

Understanding the Marks: Locating and Marking Practices

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Taken from the latest version of the CGA Best Practices. Download the entire document at www.CommonGroundAlliance.com.

- 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 Conduits
BLUE	Potable Water
PURPLE	Reclaimed Water, Irrigation and Slurry Lines
GREEN	Sewers and Drain Lines

- 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.



Guide for Abbreviation Use

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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: 1. 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.

FACILITY IDENTIFIER		UNDERGROUND CONSTRUCTION DESCRIPTION		INFRASTRUCTURE MATERIALS	
CH	Chemical	C	Conduit	ABS	Acrylonitrile-Butadiene-Styrene
E	Electric	CDR	Corridor	ACP	Asbestos Cement Pipe
FO	Fiber Optic	D	Distribution Facility	CI	Cast Iron
G	Gas	DB	Direct Buried	CMC	Cement Mortar Coated
LPG	Liquified Petroleum Gas	DE	Dead End	CML	Cement Mortar Lined
PP	Petroleum Products	JT	Joint Trench	CPP	Corrugated Plastic Pipe
RR	Railroad Signal	HP	High Pressure	CMP	Corrugated Metal Pipe
S	Sewer	HH	Hand Hole	CU	Copper
SD	Storm Drain	MH	Manhole	CWD	Creosote Wood Duct
SS	Storm Sewer	PB	Pull Box	HDPE	High Density Polyethylene
SL	Street Lighting	R	Radius	MTD	Multiple Tile Duct
STM	Steam	STR	Structure (vaults, junction boxes, inlets, lift station)	PLA	Plastic (conduit or pipe)
SP	Slurry System	T	Transmission Facility	RCB	Reinforced Concrete Box
TEL	Telephone			RCP	Reinforced Concrete Pipe
TS	Traffic Signal			RF	Reinforced Fiberglass
TV	Television			SCCP	Street Cylinder Concrete Pipe
W	Water			STL	Steel
W	Reclaimed Water (purple)			VCP	Verified Clay Pipe



Understanding the Marks: The Good, the Bad and the Ugly

By Tim Gale, Director of Training, USIC Locating Services, Inc.

Interpreting the marks left by locators is an important aspect of any contractor's job. In most cases, the technician who marked the utilities has moved on to another job site and is not readily available to answer questions. The CGA Best Practices outline a set of standards meant to provide consistency regardless of who marks the utilities. The examples in this article illustrate some of the best practices (and a few poor examples) in real field settings to help you know what to expect and how to understand the marks. You also need to obtain any special marking standards established by local utility companies, as these can vary from location to location.

Locate marks should follow proper standards as outlined in the Uniform Color Code and Marking Guidelines. Some questions you may ask are; are the marks of sufficient width, length and spacing to help you clearly understand the location and direction of the underlying facilities? Were standard colors used to help you determine which facilities have been marked? These photos show examples of adequate marks as specified in the CGA Best Practices being 1" in width and 12-18" in length.

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DIGGING DEEPER!

About the Author

Tim Gale is the Director of Training for USIC Locating Services, Inc., a subsidiary of United States Infrastructure Corporation, America's leading provider of underground utility locating services. For more information regarding CGA standards select the Best Practices tab at commongroundalliance.com

Proper Marks and Flags

You will encounter marks and flags in all sorts of situations. The terrain of the land and type of excavation may warrant changes based on conditions of the job site.



Marks, without proper flags, showing 4 lines marked using proper color codes for telecommunications (orange), power (red) and water (blue).



Offset marks on street provide actual location information based on measurements in case locate marks are wiped out.



Cables running to phone pedestal. Notice that flags have not yet been placed.



Marks on snow with flags – flags will be visible even if fresh snow falls.



Understanding the Marks: The Good, the Bad and the Ugly

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Conduits and Ducts

In the course of your work, you may run into marks that are not consistent with CGA guidelines. Always be cautious if the marks don't make sense to you. Busy roadways and intersections can be an area where extra scrutiny is needed.

The first two photos here show poor examples where marking standards were not properly followed. These photos show ducts improperly marked. In almost all case, ducts in streets contain high profile facilities requiring significant cost to repair if damaged. It is always a good idea to make contact with the facility representative who located the ticket or call 811 for a re-mark if you are not sure about what really lies underground.

The third photo provides an example of proper marking of a conduit in addition to other utilities. When guidelines are followed accurately, the job site should make sense to you and be easily understood.



Improper corridor markings: additional lines of confusion.



Proper gas main markings with improper conduit marks for electric and communications



Communications conduit to the left, direct buried phone (center) and on the right, a gas distribution main.

Changes in Direction

The next two photos show a situation where multiple individual markings tell a more complete story of what lies underground. The cables bend from the easement to the rear of a residence as shown by marks and flags. Notice the wide area where cables are in conflict through the bend. Without these marks you may be tempted to believe they all run more closely together. After turning, the cables actually cross as they get closer to the building. This information is very useful to a contractor who has to perform work in the immediate area.



Three cables making a wide bend.



Three cables crossing near a residence.

“It takes just a few minutes to call 811 and provide the necessary details to request marks...Provide as much accurate detail as possible and white line the area where you will be working.”

White Lines, Locates and Clear Marks

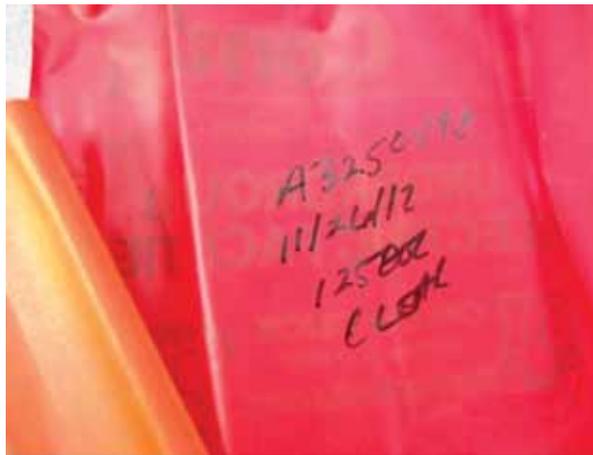
An example of the contractor and locate technicians working together is shown below. The area is white lined, flagged and staked to indicate where a replacement utility pole will be installed. Multiple utilities have been marked, clear marks with proper flags have been placed, and the likelihood of this job being completed damage free in a congested area is very high.



Proposed excavation indicated by white lines, white flags and stake.

No Conflict

Another piece of valuable information is the clear flag itself. In the previous photo there are clear marks for telephone and electric. The flags placed in the clear marks contain additional information including the One Call ticket number, the date the marks and flag were placed, employee number of the technician, and the word Clear. This information enables you to verify this information is for your ticket and provides the ability to make contact with the applicable utility if necessary.



Close-up of utility flag inserted at “OK” mark provides more detailed information to the contractor.



In conclusion, all parties involved working together can ensure any excavation is completed damage free. However, sometimes the marks may be confusing and things can go wrong. It is best to follow a couple of simple suggestions to always protect facilities and dig safely. First, ALWAYS CALL BEFORE YOU DIG! It takes just a few minutes to call 811 and provide the necessary details to request marks – besides, it’s the law. Provide as much accurate detail as possible, and white line the area where you will be working. Once locates have been provided and the ticket start time has arrived, take time to give the marks a good look and make a call to request better information before digging if you have any questions or concerns. In the end, your efforts will go a long way toward protecting valuable underground facilities, ensuring uninterrupted service, and possibly preventing injury or worse to yourself or your co-workers.