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Reducing the Risk:

The Benefits of Using Subsurface Utility Engineering (SUE) for Project Owners

Project owners, have you ever had a project run amok? Have you encountered unforeseen conflicts, unexpected utility relocations, damaged facilities or even injuries?

What if instead there was a process where you could see reduced damages and eliminate unforeseen conflict, all while lowering project costs?

The good news is there is a practice that has these benefits and many more.

Subsurface Utility Engineering (SUE) is defined by the American Society of Civil Engineers (ASCE) as “a branch of engineering practice that involves managing certain risks associated with utility mapping at appropriate quality levels, utility coordination, utility relocation design and coordination, utility condition assessment, communication of utility data to concerned parties, utility relocation cost estimates, implementation of utility accommodation policies and utility design.”

There are four quality levels of SUE.

Quality Level D is considered the least accurate and is the least detailed level. This level uses utility records, such as drawings, notes, other paper records and maps, as well as verbal recollections.

Quality Level C includes a survey of existing underground utilities, including utility line indicators such as manholes, poles and valves. This information is then combined with the information found in Level D.

Quality Level B utilizes the utilities' position, using surveying methods which are then included into a map or drawing to indicate their location.

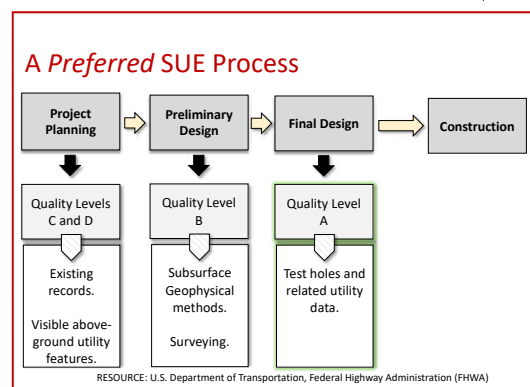
Quality Level A provides the highest level of accuracy. Sometimes known as “locating,” it is the most detailed level of SUE and is a visual verification of the position, depth, material and conditions.

A	“Daylight” expose air vacuum, surveyed and plotted	Most Accurate
B	Field Locate	
C	Eyeball in the Field	Least Accurate
D	Paper records and maps	

ASCE has developed an important standard of care guideline, Standard Guidance for the Collection and Depiction of Existing

Subsurface Utility Data, CI/ASCE 38-02. Quality Levels C and D are the least effective and are often inaccurate due to outdated maps and changing underground conditions. Quality Level B is more accurate, yet the accuracy is dependent upon soil conditions, quality equipment, and the skill level of the professional utility locators. Quality Level A is preferred because it is the most accurate and can provide the biggest reduction in risk.

During project planning different levels of SUE should be applied to the engineering/design process.



Studies from the Pennsylvania Department of Transportation (2007) and from Purdue University prepared for the Federal Highway Administration (1999) show that project owners can expect to see numerous benefits by using sufficient quality levels of SUE. First and foremost of these would be increased safety on a worksite.

The benefits of SUE can be broken down into four categories.

Design

- Calculation of lower project bids
- Cost savings by using digital transfer of survey data
- Using more accurate utility data to reduce the need for redesign and unnecessary utility relocation

Construction

- Eliminating project delays
- Savings in risk management and insurance costs
- Reduced right-of-way acquisition costs

Public Convenience

- Lowering the potential for service disruptions
- Reducing traffic disruptions
- Allows for cost savings for taxpayers and businesses

Safety

- Reduction in legal and litigation costs, as well as fees and penalties
- Reduction in the need for environmental restoration
- Reduction in personal injury and utility restoration costs

By accurately obtaining underground information through the use of SUE, project owners can expect to lower overall project costs. Those lowered costs can be quantified in many areas including administrative costs, engineering costs, a reduction in environmental issues and more efficient construction and design.

Common Ground Alliance Best Practices recommends using SUE, and it is also part of Pennsylvania's Underground Utility Line Protection Act (UULPA) aka the PA One Call Law. Under PA One Call Law project owners are responsible for utilizing sufficient quality levels of SUE for any project exceeding \$400,000.

To assist underground stakeholders with managing their projects and the associated SUE data, Pennsylvania 811 has a free web-based application called Coordinate PA (CPA). CPA is an application that helps project owners coordinate their projects with other project owners, designers, excavators, and facility owners. The goal is to help maximize the benefits of shared costs and much more; combined with the ongoing efforts to prevent damage to underground facilities. CPA enables users to add and/or import existing projects, coordinate opportunities with others who want to collaborate, communicate with designated contacts, and notify facility owners at any stage of a project. CPA also is the repository for underground stakeholders to house and share their project information and SUE data.

To learn more, please contact your local Damage Prevention Liaison for assistance. You can find their contact information at www.palcall.org/liaisons. You may also go to www.palcall.org/events to find a schedule of free trainings.

By Allison Evanitz and Erika Dominick



SAFETY FIRST

for Every Excavation, Every Person, Every Day!

Every construction company will tell you that workplace safety is their number one priority. You have either heard or read many companies' safety messages, i.e. Do not think because an accident hasn't happened to you that it can't happen; Carefulness costs you nothing; Carelessness may cost you your life; Safety isn't expensive, it's priceless; Safety doesn't happen by accident; Safety is our No. 1 Priority; and Safety is No Accident.

In the underground excavation world, you often hear safety tag lines like, Call 811 so you don't have to Call 911; Know what's below Call 811 Before you dig; 811 The easiest call you'll ever make on the job; Don't dig your way into trouble, always call 811; and many more. These safety messages are the reminders that you always need to put safety first on any job you are doing. But, do companies always practice what they preach? It is one thing to talk about safety, it is another thing to be about safety. Is there a way to ensure that your company's safety message is being practiced at Every Excavation, by Every Person, Every Day? Yes, there is a way to ensure compliance to your company's safety policy on excavation projects.

When you are beginning any underground excavation project, the first step for the project manager is to ensure that your project has followed applicable federal, state and local laws and ordinances. This may include getting proper rights-of-way and all applicable permits. You, as the project manager, need to review all the drawings and engineering blueprints to see the location of existing underground facilities. If you see discrepancies, omissions or errors in the design plan, the project manager needs to go back to the designer to resolve before moving forward. This may include doing a higher level of Subsurface Utility Engineering (SUE). It is the responsibility of the engineer or designer to choose the

appropriate level of SUE for their projects. Pennsylvania 811 recommends that engineers and designers use the highest level of SUE, which is Quality Level A. Quality Level A provides the highest level of accuracy. It involves locating or potholing utilities as well as activities in quality levels B, C, and D. The located facility information is surveyed and mapped, and the data provides precise plan and profile information.

If everything is correct, the next step to ensure a safe excavation project is to have a Preconstruction/Complex Project meeting. In Pennsylvania, any Complex Project must have a Preconstruction/Complex Project meeting. A Complex Project is defined as "any excavation project that involves more than properly can be described in a single locate request or any project designated as such by the excavator or facility owner as a consequence of its complexity or its potential to cause significant disruption to lines or facilities and the public, including excavations that require scheduling locates over an extended time frame." The Preconstruction/Complex Project meeting is the perfect opportunity for the project owner, the contractor/excavator, and the facility owners to discuss the project in its entirety together.

This meeting also allows the underground facility owners to work with the contractor/excavator to create a mutually agreeable locate schedule for the project. Plus, the Preconstruction/Complex Project meeting eliminates any confusion between the contractor/excavator and the existing underground facility owners on the scope of the project. The meeting should be documented with what was discussed and who attended



the meeting. To help facilitate having the meeting and documenting the minutes, Pennsylvania 811 has a web-based application that manages Complex Projects called Coordinate PA (CPA). CPA is used to assist in the collaboration and coordination on Complex Projects. CPA enables users to add and/or import existing projects, coordinate opportunities with others who want to collaborate, share project communications with designated contacts and notify facility owners at any stage of a project. CPA also helps project owners coordinate their Complex Projects with other project owners, designers, excavators, and facility owners.

CPA helps maximize the benefits of shared costs and much more. CPA also allows seamless transition of an underground Complex Project from the Project Owner to Designer for the design phase of the project; and from the Designer to the Excavator for the construction phase of the project.

At this point, as the project owner or contractor/excavator, you have taken all the recommended steps to ensure your excavation project is ready to go. Now it is time to begin the excavation process.



Imagine it is the first day on your underground excavation project. The equipment is there, and you have all of the necessary material and personnel ready to go. What is your first safety step? Common Ground Alliance Best Practices dictates that you have a safety meeting with everyone involved on the project before excavating. What is discussed at this safety meeting? You, as the construction manager, should review and document the job tasks that are to be accomplished for that particular day. As the construction manager, you not only need to review the tasks that are going to be done, but you also need to review all the safety protocols for each task. This would include ensuring everyone on the job knows what utilities' locations have been identified and marked out; where emergency rescue equipment is located; reminders of protocols that should be followed if someone gets injured; results of any potential hazardous gases that were tested prior to excavation; inspection of shoring systems if trench excavation is involved; and ensuring that proper traffic control is in place.

Again, the construction manager should document that the meeting was held, and all employees should initial a sign-in sheet that they participated in the pre-excavation meeting. There are many pre-excavation templates online for construction managers to use. The Excavation Safety Guide also provides a safety Pre-Excavation Checklist to use before every excavation. It is also important to stress that during the safety meeting, everyone on the project has the ability to stop work if they see a safety concern. To create the right safety culture for your company, this power must be given to every employee working on the project. Some call this a "peer-to-peer safety check," and others use the term "safety stop" or "timeout." Regardless of the language used, the idea is if you see a safety issue, you as an employee are now empowered to stop the work activities so the safety concern can be addressed immediately.

Doing a pre-excavation safety check on Every Excavation is clearly a best practice that construction companies should use, but to strengthen your company's safety culture you must do your pre-excavation

safety check on Every Excavation, with Every Person, and do it Every Day!

Yes, to ensure that everyone is working safely, you must conduct the pre-excavation safety check Every Day and with Every Person before starting your daily work. In some cases, you may need to conduct a pre-excavation meeting at the beginning of the workday and mid-day, too. This mid-day meeting may be needed if something on the job changes during the day or if an employee highlights a safety concern that needs to be addressed.

Following the practice of Safety First for Every Excavation, Every Person, Every Day will ensure that you have documented acknowledgement that your employees are aware of all the safety protocols for your excavation project. It also ensures that Every Day your employees are on the job, they are focused on their job tasks before the start of the day and are aware of all the safety protocols associated with those tasks. **ESG**

Written by Norman L. Parrish Manager – Education Pennsylvania 811.

The Preconstruction Meeting

– One Size Does Not Fit All

As with most things in life, one size does not fit all. This is also true for preconstruction meetings for underground excavation. Pennsylvania's Underground Utility Line Protection Act (UULPA), i.e. Pennsylvania One Call Law, states that any excavation that involves more work than properly can be described in a single locate request must be designated a Complex Project. With a Complex Project, the stakeholders should hold a preconstruction meeting. The preconstruction meeting is a scheduled event held by either the excavator, designer, project owner or facility owner prior to the commencement of excavation or demolition work in a complex project.

Underground stakeholders may have different preconstruction meeting needs depending on how large their project is and whether or not they are using Pennsylvania 811's Complex Project process. In addition, no matter how large your project is, you should always use the Common Ground Alliance (CGA) recommended practices of the 4 C's – Communicate, Collaborate, Coordinate and Cooperate.

To assist underground stakeholders with managing their complex projects, Pennsylvania 811 created a free web-based application called Coordinate PA (CPA) that helps project owners coordinate on their projects with other project owners, designers, excavators and facility owners. The goal is to help maximize the benefits of shared costs and much more, combined with ongoing efforts to prevent damage to underground facilities. CPA enables users to add and/or import existing projects, provide opportunities to others wishing to collaborate, communicate with designated contacts and notify facility owners at any stage of a project. CPA is also the repository



for underground stakeholders to house their project information and store documents from their preconstruction meetings.

The prerequisites for using CPA are a valid sign-in on PA One Call's website and Web Ticket Entry access. Web Ticket Entry requires the user to watch a video and pass a short quiz in order to gain access to the application.

Pennsylvania 811 recommends that stakeholders use the checklist below for conducting a Preconstruction Meeting:

1. Confirm your Complex Project ticket was placed no less than 10 business days and no more than 90 business days before construction.
2. Hold preconstruction meeting 3-20 business days before construction.
3. Excavator establishes the date, time and place of the meeting in close proximity to the project work location. Electronic meetings are also acceptable.
4. Excavator is responsible for notifying the Project Owner and Designer of the meeting.
5. Sign – in sheet link:
https://mapping.palcall.org/CPATicket/documents/ComplexProject_SigninSheet.pdf
6. Meeting notes link:
https://mapping.palcall.org/CPATicket/documents/ComplexProject_MeetingNotes.pdf

7. Document everything discussed (whether agreed to or not).
8. Provide maps, drawings or any other information to assist with the project.
9. Discuss your project from start to finish, from all types of surveys - environmental, architectural, etc., temporary work sites, access roads, construction, restoration and everything in between.
10. Agreement on the scope of a ticket should be established.
11. Discuss marking the excavation with white paint, flags or other marking products.
12. Discuss phases of construction.
13. Find out the details – final design, permits and right of way agreements.
14. If possible, walk or drive down the project area.
15. Upload the project documentation to CPA after the meeting.
16. Within 90 days of the pre-

construction meeting, the excavator should input the routine excavation notices. If past 90 days, a new complex project and meeting is required within the same CPA project.

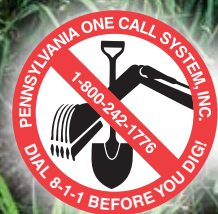
In conclusion, plan ahead to coordinate a successful preconstruction meeting to meet the needs of the underground stakeholders and to have a successful project. Have as many quality preconstruction meetings as necessary to make sure project information is communicated to everyone involved. If you need help with CPA and setting up a preconstruction meeting, consult your local Damage Prevention Liaison. We are glad to assist.

Finally, Pennsylvania 811 has free training to help you learn how to use CPA. To learn more about CPA, please contact your local Damage Prevent Liaison for assistance. You can find their contact information at www.palcall.org/liaisons. You may also go to www.palcall.org/events to find a schedule of free trainings.

Additional information on Pennsylvania 811's Complex Projects policy, CGA Best Practices, UULPA (i.e. ACT 287, as amended), and the User Guide is available at www.palcall.org/resourcelibrary. **ESG**

By: Maria A. White and Kirk P. Kirkpatrick, PA One Call Damage Prevention Liaisons

Users GUIDE



Pennsylvania811®

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		www.puc.pa.gov	www.commongroundalliance.com
		www.apwa.net	http://www.nastt.org/

DISCLAIMER OF LIABILITY

This Guide has been prepared as an educational document for excavators, designers, operators, project owners, and facility owners. It is intended as a reference tool for interacting with the Pennsylvania One Call System, ("POCS"). It is also intended to explain in a general way the requirements provided for in Pennsylvania's Underground Utility Line Protection Law, Act 287 of 1974, as amended by Act 50 of 2017 (the "Act"). It is strongly recommended that all individuals who regularly contact POCS review the Act and this Guide. Familiarity with its contents will be valuable, but the Guide is meant to clarify and explain the law according to POCS' understanding of how it affects interaction with POCS. This Guide is not a substitute for the Act and it does not relieve anyone from discharging their responsibilities as set forth in the Act or as otherwise required by law.

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INTRODUCTION

The Pennsylvania One Call System Board provides this Guide for the participants of the Act to help clarify the responsibilities of each of the parties under the provisions of the law. Over 3,600 facility owners participate in the Pennsylvania One Call System currently, and a 35 member Board of Directors represents each of the industries involved in subsurface activity. All of the public utilities, public works, pipe line, telecommunications, the Commonwealth, construction and design industries were

represented throughout the legislative process.

This Guide has been prepared to assist you in preparing your own operating procedures to comply with the Act, and to protect yourself and those you work with. It also provides insight into what you can expect to encounter underground. It is our hope to provide you with information to assist you in developing your own policy and procedures to guard against dangers and situations of working underground.

In addition to this Guide please reference the latest version of the Common Ground Alliance (CGA) Best Practices. The Law specifically requires your best efforts to comply with the CGA standards.

SECTION I -

ODDS ARE YOU COULD BE MOVING MORE THAN EARTH

Damage prevention is a shared responsibility. Communication between stakeholders is the key to ensuring safety and protecting vital facilities. Free-flow communication and cooperation allows all parties to focus on the common goals for safety and damage prevention.

Virtually anywhere you need to dig, there are probably underground facilities somewhere in the vicinity. Growing networks of telephone cables, power lines, and cable TV lines are joining the gas, water, sewer and petroleum pipes. The odds of an excavator moving something besides dirt are growing every day. Even if you see overhead lines that doesn't rule out the existence of buried power, television or telephone facilities. Many utility companies have long-term programs to weatherproof their plant by putting it underground. Both aerial and underground facilities may be in use during transitions. Some areas have overhead main lines with buried services going to the homes and other buildings. Even water-filled ditches and streams may have underground utilities in or under them. A ditch may have been dry when utilities were buried. A stream may have been diverted. Even "open country" may conceal buried utilities. Large pipelines and high capacity cables are especially expensive to place, so utilities often cut across country to reduce total miles for these major installations. There are buried utilities located in most road rights of way. Buried utilities are also found along property lines and between lots and serve any building located on a lot.

Damage to buried utilities most often occurs when excavators do not call for utility locations before they dig. In many cases, utilities are damaged even after notification has been made and utility locations clearly marked. That's usually because some excavators do not know the procedures for safely excavating around the buried facilities. See section 5(4) of the Underground Utility Line Protection Act, or "Act" (PA 73 P. S. § 176 et. seq.) for excavator requirements.

SECTION II -

WHO AND WHEN TO NOTIFY THE ONE CALL SYSTEM

Notifications are referred to as Locate requests, dig notices, and tickets.

The Act; OSHA Standard 1926.651 (revised in 1990 and clarified in 2004); the Federal PIPES Act of 2016, protecting underground liquid (CFR 49 Part 195) and natural gas (CFR 49 Part 192.614) pipelines; and the National Electric Safety Code, ANSI C-2 (revised in 2016); require anyone who engages in any type of excavation or demolition work to provide advance notice. (See the Act for the definition of excavation or demolition work.)

Who should notify the One Call System?

- For excavation work, the person performing the excavation must make the notification. If the work is subcontracted, the subcontractor should make the notification. The only party protected by the notification is the person who notifies.
- A homeowner should notify the One Call System only if they are performing the excavation work themselves. A homeowner should not place a notification on behalf of their excavator because the excavator will not be protected by the notification.
- For demolition work, the person performing the demolition must make the notification. If the work is subcontracted, the subcontractor should make the notification. The only party protected by the notification is the person who notifies.
- Designers who work on project plans that include a work operation which involves the movement of earth with powered equipment as part of the project must place the notification.
- Project Owners, who or which engages the contractor for construction on any project which requires excavation or demolition work should ensure their designers and excavators notify the one call system.

When should you notify the One Call System?

- Designers are obligated to notify "not less than ten nor more than ninety business days before final design is to be completed".
- Designers may also choose to notify more than ninety business days in advance if they state that the work is preliminary.
- Excavators (including homeowners) are obligated to notify "not less than three nor more than ten business days in advance of beginning excavation or demolition work", unless the project is complex, then additional requirements apply. Complex project notices require ten business days notice.

"Business day" means any day except a Saturday, Sunday or legal holiday prescribed by statute. A business day begins at 12:00:00 a.m. and ends at 11:59:59 p.m.

Example of calculating the three business day notice for excavation:

- The notice is made on Monday.
- The first business day is Tuesday.
- The second business day is Wednesday.
- Excavation work can commence on the third business day which is Thursday.
 - For a notification made on Thursday, the earliest lawful start date for when excavation can commence is the following Tuesday. (The first business day is Friday, Saturday is not a business day, Sunday is not a business day, Monday is the second business day and Tuesday is the third business day.)
- A legal holiday (defined below) may add one or two business days between the notification date and the date excavation can commence.

To facilitate timely and accurate mark-outs of the work site before you excavate, the maximum Locate request size is 1000 feet, or intersection to intersection, whichever is greater, along the same road, within the same political subdivision. Base your notifications on the resources you plan to use and the time of year (near term weather) for each date such information is provided to the system. All excavators, including subcontractors should make their own notification.

The Act states that the person doing the work shall make the notification/call. The only party protected by the notification is the caller.

PA One Call System is open 24 hours a day every day of the year. Pursuant to Sections 221 and 709 (e.1) of The Administrative Code of 1929, the Executive Board has determined that the administrative offices of State Government shall be closed on the following holidays for the purpose of transacting public business:

New Year's Day
Martin Luther King, Jr. Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

SECTION III - TYPES OF NOTIFICATIONS HANDLED BY PA ONE CALL

There are several variations to the excavation notifications, covered in detail in Section IV of this document. Each variation can be used to solve unique situations or problems.

The following is a brief explanation of each type of notification taken by Pennsylvania One Call System, Inc. (POCS):

1. DESIGN NOTICE

Any drawing that is prepared for an excavation requires a Design Notification that must

comply with the provisions in Section 4 of the Act. The Design Notice is meant to allow the designer to plan the new work around existing facilities as the Act prescribes. The information provided should cover the entire scope of the plan or development with enough detail to allow the facility owners to provide the approximate locations of their lines in the proposed work area. Digging is not permitted on a design notification.

There are two types of design notices:

- **Final Design Notice:** Those planning work that disturbs the earth are required to notify POCS not less than 10, nor more than 90 business days in advance of the final design.
- **Preliminary Design Notice:** Designers may request line and facility information more than ninety days before final design is to be completed, however, they shall state in their requirements that such work is preliminary.

The designer is required to send plans to the involved Facility Owners for mark up when requested. PA One Call can assist with this process through its drawing exchange process, where plans and responses can be shared electronically. Once the facility owners have responded, the designer shall add their facility information to the drawing before the final design is approved.

As a designer, you are required to add the one call serial number and the 1-800-242-1776 or 8-1-1 number to the plan before you forward it to the involved facility owners.

2. EMERGENCY NOTICES

- **Emergency Notice** - An emergency is defined by Section 1 of the Act as "a sudden or unforeseen occurrence involving a clear and immediate danger to life, property and the environment, including, but not limited to, serious breaks or defects in a facility owner's lines." When declaring an emergency excavation, excavators are required to describe the nature of the emergency within the Locate request. Once complete, the ticket will be queued for immediate transmission. Facility owners should respond as soon as practicable following receipt of notification from the One Call System.

- **Damage Report Notice** - When a facility is damaged the notice is generally considered an emergency to that facility owner and other facility owners in close proximity to the damage. If a line is damaged during excavation, call the One Call System or the facility owner immediately. Report the details and particulars once the work site is safe.

If the damage results in the escape of any flammable, toxic or corrosive gas or liquid which endangers life, health, or property, immediately notify 911 and the facility owner, as required

by Section 5 clause (8). It is most often best to evacuate the immediate area. Local emergency contact information should be at the job site with the crew at all times where they have access to it, along with a map or directions to the nearest emergency care facility.

Damage notices can be the only notification received by the one call system of active excavation activity. Facility owners should respond to damage notices in the same manner as other emergency notifications.

- **Odor of Gas Notice** – POCS accepts non-excavation related calls from those who smell natural gas. A notification is created and is immediately sent to the gas companies registered to receive such notices. Facility owners should respond to odor of gas notices in the same manner as other emergency notifications.
- **No One Call Notice** – POCS accepts notification from third parties who are not performing excavation work, but witness excavation work occurring and no physical markings are visible at or near the work site. Prior to processing a No One Call, the CSR performs a search of tickets created within the last 90 days to confirm no existing valid notification was created for the site. Facility owners should respond to no one call notices in the same manner as other emergency notifications.

- **Potential Cross Bore Notice** – When installing new utility lines in urban and suburban areas, utility providers typically dig horizontally underground, using a trenchless boring technique that avoids damage to sidewalks and landscapes. In the process, a new utility line may be unintentionally bored through a sewer pipe. Over time, a cross bore in a sewer pipe will cause a blockage. When a plumber or sewer operator plans to clear a clogged drain, he can notify the One Call System, and a ticket will be created and immediately sent to all facility owners in the area. Cross bores most often occur through sewer lines, but can be found in other types of lines and structures. Facility owners should respond to potential cross bore notices in the same manner as other emergency notifications.

Utility Cross Bore definition: An intersection of an existing underground utility or underground structure by a second utility resulting in direct contact between the transactions of the utilities that compromises the integrity of either utility or underground structure.

3. ROUTINE LOCATE REQUEST NOTICE

Notification for excavation work shall be made not less than 3 business days nor more than 10 business days prior to commencing excavation work starting the day the notification is received. Each Locate request must clearly identify the work site (See Section IV). When exact site information cannot be provided, use

white paint to outline the proposed excavation site. The Locate request shall be limited to the area described in the notification and the maximum Locate request size is 1000 feet, or intersection to intersection, whichever is greater, along the same road, within the same political subdivision. Facility owners should respond to routine locate request notices by the response due date.

4. DEMOLITION NOTICE

Notification for demolition work shall be not less than 3 business days nor more than 10 business days prior to commencing demolition work starting the day the notification is received. Caution: Demolition work may require more advance clearance from the facility owner if their service lines need to be disconnected. You also may need a permit for the work. The One Call notification should not be considered notice under any circumstance other than the Act. You must follow all local codes as a part of your compliance with the Act. Final billing and disconnect of the lines attached to the structure must be secured directly with the involved service provider. Facility owners should respond to demolition notices by the response due date.

5. COMPLEX PROJECT NOTICE

The Act defines complex project as: “Complex project means an excavation that involves more work than properly can be described in a single locate request or any project designated as such by the excavator or facility owner as a consequence of its complexity or its potential to cause significant disruption to lines or facilities and the public, including excavations that require scheduling locates over an extended time frame.”

And in Section 5, clause (2.1), the last sentence states: “In the case of a complex project, notification shall not be less than ten business days in advance of the beginning of excavation or demolition work.”

And Section 5 clause (3) states: “In a complex project or if an excavator intends to perform work at multiple sites or over a large area, to take reasonable steps to work with facility owners, including scheduling and conducting a preconstruction meeting, so that they may locate their facilities at a time reasonably in advance of the actual start of excavation or demolition work for each phase of the work. A preconstruction meeting may take place at any time prior to the commencement of excavation or demolition work, and the excavator, facility owners and designer, or their agents, shall attend the meeting. Notice of the meeting shall be given sufficiently in advance so as to permit attendance, either in person or electronically, by the excavator, facility owners and designer, or their agents, and shall include information sufficient to identify the scope of work. If the excavator does not believe that a preconstruction meeting is necessary under the circumstances of this clause it shall indicate such belief in its notice, but any

facility owner with facilities at the work site may request a meeting with the excavator, and a meeting shall be held between the facility owner and the excavator. After commencement of excavation or demolition work, the excavator shall be responsible for protecting and preserving the staking, marking or other designation until no longer required for proper and safe excavation or demolition work at or near the underground facility or by contacting the One Call System to request that the facilities be marked again in the event that the previous markings have been compromised or eliminated.”

And Section 5 clause (3.1) states: “To comply with the requirements by the One Call System as determined by the board of directors regarding the maximum area that a notification may cover.”

Excavators must make complex project notices via the One Call System complex project web portal.

The process starts with creation of a complex project request. The area covered by the work must be reasonably described within the complex project request so the one call center can notify the proper facility owners, and so the facility owners can assess the potential impact, and accurately respond with their meeting intentions.

If, in the opinion of the excavator, a meeting is not necessary, he shall indicate this in the complex project request to give the involved facility owners the opportunity to request an individual meeting with the excavator.

The meeting can be in person or held electronically. If in person, a time and place for the meeting with any necessary directions shall be included in the request; if electronically, the participation instructions shall be included. The excavator should prepare for the meeting by having a competent person present with drawings depicting the proposed work site and schedule for the execution of the work. When an excavator schedules a meeting, the Act requires facility owners to participate. It is recommended that the excavator document those who attended the meeting, minutes taken, and distribute to attendees of the work site meeting.

During the meeting, the entire scope of the project should be defined, plans reviewed, project phases determined, and the locate schedule be agreed upon so a plan can be formed to ensure that the necessary markings will take place in advance of excavation as the job progresses through each area of work. The excavator and facility owners participating in the meeting may collectively agree on a maximum area for excavation notifications throughout the project that differs from the standard scope of ticket. This scope of ticket in a complex project agreement must be unanimous. The facility owner is obligated to propose mutually agreeable scheduling by which the excavator and facility owner may locate the facilities.

Excavators should hold the meeting on or before business day 7, to allow the excavator

time to create routine excavation locate requests with the required 3 business day notice. Excavation may begin 10 business days following creation of the complex project request.

Changes in the scope or duration of the work require a new notification under the Act.

A working relationship should be established between the excavator and the facility owner representatives to reduce confusion at the work site. Emergency phone numbers and contacts should be identified for notifications of problems, delays, or changes in the mark out plan.

At the conclusion of the meeting, it is recommended that the excavator update the complex project web portal to include the contact information of all attendees. It is in the best interest of all involved parties for the excavator to upload pertinent documents such as project plans or meeting minutes for reference purposes.

Excavation notices must be made after the complex project preconstruction meeting and shall be launched from the complex project web portal, so the software can associate the excavation tickets with the complex project. At least one excavation Locate request must be made. The scope of work on the Locate request must conform to the agreement reached during the preconstruction meeting. This will determine how many locate requests are necessary, and the timing for creating each excavation Locate request.

Locate request notices created outside of the complex project web portal which exceed the maximum routine Locate request notification area of 1000 feet or intersection to intersection, on the same street, within the same political subdivision, could be considered complex projects by some facility owners. If so, the facility owner will notify the excavator that they are designating the project complex, in which case, the excavator must meet with the facility owner and attempt to reach a mutually agreeable locate schedule, to which both parties will adhere.

In the event a single facility owner deems the work complex to them, that facility owner assumes the responsibility of executing the excavator meeting responsibilities contained within this document.

“Large/Complex Project” is also included in the Common Ground Alliance (CGA) Best Practices, which are incorporated by reference in Act 287, as amended. Refer to chapter and sections: 2-2, 2-3, 2-4, 2-8, 3-14, 3-29, 4-11, 4-14, 4-17, 4-22, 5-4, 5-5, 5-6, 5-14, 5-23, 5-28, 6-18, and in the Glossary.

SECTION IV - GUIDELINES FOR PREPARING A LOCATE REQUEST

When initiating a Locate request, Section 5 clause (2.2) of the Act requires each excavator: “To provide the One Call System with exact information to identify the work site so that facility owners might provide indications of their lines. An excavator shall be deemed to have

met the obligations of clause (2.1) if he calls the One Call System, provides the work site and other required information, and receives a serial number.”

And Section 5 clause (11): “To use the color white to mark a proposed excavation work site when exact work site information cannot be provided.”

We encourage excavators to visit the work site prior to placing a notification to outline their exact proposed work site in white, to assist the locator in marking only the area where the work will take place.

“If, after receiving information from the One Call System or directly from a facility owner, an excavator decides to change the location, scope or duration of a proposed excavation, the obligations imposed by this section [Section 5] shall apply to the new location.”

ANNUAL FEE

Section 3 clause (f.1) states: “An excavator, designer or operator who proposes to commence excavation or demolition work and requests information from the One Call System shall pay to the One Call System an annual fee for the service provided by the One Call System under section 3. The fee shall be set by the One Call System board of directors and shall be used to offset a portion of the operating costs of the One Call System and a portion of the operation costs levied on the One Call System’s political subdivision and municipal authority members. Failure to pay the fee shall constitute a violation of this act and shall subject the excavator, designer or operator to the enforcement authority of the commission for this nonpayment.”

The annual fee will be charged on the first notification each calendar year.

LOCATE REQUEST CREATION

When calling in notifications, POCS Customer Service Representatives (CSRs) are trained to obtain specific information concerning locate requests. All telephone calls are recorded and kept for five years. Each question asked has a purpose. This section will provide a brief explanation of the reason for each question.

Locate request processing is more efficient if the caller is prepared to answer all questions. The best way to prepare for a call is to visit the website www.paonecall.org.

Excavators, Designers, Project Owners and Facility Owners can submit Locate requests via the website with valid log in credentials. Homeowners working on their own property may submit single address Locate requests via the website without logging in. Whichever input method is chosen, questions will be asked to complete specific data fields.

Field Definitions:

Information about the company making the Locate request: (fields 1-6)

1. Telephone Number & Extension:

The telephone number, including the area code, of the excavating company, design firm, or homeowner placing the call.

2. Caller Name:

(or Web Ticket Entry User name)

The caller’s name is taken in order to maintain records of what person placed the locate request.

3. Company:

The name of the company for whom the caller works. For homeowners placing their own Locate requests, this field will contain the name of the caller.

4. Address, City, State, Zip:

The mailing address of the company is recorded and stored as part of the Locate request.

5. Caller Email Address: (or Web Ticket Entry User Email Address)

The caller or web ticket entry user will be emailed a copy of the Locate request ticket. In addition, facility owners are required to respond back to the One Call System for all notifications, and the One Call System will collect and email the responses to the caller.

6. Caller Fax:

Needed when an email address cannot be provided. A dedicated fax line is recommended.

Description of the Work Site: (fields 7-16)

7. County:

The name of the county in which the work will be performed is required.

8. Municipality:

The name of the municipality in which the work will be performed is also required.

Ward: If the work is taking place in Allentown, Erie, Pittsburgh, or Philadelphia, the voting ward of the site is also required.

9. Street # & Street Name:

Name of the street and/or route number. Please use the exact address numbers, directional (N, S, E, W, etc.), and the street suffix (ST, RD, CT, AVE, LN, WY, etc.).

10. Nearest Intersection:

Name of the nearest intersecting street or route (within reasonable distance of the work site).

11. Second Intersection/Nearest Main Road:

The name of the second street if the work site is between two streets. If not working between two streets, the field can also be used to hold the nearest major intersection name, especially if the nearest intersection is a new or unnamed road. Directions and other clarifying information will be typed into location information so the facility owner knows which type of data has been entered in this field. Additional information is

solicited to determine if the work is taking place in the intersection or between two intersections.

12. Site Marked in White?

Indicate by yes or no whether the proposed route or boundary of the work site had been marked in white. This field is not included for design notifications.

NOTE: If an exact location cannot be given, it is required that the proposed route or boundary of the work site be marked in white. Excavators should delineate the work site with 12 inch dashed white paint lines to avoid confusion with color codes used by facility owners (see Section V of this document). Marking the work site in white will provide locators with an accurate picture of the proposed excavation area, helps the locators complete the work and provides the excavator with the needed information, and prevents over marking. Over marking is a problem because in some areas, neighbors can get upset if the marks appear to be graffiti.

13. Location Information:

Clarifying information to specify the exact location of the dig. Include measurements and directional (N, S, E, W or variants) from known points, such as the curb line, street, structure, property line, or fence. If working on private property, note whether working in the front, rear, left, right or all sides. If known or visible, include utility pedestal or pole numbers, highway or railroad mile markers, landmark names, permanent pipeline marker identifiers, etc. You can also provide directions from the nearest town, or major intersection. Give as much descriptive information as you can to help the facility owners and the locator find the site.

14. Subdivision:

The name of the subdivision, housing development or building complex where the work will take place will be entered, if applicable.

15. Latitude and Longitude Coordinates:

Provide the GPS coordinates of the location, if available.

16. Type of Work Being Done:

Facility Owners need to know the specific reason for the excavation, demolition, or design work to help them evaluate the possible impact on their underground assets. Be as specific as possible. For example, “installing a sanitary sewer lateral” is much more helpful than “digging a sewer line”.

Formatted information based on specific notification types is also included here.

Demolition notice: the value will begin with the word DEMOLITION-.

Damage notice: the notice is qualified and will begin with the word DAMAGE- or EXPOSED-, followed by the facility type detail

provided by the excavator.

Odor of Gas: the value will display ODOR OF GAS.

No One Call: the value will display NO ONE CALL

Cross Bore: the value will display POTENTIAL CROSS BORE

Specific qualifiers are added to the work site information: (fields 17-21)

17. Working in:

Identify if the work will take place in the street, sidewalk, public or private property. Other designations such as right of way, treelawn, berm, stream, etc., can also be specified.

Street: indicate yes or no

Sidewalk: indicate yes or no

Public Property: indicate yes or no

Private Property: indicate yes or no

If on Private Property, indicate Front, Rear, Left or Right side of the property

Other: where applicable

18. Depth:

Give the approximate depth of the excavation.

19. Extent of Excavation:

Give the approximate size of the excavation. Indicate the length and width, the diameter, or some other measurement to indicate the size of the opening.

20. Method of Excavation:

Indicate how the earth will be moved, i.e. anchoring, augering, backfilling, blasting, boring, compressing, digging, directional boring, ditching, dredging, drilling, driving-in, grading, grinding, hand-digging, milling, plowing-in, powered equipment, pulling-in, ripping, scraping, tilling, trenching, trenchless excavation, tunneling, or vacuum excavation.

21. Type of Equipment:

Indicate what kind of equipment will be used to perform the work, i.e. auger, backhoe, boring, directional drilling, drilling, excavator, explosives, farm equipment, grader, hand tools, milling equipment, probing device, scraper, trackhoe, trencher, vacuum equipment, or other (specify). If you don't know what type of equipment will be used, and have no way to determine the type, then indicate unknown.

Identification of the project owner and onsite contact information: (fields 22-26)

22. Work Being Done For (Project Owner):

Identification of whom the work is being performed for is another resource for obtaining additional information about a project. The Act refers to this as the "project owner". The

"project owner" means any person who or which engages an excavator for construction or any other project which requires excavation or demolition work.

