi Density Example

If you have smaller area such as 4.1 miles that has 39 points along that route where excavation is taking place. You could put them on one ticket providing that each excavation site along the route would be marked. Ideally the marking would be a white arrow on
the pavement edge pointing to the excavation area. The excavation area would be marked with a stake with a white ribbon and placed at the center of the excavation area. It would also be very helpful to have a unique number or identifier on the stake identifying site and how it matches the information provided on the Locate Request Ticket.

Other ways to help with the identification of the excavation areas would be to provide the nearest named intersection, refer to mile post markers, or provide GPS coordinates.

Providing some sort of document or mapping of the project is very beneficial to the locators to understand and locate the excavation area. Documentation can be in the form of maps in pdf format or any other widely accepted form.

**Large, Multiple Contactor Projects (i.e. Community wide Fiber Optic Installation, Sewer Replacement Projects)**

It is strongly recommended for project managers and engineering firms to contact the Montana811 Representative to coordinate a Safe Excavation Roundtable several months prior to the project start.

Provide contact information for all general and subcontractors involved with the project. Also include the scope of the project including area, dates and crews involved.

The Montana Representative will contact all underground facility owners and coordinate a meeting where all parties that may be effected have an opportunity to understand and discuss the requirements needed to provide underground locates for the project effectively and safely. This preconstruction meeting is a valuable tool that has proved to help alleviate confusion and frustration when these large multi Contractor projects happen. It also allows the affected underground facility owners time to ensure they are staffed adequately to complete the locates in a timely manner throughout the project.
Large Continuous Work Area (i.e. Fiber Optic Long Haul installation, Transmission Pipeline Construction, Road Construction)

Excavation requests should be submitted with small excavation areas. It is recommended if providing a corridor or right-of-way that needs to be located should not be longer than 750 feet, the excavator needs to discuss locate requirements with each company’s locator notified by the locate ticket.

Tickets should be staggered over several days and submitted several days prior to the excavation work to be started. If you can provide information on the full project at the beginning of the project to the affected underground facility owners, it allows them time to ensure they are staffed well enough to complete the locates in a timely manner throughout the project.

The excavation area should be marked with stakes with a white ribbon and placed along the center line of the route defining the excavation area. It would also be very helpful to have a unique number or identifier on the stake identifying site and how it matches the information provided on the Locate Request Ticket, including the distance and direction from the centerline to the outer edge of the excavation area.

Other ways to help with the identification of the excavation areas would be to refer to mile post markers, GPS coordinates or nearest named intersection.

Providing some sort of document or mapping of the project is very beneficial to the locators. It helps them understand and locate the excavation area, as well as the scope of work. Documentation can be in the form of maps in pdf format or any other widely accepted form and can be uploaded via ITIC.

Separate Locate Requests

Every excavator on the job has a separate one call reference number before excavating. There are often several excavators on a job site performing work. The construction schedule may dictate
different types of work requiring excavation from different specialty contractors simultaneously. In these situations, it is imperative for each excavator to obtain a one call reference number before excavation to ensure that the specific areas have been appropriately marked by any affected underground facility owner/operator.

**Underground Facility Location Markings**

Underground facility owners are required to complete markings within two full business days of receiving notification of excavation and request for underground facility location marks. (MCA 69-4-503(2)(a)).

The markings will use the American Publics Works Association (APWA) Uniform Color Code to identify the type of underground facility.

<table>
<thead>
<tr>
<th>Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RED</td>
<td>Electric Power Lines, Cables, Conduit and Lighting Cables</td>
</tr>
<tr>
<td>YELLOW</td>
<td>Gas, Oil, Steam, Petroleum or Gaseous Materials</td>
</tr>
<tr>
<td>ORANGE</td>
<td>Communication, Alarm or Signal Lines, Cables or Conduit</td>
</tr>
<tr>
<td>BLUE</td>
<td>Potable Water</td>
</tr>
<tr>
<td>PURPLE</td>
<td>Reclaimed Water, Irrigation and Slurry Lines</td>
</tr>
<tr>
<td>GREEN</td>
<td>Sewers and Drain Lines</td>
</tr>
<tr>
<td>WHITE</td>
<td>Proposed Excavation</td>
</tr>
<tr>
<td>PINK</td>
<td>Temporary Survey Marking</td>
</tr>
</tbody>
</table>
The markings will be either one or a combination of paint, pin-flags, or whiskers in the color identifying the type of underground facility depending on the terrain, vegetation and weather conditions.

Common Paint Marks

- Stripe — used to mark smaller sized cables & pipes. Marks should be approximately 18 inches long and 2 inches wide.
- Dots — used to mark cables & pipes in decorative, landscaped areas & sidewalks. Dots should be approximately the size of a grapefruit or softball.
- Lazy “H” — Not used everywhere. Used to mark larger sized pipes, usually 4 inches in diameter or larger. Width of “H” should match diameter of pipe. Sometimes used to mark an “unknown” number of cables, or ducts.
- Duct — Marks can vary regionally. Used to mark multiple cables which are buried together and placed in conduit. Width of marks should correspond to number and arrangement of conduit.

Locate Verification

Upon arrival at the excavation site and prior to beginning the excavation, an excavator does the following:

- Verify that the dig site matches the one call request and is timely
• Verify that all facilities have been marked and reviews color codes and facility owner if in doubt

• Verify all service feeds from buildings and homes

• Check for any visible signs of underground facilities, such as pedestals, risers, meters, and new trench lines

• Check for any facilities that are not members of the one call center and contact someone to get them located, e.g. propane lines and tanks, water well service, sprinkler systems and private electrical lines.

Use of a pre-excavation checklist is recommended by insurers and practiced by responsible excavating contractors. A sample checklist is available from the Montana811 Representative.

**Facility Owner/Operator Failure to Respond**

If the facility owner/operator fails to respond to the excavator’s timely request for a locate, within two full business days or if the facility owner/operator has NOT notified the excavator that the underground facility cannot be marked within the time frame, then the excavator should contact the locator listed on the ticket for the missing utility, re-call the one call center, or if it is a chronic problem contact the Montana811 Representative. Talking directly with the locator is always the best and fastest method since they may have already been there (and you just missed the marks), they are on the way, or simply forgot or missed the request. The facility owner/ operator and the excavator need to partner together to ensure that facilities are marked in an acceptable time frame to allow for underground facility protection.

**Maintain the Marks**

Respect the marks which identify the location of the buried facilities. Once the owner/operator of the underground utility marks their buried lines, it is the responsibility of the excavator to MAINTAIN the marks (MCA 69-4-503(3)(b)) for the length of the project. It is recommended to get marks refreshed at least every 30
days. Compliance with **maintaining marks** may be attained by following the recommended guidelines below.

**Best Practices for Maintaining Locate Marks**

Onsite personnel, responsible for maintaining the marks, should determine which method would be most effective for the job. Depending on the job/area and size/complexity, individual utility companies may impose separate compliance requests.

Preserve or protect as much of the original marks as possible.

Use off-set staking, in areas where original locate marks will be continuously destroyed by excavation or weather. The off-set staking must be uniformly aligned and must accurately indicated the location of the original locate markings.

Digital photo, or other permanent imaging, or drawings (both to scale) may be used in areas where original locate marks will be destroyed by excavation or weather.

Use white paint or flags to maintain the original markings.

Bookend the original locate marks with solid white squares or brackets.

Paint dots between the original locate, using white paint, every eighteen to twenty-four inches, for the whole length of the original marking. Include the type of facility marks, e.g., T for telephone, G for natural gas, W for water, etc.

Request re-locates. The utility owner/operators reserve the right to recover costs of remarking. Requests for re-locates should include information such as the specific sight (area) that needs to be re-located and which utilities need to be re-located.

**DO NOT, UNDER ANY CIRCUMSTANCES, PAINT OVER UTILITY LOCATING PAINT.**

**Documentation of Marks**

An excavator should use dated pictures, videos, or sketches with distance from markings to fixed objects recorded, to document the actual placement of markings. In most situations when
underground facilities are not properly marked, excavators have no way of knowing where underground utilities are located. If locate markings are adequately documented through the use of photographs, video tape, or sketches before excavation work begins, it is easier to resolve disputes if an underground facility is damaged as a result of improper marking, failure to mark, or markings that have been moved, removed, or covered. It is important for excavators and locators to document the location of markings before excavation work begins. The primary purpose of this best practice is to avoid unnecessary litigation and expensive legal fees for all parties involved.

Work Site Review with Company Personnel

Prior to starting work, the excavator should review the location of underground facilities with site personnel. Sharing information and safety issues during an on-site meeting between the excavator and the excavating crews helps avoid confusion and needless damage to underground facilities.

Facility Avoidance

The excavator should use reasonable care to avoid damaging underground facilities. The excavator should plan the excavation so as to avoid damage or to minimize interference with the underground facilities in or near the work area. Foremost on any construction project is safety. Excavators using caution around underground facilities significantly contribute to safe excavation of existing facilities.
Excavation Observer

The excavator should use an observer to assist the equipment operator when operating excavation equipment around known exposed underground facilities. The excavator designates a worker (an observer) who watches the excavation activity and warns the equipment operator while excavating around a utility to prevent damaging that buried facility.

Locate Mark Expiration

Locate marks expire 30 days from the date the excavator provides notice if excavator has not begun excavation and maintained locate marks. A new request will need to be submitted to excavate.
Excavation Tolerance Zone

Owner/operators of buried utilities are required to mark their locatable buried lines with reasonable accuracy. MCA 2011 69-4-501 states “Reasonable accurate means location within 18 inches of the outside dimensions of both sides of an underground facility.” This area is called the “Tolerance Zone” (See Tolerance Zone illustration below).

