









Excavation Training | Safety

Preparation:

UTILITY LOCATION | CALL 811 OR EQUIVALENT BEFORE YOU DIG!

- Each state will have a number such as 811 that you are able to call to request an emergency locate. Almost all calls should be submitted as emergency as any plumbing issue impacts the health of property owners.
- Remember **PRIVATE LINES MAY NOT BE MARKED** (Just because there is no paint doesn't mean there are not hazards!)
- **Pre identify your proposed are of excavation using white paint** and by identifying landmarks to the operator when calling 811
- **What each paint color typically means when marked:**

- **White** stands for the proposed borders of an excavation. When crews need to mark the limits of the excavation needed for a basement, or even just a trench, they mark the outlines in white paint. This is usually the first step before any underground infrastructure is precisely located. It shows where the digging will occur.

	Red: Electric Power Lines, Cables, Conduit & Lighting Cables
	Yellow: Gas Oil, Steam, Petroleum or Gaseous Materials
	Orange: Communication, Cable TV, Alarm or Signal Lines, Cables or Conduit
	Blue: Potable Water
	Green: Sewers and Drain Lines
	Purple: Reclaimed Water, Irrigation and Slurry Lines
	Pink: Temporary Survey Markings
	White: Proposed Excavation

Pink indicates temporary survey markings. When a land surveyor visits to precisely draw the exact lines between adjoining properties, he or she will mark the ground in pink. This indicates the legal boundaries affecting the project.

Red is the color for electrical equipment. It's also the traditional color for danger, which makes a great deal of sense in this case. Red can indicate the subterranean presence of power lines, cables, [conduits](#), transformers, or even lightning cables. Red stands out against most surfaces, and for that we can all be glad. Red means "Be careful!"

Excavation Training | Safety

Yellow Means natural gas, petroleum, or steam. It's the color for urgency and caution. Anyone who's tapped into a gas line and lived to tell the tale knows the value of accurate markings for gas lines. Oil and steam can be almost as problematic. Take care when you see yellow markings.

Orange indicates communications. This could include cable TV, phone systems, alarm wiring, fiber optics, or conduits intended to carry signals rather than power. With our modern reliance on telecommunications, it's wise to be careful when digging around orange markings.

Blue is the color of **water**, thus it makes sense that blue markings indicate the presence of water lines. Though not as potentially disastrous as a gas or power line, hitting a water pipe or main would have some pretty severe consequences on a project and surrounding residents. Take care around water, despite the peaceful, blue color.

Purple also indicates water, but a specific sort: Purple is the color for reclaimed water like from sand blasting or [power washing](#). This isn't drinking water, but the sort to be used in industrial and gardening applications. While blue markings might indicate drinking water, purple only points up sources of water not fit for human consumption.

Green means sewer & storm drain. This is definitely something to avoid. A broken sewer line could earn an excavating company employee a reputation that could last his or her entire career, and wouldn't likely result in any offers of free beers after work. The green markings are very important. Stay away from the green markings. The AWWA standard goes beyond color. It also states that the markers must be clearly visible. The material needs to be durable. The paint markings on the ground you might have seen at a dig are for temporary use, but more permanent markers should be placed as the project nears completion, and these must be made from materials like treated wood, metal, UV-resistant plastic, or similar. Also, the standard calls for including the area's "call before you dig" number on the marker if space is available.

By following this standard, dangerous accidents and expensive delays can be avoided. Get to know the [APWA standard](#) before starting any underground project.

Securing your Work Site

- Use caution tape, cones, and barricades to define a perimeter around the work area and prevent entry of those not authorized.
- Ensure perimeter is wide enough that debris resulting from excavation does not cross that there is sufficient space to ensure the safety of those around.



Excavation Training | Safety

- No not allow non authorized personnel into your work area while work is progressing.
- Dont ever underestimate the stupidity of others. Some will enter even the most visibly marked work areas. Always be on the lookout and promptly stop work and escort out of area if this happens.
- Never leave manhole lids off and unattended. Close if needed and reopen upon return if you have to leave the area.
- Never leave power equipment or Jetters etc running without someone in visible range.
- Do not leave equipment, tools, or materials unsecured where they might be easily stolen or otherwise damaged.

Safety Gear:

- Trench Safety: Ensure trench boxes or shoring are available if required by OSHA codes
- Ensure sufficient ladders or other means of exiting a trench are in place
- Fresh Air Equipment and other confined space items may be required
- PPE should be available such as hardhats, eye and ear protection, gloves, etc
- Fire Extinguishers
- First aid kit

Monitoring / Spotting:

- Ensure a second person is available to serve as a spotter anytime you are digging with tractor or other mechanized equipment.
- Keep equipment at low enough rpm to prevent sudden jerky movement that might impede the safety of others. **SLOW is SMOOTH and SMOOTH is FAST**
- Ensure adequate lighting is available to examine the area in which you are working.
- **When in doubt STOP and ensure you are safe to proceed.**
- **Keep others out of the work area and help escort those on equipment**

Permits:



Excavation Training | Safety

- Ensure all proper required permits have been obtained from local authorities as required
- If unsure contact your manager for instruction
- Make sure you stay compliant with all local codes