23. Onsite Contact:

The name of the person at the work site with knowledge about the work being done, who a locator can speak with, or a facility owner can make direct contact with when clarification is needed about the Locate request.

24. Onsite Contact Phone Number and Extension:

Provide the telephone number of the onsite contact, including the area code. This number should be a mobile phone, but in the case where an office phone is auto-forwarded to a mobile device, an extension is permitted.

25. Best Time to Call:

When the onsite contact person is normally available to receive calls from facility owners.

26. Onsite Contact E-mail:

Provide the email address of the onsite contact person, as they will be sent a copy of the Locate request in addition to the caller.

Timeframes are identified: (fields 27-29)

27. Scheduled Excavation Date:

On non-design notifications, indicate the date the excavation work is scheduled to begin. Excavation work cannot begin prior to the date given. (See Lawful Start Dates below.)

Formatted information based on specific notification types is also included here.

Design notices: this field is populated with the word DESIGN.

28. Start Time:

Indicate the estimated time the excavation crew plans to be on site and digging.

29. Duration of Job:

To help the facility owner understand the complexity of notification, indicate the approximate number of hours, days, weeks, months, or years you will be actively working on the excavation or demolition. This information helps the facility owner determine the resources needed to deal with the Locate request or complex project. This field is not included on design notices.

Additional information: (fields 30-31)

30. Job Number:

This is an optional field for your use to help reference Locate requests to your internal work management systems.

31. Remarks:

Additional information you wish to include on the Locate request that was not asked in any

other field, or exceeded a field size, can be entered here.

Formatted information based on specific notification types is also included here.

Demolition notices: Because disconnect of lines attached to a structure being demolished must be secured directly with the utility, the excavator is asked if they contacted utilities.

If yes, Remarks will display: CALLER HAS CONTACTED UTILITIES DIRECTLY FOR DISCONNECTS/METER REMOVAL.

If no, Remarks will display: CALLER HAS BEEN ADVISED TO TELL PROPERTY OWNER TO CONTACT UTILITIES DIRECTLY FOR DISCONNECT/METER REMOVAL.

Damage notices: The caller is asked if the damage resulted in the escape of any flammable, toxic or corrosive gas or liquid which endangers life, health, or property.

If yes, they are asked if they notified 911.

If no, they are advised to notify 911.

Based on the information they provided the Remarks will display:

HAZARDOUS RELEASE <YES> or <NO> and CALLER HAS NOTIFIED 911 or CALLER HAS BEEN ADVISED TO NOTIFY 911.

Odor of Gas notices: The caller is asked if they know the gas or pipeline company name. If yes, the Remarks will display: GAS COMPANY: <name of company provided>.

Update: The update action is available for design, non-emergency demolition and excavation Locate requests. An update banner is added in the Remarks and displays the serial number being updated. The banner will include a date/time stamp, CSR initials and channel number or web ticket entry user login followed by the requestor, the reason for the update, and whether lines need to be re-marked.

Example of what Remarks will display:

*****== UPDATE 20181231234-000 == 7/26/2018 1215 GRI 34==*****
UPDATE REQUESTED BY: SALLY SMITH
REASON FOR UPDATE: WORK NOT STARTED or WORK STOPPED STARTING AGAIN or WORK IN PROGRESS
REMARK LINES or NO MARK OUTS NEEDED

Cancel: indicates the work will not take place, or the address provided on the notification was incorrect and a new serial number will be created to correct the bad information. A cancel banner is added in the Remarks and displays the serial number being cancelled. The banner will include a date/time stamp, CSR initials and channel number, the requester, and the reason for the cancel.

Example of what Remarks will display:

*****== CANCEL 20181231234-001 ==
7/26/2018 1652 JEC 38==*****
CANCEL SERIAL NUMBER: 20181231234
CANCEL REQUESTED BY: JANE DOE
INCORRECT ADDRESS, NEW TICKET
HAS BEEN PLACED.

MAPPING THE LOCATE REQUEST

During the creation of a ticket, the system attempts to locate the described proposed excavation site using the data provided for county, municipality, street, nearest intersection, and second intersection. Up to two latitude/longitude points can also be provided to assist in the search. The mapping process is slightly different based on the method of input:

Caller: If the search is successful, the CSR will attempt to confirm the search results with the caller and draw a notification area polygon around the proposed excavation site.

If the search is unsuccessful, the CSR will work with the caller to determine if all data provided by the caller is accurate.

In the rare situations when a site cannot be found on the map, an unmapped notification will be sent and the facility owners notified will be based on the county and municipality given by the caller.

A single point with a 150 feet radius (300 feet diameter) buffer, or a polygon delineated with up to six latitude/longitude points, with a 150 feet buffer, can be used to draw the notification area polygon.

Web Ticket Entry User: If the search is successful and the ticket is being created by a user via web ticket entry, the user must draw the notification area polygon.

If the search is unsuccessful, the user should ensure all data entered in the fields is accurate and try again.

If the user is still unable to map the ticket, they must abort the entry and call the One Call System to place their notification.

A single point with a 150 feet radius (300 feet diameter) buffer, or a polygon delineated with up to six latitude/longitude points, with a 150 feet buffer, can be used to draw the notification area polygon.

Homeowner online: Homeowners do not draw a notification polygon. If the search is successful they are presented with geometry in the shape of their property parcel, and asked to verify and accept that the location found by the system is correct.

Important: The notification area polygon drawn by the CSR or the WTE user, and the geometry shape accepted by the homeowner, determines which member facility owners will be notified of the proposed work.

The type of notification area will be included on the Locate request.

LAWFUL START DATES: (3 business days) through (10 business days)

These dates are calculated for Locate requests, based on the business day the notification is originated. They indicate the earliest date that digging can begin and the last possible date when digging must begin. If digging does not start within these dates, a new one call notification must be placed. This information is provided to the caller by the CSR. The information is emailed to web ticket entry users and homeowners using online entry.

If the scheduled excavation date given by the caller falls between the lawful start dates and is not the third business day, the lawful start dates are recalculated and the scheduled excavation date becomes the earliest lawful start date. The last possible lawful start date remains the same, i.e., ten business days from the origination of the notification.

It is very important not to begin work prior to the lawful start dates. Beginning work before the lawful start date can result in forfeiture of the excavator's rights and protection provided for under Pennsylvania Act 287 as amended. Additionally, commencing work prior to the lawful dig date is a violation of the law.

SERIAL NUMBER

Once the available information for the notification is gathered, the system assigns a serial number to the notification.

The serial number is eleven digits comprised of the four digit year, three digit Julian date, and four digit sequential number. A three digit version number is then appended to the serial number to track its action type. On the original ticket, this version is -000, designating a NEW or UPDATE action type. Example: 20180010001-000 is the first ticket taken in 2018. On each subsequent action taken on the original, the version number is incremented as -001 or higher to designate a RENOTIFY, CANCEL or ANNOUNCEMENT. Example: 20180010001-001 is the first RENOTIFY of the original request.

The serial number is provided to the originator of the notification based on the method of input:

Caller: the serial number is read to the caller, who is also offered a list of the facility owners being notified. Callers who provided an email address will receive a ticket confirmation which includes a copy of the ticket information and the facility owners notified.

Web Ticket Entry User: the ticket confirmation is emailed and includes the serial number, a copy of the ticket information, and the facility owners notified.

Homeowner online: Notifications created by homeowners online are first reviewed by a CSR,

then released and assigned a serial number. The ticket confirmation is emailed and includes the serial number, a copy of the ticket information, and the facility owners notified.

The serial number is proof of your notification and should be saved.

Ticket confirmations should be reviewed for accuracy when received. If a discrepancy is found, the One Call System should be notified immediately and a new notification placed.

It is considered a Best practice is to have a copy of the notification at the work site.

RESPONSE DUE DATE

The ticket output will include the system generated response due date, which differs based on the Message Type. Facility owners must respond to all notifications through the One Call System by the response due date. (Refer to Section VI for additional information.)

LOCATE REQUEST MESSAGE TYPE

The ticket output format will include one designation from each of the three components below that define the Message Type. Example: [NEW] [EXCAVATION] [ROUTINE]

- *Action Type:* (how the request was created, which also determines the serial number and version assignment)

- NEW – a new Locate request – receives a unique serial number and version 000.
- UPDATE – modifies the Lawful Start Dates on an existing Locate request due to work not starting, work stopped and is starting again, or work in progress when re-marking is needed, – receives a unique serial number and version 000.
- RENOTIFY – a re-transmit of an existing ticket, initiated by a caller, to advise one or more facility owners of locate related or response issues – the serial number does not change, however, the version number will increment with each successive renotify.
- CANCEL – notification by the ticket originator that work will not be done – the version number will increment.
- ANNOUNCEMENT – Complex project preconstruction meeting status information: Posted, Modified, or Closed – the version number will increment.

- *Request Type:* (the kind of work being performed)

- EXCAVATION – the movement of earth, rock, or other material.
- DAMAGE – damaged or exposed underground facility or facilities.
- ODOR OF GAS –third party reports of non-excavation related odor of gas.
- DEMOLITION – partial/complete destruction of a structure served by/adjacent to underground lines.
- NO ONE CALL –third party reports of excavation work where there is reason to believe no one call ticket exists.

– CROSS BORE – called in by plumbers or sewer operators to provide notice of intent to clear a clogged sewer drain prior to using a cutting tool.

- **Request Class:** (the timeframe of the work being performed)
 - FINAL DESIGN – a notification requiring not less than 10 nor more than 90 business days notice prior to final design.
 - PRELIMINARY DESIGN – a notification giving more than 90 business days notice.
 - ROUTINE – a notification requiring not less than 3 nor more than 10 business days notice.
 - EMERGENCY – the excavator declares work is an Emergency as defined by Act 287 as amended.
 - INSUFFICIENT NOTICE – the excavator fails to provide the required 3 business day notice and the work does not fall within the definition of emergency as defined by the Act.
 - COMPLEX PROJECT – used to schedule a complex project preconstruction meeting request.

Based on the Message Type, there may be variations in the data fields. Some variations impact the data fields described above, and have been noted where possible. Other data fields are based on conditionals or are specific to certain action or request types and the request class.

PennDOT Permit Number:

If the work is taking place on a PennDOT road, provide the permit number issued to you by PennDOT.

Project dates:

Used in lieu of Lawful Start dates on design notices. Project dates are calculated based on the designation as final design or preliminary design.

Project Contact, Project Contact Phone, and Project Contact Email:

Used in lieu of Onsite contact, Onsite Contact Phone, and Onsite Contact Email on design notices.

CPA Project ID, CPA Phase ID, and CPA Location ID:

Used when a notice originates from the Coordinate PA (CPA) project coordination, collaboration and communication tool. (See Section XV Website Tools for more information on CPA.)

Geometry:

Used in lieu of Mapped Type and Mapped Latitude/Longitude on notices originating from CPA or Homeowners online.

RNO Caller, RNO Caller Phone, RNO Onsite Contact, RNO Onsite Phone, RNO Onsite

Contact Email, Crew Onsite, Unmarked, Incorrectly Marked, RNO Remarks:

RNO is an abbreviation for the action type RENOTIFY. The original Lawful Start Dates, Scheduled Excavation Date, Start time and serial number do not change. Cancel and Complex Project action types are not eligible for renotify action.

Direct Contact with Excavator Required within two hours:

The locate request will indicate Y(es) or N(o) based on information given by the excavator.

The following is one example of the ticket output format with proper information used to identify identifying the location of a work site:

CDC ABC 00001 POCS MM/DD/YY
TT:TT:TT 20181234567-000 NEW XCAV RTN

=====PENNSYLVANIA
UNDERGROUND UTILITY LINE
PROTECTION REQUEST=====

Serial Number--[20181234567]-[000]
Channel#--[1234] [0123] [4567-89]

Message Type--[NEW] [EXCAVATION]
[ROUTINE]

County--[ALLEGHENY] Municipality--
[WEST MIFFLIN BORO]

Work Site--[925 IRWIN RUN RD]
Nearest Intersection--[NOBLE DR]
Second Intersection--[LUTZ LANE]
Subdivision--[BORLAND COMPLEX]
Site Marked in White--[Y]

Location Information:

[WORKING FROM THE FIRE HYDRANT
ON THE LEFT SIDE OF THE BUILDING,
CROSSING THE DRIVEWAY INTO THE
TRELAWN, CONTINUING THROUGH
THE MIDDLE OF THE TRELAWN
PARALLEL TO THE BUILDING, FOR
100FT, CROSSING BACK OVER THE
DRIVEWAY TO THE RIGHT CORNER OF
THE BUILDING.]

Caller Lat/Lon--[
Mapped Type--[P] Mapped Lat/Lon--
[40.361226/-79.926977,40.361981/-
79.924776,40.360903/-79.924907
40.361123/-79.927265]

Map Graphic--[http://www.pa811.org/
ViewMap/view.aspx?sn=20181234567]
Type of Work--[INSTALL 2IN WATER SVC
LINE] Depth--[3FT]
Extent of Excavation--[2FT X 230FT]
Method of Excavation--[TRENCHING]
Equip Type--[BH]
Street--[N] Sidewalk--[Y] Pub Prop--[N] Pvt
Prop--[Y] Other--[TRELAWN]
Private Front--[Y] Rear--[Y] Left--[Y]
Right--[Y]

Lawful Dig Dates--[DD-MON-YY]
thru [DD-MON-YY] Response Due
Date--[DD-MON-YY]
Scheduled Excavation Date--[DD-MON-YY]
Dig Time--[TTTT] Duration--[1 WEEK]
Caller--[ANNABELLE SMITH]
Caller Phone--[555-555-5555] Ext--[
Excavator--[ABC CONSTRUCTION]
Address--[12345 MAIN ST]
City--[PITTSBURGH] State--[PA]
Zip--[15236]
FAX--[555-444-4444] Caller Type--[B]
Email--[asmith@aol.com]
Work For--[PA ONE CALL SYSTEM INC]
Onsite Contact--[ANNABELLE SMITH]
Onsite Contact Phone--[555-555-5555] Ext--[
Best Time to Call--[0800-1600]
Onsite Contact Email--[asmith@abconstruc-
tion.com]
Job Number--[

Prepared--[DD-MON-YY] at [TTTT] by
[CSR NAME]
Remarks--[

SECTION V -

WHAT HAPPENS WHEN THE NOTIFICATION IS MADE

POCS records all conversations that pertain to the Locate request, and maintains a copy. The voice and data records are maintained for five (5) years.

When the Locate request is submitted, the computer processes the ticket, assigns a serial number to the notification, determines which member facility owners to notify, where to transmit the notification, creates the ticket output format, and delivers it to each involved member, separately tracking the sequence number of the day for each unique delivery address.

The system also determines if the notification is the first one placed by your company in the calendar year. If so, an invoice is generated for the annual fee for the service provided by the One Call System. (See Section IV for more information on the annual fee).

SECTION VI -

RESPONSIBILITIES OF THE FACILITY OWNER (After receiving the Locate request)

Underground facility owners have the option to receive the information from the One Call System using a variety of delivery methods, such as email, fax, XML, or viewing Locate requests on the One Call System website. A sequence number is added to each transmission so a member can easily identify skipped transmissions.

To ensure successful delivery of Locate requests, an end of day (EOD) summary audit of messages transmitted from the One Call System is sent to each receiving site shortly after

midnight each day. The summary lists by serial number, any messages the member should have received the day before. Members should check this audit for agreement with transmitted messages. If any serial numbers were missed, members can visit facility owner member web access or call the One Call System to request a resend. Members whose primary method of receiving tickets is web view should review the EOD online as they will not receive a transmission.

- A resend is a manual re-queue of a Locate request previously logged as a successful ticket delivery, initiated by the member facility owner. A resend does not change any data, but appends RSND to the delivery header, populates a new delivery sequence number and includes the date/time of the resend.
- A resend may also be manually forced to a facility owner not notified on the original list when the caller has cause to believe non-notified facilities are present at the work site and are requesting a locate/response.
- A resend conditionally adds one of two text lines at the end of the Locate request:
 - When the member was listed on the original transmission:
 - [Originally sent as sequence number NNNN at MM/DD/YY HHMM].
 - When a ticket is forced to a member not in the original list:
 - [Ticket (re) sent at your request.]

DETERMINING CONFLICT WITH EXISTING ASSETS

Once the information is successfully transmitted and received by the member facility owner, their personnel review the Locate request to determine possible conflicts. The review can include automated or manual comparison with asset maps and records, contact with the excavator to clarify data information about the request, or dispatching a locator to the work site. It is the facility owner's job to decide whether or not the location of the proposed excavation work is close to existing underground facilities.

If the work to be done or work site appears to be complex, or the lines at the site are considered critical, the facility owner may request to meet the excavator. In this case, the facility owner should respond via KARL with a "092-Requests Meeting" designation, and then contact the excavator to arrange a meeting date and time.

Some facility owners are required to be on site during excavation while work is in the vicinity of their line. Generally, there is no charge for this additional level of protection. Take advantage of their expertise and make sure you understand the safety precautions that are necessary to protect the line and yourself.

After receiving and screening the non-design Locate request, if a conflict exists within the excavation work site described on the Locate request, each underground facility owner is

required to mark the location of the facility owner's underground lines within eighteen inches horizontally from the outside edge of the line, known as the tolerance zone, including known connections and appurtenances. At its option, the facility owner may timely elect to excavate around its facilities.

Under Section 2 clause (i.1), known as the Good Samaritan clause, as a helpful guide to the excavator or property owner, the facility owner may identify the location of a known facility connected to its facilities. The identification will not impose any liability upon the facility owner for the accuracy of the non-owned facility.

USE OF MARKING

Facility Owners may use standard locating techniques suitable to each type of line being located based on accepted engineering and operational practices, and mark with paint, stake, and/or flags, according to APWA/Common Ground Alliance Best Practices for Temporary Marking set in ANSI standard Z535.1 Safety Color Code. (See Appendix D of this document). Markings will be done in a reasonable manner; in order to enable the excavator to easily recognize the location of buried facilities.

Use color-coded surface marks (paint or similar coating) to indicate the location and route of buried lines. To increase visibility, color-coded vertical markers (temporary stakes or flags) should supplement surface marks. All marks and markers should include the symbols of the underground facility owner or actual company abbreviation (i.e., VZPA, DLCO, PECO, UGI, PAWC, ATT, etc.) of the company that owns or operates the line, and the width of the facility if it is greater than 50 mm (2") as practicable.

Supplemental offset marking may also be added at the discretion of the facility owner, and is recommended if the surface over the buried line is to be removed or destroyed. Such markings will identify the direction and distance to the actual facility. Offset markings should be on a uniform alignment and must clearly indicate that the actual facility is a specific distance away. Please see the attached marking card for guidelines for marking of underground facilities.

Facility owners should consider documenting the completed mark out with photos.

LOCATION TOLERANCE ZONE

The width of the tolerance zone means the horizontal space within eighteen inches of the outside wall or edge of a line or facility. (see Section VIII of this guide for additional information on excavating within the tolerance zone.)

Temporary Marking Guidelines



Proposed Excavation



Temporary Survey Markings



Electric Power Lines, Cables, Conduit and Lighting Cables



Gas, Oil, Steam, Petroleum or Gaseous Materials



Communication, Alarm or Signal Lines, Cables or Conduit and Traffic Loops



Potable Water



Reclaimed Water, Irrigation and Slurry Lines



Sewers and Drain Lines

RESPONDING TO DESIGN NOTIFICATIONS

Facility owners are required to initially respond to a design request for information as to the position and type of the facility owner's lines based on the information in their possession, or to mark the plans which have been provided to them by the designer, by field location or by another method agreed to with the designer.

Designers may utilize the POCS drawing exchange portal which allows for the upload of drawings at the time the design notification is made. Facility owners can access the drawings and use the TerraGo® toolbar to annotate the drawings, or they can upload pdfs of their facilities in response to the design inquiry.

RESPONDING TO COMPLEX PROJECT MEETING REQUESTS

A facility owner is required to attend and participate in preconstruction meetings for a Complex Project and to work with excavators on a schedule to mark the underground lines reasonably in advance of the actual start of excavation or demolition work for each phase of the work.

If the excavator does not believe a preconstruction meeting is necessary, it will be noted in the Complex Project notice sent to the facility owner, however, facility owners with facilities at

FACILITY IDENTIFIER

CH	Chemical	E	Electric
FO	Fiber Optic	G	Gas
LPG	Liquefied Petroleum Gas	PP	Petroleum Products
RR	Railroad Signal	S	Sewer
SD	Storm Drain	SL	Street Lightning
STM	Steam	SP	Slurry System
SS	Storm Sewer	TEL	Telephone
TS	Traffic Signal	TV	Television
W	Reclaimed Water "Purple"	W	Water

UNDERGROUND CONSTRUCTION DESCRIPTIONS

C	Conduit	CDR	Corridor
D	Distribution Facility	DB	Direct Buried
DE	Dead End	JT	Joint Trench
HP	High Pressure	HH	Hand Hole
MH	Manhole	PB	Pull Box
R	Radius	STR	Structure (vaults, junction boxes, inlets, lift stations)
T	Transmission Facility		

INFRASTRUCTURE MATERIAL

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

the work site may request a meeting with the excavator and a meeting shall be held between the two parties.

When notification(s) exceed the scope of a routine Locate request as defined by the Board, or the work otherwise is determined to be complex in nature, the facility owner may designate a project as complex, and request a meeting with the excavator to determine a mutually agreeable locate schedule. Facility owners must make direct contact with the excavator to set the meeting.

RESPONSE DUE DATE

Facility owners must respond to all notifications through the One Call System by the response due date.

Responses are due:

- Emergency notifications: Emergency Locate requests that fall within the definition of an emergency are given top priority. Underground facility owners are required to mark facilities within the emergency excavation area as soon as practicable. The response by the facility owner should be consistent with the nature of the emergency information received. The expectation is that within 2 clock hours of the notice the Facility Owner will respond to the site or make direct contact with the Excavator.
- Damage, odor of gas, no one call, and

potential cross bore notifications are classified as emergencies.

- Note: In certain situations that fall within the definition of an emergency, but do not require immediate mark out, an emergency Locate request contains a scheduled excavation date greater than the current date. For example, a water line break during the winter months, which might freeze, causing a hazard, but can be kept safe until the next day using road salt. In such cases, the response due is 23:59:59 the calendar day prior to the scheduled excavation date.
- Routine notifications: When the scheduled excavation date is equal to three business days from the Locate request submit date then the response due is 23:59:59 the business day prior to the first Lawful Start date. When the scheduled excavation date is greater than three business days from the Locate request submit date, the response due is 23:59:59 the calendar day prior to the first Lawful Start date.
- Insufficient Notice: the response due is 23:59:59 two business days from the Locate request submit date.
- Complex Project meeting requests: When a meeting is requested the response due is 23:59:59 the business day prior to the proposed meeting date. When a meeting is not requested, the response due is 23:59:59 two business days from the meeting request submit.
- Design notifications: For Preliminary and

Final Design, the response due is 23:59:59 ten business days from the Locate request submit date.

If necessary, the facility should propose mutually agreeable scheduling by which the excavator, facility owner or designer may locate the facilities.

Responses may be sent to the One Call System via its web service, or by using web ticket response on the website, or by calling the automated IVR service know as KARL at 800-222-6470 and following the prompts.

KARL receives the facility owner responses and emails or faxes the collected responses to the originator of the Locate request at the end of the business day on the response due date.

For a list of the Facility Owner responses used in the KARL system please see Appendix B - KARL System of this guide.

RESPONDING TO RENOTIFY LOCATE REQUESTS

Facility owners are required to respond to all notifications received from the one call system.

Excavators renotify facility owners when locate request issues arise. The timing of the renotify request determines the response required of a facility owner:

- *Scenario 1:*
 - On a correctly submitted non-emergency Locate request from an excavator, who, upon their initial arrival at the work site determines that "clear evidence of facilities" exists which are not marked or may be mismarked, and initiates a renotify through the one call system.
 - The facility owner is required to make "direct contact" with the excavator within two hours.
 - If the facility owner fails to provide sufficient information to the excavator within three hours after the renotify call to POCs, the Act does allow the excavator to begin work as scheduled, but not earlier than the lawful dig date, provided he exercises due care and uses prudent techniques in his work.
- *Scenario 2:*
 - An excavator disagrees with a response a facility owner made through the one call system, but it is not their initial arrival at the work site. The one call system will capture the locate issue in the text of the renotify.
 - The facility owner must respond as soon as practicable.

ABANDONED FACILITIES

Facility owners must make reasonable efforts to locate or notify excavators of the existence and type of abandoned main lines.

Information regarding abandoned facilities, in possession of the Facility Owner, should be provided in the following instances:

- with a correctly submitted preliminary or final Design request
- at a Pre-construction meeting on a Complex Project request
- for a Routine Locate request where the specific excavation area is identified using white

paint/flags. (CGA 4.11/APWA guidance)

The Act specifically requires your best efforts to comply with the CGA standards.

Alleged Violations of the Law

Facility Owners are required to submit a report of an alleged violation. Please review Section X for the specifics regarding reporting of alleged violations of Act 287 of 1974 as amended.

SECTION VII - RESPONSIBILITIES OF THE DESIGNER

A Designer is any architect, engineer or other person who or which prepares a drawing for a construction or other project which requires excavation or demolition work as defined by the Act. Each designer preparing a drawing requiring excavation or demolition work within the Commonwealth shall contact Pennsylvania One Call System. The Design Notice is meant to allow the designer to plan the new work around existing facilities as the law prescribes. The notice shall be placed not less than 10, nor more than 90 business days in advance of the final design. Designers can obtain such information more than 90 days before final design is to be completed, however, they shall state in their requirements that such work is preliminary.

According to the Act, Final Design means “the engineering and construction drawings that are provided to a bidder or other person who is asked to initiate construction on the bid date or date the project is set for construction in the absence of a bid”.

In many instances engineering and construction drawings are prepared far in advance of the bid date or the start of construction; or last minute project owner/designer adjustments may result in changes to the proposed excavation area. Preliminary design notifications should be created. The date of the most recent design One Call Notification should never be more than 90 days prior to the project bid date or date of construction in the absence of a bid. This provides the designer with the opportunity to assess the possible impact of any recently installed underground facilities within the project area and to adjust the design accordingly prior to the bid or the start of construction. It is the Project Owner’s responsibility to not release any project to bid or construction until after final design is completed. Good communication between the designer, project owner and involved facility owners is necessary to produce the most accurate construction drawings possible.

Notifying POCS is the first step and there are several other responsibilities which need to be completed. Use of the web based CoordinatePA tool will facilitate the process of notifying POCS.

When contacting POCS to request the line and facility information, the information

provided should cover the entire scope of the plan or development with enough detail to allow the facility owners to provide the location of their lines in the proposed work area. As much descriptive information as you can provide shall be given to help the facility owner identify the proposed construction area. Please be as specific as you can with the location information. It is very important to describe the site in detail.

The designer shall make a reasonable effort to prepare the construction drawings to avoid damage to and minimize interference with a facility owner’s facilities in a proposed construction area by maintaining the clearance as provided for in the applicable easement condition or an eighteen-inch clearance of the facility owner’s facilities, where practical, if no easement restriction exists, or other clearance permitted or agreed upon.

A copy of the project plans shall be forwarded to each facility owner who requests a copy. If a designer is unable to provide a copy because of security of the project or proprietary concerns regarding the design of the project, the designer shall negotiate in a timely manner with the facility owner the means of obtaining the necessary data.

Designers are encouraged to utilize the POCS drawing exchange portal which allows for the upload of drawings at the time the design notification is made. Facility owners can access the drawings and use the TerraGo® toolbar to annotate the drawings, or they can upload pdfs of their facilities in response to the inquiry.

The designer shall show upon the drawing the position and type of each facility owner’s line derived pursuant to the request made, the name of the facility owner as shown on the list from the One Call System, the serial number of the Locate request and the toll free number of the One Call System.

The designer should consult with and advise the project owner regarding the project owner’s requirement to utilize sufficient quality levels of subsurface utility engineering. Design stage responsibilities of the designer and project owner are contained within the law and in the latest version of the Common Ground Alliance (CGA) Best Practices. The Act specifically requires your best efforts to comply with the CGA standards.

As with notifications of excavation work, the facility owners shall respond to design notifications through the KARL System. Note that there is a response dedicated specifically for design notifications, “082 Design Conflict. Please send plans to: <facility owner name & address>”. In addition to responding through the KARL System, facility owners:

- can send plans to the designer directly, or through the Drawing Exchange portal (described above);
- mark the plans provided by the designer by field location or by another method agreed to by the designer, excavator and facility owner or their agent;

- or mark the facilities in the field.

The designer is required to attend and participate in preconstruction meetings on complex projects when the excavator determines that the project is a Complex Project and actually schedules a meeting. Project owners are required to participate in design and preconstruction meetings either directly or through a representative. In many instances the designer may be the project owner’s representative. Such meetings are encouraged to improve communications between all parties.

Annual Fee

The Act requires designers request line and facility information from facility owners and to pay the applicable fee to the One Call System. The fee is billed on the date of the first notification placed each calendar year.

During Excavation

The designer is reminded that responsibilities under the law apply to all design activities, including changes of and additions to a project on which excavation is already underway. At the end of the project all SUE data shall be forwarded to the One Call Center in enhanced .pdf format.

Alleged Violations of the Law

Designers are required to submit a report of an alleged violation. Please review Section X for the specifics regarding reporting of alleged violations of Act 287 of 1974 as amended.

SECTION VIII - RESPONSIBILITIES OF THE EXCAVATOR (After Making the Call)

Many people believe that by notifying the One Call System of intended excavation they have completed all of their responsibilities with respect to the locating process. This is not the case. Notifying is only the first step, and there are several other important considerations.

Prior to the Start of Excavation

When planning excavation activities, the excavator should consider all available site information relating to the existence of underground facilities. The position of facility marks, any Subsurface Utility Engineering information contained on the project plans and the existence of visible landmarks such as meters, valve boxes, manhole covers and similar evidence should be included in the excavator’s site assessment. If working on private property, check with the property owner to help identify any privately owned underground lines.

The excavator must inform each powered equipment operator employed at the site of the information obtained as a result of his notification to POCS. It also is good practice to provide this information to all workers at the site.

Users Guide- continued on page XVII

The excavator should plan the excavation or demolition work to avoid damage to or minimize interference with underground facilities in the construction area. If the work requires temporary or permanent interruption of the facility owner's service the excavator must coordinate the work with the affected facility owner(s) in all cases.

If the excavator is using horizontal directional drilling (HDD), he must, at a minimum, utilize the best practices published by the HDD Consortium.

If requested to do so by a facility owner, the excavator must assist a facility owner in determining involvement of their lines by disclosing additional available information including dimensions and the direction of the proposed excavations.

The excavator, except in an emergency with proper notification to POCS, may not begin excavation or demolition earlier than the scheduled excavation date which can be on or after the third business day after the notification to POCS was made. In a Complex Project, the excavator may not begin excavation earlier than ten business days after notification to POCS.

Consider documenting the position of marks as soon as possible after they are placed. Be watchful for possible removal and tampering of marks. This can occur unintentionally as a result of things such as lawn mowing, normal street maintenance, activities of children playing in the neighborhood as well as normal construction activities. Please remember that weather and wear can obliterate markings. Do not pile brush or spoilage on the marking. You are responsible for the marks once the locator has left the site. If the excavator suspects that marks may have been compromised or eliminated he should contact POCS to request that the facilities be marked again.

During the Excavation Process

All underground facilities encountered during the excavation work should be considered in use and potentially dangerous unless specific information from the facility owner indicates that the facility is abandoned or otherwise not in use and does not contain any dangerous elements or by-products.

If and when the excavation operation approaches the estimated location of underground facilities, the excavator must determine the precise location of the marked facility by safe and acceptable means. This must be accomplished by the use of hand tools or vacuum excavation techniques. The Act requires the use of prudent techniques for the area considered the "TOLERANCE ZONE", which means the horizontal space within eighteen inches of the outside wall or edge of a line or facility. After locating the precise location of underground facilities through the use of prudent techniques, excavators must continue to exercise due care within the tolerance zone to avoid interference,

injury or damage to the underground lines.

If a marked facility is not found within the established Tolerance Zone during excavation, the excavator should contact POCS and renotify the facility owner. If excavation continues, prudent techniques must be used until the precise location of the facility is identified or until it has been otherwise determined that the excavation is not in conflict with the facility. The excavator may be entitled to compensation from the project owner for this extra work as set forth in clauses (4) and (15) of section 5 of the Act. The project owner under the Act is any person who or which engages the excavator for construction or any project which requires excavation or demolition work as herein defined.

Work with the locator to reduce the confusion at the work site. Scheduling and cooperation can keep your job moving efficiently. Discuss your schedule and resources with the locators and set up a working relationship that can save everyone significant delays and confusion. It is always a good practice to document the work you do and record what safety instructions are given by the locator or field representative at the site.

Some facility owners have special policies because of the critical nature of their lines, (i.e. liquid pipelines, fiber optic communications, high pressure natural gas, chemical lines), and want to be on site when you are near their lines. Some facilities demand special consideration and are significant enough that your risk management policy should dictate extreme care be taken when working around these lines.

The One Call System is a mandatory organization, however, exemptions do exist. Pennsylvania One Call System (POCS) is the only One Call System in operation in Pennsylvania. Some underground facility owners have elected not to belong; in violation of the Act. Excavators are not required to make an effort to contact these nonparticipating facility owners directly before attempting an excavation, but realistically there could be a safety issue if you see indications of facilities that are not marked. It is your safety that's at risk. Entities exempt from membership under the Act are listed in the definition of "Facility Owner" and excavators should also be aware of exemptions within the definition of "Line or Facility" within the Act.

POCS is not responsible for the actual marking of facilities. It takes information from the excavator and relays it to the underground facility owners. The facility owners are responsible for ensuring that their facilities are properly marked.

Facility owners are required to respond to all notifications. POCS will collect the responses from the facility owners through the KARL system and relay it to the excavator by email or fax. When one underground facility owner indicates that there are no facilities in conflict with specific excavation, the excavator must realize that

this does not mean that POCS has cleared the site, nor does it mean that other facilities are not at that location. Excavators are encouraged to verify the current status of their one call request prior to commencing excavation or demolition work by calling the POCS KARL system at 1-800-222-6470. Please see Appendix B - KARL System of this guide for further details.

Failure to Locate Facilities Prior To the Start Date

In cases where a facility owner has not responded to a correctly submitted non-emergency excavation request, or they have responded and the excavator, upon their initial arrival at the work site determines that "clear evidence of facilities" exists and are not marked or may be mismarked, the excavator must re-notify POCS. The facility owner(s) must make "direct contact" with the excavator. Excavation within the location of the unmarked or mismarked lines may not begin until receiving sufficient information from the facility owner to safely excavate. If the facility owner(s) fails to provide sufficient information to the excavator within three hours after the call to POCS, the Act does allow the excavator to begin work as scheduled, but not earlier than the lawful dig date, provided he exercises due care and uses prudent techniques in his work.

When Damage Occurs

If during the course of excavation, a facility has been exposed and/or damaged, it is the excavator's responsibility to promptly notify the facility owner so that it may be inspected and repaired, if necessary, before being backfilled. Damage can also occur from improper backfilling around exposed utilities. The excavator should support these exposed facilities until such time as the facility owner inspects them. Failure to notify the facility owner can result in the excavator being held responsible for any and all damages attributable to the damaged facility.

Cathodic Protection techniques are often used to deal with the earth's stray electric current where steel and other metal lines are buried. If these are damaged they cause problems to the pipe or cable and must be repaired by the facility owner, and the damage should also be reported.

If the damage results in the escape of any flammable, toxic or corrosive gas or liquid which endangers life, health or property the excavator must immediately notify 911 and the facility owner. The excavator must also take reasonable measures, based on his knowledge, training, resources, experience and understanding of the situation to protect himself and those in immediate danger, the general public, property and the environment until the facility owner or emergency responders have arrived and completed their assessment of the situation. The excavator must also remain on site to convey any pertinent information to responders that may

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February 28 - March 6, 2022
- **Tampa, Florida:**
February 02 - February 19, 2023



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The **Excavation Safety Guide** is designed to be a reference for readers to use all year long. The articles are concise, to the point and focus on current industry trends and technologies. The resources include the CGA Excavation Best Practices, a complete One Call Center listing along with the state laws and provisions, a pull-out Emergency Response poster plus much more. Protecting the buried infrastructure is becoming more of a challenge every day and this guide will help you navigate through these challenges.

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FREE

Excavation Emergencies Poster

LOOK ON PAGE 29 TO FIND YOUR COMPLIMENTARY PULL-OUT POSTER with complete information on how to recognize and respond to the hazards inherent in utility excavation. **Provided by Pipeline Association for Public Awareness**

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This manual is an informational and educational guide, but it is not intended to provide you with any definitive information regarding legal issues. You need to follow your specific state laws and OSHA rules. If you have any questions on issues raised in this guide, please consult with legal counsel and/or your state One Call Center.



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THE BIG Picture on Small Excavations

STAFF REPORT

Most people associate excavation with large construction equipment digging giant trenches or big holes. But there are many “small digs” that are performed every day and despite the small size, these excavations still pose a threat to safety.

It is vitally important that workers and homeowners engaged in these activities are aware of the hazards that digging poses. Some buried facilities are just inches below the surface and care is required when digging any type of hole. It is also important to note that, quite often, these small dig projects are located on property that is beyond the scope of 811 and may require a private utility locator to identify the location of buried utilities.

Digging in Your Backyard

Everyone knows improvements to your property increase your home’s value, as well as its curb appeal. Property improvements are a way of life for many homeowners, but failing to mark buried utilities before engaging in any small dig project could result in vital damage to plumbing, sewer, electric, cable, gas, oil, and water lines. Often the damage incurred affects not only the homeowner, but entire neighborhoods.