![Tolerance Zone Illustration]

Excavation within Tolerance Zone

When excavation is to take place within the specified tolerance zone, the excavator exercises such reasonable care as may be necessary for the protection of any underground facility in or near the excavation area. Methods to consider, based on certain climate or geographical conditions, include hand digging when practical (pot holing), soft digging, vacuum excavation methods, pneumatic hand tools, other mechanical methods with the approval of the facility owner/operator, or other technical methods that may be developed. Hand digging and non-invasive methods are not required for pavement removal. Safe, prudent, non-evasive methods that require the excavator to manually determine the actual location of a facility are considered “safe excavation practices”. MCA 69-4-505(4) States the excavator must excavate in a careful and prudent manner. To avoid damaging underground
facilities an excavator shall determine the precise location of underground facilities which have been marked. Accepted industry opinion is that precise determination can only be made by exposing the buried utility. Depending on site conditions, one, or a combination of the following options, is recommended: careful hand digging, potholing and vacuum excavation, hand tools that use air or water under pressure, or other non-invasive methods. (Although considered non-invasive by many, care should be taken when using these methods near pipe coating; they have been known to cause damage to the wrapping.) A list of non-invasive or low-impact excavators that are available are listed at www.montana811.org.

Exposing buried utilities via any mechanized method (e.g., backhoe, grader, jack hammer, etc.) is not acceptable.

**Vacuum Excavation**

Vacuum excavation, when used appropriately, is an efficient, safe, and effective alternative to hand digging within the designated underground facility tolerance zone. The safe exposure of underground facilities within the tolerance zone is essential to damage prevention. Site conditions may make the use of hand tools to expose underground facilities difficult or even impractical. Vacuum excavation is often an appropriate alternative. Locates must be obtained prior to the commencement of work. Many underground facility owners/operators have specific criteria for safe excavation/exposure practices around their facilities. Some underground facility owners/operators accept vacuum excavation as equivalent to hand excavation for exposing their facilities, and others have restrictions on its use. You should contact all utility companies listed on your tickets
to find out their particular restrictions. Vacuum excavation is an appropriate method of excavating safely around underground facilities provided that the equipment

• has been specifically designed and built for this purpose;
• is operated by a worker trained and experienced in its operation;
• is operated in accordance with practices that provide appropriate levels of worker and public safety and prevent damage to buried facilities; and is used in compliance with state/provincial laws and/or local ordinances.

Service Laterals

Special attention is needed by excavators in regard to service laterals within public right-of-ways and utility easements. Each municipality, homeowners association, water and sewer districts have their own set of guidelines as to who owns service laterals and subsequently who is responsible for locating laterals. You will need to contact the underground facility owner directly to see what their ownership policy is.

We recommend facility operators:

• Locate and paint service laterals if you are able to do so with reasonable accuracy;
• Place a triangle at your main utility pointed at the structure or property connected to your service;
• Arrange to meet with the excavator at their worksite and provide available information about the location of service laterals; or
• Provide copies of available records of the service laterals via other delivery methods (including electronic or mail).

An underground facility owner may attempt to identify the location of a private underground facility connected to the owner’s facility, but the facility owner is not liable for the accuracy of the locate. (MCA 2013 69-4-503(7))

Excavations Near Pipelines.

Some Pipeline Companies require permits and the presence of a representative of the company while excavating near or crossing
their pipelines. Make sure that you understand and comply with each Pipeline Company’s requirements while excavating near their facilities.

Mismarked Facilities

The excavator should notify the facility owner/operator directly or through the one call center if an underground facility is not found where one has been marked or if an unmarked underground facility is found. Following this notification, the excavator may continue work if the excavation can be performed without damaging the facility. When an excavator finds an unmarked or inaccurately marked facility, excavation should stop in the vicinity of the facility and notification takes place. If excavation continues, the excavator should plan the excavation to avoid damage and interference with other facilities and protect the facilities from damage.

Exposed Facility Protection

Excavators should support and protect exposed underground facilities from damage. Protecting exposed underground facilities is as important as preventing damage to the facility when digging around the utility. Protecting exposed underground facilities helps ensure that the utility is not damaged and, at the same time, protects employees working in the vicinity of the exposed facility. Exposed facilities can shift, separate, or be damaged when they are no longer supported or protected by the soil around them. Excavators should support or brace exposed facilities and protect them from moving or shifting, which could result in damage to the facility. This can be accomplished in different ways; for example, by shoring the facility from below or by providing a timber support with hangers across the top of an excavation to ensure that the facility does not move or bend. In addition, workers are instructed to not climb on, strike, or attempt to move exposed facilities that could damage protective coatings, bend conduit, separate pipe joints, damage cable insulation, damage fiber optics, or in some way affect the integrity of the facility. The Occupational Safety and Health Administration (OSHA) also has addressed this issue in Subpart P—Excavation Standard 29 CFR 1926.651(b)(4), which
states “While the excavation is open, underground installations shall be protected, supported, or removed as necessary to safeguard employees.” For example, an unsupported sewer main could shift, causing the pipe joints to separate, which could result in the trench where employees are working to flood, endangering the safety of employees.

**Locate Request Updates**

The excavator needs to call the one call center to refresh the ticket. When excavation continues past 30 days we recommend a refresh. Original locate request tickets are generated so that the minimum number of locate request updates are necessary for the duration of a project. After all the excavation covered by a locate request is completed, no additional locate request updates are generated. Communication between excavation project planners, field personnel, and clerical personnel is essential in accomplishing this task. Refreshing the ticket recognizes that markings are temporary and provides notification to facility owners/operators of ongoing excavation when a job is started but not completed as planned. Any excavation not begun during the life of the ticket is recalled to the one call center. Any excavation that covers a large area and will progress from one area to the next over a period of time should be
broken into segments when notifying the one call center in order to coordinate the marking with actual excavation. The possibility exists that new facilities have been installed in the area where the excavation is to be conducted after the original notification and marking. This practice also helps in situations where multiple excavators are working in the same area at essentially the same time. An example of when this can occur is when two facility owners, such as a cable television company and a telephone company, are planning to serve a new section of a subdivision. In their pre-planning process, they see a vacant space in the right-of-way to place their new facility. Each excavator (internal or external) calls the one call center for locates and each facility owner/operator comes and marks their respective facilities indicating that nothing exists. For one reason or another, one of the excavators gets delayed and does not start construction as planned, and when returning to the job site to place the new facility, finds new lines have been installed in the previously vacant space. Many facility owners/operators do not perform their own locates and utilize the services of a contracted facility locator. These contracted facility locators may not be aware of work planned in the near future. By excavators refreshing the locate ticket, the contract locator has another opportunity to identify newly placed facilities. This practice also gives the facility owner/operator another chance to identify the location of their facilities and to avoid possible damage and disruption of service if something was marked incorrectly or missed on a previous locate. Excellent planning, generation, and updating of tickets enhance safety and reduce the unnecessary use of locate resources.

Facility Damage Notification

If an excavator discovers or has caused damage to underground facilities they need to notify the facility owner/operator. If you need a repair phone number for the facility owner/operator, if you need to update the ticket to have the site marked/remarked, or if you have questions contact the one call center. All breaks, leaks, nicks, dents, gouges, grooves, or other damages to facility lines, conduits, coatings, or cathodic protection are reported. The possibility of facility failure or endangerment of the surrounding population
dramatically increases when a facility has been damaged. Although the facility may not immediately fail, the underground facility owner/operator is provided the opportunity to inspect the damage and make appropriate repairs.

Notification of Emergency Personnel

If the damage results in the escape of any flammable, toxic, or corrosive gas or liquid or endangers life, health, or property, the excavator is responsible to **immediately notify 911** and the facility owner/operator. The excavator takes reasonable measures to protect everyone in immediate danger, the general public, property, and the environment until the facility owner/operator or emergency responders arrive and complete their assessment. This practice minimizes the danger to life, health, or property by notifying the proper authorities to handle the emergency situation. In these situations, local authorities are able to evacuate as appropriate and command substantial resources unavailable to the excavator or underground facility owner/operator. The excavator needs to take reasonable measures based on their knowledge, training, resources, experience, and understanding of the situation to protect themselves, people, property, and the environment until help arrives. The excavator responsible remains on-site to convey any pertinent information to responders that may help them to safely mitigate the situation.
Emergency Excavation

In the case of an emergency excavation, maintenance or repairs may be made immediately, provided that the excavator notifies the one call center and facility owner/operator as soon as reasonably possible. This includes situations that involve danger to life, health, or property or that require immediate correction in order to continue the operation of or ensure the continuity of public utility service or public transportation. (MCA 69-4-501(3)).

Backfilling

The excavator needs to protect all facilities from damage when backfilling an excavation. Trash, debris, coiled wire, or other material that could damage existing facilities or interfere with the accuracy of future locates should not be buried in the excavation. Extra caution must be taken to remove large rocks, sharp objects, and large chunks of hard-packed clay or dirt. No trash or pieces of abandoned lines are backfilled into the trench. This helps prevent inadvertent damage to the facility during the backfill process.

As-built Documentation

Contractors installing underground facilities should notify the facility owner/operator if the actual placement is different from expected placement. For a facility owner/operator to maintain accurate records of the location of their facilities, it is critical that the contractor installing the new facility notify the facility owner/operator
of deviations to the planned installation. Some facility owners/operators do not require a full-time inspector and use a sampling process to ensure that a new facility is correctly installed in compliance to specifications. When this occurs, it becomes much more critical for the contractor to notify the facility owner/operator of changes. For example, it is common for the contractor to make adjustments in the location of the new facility when rocks or other underground obstructions are encountered or when the location of the new facility conflicts with another existing underground facility. This change in plan can represent changes in horizontal or vertical distances from the specified plans. The facility owner/operator establishes standards that require notification if a deviation is beyond specified tolerances, such as changes in depth of 6 in. or more and lateral measurement changes of greater than 1 ft. When these changes to the expected location are communicated to the facility owner/operator, it is the owner/operator’s responsibility to take appropriate action to update their records so that an accurate locate can be conducted in the future.

