

# Do I Need to Ground my Tracer Wire?

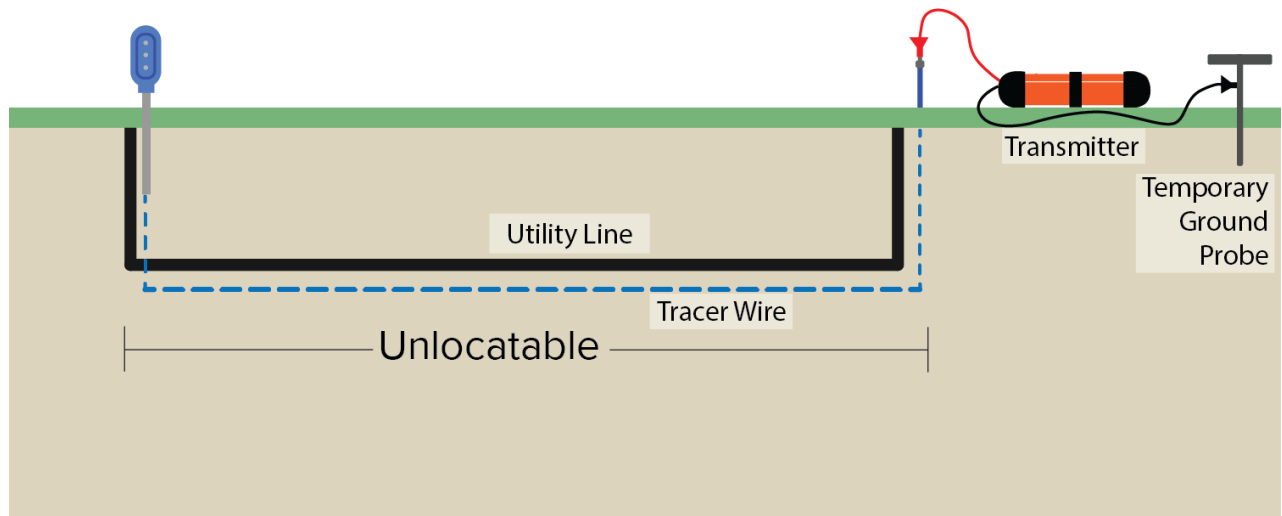
Date Published: May 8<sup>th</sup>, 2019

Author: Joe Rubbelke, Copperhead Innovations

The short answer? Yes. A properly grounded tracer wire system is critical in establishing a complete electrical circuit needed for line tracing and accurate detection of underground utilities. Utility damages in the U.S. are significantly rising, and an untraceable system is at the highest risk for damage.

## What happens if my tracer wire is not grounded?

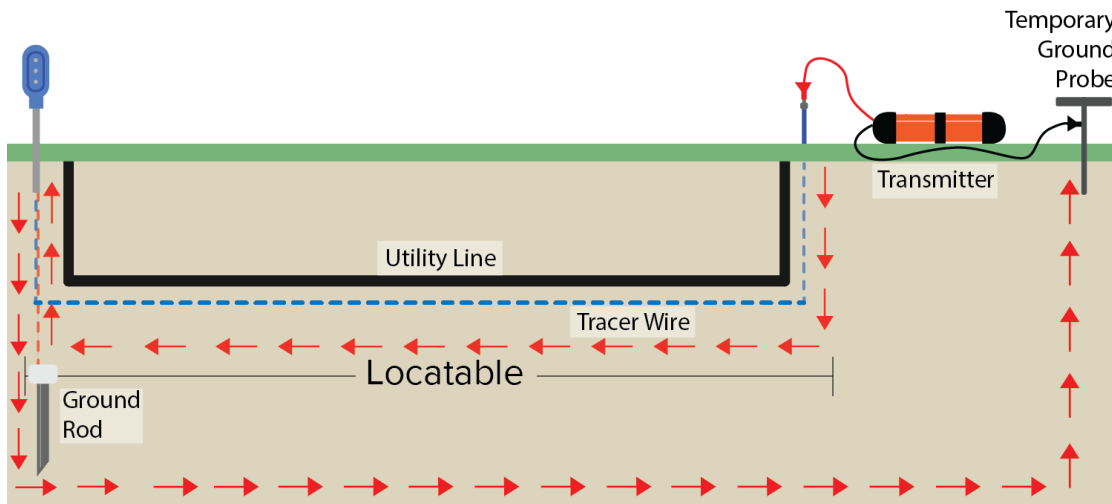
Without grounding tracer wire with ground rods, the locate signal will not travel down the line. One of the main reasons that utility locators cannot locate previously installed tracer wire is because the tracer wire improperly terminates without going to ground. For example, at a hydrant or in a valve box or manhole, if the tracer wire is not properly grounded, the AC current will not be pulled down the wire, so the proper circuit will not exist. Thus, a locatable signal cannot exist.



**Tracer wire not properly grounded results in a missing signal and incomplete circuit.**

## What happens when my tracer wire is grounded?

When a tracer wire system is properly grounded, it can be fully energized, and accurate detection is possible. The principles of locating require a complete electrical circuit, through a traceable system, for a locatable signal to exist. For a complete circuit to exist, a low voltage current travels from the transmitter through the red connective lead which is attached to a tracer wire access point. The tracer wire acts as a conductor and carries the electrical current to the ground. Moist soil provides the return path for the signal to a temporary ground near the transmitter. The signal travels through the temporary ground and back to the transmitter through the black conductive lead. A complete circuit has been created, and the line is now locatable.



**Tracer wire properly grounded results in a complete circuit.**

## How do I properly ground my tracer wire?

The best way to ground a tracer wire system is to install a 1.5 lb. drive-in magnesium **ground rod** and an access point at each tracer wire dead end. An access point will protect the wire and provide a direct connection point for a utility locate transmitter to connect to the tracer wire. It also provides a connection point for the ground rod wire and allows the ground connection to be turned on and off, allowing you to control the signal on the target line.

Be sure to select an access point with two or more terminals that provide interruptible connection between the tracer wire and ground wire. Examples include the **SnakePit®** or **Cobra™** access points provided by Copperhead Industries.

In short, it's critically important to ground a tracer wire system so that the electrical current is pulled along the target line, and underground assets can be located. Accurate location can help prevent costly utility damage and needless hassle.