Imagine...

- **cutting the cable line for the entire neighborhood on Super Bowl Sunday**
- **severing a phone line that means 911**

cannot be reached for a neighbor in cardiac distress

- **damaging a water line that allows impurities to contaminate the drinking water**
- **piercing a gas line that causes an explosion, killing someone**

These seem like really big prices to pay when they can be avoided simply by making a call.

Small dig home excavation includes projects like pool building, mailbox installation, landscaping, fence installation, and deck building, but any project that involved ground disturbance of any kind should be preceded by a call to 811.

Farming... or Excavating?

Farming activities increasingly pose a risk to pipelines. Farm equipment is getting more powerful and can dig deeper. Compounding the problem, erosion and soil terrain modifications can reduce the soil covering an underground pipeline or cause the pipeline to shift.

Many activities farmers assume are regular farming activities are actually defined as excavating and require a call to 811, including:

- Fence building
- Drain tiling
- Terracing
- Grading
- Contouring
- Ripping
- Deep tilling
- Building or repairing roads
- Tree or stump removal
- Deep soil sampling
- Clearing or grubbing
- Grading
- Ditch cleaning
- Trenching
- Augering
- Burying livestock
- Installing cattle guards, dams or dugouts

This list is not comprehensive. When in doubt, always contact your local One Call. "Normal" farming activities are limited to things like plowing, planting, cultivating, and harvesting, as long as these activities occur at depths no greater than 12" typically, although state laws vary.

Fence Installation

While many believe contacting 811 is only for large-scale digging, safe dig laws require a locate request prior to any digging activities, including those activities associated with the installation of fencing:

- use of a post hole digger
- driving form pins
- digging shallow holes with a hand shovel
- removing old fencing or trees

Calling 811 is the law but beyond that, having utilities marked helps plan the job appropriately, dig safely around these facilities and avoid costly project delays, utility damages and potential fines.

Tent Rentals

Putting up a tent for a backyard party seems like a pretty simple process. It seldom occurs to people that it would require contacting 811. The truth is, a tent stake can be driven into the ground as deeply as three feet. At this depth, there is the potential for impacting and damaging a buried utility. For this reason, tent builders are required by law to locate buried facilities before installing a tent.

Trail Builders

Trail builders often have a unique excavation situation. The issues they encounter differ from major excavations because of their locale and environment. Often there is the perception that there are no utilities buried in the "middle of nowhere" or that grading a trail is not digging, and therefore doesn't require excavation safety precautions. Further complicating matters, facilities in forests or remote areas are often

unmarked. Even if the location the facility was buried is known, it may be closer to the surface due to erosion and shifting.

Imagine the difficulty of trying to explain to the One Call center where you are when you are standing in the middle of a forest. Rural and natural environments cannot be described as easily as urban or suburban locales that can be easily identified as "the corner of 4th and Oak Street."

Many trail builders now use Global Positioning Systems (GPS) to report their location and may be required to meet the facility locator and escort them to the areas where the work will be performed.

If You Hit a Buried Utility

Regardless of the project you are working on, if you hit a buried utility, immediately stop work, secure the area, call 911, call the utility, and do not resume work until you are given clearance to do so. Even if you do not see any visible damage to the buried facility, it is important to report it as even a small dent or scratch can compromise the long-term integrity of the pipe or cable.

Call 811 for Every Dig Project

Even if you believe you know where utilities are located and even if you have called before, the One Call center must be contacted with every project; erosion may reduce the depth of the facility and lines often shift over time. Whether digging in the backyard or the "back forty," it is important to realize that there is ALWAYS the possibility that facilities lie beneath the surface. **ESG**





BEFORE YOU DIG

BY ERICA COLE

FOR ALL FALL RISKS WHILE ON THE JOB

Fall protection involves far more than preventing a worker from falling at the work site. It should include protecting workers from falling into belowground spaces and preparing for their rescue if they do. It also encompasses preventing objects, such as tools, from falling on people and infrastructure below.

A complete fall protection approach considers all these risks and includes hazard prevention plans, product training, and rescue plans to avoid fall incidents, reducing injuries, damages, reputational risk, and even death.

The next time you arrive at a job site, make sure you are aware of every potential fall

scenario and you are prepared and equipped with the knowledge and products to stay as safe as possible in every situation.

Protect yourself from falling

The legal need for fall protection is generally based on trigger height - the vertical distance from a working surface to the next lower working surface. According to OSHA, the most common trigger height is for construction at six feet. The trigger height drops to four feet for general industry work. On a supported scaffold, trigger height can be ten feet because a standard scaffold is five feet high, which is below the construction six feet minimum trigger height. Proper fall protection should be

used any time you are at risk of falling.

To reduce the risk of falls, first consider eliminating your risk entirely through a change in methods or equipment. Next, prevent access to the fall hazard with a passive physical barrier, guardrails are the most common solution. Plan for the use of fall protection equipment to restrain yourself, while still providing freedom of motion for you as you work. In restraint applications, the fall hazard itself is not blocked, but you are prevented from accessing it with the help of specific fall protection equipment. Common restraint solutions include a PFAS system that includes a harness, a connecting device such as a lanyard or self-retracting lifeline

connected to an anchorage. Typically in restraint the length of the connecting device is what helps prevent workers from accessing the hazard. If potentially accessing a fall hazard is unavoidable, a fall arrest system should be used. Arrest applications are utilized when the worker may encounter the hazard and potentially fall over an edge. Fall arrest applications require specialized equipment designed for the maximum arrest force, which means it must withstand not only the stress of your body falling, which is legally mandated to a maximum of 1,800 pounds, but also the contact between the lifeline and the leading edge, which may damage and compromise the lifeline.



Every fall arrest system is composed of an anchor, bodywear, and a connecting device. Common anchorage solutions can be mounted on a surface like a roof or utilize anchor straps to wrap around structural members. Bodywear includes any of the full-body harnesses compatible with fall restraint or fall arrest operations. A connecting device physically connects the harness to the anchor. Connectors range from simple fixed-length nylon or steel lanyards to single or dual self-retracting devices.

Confined space incidents*

Becoming trapped in a confined space is a fall risk that shares many components with its open-air counterpart. But, given the unique nature of confined space work, there

are special considerations that deserve extra attention. If trapped in an environment with potentially diminished air and visual conditions, it may be a matter of survival.

Ideally, minimize your time working in these environments. When working in a confined space, or any work at height, make sure there is an evacuation and rescue plan. Lifting equipment lowers you safely into the space, where you stay connected via a safety harness. The lowering/lifting equipment includes a tripod that is lightweight and easy to assemble, yet can hold your weight, and even the weight of another person if designed to handle a dual rescue situation. Tripods use rescue lifting winches with self-retracting lifelines for active



fall protection throughout the work period. Descender equipment can even be powered to speed the retrieval of a worker should the situation become more dangerous or used for work at greater heights. Sizes of tripods, rope lengths for various rescue heights, rescue poles and more should be chosen specific to the confined space work at hand.

Other types of required equipment for confined space operations include protective clothing (eye, hearing, head, and hand protection), communications equipment since dark, remote conditions may make voice/sight communication impossible, and ventilators to maintain safe air quality.

Rescuers for confined space incidents should be trained and outfitted with proper rescue gear, which may include self-contained breathing apparatus. In many cases, would-be rescuers are simply other workers who know how to extract the victim from the confined space without being overcome by fumes.

Dropped object hazards

One of the deadliest height hazards that often goes overlooked is dropped tools and

equipment. New developments and standards are bringing more focus to this hazard, but it may still be common for a company to not have a full prevention policy built around this serious hazard. Regardless of your experience with dropped objects prevention, there are some things you can do to enhance safety at heights and below.

Awareness on a worksite is a key step. Identify the risk areas for dropped objects. This may be very straight forward; locations where work will be performed at height are the areas where dropped objects may become a problem. When working multiple sites or with constantly changing conditions, the problem can be a little more

complex as the risk areas move over the course of the day or as work progresses. In either case, it's important to periodically review where the potential for a dropped object exists and act accordingly by ensuring use of proper tool tethering methods, or by setting up "no-go" falling objects zones on lower levels. Companies with well-developed programs under-

stand where an object may fall and how far it might ricochet in the event of an impact, and take measures to prevent workers from inadvertently entering falling objects zones. They will also have a robust supply of tethering equipment to prevent dropped objects in the first place.

Consideration of every fall risk you may encounter while on the job is imperative to keeping you and others safe and maintaining best practices. Fall hazards happen in many ways, from above and below. When you are aware of every potential scenario, and how to avoid it, you will be safer and more productive on the job. **ESG**

Erica Cole is product manager at Pure Safety Group, the largest independent dedicated fall protection company in the world. Learn more at puresafetygroup.com.

***Editors Note: Many confined spaces are designated as permit-required confined space. Only trained professionals are allowed in these spaces. Never enter a permit-required confined space without proper training and equipment.**

Pre-Excavation DOCUMENTATION

BY RON PETERSON

Once excavation begins, the scene changes forever. For this reason, pre-excavation documentation should be collected. In a court case, good pre-excavation documentation may not guarantee a win, failure to have it could cost you the win.

Call in the Experts

If you are an excavator, begin with making a request to the local One Call Center to have the work area marked. Include precise marking instructions as well as white lining whenever possible. If accurate instructions cannot be provided, a meet should be requested with appropriate personnel so the job site can be walked through with the locators (and facility owner if needed) so further instructions can be given. Once the instructions are provided and agreed to, all parties should sign off on the plan. If something changes that affects this agreement, all parties should be notified so a new plan can be developed.

Tracking locator responses is also extremely important for the excavator. More and more One Call systems now offer online positive response systems which allows the excavator to check on the status of the ticket by each utility's locator response digitally. It is important to document which parties have been notified as well as when and how they responded. This allows the excavator to know if someone does not respond so additional outreach can be made.

Excavator Documentation

After all facility owners have responded, it is critical that the scene is documented prior to any excavation work. Taking pictures and video along the path of proposed

excavation is a great way to start. All potential conflicts should be captured as well as any other potential problem areas.

Next, the same process should be used along the line of each of the markings followed by quality overview shots of the entire area. A well-drawn diagram of the area can also be helpful.

The next step is to pothole the utilities. Excavators should document each pothole with data including the depth to the top and bottom of the utility, the size of the utility, material and condition and measurements from fixed objects that are not likely to change. It is always a good idea





IF THE EXCAVATORS KNOW THAT THEY ARE LOOKING FOR A SIX-INCH PLASTIC WATER LINE AND EXPOSE A SIX-INCH CAST IRON LINE, THEY KNOW THAT THEY HAVE NOT FOUND THE TARGET LINE AND SHOULD CONTINUE TO LOOK.”

to capture the potholing process on tape or in photographs. Remember the old adage, if you don't document it, it didn't happen.

If discrepancies arise between what is marked and what you find, never assume. Always follow up with the locator or utility to resolve these issues instead of taking the risk.

With this documentation completed, excavation can begin. Documentation should not stop once excavation starts, however. The documentation process is not complete. It is a good idea to periodically take pictures and/or video while the project proceeds. There is no such thing as too much documentation.

Locator Documentation

For locators, many of the same principles apply. First make sure that you completely understand the marking instructions that you receive. If there are any questions, do not hesitate to call the excavator for clarification. If

you still can't get a good idea of the scope of work, try to arrange a meet onsite. As with the excavator, it is good to walk the site with them and get a clear picture of what they will be doing. Once the instructions are clear, both parties should sign off on it. If something changes on the locator's side, they should make contact and try to find a solution.

After marking the site, the locator should take pictures and video. The locator should strive to follow the proposed path of excavation as well as showing the path of the marks. Extra shots can be captured at potential points of conflict.

Facility Owner Involvement

Utilities should allow the locators to provide key information to the excavators, when known. This includes the size of the facility and the material that should be encountered. With the growing number of abandoned facilities in the ground, this information can

help to prevent damages. If the excavators know that they are looking for a six-inch plastic water line and expose a six-inch cast iron line, they know that they have not found the target line and should continue to look. At a minimum, it should generate a question leading to a call for assistance.

Utility owners also play a part in the pre-excitation arena. One of the biggest impacts they can have is participating in the design phase of projects and providing much needed information both in meetings and during the survey process. Unfortunately, many companies will not allow their locators to mark lines for surveys. They are missing a golden opportunity to prevent damages when this happens.

Communication is key to damage prevention. Everything discussed in this article promotes open and clear dialog between all parties, whether it is with a meet or through paint put down on the ground. By improving communication, we can have a positive impact on damage prevention. However, when things go wrong, quality pre-excitation activities can support your point of view and save the day. **ESB**

In addition to providing damage prevention and investigation services as owner of Ron Peterson Consulting, Ron has held the position of Executive Director of Nulca since 2009. Ron can be reached at ron@ronpetersonconsulting.com.



Pre-Excavation Checklist Before **EVERY** Excavation

IN THE OFFICE

- ☐ Review all drawings, plans, engineering blueprints for existing buried facilities
- ☐ Proposed excavation area has been marked in white paint and/or flags
- ☐ Call 811 at least 2-3 business days before excavation (check your state One Call laws)
- ☐ Locate ticket number is posted at the work location
- ☐ Onsite meeting scheduled with all high profile facilities in locate area (gas/oil pipelines, high-voltage cables, fiber optic)

ONSITE

Complete a pre-excavation walkthrough of the entire jobsite and adjacent areas

Visual Inspection of Jobsite: Permanent markers:

- ☐ Signs or marking posts
 - Pavement markers (stamped nails, pavement decals, A-tags™)
 - Surface markers
- ☐ Other surface signage for landscaped areas
- ☐ Locate marks
- ☐ Consult any maps or field sketches of the location
- ☐ Identify all services to buildings such as:
 - Gas meters
 - Farm taps

- Pipeline valves
- Cable pedestals
- Electric cables
- Water valves
- Telephone closures
- ☐ Look for evidence of trench lines from previous excavation
- ☐ Look for cleared pipeline ROWs
- ☐ Talk with the property owner or general contractor to identify potential private facilities that may not be marked:
 - Lighting
 - Outbuildings
 - Pools/Spas
 - Irrigation
 - Sewer laterals
 - Propane tanks
 - Communications lines

Document of Jobsite:

- ☐ Compare actual jobsite to One Call ticket
 - One Call ticket covers the scope of the work
 - One Call ticket "Work to Begin" date is valid
 - All utilities have responded
 - All facilities are marked within the excavation area
- ☐ Photograph the jobsite
 - Locate marks and flags from 360° at varying distances for perspective
 - Permanent signage and location relative to the dig area:

- Note location, height, and operator of overhead lines
- Note all required safety signage

- ☐ Video and/or sketches where pertinent

BEFORE YOU DIG

- ☐ Review safety information with anyone working the job
- ☐ Confirm with facility owner vacuum or hydro excavation is scheduled for all pipelines impacted
- ☐ Locations for hand digging within the tolerance zone are noted
- ☐ Representatives for all critical facilities are present
- ☐ Emergency equipment available when hazardous atmospheres are potentially present
- ☐ List of all emergency contact numbers for assets in and adjacent to the dig zone is readily available
- ☐ The location and route to the nearest hospital is known by onsite supervisors

This document is provided for informational purposes only and does not constitute professional advice. It is intended to be used as a guide in the development of a checklist specific to your situation and may not be inclusive of all pre-excavation activities required of your situation. Consult your company's appropriate management before implementation. Excavation Safety Guide, its employees and agents accept no liability and disclaim all responsibility for the consequences of acting, or refraining from acting, in reliance of the information contained in this document or for any decision based on it, or for any consequential, special, incidental or punitive damage to any person or entity for any matter relating to the contents of this document.

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-Nick Temple, Not a Real Doctor



Tips for Selecting Protective Footwear

BY JAMES IWANSKI



Workplace foot injuries are common in many industries. In fact, according to the U.S. Bureau of Labor Statistics, in 2018 there were over 900,000 workplace injuries that resulted in days away from work; more than 10 percent of them were foot or ankle injuries.

If you've ever dealt with an injury in the workplace, you're probably aware they can have extensive ramifications. From reduced employee morale and production delays to legal and regulatory headaches, there are many ways foot injuries can slow your team down. At scale, workplace injuries can be quite costly. One estimate by the National Safety Council puts the direct and indirect cost of work-related injuries and illnesses in the U.S. at \$160 billion each year.

That's why, as a safety professional, your top priority is ensuring a safe and productive environment for employees. While it's difficult to anticipate and protect against every injury, outfitting employees with the proper footwear can go a long way toward reducing the frequency and severity of many injuries. Here are a few things to consider when looking for protective footwear.

» Understand the Work Environment

The first step in finding the proper footwear is understanding what you're up against by determining what types of hazards workers are running into on a regular basis. Here are a few to look out for:

- **Slips, trips and falls:** Are the floors often covered in oil or other liquids that might increase the risk of slips or falls? Other examples of high-risk fall surfaces include polished concrete, slippery floor materials, stairs without no-slip treatments, uneven flooring and the uneven ground of a construction site.
- **Common impact sources:** Are there any objects in the work environment that pose a risk of falling or being dropped on workers' feet? For example, tools on raised tables, tools used in a raised work site, large crates being lifted or other heavy materials being moved.
- **Compression or rollover risk factors:** Do workers interact with objects or terrain that might cause compression or rollover foot

injuries? This could be motorized construction equipment, automated closing doors, pallet jacks or forklifts.

- **Static dissipative causes:** Are employees at risk of coming into contact with static charges from things like sensitive electronics or paint areas?
- **Electrical hazards:** Does the work environment contain objects that might cause electrical injuries such as exposed or aging wiring or electrical equipment?
- **Puncture risks:** Is there anything commonly found in the work environment, such as scrap metal, pallet nails or glass, that might puncture footwear and cause injury?

» The Perfect Fit

The best boot for the job only performs the way it was intended to if it fits properly. The right size and width of a work boot ensures all-day comfort and helps reduce the chance of jobsite injuries. A footwear company that properly trains all associates to understand how to fit for length and width while understanding feet come in many different shapes and sizes will ensure your employees are properly fitted for footwear.

By using a combination of traditional methods and technology, the unique size, shape, arch height and pressure points of each foot can be measured. This data is indispensable for getting a customized fit. It's also important to look at gender-specific footwear design, because women and men's feet are shaped differently. A footwear manufacturer should use gender-specific lasts when building footwear to ensure the best fit possible.

» Next-Generation Materials

As a result of wearing breathable materials outside of work, today's workers expect work boots to be lightweight and not bulky while still meeting safety standards and featuring the latest performance attributes. Due to recent material advancements, lightweight footwear options that perform under the toughest conditions are becoming more common, allowing for comfort on and off the jobsite.

In addition, a work boot doesn't need to always look like a traditional work boot. New low-profile products that look like stylish

sneakers but include important features like toe protection are increasingly common. These options not only meet jobsite safety standards but allow for an easy transition from work to everyday activities.

» Accessorize for Comfort

When you think about footwear, it's also important to think about other closely related items such as socks and footbeds. Socks are the main item to help manage moisture, regulate temperature and provide cushioning in key areas, keeping your feet dry and comfortable all day. It's best to go with a sock that complements the footwear, uses premium materials and is carefully constructed.

Another accessory to consider is a footbed. Depending on the shape of a person's foot, customized orthotic footbeds might be needed to ensure optimal comfort. If so, look for a durable footbed designed to fit the shape of your foot and the shape of the boot to ensure a snug but not bulky fit. Go with a footwear company that uses a digital scanner to access a foot's pressure points in order to determine if a footbed is needed and if so, the best type for your foot.

» Shoe Care

It probably comes as no surprise, but countless hours in a variety of tough elements can take a toll on your footwear. And although high-quality footwear will last longer, a little maintenance goes a long way. Taking the time to properly clean, condition and protect one's footwear can extend the life of the boot, saving time and money. Ask your footwear company or seek one out that provides shoe care kits along with lifetime tune-ups, cleaning and minor repairs to make it easy to keep work boots performing both on and off the jobsite.

Purpose-built footwear starts with quality materials and detailed craftsmanship, but a work boot will only keep workers safe if it fits properly, has the right safety features, is equipped with the proper accessories and is well-maintained. A good footwear company will act as a true partner and will guarantee your workers not only find proper footwear for the job, but a work boot that fits their lifestyle without sacrificing comfort or safety. **ESG**

James Iwanski is director of industrial business at Red Wing Shoe Company. Learn more at redwingshoes.com.

Understanding the Marks: Locating and Marking Practices

TAKEN FROM CGA BEST PRACTICES 17.0

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. (Illustration 1)

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 • placing the marks over the approximate center of the facility. (Illustration 2a1) or • 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. (Illustration 2a2)

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.⁴¹

- 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). (Illustration 2b)

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. (Illustration 2c)

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). (Illustration 2d)

Illustration 1



Illustration 2a1

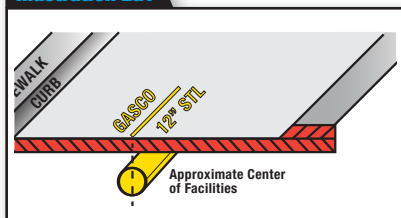


Illustration 2a2

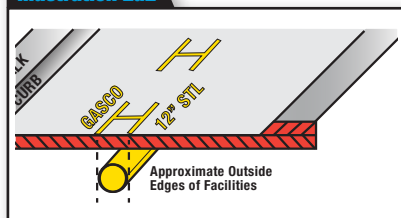


Illustration 2b

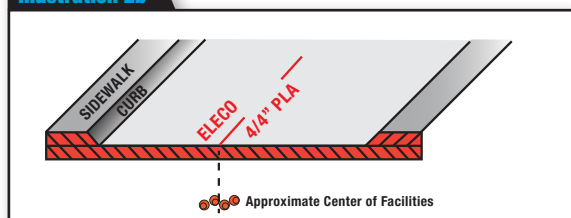


Illustration 2c

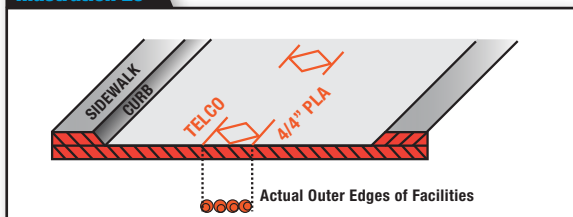
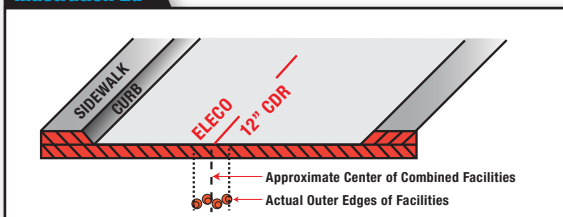


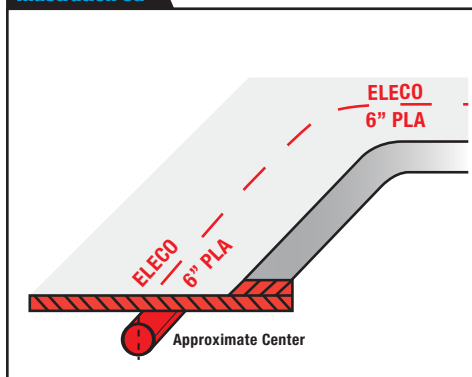
Illustration 2d



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 (Illustration 3a)

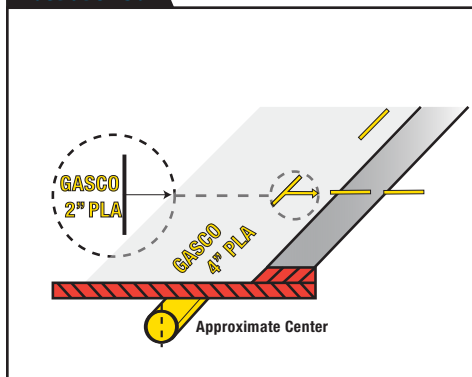
Illustration 3a



Example: lateral connection (Illustration 3b)

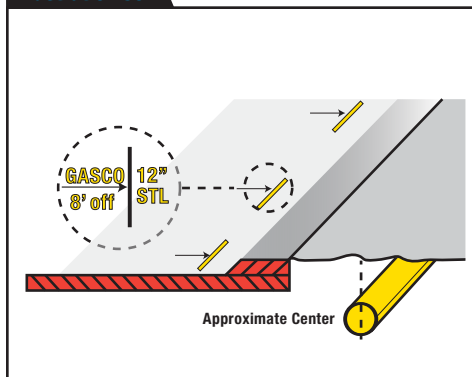
Example: painted offset

Illustration 3b



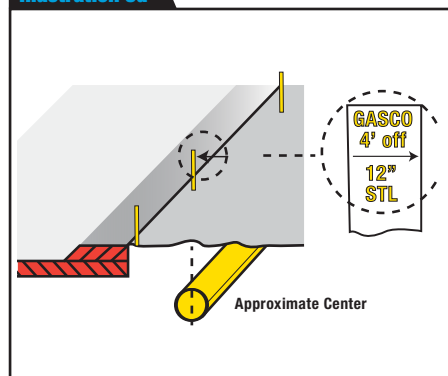
(off) (Illustration 3c)

Illustration 3c



Example: staked offset (off) (Illustration 3d)

Illustration 3d



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:**

CITYCO **ELECO** **TELCO**

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 **GASCO** **WATERCO**
9/4" CAB **4" PLA** **12" STL**

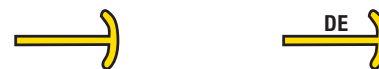
6. Facilities installed in a casing are identified as such. **Examples:** 6 in. plastic in 12 in. steel and fiber optic in 4 in. steel.

GASCO **TELCO**
6" PLA/12" STL **FO (4" STL)**

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:**



8. Termination points or dead ends are indicated as such. **Example:**



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).

COLOR CODE IDENTIFIERS

WHITE	Proposed Excavation
PINK	Temporary Survey Markings
RED	Electric Power Lines, Cables, Conduit, and Lighting Cables
YELLOW	Gas, Oil, Steam, Petroleum, or Gaseous Materials
ORANGE	Communication, Alarm or Signal Lines, Cables, or Conduit
BLUE	Potable Water
PURPLE	Reclaimed Water, Irrigation, and Slurry Lines
GREEN	Sewers and Drain Lines

FACILITY IDENTIFIER

CH	Chemical	E	Electric
FO	Fiber Optic	G	Gas
LPG	Liquefied Petroleum Gas	PP	Petroleum Products
RR	Railroad Signal	S	Sewer
SD	Storm Drain	SL	Street Lightning
STM	Steam	SP	Slurry System
SS	Storm Sewer	TEL	Telephone
TS	Traffic Signal	TV	Television
W	Reclaimed Water "Purple"	W	Water

UNDERGROUND CONSTRUCTION DESCRIPTIONS

C	Conduit	CDR	Corridor
D	Distribution Facility	DB	Direct Buried
DE	Dead End	JT	Joint Trench
HP	High Pressure	HH	Hand Hole
MH	Manhole	PB	Pull Box
R	Radius	STR	Structure (vaults, junction boxes, inlets, lift stations)
T	Transmission Facility		

INFRASTRUCTURE MATERIAL

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

- 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:**



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. **ESB**

THE INAUGURAL GLOBAL Locate Masters (GLM) is scheduled to take place during Damage Prevention Week at the 2022 Global Excavation Safety Conference in Phoenix, Arizona March 1-3. The competition is designed to test the top locators in the world in a skills competition unlike any held before. Using UTTO virtual locate simulators, locators have the unprecedented opportunity to showcase their skills in front of one another and an audience of damage prevention peers.

Typically, locators are evaluated by the mistakes they make, making it difficult to find recognition for everything they do right. GLM is the opportunity for these industry professionals to display how their years of experience, critical thinking, and mental agility combine to allow them to

plaque commemorating their achievement along with recognition in *dp-PRO*, the industry's leading damage prevention publication. The 3rd place winner will receive a \$500 cash award, and the 2nd place winner \$750.

Ultimately a single winner will be crowned. Along with a \$1,000 cash award, the top placing technician will be named the Global Locate Masters 2022 champion and spokesperson. This honor includes interviews for magazine features, publicity quotes in social media to promote excellence in locating, and recognition of this achievement, along with company recognition in all 2021 media coverage associated with GLM. The champion's name is the very first name etched on the Global Locate Masters Cup, a perpetual trophy put on display every year at the Global ESC!

brightest employees compete for the honor of representing their company at GLM. The skills locate technicians use every day in the field can be tested and flexed to the extreme using UTTO's locate simulators.

- Local Qualifying Event: Regional GLM competitions make a spectacular value-add to any industry function. Locate technicians are given the opportunity to showcase their skills, and other attendees are given the rare chance to see how locating really works.
- UTTO simulators are available for purchase or rental. Contact Jeanne at UTTO for more details. 239.313.9350 / jeanne@utto.com

3. Placement at an International Locate Rodeo

The top 3 placers at an official International Locate Rodeo competition (national or regional) qualify to compete at GLM. Follow



complete difficult locates in an accurate and timely manner. The Master's competition recognizes, rewards, and shines a spotlight on the world's best utility locating professionals.

Competition Format

The competition features UTTO virtual locate simulators, providing a novel opportunity for indoor competition with realistic, variable, and highly customizable locate scenarios. The simulator accurately replicates the unique challenges found in the field and its on-the-fly programmability allows for fair competition with equal standards across competitors. Most exciting, changing locate scenarios allows fellow competitors, conference attendees, and vendors to become spectators.

The Locate Masters will culminate in a grand finale on the final day of the conference which features the highest performing technicians of the competition.

Awards

The top 10 competitors will be awarded a

Qualification

To find and crown the best locate technician in the world, GLM offers several qualification methods.

1. Employer nomination

Employers are encouraged to nominate employees who exemplify excellence in locating. Not all of the world's most skilled and responsible locators have the opportunity to compete in regional or international locating competitions. Employers who feel their locate technician(s) represent the best combination of skill, accuracy consistency, and passion for the job are encouraged to nominate them by going to GlobalLocateMasters.com and clicking the Qualification tab.

2. Placement at a regional Global Locate Masters qualifying event

Compete in a scheduled regional GLM qualifying event or organize your own event!

- Internal Companywide Event: Company hosted GLM events offer a special opportunity for employers to let their best and

upcoming International Locate Rodeo events and opportunities on Facebook.

4. Onsite qualification at the 2022 Global Excavation Safety Conference

All interested technicians, conference delegates, and members of the public may compete to qualify onsite at the Global ESC. This option gives those who may not have had the opportunity to compete in a qualifying event to pit their skills against competitors. Onsite qualification takes place at the Phoenix Convention Center, home of the Global ESC, Monday, February 28, 2022.

The world's best locate technicians work every day to protect the public and the underground utilities we all rely on, and GLM is where they showcase the immense amount of skill it takes to do the job well. Competitors from around the world, from large companies to small, will be there to compete to call themselves the best. Will you? **ESC**

Visit GlobalLocateMasters.com

DIGGING DEEP

INTO DEPTH ESTIMATES

BY BOB NIGH SWONGER

THE LIKELIHOOD OF
ERROR INCREASES
WITH THE DEPTH OF
THE LINE BECAUSE
SIGNALS CREATED
ON DEEPER LINES
ARE WEAKER AND
LESS RELIABLE
WHEN DETECTED AT
SURFACE LEVEL.

For several reasons, including signal strength and shape, the electronic depth estimate provided by locate equipment is not guaranteed. A depth estimate provided by the locate technician may give an excavator a false sense of security when crossing over or under a buried line.

The electronic depth reading is not a reading that you would want to bet anyone's life on. The depth readings provided by handheld electromagnetic line locating equipment is an estimation of distance from the bottom of the signal receiver to the center of a locatable signal broadcasting from an underground line. The only absolutely accurate way to know the depth of any buried line is to safely expose the line and see it with your own eyes.

Electronic Depth Estimation and Signal Fields

An electronic depth measurement is a distance calculation from the bottom of the locator's signal receiver to the center of the signal field being detected – NOT a measurement of the depth of cover over a buried pipe. Since the receiver is estimating distance to the center of a perfectly round signal, if you are locating a large diameter pipe the depth calculation is to the center of the pipe. Many equipment manuals claim that in suitable conditions the accuracy of the depth reading provided by the signal receiver should be +/- 5% for lines up to 10 to 15 feet in ideal conditions. The likelihood of error increases with the depth of the line because signals created on deeper lines are weaker and less reliable when detected at surface level.

OTHER AREAS TO AVOID TAKING A DEPTH READING WOULD BE NEAR A TEE IN A PIPE OR SPLICE IN A CABLE OR TRACER WIRE.



Suitable conditions for depth measurement are when the signal transmitter is directly connected to a facility that is buried in a straight line without any adjacent facilities in the ground. The optimum locatable signal would be a strong signal with a perfectly round shape as it radiates or broadcasts out from the underground line, similar to a water ripple created by a golf ball in the middle of a pond of calm water.

When signal wave distortion exists, that signal is not perfectly round and results in the mathematical calculation of distance to line to be incorrect. In the event of signal distortion caused by target signal coupling with a nearby line, the depth reading can be in error up to 50% off the actual depth. That means a line buried 10 feet deep can produce a depth reading ranging from 5 to 15 feet.

Tips for Electronic Depth Estimating

For best results, choose a point along the target line where it runs in a straight line for at least 10 feet in both directions from that point. Avoid taking a depth measurement within 15 feet of the transmitter due to interfering fields being broadcast for the temporary ground stake and wire connection leads.

The most accurate depth estimates are normally obtained from a buried line when the measurement is taken from a signal created by a signal transmitter that is directly connected to the targeted line. The depth assumptions are that the receiver is directly over the top of the line. Another assumption is that the receiver's handle is aligned with the direction of the line or the orientation of the signal field.

Use the guidance indicators and signal strength readout to pinpoint the exact loca-

tion directly over the line. This will be the top dead center of the round signal field. Then establish the exact direction of the line. Some receivers align the handle of the receiver to the direction of the buried line. Set the bottom of the receiver on the ground while maintaining alignment and obtain an electronic depth reading by either the push of a button or full time display. Note the depth at ground level and then raise the receiver 12-18 inches up from the ground. Check the depth reading again and do the math. The reading should equal the sum of the depth at ground level plus the distance you raised the receiver.

There are many areas along a buried line where depth measurements are not favorable, including any point that is within 8-10 feet of an abrupt turn or change of direction in the target line or areas where the line could be at a downward or upward pitch from the surface of the ground. Other areas to avoid taking a depth reading would be near a tee in a pipe or splice in a cable or tracer wire. In these areas, the signal splits in multiple directions and will collide and distort. Finally, any point along the path of a target line where signal may bleed over to another nearby line or metallic object like a fence or heavy equipment, including joint trench scenarios where your targeted line is buried with several other lines. These areas may cause the target signal to become substantially distorted due to signal coupling.

With the countless variables which can cause an electronic depth reading to be in error, it will never be as reliable as safely exposing a buried line prior to digging across, above or beneath a buried line. If the depth of the line is important, the only way to guarantee it... is to see it. Dig Safe! **ESG**

Bob Nighswonger is President of Utility Training Academy (UTA). Visit damage-preventiontraining.com to learn more about damage prevention training for excavators and locators.



Ergonomics is the way you use your body to work and fitting the job or task to you to reduce your risk of injury. The goal of ergonomics is to reduce the risk of soft tissue injuries. These injuries typically develop slowly over time and involve nerves, muscles, tendons, joints and ligaments. Examples of these injuries include low back strain, carpal tunnel syndrome, and tendonitis.

These injuries often start out minor, such as a muscle pull, but become much more serious if you continue to perform the task which originally triggered the injury without getting proper treatment. If not given opportunity to heal, these injuries can become chronic, which means they will stay with you for a long time. There have been cases where injuries have become so serious that it becomes painful to perform simple tasks such as walking or holding a pen or pencil.

time can cause a problem, but activities with more than one hazard can increase physical discomfort even more.

- **REPETITION** involves doing the same task repeatedly that uses the same muscles over and over. Repeating the same motion too often can cause wear and tear on your joints. STIs can develop if you do not rest and allow time for your body to heal. Take control over the motions you make and how often you make them. Reduce repetitive motion hazards by:

ERGONOMICS



Importance of Ergonomics in Excavation Safety

Ergonomics helps to ensure you do not physically overexert yourself in the workplace. Reducing this stress on your body eliminates many injuries associated with overuse of muscles, awkward positions, and repetitive motions.

Soft Tissue Injuries (STIs)

Soft tissue injuries (STIs) may occur from activity at home, during work or recreational activity. These injuries may be the result of a single incident (such as a sudden fall, jerk, or blow to the body), or as a result of repeated overuse (such as shoveling or raking soil, tightening bolts, or machinery operation). The result can be serious damage and pain.

The human body is like a machine with limits that vary from model to model. We do not come with an instruction manual, so we have to depend on the feedback our body gives us for self-maintenance and care. The wisdom we use in applying the feedback received determines how resistant our bodies will be to failure. We have some individual control over most of these issues such as our daily decisions on and off the job which impact both the frequency and seriousness of STIs.

The Risks of STIs and How You Can Prevent Them

There are 5 common ergonomic hazards that may occur as part of work activities. One of these hazards performed over a long

- + Taking stretch breaks. If done properly, stretching increases flexibility which directly translates into reduced risk of injury. A muscle/tendon group with a greater range of motion passively will be less likely to experience tears when used actively.
- + Spreading your repetitive tasks throughout the day.
- + Moving your muscles in opposite directions or different ways to stay balanced.

- **HIGH FORCE** uses high muscle power during activities such as heavy lifting, pushing items or gripping tools. Moving heavy objects is an everyday activity that can cause STIs. The weight of an object can damage the disks in your spine or strain

the muscles in your back and shoulders. This includes lifting, carrying, and placing heavy objects. Gripping heavy objects or applying pressure to a tool with your hands can also cause STIs. Over time, these activities can strain the muscles in your hands and arms as well as the tendons that attach the muscles to bones.