**Trenchless Excavation**

All stakeholders should comply with all best practices and the following general guidelines prior to, during, and after any trenchless excavation (as applicable).

- The excavator requests the location of underground facilities at the entrance pit, trenchless excavation path, and the exit pit by notifying the facility owner/operator through the one call center.

- The trenchless equipment operator performs a site inspection, walking the trenchless excavation path prior to commencing work, and has a good understanding of the job.

- The trenchless excavation operator confirms and maintains the path and minimum clearances established by the project owner and design engineer by tracking and recording the path of the trenchless excavation until complete. Means of tracking trenchless excavations include electronic locating/guidance devices, pipe lasers, water levels, visual inspection, etc.
• When existing facilities are known to be present but cannot be potholed as a result of local conditions, the facility owner and the excavator meet to discuss how to safely proceed with the excavation.

• The excavator stops the trenchless excavation operations if an abnormal condition, unknown substructure, or other hidden hazard is encountered. The excavator proceeds safely only after making positive identification.

Emergency Coordination with Adjacent Facilities

Emergency response planning includes coordination with emergency responders and other aboveground and/or underground infrastructure facility owner/operators identified by the Incident Commander through the Incident Command System/Unified Command (ICS/UC) during an emergency. During emergency situations, there are many stakeholders involved: excavators, locators, owner/operators, first responders, one call centers, and the general public. Any actions taken by one stakeholder could adversely affect other stakeholders. Accordingly, emergency planning and response need to be coordinated.
Additional Safety and Excavation Information

Natural Gas Pipeline Safety

Information about specific natural gas pipeline companies is available by calling them directly use the contact information provided in the Locate Request Ticket.

Note: Most of these guidelines can apply to propane distribution systems, however please beware that Natural Gas rises in air and propane sinks. Also most propane lines are considered private and not included in the One Call System. Most of these guidelines also apply to liquid gas pipelines. In any case, if unsure, contact the pipeline operator directly.

Natural Gas Demands Respect

A leading cause of natural gas pipeline incidents is third party damage. As with buried electric cable, excavators must take particular care when working and digging near natural gas pipelines.

Natural gas is a safe, reliable, and predictable fuel when properly handled and consumed.

Natural gas ignition occurs with a gas to air ratio between 4 to 14%, and 1100 degrees. Natural gas has a specific gravity of .6 which is lighter than air allowing it to rise. A distinctive odorant is added to aid in leak detection. If a pipeline rupture or leak occurs, natural gas may migrate under paved or hard surfaces into buildings and surrounding areas. If you detect a leak, leave the area immediately and contact your natural gas provider or 911. Do nothing to create a spark.

Natural gas is distributed in a variety of pressures and types of pipe. Steel and plastic pipelines are widely use throughout Montana ranging in size from $\frac{1}{2}$ inch to 36 inches in diameter. Operating pressures vary between Low pressure (LP 6” Water Column), Intermediate pressure (IP 60 psig) and High pressure
(HP100+ psig). Any excavation occurring around high pressure (HP) pipelines must be monitored continuously by utility personnel.

**Natural Gas Incidents**

**Always call the local utility immediately** to report any damage, leaks or any other natural gas incident. If gas is leaking, evacuate immediate areas where gas is present. Keep people and traffic away and remove any sources of ignition (open flames, turn off engines /equipment, radios, etc.) around the area of the damaged line until the local utility arrives (key numbers listed at front of book). If concerned with public safety always call 911 first!!

**Don’t try to repair a damaged or broken natural gas line by covering, crimping, bending, or otherwise restricting the flow.**

Don’t touch a plastic pipe that is leaking. A spark from static electricity on plastic pipe could become an ignition source. All repairs must be made by the local natural gas provider. **Any time pipe is dented, or the wrap is scraped the local natural gas provider will need to inspect it before it is buried or covered with fill.** Even if the pipe is just nicked or bent, leave it exposed so the local natural gas provider can inspect it and make any necessary repairs. Care should be taken to avoid breaking the small wires located on or near natural gas pipelines. Companies with buried pipelines use different types of wires, some are for locating plastic pipelines and others are necessary to monitor steel pipelines for proper protection from corrosion. If the wire is broken, call the local utility so repairs can be made to damaged facilities

**Don’t try to extinguish a gas flame or fire.** If the natural gas is burning let it burn and call 911.

**Work Practices**

**Directional boring:** Gas lines must be pot-holed and identified prior to boring operations. Contact the local utility to verify pot-holed facilities prior to the bore operation. Leave pot-holes open and periodically inspect the facilities during the bore operation. Notify utility immediately of any concerns.
Open trenches: Once exposed, all natural gas facilities must be properly supported and protected from damage. If excavating parallel to a gas pipeline, call your local natural gas company for help with determining adequate support, protection and separation of the pipeline. Failure to properly support pipelines could result in a break or rupture. Use acceptable back-fill material, with no sharp rocks, gravel or slurry which can damage the coating on steel pipelines and cause failure of plastic pipelines over time.

Encroachment: Don’t build any structures such as sheds, decks, etc. over any pipelines or other facilities. Aside from being a serious safety issue, natural gas utilities must have access to their buried gas lines at all times. For this reason, a minimum of 12 inches of separation shall be maintained when crossing or running parallel to distribution lines. High-pressure supply lines require 36 inches of separation unless special permission is granted by the utility.

Supporting Exposed Gas Pipeline

Excavators are required to provide structural support for underground facilities that have been undermined or exposed by the excavation activity. Each structural support used for an exposed pipeline must be made of a durable, noncombustible material, and must be designed and installed such that: Free expansion and contraction of the pipeline between supports, or anchors is not restricted. Movement of the pipeline does not cause disengagement of the support equipment. Damage to the pipe and its coating is prevented where the pipe contacts the support or anchor. When steel piping is supported or anchored, the pipe shall be insulated from the support or anchor. The temporary support or anchor shall be removed in its entirety without damage to the pipe and its coating. Steel cables, steel chain, or any sharp object shall not be used to support gas piping.
Backfilling Natural Gas Pipelines and Hazardous Liquid Pipelines

When a trench is backfilled, it must be backfilled in a manner that provides firm support under the pipe, and prevents damage to the pipe and pipe coating from equipment or from the backfill material. **Always use sand or rock free dirt** and back-fill six inches above and below natural gas pipelines, and avoid compacting directly over the pipeline.

Backfill material shall *not* contain: garbage, cans, glass, recycled glass products, decomposable organic material, or construction debris, washed gravels, including pea gravel, material that will not compact, sharp objects, frozen clods, large rocks or stones, pieces of pavement, construction debris, wood skids or wedges, timbers, hay bales, boulders, or other material that may cause damage to the pipe, pipe coating, or casing/conduit.

**NOTE:** Do not unload backfill or pile it directly on top of PE pipe until proper support is provided for the pipe.

Backfill for General Construction

**Initial backfill** shall be sand, or rock-free native soil, or soil-based select material that does not contain any rocks. If the native soil contains rocks, then a total of 12 inches of initial backfill shall be placed over the gas pipeline and across the full width of the trench.

Final backfill may be soil-based select material or native soil, but shall not contain rocks larger than 10 inches in diameter to prevent impedance of gas system maintenance.

Final backfill shall be sufficient to withstand normal wear and tear from foot traffic, weather, and other activities that may cause erosion.

Compaction

All backfill shall be consolidated according to the terms of applicable permits and right-of-way agreements. In unimproved areas, the backfill shall be consolidated to match the original soil structure.
Care shall be taken to prevent damage to the buried gas facilities and other underground lines when compacting backfill.

Care shall be taken when compacting around service and branch connections and points of transition between polyethylene and steel to insure well-compacted support and to protect the pipe and fittings from excessive external loads.

Backfill material shall be compacted in lifts thick enough to prevent damage to the pipe. If the trench is wide enough, the spaces to the sides of the pipe shall be compacted first. If compaction is done by:

- Powered hand-operated equipment (such as Bigfoot or Jumping Jack), then the initial backfill lift over the pipe shall be a minimum of 12 inches.

- Machine-operated equipment (such as Hoe-Pack or Hydro-Hammer), then the initial backfill lift over the pipe shall be a minimum of 24 inches.

**Electricity**

**Electricity Demands Respect**

Electricity can shock, burn, or kill workers if it is not handled properly on the job site. Since it is always seeking the easiest path to ground, you or any other type of conductor (metal, wet wood, trees, machinery/equipment, tools, etc.) touching a power line could provide an immediate path to ground. The result can be severe injury or death.

**Before Starting to Work, Think Safety!**

Be observant. If you have work to do near power lines or power facilities **always consider them to be energized or hot**.

Call the local utility for more information or to make arrangements that will guarantee working conditions are safe. For your safety, the utility may turn off electricity, place barriers on lines or as a last resort, relocate them. Because it takes time to complete this work, allow for this time in your job schedule and let the utility know. For example, if it is feasible to take lines out of service, advance notice is required. There may be a charge for work performed by the utility.
Basic Rules for Electrical Safety

- Ten feet is considered a minimum safe and legal clearance for equipment, tools and people when working near overhead power lines and facilities. Never assume that power installations are insulated. State regulations require that a minimum of ten feet be maintained from energized overhead high voltage electrical conductors (up to 50,000 volts) with additional distance required for higher voltages (for example 12 feet 2 inches is required for 115,000 volts). (See Legal Clearance illustration below.)

Legal Clearance

- **Equipment near lines can contact the line accidentally** and injure the worker using the equipment. Hand-carried tools or materials are a common cause of accidents. Use extreme caution when carrying ladders, scaffolding poles, piping, or high-rise metal tools near power lines. Heavy or large equipment can be driven into lines accidentally. Care should be taken not only with cranes; front-end loaders, backhoes, concrete pump trucks may have sufficient reach to get into power lines.

- **Plan ahead.** If your equipment will be operating in the vicinity of power facilities, check to make sure there is no possibility of accidentally striking a power line or digging into a buried cable.

- **Don’t touch electrical equipment** and never attempt to move or raise overhead or underground electric lines or equipment. If you need help to make the lines safe, or have any doubts or questions about the safety of your job site, call the utility.
In the Event Electrical Contact Occurs with Equipment

- **Do not panic! Remain on the equipment!**

You should be safe where you are. Do not try to get off the crane or excavator. Touching the power source and the ground at the same time could be fatal.

- **If the equipment is on fire and it is necessary to exit the**
  vehicle or equipment, jump clear of the vehicle while keeping both feet together, avoiding any wires that might be on the ground. Stay calm and jump carefully so that you don’t fall back against the equipment or touch the ground and the equipment at the same time. Then **shuffle**, with both feet together, keeping both feet on the ground and touching at all times. **Continue shuffling for at least 30 feet from the accident site.**

- **Instruct all other personnel to stay at least 30 feet away**
  from the equipment, ropes, and the load. The entire equipment, load, and the ground around it could be energized.

- **The equipment operator may try to remove the contact**
  (only if it is safe to attempt) unaided, and without anyone approaching the equipment. Move away from the line in the reverse direction to that which caused the contact (for example, if you swung left into the wire, swing right to break the contact).

  *Remember: Once an arc has been struck, it can draw out a*
considerable distance before it breaks, so keep moving away from the line until the arc breaks and then continue moving until you are at least 10 to 15 feet away from the line.

Caution: If the wire rope/material appears to be welded to the power line, do not move away from the line as it may snap and whip. Stay where you are until help arrives.

- **If the equipment cannot be moved away** or disengaged from the contact, remain onboard until a qualified electrical utility worker de-energizes the circuit and confirms that conditions are safe.

- **Report every incident** involving contact with a live line to local electric utility so inspections and repairs can be made to prevent damaged power lines from failing at a later date.

**Underground Power-line Safety**

Digging trenches or excavating in areas where there might be underground power lines can be dangerous and expensive. One misplaced shovel or bucket could cause serious injury, knock out services, or damage surrounding homes and businesses. Excavators are responsible for ascertaining the location and voltage of any underground electric lines employees may be working around and providing any protective measures and methods for working safely around them.

**If an accident does happen, stay calm!**

There are a number of basic steps to follow in case of an electrical accident:

- Do not touch the injured or any equipment in contact with the injured person. Even if it appears that the accident caused the electricity to be de-energized, use caution. Always assume the power lines are hot or energized. Power lines usually relay back into service and become energized several times within a matter of seconds following an accident, or they may not shut-down at all.
• Do not attempt to rescue and prevent others from approaching the victim and any electrically energized vehicles, objects, or structures.

**DO NOT ATTEMPT TO DE-ENERGIZE HIGH-VOLTAGE POWER LINES. CALL the local electric utility IMMEDIATELY!**

• Send for help. Call 911 to notify both the police and the fire department. Also call the utility so the electricity can be turned off.

**Water, Sewer and Storm Lines**

The following material is included to help excavators avoid problems when excavating near pressurized water lines.

Pressurized water lines are often used to provide drinking water, fire protection, and irrigation, and if damaged during construction, can cause significant loss of service, property damage, and injury. Pressure range can be from 25 psi (pounds per square inch) to above 200 psi. When working in any area near water lines, make sure the valve boxes remain accessible in case an emergency shut-down is needed.

**Bends, Tees, Caps and Thrust Blocks**

Bends, tees and caps are installed on lines to change direction of piping. Thrust blocks are installed at the bends, tees and caps to keep the pipe in place and take the force the pressurized waterline exerts when deflected in different directions. Thrust blocks are typically designed for the bearing area of the ground around them.

Example: At 25 psi, an 8” line could have 1256 pounds of force exerted on the thrust block. At 200 psi, this 8” line could have 10,048 pounds of force exerted on the thrust block (Not considering surcharging).

Do not disturb the ground around the thrust block or the thrust block itself. This may result in major leaks or break in water lines.
Do not expose a pressurized water main line for a distance greater than 1 stick of pipe or it may move vertically or horizontally and rupture. Support line and excavate or expose only enough of the pressurized line to complete the crossing.

Do not use calcified backfill material against water lines such as concrete or CDF unless water lines are wrapped in 8 ml plastic.

**Water Services**

Water services can be made of pliable materials such as soft copper or polyethylene, or more rigid material such as galvanized pipe, schedule 40 or 80 PVC, or other materials. Water service lines should be bedded in sandy, rock-free material prior to backfilling. Caution should be taken when compacting to prevent damaging of service or pulling from mainline.

Do not pull or dent water services. Dents and kinks may not leak immediately, but the water moving inside the service will wear on the defect and create a leak in the future. Report any dents, kinks, or pulling to the water purveyor.

Do not shut down water main lines without the purveyor’s permission. Tampering with a public water system is a Federal Offense (US Code Title 42, Section 300i-1). Most water purveyors also have policies with fine schedules that forbid an excavator from tampering or shutting down the existing public system. Conditions or customers such as clinics, hospitals, and home medical equipment cannot have the water shut off without notice.

Always contact the water purveyor if you have any questions.

**Sanitary Sewer Lines**

The following material is included to help excavators avoid problems when excavating near sanitary sewer lines.

Sanitary sewer lines are primarily used to dispose of human, industrial and commercial waste that can contain fecal matter, chemicals, gases, and blood borne pathogens. If damaged during construction, sanitary sewer lines can cause significant loss of
service, costly property or wildlife damage, and injury. When working in any area where sewer is nearby, make sure the manhole lids remain accessible in case of an emergency back up or damage occurs.

**Manholes**

Manholes contain contaminates, flammables, and raw sewage that can affect the air quality inside the manhole. For that reason, confined space entry procedures required by federal, state or local agencies should be followed for manhole entry, if entry is allowed by the sewer purveyor.

Do not allow construction debris or fluids to enter the manholes or sewer line at any time. This may cause costly blockage and back-ups. If debris enters sewer system, contact the sewer purveyor.

Do not excavate enough material near the manhole to create uneven loading on the sides of the structure or it may topple.

**Excavation and backfill practices near sewer main and services**

Sewer lines (mains and services), consist of many different types of pipe. Clay, concrete, PVC, HDPE, ductile iron, steel, cast iron, etc. Older brittle pipe may be present. Extreme caution must be used when excavating near existing sewer lines. 18” minimum vertical separation when crossing perpendicular above existing sewer line is desired. Sewer lines should be re-bedded in rock free material. Caution must be taken when compacting to prevent damaging the pipeline.

Anticipate side sewer laterals to service the structures nearby.

Do not pull, damage or dent any sewer mainline or service. The damaged area may not leak immediately but could in the future. Report any damage to the sewer purveyor immediately.

Most sewers are gravity, but many areas have sewer force mains that are installed similar to a water main. If working near a sewer force main under pressure, familiarize yourself with the “working
around water main guidelines” and contact the sewer purveyor for more information.

**Fiber Optic Lines**

The following material is included to help excavators avoid problems when digging around or near fiber optic lines.

Fiber optic lines are used by a variety of organizations for the efficient transfer of large volumes of information. They can be very costly and time consuming to repair with additional monetary penalties related to temporary loss of provided services.

In all suggestions or recommendations listed below, the fiber optic owner may have differing requirements. The following are suggested guidelines and are not intended to be all-inclusive or exclusive of local requirements.

**Fiber optic systems**

The amount of underground fiber optic facilities is increasing as more organizations deploy it. Existing facilities can include; direct bury, poly conduit, metal conduit or clay. Damage can disrupt public, private or governmental services, including critical emergency service communications including 911. With the cost of repair and lost service justifies any extra effort to avoid damage

**Safety**

If a fiber line is damaged, never look directly into the fiber as non-visible laser light can damage the eye. Use caution with the fiber strands themselves, as small particles of glass can enter the body and be undetectable by X-Ray.

**Always call for locates**

Some fiber optic cables do not contain metal, making them difficult to locate. In some cases, the locating conductor is contained within the conduit or as a separate locating wire. When using a locator, always use the direct connection method as opposed to induction.
The fiber optic owner should be contacted if there are any problems in finding a suitable connection.

**Contact is key**

An on-site pre-construction meeting with the excavator and facility owner provides an opportunity to acquire plans and contact information. Some organizations insist on having a spotter present during any excavation.

**Damage**

Always immediately alert the fiber optic owner to even small amounts of damage to a fiber optic cable. Disruptions in service and reliability may not always be visible or may manifest themselves over time. Never attempt to repair a damaged line or backfill over it. Always notify the owner to any damage in the conduit or the locating wires.
Glossary of Terms and Definitions

For the purpose of the Common Ground Study, a common set of definitions are used. These definitions were arrived at through a consensus process similar to the methodology used to identify the best practices.

**Abandoned Line or Facility:** Any underground or submerged line or facility no longer in use.

**Alternative Dispute Resolution (ADR):** Any process or procedure other than litigation that is agreed to by the disputing parties as the means for resolving a dispute, and is binding or non-binding pursuant to the agreement by the disputing parties. ADR includes, but is not limited to, advisory boards, arbitration, mini-trials, mediation, partnering, and standing neutrals.