- + Examine alternatives to moving heavy objects. Employ tools such as hand trucks, carts or other mechanical assistance, or get a lifting partner.

work closer to you.

- + Tilt or rotate your work to a better position.
- + Bring items closer within your reach.
- + Change the height of your workstation or display.
- + Take breaks.

- **CONTACT STRESS** occurs when pressure from an object pushes on soft body tissues. Individuals who work with hand tools that dig into the palms of their hands or the sides of their fingers should be aware of the potential for

hands and arms becoming damaged. These precautions help to reduce vibration:

- + Using low vibration tools.
- + Maintaining tools will usually help complete jobs quicker and reduce your risk to vibration exposure.
- + Using anti-vibration gloves or tool wraps.
- + Keeping hands warm to allow good blood flow and prevent tight gripping which can increase risks of vibration.

There are many tasks in our workplace that

OMICS

BY MICHAEL KAY CARTER



- + If you must lift a heavy object, keep the load as close to your center of gravity as possible. Plan the route prior to starting to avoid twisting.

- + Prevent these injuries by increasing your grip strength. Three ways to do this are: keeping your wrists straight, using two hands, and making sure your gloves fit well.

- **AWKWARD POSTURES** involves working with your body held in a poor position for a long time. Awkward positions stress the muscles and joints. STIs can occur if you work in these positions too often or for long periods of time. Simple fixes that can reduce or eliminate the amount of time you need to spend in those positions include:

- + Stand on platforms that bring your

contact stress. Examples include extended use of pliers that are not padded and put pressure in the palm of the hand and use of tools with finger grooves in the sides of handles that press into your fingers. Practical solutions to guard against contact stress related injuries include:

- + Wearing padded gloves.
- + Selecting hand tools that conform to the geometry of the hands.
- + Taking micro-breaks.
- + Initiating daily stretching.

- **HAND-ARM VIBRATION** is a vibration that enters the body from a power tools or equipment. STIs are caused when the vibration is transferred into your arms and hands. Enough vibration exposure can result in the nerves and blood vessels in your

subject our bodies to unhealthy physical stress. Ergonomic practices reduce workplace injuries by helping to identify these dangerous tasks and then redesigning the way they are done. On average, each of us will experience at least one work-related STI during our lives. STIs can become chronic, meaning their symptoms won't go away, and they can result in lost workdays, surgery or even permanent disability. **ESG**

Michael Kay Carter is Manager of Safety Operations for Generation East with the Tennessee Valley Authority. He currently serves as the Administrator of the American Society of Safety Professionals Utilities Practice Specialty. He can be reached at mkcarter@tva.gov.

BY
DANIEL BIGMAN

GPR for Civil Engineering and Damage Prevention

There are several technologies that can improve revenue and growth for engineering firms in the damage prevention industry. Ground penetrating radar (GPR) may be the most significant non-invasive technique used to help engineering firms add services both because it is dynamic in the number of ways it can be applied, and it is affordable.

GPR is a non-invasive technology that uses an antenna to send electromagnetic pulses into the ground and records two-way travel times of waves and amplitudes of reflections. When the wave moves from one set of physical properties to another, some of the energy

is reflected towards the ground surface. The two-way travel time can be converted into depth if the user estimates the velocity that the GPR wave traveled. If the contrast between the two materials is large (a metal pipe buried in sand), then most or all the energy will be reflected. If the contrast between the two materials is small (the contrast between concrete and sand), then some of the energy will be reflected and some will continue into the next material. This allows for the possibility of additional reflection events at greater depths and this is what makes GPR a truly three dimensional imaging technology. If enough scans are collected, and the locations of those scans are known relative to each other, then the data can be resampled into various 3D visualizations such as time-slices/amplitude maps, volumetric cubes, fence diagrams, and iso-surfaces. The ability to visualize these data in many forms

can assist the engineer in solving problems using GPR technology.

Despite its dynamism, GPR is not a tool that can be used in isolation of other non-destructive technologies. There are advantages and disadvantages to GPR and the principles of other techniques often complement GPR.

Advantages of GPR

- easy to use
- easy to set up
- can be used with various frequencies which can be applied to unique applications
- works on contrast and thus has the potential to identify targets of interest or evaluate infrastructure aboveground or belowground, no matter what the material is.

Disadvantages of GPR

- general inability to determine exactly what material caused a reflection based on the GPR data alone
- electromagnetic signal is susceptible to rapid decay when traveling through all materials except air which limits depths of investigation



• GPR receiver will record all electromagnetic (EM) signals propagating towards it including those that were not generated by the GPR itself. These external sources of noise can cause static in the GPR data, decrease quality and clarity, and ultimately make it difficult to interpret.

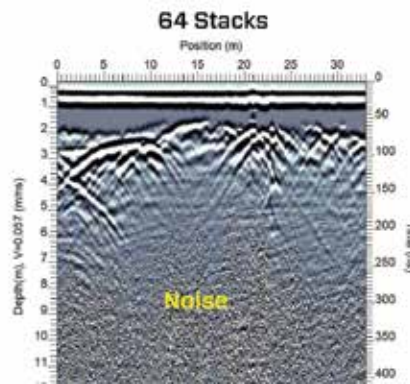
Ways GPR can be used in damage prevention

1. Locating buried pipes and utilities

GPR is a great complement to traditional EM locators because it can be used to locate any material underground so long as there is a contrast between the target and the soil in which it is buried. GPR can locate wire and cable, but also pipes made of PVC, clay, fiberglass, or other materials that do not hold a current. The outputs of GPR scanning can be used during the design phase to increase effectiveness or during construction to avoid damages. GPR is often used in conjunction with EM pipe/cable locators to maximize the likelihood of identifying all underground services that are identifiable.

2. Concrete scanning

GPR with high frequency antenna can be used to determine concrete thickness and to locate, map, and mark post tension cables, steel rebar, wire mesh, or other reinforcements embedded in concrete structures. This is important for maintaining structural integrity during concrete cutting, drilling, or coring and will minimize the probability of unnecessary costs due to damage. In addition, identifying locations of potential live conduit can increase site safety and minimize the likelihood of injury while drilling into concrete. One difficulty GPR can have with concrete is identifying internal defects such as honeycombing or delamination. While this is possible since the air inside the defect will contrast with the concrete, it can present trouble for GPR since the size of the defect might be too small for GPR to record a response. GPR is often used in conjunction



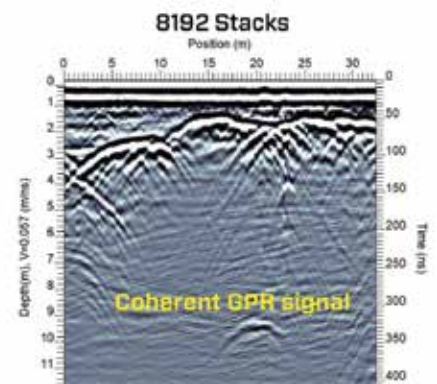
with ultrasonic pulse echo, which works on mechanical waves, to identify minor defects that can be catastrophic to structural integrity if not mitigated.

3. Evaluating conditions of roadways

GPR can provide early detection of voids that may be developing below a paved surface and cracks or emerging cracks in actual roads that might not be visible from the surface. Unlike coring, GPR offers a non-destructive way to assess roads for current deterioration levels, remediation planning, and ultimately extend the use life of this critical asset. Road condition assessment is an application that often requires a range of GPR frequencies to fully identify potential sources of road failure, lower frequencies for deep void detection and higher frequencies for asphalt and base condition assessment. New GPR technologies are now available that provide the engineer with the ability to collect information at highway speeds which can increase project safety, minimize disruption to the flow of traffic, and potentially provide rapid dissemination of deliverables to clients. In addition to GPR, falling weight deflectometers can assess the strength of roads and provide additional information beyond what GPR can reliably produce.

4. Locating buried contamination

Before grading and excavation for foundations, GPR can be used to pinpoint the locations of debris for removal. GPR can determine density, depth, and amount of debris on a site. Large amounts of buried debris may make sites unsuitable for construction and GPR can be used for rapid assessment to inform decisions. Also, GPR can be used to evaluate soil contamination on construction projects or brownfield sites in general. The GPR signal can rapidly deteriorate when traveling through certain contaminants and the engineer may attempt to identify locations or boundaries of signal decay to assist in interpretations of con-



taminant plumes. A complementary tool for identifying debris and soil contamination is a conductivity meter which records the ease or difficulty of inducing an electric current in the subsurface. For example, concrete debris buried in clay would be less conductive and thus more difficult to induce a current into compared to the clay around it.

5. Evaluating corrosion of rebar

Corrosion of steel rebar in reinforced concrete creates long-term durability problems during the service life of a structure. The process of corrosion alters the chemical properties that results in the loss of area in the reinforcing steel. These alterations allow GPR to distinguish between corroded steel and unaffected rebar, allowing engineers to adequately evaluate structural quality and integrity. Another useful method for evaluating corrosion of rebar is a half-cell potential sensor. This technique applies an electric current to a healthy steel rebar embedded in concrete and measures the impact of that signal across the structure.

Whether you own a GPR unit, rent equipment, or hire an outside expert, this technology can cut project costs, limit liability, increase site safety, enhance the design phase, and grow your business. Many firms do not use GPR or only use it on a limited set of projects. By integrating this technology into your proposals and projects, you can win more work and add additional service offerings to your clients. **ESG**

Daniel Bigman is President of Bigman Geophysical (bigmangeo.com), a company providing training, equipment rentals, and project support for the damage prevention industry. He is instrumental in the development of the GPR Congress, a forum for academic and industry practitioners to engage in open discussion and continuous learning through shared ideas and experience. Learn more at GPRcongress.com.

BEING A

BY LEVI MILLS



DIGGING PARTNER

We have all heard the phrase, “Safe digging is a shared responsibility,” and most of us are committed to doing our share. Sometimes, however, it can be difficult to know what our share is. Here are a few easy tips for excavators to ensure they are protecting our buried infrastructure, our onsite crews, and the communities where we work.

Make sure locator marks match aboveground indicators

Comparing the marks made by the facility owner’s locator to aboveground indicators on the dig site is one of the easiest and most effective ways to safeguard against utility strikes. While facilities are tucked out of site and out of mind for most citizens, excavators know there are surface indicators all around us. These indicators include, but are not limited to:

- **Commercial Business Sign**
- **Electrical box**
- **Exposed Pipe**
- **Fire Protection System**
- **Manhole Cover**
- **Marking Paint or Flags**
- **Ownership Transfer Point**
- **Parking Lot Lighting**

- **Pedestal**
- **Pipeline Marker**
- **Propane Tank**
- **Regulator**
- **Saw Cut Marking**
- **Splicing Box**
- **Transformer**
- **Trench Plate**
- **Utility Meter**
- **Water Valve**

Checking for aboveground indicators displays a combination of common sense, experience, and discipline. Although seemingly a simple task, the benefits greatly outweigh the amount of time and effort required. Excavators should make it a high priority task once they arrive at a jobsite after the site location(s) has been completed.

White line

White lining is the practice of marking or lining a proposed dig area prior to excavation. The goal of white lining is to clearly communicate the full breadth of the planned excavation covered on a specific One Call ticket so locators can effectively and efficiently mark the area. White lining is used in conjunction with the text

descriptions of the excavation on the locate ticket. The visual of a white lined area greatly reduces the possibility of mistakes. In fact, a 1997 safety study conducted by the National Transportation Safety Board, “Protecting Public Safety through Excavation Damage Prevention”, endorsed white lining as a practice that aids in preventing excavation damages.

Along with the safety benefits of white lining proposed excavation, the practice can also improve the overall efficiency of the locating process. Locators arriving at a work site have a clearer picture of the work site and can avoid marking areas irrelevant to the proposed dig. Christopher Koch, columnist with dp-PRO, wrote about his own frustrations as a locator with failures to white line in a piece, “*As Long as You’re Here*,” featured in the 2020 Special Locate issue.

It is important to note that white lining should be used as an additional form of communication between excavator and locator and is not a replacement for a thorough written description of the dig site submitted on a One Call ticket.

White line laws vary from state to state, but it is a best practice no matter your location. Check with your local state One Call for more information on laws in your area, ex-

niques. Luckily, the excavation industry has a fast-expanding catalogue of training opportunities focused on excavation safety and damage prevention.

By becoming an Excavation Safety Alliance (ESA) member, you join the utility safety industry's first membership community focused on all facets of damage prevention and excavation safety education. ESA launches spring of 2021 and consists of:

ASK THE EXPERT: A series of videos, podcasts, blog posts where industry experts answer specific questions or provide in-

sights on solutions to common problems.

TOWN HALL MEETINGS: Discussions led by a moderator, often with a panel of industry experts that focus on specific topics of importance to the industry. All stakeholder members have access to these town hall forums and members have access to participate and provide insight. Town Halls follow two different formats

- *Town Hall Solution Series* are multipart events which begin with a discussion focused on identifying aspects of a specific issue, followed by forums directed specifically on building potential solutions. The final step is the formation of small groups who volunteer to work on paths forward for suggested solutions for presentation to the industry through ESA and dp-PRO.
- *Town Hall Forums* are open dialog conversations on hot industry issues like industry studies, new laws, etc. Visit ExcavationSafetyAlliance.com for details and dates on upcoming topics.

WORKSHOPS: In-depth explorations on specific topics available both as live virtual workshops and as recorded on-demand viewing. Workshops available spring of 2021 include:

- CAMO's Emergency Response Workshop: CAMO (Coastal and Marine Operators) explores the issues and challenges in preventing spills, releases, and damage to underwater pipelines and utilities which negatively impact the environment and public safety.
- Leading Practices on Cross Bore Safety: Created to provide guidance for minimizing utility conflicts due to cross bore strikes, this course covers a wide range of cross bore safety topics, from evaluation of existing cross cores to regulatory requirements.

TRAINING VIDEOS: In-depth videos which dive into the details of key topics including episodic series on Subsurface Utility Engineering (SUE) and Vacuum Excavation.

NETWORKING: Through scheduled networking events, ESA members bring conversations and content together to create a digital community that moves beyond ideas to take meaningful actions.

VIRTUAL SYMPOSIUMS: A variety of professional and industry speakers gather to offer education with live Q&A, along with group networking, on specific topics or industries. Upcoming symposiums in 2021 include the Global GPR Congress, Electric Symposium, and the Utility Coordination Symposium.

Many educational videos and blog posts from around the world are available free to non-members. Membership brings access to an extensive catalogue of exclusive content. Visit ExcavationSafetyAlliance.com to learn more.

Participate in industry groups

A wide variety of stakeholders are invested in the safety of buried infrastructure, and groups help organize the many players, topics, and issues. Participation in these groups is a fantastic avenue to professional growth and continued learning and ensures others can consider and learn from your unique perspective. A quick search on google or LinkedIn can yield dozens of immediate results on groups designed around your specific area of interest. **ESA**

panded best practices, and white line marking techniques. For example, visit JULIE One Call of Illinois for a guide to pre-marking standards and terms. (illinois1call.com/pre-mark-your-project-excavators)

Click before you dig

Submitting a locate request before excavating is more than a best practice, it is the law. Specific laws regarding the timing of a locate request vary by state but submitting a locate request before excavation is mandatory nationwide. See the One Call and State Law Directory beginning on page 49 for details on the laws in your state. Many notification centers now offer an online alternative to placing a "One Call." Using this online platform enhances your ability to provide accurate, concise details of the proposed excavation site.

Advantages of submitting an online ticket

- Available for submission 24 hours a day, 365 days a year.
- Skip the possibility of waiting on hold.
- Electronic maps often available to specify excavation area.
- No possibility of verbal transcription errors.

Continue your training

Learning and following best practices helps establish a solid foundation for safety, but continual learning is recommended to keep pace with industry advances and new tech-



TRENCHING AND EXCAVATING PROCEDURES AND SAFETY CONSIDERATIONS

BY
ANKIT SEHGAL



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ore than 800 construction workers are involved in accidents each year on the job. Of these accidents, approximately 40 workers are involved in an incident related to excavation or trenching. That is why the Occupational Safety and Health Administration (OSHA) has gone to great lengths to define threats and identify safe practices. Fortunately, a little knowledge goes a long way when it comes to safe excavations and earth removal.

Trenching and Excavating 101: What to Watch Out For

When it comes to trenching and excavating, you must have a thorough understanding of the most significant risks posed by these operations. One of the primary threats associated with trenching and excavating is cave-ins, accounting for most worker injuries and fatalities. Trench collapses lead to dozens of deaths and hundreds of injuries annually. Other potential issues include hazardous atmospheres, falls, falling loads, and incidents involving mobile equipment.

The best guard against these potential hazards is to never enter a construction site without the proper protective gear or a trench that fails to have the right protective systems in place.

Trenching and Excavation Safety Systems

A protection system should always be in place for commercial trenches five feet or deeper. The only exception is an excavated trench comprised of stable rock. Once a trench reaches a depth of twenty feet, its safety system must be designed by a registered engineer, or tabulated data that has been prepared or approved by such an expert. Different types of protective systems exist.

- **SHORING** is installing supports to prevent cave-ins and soil shifting.
- **SLOPING** is cutting back the trench wall at an angle inclined away from the excavation.
- **SHIELDING** relies on trench boxes or other support types to avoid sediment cave-ins.
- **BENCHING** protects employees from cave-ins by removing earth from the excavation sides to form one or more horizontal steps or levels and cannot be used in Type C soils.

How to Select the Best Safety System

The decision-making process for choosing the right safety system can be complicated, involving multiple considerations, including:

- **Depth of cut**
- **Soil classification**
- **Water content of soil**
- **Changes due to weather or climate**
- **Other operations in the vicinity**
- **Surcharge loads (may include materials used in the trench or spoil)**

What to Know about Soil Types

Excavation safety requires a competent person onsite who understands different soil types and can guide you through the process of installing the best safety system for specific soil conditions. OSHA

Trenching and Excavating Procedures and Safety Considerations
continued on P.33



**Know what's below.
Call before you dig.**

PÓSTER DE SEGURIDAD PROVEIDO POR PIPELINE ASSOCIATION FOR PUBLIC AWARENESS

DIRECTRICES PARA REACCIONAR EN EMERGENCIAS

CONOZCA LOS PELIGROS

- El gas natural y otros productos de petróleo son inflamables y queman. Si la piel está expuesta, serias irritaciones pueden ocurrir. Los gases escapados pueden desplazar el oxígeno.
- La electricidad hará descargas o cortocircuito a tierra produciendo temperaturas que son cuatro veces más intensas que la temperatura del sol. Como mínimo quemaría la piel y dañaría los órganos internos. Los altos voltajes de electricidad pueden hacer arco a distancias considerables a través del aire. Usted debe estar consiente de cables aéros de alto voltaje y aleje cualquier parte del equipo por lo menos a 10 pies de distancia de los cables aéreos.
- El agua a alta presión pueden causar heridas graves. Las aguas residuales contienen bacterias que puede ser de alto riesgo para la salud. Los gases del alcantarillado son inflamables y queman.

RECONOZCA LAS CONDICIONES PELIGROSAS

- Los charcos de líquido, la tierra soplando, los sonidos siseantes, las nubes de vapor, los olores a gas, las burbujas en agua estancada, la vegetación completamente seca, y la tierra congelada o hielo alrededor de gasoductos/oleoductos son todas señales de escapes de gas natural o petróleo y deben de ser tratadas como una emergencia.
- Trate el contacto con cualquier cable eléctrico como una emergencia sin tener en cuenta si aparece dañado o no o si está cortado. Esto incluye el contacto con cables aéreos de alto voltaje.
- Con frecuencia los servicios usan zanjas conjuntamente poniéndolo a usted en un mayor riesgo en las zanjas que también tienen electricidad.
- La tierra mojada o descolorida es un indicio de un escape de agua/alcantarillado y debe ser tratada como una condición de emergencia potencial.

EXCAVATION EMERGENCIES



**Know what's below.
Call before you dig.**

SAFETY POSTER

PROVIDED BY PIPELINE ASSOCIATION FOR PUBLIC AWARENESS

KNOW THE HAZARDS

- Natural gas and other petroleum products will ignite and burn. If exposed to the skin, serious irritations may occur. Escaping gases can displace oxygen.
- Electricity will arc or short to ground producing heat that is up to four times greater than the heat of the sun. At a minimum, it will burn skin and damage internal organs. High voltage electricity can arc significant distances through the air. Be aware of all aboveground high voltage lines and keep any part of the equipment at least 10 feet away from overhead lines.
- Water under high pressure can cause serious injury. Wastewater contains bacteria that can be a significant health risk. Sewer gas will ignite and burn.

RECOGNIZE UNSAFE CONDITIONS

- Pools of liquid, blowing dirt, hissing sounds, vapor clouds, gaseous odors, bubbles in standing water, dead vegetation, and frozen soil or ice next to pipelines are all signs of a natural gas or petroleum pipeline leak and should be treated as an emergency.
- Treat contact with any electric line as an emergency regardless of whether it appears undamaged, damaged or severed. This includes contact with aboveground high voltage lines.
- Utilities often jointly use trenches placing you at greater risk in trenches that also have electricity.
- Wet or discolored soil is an indication of a water/sewer leak and should be treated as a potential emergency condition.

EMERGENCY CONDITIONS INVOLVING UNDERGROUND FACILITIES INCLUDE:

Leaks, ruptures, explosions, fires, severe settling or soil movement, weakened or damaged facilities and similar instances where immediate action is necessary to prevent loss of life, injury to persons, or damage to property and the environment. Every situation is different and must be evaluated on the individual circumstances. Below are general emergency response guidelines for various emergency/damage situations involving underground facilities.

RESPOND IMMEDIATELY

NATURAL GAS & PETROLEUM LIQUIDS

1. Turn off equipment, if it can be done safely.
2. Abandon all equipment and get a safe distance away.
3. Avoid open flames or anything that might start a fire. Do not start motor vehicles or electrical equipment. Remove all ignition sources (cigarettes, cell phones, or anything that could create a spark or static electricity).
4. Evacuate the area and keep people out.
5. Do not make contact with escaping liquids.
6. Do not operate any pipeline valves.
7. Call 911 or your local fire, police, or sheriff's office.
8. Do not try to put out a fire. If it's burning, let it burn; ask local firefighters to observe and protect adjacent property.
9. Contact the facility operator immediately to report the condition.

ELECTRICITY

1. Only move equipment in contact with overhead or underground electric lines if you can move it away safely.
2. If excavator equipment remains in contact with electric equipment, it's safest to stay on equipment (unless on fire) until rescue workers arrive; keep others away. If you must abandon equipment, jump clear of it, landing with both feet on the ground at the same time, and then only shuffle or hop away.
3. If a buried electrical line is struck in wet soil/conditions, the ground may become energized for a large area around the strike. *(Hopping or shuffling away will help reduce your risk to step potential.)*

4. Contact the facility operator immediately to report the condition.
5. If appropriate, call 911 for local emergency response.

WATER/SEWER

1. Evacuate the area immediately and keep people out. Leaking water can fill a trench quickly making escape extremely difficult.
2. Do not close valves in order to stop flooding. Closing the wrong valve may affect fire flows and/or possible containment of potable systems.
3. Be careful of damaged high-pressure water lines because even the slightest scratch or vibration can cause pipelines to break.
4. Move carefully around trenches with wet walls. Wet soil can easily cause suffocation.
5. Avoid contact with wastewater. Do not wade in or work around wastewater.
6. Sewer gas is flammable; avoid open flames or anything that might start a fire.
7. Contact the facility operator immediately to report the condition.

FIBER/COMMUNICATION

1. If a fiber optic cable is cut, do not look into the end of it. Serious eye damage may occur.
2. Contact the facility operator and report the condition.

▶ NEVER BURY A DAMAGED FACILITY!

Even a minor scrape, nick, cut, tear, break, or dent should be reported to the facility owner immediately. If not promptly repaired, it could result in a future leak, service outage, explosion, accident, injury, or death.

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CONDICIONES DE EMERGENCIA

que afectan las instalaciones subterráneas incluyen: escapes, rupturas, explosiones, incendios, hundimiento severo o movimiento de tierra, debilitamiento y daño de gasoductos/oleoductos/acueductos, y casos similares donde es necesaria la acción inmediata para impedir pérdida de vidas, heridas a personas, o daños a propiedad y el medio ambiente. Cada situación es diferente y debe ser evaluada individualmente según las circunstancias. A continuación se dan directrices generales de emergencia para reaccionar ante varias emergencias/situaciones donde hay daños que afectan las instalaciones subterráneas.

REACCIONE INMEDIATAMENTE

GAS NATURAL Y LÍQUIDOS DERIVADOS DEL PETRÓLEO

1. Apague el equipo, si lo puede hacer con seguridad.
2. Abandone todo el equipo y alejese a una distancia segura.
3. Evite llamas abiertas o cualquier cosa que pueda prender fuego. No arranque vehículos de motor o equipo eléctrico. Retire todas las fuentes de ignición (cigarrillos, teléfonos celulares, o cualquier cosa que pueda crear una chispa o electricidad estática).
4. Evacúe el área y no deje pasar a la gente.
5. No haga contacto con escapes de líquidos.
6. No maneje las válvulas de gasoductos/oleoductos.
7. Llame al número de emergencia 911 o llame a las oficinas locales del cuerpo de bomberos, policía, o sheriff.
8. No trate de apagar el fuego. Si está ardiendo déjelo quemar; pídale a los bomberos que observen y protejan la propiedad adyacente.
9. Inmediatamente póngase en contacto con a la compañía que opera los gasoductos/oleoductos para reportar las condiciones.

ELECTRICIDAD

1. Sólo mueva equipo que esté en contacto con cables eléctricos aéreos o subterráneos si usted lo puede mover con seguridad.
2. Si el equipo excavador continúa en contacto con equipo eléctrico, es más seguro quedarse en el equipo (a no ser que esté en llamas) hasta que lleguen los trabajadores de rescate: no deje que otros se acerquen. Si tiene que abandonar el equipo, salte lejos del equipo, cayendo con ambos pies a la misma vez, y luego sólo alejese arrastrando los pies o saltando
3. Si hay impacto con un cable enterrado y la tierra está mojada, la tierra en el área alrededor del impacto puede estar energizada. (Reduzca el riesgo de electrocutarse alejándose saltando o arrastrando los pies.)
4. Inmediatamente póngase en contacto con la compañía que opera las instalaciones para reportar la emergencia

5. Si es apropiado llame al número de emergencia 911 para ayuda local.

ACUEDUCTO/ALCANTARILLADO

1. Evacúe el área de inmediato y no deje que la gente se acerque. Un escape de agua puede llenar una zanja rápidamente haciendo su escape sumamente difícil.
2. No cierre las válvulas para impedir inundaciones. Cerrar la válvula equivocada puede impedir que el agua pase por los ductos de agua que usan los bomberos para apagar fuegos y/o posiblemente contaminar el sistema de agua potable.
3. Tenga cuidado con los ductos de agua de alta presión debido a que cualquier leve rasguño o vibración puede causar una ruptura.
4. Muévase con cuidado alrededor de zanjas que tienen las paredes mojadas. Tierra mojada puede derrumbarse fácilmente y causar asfixia.
5. Evite contacto con aguas residuales. No camine o trabaje alrededor de aguas residuales.
6. Los gases del alcantarillado son inflamables; evite llamas abiertas o cualquier cosa que pueda iniciar un incendio.
7. Inmediatamente póngase en contacto con la compañía que opera los acueductos y alcantarillados para reportar la emergencia.

FIBRA ÓPTICA/COMUNICACIÓN

1. Si el cable de fibra óptica está cortado, no mire adentro de la punta del cable. Graves daños a los ojos pueden ocurrir.
2. Inmediatamente póngase en contacto con la compañía que opera la fibra óptica para reportar la situación.

NUNCA ENTIERRE EQUIPO DAÑADO

Nunca entierre equipo dañado como cables eléctricos, gasoductos, oleoductos, o ductos de cualquier tipo. Informe de inmediato a la compañía afectada cualquier leve rasguño, corte, rotura, o abolladura. Si la reparación no es hecha rápidamente en el futuro pueden resultar escapes, interrupción de servicios, explosiones, accidentes, heridas, o muerte.

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Trenching and Excavating Procedures and Safety Considerations continued from P.28

relies on three tests. At least two of these tests should be implemented any time soil conditions may change.

1. Plasticity
2. Thumb penetration
3. Pocket penetrometer

Soil Types

Granular soils contain coarse particles like gravel or sand. As a result, the dirt does not stick together and therefore requires more extraordinary measures to prevent a cave-in.

Cohesive soils include enough clay or fine particles that individual particles stick together. Cohesive soil is less likely to cave in.

OSHA relies on a measurement known as unconfined compressive strength (the amount of pressure it requires to collapse a specific soil type) to categorize each soil type.

- **STABLE ROCK** is natural solid mineral matter. You can excavate with vertical sides and it remains intact while exposed. Stable rock is the safest soil in which to work because there are no individual particles that could separate or cave in.
- **TYPE A**, the next most stable of the soil types, is highly cohesive and boasts a high unconfined compressive strength (1.5 tons per square foot or more). Type A soils include clay, silty clay, sandy clay, and clay loam.
- **TYPE B** soil is cohesive but has been disturbed or otherwise fissured. It is characterized by particles that refuse to stick together mixed with Type A soil. Type B soil demonstrates medium unconfined compressive strength (0.5 - 1.5 tons per square foot) and includes silt, silt loam, angular gravel, and soil located near sources of vibration or marked by fissures.
- **TYPE C** soil is the least stable. Its granular soil particles do not stick together. It has a low unconfined compressive strength (0.5 tons per square foot or less) and includes sand and gravel as well as soil with clear signs of water seepage.

Consistently monitor for changing conditions as exposure to vibrations or precipitation can lead to changing soil conditions and require different safety systems.

Daily Inspections by a Competent Employee

Inspections must occur before workers enter the excavation area or trench to help eliminate the risk of excavation hazards. OSHA defines a competent person as an individual capable of identifying predictable and existing hazards or working conditions that are considered unsanitary, dangerous, or hazardous to workers. A competent person will:

- **Test and classify soil**
- **Inspect protective systems**
- **Monitor water removal equipment**
- **Design structural ramps**
- **Conduct site inspections**
- **Take speedy action and corrective measures to mitigate potential hazards**

Understanding Access and Egress Points

The designated competent person regularly inspects excavations and trenches four feet or deeper to ensure safe access and egress. Means of entry and escape must lie within 25 feet of employees.

OSHA Trench Safety Rules

Following these OSHA guidelines ensures the safest working conditions for all employees on a job site.

- **Maintain surcharge loads a minimum of two feet away from trench edges**
- **Keep heavy equipment away from trench edges**
- **Know where all underground utilities are located**
- **Test for low oxygen, toxic gases, and hazardous fumes**
- **Inspect trenches at the beginning of each shift**
- **Never work under raised loads**
- **Inspect earthworks after rainstorms and other precipitous weather**
- **Inspect trench after any occurrence impacting conditions**
- **Ensure all personnel wear high visibility clothing when exposed to vehicular traffic**

Preplanning

Whether your construction company has one year of experience or two decades in trenching, backfilling jobs, and shoring, approach each new job with meticulous preparation and care. The root of most on-the-job accidents is a lack of initial planning. Do not wait until work commences to figure out the best safety system

for an excavation or trench as making adjustments to fix sloping and shoring issues will slow your operations and increase your project costs. Putting a band-aid on potential safety issues increases the likelihood of an excavation failure or cave-in down the road.

Safety Factors to Consider Before Bidding

Before preparing a bid, understand the safety issues at the job site. Know what materials and equipment employees need on hand to comply with OSHA safety standards. This safety checklist can help evaluate each job site before drawing up a plan.

- **Proximity and physical condition of nearby structures**
- **Traffic**
- **Soil classification**
- **Ground and surface water**
- **Location of the water table**
- **Underground and overhead utilities**
- **Quantity of protective systems or shoring that may be required**
- **Weather**
- **Fall protection needs**
- **Number of ladders needed**
- **Other equipment needs**

Taking test borings for soil conditions and types, observations, job site studies, consultations with utility companies, and meetings with local officials can all help determine the kind, amount, and cost of safety equipment needed for workers to do their jobs properly, safely, and more cost-effectively.

Promoting Excavation at Your Workplace

Trenching and excavation are among the two most dangerous activities at construction sites. For this reason, you must approach both with great care. OSHA lays out a comprehensive system of regulations to help ensure the safety of workers.

From employing a competent person at your job site to understanding soil types and safety system implementation, these precautions translate into a safer workplace. **ESB**

Ankit Sehgal is the Chief Executive Officer at Swift Drain, a global drainage and infrastructure products manufacturing company. He oversees all product design and development at the firm, including engineering, materials sourcing, and production. For more, visit swift drain.com.



IN MARCH 2009, a group of companies met with a mission to identify, trend, and explore common industry issues in preventing coastal and marine pipeline facility damage, releases, and spills. That day, the CAMO (Coastal and Marine Operators) pipeline industry group was born.

In 2020, CAMO is a consortium roughly 25 companies strong and growing. CAMO's current focus among other initiatives is to extend the same "On Land" damage prevention emphases and aware-

ness into coastal and marine areas. coastal areas and offshore areas, pipelines coexist with vessel and boat activity of all kinds. With more pipelines being installed every day, compounded with increased dredging and marine construction activity in the same waters, the chance of a marine vessel contacting an underwater pipeline continues to grow.

How to Stay Safe Around Pipelines

Making an 811 notification, even in marine areas, is the foundation for the safety of personnel. Additionally, pipelines need to be respected

no activity or work should occur. Before work begins all parties should be in mutual agreement on the tolerance zones. Although tolerance zones vary among dredging and marine construction companies, 75 feet is generally the no-go working distance.

Obtaining Pipeline Information

Due diligence is necessary when gathering pipeline coordinates, ownership, and contact information. Multiple sources must be checked, and inconsistencies may exist across those sources. In many cases, other types of

HOW TO WORK SAFELY NEAR UNDERWATER PIPELINES AND UTILITIES

BY ED LANDGRAF



ness into coastal and marine areas.

One of CAMO's 2020 initiatives was to develop and implement a first-ever marine pipeline damage prevention and public awareness online training program for mariners and vessel operators. The primary objective of the program is to educate the maritime community about pipeline locations, safety, damage prevention, and how to respond appropriately in the event of an emergency.

Your job involves decisions that may directly or indirectly impact miles of underwater oil, gas, or chemical pipelines. With inland waterways such as rivers, bays, lakes,

for their potential hazardous impacts to human life and the environment when ruptured. Understanding the roles pipeline and marine construction companies play in safety and damage prevention will help create a successful project. Precautions by all parties need to be understood, agreed upon, and in place before the project begins.

Avoidance procedures should be followed for marine construction projects of all sizes. Pipeline companies and marine construction companies generally have in-house tolerance or "no-go" zones where work may be unsafe or have special conditions. Tolerance Zones are areas near the pipelines where

lines may exist in your project area, such as electric, water, fiber optic, phone, and sewer, to which the same general precautions apply. It is beneficial to familiarize yourself with the different pipeline resources available. Each data source has a different layout and provides different information. Question the pipeline companies. It is their responsibility to provide you with the facts. Prior to kicking off a project all parties involved must agree on project plans, crossing agreements, avoidance and safety measures, and work together to stay informed through project duration.

Once your marine construction project scope is known, outline your total project

footprint in your execution plan and voyage plan. Identify all waterways, wetlands, and marine areas that will be traversed by project vessels including dredged material placement areas, heavy equipment transit ways across placement areas, equipment mooring areas, staging areas, off-loading areas, site access areas, anchoring and spud down areas, and any other areas of operational impact.

Safety, Environment, and Emergency Response

Saving lives, protecting the environment,

Note: Natural gas may be odorless. Always have an active gas detector activated during operations.

Actions After a Pipeline Leak

- Shutdown or minimize the use of all possible ignition sources, motors, lights, etc.
- If possible, drift out of the area before starting a motor or ignition source
- Evacuate the vessel, if needed
- Evaluate the situation; record your exact location and time; and move upwind at least ¼ mile or away from the affected

- Wind and water flow direction are helpful
- Location of the nearest boat launch, if known
- Notify the Coast Guard and the National Response Center (NRC) at (800-424-8802)
- Call 911 to notify the local emergency response agencies
- Check your state's laws for other entities you must notify, such as Louisiana State Police Hazardous Materials Hotline (877-925-6595)



and effectively responding to emergencies are the focus. Always consult with the pipeline company to learn if there are any specific safety, environmental, or emergency concerns and capture them in your safety plan. Cover the plan with all project and vessel personnel. Re-evaluate the plan as new hazards emerge. Include the following recommendations in your plans:

How to Identify a Pipeline Leak

The main signs of a pipeline leak are:

- A continuous bubbling, blowing, or hissing sound from the water
- A rainbow sheen or unusual colored water
- Hydrocarbon smell

area. When safe, call 911.

- Prevent and warn other vessels from entering the area
- Boom-off or secure the area, if possible
- If you see a pipeline sign nearby, call the emergency number listed

Emergency Response and Notification

- Do not extinguish a pipeline fire
- Immediately contact the pipeline company 24/7 emergency number in your plan to shut down the line and provide any pipeline information and location data. This will help the pipeline company identify the impacted line.

Safety and Emergency Plans

All project plans should have the following basic pipeline information stored in multiple readily available locations:

- List of all pipelines in the project scope
- List of the products in each pipeline
- This will help evaluate the risk and response level in the event of a release
- Size of the pipeline diameter
- 24/7 emergency contact number **ESG**

If you think a pipeline was struck but no leak occurs, call both the emergency and local contacts. In many states, reporting a strike is required by law.

According to the survey results, **over 70 percent** of respondents think they qualified as a competent person for trench work. But what does a competent person do? And how can you confirm qualification?

BY JOE WISE

HOW TO IMPROVE WORKER SAFETY IN EXCAVATION PROJECTS

The Center for Construction Research and Training (CPWR) conducted a comprehensive Trench Survey (cpwr.com) to provide greater insight into the rise of trench fatalities. Survey responses drawn from construction, and health and safety professionals by CPWR, United Rentals and Speed Shore Manufacturing identified two important findings – 1) There is a need for more pre-planning on projects and 2) often, trench projects do not have a competent person onsite.

The survey's goal was to learn about the factors that contribute to trench incidents and fatalities so organizations could collectively identify the steps teams can take to mitigate these incidents. It is important to note that nearly two-thirds of those represented in the survey were workers attending a United Rentals Competent Person training course.

More than 60 percent of those surveyed were placed into an “industry” group, meaning those individuals perform actual trench group work, including construction workers, foreman, supervisors, contractors and even emergency responders. Most of the remaining participants were in health and safety functions – health and safety professionals, safety trainers and compliance officers.

If we dig into the results, we can pinpoint a few areas that stood out as opportunities.

Choosing the Right Trench Protection

Among those surveyed, 20 percent said



they never see protection, which includes sloping, shielding, benching and shoring; 50 percent said they only see it occasionally.

The OSHA standard for trenching and excavation (29 CFR 1926.650-652, Subpart P) requires protective systems for trenches five feet or deeper unless the excavation occurs in stable rock. Trenches at least 20 feet deep or approved tabulated data prepared for the system require a registered professional engineer.

The three primary protective systems:

Sloping (benching): Cutting back the trench wall at an angle inclined away from the excavation.

Shoring: Installing aluminum hydraulics or other types of supports to prevent cave-ins.

Shielding: Using trench boxes or other supports to prevent cave-ins.

When planning for an excavation project, consider the following to guide the equipment selection process:

1. Ask why you are excavating. This may seem like a simple question, but the answer may uncover some additional insights and considerations. For example, installing a large system like an electrical vault may require a different protective system than a long, linear gas pipe or water main installation.



2. Excavation size: Consider width, depth and length. Deeper excavations may require different equipment like heavy-duty steel trench boxes or hydraulic bracing.

3. Look around. Are there nearby structures, groundwater issues or overhead obstructions? Consider potential hurdles in installation.

4. Classifying soil type is essential. Be sure to consult your competent person.

5. What is the working area? Consider dirt storage, buildings and roads. All factors may help guide the equipment decision.

Protective equipment to improve productivity and worker safety has become significantly better with advancements in both manufactured systems using tabulated data and site-specific engineered solutions. Lighter-duty shields with high-arch clearance, cut-outs and guide frames, and larger-capacity hydraulic bracing, give companies more options to manage the quality, production and safety of their projects.

Designating a Competent Person

And finally, designate and train the competent person. Making sure the competent person is adequately trained is one of the most important steps in trench safety.

Many OSHA standards, including 1926 subpart P for trenching and excavation, require an onsite competent person to perform certain activities. According to the survey results, over 70 percent of respondents think they qualified as a competent person for trench work. But what does a competent person do? And how can you confirm qualification?

As defined by OSHA, a competent person is “one who is capable of identifying existing predictable hazards in the

surroundings or working conditions that are unsanitary, hazardous, or dangerous to employees, and who has the authorization to take prompt corrective measures to eliminate them.”

Duties typically include soil classification, trench inspection at the start of each shift or when conditions change and choosing appropriate trench protective systems if required.

More than 40 percent of the survey respondents failed to see a trained, competent person on their jobsite.

If a company designates a competent person for one activity, he or she is not automatically qualified as a competent person for another. A person may have the skills and knowledge for trench and shoring projects but not necessarily be qualified to inspect scaffolding, conduct a fall hazard analysis or inspect personal fall arrest systems. Large jobsites may even require more than one competent person.

Another interesting takeaway from the survey is almost 70 percent of the respondents didn't think that the OSHA regulations in standard 1926 subpart P were confusing. However, of the 30 percent that did find them confusing, the unclear areas were (in order):

- *Trench sloping and benching safety (depth and width requirements)*
- *Protective systems*
- *Competent person's role and responsibilities*
- *Access and Egress*

Although the requirements from 1926 subpart P haven't changed, the products and innovations certainly have. It's not just an awareness of the standards and regulations; it's leveraging the material and insight from the instructor, practical

experience, industry knowledge and solutions – all of which continue to evolve.

Being Dedicated to Training

Safety training is key and now, more than ever, keeping up to date is crucial. There are several different formats and blended learning is on the rise.

A more educated workforce is a safer and more productive workforce. Companies face daily challenges to this goal, and lectures with minimal classroom engagement do not suffice as training. Training organizations with dedicated resources can offer quality safety instruction, together with assistance outside the classroom, including worksite consultation, engineered designs and safety equipment.

Training in excavation safety for competent persons, confined space entry, fall protection, site-specific regulatory compliance and operator certifications are risk management levers that can also improve productivity. And toolbox talks on a regular basis are a good way to reinforce trench safety basics.

Improving Excavation Worksite Safety

The survey uncovered some key findings. Top of the list is the need for more pre-planning, followed closely by the lack of onsite competent person. It also unveiled opportunities to increase continuous training and education on the standards in place and safe best practices.

It is always a good idea to consult with a trench safety professional before beginning any trench or excavation project. **ESG**

Joe Wise is the Regional Customer Training Manager for the Trench Safety business unit of United Rentals. He provides strategic oversight to competent person training programs in confined space, excavation safety and others.

More than **40 percent** of the survey respondents failed to see a trained, competent person on their jobsite.

HOW TO DEVELOP

BY GEN HANDLEY


With an unprecedented number of employees now working alone or remotely, it is the employers' responsibility to put a program in place to protect these people who are more vulnerable because of their new employment conditions. This applies to those in the excavation industry who face a multitude of safety hazards including:

- **Flooding or deep pits of water.**
- **Falls into trenches and pits/holes.**
- **Slips, trips, and falls off equipment and structures.**
- **Trench cave-ins or equipment and structure collapses.**
- **Exposure to toxic gases and chemicals (natural gas and sewage lines) as well as suffocation from lack of oxygen.**
- **Electrocution from buried and overhead electrical lines.**
- **Impact from falling or flying objects/materials as well as mobile machinery.**

There are a number of systems and practices that can be put in place to protect the lone workers including shoring, sloping, and temporary protective structures such as trench boxes. But if you want to be truly proactive and put measures in place to prevent accidents before they occur, you need to develop a lone worker safety program. Does it sound daunting and expensive? The good news is that it can be neither with some thorough planning, research, and training.

Assess your risks and hazards

The first step to developing any effective lone worker safety program is to conduct an exhaustive hazard assessment of any safety risks and hazards threatening your workers' well-being. Once you know what the threats are, you can then look at ways of reducing them. Safety hazards and risks are always changing from location to location and from job to job, therefore you need to regularly conduct risk assessments to adapt and therefore maintain a safe work environment.



a lone
worker
safety
program
without
breaking
the bank

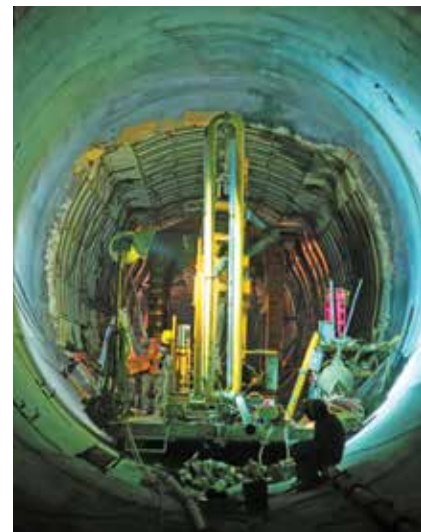
Implement a check-in system

Once you have identified the safety risks, you need to then explore ways of mitigating them as effectively as possible. A powerful tool to have is a check-in system in which the lone worker is required to check in with their organization at predetermined times, confirming and communicating that they are safe. This highly effective system can be manual (effective, but requires more staff time, prone to human error) or can be automated (much more effective and requires minimal staff time, significantly less human error).

Develop safety policies and strategies

Once you identified the potential safety

hazards and developed a check-in system, you then need to create company policies and plans that will reduce the noted risks - these make up the skeleton of your program. While it can be a mundane, somewhat boring task, these policies and programs are a record clearly demonstrating what the employer intends to do about eliminating or at least reducing the safety hazard and increasing the workers' health and well-being. When developing these plans, make sure you consult with all members of the team who are impacted by these risks and hazards - they can provide invaluable feedback and insight, helping the most effective safety policies and strategies.



Engaging education and training

A lone worker safety program is futile if the workers it is benefiting are unaware of it and its policies. That is why once the policies are finalized, workers must be educated, trained and updated regularly about how these policies impact their work. They must understand the rationale of the policies and how they benefit themselves, their team, and the organization. When teaching the team about your safety policies, try to make it as engaging as possible. In addition to official training sessions, you can also educate your team through online workshops or lunch-and-learns, social-distance workshops, creative online courses, casual quizzes, and contests - or all the above.

Constant communication

Even after all of the correspondence when developing your lone worker policies and program, you need to regularly communicate with the team, exploring new safety strategies, modifying existing safety policies or just simply talking about how they're doing. Regular, engaging communication is a major component of a transparent and positive work safety culture where injuries and accidents are less likely to occur. With lone and remote workers, there is also flexibility when it comes to communication. Forbes recommends focusing on the process, not the person, so you "can work together in problem solving mode to pool and confirm best ideas." Because these people are alone, there must be greater effort to maintain constant communication to confirm their safety, like

the check-in system mentioned earlier.

Provide communication options

To accommodate this regular communication, you need have channels in place for that connection to occur. This may sound like an obvious point, but your program must identify which channels will be used for which issues. The reason why this must be noted is because every manager and every organization communicate with their team differently. For example, my organization requests that any safety concerns be sent to an official email address, but any other work-related concerns are communicated to my manager in an online document - it varies from workplace to workplace. Clearly outlining this early helps facilitate your safety program and policies while encouraging staff to communicate more frequently and comfortably.

Plan for an emergency

As part of your communications and a major pillar of a solid lone worker safety program, every organization must have a lone worker emergency communications plan as well. While these plans do not require the amount of planning and documentation needed to develop your policies, they are nonetheless just as important for your safety program. The plan should document any possible communications issues in the case of an emergency with a lone worker, how to eliminate those issues, as well as the team members who need to be contacted in an emergency and the best channels to reach

them through. In an emergency with someone working alone, every second counts so this plan could potentially save a life.

Use the tools available

Especially when lone employers are working off the beaten path without any cellular service, communication and the technology for that communication is a part of your program. There are a number of options available including the ubiquitous smart phone or satellite devices. There are also a growing number of lone worker protection apps that can be used on existing devices like smartphones, eliminating the extra costs of purchasing new, expensive devices. These apps allow lone workers to check in and sometimes have location tracking and fall detection.

It is worth the work

As said earlier, developing a lone worker safety program may seem like a lot of work but it is absolutely worth it. Instead of being reactive when an emergency takes place, you are proactively implementing policies and measure that can prevent the incident from taking place at all, potentially saving the life of a valued team member. While there are a number of moving parts, a solid lone worker safety program is most effective when you have established a positive safety culture where everyone is comfortable, committed to a safe work environment and on board. **ESG**

Gen Handley represents SafetyLine and its Lone Worker program. Learn more at safetylineloneworker.com.

SO, YOU'RE GOING TO BE A WITNESS:

TIPS FOR TESTIFYING EFFECTIVELY AT TRIAL IN A COVID-19 WORLD

BY JAMES J. PROSZEK

You have done your investigation, you have testified at a deposition, mediation has failed, and now you are going to trial. These tips may help succeed at trial, particularly in light of the challenges posed by remote testimony at a video trial or hearing necessitated by current COVID-19 conditions.

Preparation, Not Inspiration, Wins Trials

The side most prepared to tell its story in a simple, straightforward manner often wins at trial. There are a number of aspects to being prepared – know your subject matter, develop a simple theme, make sure you and your attorney are on the same page, avoid overreaching, anticipate where the other side is likely to attack and be thoroughly familiar with the processes and technology required to participate remotely by video conference.

1. Know Your Case

The best way to make a bad impression on the jury is to get on the stand and not know your case or what you have said before. At best, you look like a poor witness. Worse, you could be perceived as a liar.

Make sure you have reviewed, and are familiar with, the key facts and the documents and photos your side will use at trial. Details can be significant. Why is it that you are sure the damage occurred at a specific time? How do you know the facility

that was damaged was, or was not, accurately marked? Where and when was this photo taken? What does it show?

Making a timeline of key events can be helpful. You can match the documents to the key events in the timeline and the points those documents illustrate.

Photos taken with cell phone cameras often contain metadata which include time and date. Comparing this data to information contained in other reports can assist in compiling an accurate timeline and provide a supporting narrative.

Talk with other witnesses. The collective memory of the group can help you remember what happened and help you avoid a conflict with what another witness may say.

Review your prior testimony. Make sure your story at trial does not change from the one you told at your deposition. If it does, have a ready explanation.

2. Develop a Simple Theme for the Case

A critical mistake is making your case too complicated for the jury to understand. Develop a simple theme around the strongest points and repeat that theme throughout the trial.

One of the most effective examples I have

seen is a case where an excavator damaged a line after failing to expose it by hand before attempting to cross it. The excavator claimed the ground was too hard to dig with hand tools. The truth was that it would not have been impossible to do so, just more time-consuming, and expensive. Throughout the trial, however, the excavator's lawyer repeatedly referred to the ground as "impenetrable coral rock." Repeating that theme consistently throughout the trial left an impression that was difficult to overcome.

3. Make Sure You and Your Attorney Are on the Same Page

Sit down with your attorney and go over the questions he will ask at trial. Memorizing all the questions and answers is not the goal. However, you want to make sure you give the answer he is expecting. Answering "no" to a question he expected you to answer "yes" to makes you both look unprepared and negatively impacts your, and your case's, credibility with the jury.

Judges and jurors who have come of age in a digital world can become frustrated when technology does not work smoothly. Failure to be technologically prepared poses at least two risks. First, inability to follow the presentation, or breaks needed to correct technological or presentation issues can lead to the fact finder becoming



bored and losing interest. Second, lack of a smooth technological presentation can affect the credibility of the witnesses and the entire case. Make sure both you and your attorney are familiar with, and adept at using, the presentation program that will be used.

4. Don't Overreach

Tell your attorney beforehand if you are unsure about, or lack personal knowledge of, a point she anticipates proving through your testimony. Guessing or speculating about things which are beyond what you know leaves you open to having your credibility called into question on cross examination.

5. Walk a Mile in the Other Side's Shoes

Knowing the weaknesses of your case can be as important as knowing its strengths. View the case from your opponent's perspective. What will the other side try to highlight? What questions would you ask to exploit those weaknesses? Considering those issues before you testify gives you the opportunity to formulate responses rather than being caught by surprise in front of the jury.

How You Say it is as Important as What You Say

Your attorney already knows your case and is on your side. You want to engage the jury when testifying. You do this by talking to, and making eye contact with, the

jury rather than the attorney. With remote testimony, this means looking straight at the camera rather than around the room or fumbling with notes or documents.

Juries and judges also tend to dislike witnesses who are disrespectful of the other party and their lawyer. Answer the other lawyer's questions politely and sincerely rather than arguing or showing hostility or derision.

Finally, a smooth presentation is extremely important. Make sure that you and your attorney have gone over all documents and photos that will be used so you are prepared to coherently present them.

1. Be a teacher

You have worked in your business for years. You know and understand it, and this case. The judge and jurors know nothing about your case and likely little about your business. Your job is to teach them about your business and the facts of this case in a way they can understand.

2. Use pictures and drawings

While it may be a cliché, "a picture is worth a thousand words." It is much easier to show the judge or jury a picture of utility locate marks or a diagram of the "tolerance zone" than it is to explain it with words. Use of presentation

software to add annotations or diagrams to the photographs as the testimony progresses can be an effective tool to illustrate that testimony.

3. Use simple language

The utility and excavating industry is filled with technical terms and acronyms. If the jury does not understand your testimony, it is difficult for them to find in your favor. Consider the best ways to explain your business and the facts of your case in plain language that jurors can understand rather than technical terms and acronyms which, while simple to you, likely mean nothing to the jurors.

CONCLUSION

Making sure you know your case, developing a simple theme, and anticipating how the other side will attack the weaknesses in your case will ensure you are prepared to testify at trial. Speaking directly to the judge or jury, respectfully and in plain language and, if the trial will be done remotely, being able to effectively use video presentation technology, will help you follow through on that preparation, and hopefully win your case. **ESG**

James Proszek, is a shareholder in the Tulsa, Oklahoma office of the law firm of Hall, Estill. Mr. Proszek is a trial attorney with over 30 years of experience. He can be reached at jproszek@hallestill.com.



The Excavation Safety Alliance (ESA) is a virtual community for everyone interested in safe excavation and damage prevention. ESA provides free education via videos, podcasts & blogs. Follow the QR Code for examples of the short how-to videos available FREE at ESA including:



▶ PRE-EXCAVATION CHECKLIST:

Use a checklist to ensure everyone's safety on the jobsite before starting a job.



▶ I HIT SOMETHING, NOW WHAT?:

If you do hit a buried facility, documenting the damage is critical.



▶ WHITE LINING

White lining is a simple process for excavators to clearly indicate areas that need to be marked to the locators.



▶ PRIVATE LOCATING:

Private utilities are not marked with a call to 811. Learn how to ensure private facilities are located and why it's important to mark them.

Learn more about the exciting new ESA membership program coming spring 2020 at ExcavationSafetyAlliance.com and the hundreds of hours of education available to members, including:

- Excavator Safety webinars
- Ask the Expert Series
- SUE Series
- Vacuum Excavation Series
- CAMO Emergency Response Workshop, coming in April 2020.

For a global perspective, watch these videos from the 2020 UK National Damage Prevention Day.

- Are we using location technology to its best potential?
- Why do we hit things and what are the barriers to change?
- Industry champions including a focus on regulatory performance
- Understanding barriers to feeding back data, and understanding the mechanisms of receiving feedback including what needs to happen to get industry buy-in.
- Understanding strike incidents- who, where, what and how?
- What range of stakeholders are the most important for damage prevention? How can we engage them better and how can we best present information to them?
- A look across the pond; what we can learn from a more collaborative and cohesive approach?



Along with this video detailing pipeline safety for excavators, Pipeline Association for Public Awareness offers many other FREE videos, including:

Audience Specific Awareness Videos

- General Public
- Emergency Management
- Highway Patrol
- Land & Planning Agents
- Local Law Enforcement
- Rural Fire Departments
- Dispatchers

Educational Videos

- Call 811
- Pipeline Safety for Excavators
- National Pipeline Mapping System

- Pipelines Informational Video
- Spotlight on Pipelines - Public Television
- Case Study - Petroleum Liquids
- Excavation Emergencies
- Pipeline Emergency Preparedness
- Pipeline Safety for Excavators
- PANW Presentation
- JJ Harrison Rodeo Events
- Case Study - Natural Gas

Emergency Response Videos

- Emergency Response Part 1

- Emergency Response Part 2
- Emergency Response Part 3
- Emergency Response Part 4
- Emergency Response Part 5
- Emergency Response Video (15 min.)

Pipeline Ag Safety

- Minnesota Farm Safety Tips
- Texas Farm & Ranch Safety Tips
- Field Tile Testimonial
- 811 Day 2017, Assaria, KS
- Call Before Ya Dig

Audience Specific Awareness Videos

- How to File an Alleged Violation Report
- New Website Tips
- April National Safe Digging Month
- Accessing the Coordinate PA User's Guide
- Holding the Pre-Construction Meeting
- Creating A Routine Construction Ticket for Your Complex Project
- Creating a Complex Project in Coordinate PA
- How A Facility Owner Responds To KARL
- What is Minor Routine Maintenance?
- Introduction to Coordinate PA
- Coordinate PA
- How Do I Report Damage?
- What is Drawing Exchange?
- I Hit A Line Now What?
- No Marks Now What?
- What does AVR mean?
- What are the benefits of becoming a PA One Call member?
- No One Call Ticket
- The Four Components of a Correct Mark
- Cross Bore Penetration
- 5 Steps to Safer Digging Toolbox HD
- Cross Bore Awareness Introduction Video



- Crew Footage of a Lateral Camera Launch
- Locating the Bio Ball
- Bio Ball Flush 1
- Bio Ball pullback test
- 811 Day 2020 - Cross Bore Prevention
- 811 Day 2020 - Trench Safety
- 811 Day 2020 - Electric Safety
- 811 Day 2020 - New Website Demonstration
- 811 Day 2020 - Designer Lunch and Learn
- 811 Day 2020 - Ask 811

Common Ground Alliance Excavation Best Practices 17.0

The Best Practices Committee of the Common Ground Alliance (CGA) developed the following guide based on the Common Ground Study. The Best Practices document is considered the “go to” resource by all stakeholders, governments, and associated industries when addressing safety and damage prevention issues internally, as well as on the local, state, and national levels.

To view or download the complete Common Ground Alliance Best Practices Field Manual, visit CommonGroundAlliance.com

 *Project Owner*






 *One Call Center*












 *Facility Owner*














 *Designer*





 *Excavator*






 *Locator*




















5-1:	One Call Facility Locate Request
	<p>Practice Statement: The excavator requests the location of underground facilities at each site by notifying the facility owner/operator through the One Call Center. Unless otherwise specified in state/provincial law, the excavator calls the One Call Center at least two working days and no more than ten working days prior to beginning excavation.</p> <p>Practice Description: Currently 50 states and 5 Canadian provinces have One Call legislation and/or established One Call Centers recognizing that excavation performed without prior notification poses a risk to public safety, excavators, and the environment, and can disrupt vital services provided by facility operators. Increased participation in this One Call system provides for improved communication between excavators and facility operators necessary to reduce damage.</p>
5-2:	White Lining⁶⁷
	<p>Practice Statement: 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, either onsite or electronically (when available through the One Call Center), prior to or during the request for the locate ticket.</p> <p>Practice Description: The route of the excavation is marked with white paint, flags, stakes, lines, polygons, or a combination of these to outline the dig site prior to or during notification to the One Call Center and before the locator arrives on the job. Electronic white lining when available provides an alternative method where excavators may indicate their defined dig area visually by electronic data entry (lines or polygons) without the need for a physical site visit. The technology allows the excavator to identify for the locate technician a clear delineation of their proposed excavation area. Premarking allows the excavators to accurately communicate to the One Call Center, facility owners/operators or their locator where excavation is to occur. The 1997 safety study “Protecting Public Safety through Excavation Damage Prevention” by the NTSB reached the conclusion that premarking is a practice that helps prevent excavation damage. Maine was one of the first states to have mandatory premarking for non-emergency excavations. Connecticut also adopted a premarking requirement; however, the law provides for face-to-face meetings between operators and excavators on projects that are too large for or not conducive to premarking. Facility owners/operators can avoid unnecessary work created when locating facilities that are not associated with planned excavation. (See Appendix B for additional practice information)</p>
5-3:	Locate Reference Number
  	<p>Practice Statement: The excavator receives and maintains a reference number from the One Call Center that verifies that the locate was requested.</p> <p>Practice Description: 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. 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.</p>





5-4:	Pre-Excavation Meeting
   	<p>Practice Statement: When practical, the excavator requests a meeting with the facility locator at the job site prior to marking the facility locations. Such pre-job meetings are important for major, or unusual, excavations.</p> <p>Practice Description: The meeting facilitates communications, coordinates the marking with actual excavation, and ensures identification of high-priority facilities. 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.</p>
5-5:	Facility Relocations
  	<p>Practice Statement: The excavator coordinates work that requires temporary or permanent interruption of a facility owner/operator’s service with the affected facility owner/operator in all cases.</p> <p>Practice Description: Any temporary or permanent interruption requires the active participation by the facility owner/operator and the excavator to ensure protection of facilities through a joint preplanning meeting or conference call. One Call Centers note on the ticket any special contractor requests for a joint meeting that require the facility owner/operator to initiate the process.</p>
5-6:	Separate Locate Requests
 	<p>Practice Statement: Every excavator on the job has a separate One Call reference number before excavating.</p> <p>Practice Description: 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.</p>
5-7:	One Call Access (24/7)
 	<p>Practice Statement: The excavator has access to a One Call Center 24 hours per day, 7 days a week.</p> <p>Practice Description: Utilities service the public needs 24 × 7 and thus should be protected during that same time. Certain conditions may exist that require excavators to work during off-hours (city/road congestion, off-peak utility service hours). Although most excavators are on the job site during regular work hours, they need to be able to call in future work locations after 5:00 p.m. This allows them more flexibility to schedule work and to avoid peak hours of locate requests at the One Call center.</p>

5-8:	Positive Response
   	<p>Practice Statement: The underground facility owner/operator either 1) identifies for the excavator the facility's tolerance zone at the work site by marking, flagging, or other acceptable methods; or 2) notifies the excavator that no conflict situation exists. This takes place after the One Call Center notifies the underground facility owner/operator of the planned excavation and within the time specified by state/provincial law.</p> <p>Practice Description: If a facility owner/operator determines that the excavation or demolition is not near any of its existing underground facilities, it notifies the excavator that no conflict exists and that the excavation or demolition area is "clear." This notification by the facility owner/operator to the excavator may be provided in any reasonable manner including, but not limited to face-to-face communications; phone or phone message, facsimile or other electronic means; posting at the excavation or demolition area; or marking the excavation or demolition area. If an excavator has knowledge of the existence of an underground facility and has received an "all clear," a prudent excavator will attempt to communicate that a conflict does indeed exist, and the locator will make marking these facilities a priority before excavation begins. Better communication between the excavator and the facility owner/operator is required as an area of excavation becomes more crowded with new underground facilities.</p> <p>"Positive response" is a term used to describe the two types of action taken by a facility owner/operator after it receives notification of intent to excavate. The facility owner/operator must 1) mark its underground facilities with stakes, paint, or flags; or 2) notify the excavator that the facility owner/operator has no underground facilities in the area of excavation. This process allows the excavator to begin work in a timely manner.</p> <p>When the excavator makes the request to the One Call Center, the excavator is told which facility owners/operators will be notified. The excavator logs these facilities on a job sheet and identifies which facility owner/operators have responded by marking and which have cleared the area. When a facility owner/operator does not respond by marking or clearing, it may indicate that the facility owner/operator did not receive a locate notice or that the One Call Center's contact information for that facility owner/operator may be incorrect, incomplete, or corrupt (which could result in calamity).</p> <p>When the excavator has obtained all required information, the excavation can commence with confidence that the safety of the work crew and the public at large has been considered.</p>
5-9:	Facility Owner/Operator Failure to Respond
  	<p>Practice Statement: If the facility owner/operator fails to respond to the excavator's timely request for a locate (e.g., within the time specified by state/provincial requirements) or if the facility owner/operator notifies the excavator that the underground facility cannot be marked within the time frame and a mutually agreeable date for marking cannot be arrived at, then the excavator re-calls the One Call Center. However, this does not preclude the excavator from continuing work on the project. The excavator may proceed with excavation at the end of two working days, unless otherwise specified in state/provincial law, provided the excavator exercises due care in all endeavors.</p> <p>Practice Description: The facility owner/ operator and the excavator partner together to ensure that facilities are marked in an acceptable time frame to allow for underground facility protection.</p>
5-10:	Locate Verification
	<p>Practice Statement: Prior to excavation, excavators verify that they are at the correct location, verify locate markings and, to the best of their ability, check for unmarked facilities.</p> <p>Practice Description: Upon arrival at the excavation site and prior to beginning the excavation, an excavator does the following:</p> <ul style="list-style-type: none"> • Verifies that the dig site matches the One Call request and is timely • Verifies that all facilities have been marked and reviews color codes if in doubt • Verifies all service feeds from buildings and homes • Checks for any visible signs of underground facilities, such as pedestals, risers, meters, and new trench lines • Checks for any facilities that are not members of the One Call Center and contact someone to get them located. <p>Use of a pre-excavation checklist is recommended by insurers and practiced by responsible excavating contractors.</p>
5-11:	Documentation of Marks
	<p>Practice Statement: An excavator uses dated pictures, videos, or sketches with distance from markings to fixed objects recorded, to document the actual placement of markings.</p> <p>Practice Description: 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.</p>
5-12:	Work Site Review with Company Personnel
	<p>Practice Statement: Prior to starting work, the excavator reviews the location of underground facilities with site personnel.</p> <p>Practice Description: 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.</p>
5-13:	One Call Reference at Site⁵⁹
	<p>Practice Statement: Except in case of an emergency, the excavator at each job site has available a complete description of the dig site, a list of the facility owner members impacted at that dig site as identified by the One Call Center, and the One Call Center ticket number.</p> <p>Practice Description: The availability of locate request details on site is useful because excavators can easily access information about the location and extent of work, the valid start time, and the list of operators notified. The documentation also provides an excavator with appropriate information for daily tailgate meetings for crews; provides quick references for excavation equipment operators; and facilitates communications between the excavator and the One Call Center with respect to that particular locate request, should it become necessary. When multiple crews are working on the same project at separate locations or when different employers have crews working at the same location, each crew has the information.</p>
5-14:	Contact Names and Numbers
	<p>Practice Statement: The excavator's designated competent person at each job site has access to the names and phone numbers of all facility owner/operator contacts and the One Call Center.</p> <p>Practice Description: Situations arise on the job site that require immediate notification of the facility owner/operator, One Call Center, or local emergency personnel. To avoid costly delays, the excavator ensures that the designated job site personnel have all appropriate names and phone numbers. If telephone communication is unavailable, radio communication to the "home office" is available so that timely notification can be made. The "home office" also has immediate access to all appropriate names and telephone numbers.</p>
5-15:	Facility Avoidance
	<p>Practice Statement: The excavator uses reasonable care to avoid damaging underground facilities. The excavator plans the excavation so as to avoid damage or to minimize interference with the underground facilities in or near the work area.</p> <p>Practice Description: Foremost on any construction project is safety. Excavators using caution around underground facilities significantly contribute to safe excavation of existing facilities.</p>




5-16: Federal and State Regulations	<p> Practice Statement: The excavator complies with all applicable federal and state/provincial safety regulations, and, when required, provides training as it relates to the protection of underground facilities.</p> <p>Practice Description: Although most existing state/provincial damage prevention legislation does not include reference to federal and state/provincial regulations, it is important to include reference to worker safety and training in the best practices. Excavators are required to comply with federal and state/provincial occupational safety and health requirements to protect employees from injury and illness. These regulations include reference to training each employee to recognize and avoid unsafe conditions in the work environment and to control or eliminate any hazards or exposures to illness or injury. Therefore, the excavator's crew, as part of its safety training, is informed of the best practices and regulations applicable to the protection of underground facilities.</p>
5-17: Marking Preservation	<p> Practice Statement: The excavator protects and preserves the staking, marking, or other designation of underground facilities until no longer required for proper and safe excavation. The excavator stops excavating and notifies the One Call Center for re-marks if any facility mark is removed or is no longer visible.</p> <p>Practice Description: During long, complex projects, the marks for underground facilities may need to be in place far longer than the locating method is durable. Painting, staking, and other marking techniques last only as long as the weather and other variables allow. When a mark is no longer visible, but work continues around the facility, the excavator requests a re-mark to ensure the protection of the facility.</p>
5-18: Excavation Observer	<p> Practice Statement: The excavator has an observer to assist the equipment operator when operating excavation equipment around known underground facilities.</p> <p>Practice Description: 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.</p>
5-19: Excavation Tolerance Zone	<p> Practice Statement: The excavator observes a tolerance zone that is comprised of the width of the facility plus 18 in. on either side of the outside edge of the underground facility on a horizontal plane. This practice is not intended to preempt any existing state/provincial requirements that currently specify a tolerance zone of more than 18 in.</p> <p>Practice Description: (See Practice Statement 5-20)</p>

5-20: Excavation Within Tolerance Zone	<p> Practice Statement: 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.</p> <p>Practice Description: Safe, prudent, non-invasive methods that require the excavator to manually determine the actual location of a facility are considered "safe excavation practices" in a majority of state/provincial laws (38 states). A majority of states outline safe excavation practices to include hand digging or pot holing (16 states). Some states specifically allow for the use of power excavating equipment for the removal of pavement. Each state/province must take differing geologic conditions and weather related factors into consideration when recommending types of excavation within the tolerance zone.</p>
5-21: Mismarked Facilities	<p>   Practice Statement: The excavator notifies 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, unless specified otherwise in state/provincial law.</p> <p>Practice Description: When an excavator finds an unmarked or inaccurately marked facility, excavation stops in the vicinity of the facility and notification takes place. If excavation continues, the excavator plans the excavation to avoid damage and interference with other facilities and protects facilities from damage.</p>
5-22: Exposed Facility Protection	<p> Practice Statement: Excavators support and protect exposed underground facilities from damage.</p> <p>Practice Description: 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 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.</p>

<p>5-23: Locate Request Updates</p>  	<p>Practice Statement: The excavator calls the One Call Center to refresh the ticket when excavation continues past the life of the ticket (sometimes, but not always, defined by state/provincial law). This recognizes that it is a best practice to define ticket life. If not currently defined in state/provincial law, ticket life is ideally 10 working days but does not exceed 20 working days. 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.³⁶</p> <p>Practice Description: 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 is 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.³⁷</p>
<p>5-24: Facility Damage Notification</p>   	<p>Practice Statement: An excavator discovering or causing damage to underground facilities notifies the facility owner/operator and the One Call Center. All breaks, leaks, nicks, dents, gouges, grooves, or other damages to facility lines, conduits, coatings, or cathodic protection are reported.</p> <p>Practice Description: A majority of states require notification for damage or substantial weakening of an underground facility (27 states). 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.</p>
<p>5-25: Notification of Emergency Personnel</p>  	<p>Practice Statement: If the damage results in the escape of any flammable, toxic, or corrosive gas or liquid or endangers life, health, or property, the excavator responsible immediately notifies 911 and the facility owner/operator³. 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 assessment⁴.</p> <p>Practice Description: This practice is already required by many of the states' One Call legislation. 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 takes 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.⁴</p>
<p>5-26: Emergency Excavation</p>   	<p>Practice Statement: 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.</p> <p>Practice Description: This practice allows excavation to begin immediately to restore service or to stop a hazardous situation from getting worse in the case of a gas or pipeline leak, cut telephone cable, or other facility damage.</p>
<p>5-27: Backfilling</p> 	<p>Practice Statement: The excavator protects 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 are not buried in the excavation.</p> <p>Practice Description: 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.</p>
<p>5-28: As-built Documentation</p>  	<p>Practice Statement: Contractors installing underground facilities notify the facility owner/operator if the actual placement is different from expected placement.</p> <p>Practice Description: 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 be required to 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.</p>
<p>5-29: Trenchless Excavation¹³</p>      	<p>Practice Statement: All stakeholders comply with all best practices and the following general guidelines prior to, during, and after any trenchless excavation (as applicable).</p> <p>Practice Description:</p> <ul style="list-style-type: none"> • 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. (Refer to Practice Statements 2–13 and 4–19 for additional information.)

5-30: Emergency Coordination with Adjacent Facilities¹⁶	<p> Practice Statement: 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.</p> <p> Practice Description: 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 are coordinated.</p>
5-31: No Charge for Providing Underground Facility Locations²³	<p> Practice Statement: Upon notification by One Call Centers, locations of underground facilities are provided by operators at no cost to excavators.</p> <p> Practice Description: It is the basic underpinning of the call-before-you-dig process that persons involved in excavation activities receive facility locates at no charge when they contact their local One Call Center to give notice of intent to excavate. This service is critical to maintaining the communication between operators and excavators. Call-before-you-dig education and marketing campaigns, such as 811 and those promoted by One Call Centers and associated industries, advise persons involved in excavation activities, including the public, homeowners, and professional excavators, that the service is provided by facility operators at no charge to the person providing the notice of intent to excavate.</p>

3. 11/30/2001 Amendment approved by the CGA Board via TR-2001-02A
 4. 09/27/2002 Amendment approved by the CGA Board via TR-2001-02B
 13. 09/16/2005 Amendment approved by the CGA Board via TR-2002-03
 16. 09/08/2006 Amendment approved by the CGA Board via TR-2005-02
 23. 08/08/2008 Amendment approved by the CGA Board via TR-2007-06
 36. 07/16/2010 Amendment approved by the CGA Board via TR-2009-16
 37. 07/16/2010 Final wording approved by the CGA Board via TR-2009-16
 39. 09/10/2010 Amendment approved by the CGA Board via TR-2009-09
 59. 06/19/2014 Wording approved by CGA Board via TR-2011-11
 64. 12/13/2016 Approved by CGA Board via TR-2014-01
 67. 12/13/2017 Approved by CGA Board via TR-2016-01

5-32: Vacuum Excavation³⁹	<p> Practice Statement: Vacuum excavation, when used appropriately, is an efficient, safe, and effective alternative to hand digging within the designated underground facility tolerance zone. Use of equipment also follows state/provincial laws and/or local ordinances.</p> <p>Practice Description: 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 (see Practice Statement 5-1). 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. Vacuum excavation is an appropriate method of excavating safely around underground facilities provided that the equipment</p> <ul style="list-style-type: none"> • 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.
5-33: Facility Owner Provides a Monitor During Excavation⁶⁴	<p> Practice Statement: If a facility owner/operator considers it necessary to be on site during excavation activities to work with the excavator in protecting their existing facilities, the facility owner/operator makes arrangements with the excavator to be present during those excavation activities within the time specified by state/provincial law.</p> <p> Practice Description: The facility owner/operator may determine it necessary to be on site during excavation activities taking place near their facilities to help protect them. A facility owner/operator has access to information and resources that may not be available to the excavator. This practice should be considered in conjunction with Practice Statement 2-4: Utility Coordination.</p>

Community Liaison Services

Formerly known as the Community Assistance and Technical Services (CATS) Program

PHMSA has renamed its CATS program to "Community Liaison Services" to more appropriately align with current roles and responsibilities and better interface with various stakeholders.