**As-built Drawing:** A detailed depiction of facilities as installed in the field.

**Attribute:** Characteristic that helps describe the data.

**Backfill:** To fill the void created by excavating.

**Bar Hole:** means a hole made in the soil or pavement with a hand-operated bar for the specific purpose of testing the subsurface atmosphere with a combustible gas indicator.

**Business Day:** means any day other than Saturday, Sunday, New Year’s Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day. (MCA 69-4-501(1)).

**Cathodic Protection:** The process of arresting corrosion on a buried or submerged structure by electrically reversing the natural chemical reaction. This includes, but is not limited to, installation of a sacrificial anode bed, use of a rectifier based system, or any combination of these or other similar systems. Wiring is installed between the buried or submerged structure and all anodes and rectifiers; wiring is also installed to test stations that are used to measure the effectiveness of the cathodic protection system.

**Compliance:** Adherence to the statute and its regulations.
Damage:

1) Any impact or exposure that results in the need to repair an underground facility due to a weakening or the partial or complete destruction of the facility, including, but not limited to, the protective coating, lateral support, cathodic protection, or housing for the line, device, or facility.

2) includes the substantial weakening of structural or lateral support of an underground facility, penetration, impairment, or destruction of any underground protective coating, housing, or other protective device, or the severance, partial or complete, of any underground facility to the extent that the project owner or the affected facility operator determines that repairs are required.

Damage Reporting: The immediate reporting to a one call center and the facility owner/operator of any damage caused or discovered in the course of excavation or demolition work; to immediately alert the occupants of premises as to any emergency that such person may create or discover at or near such premises; to contact emergency responders, if necessary, as quickly as practical.

Demolition Work: The partial or complete destruction by any means of a structure served by, or adjacent, to an underground line or facility.

Designer: Any architect, engineer, or other person who prepares or issues a drawing or blueprint for a construction or other project that requires excavation or demolition work.

Digital Imagery: A computer-compatible version of land-related information including, for example, topography, physical features, road/street networks, and buried facility networks obtained from a variety of sources including, for example, aerial photographs, satellite photographs, road maps, survey plans, and buried facility records.

Downtime: Lost time reported by a stakeholder on the Damage Information Reporting Tool (DIRT) field form for an excavation project due to failure of one or more stakeholders to comply with applicable damage prevention regulations.
**Electronic Positive Response:** Communication by telephone, fax, e-mail or Internet from a facility owner/operator to an excavator providing the status of an owner/operators statutorily required response to a notice of intent to excavate.

**Emergency:** A sudden or unforeseen occurrence involving a clear and imminent danger to life, health, or property; the interruption of essential utility services; or the blockage of transportation facilities that requires immediate action.

**Emergency Excavation:** means an excavation in response to an emergency locate that is necessary to: (a) alleviate a condition that constitutes a clear and present danger to life or property; or (b) repair a customer outage involving a previously installed utility-owned facility. (MCA 69-4-501(2)).

**Emergency Locate:** means a locate and mark that is requested for: (a) a condition that constitutes a clear and present danger to life or property; or (b) a customer outage for which repairs on a previously installed utility-owned facility are required. (MCA 69-4-501(3)).

**Emergency Notice:** A communication to the one call center to alert the involved underground facility owners/operators of the need to excavate as a result of a sudden or unforeseen occurrence or national emergency involving a clear and imminent danger to life, health, environment, or property (including the interruption of essential utility services or the blockage of transportation facilities) that requires immediate excavation.

**Emergency Response:** A facility owner/operator’s response to an emergency notice.

**Event:** The occurrence of facility damage, near miss, or downtime.

**End User:** means any utility customer or consumer of utility services or commodities provided by a facility operator.

**Equipment Operator:** means an individual conducting an excavation.

**Excavate or Excavation:**
1) means an operation in which earth, rock, or other material in the ground is moved, removed, or otherwise displaced by means or use of any tools, equipment, or explosives. The term includes but is not limited to grading, trenching, digging, ditching, drilling, augering, tunneling, scraping, and cable or pipe plowing and driving. (MCA 69-4-501(4)(a)).

2) Any operation using non-mechanized or mechanized equipment, demolition, or explosives in the movement of earth, rock, or other material below existing grade.

**Excavator:**

1) means a person conducting the excavation activities defined under Excavate or Excavation. (MCA 69-4-501(5)).

2) Any person proposing to or engaging in excavation or demolition work for himself or for another person.

**Facility:** An underground or submerged conductor, pipe, or structure used to provide electric or communications service (including, but not limited to, traffic control loops and similar underground or submerged devices); or an underground or submerged pipe used in carrying, providing, or gathering gas, oil or oil product, sewage, storm drainage, water, or other liquid service (including, but not limited to, irrigation systems) and appurtenances thereto.

**Facility Owner/Operator:**

1) Any person, utility, municipality, authority, political subdivision, or other person or entity who owns, operates, or controls the operation of an underground line/facility.

2) means any person who owns an underground facility or is in the business of supplying any utility service or commodity for compensation. "Facility operator" does not include a utility customer who owns a service lateral that terminates at a facility operator's main utility line.

**Gas:** means natural gas, flammable gas, or toxic or corrosive gas.

**Geographic Information System (GIS):** An organized collection of computer hardware, software, and geographic data used to capture,
store, update, maintain, analyze, and display all forms of geographically referenced information.

**Geospatial Data:** Data that identifies the geographic location and characteristics of natural or constructed features and boundaries on the earth.

**Global Positioning System (GPS):** A system consisting of 25 satellites used to provide precise position, velocity, and time information to users anywhere on earth. Location information can be received using a GPS receiver. The GPS receiver helps determine locations on the earth’s surface by collecting signals from three or more satellites through a process called triangulation. Simple and inexpensive hand-held receivers provide an accuracy of ±100 meters of a true position. More sophisticated receivers that use additional technologies or that post-process the original GPS data can provide sub-meter accuracy.

**Grade:** The surface of the earth (i.e., ground level) upon which a structure is built or prepared.

**Grounding Systems:** A system of one or more ground conductors or ground rods providing a low-resistance path-to-earth ground potential through a mechanical connection to structures, conductors, and equipment.

**Hazardous Liquid:** means:

(a) Petroleum, petroleum products, or anhydrous ammonia as those terms are defined in 49 C.F.R. Part 195 as in effect on March 1, 1998;

(b) Carbon dioxide; and

(c) Other substances designated as hazardous by the secretary of transportation and incorporated by reference by the commission by rule.

**Identified but unlocatable underground facility:** means an underground facility that has been identified but cannot be located with reasonable accuracy (MCA 69-4-501(6)).
Incident: means a violation of the provisions of MCA 69-4-503(1) by an excavator that, at a single location on a single day, results in damage to an underground facility or the property of a third party or in bodily injury or death to any person other than the excavator. (MCA 69-4-501(7))

Incident History: means the total number of incidents experienced by an excavator in the 5 years preceding the most recent incident. The incident history must be used to determine damage fees for violation of MCA 69-4-503(1). (MCA 69-4-501(8))

Joint Trench: A trench containing two or more facilities that are buried together by design or agreement.

Land Base: Mapped data that depicts features of the surface of the earth and is tied to real-world geographic coordinates, such as latitude and longitude.

Large/Complex Project: A single project, or a series of repetitive, small, short-term projects that are related in scope, that impact facilities over a long period of time or a large area.

Latitude (Lat): Distance measured north or south of the equator.

Line: See “Geographic Information System (GIS)"

Locate: To indicate the existence of a line or facility by establishing a mark through the use of stakes, paint, flagging, whiskers, or some other customary manner that approximately determines the location of that line or facility.

Locate Request: A communication between an excavator and one call center personnel in which a request for locating underground facilities is processed.

Locatable underground facility: means an underground facility that can be field-located and field-marked with reasonable accuracy. (MCA 69-4-501(9))

Locate: means to use specialized equipment to identify the location of underground facilities or the actual location of underground facilities identified by the use of specialized equipment. (MCA 69-4-501(10))
Locator: A person whose job is to locate lines or facilities.

Longitude (Long): Distance measured east or west from a reference meridian (Greenwich).

Mark: means the use of stakes, paint, or other clearly identifiable material to show the field location or absence of underground facilities, in accordance with the current color code standard of the American Public Works Association. Marking must include identification letters indicating the specific type of underground facility and the width of the facility if it is greater than 6 inches. (MCA 69-4-501(11))

Marking Standards: The methods by which a facility owner/operator indicates its line or facility in accordance with the APWA guidelines. (See Appendix A, “Uniform Color Code and Marking Guidelines.”)

Member Database: Structured collection of data defined for a particular use, user, system, or program; it may be sequential, network, hierarchical, relational, or semantic.

Membership: Persons who participate voluntarily in a one call center because they have an interest in the protection of lines or facilities or because they have a statutory responsibility to protect lines or facilities.

Minor or Routine Maintenance of Transportation Facilities: The adding of granular material to unpaved roads, road shoulders, airport runways, airport taxiways, and railroad roadbeds; removal and application of patches to the surface of paved roads, runways, and taxiways; cleaning and sealing road, airport, and canal lock facility cracks or joints; replacing railroad ties and related appliances excluding road crossings; adjusting ballast on top of railroad roadbed; cleaning of paved drainage inlets and paved ditches or pipes.

Near Miss: An event where damage did not occur, but a clear potential for damage was identified.

Notice:
1) The timely communication by the excavator/designer to the one call center that alerts the involved underground facility owners/operators of the intent to excavate.

2) means contact in person or by telephone or other electronic method, and, with respect to contact of a one-number locator service.

**Notification Period:** The time beginning when notice is given and ending when the work may begin.

**One Call Center:**

1) means a service through which a person may request a locating and marking of underground facilities. (MCA 69-4-501(12)).