Mission:

To advance PHMSA's pipeline safety mission by proactively engaging with pipeline stakeholders, providing technical expertise, and leveraging technology, data, and information to reduce pipeline risks and influence change through program and policy development.

Vision:

To serve as "trusted" and "credible" stewards of public safety and environmental protection by raising awareness and influencing change to continuously improve pipeline safety.

If you need assistance with any of the following pipeline safety related matters, please contact a PHMSA Community Liaison today:

- Pipeline safety policy/programs (damage prevention, public awareness, emergency response, PIPA, etc.)
- Pipeline stakeholder engagement and outreach
- Pipeline technical services and support (public inquiries, whistleblowers, post incident/accident communications, siting and permit initiatives)
- Questions about pipeline safety in your community

Community Liaisons are located within each PHMSA region. Contact information for the Community Liaisons for your state is noted below.

Community Liaison Services Program Manager

Karen Lynch: karen.lynch@dot.gov • Phone: (202) 366-6855

Central Region:

Illinois; Indiana; Iowa; Kansas; Michigan; Minnesota; Missouri; Nebraska; North Dakota; South Dakota; Wisconsin.

Angela Pickett: angela.pickett@dot.gov • Phone: (816) 329-3823

Sean Quinlan: sean.quinlan@dot.gov • Phone: (816) 329-3800

Southern Region:

Alabama; Florida; Georgia; Kentucky; Mississippi; North Carolina; Puerto Rico; South Carolina; Tennessee.

James Kelly: james.kelly@dot.gov • Phone: (404) 990-1848

Arthur Buff: arthur.buff@dot.gov • Phone: (404) 226-6153

Eastern Region:

Connecticut; Delaware; Maine; Maryland; Massachusetts; New Hampshire; New Jersey; New York; Ohio; Pennsylvania; Rhode Island; Vermont; Virginia; Washington, D.C.; West Virginia.

Karen Gentile: karen.gentile@dot.gov • Phone: (609) 433-6650

Ian Woods: ian.woods@dot.gov • Phone: (609) 468-9478

Southwest Region:

Arkansas; Louisiana; New Mexico; Oklahoma; Texas.

Bill Lowry: bill.lowry@dot.gov • Phone: (713) 272-2845

James 'Jay' Prothro: james.prothro@dot.gov • Phone: (713) 272-2832

Western Region:

Alaska; Arizona; California; Colorado; Hawaii; Idaho; Montana; Nevada; Oregon; Utah; Washington; Wyoming.

Tom Finch: thomas.finch@dot.gov • Phone: (720) 963-3175

Dave Mulligan: david.mulligan@dot.gov • Phone: (720) 963-3193

One Call and State Law Directory

Informational purposes only. Information and laws are subject to change. Consult your local One Call Center website for updated information. Infrastructure Resources, LLC attempted to verify all information as of publication date, and accepts no responsibility for missing or incorrect information.



You can reach your local One Call center in the U.S. by dialing 811.

Know what's below. Call before you dig.

TICKETS			STATE LAWS & PROVISIONS										NOTIFICATION EXEMPTIONS				NOTIFICATIONS ACCEPTED					Tolerance Zone (either side of the utility plus the width of the utility)	
FAX	Online	Mobile	Statewide Coverage	Civil Penalties	Emergency Clause	Mandatory Membership	Excavator Permits Issued	Mandatory Premarks	Positive Response	Hand Dig Clause	Damage Reporting	DOT	Homeowner	Railroad	Agriculture	Depth	Damage	Design	Emergency	Overhead	Large Projects		
N																							
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*Agricultural purposes only																							
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One Call and State Law Directory

HELP US STAY UP TO DATE.

Directory information is also available online at dp-pro.com.
Report any updates to this directory by calling
866-279-7755.



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FAX	Online	Mobile	Statewide Coverage	Civil Penalties	Emergency Clause	Mandatory Membership	Excavator Permits Issued	Mandatory Premarks	Positive Response	Hand Dig Clause	Damage Reporting	DOT	Homeowner	Railroad	Agriculture	Depth	Damage	Design	Emergency	Overhead	Large Projects		
N	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	N*	N	N	N**	N	Y	Y	Y	Y	Y	18"	
* Routine road maintenance ** Farming activities																							
Tickets Fax: 877-695-2466																							
Y	Y	N	Y	Y	Y	Y	N	Y	Y	Y	N	N	Y	N	N	N	Y	Y	Y	N	N	30"	
N	Y	N	N	Y	Y	Y	N	Y	N	Y	Y	N	15"	N	Y	15"	Y	Y	Y	Y	Y	24"	
N	Y	N	N	Y	Y	Y	N	Y	N	Y	Y	N	15"	N	Y	15"	Y	Y	Y	Y	N	24"	
N	Y	N	N	Y	Y	Y	N	Y	N	Y	Y	N	15"	N	Y	15"	Y	Y	Y	Y	N	24"	
N	Y	N	N	Y	Y	Y	N	Y	N	Y	Y	N	15"	N	Y	15"	Y	Y	Y	Y	N	24"	
N	Y	N	N	Y	Y	Y	N	Y*	Y	Y	Y	N	N	Y	Y	N	Y	Y	Y	N	N	18"	
Y	Y	N	N	Y	Y	N	Y	Y*	Y	Y	Y	N	N	Y	Y	N	Y	N	Y	N	N	18"	
*When possible																							
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N	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	N	N	N	Y*	N	Y	Y	Y	N	Y	18"	
*Normal farm operations less than fifteen inches																							

Know what's below. Call before you dig.

Expand public awareness by visiting call811.com. You will find a variety of downloadable elements available for use free in your company/organization's existing campaigns.



TICKETS			STATE LAWS & PROVISIONS										NOTIFICATION EXEMPTIONS					NOTIFICATIONS ACCEPTED					Tolerance Zone (either side of the utility plus the width of the utility)
FAX	Online	Mobile	Statewide Coverage	Civil Penalties	Emergency Clause	Mandatory Membership	Excavator Permits Issued	Mandatory Premarks	Positive Response	Hand Dig Clause	Damage Reporting	DOT	Homeowner	Railroad	Agriculture	Depth	Damage	Design	Emergency	Overhead	Large Projects		
N	Y	Y	Y	Y	Y	Y	N	N	Y	N	N	N	Y*	Y	Y	N	N	Y	Y	N	N	24"	
*Homeowner retains responsibility for any damages due to digging																							
N	Y	N	Y	Y	Y	N	N	N	Y	Y	N	N	N	N	N	N	Y	Y	Y	N	Y	18"	
N	Y	Y	Y	Y	Y	N	N	N	N	N	Y	N	Y	N	N	N	Y	Y	Y	N	N	18"	
N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	Y	N	Y	N	Y	N	Y	18"	
N	Y	Y	Y	Y	Y	Y	N	N	Y	Y	N	N	Y*	N	N	N	N	Y	Y	N	N	18"	
*Hand-dig only.Mechanized equipment must call																							
N	Y	Y	Y	Y	Y	Y	N	N	Y	N	Y	N	Y	N	N	N	N	Y	Y	N	N	18"	
-7233																							
N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	Y	N	Y	N	Y	N	Y	18"	
N	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Y	N	N	N	N	N	Y	Y	Y	Y	18"	
r 651-454-0002																							
N	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	N	N	N	N	Y	N	N	Y	Y	N	Y	24"	
Tickets Fax: 601-362-7533																							
Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	N	Y	Y	24"	12"	Y	Y	Y	N	Y	18"	
*Less than 16"																							
/ Tickets Fax: 573-635-8402																							
Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	N	N	Y	Y*	N	Y	Y	Y	N	N	24"	



One Call and State Law Directory

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Know what's below. Call before you dig.

TICKETS			STATE LAWS & PROVISIONS										NOTIFICATION EXEMPTIONS					NOTIFICATIONS ACCEPTED					Tolerance Zone (either side of the utility plus the width of the utility)
FAX	Online	Mobile	Statewide Coverage	Civil Penalties	Emergency Clause	Mandatory Membership	Excavator Permits Issued	Mandatory Premarks	Positive Response	Hand Dig Clause	Damage Reporting	DOT	Homeowner	Railroad	Agriculture	Depth	Damage	Design	Emergency	Overhead	Large Projects		
N	Y	Y	N	Y	Y	Y	N	N	Y	Y	Y	N	Y*	N	Y	Y	Y	Y	Y	N	N	18"	
*Only under certain circumstances																							
Fax: 800-896-0664																							
Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	N	N	Y	Y	N	Y	Y	Y	N	N	18"	
N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	N	N	N	N	Y	N	Y	N	N	24"	
4-7233																							
N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	Y	N	Y	N	Y	N	Y	18"	
/ Tickets Fax: 800-705-4559																							
Y	Y	N	Y	Y	Y	Y	N	N	Y	Y	Y	N	Y	N	Y	Y	Y	N	Y	N	N	24"	
1 / 800-321-2537 / Tickets Fax: 800-727-8809																							
Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	N	N	N	N	N	Y	Y	Y	N	Y	18"	
N	Y	N	N	Y	Y	Y	N	N	Y	Y	N	N	N	N	N	N	Y	Y	Y	N	N	24"	
N	Y	N	N	Y	Y	Y	N	N	Y	Y	N	N	N	N	N	N	Y	Y	Y	N	N	24"	
r, Inc. / 800-632-4949																							
N	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	N	Y	Y	Y	N	Y	Y	Y	N	N	24"	

Know what's below. Call before you dig.

You can also reach your local One Call Center by dialing 811 anywhere in the United States. This is a FREE call and a FREE service.



TICKETS			STATE LAWS & PROVISIONS								NOTIFICATION EXEMPTIONS			NOTIFICATIONS ACCEPTED				Tolerance Zone (either side of the utility plus the width of the utility)				
FAX	Online	Mobile	Statewide Coverage	Civil Penalties	Emergency Clause	Mandatory Membership	Excavator Permits Issued	Mandatory Premarks	Positive Response	Hand Dig Clause	Damage Reporting	DOT	Homeowner	Railroad	Agriculture	Depth	Damage		Design	Emergency	Overhead	Large Projects

NORTH DAKOTA / North Dakota One Call / 800-795-0555

Website: ndonecall.com
Hours: 24 hours
Advance Notice: 2 Full Business Days
Marks Valid: 21 calendar days
Law Link: legis.nd.gov/cencode/t49c23.pdf?20130530105605

N	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	N	N	N	Y	N	N	Y	Y	N	N	24"
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OHIO

OHIO811 / 800-362-2764
Website: OHIO811.org
Hours: 24 hours, 7 days
Advance Notice: 48 hours but not more than 10 working days
Marks Valid: As long as visible and work begins within 10 days of original ticket
Law Link: oups.org/law

N	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	N	N	N	Y	N	Y	Y	Y	N	Y	18"
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OKLAHOMA / Okie811 / 800-522-6543

Website: okie811.org
Hours: 24 hours, 7 days
Advance Notice: 48 hours excluding date of notification, weekends and legal holidays
Marks Valid: 10 business days
Law Link: okie811.org/thelaw

N	Y	Y	Y	N	Y	Y	N	N	Y	Y	Y	Y	N	N	N	N	Y	Y	Y	N	Y	24"
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OREGON / Oregon Utility Notification Center / 800-332-2344 / Tickets Fax: 503-293-0826

Website: digsafelyoregon.com
Hours: 24 hours, 7 days
Advance Notice: 2 Full Business Days
Marks Valid: Marks Valid; 45 days
Law Link: digsafelyoregon.com/faqs/ounc_ors_oar.htm

Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	N	N	12"	N	Y	N	N	Y	Y	N	N	24"
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PENNSYLVANIA / Pennsylvania One Call System, Inc. / 800-242-1776

Website: paonecall.org
Hours: 24 hours, 7 days
Advance Notice: 3 to 10 business days (construction), 10-90 days (design), at least 10 days (large projects)
Marks Valid: as long as equipment is on site
Law Link: paonecall.org/palaw

N	Y	Y	Y	Y	Y	Y**	N	Y	Y	Y	Y	N*	N	N	Y	N	Y	Y	Y	N	Y***	18"
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* PennDOT minor routine maintenance exempt if without 24" depth from highest spot in ROW
 * Municipal Roads - minor routine maintenance if within 18" depth from highest point in ROW
 ** Exemptions include PennDOT within state road DOT, Stripper Well Lines in Class 1 areas
 *** Large projects accepted online only

RHODE ISLAND / Dig Safe System, Inc. / 888-344-7233

Website: digsafesafe.com
Hours: 24 hours, 7 days
Advance Notice: 72 hours(excluding weekends and holidays)
Marks Valid: Must start within 30 days, as long as marks maintained
Law Link: digsafesafe.com/laws_rules.php

N	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	N	N	N	Y	N	Y	N	Y	N	Y	18"
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

* Mandatory when excavation site can't be clearly or adequately identified
 ** Damages must be reported to the facility operator, if known, as well as the One Call Center.
 *** Exemptions for agricultural tilling or plowing less than 12"; homeowners have a 10" non-mechanized depth exception provided the ROW/ Easement not encroached. SCDOT exception for specific work activities only.

SOUTH CAROLINA / South Carolina 811 / 888-721-7877

Website: sc811.com
Hours: 7:30 AM - 5:30 PM, M-F
Advance Notice: 3 to 12 full working days notice(10-20 full working days notice subaqueous)
Marks Valid: 15 working days
Law Link: sc811.com/SCStateLaw.aspx

N	Y	Y	Y	Y	Y	Y	N	Y*	Y	Y	Y**	Y***	Y***	N	Y***	N	Y	Y	Y	N	N	24"
---	---	---	---	---	---	---	---	----	---	---	-----	------	------	---	------	---	---	---	---	---	---	-----

* Damage reporting required. All damage must be reported to the facility operator, or if the operator is unknown, to South Carolina 811 Center.
 ** For agricultural tilling and road and ditch maintenance to a depth of 18" only; homeowners have a 12" depth exception for tilling of soil and gardening

SOUTH DAKOTA / South Dakota 811 Center / 800-781-7474

Website: SD811.com
Hours: 24 hours
Advance Notice: 48 hours(excluding weekends and holidays)
Marks Valid: 21 working days from start date and time on ticket
Law Link: sdonecall.com/law.asp

N	Y	Y	Y	Y	Y	Y	N	Y	N	Y	Y*	N	N	N	N	N**	Y	Y	Y	N	Y	18"
---	---	---	---	---	---	---	---	---	---	---	----	---	---	---	---	-----	---	---	---	---	---	-----

TENNESSEE / Tennessee 811 / 800-351-1111 / Tickets Fax: 615-367-4469

Website: tn811.com • **Hours:** 24 hours
Advance Notice: Not less than 3 working days, not more than 10 working days
Marks Valid: 15 calendar days
Law Link: tn.gov/content/dam/tn/publicutility/documents/uudeb/65-31-101etseq10-28-2016.pdf

Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	N	Y	N	N	N	Y	Y	N	N	24"
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----



One Call and State Law Directory

HELP US STAY UP TO DATE.

Directory information is also available online at dp-pro.com.
Report any updates to this directory by calling
866-279-7755.



You can reach your local One Call center in the U.S. by dialing 811.

Know what's below. Call before you dig.



TICKETS			STATE LAWS & PROVISIONS										NOTIFICATION EXEMPTIONS					NOTIFICATIONS ACCEPTED					Tolerance Zone (either side of the utility plus the width of the utility)
FAX	Online	Mobile	Statewide Coverage	Civil Penalties	Emergency Clause	Mandatory Membership	Excavator Permits Issued	Mandatory Premarks	Positive Response	Hand Dig Clause	Damage Reporting	DOT	Homeowner	Railroad	Agriculture	Depth	Damage	Design	Emergency	Overhead	Large Projects		
N	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Y	N	Y	Y	Y	16"	Y	Y	Y	N	N	18"
N	Y	Y	Y	Y	N	Y	N	N	Y	Y	N	N	N	N	N	N	N	N	Y	N	N	24"	
*Agriculture exemption less than 16"																							
N	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	N	N	N	Y	N	Y	N	Y	N	Y	18"	
N	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	N	Y	Y	Y	N	N	Y	Y	N	Y	24"	
293-0826																							
N	Y	Y	Y	Y	Y	Y	N	Y	N	Y	Y	N	Y	N	Y	Y	Y	Y	Y	N	Y	25"	
777																							
N	Y	Y	Y	Y	Y	Y	N	N	Y	Y	N	N	N	N	N	N	N	N	Y	N	N	18"	
3																							
N	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	N	N	N	Y	N	Y	Y	Y	N	N	24"	
N	Y	Y	Y	Y	Y	Y	N	N	N	Y	N	N	N	N	N	N	Y	Y	Y	Y	Y	18"	

Know what's below. Call before you dig.

Expand public awareness by visiting call811.com. You will find a variety of downloadable elements available for use free in your company/organization's existing campaigns.



TICKETS			STATE LAWS & PROVISIONS									NOTIFICATION EXEMPTIONS					NOTIFICATIONS ACCEPTED					Tolerance Zone (either side of the utility plus the width of the utility)	
FAX	Online	Mobile	Statewide Coverage	Civil Penalties	Emergency Clause	Mandatory Membership	Excavator Permits Issued	Mandatory Premarks	Positive Response	Hand Dig Clause	Damage Reporting	DOT	Homeowner	Railroad	Agriculture	Depth	Damage	Design	Emergency	Overhead	Large Projects		
ickets Fax: 800-217-3719																							
N	Y	N	Y	Y	Y	Y	N	Y	Y	Y	Y	N	N	N	Y	N	Y	Y	Y	N	N	24"	
ulf of Mexico, the Florida Straits and Atlantic Coast / 888-910-4853 (GULF)																							
N	Y	N	N	N	N	N	Y	N	N	N	N	Y	N/A	N/A	N/A	N/A	Y	Y	Y	N/A	N	N/A	

Canadian One Call and Provincial Law Directory   Canadian One Call Centres Committee	TICKETS			PROVINCIAL LAWS & PROVISIONS									NOTIFICATION EXEMPTIONS				NOTIFICATIONS ACCEPTED				Tolerance Zone (either side of the utility plus the width of the utility)			
	FAX	Online	Mobile	Statewide Coverage	Civil Penalties	Emergency Clause	Mandatory Membership	Excavator Permits Issued	Mandatory Premarks	Positive Response	Hand Dig Clause	Damage Reporting	DOT	Homeowner	Railroad	Agriculture	Depth	Damage	Design	Emergency		Overhead	Large Projects	
ALBERTA / Alberta One Call Corporation / 800-242-3447																								
Website: albertaonecall.com Hours: 8:00 AM-4:00 PM, M-F (Emergency: 24/7) Advance Notice: 3 full working days Marks Valid: 14 days(extendable to 30 if certain conditions are met)	N	Y	Y	Y	N	N	N	N	N	Y	Y	Y	N	N	N	N	*	Y	Y	Y	N	Y	1m (39")	
	* 300 mm (12") hand tools only																							
BRITISH COLUMBIA / BC One Call / 800-474-6886 / Tickets Fax: 604-451-0344																								
Website: bconeall.bc.ca Hours: 24 hours / 7 days Advance Notice: 3 working days excluding Saturdays, Sundays and holidays Marks Valid: 30 calendar days	Y	Y	N	Y	N	Y	N	N	N	Y	N	N	N	N	N	N	N	Y	Y	Y	N	N	VARIES	
MANITOBA / Click Before You Dig Manitoba / 800-940-3447																								
Website: ClickBeforeYouDigMB.com Hours: 8:00 AM - 5:00 PM Advance Notice: 3 full working days excluding weekends and holidays Marks Valid: Determined by member	N	Y	Y	Y	N	N	N	N	N	Y	Y	N	N	N	N	N	N	Y	N	Y	N	Y	VARIES	
ONTARIO / Ontario One Call / 800-400-2255																								
Website: OntarioOneCall.ca Hours: 24 hours, 365 days Advance Notice: 5 working days Marks Valid: Determined by Member	N	Y	N	Y	Y	Y	Y	N	N	Y	Y	Y	N	N	N	N	N	Y	Y	Y	N	Y	VARIES	
QUEBEC / Info-Excavation / 800-663-9228																								
Website: info-ex.com Hours: 24 hours/7 days Advance Notice: 72 hours (3 working days) Marks Valid: Maximum 180 days	N	Y	Y	Y	N	Y	N	N	N	Y	N	Y	N	N	N	N	N	Y	Y	Y	Y	Y	1m (39")	
SASKATCHEWAN / Sask 1st Call / 866-828-4888																								
Website: sask1stcall.com Hours: December-March 8:00 AM - 4:30 PM, M-F (Emergency 24/7) Advance Notice: 3 full working days Marks Valid: 10 working days	N	Y	Y	Y	N	N	N	N	N	Y	N	N	N	N	N	N	N	Y	Y	Y	N	Y	VARIES	



Industry Publications

811 Magazines

Now published in 9 states and growing. It is not just printing the dig safely message that gets the job done. It's about connecting with the right people. Working with the One Call systems in each state, we reach the people you're looking to reach. Ask us how we do it!



American Gas Magazine

provides natural gas industry professionals with the information they need to enhance their effectiveness and that of their companies by publishing leading-edge reports on the industry and on American Gas Association activities that offer value to its members.



Australia HeavyQuip journal

covers the latest industry news, product information, and new equipment machinery for the construction, roadbuilding, mining, and farming markets in Australia. The dedicated monthly newsletter provides comprehensive coverage on the biggest machinery topics in construction while offering informative and in-depth features that engage and educate operators and owners.



**Australia
HeavyQuip
journal**

Broadband Communities

is the leading source of in-depth news, expert insights and practical know-how on the technical, business, financial and legal aspects of outfitting properties and communities with high-speed broadband solutions. For more information or to subscribe to this free publication, visit www.bbcmag.com.



CoatingsPro

Published bimonthly, CoatingsPro is the high-performance coatings industry's leading magazine for up-to-date information on products, services, tips, and techniques. Featuring industry news and case studies to provide practical and cost-effective solutions to its 27,000+ readers, the magazine reaches contractors, applicators, specifiers, engineers, and facility managers in 16 unique market segments of the commercial and industrial coatings industry.



Compact Equipment

focuses on small and versatile construction equipment, used in markets as diverse as construction, landscaping, agriculture and private sectors.



Editorial content specifically targets equipment considered to be "tool carriers," with the ability to wield an assortment of attachments – both PTO and hydraulically driven – from skid steers to mini excavators.

Construction Equipment Guide

Founded in 1958, Construction Equipment Guide (CEG) is a national publication and website that provides industry news; articles on construction equipment, projects and legislation; auction coverage; business profiles and events and more. CEG's biweekly newspapers consist of four regional editions — Northeast, Southeast, Midwest and Western, including state edition supplements.



dp-PRO

Published quarterly, dp-PRO reaches over 70,000 readers each issue in print and digital formats. With a different technology and industry spotlight focus in each issue, we keep our finger on the pulse of the industry through relevant and through-provoking articles and features written by industry professionals.



HeavyQuip Magazine

is the fully digital magazine for heavy-duty equipment and machinery specific for the EMEA market as insiders in Construction, heavy-duty equipment, agricultural machinery, attachments, and implements. HeavyQuip Magazine is the online resource for newly released equipment and technologies.



ISE (ICT Solutions & Education)

Connects network evolution professionals with innovative solutions and concise education across the rapidly changing ICT landscape. As the lines separating telephone, Internet and television companies continue to blur, ISE is the resource telecom providers have trusted for over 30 years. www.isemag.com



Materials Performance

Published monthly, Materials Performance (MP) is the world's largest circulation journal dedicated exclusively to corrosion prevention and control. Through technical articles, features, case studies, technical and industry news, and NACE association news, Materials Performance covers the latest technologies and news on coatings and linings, cathodic protection, materials selection and design, and chemical treatment.



Industry Publications

Trenchless Today

The North American

TRENCHLESS

FOR GAS INFRASTRUCTURE

Society for Trenchless Technology's membership publication, NASTT's Trenchless Today, is published for NASTT members and trenchless industry professionals. The three issues published each year include NASTT and trenchless industry news, member spotlights, Q&As, technical papers and information on upcoming educational events. It also highlights outstanding industry leaders including NASTT's Hall of Fame inductees and everything you need to know about NASTT's annual No-Dig Show. For more on NASTT, visit nastt.org.

North American Oil & Gas Pipelines

is the premier publication

covering the business of oil and gas pipeline construction in North America, from the shale deposits to the oil sands, and all places in between. Editorial content includes the latest news on market developments that are shaping the industry, the most efficient methods of pipeline construction and maintenance and managerial strategies that enhance your company's bottom line.

North American Oil & Gas PIPELINES

Opflow

presents new and established technologies and ideas that readers can apply to water treatment and distribution, as well as wastewater operations.

Opflow

South African Heavy Equipment Magazine

is the digital magazine focused on Construction, Mining, and Farming equipment and machinery for South Africa and English speaking African. The magazine always updated with news enhanced by outstanding photographic, audio, and video content.

South African Heavy Equipment magazine

The Locator

is an annual publication focused on CAPULC initiatives, industry best practices, new legislation and damage prevention related topics. This magazine is the first publication in Canada geared towards line locating and ground disturbance.

THE LOCATOR

Trenchless Technology

is the worldwide and premier communications vehicle for the promotion

and development of the trenchless technology industry. Now entering its third decade of existence, the magazine's expanded editorial calendar provides cutting-edge information on the hottest areas of the underground construction market.

Trenchless TECHNOLOGY


USA HeavyQuip Journal

The digital magazine for heavy-duty equipment and machinery specific for the US OTR machinery market.

It's the digital magazine where you can find industry news, the latest in new product introductions, and a comprehensive directory of manufacturer.

USA HeavyQuip journal

Utility Contractor

is the official magazine of the National Utility Contractors Association (NUCA), the largest trade association working solely for the excavation and underground utility construction industry. Utility Contractor presents the latest and most current information affecting every aspect of the industry, including technological advancements, safety issues, important legislative developments and instructional advice and more. 

Utility CONTRACTOR



Saving Lives through Education for 19 Years



Damage Prevention & Excavation Safety on a Global Scale

Featuring unrivaled education and networking opportunities, the 2022 Excavation Safety Conference returns LIVE to Phoenix for the industry's biggest damage prevention event!

Benefits of attending:

- 80+ education sessions across all stakeholder groups
- Engage in peer-to-peer exchanges during sessions
- Participate in panel discussions and industry summits
- Expand your areas of expertise by attending a session on a new topic
- Join in daily networking activities
- Act as an advocate for your entire work group by bringing what you've learned back to the office
- Over 100 exhibitors make this a one-stop- shop to learn about advancing technologies and tools that are redefining the industry

"This conference is awesome guys! If you are in this industry, either utility, locator, or excavator and you are not here, then you are in the wrong place."

- Jimmy Jennings – One Call Concepts, Inc. – 7 time attendee

GlobalExcavationSafetyConference.com

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- ✓ Become an exhibitor or sponsor

March 1-3, 2022 | Phoenix, Arizona

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Resources**
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Saving Lives through Education

Users Guide- continued from page XVI

help them to safely mitigate the situation. The requirement to notify 911 is mandated by the Act and by the Federal Pipeline Safety Act.

ANNUAL FEE

The Act requires excavators to make a locate request to the One Call System prior to excavation or demolition work and to pay the applicable fee for the request. The fee is billed on the date of the first Locate request placed each calendar year.

Alleged Violations of the Law

Excavators are required to submit a report of an alleged violation. Please review Section X for the specifics regarding reporting of alleged violations of Act 287 of 1974 as amended.

SECTION IX - RESPONSIBILITIES OF THE PROJECT OWNER

It is the Project Owner who is in the best position to influence damage prevention measures applied in the design and preconstruction phases, as well as once excavation begins, as they control the finances, scope of project, and terms in the contract.

This section of the Users Guide recognizes the value of communication between all parties to the Act. To that end POCS has launched CoordinatePA, a planning tool intended to promote collaboration, cooperation, coordination and communication among all stakeholders. It is a tool that requires participation by Project Owners or their designees to populate future projects to be successful at improving project quality, eliminating potential conflicts in advance of construction, and reducing damages to existing infrastructure.

It is the duty of project owners to utilize and pay for Subsurface Utility Engineering (SUE) in accordance with the Act. It is the project owner who initiates design projects that will require excavation or demolition and they are its principal beneficiary. The use of SUE or other similar techniques is required on large or complex projects costing \$400,000 or more. SUE provides a way to accurately identify the quality of subsurface utility information. The highest level of SUE, Level A, provides precise location information permitting the designer to avoid conflicts with underground facilities where possible.

Project Owners must furnish the pertinent data obtained through subsurface utility engineering to the One Call System in a mutually agreeable format.

Project Owners must not release to bid or construction any project until after final design is completed.

For new construction and where practicable in the opinion of the project owner, color-coded permanent markers must be installed to indicate the type and location of all laterals installed by the project owner. These markers will assist in locating efforts in the future.

Project owners are obligated to timely respond

to notifications received from the excavator when facility owners cannot accurately locate or identify all lines. When not resolved in the design phase, and an excavator must ascertain the location or lines, including unclaimed or abandoned lines, as outlined in the Act in Section 5, clause (15), the excavator is entitled to compensation from the project owner as outlined in said clause. The project owner has responsibility to respond to such notifications, and to compensate the excavator for such work. By choosing and utilizing the highest level of SUE, Level A, in the Design Phase, this potential is minimized. (Refer to Section III of this User Guide, Type of Calls, #1 for information on Preliminary and Final Design notifications.)

Project Owners are required to participate in design and complex project preconstruction meetings and shall encourage such meetings, as appropriate, for work they put forth that is larger than the maximum area that a routine Locate request may cover to provide for a mark out plan with existing facility owners that can be maintained and help keep the project on track.

Alleged Violations of the Law

Project Owners are required to submit a report of an alleged violation. Please review Section X for the specifics regarding reporting of alleged violations of Act 287 of 1974 as amended.

SECTION X - ENFORCEMENT AND REPORTING ALLEGED VIOLATIONS

The UULPL assigns enforcement authority to the Pennsylvania Public Utility Commission (PUC) and established a Damage Prevention Committee (DPC). The DPC has the authority to review reports of alleged violations, issue warning letters, issue informal determinations that impose administrative penalties, and require persons to attend a damage prevention educational program. Affected parties have various rights regarding informal determinations, including the right to be heard, and the right to appeal administrative penalties; however, most cases are likely to be resolved at this level.

The DPC appointed by the PUC, consists of members of various stakeholder groups, as well as the PUC, the Department of Transportation, and Pennsylvania One Call System, with the PUC representative serving as the chairman. (See Section 7.8 of the UULPL.)

The PUC also has the right, in appropriate cases, to file criminal and civil complaints against violators. Such action is more likely to occur where there is death, personal injury, or significant property damage, or in the case of repeat offenders.

The PUC has established a full-time enforcement staff specifically for the UULPL. In addition, the PUC will issue regulations that describe how both enforcement and the DPC will operate, consistent with the UULPL. Initially, these will be temporary or interim regulations,

but, eventually, they will become permanent regulations. The PUC has the power to amend the regulations, as well.

Alleged Violations

All Alleged Violation Reports are to be submitted via the POCS website under the Enforcement section.

Excavators, designers, project owners, and facility owners shall submit an alleged violation report to the commission through the One Call System for instances when a person by action or inaction fails to fulfill the obligation of the Act. The report of alleged violation shall be in a form and manner as required by the commission. An Alleged Violation Report (AVR) is submitted from the POCS website under the Enforcement section.

- **Facility Owner** - Submit a report of alleged violation not more than thirty business days after receipt of notice that the facility owner's lines have been damaged by excavation or demolition work or if the facility owner believes a violation of this act has been committed in association with excavation or demolition work. No report may be required where the cost to repair the damage to the facility owner's lines is less than two thousand five hundred dollars (\$2,500), unless the same person damaged the facility owner's lines two or more times within a six-month period.

- **Designer** - Submit a report of alleged violation not more than thirty business days from the time the designer becomes aware that a violation of this act may have been committed in association with excavation or demolition work.

- **Excavator** - Submit a report of an alleged violation not more than ten business days after striking or damaging a facility owner's line during excavation or demolition or if the excavator believes a violation of this act has been committed in association with excavation or demolition work.

- **Project Owner** - Submit a report of alleged violation not more than ten business days after striking or damaging a facility owner's line during excavation or demolition work activities, after a project owner's contracted excavator strikes or damages a facility owner's line during excavation or demolition activities or if the project owner believes a violation of this act has been committed in association with excavation or demolition.

When notified of an alleged violation, the stakeholder should fully investigate circumstances involved with alleged violation.

Designate one person from your organization as a "contact person" to administer these alleged violation reports.

Pennsylvania One Call System is not responsible for the issuance of citations or enforcement under this statute.

Alternate Dispute Resolution

Pennsylvania One Call System has the authority under the statute to create and administer a voluntary payment dispute resolution process for all parties involved with the statute. This process may not be used to settle or resolve alleged violations of the law.

SECTION XI - TAMPERING WITH MARKS

Under the law owners of underground facilities such as pipe lines, electric, communication and other types of lines are required to place physical marks on the surface of the ground within 18" of the actual underground position of the lines, identifying the size, type and number of lines when an excavator makes a request to locate through Pennsylvania One Call System, Inc. These marks help the excavator determine, in advance of excavation, where the safety (tolerance) zone of the buried lines is so the excavator can use prudent techniques to safely excavate without causing damage to the underground facility within the tolerance zone. This process greatly reduces the chance that an existing line will be damaged during excavation activities.

It is important that these marks remain visible and unaltered until all excavation in the area is completed. Accurate marks for underground lines result in safer excavations with fewer damaged lines. Removing, moving or otherwise tampering with marks for underground facilities increases the chance of damage to the line. This can result in injury and even death to those in the immediate vicinity. It also can cause interruption of service to you and your neighbors and may result in costly repairs that could increase your monthly utility bills.

Marks that have been removed, moved or otherwise tampered with are never accurate and could prove to be deadly! The color, style, method and location of marks communicate critical information to the excavator. If you witness or otherwise have reason to believe that someone has tampered with underground utility marks, please immediately notify the excavation company and Pennsylvania One Call System, Inc. POCS may be contacted by dialing 8-1-1 or 1-800-242-1776.

Tampering with underground facility marks, even if those marks are placed on private property, violates Section (10) of PA Act 287, as amended.

Accurate marks result in safer excavations for everyone!

SECTION XII - WEBSITE TOOLS

POCS provides a variety of online tools to stakeholders: Excavators, Designers, Facility owners (members), and homeowners. All are available at www.paonecall.org to authenticated users.

A user account is needed to gain access to any and all of POCS's online tools. To create a user account, navigate to www.paonecall.org and

select "Create Account" in the black bar at the top of the homepage. The following information, at a minimum, is needed to create a user account:

- First and Last Name;
- Company;
- Email address;
- Street Address;
- City, State, Postal Code;
- Desired user name and
- Password.

Other information (such as title, company name, telephone number) is helpful to POCS but not required to create an account.

When the form is completed, click the <save> button at the bottom of the form. The website will validate the information provided and create an account.

To gain access to online tools, navigate to www.paonecall.org and select "Sign In" from the black bar at the top of the homepage. Then choose "Request Applications" from the "Applications" menu selection in the red bar near the top of the screen. Then check the applications you wish to gain access to and click the <Request> button at the bottom.

The request will be pending until a Member Services Representative reviews the request and grants access. Not all applications are available to all users – for example, the "Member Database Verification" application is only available to users who work at a member company and are responsible for maintaining their information on file with PA One Call.

When access is granted, the user is notified via email or a telephone call.

What online applications are available to authenticated users?

Coordinate PA. This web service application developed to support Public Works (governmental) and Utility advance planning to aid in design and project planning collaboration and cooperation.

POCS maps are used to display participating project scopes and phases to make it easy for contributors to identify collaborative project opportunities far enough in advance to recognize cost savings and minimize disruption to the public through sharing and coordination of their effort.

Coordinate PA integrates with POCS's Web Ticket Entry process to create Design and Excavation notifications from the project coordination tool to increase project safety and reduce project costs as required by Pennsylvania's Underground Utility Line Protection Law.

Pennsylvania coordinating committees meet to share their projects and project plans in an effort to find overlap in construction work. A list of coordinating communities is available in the Resource Center of the POCS website.

Drawing Exchange Portal. This application facilitates the exchange of electronic design files between a facility owner and a designer for design tickets. Instead of sending paper copies of

design files to facility owners that request them, the designer can upload an electronic file for the facility owner to electronically mark and electronically return to the designer.

Excavator/Designer Web Access. This application for excavators and designers facilitates viewing the ticket database from the excavator or designer perspective. The excavator or designer can query the database for their tickets within a specified date range and filter on a variety of ticket attributes such as ticket action type, ticket county or ticket municipality.

Facility Owner Billing. This application for underground facility members to view and pay PA One Call invoices electronically.

Facility Owner Member Web Access. This application for facility owners facilitates viewing the ticket database from the facility owner perspective. The facility owner can query the database for their tickets within a specified date range and filter on a variety of ticket attributes such as CDC, ticket action type, ticket county or ticket municipality.

Member Database Verification. This application facilitates online verification without the need for a paper form. POCS verifies facility owner information on file every year. The member is asked to verify all information on file, including business address, contact information, municipalities where the member owns or operates underground facilities, and maps of their notification area(s).

Member Mapping. This application is a geospatial mapping tool used by facility owners to describe notification areas within the municipalities where the member owns or operates underground lines. The member draws points, lines or polygons on a map to indicate where they want to be notified of excavation activities. POCS accepts shapefiles. These notification areas are compared to the proposed excavation area on a ticket. No overlap between the proposed excavation area and the member notification area indicates that excavation will not occur near the member's underground facilities, and ticket receipt to the member is suppressed.

Tickets Nearby. This application is a geospatially aware mobile application that pinpoints the location of tickets on a map relative to the user's current geographic location. It is used on a mobile device in the field and presents a map centered at the user's location along with dots to represent tickets nearby. The dots are color coded to represent routine and emergency tickets, and the user can drill down to ticket detail within the application.

Web Ticket Entry. This application is an online or mobile application for excavators to enter design, construction or emergency location requests without contacting POCS by telephone.

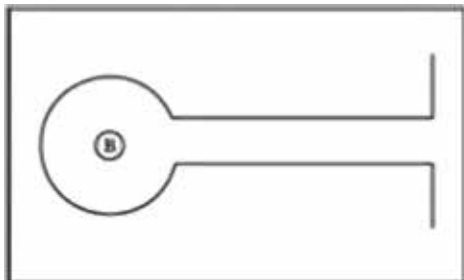
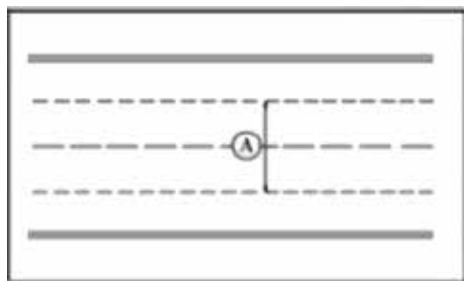
Web Ticket Response. This application is an online or mobile application that records ticket responses from facility owners. The facility owner logs in to the system and can view a color coded list of tickets, including tickets that need a <CLEAR> or <MARKED> response.

Appendix A

Terminology often used when creating a notification

A. Center Lane(s) – In a four-lane street, the two lanes at the center of the pavement.

B. Cul-de-sac – A local street open at one end with a special provision for turning around.



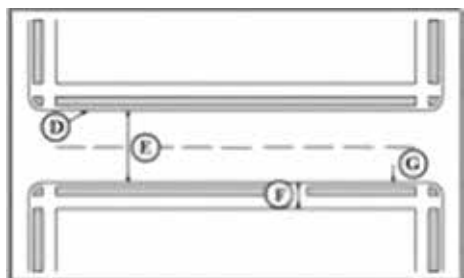
C. Culvert (not pictured) – Any pipe or structure under a roadway or driveway to facilitate drainage of surface water.

D. Curb Lane(s) – Traffic or parking lane immediately adjacent to the curb.

E. Curb to Curb – The paved area of a road right of way between the two curb lines.

F. Curb to Property Line – The area between the curb and the front property line.

G. Curb Line – The point where the curb meets the edge of the street pavement.



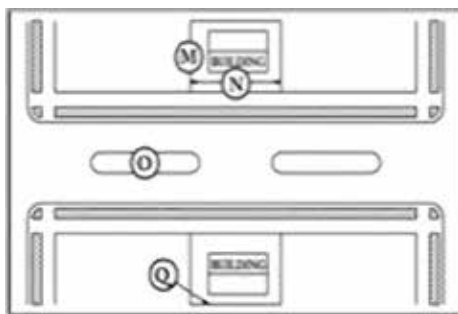
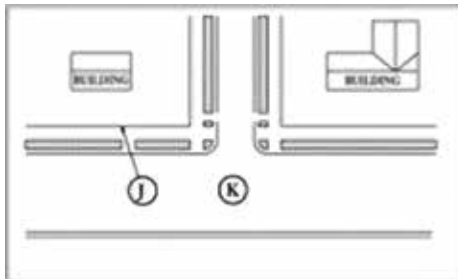
H. Easement (not pictured) – A right to use or control the property of another for designated purposes.

I. Frontage Road (access road - not pictured) – A local street or road auxiliary to and located on the side of an arterial highway for service to abutting property and adjacent areas and for control access.

J. Front Lot Line – (Same as street right of way line) the property line adjacent to the street right of way.

K. Intersection – The general area where two or more highways join or cross, within which are included the roadway and roadside facilities for traffic movements in that area.

L. Interchange (not pictured) – A system of inter-connecting roadways in conjunction with one or more grade separations providing for the movement of traffic between two or more roadways on different levels.



M. Lot Line – A line marking the legal limits of an individual's property.

N. Lot Line to Lot Line – The area between the two side lot lines on private property and the entire road right of way (See R.)

O. Median – The portion of a divided highway separating the traveled ways for traffic in opposite directions.

P. Property Line – See Lot Line (M).

Q. Rear Lot Line(s) – Property lot line at the rear of the lot (area opposite street that connects the two side lot lines).

R. Right of Way – Dedicated street areas bounded by two generally parallel lines called

right-of-way lines. Another name for these lines is front property lines.

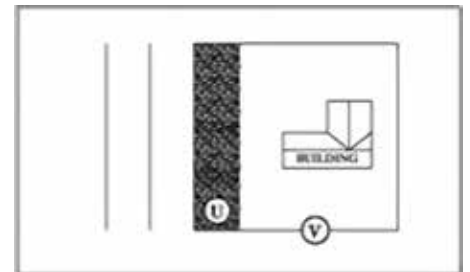
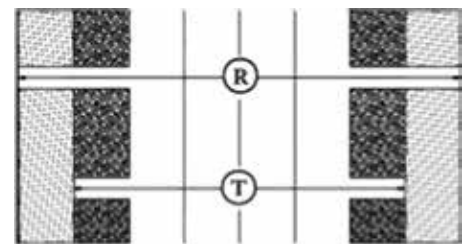
S. Road (not pictured) – Highway in rural area.

T. Roadway – The portion of a highway, including shoulders, for vehicular use.

U. Shoulder – The edge of a road (generally gravel) between normal traffic lanes and grass areas. The term normally used in areas where there is no curb.

V. Side Lot Line(s) – The two property lines, which normally extend away from the street right-of-way.

W. Street (not pictured) – Highway in an urban area.



Appendix B

The KARL System (Kathy Automated Response to Location requests)

Overview

Pennsylvania One Call System, Inc. (POCS) has created a voice relay and response solution that automates the call out process to facility owner members requesting supplemental voice relay of information on emergency notifications; allows facility owner members to respond to all notifications; faxes or emails excavators/designers with the collected responses; and allows excavators/designers to retrieve information about their responses.

When an excavator/designer calls into the system a customer service representative (CSR) will enter the ticket information into the POCS computer system as a Locate request (WLR). Excavators and designers who have registered with POCS may also create their own WLRs utilizing Web Ticker Entry. Each WLR is assigned a unique serial number. Based on

information within the ticket the computer system assigns a message type and determines if voice notification has been requested by a facility owner member. This information is passed to the KARL System.

KARL determines the priority of the voice message and queues a voice call out request for each pertinent facility owner. When a facility owner answers a voice call out KARL speaks the WLR information. Upon completion of the callout, KARL records the outcall status as successful or failed.

Anytime during voice relay of an emergency, KARL will accept responses to the spoken WLR information. When a facility owner responds, KARL will record their response in the database. On all other WLR's, KARL will accept responses through telephone input, data transfer, or web ticket response.

On the response due date, KARL will fax or email the results to the excavator/designer who initiated the WLR, to inform them of the status. If a response is not received for a facility owner by the response due date, KARL will send a "No response" indication for that facility owner. At any time, the excavator/designer may call into KARL to inquire the current status of the WLR.

KARL Responses - Uses and Constraints

NOTE: INTERIM responses require an update to a valid FINAL response before the Response Due date.

RESPONSE CODES	
001	Clear, no facilities.
002	Conflict, lines nearby, direct contact to follow by facility owner.
003	Field Marked.
004	Insufficient information, do not dig.
005	Not marked due to no access.
006	Scheduled date of mark.
007	Voice Message (temporary communication valid for 30 days)
082	Design conflict – Please send plans to (facility owner's address will be provided).
083	Engineering Completed – A PDF file or marked up planes were sent to the requestor
090	Will Attend Meeting
091	Clear – Will Not Attend Meeting
092	Requests Meeting
096	Agrees No Meeting Required
999	Did Not Respond Through PA One Call. (system generated response when no response received from facility owner)

001 CLEAR – NO FACILITIES

- Facility Owner has no underground lines at the site as described in the Locate request.
- This is considered a final response under the law.

002 CONFLICT. LINES NEARBY. DIRECT CONTACT TO FOLLOW BY FACILITY OWNER

- Facility Owner may have underground lines

at the site and will contact excavator directly at the contact information provided on the Locate request.

- This is considered an interim response under the law and should be updated with a Clear (001) or Field Marked (003) response after contact is established with the excavator.

003 FIELD MARKED

- A locator was dispatched and physically marked lines at the work site.
- This is considered a final response under the law.

004 INSUFFICIENT INFORMATION. DO NOT DIG

- Facility Owner cannot make a determination of their involvement based on the information provided by the excavator on the Locate request.
- The facility owner should attempt to contact the excavator to obtain additional information, or instruct the excavator to call in a new Locate request.
- This is considered an interim response under the law and should be updated with a Clear (001) or Field Marked (003) response after contact is established with the excavator.

005 NOT MARKED - DUE TO NO ACCESS

- Facility Owner has a conflict but could not mark their lines at the site because the locator could not gain access to the location caused by things such as a bad dog, locked

gate or other security measures.

- The facility owners should attempt to contact the excavator to arrange for access.
- This is considered an interim response under the law and should be updated with a Clear (001) or Field Marked (003) response after contact is established with the excavator.

006 SCHEDULED A DATE AND TIME

LINES WILL BE MARKED BY: <Facility Owner enters date and time>

- Facility Owner will mark the lines at the site by the mutually agreed upon date and time.
- This is considered an interim response under the law and should be updated with a Field Marked (003) response once marking is complete.

007 VOICE MESSAGE

- Facility Owner recorded a message to convey information to the excavator that is different from the standard KARL responses. It is important to note that this is a temporary message that is only saved for 30 days and is not considered a final response under the law.
- This is considered an interim response under the law and should be updated with a Clear (001) or Field Marked (003) response once contact is established with the excavator.

082 DESIGN CONFLICT, SEND PLANS TO: <system completes Facility Owner name & address from file>

- Facility Owner has lines at the site and the design drawings should be sent to them for markup.
- This is considered an interim response under the law and should be updated with an Engineering Completed (083) response once plans are marked up and returned to the designer, or updated with a Clear (001) response if after review of the plans, the Facility Owner determines no conflict exists.

083 ENGINEERING COMPLETED – A PDF FILE OR MARKED UP PLANS WERE SENT TO THE REQUESTOR

- The Facility Owner has answered the designer's request for plans by uploading a PDF of their lines, or marked up the PDF provided by the designer. Both options are available via the Drawing Exchange Portal. Alternately, the Facility Owner may mail hard-copy, marked up drawings to the requestor.
- This is a final response under the law.

090 WILL ATTEND MEETING

- Facility Owner may have underground lines in the area of the complex project and will attend the meeting.
- The law requires Facility Owners to attend complex project meetings when requested by the excavator.
- This is considered an interim response under the law and should be updated with a Clear (001), Field Marked (003), or Attended Meeting-Reached Agreement (099) response.

091 CLEAR – WILL NOT ATTEND MEETING

- Facility Owner has no underground lines in the area of the complex project and will not attend the meeting.
- This is a final response under the law.

092 REQUESTS MEETING, DIRECT CONTACT TO FOLLOW BY FACILITY OWNER

- The Facility Owner is designating the work as complex for their company. The Facility Owner will contact the excavator. DO NOT DIG until the facility owner and excavator agree on a mark out schedule.
- Excavators are required by law to conduct a meeting with any Facility Owner that requests it.
- This is considered an interim response under the law and should be updated with a Clear (001) or Field Marked (003) response.

095 DID NOT ATTEND MEETING, DIRECT CONTACT TO FOLLOW BY FACILITY OWNER

- Facility Owner may have a conflict at the site, but was unable to attend the preconstruction meeting.
- The Facility Owner should attempt to contact the excavator to set a one-on-one meeting.
- This is considered an interim response under the law and should be updated with a Clear (001), Field Marked (003), or Attended Meeting-Reached Agreement (099) response.

096 AGREES NO MEETING REQUIRED

- Facility Owner agrees that a meeting is not required for this complex project. This is an interim response under the law and should be updated with a Clear (001) or Field Marked (003) response.

099 ATTENDED MEETING – REACHED AGREEMENT

- The Facility Owner attended the meeting, has determined there is a conflict, and reached an agreement on a locate schedule.
- This is considered a final response under the law.

999 DID NOT RESPOND THROUGH PA ONE CALL

- System generated response when no response is received from Facility Owner prior to the response due date.
- This is a violation of the law.

INTERACTING WITH THE VOICE RESPONSE UNIT (KARL):

Users of the KARL system will be required to enter numeric and alphabetic answers to interact with the voice response unit. These responses may be entered verbally or by using the telephone keypad. At different times in the script, KARL may ask facility owners for the member call directing code (CDC), for the initials of the person entering responses or accepting supplemental voice outdials, and to confirm the company telephone numbers. KARL will ask excavators and designers for their company telephone number, for serial numbers, and the initials of the person performing the inquiry. It is best to speak the answers.

If you choose to enter your alphabetic response by using the telephone keypad you must translate the letters into numbers. To translate letters into numbers for entry into KARL, look at the letter on the telephone keypad and the letter's position on the key. For the letter Q enter 11 and for the letter Z enter 12.

For example, if your initials are SAM, you would enter the number 7 matching the key where the S is found, followed by the position of the letter S which is 3. The numeric representation for the letter S would be 73. The A would be 21 and the M would be 61.

K	A	R	L
52	21	72	53
1	ABC	DEF	
4	5	6	
GHI	JKL	MNO	
7	8	9	
PRS	TUV	WXY	
*	0	#	

Facility Owner Response and Excavator/ Designer Inquiry

Responses are initiated by facility owners after they have researched the serial number information delivered to them during the notification phase. Facility owners are required to respond to design stage serial numbers within ten business days of the creation date of the serial number, and by the response due date on construction serial numbers. Responses will be accepted from the facility owner after entering the member CDC and the initials of the person initiating the response. Serial number responses may be updated by a facility owner multiple times. The last response made will be included on the Response to Caller email/fax transmission.

Inquiries can be initiated by excavators and designers, who can listen to the current status of the serial number they entered. The date/time of the inquiry will be recorded in the database.

Facility Owner Response

Action required: Call KARL at 1-800-222-6470

KARL will say: "Thank you for calling the Pennsylvania One Call serial number response system. Please indicate the type of caller

you are. Press or say 1 for excavator, press or say 2 for facility owner, press or say 3 for homeowner. To speak with a customer service representative, press or say 0."

Action required: PRESS or SAY 2

KARL will say: "Please enter your CDC code. Press or say 7 for help on how to enter your cdc code numerically."

Action required: Enter your two or three digit cdc.

KARL will say: "CDC <cdc> is for <facility owner name>. If this is correct, press or say 1. If this is not correct, press or say 2. To speak with a customer service representative, press or say 0."

Action required: PRESS or SAY 1

KARL will say: "Please enter or say your initials. Press or say 7 for help on how to enter your initials numerically."

Action required: Enter or say at least two initials (4 numbers). KARL will accept three initials (6 numbers).

KARL will say: "The initials you have entered are <initials>. If this is correct, press or say 1. If this is not correct, press or say 2. To speak to a customer service representative press or say 0."

Action required: PRESS or SAY 1

KARL will say: "Please enter or say the one call serial number."

Action required: Enter your 11 digit serial number.

KARL will say: "The work location for ##### is for <work site address>. If this is correct, press or say 1. If this is not correct, press or say 2. To speak with a customer service representative, press or say 0."

Action required: PRESS or SAY 1.

KARL will say: "What is the status of this ticket?"

- "If this location is clear, no facilities press or say 1.
- If this location has Conflict, lines nearby direct contact to follow by facility owner, press or say 2.
- If this location is field marked, press or say 3.
- If this location has insufficient information, do not dig, press or say 4.
- If this location is not marked due to no access, press or say 5.
- If you will schedule a date and time for the mark, press or say 6.
- If you would like to leave a voice message, press or say 7.
- If there is a design conflict, press or say 82.
- If a PDF file is marked up plans were sent to the requestor, press or say 83.
- If you will attend the meeting, press or say 90.
- If you are clear and will not attend the meeting, press or say 91.
- If you have a possible conflict, require a

meeting, and will make direct contact with the excavator, press or say 92.

- If you did not attend the meeting due to an unforeseen circumstance, and will make direct contact with the excavator, press or say 95.
- If you agree that no meeting is required, press or say 96.
- If you attended the meeting, reached agreement, and plan to follow the locate schedule, press or say 99.”

Action required: PRESS or SAY 1, 2, 3, 4, 5, 6, 7, 82, 83, 90, 91, 92, 95, 96, or 99.

KARL will say:

- If 1: “You selected, clear, no facilities.”
 - If 2: “You selected, conflict, lines nearby direct contact to follow by facility owner.”
 - If 3: “You selected, field marked.”
 - If 4: “You selected, insufficient information, do not dig.”
 - If 5: “You selected, not marked due to no access.”
 - If 6: “You selected, to mark by <date> 2359.”
 - If 7: “You will now be given the opportunity to record a message to be left with this serial number, to continue press or say 1, to return to the previous menu, press or say 2.”
 - If 82: “You selected, design conflict.”
 - If 83: “You selected, a PDF file or marked up plans were sent to the requestor.”
 - If 90: “You selected, will attend meeting.”
 - If 91: “You selected, clear - will not attend meeting.”
 - If 92: “You selected, requests meeting, direct contact to follow by facility owner.”
 - If 95: “You selected, did not attend meeting, direct contact to follow by facility owner.”
 - If 96: “You selected, agrees no meeting required.”
 - If 99: “You selected, attended meeting, reached agreement.”
- KARL will say: “Your response to serial number ##### has been accepted. If you would like to enter a response for another ticket, press or say 1. If you would like to enter ticket response for a different CDC press or say 2. If you have no more ticket responses, please hang up.”

Excavator/Designer Inquiry

Action required: Call KARL at 1-800-222-6470

KARL will say: “Thank you for calling the Pennsylvania One Call serial number response system.” Please indicate the type of caller you are. Press or say 1 for excavator, press or say 2 for facility owner, press or say 3 for homeowner. To speak with a customer service representative, press or say 0.”

Action required: PRESS or SAY 1.

KARL will say: “Please enter or say the One Call serial number.”

Action required: Enter or say your 11 digit serial number.

KARL will say: “Please enter or say your company’s 10-digit phone number.”

Action required: Enter or say the phone number used when the dig notice was created.

KARL will compare the phone number entered against the phone number associated with the serial number. If they match, KARL will speak the phone number and company name.

KARL will say: “If this is correct, press or say 1. If this is not correct, press or say 2. To speak to a customer service representative press or say 0.”

Action required: PRESS or SAY 1.

KARL will say: Please enter or say your initials. Press or say 7 for help on how to enter your initials numerically.

Action required: Enter or say at least two initials (4 numbers). KARL will accept three initials (6 numbers).

KARL will say: “The initials you have entered are <initials>. If this is correct, press 1. If this is not correct, press or say 2. To speak to a customer service representative press or say 0.”

Action required: PRESS or say 1

KARL will say: “The work location for serial number ##### is for < work site address>. If this is correct, press or say 1. If this is not correct, press or say 2. To speak to a customer service representative press or say 0.”

Action required: PRESS or say 1.

KARL will retrieve the status of each utility that has responded to the current ticket and speak the response to the excavator/designer. If an excavator/designer presses 2, they will be given another opportunity to enter a different serial number.

KARL will say: “To hear this serial number’s information again, press or say 1. To enter a new One Call serial number, press 2. To speak with a customer service representative, press 0. To end this call, please hang up.”

Action Required: Hang Up.

Facility Owner Notification

As directed by the facility owner, on serial numbers requiring supplemental outcall notification, such as emergency notifications out of normal business hours, KARL will attempt to deliver information for all serial numbers that apply to the contacted facility owner within the same call. The outcall will be considered a success and removed from the outcall queue after the field “location information” has been spoken to the facility owner member. Outcalls will be limited to one attempt per member CDC. After each outcall attempt the resulting successful or failed status of the outcall will be entered into the database.

To ensure successful facility owner out-dials please follow these instructions when KARL calls you:

Action required: Answer the telephone

KARL will say: “Hello, this is the Pennsylvania One Call. We have an emergency location request for you. Press or say one to continue.”

Action required: PRESS or say 1

KARL will say: “Please enter or say your company’s ten-digit phone number.”

Action required: Enter the telephone number designated for emergency notifications, which is the telephone number KARL dialed.

KARL will say: “Please enter or say your initials. Press or say 7 for help on how to enter your initials numerically.

Action required: Enter or say at least two initials (4 numbers). KARL will accept three initials (6 numbers).

KARL will say: “The initials you have entered are <initials>. If this is correct, press or say 1. Press or say 7 for help on how to enter your initials numerically.”

Action required: PRESS or SAY 1.

KARL will speak the serial number, the proposed dig date and time; the work-site county, municipality, address, nearest intersection and location information of the WLR.

KARL will say: “To repeat this information, press or say 1. To respond to this serial number now, press or say 2. To continue, press or say 3. To speak with a service representative, press or say 0. To end this call, please hang up.”

Action required: PRESS or SAY 1, 2, or 3.

- If 1: KARL will repeat the information.
- If 2: KARL will accept your response to the serial number (see Response Section).
- If 3: KARL will continue and speak the excavator name.

KARL will say: “The excavator is <excavator name>. For detailed information on this excavator, press or say 1. To continue, press or say 2.”

Action required: PRESS or SAY 1 or 2.

- If 1: KARL will speak the excavator address, caller name, caller phone number, person to contact and contact phone number.
- If 2: KARL will speak the type of work, the extent of excavation, if the excavation is on the street, sidewalk, public property, private property, who the work is being done for, and remarks.

Appendix C

Underground Utility Line Protection Law AKA PA One Call Law

SB242 ACT 50 Signed: 10/30/2017

PN1227 2017 Effective: 4/28/2018

73 P. S. § 176 et. seq.

Reprinted by Pennsylvania One Call System,

Inc. The purpose of this reprinting is to provide those affected with a complete copy of the ACT. www.paonecall.org/userguide
<http://commongroundalliance.com/programs/best-practices>

Note: Changes are shown in bold italics.

Notes in red are POCS clarifications.

AN ACT

Amending the act of December 10, 1974 (P.L.852, No.287), entitled, "An act to protect the public health and safety by preventing excavation or demolition work from damaging underground lines used in providing electricity, communication, gas, propane, oil delivery, oil product delivery, sewage, water or other service; imposing duties upon the providers of such service, recorders of deeds, and persons and other entities preparing drawings or performing excavation or demolition work; and prescribing penalties," further providing for title and for definitions; providing for lawful start date; further providing for duties of facility owners, for duties of the One Call System, for duties of other parties, for duties of excavators, for duties of designers, for duties of project owners, for audits and for penalties; providing for enforcement, for damage prevention committee and for compliance; and further providing for One Call System authority and for expiration.

The General Assembly of the Commonwealth of Pennsylvania hereby enacts as follows:

SECTION 1.

The title and section 1 of the act of December 10, 1974 (P.L.852, No.287), referred to as the Underground Utility Line Protection Law, are amended to read:

AN ACT

To protect the public health and safety by preventing excavation or demolition work from damaging underground lines used in providing electricity, communication, gas, propane, oil delivery, oil product delivery, sewage, water or other service; imposing duties upon the providers of such service and persons and other entities preparing drawings or performing excavation or demolition work; and prescribing penalties.

TERMS TO BE USED IN THIS ACT - DEFINITIONS

Section 1. The following words and phrases when used in this act shall have the meanings given to them in this section unless the context clearly indicates otherwise:

"Abandoned" means no longer in service and physically disconnected from a line.

"Alleged violation" means an instance when a person by action or inaction fails to fulfill the obligations of this act.

"Business day" means any day except a Saturday, Sunday or legal holiday prescribed by statute. A business day begins at 12:00:00 a.m. and ends at 11:59:59 p.m.

"Chairman" means the Chairman of the Pennsylvania Public Utility Commission.

"Commission" means the Pennsylvania Public Utility Commission.

"Committee" means the damage prevention committee established under section 7.8.

"Common Ground Alliance best practices" means the damage prevention industry recommended standards issued by the Common Ground Alliance, a not-for-profit corporation created pursuant to the issuance of the United States Department of Transportation's Common Ground Task Force report in 1999.

"Complex project" means an excavation that involves more work than properly can be described in a single locate request or any project designated as such by the excavator or facility owner as a consequence of its complexity or its potential to cause significant disruption to lines or facilities and the public, including excavations that require scheduling locates over an extended time frame.

"Consumer Price Index" means the index of consumer prices developed and updated by the Bureau of Labor Statistics of the United States Department of Labor.

"Conventional oil and gas well" means a conventional oil and gas well as defined in section 2 of the act of June 23, 2016 (P.L.375, No.52), known as the Pennsylvania Grade Crude Development Act.

"Demolition work" means the partial or complete destruction of a structure, by any means, served by or adjacent to a line or lines.

"Designer" means any architect, engineer or other person who or which prepares a drawing for a construction or other project which requires excavation or demolition work as herein defined.

"Emergency" means a sudden or unforeseen occurrence involving a clear and immediate danger to life, property and the environment, including, but not limited to, serious breaks or defects in a facility owner's lines.

"Excavation work" means the use of powered equipment or explosives in the movement of earth, rock or other material, and includes, but is not limited to, anchoring, augering, backfilling, blasting, boring, digging, ditching, drilling, driving-in, grading, plowing-in, pulling-in, ripping, scraping, trenching and tunneling. The term does not include soft excavation technology such as vacuum, high pressure air or water, tilling of soil for agricultural purposes to a depth of less than eighteen inches, performing minor routine maintenance up to a depth of less than eighteen inches measured from the top of the edge of the cartway or the top of the outer edge of an improved shoulder, in addition to the performance of incidental de minimis excavation associated with the routine maintenance and the removal of sediment buildup, within the right-of-way of public roads or work up to a depth of twenty-four inches beneath the existing surface within the right-of-way of a State highway, ***work performed by persons whose activities must comply with the requirements of and regulations***

promulgated under the act of May 31, 1945 (P.L.1198, No.418), known as the Surface Mining Conservation and Reclamation Act, the act of April 27, 1966 (1st Sp.Sess., P.L.31, No.1), known as The Bituminous Mine Subsidence and Land Conservation Act, or the act of September 24, 1968 (P.L.1040, No.318), known as the Coal Refuse Disposal Control Act, that relate to the protection of utility facilities or the direct operations on a well pad following construction of the well pad and that are necessary or operations incidental to the extraction of oil or natural gas.

"Excavator" means any person who or which performs excavation or demolition work for himself or for another person.

"Facility owner" means the public utility or agency, political subdivision, municipality, authority, rural electric cooperative or other person or entity who or which owns or operates a line. The term does not include the Department of Transportation within a State highway right-of-way. The term does not include any of the following:

(1) A person serving the person's own property through the person's own line, if the person does not provide service to any other customer.

(2) A person using a line which the person does not own or operate, if the use of the line does not serve more than a single property.

"Federal pipeline safety laws" means the provisions of 49 U.S.C. Ch. 601 (relating to safety), including the regulations promulgated under 49 U.S.C. Ch. 601.

"Final design" means the engineering and construction drawings that are provided to a bidder or other person who is asked to initiate construction on the bid date or the date the project is set for construction in the absence of a bid.

"Fiscal year" means the fiscal year utilized by the commission.

"Horizontal directional drilling" means the use of horizontal boring devices that can be guided between a launch point and a reception point beneath the earth's surface.

"Injury" means a bodily harm to a person, who, as a result of the bodily harm, immediately receives medical attention away from the scene of the incident.

"Lawful start date" means the scheduled start date as provided under section 1.1.

"Line" or "facility" means an underground conductor or underground pipe or structure used in providing electric or communication service, or an underground pipe used in carrying, gathering, transporting or providing natural or artificial gas, petroleum, propane, oil or petroleum and production product, sewage, water or other service to one or more transportation carriers, consumers or customers of such service and the appurtenances thereto, regardless of whether such line or structure is located on land owned by a person or public agency or whether it is located within an easement or right-of-way. The term ***shall include unexposed storm drainage and traffic loops that are not***

clearly visible. The term shall include unconventional oil and gas well production and gathering lines or facilities. The term shall not include stripper well lines unless the line or facility is a regulated onshore gathering line as defined in regulations promulgated after January 1, 2006, by the United States Department of Transportation pursuant to the Pipeline Safety Act of 1992 (Public Law 102-508, 49 U.S.C. § 60101 et seq.), if the regulated gathering line is subject to the damage prevention program requirements of 49 CFR § 192.614.

“Locate request” means a communication between an excavator or designer and the One Call System in which a request for locating facilities is processed. Locate requests submitted by an excavator performing work within the right-of-way of any State highway, either under contract to the Department of Transportation or under authority of a permit issued by the Department of Transportation, shall include the number of the Department of Transportation contract or permit.

“Minor routine maintenance” means shaping of or adding dust palliative to unpaved roads, removal and application of patches to the surface or base of flexible base, rigid base or rigid surface roads by either manual or mechanized method to the extent of the existing exposed base material, crack and joint sealing, adding dust palliative to road shoulders, patching and cutting of shoulders and shoulder bases by either manual or mechanized methods to the extent of the existing exposed base, and cleaning of inlets and drainage pipes and ditches.

“One Call System” means the communication system established within this Commonwealth to provide a single nationwide toll-free telephone number or 811 number for excavators or designers or any other person covered by this act to call facility owners and notify them of their intent to perform excavation, demolition or similar work as defined by this act. The One Call System shall be incorporated and operated as a nonprofit corporation pursuant to 15 Pa.C.S. Pt. II Subpt. C (relating to nonprofit corporations).

“Operator” means any individual in physical control of powered equipment or explosives when being used to perform excavation or demolition work.

“Person” means an individual, partnership, corporation, political subdivision, a municipal authority, the Commonwealth and its agencies and instrumentalities, or any other entity.

“Powered equipment” means any equipment energized by an engine or motor and used in excavation or demolition work.

“Preconstruction meeting” means a scheduled event held by the excavator, designer, project owner and facility owner, or an agent of the excavator, designer, project owner and facility owner, prior to the commencement of excavation or demolition work in a complex project.

“Project owner” means any person who or which engages an excavator for construction or any other project which requires excavation or

demolition work.

“Report of alleged violation” means a recorded account of an alleged violation.

“Stripper well” means a conventional oil and gas well with a maximum daily average production which does not exceed fifteen barrels of oil and ninety thousand cubic feet of natural gas during any twelve-month consecutive time period.

“Stripper well lines” means a production or gathering line or facility that has a nominal inside diameter of eight inches or less, only carries oil or natural gas produced exclusively from one or more stripper wells and is not regulated under the Federal pipeline safety laws and subject to the pipeline damage prevention requirements in 49 C.F.R. § 192.614 (relating to damage prevention program) or 49 C.F.R. § 195.442 (relating to damage prevention program).

“Subsurface utility engineering” or “SUE” means those techniques set forth in the American Society of Civil Engineers (ASCE) most recently published standard CI/ASCE 38-02, or its successor document as determined by the One Call System.

“Tolerance zone” means the horizontal space within eighteen inches of the outside wall or edge of a line or facility.

“Traffic loop” means a device that detects metal objects such as cars and bicycles based on the change in inductance that they induce in the device.

“Unconventional formation” means a geological shale formation existing below the base of the Elk Sandstone or its geologic equivalent stratigraphic interval where oil or natural gas generally cannot be produced at economic flow rates or in economic volumes except by vertical or horizontal well bores stimulated by hydraulic fracture treatments or by using multilateral well bores or other techniques to expose more of the formation to the well bore.

“Unconventional oil and gas well” means a bore hole drilled or being drilled for the purpose of or to be used for the production of oil or natural gas from an unconventional formation.

“Well pad” means area, under the control of an oil or natural gas company, occupied by equipment or facilities necessary or required for the drilling, production or plugging of an oil or natural gas well.

“Work site” means the specific place denoted on the locate request where excavation or demolition work is being or is planned to be performed. A work site should be denoted as a clearly defined, bounded area, including relevant identifiable points of reference such as the specific address with a specific description as to the portion of the property, including descriptions such as front, back, left side, right side and direction such as N, S, E, W or variants. Where possible, the points should also reference, without limitation, the size and radius or circumference of the excavation, utility pad or pedestal numbers, utility

pole numbers, landmarks, including trees, fountains, fences, railroads, highway and pipeline markers, and latitude and longitude.

SECTION 2. The act is amended by adding a section to read:

SECTION 1.1. The lawful start date shall be three business days through ten business days following notification to the One Call System.

SECTION 3. Sections 2, 3, 3.1, 4, 5, 6.1 and 7 of the act are amended to read:

RESPONSIBILITIES OF THE FACILITY OWNER

Caution Some “Class 1” (RURAL) Stripper Well Gas & Oil Lines 8” or less are still exempt from Mandatory Participation along with PENNDOT in their Right of Way.

SECTION 2.

It shall be the duty of each facility owner:

(1) To be a member of and give written notice to the One Call System. Such notice shall be in a form acceptable to the One Call System and include:

(i) the legal name of the facility owner and their official mailing address;

(ii) as follows:

(A) The names of the counties and municipalities, down to and including wards in Philadelphia, Pittsburgh, Allentown and Erie, in which its lines are located and other related information as may be required by the One Call System regarding the location of a member’s facilities.

(B) The One Call System may not require its members to locate lines or facilities installed before the effective date of this clause unless the member has existing maps of the lines or facilities and the member’s existing maps meet the specifications of the One Call System’s Member Mapping Solutions. Nothing under this clause shall prohibit the One Call System members from voluntarily submitting to the One Call System maps of lines or facilities installed before the effective date of this clause.

(iii) the facility owner’s address (by street, number and political subdivision) and the telephone number and fax number, if available, to which inquiries may be directed as to the location of such lines;

(iv) the street identifications or like information within each of the municipalities in which its lines are located. This information shall be in a form acceptable to the One Call System. Upon acceptance of the information from a facility owner, the One Call System shall provide the facility owner with notification within the boundaries described. All facility owners shall agree to indemnify and hold harmless the One

Call System for any errors and omissions on the part of the facility owner or the excavator or designer providing the information as the agent of the facility owner; and

(v) any other information required by the One Call System.

(2) To provide the One Call System, within five business days, with any revised information required under this section.

(4) Not more than ten business days after receipt of a request from a designer who identifies the work site of excavation or demolition work for which he is preparing a drawing, to initially respond to his request for information as to the position and type of the facility owner's lines at such work site based on the information currently in the facility owner's possession or to mark the plans which have been provided to it by the designer by field location or by another method agreed to by the designer, excavator and facility owner, or their agent. The facility owner shall so advise the person making the request of the facility owner's status at the work site through the One Call System.

(5) After receipt of a timely request from an excavator or operator who identifies the work site of excavation or demolition work he intends to perform and not later than the business day prior to the lawful start date of excavation:

(i) To mark, stake, locate or otherwise provide the position of the facility owner's underground lines at the work site within eighteen inches horizontally from the outside wall of such line in a manner so as to enable the excavator, where appropriate, to employ prudent techniques, which may include hand-dug test holes, to determine the precise position of the underground facility owner's lines. This shall be done to the extent such information is available in the facility owner's records or by use of standard locating techniques other than excavation. Standard locating techniques shall include, at the utility owner's discretion, the option to choose available technologies suitable to each type of line or facility being located at the work site, topography or soil conditions or to assist the facility owner in locating its lines or facilities, based on accepted engineering and operational practices. Facility owners shall make reasonable efforts during the excavation phase to locate or notify excavators of the existence and type of abandoned lines.

(i.1) To identify the location of an actually known facility's point of connection to its facilities, where the point of connection is not owned or operated by the facility owner. A facility owner may identify the location of a known facility connected to its facilities, but not owned or operated by the facility owner, as a helpful guide to the excavator or owner. The

identification shall not be deemed to impose any liability upon the facility owner for the accuracy of the other facility's identification.

(ii) To timely elect to excavate around its facilities in fulfillment of this subparagraph, at its option.

(iii.1) To propose mutually agreeable scheduling by which the excavator, facility owner or designer may locate the facilities.

(v) To respond to all notices through the One Call System, provided the request is made in the time frame set forth under this act. The response shall be made not later than the end of the second business day following receipt of the notification by the One Call System, excluding the business day upon which the notification is received, or not later than the day prior to the lawful start date of excavation if the excavator specifies a later date or, in the case of an emergency, to respond through the One Call System as soon as practicable following receipt of notification of the emergency by the One Call System.

(v.1) To, if a facility owner failed to respond to an original, proper, nonemergency locate request from the One Call System or to a renotification under section 5(20), communicate directly to the excavator within two hours after renotification of the information about its facility location and, if necessary and possible, go to the proposed work site to mark, stake or locate its underground lines or to verify to the excavator that the facility owner's underground lines are not within the area of the proposed work site.

(vi) In marking the approximate position of underground lines or facilities, to follow the Common Ground Alliance Best Practices for Temporary Marking set forth in ANSI standard Z535.1. Should the Common Ground Alliance Best Practices be amended, the amended guidelines shall be applied and followed. If the Common Ground Alliance Best Practices no longer publishes guidelines for temporary markings or if the responsibility for publishing the guidelines is transferred to or assumed by another entity, the facility owner shall follow the guidelines approved by the One Call System's board of directors.