2) An entity that administers a system through which a person can notify owners/operators of lines or facilities of proposed excavations.

**Orthophoto:** An aerial photograph of a site that has been differentially rectified to correct the distortion caused by the terrain and attitude (tip, tilt, and yaw) of the camera. A multicolored, distortion-free, photographic image.

**Person:**

1) means an individual, partnership, firm, joint venture, corporation, association, municipality, governmental unit, department, or agency and includes a trustee, receiver, assignee, or personal representative of the listed entities. (MCA 69-4-501(13)).

2) Any individual or legal entity, public or private.

**Pipeline or pipeline system:** means all or parts of a pipeline facility through which hazardous liquid or gas moves in transportation, including, but not limited to, line pipe, valves, and other appurtenances connected to line pipe, pumping units, fabricated assemblies associated with pumping or compressor units, metering and delivery stations and fabricated assemblies therein, and breakout tanks. "Pipeline" or "pipeline system" does not include process or transfer pipelines.
**Pipeline company:** means a person or entity constructing, owning, or operating a pipeline for transporting hazardous liquid or gas.

**Planning:** An activity at the beginning of a project where information is gathered and decisions are made regarding the route or location of a proposed excavation based on constraints, including the locations of existing facilities, anticipated conflicts and the relative costs of relocating existing facilities, or more expensive construction for the proposed facility.

**Plat:** A map or representation on paper of a piece of land subdivided into lots, with streets, alleys, etc., usually drawn to a scale.

**Positive Response:** Communication with the excavator prior to excavation to ensure that all contacted (typically via the one call centers) owner/operators have located their underground facilities and have appropriately marked any potential conflicts with the areas of planned excavation.

**Pre-marking or Positive Site Identification:** The marking of the proposed excavation site/work area consistent with APWA guidelines.

**Project Owner:** The person financially responsible for the undertaking of a project that involves excavation or demolition.

**Public:** The general population or community at large.

**Railroad Operating Corridor:** The property that is essential to a railroad company to enable it to discharge its function and duties as a common carrier by rail. It includes the road bed, right of way, tracks, bridges, stations, and such like property.

**Reasonable Accurate:** means location within 18 inches of the outside lateral dimensions of both sides of an underground facility.

(MCA 69-4-501(14))

**Root Cause:** The primary reason an event occurred.

**Service Lateral:** means an underground water, storm water, or sewer facility located in a public right-of-way or utility easement that connects an end user's building or property to a facility.
operator's underground facility, and terminates beyond the public right-of-way or utility easement.

**Subsurface Utility Engineering (SUE):** An engineering process for accurately identifying the quality of underground utility information needed for excavation plans and for acquiring and managing that level of information during the development of a project.

**Test Hole:** Exposure of a facility by safe excavation practices used to ascertain the precise horizontal and vertical position of underground lines or facilities.

**Ticket Number:** A unique identification number assigned by the one call center to each locate request.

**Tolerance Zone:** The space in which a line or facility is located and in which special care is to be taken. In Montana it is 18 inches on both sides of the mark.

**Underground Facility:** means a facility buried or placed below ground for use in connection with the storage or conveyance of water, sewage, electronic, telephonic or telegraphic communications, cablevision, fiber optics, electrical energy, oil, gas, or other substances. The term includes but is not limited to pipes, sewers conduits, cables, valves, lines, wires, manholes and attachments to the listed items. (b) The term does not include shallow underground water systems designed to irrigate lawns, gardens or landscaping. (MCA 69-4-501(15))

**Vacuum Excavation:** A means of soil extraction through vacuum; water or air jet devices are commonly used for breaking the ground.
Uniform Color Code and Marking Guidelines

<table>
<thead>
<tr>
<th>Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>Proposed Excavation</td>
</tr>
<tr>
<td>Pink</td>
<td>Temporary Survey Markings</td>
</tr>
<tr>
<td>Red</td>
<td>Electric Power Lines, Cables, Conduit, and Lighting Cables</td>
</tr>
<tr>
<td>Yellow</td>
<td>Gas, Oil, Steam, Petroleum, or Gaseous Materials</td>
</tr>
<tr>
<td>Orange</td>
<td>Communication, Alarm or Signal Lines, Cables, or Conduit</td>
</tr>
<tr>
<td>Blue</td>
<td>Potable Water</td>
</tr>
<tr>
<td>Purple</td>
<td>Reclaimed Water, Irrigation, and Slurry Lines</td>
</tr>
<tr>
<td>Green</td>
<td>Sewers and Drain Lines</td>
</tr>
</tbody>
</table>

Tolerance Zone

The following examples are of tolerance zones for a 1 in. and 12 in. line:

1 Inch Line

\[ \text{Tolerance Zone} \]

12 Inch Line

\[ \text{Tolerance Zone} \]
Guidelines for Excavation Delineation

The following marking illustrations are examples of how excavators may choose to mark their area of proposed excavation. The use of white marking products (e.g., paint, flags, stakes, whiskers, or a combination of these) may be used to identify the excavation site.

**Single Point Excavations Markings**

Delineate in white paint the proposed area of excavation using a continuous line, dots marking the radius or arcs, dashes marking the four corners of the project, or dashes outlining the excavation project. Limit the size of each dash to approximately 6 in. to 12 in. long and 1 in. wide with interval spacing approximately 4 ft to 50 ft apart. Reduce the separation of excavation marks to a length that can reasonably be seen by the operator’s locators when the terrain at an excavation site warrants. Dots of approximately 1 in. diameter typically are used to define arcs or radii and may be placed at closer intervals in lieu of dashes.
Single Stake Marking Center Point of Excavation Site

When an excavation site is contained within a 50 ft maximum radius or less, it can be delineated with a single stake that is positioned at the proposed center of the excavation. If the excavator chooses this type of delineation, they must convey that they have delineated the excavation site with a single stake at the center of the excavation and include the radius of the site in the notification to the one call center. This single stake is white in color and displays the excavator’s company identifier (name, abbreviations, or initials) and the radius of the excavation site in black letters on the stake or with a notice attached to the stake.

Trenching, Boring, or Other Continuous-Type Excavations

Continuous Excavation Marking

Mark in white paint the proposed centerline of planned excavation using 6 in. to 12 in. × 1 in. arrows approximately 4 ft to 50 ft apart to show direction of excavation. Reduce the separation of excavation marks to a length that can reasonably be seen by the operator’s locators when the terrain at an excavation site warrants. Mark lateral excavations with occasional arrows showing excavation direction from centerline with marks at curb or property line if crossed. Dots may be used for curves and closer interval marking.
**Stake, Flag, or Whisker Excavation Markers**

Delineate the proposed area of excavation using stakes, flags, or whiskers instead of spray paint to mark radius or arcs; the four corners of the project; or when outlining the excavation project. Limit the interval spacing to approximately 4 ft. to 50 ft. Reduce the separation of excavation marks to a length that can reasonably be seen by the operator’s locators when the terrain at an excavation site warrants. Stakes, flags, or whiskers provided to illustrate arcs or radii may be placed at closer intervals to define the arc or radius. Stakes, flags, or whiskers are white in color and display the excavator’s company identifier (name, abbreviations, or initials).

![Stake, Flag, or Whisker Excavation Markers Diagram]

Stakes, Flags or Whiskers Marking Four Corners  
Stakes, Flags or Whiskers Marking Outline of Excavation
Guidelines for Operator’s Facility Field Delineation

Operator markings of facilities include the following:

- The appropriate color for their facility type
- Their company identifier (name, initials, or abbreviation) when other companies are using the same color
- The total number of facilities and the width of each facility
- A description of the facility (HP, FO, STL, etc).

Use paint, flags, stakes, whiskers, or a combination to identify the operator’s facility(s) at or near an excavation site.

1. Marks in the appropriate color are approximately 12 in. to 18 in. long and 1 in. wide, spaced approximately 4 ft to 50 ft apart. When marking facilities, the operator considers the type of facility being located, the terrain of the land, the type of excavation being done, and the method required to adequately mark the facilities for the excavator.

```
|←12” to 18”→| 4' to 50' in distance between marks | ↑ |
|             |                                  | 1” Wide |
```

2. The following marking examples illustrate how an operator may choose to mark their subsurface installations:

a. **Single Facility Marking:** Used to mark a single facility. This can be done in one of two ways—

   1) placing the marks over the approximate center of the facility:
or 2) placing the marks over the approximate outside edges of the facility with a line connecting the two horizontal lines (in the form of an H) to indicate there is only one facility:

These examples indicate an operator's 12 in. facility. When a facility can be located or toned separately from other facilities of the same type, it is marked as a single facility.

b. **Multiple Facility Marking**: Used to mark multiple facilities of the same type (e.g., electric), where the separation does not allow for a separate tone for each facility, but the number and width of the facilities is known. Marks are placed over the approximate center of the facilities and indicate the number and width of the facilities.

Example: four plastic facilities that are 4 in. in diameter (4/4" PLA)

c. **Conduit Marking**: Used for any locatable facility being carried inside conduits or ducts. The marks indicating the
outer extremities denote the actual located edges of the facilities being represented.

Example: four plastic conduits that are 4 in. in diameter (4/4" PLA), and the marks are 16 in. apart, indicating the actual left and right edges of the facilities

---

**d. Corridor Marking:** Used to mark multiple facilities of the same type (e.g., electric), bundled or intertwined in the same trench, where the total number of facilities is not readily known (operator has no record on file for the number of facilities). Marks are placed over the approximate center of the facilities and indicate the width of the corridor. The width of the corridor is the distance between the actual located outside edges of the combined facilities.

Example: a 12 in. corridor (12" CDR)

---

3. Changes in direction and lateral connections are clearly indicated at the point where the change in direction or connection occurs, with an arrow indicating the path of the facility. A radius is indicated with marks describing the arc. When providing offset markings (paint or stakes), show the
direction of the facility and distance to the facility from the markings.

**Example:** radius

![Diagram showing radius example](image)

**Example:** lateral connection

![Diagram showing lateral connection example](image)

**Example:** painted offset (off)

![Diagram showing painted offset example](image)
Example: staked offset (off)

4. An operator’s identifier (name, abbreviation, or initials) is placed at the beginning and at the end of the proposed work. In addition, subsequent operators using the same color mark their company identifier at all points where their facility crosses another operator’s facility using the same color. Reduce the separation of excavation marks to a length that can reasonably be seen by the operator’s locators when the terrain at an excavation site warrants.

Examples:

<table>
<thead>
<tr>
<th>CITYCO</th>
<th>ELECO</th>
<th>TELCO</th>
</tr>
</thead>
</table>

5. Information regarding the size and composition of the facility is marked at an appropriate frequency.

Examples: the number of ducts in a multi-duct structure, width of a pipeline, and whether it is steel, plastic, cable, etc.

| TELCO 9/4” CAB | GASCO 4” PLA | WATERCO 12” STL |

6. Facilities installed in a casing are identified as such.

Examples: 6 in. plastic in 12 in. steel and fiber optic in 4 in. steel
7. Structures such as vaults, inlets, and lift stations that are physically larger than obvious surface indications are marked so as to define the parameters of the structure.

Example:

![Diagram of ELECO Vault]

8. Termination points or dead ends are indicated as such.

Example:

![Diagram with DE]

9. When there is “No Conflict” with the excavation, complete one or more of the following:

- Operators of a single type of facility (e.g., TELCO) mark the area “NO” followed by the appropriate company identifier in the matching APWA color code for that facility.

  Example: NO TELCO

- Operators of multiple facilities mark the area “NO” followed by the appropriate company identifier in the matching APWA color code for that facility with a slash and the abbreviation for the type of facility for which there is “No Conflict.”

  Example: NO GASCO/G/D illustrates that GASCO has no gas distribution facilities at this excavation site. The following abbreviations are used when appropriate: /G/D (gas distribution); /G/T (gas transmission); /E/D (electric distribution); /E/T (electric transmission).
• Place a clear plastic (translucent) flag that states “No Conflict” in lettering matching the APWA color code of the facility that is not in conflict. Include on the flag the operator’s identifier, phone number, a place to write the locate ticket number, and date. Operators of multiple facilities indicate on the flag which facilities are in “No Conflict” with the excavation (see the previous example).

• If it can be determined through maps or records that the proposed excavation is obviously not in conflict with their facility, the locator or operator of the facility may notify the excavator of “No Conflict” by phone, fax, or e-mail, or through the one call center, where electronic positive response is used. Operators of multiple facilities indicate a “No Conflict” for each facility (see the previous examples).

• Place “No Conflict” markings or flags in a location that can be observed by the excavator and/or notify the excavator by phone, fax, or e-mail that there is “No Conflict” with your facilities. When the excavation is delineated by the use of white markings, place “No Conflict” markings or flags in or as near as practicable to the delineated area.

Caution: Allow adequate space for all facility mark-outs.

“No Conflict” indicates that the operator verifying the “No Conflict” has no facilities within the scope of the delineation; or when there is no delineation, there are no facilities within the work area as described on the locate ticket.

Example:
# Common Abbreviations

## Facility Identifier

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH</td>
<td>Chemical</td>
</tr>
<tr>
<td>E</td>
<td>Electric</td>
</tr>
<tr>
<td>FO</td>
<td>Fiber Optic</td>
</tr>
<tr>
<td>G</td>
<td>Gas</td>
</tr>
<tr>
<td>LPG</td>
<td>Liquefied Petroleum Gas</td>
</tr>
<tr>
<td>PP</td>
<td>Petroleum Products</td>
</tr>
<tr>
<td>RR</td>
<td>Railroad Signal</td>
</tr>
<tr>
<td>S</td>
<td>Sewer</td>
</tr>
<tr>
<td>SD</td>
<td>Storm Drain</td>
</tr>
<tr>
<td>SS</td>
<td>Storm Sewer</td>
</tr>
<tr>
<td>SL</td>
<td>Steam</td>
</tr>
<tr>
<td>STM</td>
<td>Street Lighting</td>
</tr>
<tr>
<td>SP</td>
<td>Slurry System</td>
</tr>
<tr>
<td>TEL</td>
<td>Telephone</td>
</tr>
<tr>
<td>TS</td>
<td>Traffic Signal</td>
</tr>
<tr>
<td>TV</td>
<td>Television</td>
</tr>
<tr>
<td>W</td>
<td>Water</td>
</tr>
<tr>
<td>W</td>
<td>Reclaimed Water “Purple”</td>
</tr>
</tbody>
</table>

## Underground Construction Descriptions

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCDRD</td>
<td>Conduit Corridor Distribution Facility</td>
</tr>
<tr>
<td>DB</td>
<td>Direct Buried</td>
</tr>
<tr>
<td>DE</td>
<td>Dead End</td>
</tr>
<tr>
<td>JT</td>
<td>Joint Trench</td>
</tr>
<tr>
<td>HP</td>
<td>High Pressure</td>
</tr>
<tr>
<td>HH</td>
<td>Hand Hole</td>
</tr>
<tr>
<td>MH</td>
<td>Manhole</td>
</tr>
<tr>
<td>PB</td>
<td>Pull Box</td>
</tr>
<tr>
<td>R</td>
<td>Radius</td>
</tr>
<tr>
<td>STR</td>
<td>Structure (vaults, junction boxes, ... Transmission Facility)</td>
</tr>
<tr>
<td>T</td>
<td>Transmission Facility</td>
</tr>
</tbody>
</table>

## Infrastructure Material

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABS</td>
<td>Acrylonitrile - Butadiene - Styrene</td>
</tr>
<tr>
<td>ACP</td>
<td>Asbestos Cement Pipe</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>CI</td>
<td>Cast Iron</td>
</tr>
<tr>
<td>CMC</td>
<td>Cement Mortar Coated</td>
</tr>
<tr>
<td>CML</td>
<td>Cement Mortar Lined</td>
</tr>
<tr>
<td>CPP</td>
<td>Corrugated Plastic Pipe</td>
</tr>
<tr>
<td>CMP</td>
<td>Corrugated Metal Pipe</td>
</tr>
<tr>
<td>CU</td>
<td>Copper</td>
</tr>
<tr>
<td>CWD</td>
<td>Creosote Wood Duct</td>
</tr>
<tr>
<td>HDPE</td>
<td>High Density Polyethylene</td>
</tr>
<tr>
<td>MTD</td>
<td>Multiple Tile Duct</td>
</tr>
<tr>
<td>PLA</td>
<td>Plastic (conduit or pipe)</td>
</tr>
<tr>
<td>RCB</td>
<td>Reinforced Concrete Box</td>
</tr>
<tr>
<td>RCP</td>
<td>Reinforced Concrete</td>
</tr>
<tr>
<td>RF</td>
<td>Pipe Reinforced Fiberglass</td>
</tr>
<tr>
<td>SCCP</td>
<td>Steel Cylinder Concrete Pipe</td>
</tr>
<tr>
<td>STL</td>
<td>Steel</td>
</tr>
<tr>
<td>VCP</td>
<td>Vertrified Clay Pipe</td>
</tr>
</tbody>
</table>

Guide for Abbreviation Use
Follow these guidelines when placing abbreviations in the field:

- Place the Company Identifier at the top or at the left of the abbreviations.
- Place the abbreviations in the following order: Company Identifier / Facility Identifier / Underground Construction Descriptions / Infrastructure Material

Example: TELCO/TEL/FO/PLA indicates that TELCO has a telecommunication fiber optic line in a single plastic conduit. The use of the abbreviation /TEL is not necessary, because the orange marking would indicate that the facility was a communication line; but its use is optional.

- To omit one or more of the abbreviation types, use the order described above but omit the slash and abbreviation that does not apply.

Example: to omit /TEL), the result would be TELCO/FO/PLA.
Additional References

The references contained in Appendix B are intended to be supplemental references for existing and/or new practices found within this guidebook and CGA Best Practices.

References


American Society of Civil Engineers, ASCE Manuals and Reports on Engineering Practice No. 89, “Pipeline Crossings,” 1996.


69-4-501. Definitions.

69-4-502. Information to be sought before excavation -- notification -- exceptions.

69-4-503. Notification -- locating and marking.

69-4-504. Information to be part of architects' and engineers' plans.

69-4-505. Liability for damages to underground facilities.

69-4-506. Repealed.

69-4-507. Public authority -- liability.

69-4-508. Emergency location and excavation.

69-4-509. and 69-4-510 reserved.

69-4-511. Repealed.

69-4-512. Judicial review.

69-4-513. Disposition of damage fees collected.

69-4-514. Incident histories.

69-4-501. Definitions. The following definitions apply to this part:

(1) "Business day" means any day other than Saturday, Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day.

(2) "Emergency excavation" means an excavation in response to an emergency locate that is necessary to:

(a) alleviate a condition that constitutes a clear and present danger to life or property; or

(b) repair a customer outage involving a previously installed utility-owned facility.
(3) "Emergency locate" means a locate and mark that is requested for:

(a) a condition that constitutes a clear and present danger to life or property; or

(b) a customer outage for which repairs on a previously installed utility-owned facility are required.

(4) (a) "Excavation" means an operation in which earth, rock, or other material in the ground is moved, removed, or otherwise displaced by means or use of any tools, equipment, or explosives. The term includes but is not limited to grading, trenching, digging, ditching, drilling, augering, tunneling, scraping, and cable or pipe plowing and driving.