(vii) To respond to emergency notifications as soon as practicable following receipt of notification of such emergency. The response by the facility owner shall be consistent with the nature of the emergency information received by the facility owner.

(viii) To participate in preconstruction meetings for a complex project or as described in section 5(3).

(ix) If notification is received pursuant to section 5(8), to give priority to responding to notification as an emergency.

(9) If a facility owner fails to become a member of the One Call System in violation of this act and a line or lines of such nonmember facility owner are damaged by an excavator by reason of the excavator's failure to notify the facility owner because the facility owner was not a member of the One Call System serving the location where the damage occurred, such facility owner shall have no right of recovery from the excavator of any costs associated with the damage to its lines. The right herein granted shall not be in limitation of any other rights of the excavator.

(10) To submit a report of alleged violation to the commission through the One Call System not more than thirty business days after receipt of notice that the facility owner's lines have been damaged by excavation or demolition work or if the facility owner believes a violation of this act has been committed in association with excavation or demolition work. The report of alleged violation shall be in a form and manner as required by the commission. No report may be required where the cost to repair the damage to the facility owner's lines is less than two thousand five hundred dollars (\$2,500), unless the same person damaged the facility owner's lines two or more times within a six-month period.

(11) To comply with all requests for information by the commission relating to the commission's enforcement authority under this act within thirty days of the receipt of the request.

(12) To participate in the One Call System's Member Mapping Solutions as determined by the One Call System's board of directors.

(13) To maintain existing records of main lines abandoned on or after the effective date of this paragraph and to mark, locate or identify the main lines if possible, based upon the existing records. The records shall include written or electronic documents or drawings in the possession of the facility owner that show the location of an existing line or facility.

RESPONSIBILITIES OF THE ONE CALL SYSTEM

SECTION 3.

It shall be the duty of the One Call System:

(1.1) to assign one or more serial numbers and the date that the work site may legally be excavated and to log the entire voice transaction on logging recorders in appropriate digital form and maintain these logs for five years. All records shall be indexed and available to the parties involved at a reasonable cost and at reasonable times set by the One Call System.

(1.2) to perform the obligations, as set forth under this section, on behalf of the facility owner,

excavator or designer as established by the board of directors of the One Call System.

(1.3) to provide access to municipal lists provided to the One Call System for those interested parties. This list shall contain facility owners having lines in the municipality, including wards as indicated in section 2(1)(ii), and to maintain, for each municipality, a list containing the information as required to be submitted by the facility owner. Such list shall be updated as revised information is received from the facility owner within five business days.

(3) To, per memoranda of understanding between the commission and the One Call System, provide reports of alleged violations and other information, such as photographs, photocopies and drawings, that are submitted with the report of alleged violation. The One Call System shall provide access to or photocopies of One Call System response records, tickets or other similar information related to matters covered by this act under investigation by the commission, pursuant to its enforcement authority under this act. The One Call System may provide reports of alleged violations to the Pennsylvania Emergency Management Agency, per memoranda of understanding.

(4) To determine the maximum geographic area that shall constitute a valid single notification and to determine when multiple notifications shall be required of any person, including the method, the type and the number of notifications in a complex project.

Which has been set by the Board 1/2007 as: “1000’ or Intersection to Intersection, whichever is greater, along the same street, within the same political subdivision” by the Board.

(5) If approved by the board of directors of the One Call System, to offer a service for the application and obtaining of State or municipal permits for excavation work. Issuance of the required permits shall be the responsibility of the appropriate State or municipal agency which has jurisdiction over the type of excavation work being performed.

(6) Pursuant to policies adopted by the One Call System’s board of directors, to provide a secure repository for and access to subsurface utility engineering data received from project owners to affected facility owner members.

(7) To inquire, when an excavator has notified the One Call System of the existence of a release of natural gas or other hazardous substance or of potential danger to life, health or property, whether the excavator has notified the 911 system. If the 911 system has not been notified, the One Call System shall notify the excavator of the excavator’s responsibility to notify the 911 system and

shall make a record of the conversation.

(8) To notify the facility owner as soon as possible that an excavator has identified an unmarked or incorrectly marked facility and of the facility owner’s responsibilities under section 2(5)(v.1).

SECTION 3.1. (a) The duties of the One Call System are those duties as set forth in section 3. Duties assigned to other parties in other sections of this act shall be the duties of those parties and shall not be imputed to the One Call System, including the duty to provide accurate information to the One Call System concerning proposed excavation and the duty to locate facilities at a work site.

(b) The One Call System shall not be liable for damages to the person or the person’s property arising out of its non-negligent actions in furtherance of the duties imposed under this act and shall be liable only if the failure to comply was the proximate cause of any damages claimed.

(c) (Reserved).

(d) The One Call System shall be governed by a board of directors to be chosen by the facility owners. No less than twenty percent of the seats on the board shall be held by municipalities or municipal authorities. The board shall include all of the following:

- (1) The chairman or his designee.
- (2) The Director of the Pennsylvania Emergency Management Agency or his designee.

(4) The Secretary of Transportation or his designee.

(5) An excavator or excavation industry representative.

(6) A designer or designer industry representative.

(7) An owner or operator or a representative of an owner or operator of pipelines associated with conventional oil and gas wells. The owner or operator may be a facility owner or a pipeline owner or operator who voluntarily submits maps of its lines or facilities to the One Call System.

(8) A facility owner or facility owner representative of pipelines associated with unconventional oil and gas wells.

(e) Operation costs for the One Call System shall be shared, in an equitable manner for services received, by facility owner members as determined by the One Call System’s board of directors. Political subdivisions with a population of less than two thousand people or municipal authorities having an aggregate population

in the area served by the municipal authority of less than five thousand people shall be exempt from the payment of any service fee. The One Call System may be reimbursed for its costs in providing this service from the contractor fees.

(f) All fees shall be set by the board of directors and shall be based on the latest annual audited cost factors of the One Call System. Fees shall be set and adjusted to a rate not more than five percent above the audited cost factor plus the current average published Consumer Price Index for Pennsylvania. Costs of capital improvements may be added, if the improvement receives a majority vote of the board of directors.

(f.1) An excavator, designer or operator who proposes to commence excavation or demolition work and requests information from the One Call System shall pay to the One Call System an annual fee for the service provided by the One Call System under section 3. The fee shall be set by the One Call System board of directors and shall be used to offset a portion of the operation costs of the One Call System and a portion of the operation costs levied on the One Call System’s political subdivision and municipal authority members. Failure to pay the fee shall constitute a violation of this act and shall subject the excavator, designer or operator to the enforcement authority of the commission for the nonpayment.

(h) Any request for information shall be reviewed and provided as determined in accordance with the procedure established by the One Call System’s board of directors.

RESPONSIBILITIES OF A DESIGNER

SECTION 4.

It shall be the duty of each designer preparing a drawing which requires excavation or demolition work within this Commonwealth:

(2) To request the line and facility information prescribed by section 2(4) from the One Call System not less than ten nor more than ninety business days before final design is to be completed. This clause is not intended to prohibit designers from obtaining such information more than ninety days before final design is to be completed; however, they shall state in their requirements that such work is preliminary. **The Designer is required to send plans to the involved Facility Owners to mark up. PA One Call can assist thru its electronic “Drawing Exchange” and through “CoordinatePA”.**

(2.1) To forward a copy of the project plans to each facility owner who requests a copy. If a designer is unable to provide a copy because of security of the project or proprietary concerns regarding the design or the project, the designer shall negotiate in a timely manner with the facility owner the means of obtaining the necessary data.

(3) To show upon the drawing the position and type of each facility owner's line, derived pursuant to the request made as required by clause (2), and the name of the facility owner as shown on the list referred to in section 3.

(4) To make a reasonable effort to prepare the construction drawings to avoid damage to and minimize interference with a facility owner's facilities in the construction area by maintaining the clearance as provided for in the applicable easement condition or an eighteen-inch clearance of the facility owner's facilities if no easement restriction exists.

(5) A designer shall be deemed to have met the obligations of clause (2) if he calls the One Call System and shows, as proof, the serial number of one call notice on drawings. The designer shall also show the toll-free number of the One Call System on the drawing near his serial number.

(6) If, after receiving information from the facility owners, the designer decides to change the work site of a proposed excavation, the obligations imposed by this section shall apply to the new work site.

(7) The designer who has complied with the terms of this act and who was not otherwise negligent shall not be subject to liability or incur any obligation to facility owners, operators, owners or other persons who sustain injury to person or property as a result of the excavation or demolition planning work of the designer.

(8) To submit a report of alleged violation to the commission through the One Call System not more than thirty business days from the time the designer becomes aware that a violation of this act may have been committed in association with excavation or demolition work. The report of alleged violation shall be in a form and manner as required by the commission.

(9) To request line and facility information required under section 2(4) from the One Call System and to pay the applicable fee for the request.

RESPONSIBILITIES OF THE EXCAVATOR

SECTION 5.

It shall be the duty of each excavator who intends to perform excavation or demolition work within this Commonwealth:

(2.1) To request the location and type of facility owner lines at each work site by notifying the facility owner through the One Call System. Notification shall be not less than three nor more than ten business days in advance of beginning excavation or demolition work. No work shall begin earlier than the lawful start date which shall be on or after the third business day after notification. The lawful start date shall exclude

the date upon which notification was received by the One Call System and notification received on a Saturday, Sunday or holiday, which shall be processed on the following business day. In the case of a complex project, notification shall not be less than ten business days in advance of the beginning of excavation or demolition work.

(2.2) To provide the One Call System with exact information to identify the work site so that facility owners might provide indications of their lines. An excavator shall be deemed to have met the obligations of clause (2.1) if he calls the One Call System, provides the work site and other required information and receives a serial number.

(3) In a complex project or if an excavator intends to perform work at multiple work sites or over a large area, to take reasonable steps to work with facility owners, including scheduling and conducting a preconstruction meeting, so that they may locate their facilities at a time reasonably in advance of the actual start of excavation or demolition work for each phase of the work. A preconstruction meeting may take place at any time prior to the commencement of excavation or demolition work, and the excavator, facility owners and designer, or their agents, shall attend the meeting. Notice of the meeting shall be given sufficiently in advance so as to permit attendance, either in person or electronically, by the excavator, facility owners and designer, or their agents, and shall include information sufficient to identify the scope of work. If the excavator does not believe that a preconstruction meeting is necessary under the circumstances of this clause it shall indicate such belief in its notice, but any facility owner with facilities at the work site may request a meeting with the excavator, and a meeting shall be held between the facility owner and the excavator. After commencement of excavation or demolition work, the excavator shall be responsible for protecting and preserving the staking, marking or other designation until no longer required for proper and safe excavation or demolition work at or near the underground facility or by contacting the One Call System to request that the facilities be marked again in the event that the previous markings have been compromised or eliminated.

(3.1) To comply with the requirements established by the One Call System as determined by the board of directors regarding the maximum area that a notification may cover.

(4) To exercise due care and to take all reasonable steps necessary to avoid injury to or otherwise interfere with all lines where positions have been provided to the excavator by the facility owners pursuant to section 2 (5). Within the tolerance zone the excavator shall employ prudent techniques, which may include hand-dug test holes, vacuum excavation or similar devices to ascertain the precise position of such facilities. If insufficient information to safely excavate is available

pursuant to section 2(5), the excavator shall employ like prudent techniques which shall be paid for by the project owner pursuant to clause (15).

(5) If the facility owner fails to respond to the excavator's timely request as provided under section 2(5) or the facility owner notifies the excavator that the line cannot be marked within the time frame and a mutually agreeable date for marking cannot be arrived at, the excavator may proceed with excavation as scheduled, but not earlier than the lawful dig date, provided he exercises due care in his endeavors, subject to the limitations contained in this clause and clauses (2.1) through (4) and (20).

(6) To inform each operator employed by the excavator at the work site of such work of the information obtained by the excavator pursuant to clauses (2.1) through (5), and the excavator and operator shall:

(i) Plan the excavation or demolition work to avoid damage to or minimize interference with a facility owner's facilities in the construction area. Excavation or demolition work which requires temporary or permanent interruption of a facility owner's service shall be coordinated with the affected facility owner in all cases.

(ii) After consulting with a facility owner, provide such support and mechanical protection for known facility owner's lines at the construction work site during the excavation or demolition work, including during backfilling operations, as may be reasonably necessary for the protection of such lines.

(7) To report immediately to the facility owner any break or leak on its lines, or any dent, gouge, groove or other damage to such lines or to their coating or cathodic protection, made or discovered in the course of the excavation or demolition work. The One Call System board of directors may adopt procedures to permit reporting under this clause through the One Call System.

(8) To immediately notify 911 and the facility owner if the damage results in the escape of any flammable, toxic or corrosive gas or liquid which endangers life, health or property. The excavator shall take reasonable measures, based on its knowledge, training, resources, experience and understanding of the situation, to protect themselves and those in immediate danger, the general public, the property and the environment until the facility owner or emergency responders have arrived and completed their assessment and shall remain on the work site to convey any pertinent information to responders that may help them to safely mitigate the situation.

(9) The time requirements of clause (2.1) shall not apply to a facility owner or excavator performing excavation or demolition work in an emergency, as defined in Section 1; nonetheless, all facility

owners shall be notified as soon as possible before, during or after excavation or demolition work, depending upon the circumstances.

(11) To use the color white to mark a proposed excavation work site when exact work site information cannot be provided.

(11.1) To assist a facility owner in determining involvement of a facility owner's lines by disclosing additional available information requested by the facility owner, including dimensions and the direction of proposed excavations.

(11.2) If using horizontal directional drilling (HDD), at a minimum, to utilize the best practices published by the HDD Consortium.

(12) The following standards shall be applied in determining whether an excavator shall incur any obligation or be subject to liability as a result of an excavator's demolition work or excavation work damaging a facility owner's facilities:

(i) The excavator who has complied with the terms of this act and who was not otherwise negligent shall not be subject to liability or incur any obligation to facility owners, operators, project owners or other persons who sustain injury to person or property as a result of the excavator's excavation or demolition work damaging a facility owner's lines.

(ii) Where an excavator has failed to comply with the terms of this act or was otherwise negligent, and the facility owner or designer has misidentified, mislocated or failed to identify its facilities pursuant to this act, then in computing the amount of reimbursement to which the facility owner is entitled, the cost of repairing or replacing its facilities shall be diminished in the same proportion that the facility owner's or designer's misidentification, mislocation or failure to identify the facilities contributed to the damage. Should the facility owner or designer not have misidentified, mislocated or failed to identify its facilities pursuant to this act, there shall be no diminution of the facility owner's right of recovery.

(13) If, after receiving information from the One Call System or directly from a facility owner, the excavator decides to change the location, scope or duration of a proposed excavation, the obligations imposed by this section shall apply to the new location.

(14) If an excavator removes its equipment and vacates a work site for more than two business days, to renotify the One Call System unless other arrangements have been made directly with the facility owners involved in his work site.

(15) When the information required from the facility owner under section 2(5)(i) cannot be provided or, due to the nature of the information

received from the facility owner, it is reasonably necessary for the excavator to ascertain the precise location of any line or abandoned or unclaimed lines by prudent techniques, which may include hand-dug test holes, vacuum excavation or other similar devices, the excavator shall promptly notify the project owner or the project owner's representative, either orally or in writing. If oral notification is given, the notice shall be reduced to writing within a reasonable time by the project owner or excavator. After giving such notice, the excavator shall be entitled to compensation from the project owner for this additional work as provided in the latest edition of the Pennsylvania Department of Transportation Form 408 specifications for extra work performed on a force account basis. The provisions of this subsection shall not be deemed to limit any other rights which the excavator has under its contract with the project owner or otherwise. Provisions in any contract, public or private, which attempt to limit the rights of excavators under this section shall not be valid for any reason, and any attempted waiver of this section shall be void and unenforceable as against public policy and any such attempted waiver shall be reported to the commission.

(16) To submit a report of an alleged violation to the commission through the One Call System not more than ten business days after striking or damaging a facility owner's line during excavation or demolition or if the excavator believes a violation of this act has been committed in association with excavation or demolition work. The report of an alleged violation shall be in a form and manner as required by the commission.

(17) To comply with all requests for information by the commission relating to the commission's enforcement authority under this act within thirty days of the receipt of the request.

(18) To, if it chooses to do so and if working for a facility owner, a municipality or a municipal authority, delegate the power to discharge the duties set forth in clauses (2.1) and (2.2) to its project owner, with the project owner's consent. If the power is delegated pursuant to this clause, both the excavator and the project owner shall be responsible for providing the required notices.

(19) To ensure the accuracy of any information provided to the One Call System pursuant to this section.

(20) To renotify the One Call System of an unmarked or incorrectly marked facility, if an original, proper, nonemergency locate request has been made to the One Call System and, upon initial arrival at the proposed work site, it is apparent to the excavator that there is an unmarked or incorrectly marked facility. An excavator may not begin excavating in the affected area of the work site until after receiving

sufficient information from the facility owner to safely excavate. If the facility owner fails to provide sufficient information to the excavator within three hours after the excavator has notified the One Call System of the unmarked or incorrectly marked facility, the excavator may proceed with excavation subject to the limitations under clause (5).

(21) To make a locate request to the One Call System prior to excavation or demolition work and to pay the applicable fee for the request. See www.paonecall.org for additional detail.

LEGISLATIVE INTENT

SECTION 6.

Except as otherwise provided in this act, this act shall not be deemed to amend or repeal any other law, Commonwealth regulation or any local ordinance enacted pursuant to law concerning the same subject matter, it being the legislative intent that any such other law or local ordinance shall have full force and effect where not inconsistent with this act.

RESPONSIBILITIES OF THE PROJECT OWNER

SECTION 6.1.

It shall be the duty of each project owner who engages in excavation or demolition work to be done within this Commonwealth:

(1) To utilize sufficient quality levels of subsurface utility engineering or other similar techniques whenever practicable to properly determine the existence and positions of underground facilities when designing known complex projects having an estimated cost of four hundred thousand dollars (\$400,000) or more.

(2) To timely respond to notifications received from excavators pursuant to section 5(15).

(3) To not release to bid or construction any project until after final design is completed.

(4) To participate in design and preconstruction meetings either directly or through a representative.

(5) To furnish the pertinent data obtained through subsurface utility engineering to the One Call System in a mutually agreeable format.

(6) For new construction and where practicable in the opinion of the project owner, to install color-coded permanent markers to indicate the type and location of all laterals installed by the project owner.

(7) To submit a report of alleged violation to the commission through the One Call System not more than ten business days after striking

or damaging a facility owner's line during excavation or demolition work activities, after a project owner's contracted excavator strikes or damages a facility owner's line during excavation or demolition activities or if the project owner believes a violation of this act has been committed in association with excavation or demolition. The report of alleged violation shall be in a form and manner as required by the commission.

PERFORMANCE CRITERIA

SECTION 7.

(a) The Auditor General may review management and financial audits of the One Call System, which audits shall be performed by a qualified auditing firm within this Commonwealth. A copy of the audit shall be submitted to the Auditor General upon its completion and to the General Assembly by October 31 of the year following the end of the audit period. The cost of reasonable expenses incurred by the Auditor General in performing the obligations under this section shall be reimbursed by the One Call System. The fees shall not be inconsistent with those of commercial auditing firms for similar work.

(b) The Auditor General, for the purposes set forth in subsection (a), and any contractor, excavator, facility owner or member of the One Call System shall have the right during regular business hours to inspect and copy any record, book, account, document or any other information relating to the provision of one call services by the One Call System, at the cost determined by the board of directors.

(c) The One Call System shall submit an annual report to its members, and a copy of the report shall be submitted to the Auditor General.

(d) The One Call System shall cause a financial audit to be performed annually by a qualified auditing firm within this Commonwealth.

SECTION 4. Section 7.2 of the act is repealed:

SECTION 5. The act is amended by adding sections to read:

ENFORCEMENT – NOW under the PA Public Utility Commission. www.puc.state.pa.us

SECTION 7.8.

(a) A damage prevention committee shall be established as follows:

(1) The committee shall consist of the following members, appointed by the commission:

(i) The chairman or his designee from the commission's professional staff.

(ii) The Secretary of Transportation or the secretary's designee.

(iii) The president of the One Call System or his designee from the One Call System professional staff.

(iv) One representative from each of the following nonmunicipally owned or affiliated facility owner industries: electric, natural gas or petroleum pipelines, telephone, water or wastewater and cable television, nominated by facility owners or affiliated organizations.

(v) Three representatives of excavators, nominated by excavators or affiliated organizations.

(vi) One representative of municipal governments, nominated by municipal governments or affiliated organizations.

(vii) One representative of municipal authorities, nominated by municipal authorities or affiliated organizations.

(2) A person appointed to the committee must have expertise within the operation of this act.

(3) A nomination under clause (1)(iv), (v), (vi) and (vii) shall be forwarded to the secretary of the commission. The executive director of the commission shall provide recommended candidates to the commission for approval.

(4) Except for an unexpired term or for committee members under clause (1)(i) and (iii), the following shall apply:

(i) An appointment to the committee shall begin January 1.

(ii) Except for initial terms under clause (5), a committee member's term shall be for a term of three years.

(5) The initial term of committee members shall be as follows:

(i) Two representatives of facility owners shall serve three years, one representative shall serve two years and two representatives shall serve one year.

(ii) One representative of excavators shall serve three years, one representative shall serve two years and one representative shall serve one year.

(iii) The representative of municipal governments shall serve two years.

(iv) The representative of municipal authorities shall serve three years.

(6) The commission member shall serve as the chairman of the committee and shall be a nonvoting member, except if the chairman's vote is necessary to break a tie. The chairman's attendance shall not be counted to establish a quorum.

(7) At least seven members of the committee who are present shall constitute a quorum for the transaction of business. A simple majority vote of the committee members present at a meeting shall be deemed to be the position of the committee.

(b) The committee shall meet regularly to carry out the following purposes:

(1) Review a report of an alleged violation of this act and damage prevention investigator findings and recommendations.

(2) Issue a warning letter to a person as deemed appropriate by the committee or as recommended by the damage prevention investigator.

(3) Issue an informal determination that imposes an administrative penalty.

(4) Require a person to attend a damage prevention educational program.

(5) Issue an informal determination that modifies or dismisses a recommendation of committee staff.

(c) The following shall apply to alleged violations:

(1) A person determined, in a report issued by a damage prevention investigator, to have committed an alleged violation shall do one of the following:

(i) Provide a written acknowledgment of the findings and administrative penalty contained in the report issued by the damage prevention investigator to the committee.

(ii) Appear before the commission to present its position.

(2) A person who is subject to an informal determination of the committee may accept or reject the result. If an informal determination is rejected, the matter shall be returned to the damage prevention investigator for further action, if appropriate, including referring the matter to the commission prosecutor staff for the purpose of issuing a formal complaint.

(d) Except for alleged violations involving injury or death, the provisions of subsection (c) may be applied in advance or instead of

filing a formal complaint against a person determined, in a report issued by a damage prevention investigator, to have committed an alleged violation. An informal determination of the committee shall be binding on the commission unless the person rejects the informal determination.

(e) The committee shall have the following additional duties:

(1) Upon the request of the commission, the committee shall hold a special meeting to advise the commission on a matter related to damage prevention for underground facilities under this act.

(2) As soon as practicable after establishment, the committee, with input from the One Call System, shall develop and implement bylaws. The bylaws shall:

(i) Establish a schedule for the frequency of regular meetings.

(ii) Delineate the committee's practice and procedure concerning the performance of duties assigned under this act and commission orders and regulations.

(iii) Be approved by the commission.

(3) Submit an annual report containing relevant damage prevention data to the commission, the Committee on Consumer Protection and Professional Licensure of the Senate and the Committee on Consumer Affairs of the House of Representatives.

(f) Except for willful misconduct, members of the committee shall be immune, individually and jointly, from civil liability for an act or omission done or made in performance of the members' duties while serving as members of the committee.

(g) The commission shall have the following powers to carry out the purposes of this act:

(1) To employ individuals.

(2) To issue orders.

(3) To promulgate regulations. If the commission promulgates regulations that limit reporting to a specific type of incident, including contact with a line, damage to a line or line coating, personal injury, third-party damage and failure to comply with this act, the commission may consider the resources available for enforcement and other factors.

(4) For one year following the effective date of this section, to promulgate temporary regulations. Regulations under this clause shall:

(i) Expire no later than two years following the effective date of this section.

(ii) Be exempt from all of the following:

(A) Sections 201, 202 and 203 of the act of July 31, 1968 (P.L.769, No.240), referred to as the Commonwealth Documents Law.

(B) The act of June 25, 1982 (P.L.633, No.181), known as the Regulatory Review Act.

SECTION 7.9.

(a) Program costs for commission enforcement of this act shall be included in the commission's proposed budget and shall be subject to the review and approval of the Governor and the General Assembly as described under 66 Pa.C.S. § 510(a) (relating to assessment for regulatory expenses upon public utilities). The assessment of the commission's program costs for commission enforcement of this act shall not include Federal and State funds provided for the enforcement of this act and shall be allocated in the following manner:

(1) Eighty percent of the program costs shall be included within the amount assessed to public utilities under 66 Pa.C.S. § 510.

(2) Twenty percent of the program costs shall be assessed as a fee upon the One Call System, with the fee to be paid to the commission. The One Call System's board of directors shall determine the manner in which the fee may be recovered from facility owners, excavators, designers and other involved persons, provided that the One Call System's board of directors' manner of recovery may not include facility owners that are public utilities.

(b) (Reserved).

SECTION 7.10.

(a) The commission may issue a warning and order requiring compliance with this act and may levy an administrative penalty for a violation of this act. A warning, order or penalty shall be served on the person or entity violating this act at the person's last known address. A party aggrieved by the imposition of an order or administrative penalty imposed by the commission may appeal the order or penalty as provided under 2 Pa.C.S. Chs. 5 Subch. A (relating to practice and procedure of Commonwealth agencies) and 7 Subch. A (relating to judicial review of Commonwealth agency action).

(b) The following shall apply:

(1) A person or entity violating this act may be subject to:

(i) an administrative penalty of not more than two thousand five hundred dollars (\$2,500) per violation; or

(ii) if the violation results in injury, death or property damage of twenty-five thousand dollars (\$25,000) or more, an administrative penalty of not more than fifty thousand dollars (\$50,000).

(2) The commission and committee shall consider the following factors in determining the administrative penalty to be assessed:

(i) The history of the party's compliance with the act prior to the date of the violation.

(ii) The amount of injury or property damage caused by the party's noncompliance.

(iii) The degree of threat to the public safety and inconvenience caused by the party's noncompliance.

(iv) The party's proposed modification to internal practices and procedures to ensure future compliance with statutes and regulations.

(v) The degree of the party's culpability

(vi) Other factors as may be appropriate considering the facts and circumstances of the incident.

(c) An administrative penalty recovered under this section shall be payable to the commission and collected in the manner provided for by law.

(d) This act shall not affect a civil remedy for personal injury or property damage, except as provided for under this act.

(e) The commission may issue a subpoena, on application of an attorney responsible for representing the Commonwealth in actions before the commission, for the purpose of investigating an alleged violation of this act. The commission shall have the power to subpoena witnesses and compel the production of books, records, papers and documents.

(f) No provision of this act shall be construed or interpreted to do any of the following:

(1) Affect the ability of a district attorney or the Attorney General to investigate or file a claim for the same conduct.

(2) Deprive a governmental agency, including a law enforcement agency, the Auditor General and a district attorney, of any jurisdictional power or duty.

(g) A facility owner may petition a court of competent jurisdiction to enjoin excavation

or demolition work conducted in violation of this act. Local law enforcement or emergency management personnel may, in the interest of public safety, order an excavator on a work site to stop further excavation if the excavation is being conducted in violation of this act.

Note: This may also be enforced under Section 3302 of PA Title 18 Section b - Risking catastrophe.

SECTION 6.

Section 8 of the act is amended to read:

DISPUTE RESOLUTION

SECTION 8.

The One Call System shall have the authority to design, establish and administer a voluntary payment dispute resolution process which may be used by excavators, facility owners, designers, project owners and other involved persons. The process shall provide for dispute resolution panels selected from among a list of representatives of stakeholder groups, including facility owners, excavators, designers and regulators. The process established under this section may not be used to settle or resolve alleged violations of this act nor may involve any issues related to the commission's enforcement activities.

COMMON GROUND ALLIANCE BEST PRACTICES

SECTION 9.

Except as otherwise provided for by this act, persons shall use their best efforts to comply with the Common Ground Alliance best practices.

SECTION 10.

No person shall intentionally remove or tamper with a marking provided for under this act.

SECTION 11.

Nothing in this act shall impair the rights or immunities provided to political subdivisions under 42 Pa.C.S. Ch. 85 Subch. C (relating to actions against local parties) or any other State law.

SUNSET PROVISION

SECTION 39.

This act shall expire on December 31, 2024.

SECTION 8.

This act shall take effect as follows:

- (1) The following provisions shall take effect immediately:
 - (i) The addition of section 7.9 of the act.

- (ii) The amendment of section 39 of the act.

- (iii) This section.

- (2) The remainder of this act shall take effect in 180 days.

APPROVED--The 30th day of October, A.D. 2017.

GOVERNOR TOM WOLF

Appendix D

APWA/CGA BEST PRACTICES FOR TEMPORARY MARKINGS

PA Act 287, as amended

An excavator shall use the color white to mark a proposed excavation site when exact site information cannot be provided. THIS SHOULD BE DONE PRIOR TO THE NOTIFICATION, DIAL 811 or 1-800-242-1776 (from outside PA). Pennsylvania law requires no less than 3 nor more than 10 business days before you dig ANYWHERE IN THE COMMONWEALTH. Any excavation within the tolerance zone is performed by using prudent techniques. The excavator shall observe a tolerance zone comprised of the width of the facility plus 18 inches on either side of the outside edge of the underground facility on horizontal plane (see graphic on following page). Use pink temporary survey markings for all surveying and grade marks. Continue using Prudent Techniques until you find the Line. Notify Project owner and charge PennDOT 408 Spec for necessary work.

Temporary Facility Markings by Facility Owners

To mark, stake, locate or otherwise provide the position of the facility owner's underground lines at the site within 18 inches horizontally from the outside wall of such line in a manner so as to enable the excavator, where appropriate within the tolerance zone, to employ prudent techniques, which may include hand-dug test holes, to determine the precise position of the underground facility owner's lines. This shall be done to the extent such information is available in the facility owner's records or by use of standard locating techniques other than excavation. The marking can be done in one of two ways: either placing the marks over the approximate center of the facility, or by placing the marks over the actual

outside edges of the facility with a line connecting the two horizontal lines to indicate there is only one facility. PA One Call does not locate or mark lines.

Best Practices for Locating & Marking Practices/Responsibilities

The APWA/CGA Temporary Marking Color Code and Chapter 4 marking practices are specified in PA Act 287, as amended. Operators are responsible for marking the facilities and appurtenances in the appropriate color of their facility type, their company identifier (name, initials or abbreviation), the number and width of their facilities and a description of the facility (HP, FO, STL). Use paint, flags, stakes or whiskers or a combina-

APWA/CGA Temporary Marking Color

	WHITE - Proposed Excavation
	PINK - Temporary Survey Markings
	RED - Electric Power Lines, Cables, Conduit and Lighting Cables
	YELLOW - Gas, Oil, Steam, Petroleum, Gaseous and Hazardous Materials
	ORANGE - Communications, Alarm or Signal Lines, Cables or Conduit, and Traffic Loops
	BLUE - Potable Water
	PURPLE - Reclaimed Water, Irrigation and Slurry Lines
	GREEN - Sanitary and Storm Sewer Lines

TYPICAL MARKING

LARGE PIPE OR MULTIPLE DUCTS

SMALL PIPE OR CABLES

PA One Call does not locate or mark underground lines.

THREE BUSINESS DAYS BEFORE
YOU DIG - DRILL - BLAST

Dial 8-1-1 or 1-800-242-1776

www.paonecall.org

tion to identify the operator's facility(s) at or near the excavation site. It is against the Law to tamper with these markings.

Uniform Color Code

The American Public Works Association/CGA's Uniform Color Code is PA law. The code uses ANSI Standard Z535.1 Safety colors, as shown for temporary marking of excavation sites and underground facility identification (examples shown above).

2021

EXCAVATIONSAFETYGUIDE.COM

XXXI



www.paonecall.org

DIAL 8-1-1 or

1-800-242-1776

WORK LOCATION REQUEST FORM

TELEPHONE NUMBER: () EXT.: CALLER:

COMPANY NAME:

ADDRESS: CITY: STATE: ZIP

EMAIL ADDRESS*: FAX #: ()

NOTIFICATION TYPE:

☐ FINAL DESIGN (Not less than 10 nor more than 90 Business Days) ☐ PRELIMINARY DESIGN (Greater than 90 Business Days)

☐ CONSTRUCTION (Not less than 3 nor more than 10 Business Days) ☐ DEMOLITION (Not less than 3 nor more than 10 Business Days)

WORKSITE INFORMATION:

COUNTY: MUNICIPALITY: WARD:

STREET ADDRESS: STREET NAME:

NEAREST INTERSECTION:

WORKING BETWEEN 2 INTERSECTIONS ☐ YES ☐ NO

SECOND INTERSECTION/NEAREST MAIN ROAD:

SUBDIVISION: LATITUDE/LONGITUDE COORD.:

WORKING IN: ☐ STREET ☐ SIDEWALK ☐ PUBLIC PROPERTY ☐ PRIVATE PROPERTY (☐ Front ☐ Rear ☐ Left ☐ Right)

☐ OTHER (SPECIFY) SITE MARKED IN WHITE: ☐ Yes ☐ No

LOCATION INFORMATION:

TYPE OF WORK: DEPTH:

EXTENT OF EXCAVATION: METHOD OF EXCAVATION:

PROJECT OWNER: ONSITE CONTACT:

ONSITE CONTACT PHONE:() EXT: BEST TIME TO CALL:

ONSITE CONTACT EMAIL:

SCHEDULED EXCAVATION DATE: TIME: DURATION OF JOB:

JOB #: PENNDOT CONTRACT/PERMIT #:

REMARKS:

MEETING REQUEST NUMBER (if applicable)

TO BE COMPLETED AFTER PLACING ONE CALL

LAWFUL START DATES: THROUGH

OTHER SERIAL NUMBERS REFERENCED:

FACILITY OWNER MEMBERS NOTIFIED:

SERIAL NUMBER ASSIGNED: DATE/TIME:

THERE IS AN ANNUAL FEE PLEASE DO NOT FAX THIS FORM TO POCS

*if provided you will be emailed a copy of your Notification as delivered to the Members.

Readership Survey

The Excavation Safety Guide, a reference tool designed to assist readers throughout the year, contains articles that are focused on industry trends and technologies, as well as providing access to important contact information and resources in one easily accessible location. Your comments and suggestions are invaluable in helping us to continue producing a high-quality publication that has become a valued industry resource.

How would you rate the overall value of this publication? (Check one)

- ☐ Excellent
- ☐ Very Good
- ☐ Average
- ☐ Poor

How useful are the articles? (Check one)

- ☐ Extremely
- ☐ Very
- ☐ Somewhat
- ☐ Not at all

How helpful is the Resource Directory? (Check one)

- ☐ Extremely
- ☐ Very
- ☐ Somewhat
- ☐ Not at all

Is this publication something you refer to all year long?

- ☐ Yes
- ☐ No

How did you obtain your Excavation Safety Guide?

- ☐ Employer
- ☐ One Call Center
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- ☐ Other _____



After completing this survey, snap a pic and email it to info@emailir.com

You can also complete this survey online at dp-pro.com/survey.

Complete this sentence:

The Excavation Safety Guide is valuable to me because _____

A topic I would like to learn more about in the Excavation Safety Guide is _____

▶ **THANK YOU** for taking the time to participate in this survey! Survey responses received by June 1, 2021 will be entered into a drawing for a **\$100 gift card**.

Your Name: _____

Job Title/Description: _____

Contact me by:

☐ Phone _____

☐ Email _____

Pennsylvania One Call System, Inc.

925 Irwin Run Road

West Mifflin PA 15122

CONTACT US



CONTACT	PHONE	EMAIL
Call Before You Dig	Dial 8-1-1 or 1-800-242-1776 outside of PA	
KARL System	1-800-222-6470	
POCS Administrative Offices	1-800-248-1786	contact@pa1call.org
Administrative Fax	1-412-464-7104	800-248-1786
Member Services	1-412-464-7168	membership@pa1call.org
Education	1-412-464-7136	www.paonecall.org/Events
Bill Kiger, President and CEO	1-412-464-7111	wgkiger@pa1call.org
Norm Parrish, Manager - Education	1-484-366-6647	nlparrish@pa1call.org
Greg Danks, Damage Prevention Liaison (Southeast)	1-215-834-2069	gwdanks@pa1call.org
Jim Reynolds, Damage Prevention Liaison (Southeast)	1-215-859-2868	jereynolds@pa1call.org
Ryan Parrish, Damage Prevention Liaison (Southeast)	1-610-906-5137	rtparrish@pa1call.org
Kevin Goldblum, Damage Prevention Liaison (Central)	1-717-487-0797	ksgoldblum@pa1call.org
Jim Larkin, Damage Prevention Liaison (Central)	1-717-602-5976	jplarkin@pa1call.org
Marcos Bernal, Senior Damage Prevention Liaison (Southwest)	1-412-464-7113	mrbernal@pa1call.org
Erika Dominick, Damage Prevention Liaison (South Central)	1-814-615-7047	eadominick@pa1call.org
Maria White, Damage Prevention Liaison (Northeast)	1-570-954-3545	mawhite@pa1call.org
Mark Lipka, Damage Prevention Liaison (North Central)	1-570-939-7042	mjlipka@pa1call.org
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