(b) Excavation does not include surface road grading maintenance or road or ditch maintenance that does not change the original road or ditch grade or flow line.

(5) "Excavator" means a person conducting the excavation activities defined in subsection (4).

(6) "Identified but unlocatable underground facility" means an underground facility that has been identified but cannot be located with reasonable accuracy.

(7) "Incident" means a violation of the provisions of 69-4-503(1) by an excavator that, at a single location on a single day, results in damage to an underground facility or the property of a third party or in bodily injury or death to any person other than the excavator.

(8) "Incident history" means the total number of incidents experienced by an excavator in the 5 years preceding the most recent incident. The incident history must be used to determine damage fees for violation of 69-4-503(1).

(9) "Locatable underground facility" means an underground facility that can be field-located and field-marked with reasonable accuracy.

(10) "Locate" means to use specialized equipment to identify the location of underground facilities or the actual location of
underground facilities identified by the use of specialized equipment.

(11) "Mark" means the use of stakes, paint, or other clearly identifiable material to show the field location or absence of underground facilities, in accordance with the current color code standard of the American public works association. Marking must include identification letters indicating the specific type of underground facility and the width of the facility if it is greater than 6 inches.

(12) "One-call notification center" means a service through which a person may request a locating and marking of underground facilities.

(13) "Person" means an individual, partnership, firm, joint venture, corporation, association, municipality, governmental unit, department, or agency and includes a trustee, receiver, assignee, or personal representative of the listed entities.

(14) "Reasonably accurate" means location within 18 inches of the outside lateral dimensions of both sides of an underground facility.

(15) (a) "Underground facility" means a facility buried or placed below ground for use in connection with the storage or conveyance of water, sewage, electronic, telephonic or telegraphic communications, cablevision, fiber optics, electrical energy, oil, gas, or other substances. The term includes but is not limited to pipes, sewers, conduits, cables, valves, lines, wires, manholes, and attachments to the listed items.

(b) The term does not include shallow underground water systems designed to irrigate lawns, gardens, or other landscaping.
69-4-502. Information to be sought before excavation -- notification -- exceptions.

(1) (a) Except as provided in subsection (1)(b), an excavator may not make or begin an excavation without first obtaining information concerning the possible location of an underground facility from each public utility, municipal corporation, underground facility owner, or other person having the right to bury underground facilities that is a member of a one-call notification center pursuant to subsection (2)(a).

(b) (i) A registered land surveyor or a person under the supervision of a registered land surveyor may hand dig for shallow survey monuments at a depth of 12 inches or less below the road surface of a highway or at the intersection of the center lines of public streets.

(ii) The registered land surveyor, prior to hand digging, shall obtain proper approval from the appropriate governing authority regarding safety and pavement repair and, when appropriate, shall reference the monument upon exposure.

(iii) The governing authority is not liable for any damages caused or suffered by the registered land surveyor or any person under the supervision of the registered land surveyor.

(iv) The registered land surveyor is liable for damages incurred regarding facility destruction.

(v) A public utility, municipal corporation, underground facility owner, or other person having the right to bury underground facilities is not liable for any damages suffered by the registered land surveyor or any person under the control of the registered land surveyor.

(2) (a) A public utility, municipal corporation, underground facility owner, or person having the right to bury underground facilities must be a member of a one-call notification center
covering the service area in which the entity or person has underground facilities.

(b) Subsection (2)(a) does not apply to an owner or occupant of real property where underground facilities are buried if the facilities are used solely to furnish services or commodities to that property and no part of the facilities is located in a public street, alley, or right-of-way dedicated to the public use.

69-4-503. Notification -- locating and marking.

(1) Before beginning an excavation, the excavator shall notify, through a one-call notification center, all owners of underground facilities in the area of the proposed excavation.

(2) After an excavator has notified the appropriate one-call notification center of a proposed excavation, an owner of an underground facility shall:

   (a) provide the locates and mark the location within 2 business days; or

   (b) respond immediately if the excavator notifies the one-call notification center that an emergency exists.

(3) (a) After an owner of an underground facility has located and marked the underground facilities, the excavator shall determine if weather, time, or other factors may have affected location marks, warranting relocation of the facilities.

   (b) If excavation has not occurred within 30 days of the locate and mark, the excavator shall request that the facility be relocated and remarked before excavating unless other arrangements have been made with the underground facility owner. The excavator is responsible for costs associated with relocating and remarking a facility that is not excavated within 30 days of the locate and mark.

(4) Upon receipt of the notice provided for in this section, the owner of the underground facility shall provide the excavator with reasonably accurate information as to the owner's locatable underground facilities by surface locating and marking the location of the facilities. If there are identified but unlocatable
underground facilities, the owner of the facilities shall provide the excavator with the best available information as to their locations. An excavator may not excavate until all known facilities have been located and marked. An excavator is not responsible for damages to an underground facility that cannot be located by its owner. Once the facilities are located and marked by the facility owner, the excavator is responsible for maintaining the markings.

(5) Upon receipt of notice from the excavator, the facility owner shall respond within 2 business days by locating and marking the facility or by notifying the excavator that locating and marking is unnecessary. An excavator may not begin excavating before the locating and marking is complete or before the excavator is notified that locating and marking is unnecessary.

(6) An excavator shall locate and mark the area to be excavated if requested by the facility owner or the owner's representative. If an excavator discovers an underground facility that has not been located and marked, the excavator shall stop excavating in the vicinity of the facility and notify the facility owner or the one-call notification center.

(7) An underground facility owner may attempt to identify the location of a private underground facility connected to the owner's facility, but the facility owner is not liable for the accuracy of the locate.

69-4-504. Information to be part of architects' and engineers' plans.

(1) Architects and engineers designing projects requiring excavation in or adjacent to any public street, alley, or right-of-way dedicated to public use or utility easement shall obtain information from the owners of underground facilities and then make the information a part of the plan by which the contractors operate. The owners of the underground facilities shall make available all records showing the locations of underground facilities and shall provide locates, if requested, pursuant to 69-4-503.
(2) This section does not excuse a person from the obligation imposed by 69-4-502(1).

69-4-505. Liability for damages to underground facilities.

(1) (a) If any underground facility is damaged by an excavator who has failed to obtain information as to its location as provided in 69-4-503, then the excavator is liable to the owner of the underground facility for the entire cost of the repair of the facility. The excavator is also liable to the underground facility owner that is a member of a one-call notification center pursuant to 69-4-502(2)(a) for a damage fee. Damage fees must be assessed as follows:

   (i) 25% of the total cost of repairing the underground facility not to exceed $125 for the first incident;

   (ii) 50% of the total cost of repairing the underground facility not to exceed $500 for the second incident; and

   (iii) $1,000 for the third and each subsequent incident.

(b) An underground facility owner may levy only one fee for each incident.

(c) If there is more than one underground facility affected by an incident, then each underground facility owner that is a member of a one-call notification center pursuant to 69-4-502 (2)(a) may levy one damage fee for that incident.

(2) Payment of costs and fees described in this section is due within 30 days of billing by the owner of the underground facility. The underground facility owner may enforce collection in a court of competent jurisdiction.

(3) If information requested pursuant to 69-4-503 is not provided within the time specified in that section, excavators damaging or injuring underground facilities are not liable for that damage or injury, unless caused by their negligence, and are not liable for the damage fees assessed under subsection (1).

(4) The act of obtaining information as required by this part does not excuse an excavator making any excavation from doing so in
a careful and prudent manner, nor does it excuse the excavator from liability for any damage or injury resulting from the excavator's negligence.

69-4-506. Repealed. Sec. 6, Ch. 179, L. 1997.

69-4-507. Public authority -- liability.
A public authority, as defined in 18-1-201, that has jurisdiction over a right-of-way is not liable for improper or unauthorized installations made by persons or entities other than the public authority or those acting at its discretion.

69-4-508. Emergency location and excavation.
(1) When an emergency excavation is required, the excavator shall notify the one-call notification center. An underground facility owner shall respond as soon as is practical after notification.

(2) Requesting an emergency locate or an emergency excavation that is not an emergency locate or an emergency excavation as those terms are defined constitutes a false alarm pursuant to 45-7-204 and is subject to the penalties under 45-7-204.

69-4-509 through 69-4-510 reserved.

69-4-511. Repealed. Sec. 6, Ch. 179, L. 1997.

69-4-512. Judicial review.
An excavator subject to repair charges and damage fees described in 69-4-505 may have these costs reviewed by a court of competent jurisdiction.

69-4-513. Disposition of damage fees collected.
(1) Except as provided in subsection (2), damage fees collected by owners of underground facilities must be distributed to the appropriate one-call notification center. The damage fee must be used to fund training and educational programs and materials for excavators and the general public regarding the one-call notification system.

(2) The underground facility owner is not liable for the distribution of damage fees to the one-call notification center in the event that those fees are not collected from the excavator.

**69-4-514. Incident histories.**

Owners of underground facilities shall report incidents to the appropriate one-call notification center that is responsible for maintaining incident histories of violators. These incident histories must be available for public inquiry.

For history information on each section of the law go to: www.leg.mt.gov/bills/mca_toc/69_4_5.htm
This booklet—Montana Excavation Safety Handbook—is available to all in the State of Montana to help reduce damage to underground utilities, avoid interruption of service, and to protect the worker and the general public. Where this is mainly intended for excavation professionals, we also encourage use by laymen and underground locate professions. It can be extremely helpful in preventing injury to you, other people and damage to underground facilities. Saving you time and money!

The Handbook is brought to you by Montana811 and the Montana Utilities Coordinating Council. We acknowledge the contributions of the Washington Utilities Coordinating Council and the Common Ground Alliance.