The Damage Prevention Duo: How Locators and Vacuum Excavators WORK TOGETHER to Mitigate Jobsite Damage

BY CHRIS THOMPSON AND RUDY CABELLO

On today's underground construction jobsite, a strike or cross bore can be extremely costly and potentially dangerous. To further complicate matters, the industry continues to evolve and underground environments are becoming increasingly more complex and congested. With all these complications, keeping crews safe has become a team effort with multiple parties playing key roles. There are two factors that play a key role in damage mitigation – utility locate professionals and vacuum excavation operators.

Properly locating and marking underground utilities on a jobsite is the most common and efficient way for contractors to prevent damage; exposing underground utilities with a vacuum excavator is the most surefire way to prevent a utility strike or cross bore. Both methods have a place in the damage mitigation process and

by utilizing both processes correctly, underground construction crews can ensure they are successfully navigating around the many utilities that may be scattered throughout the jobsite, resulting in a successful and safe operation.

Locating Best Practices

Locating utilities is the first step to a successful underground construction job because it gives contractors a vital understanding of a jobsite's underground layout and allows for an educated construction plan. Contractors should know to always call 811 before digging, but what does the locating process actually entail?

The most important step for a locate technician on any jobsite is to connect the locate equipment to the utility and find the correct frequency to send down the line. The goal of the locate technician is to send a frequency down the utility line and trace that signal through the ticketed area.

Once connected to a utility, the locate technician must identify the right frequency to use. Different frequency levels have different benefits, but the main challenge to consider when selecting a frequency is the jobsite interference.

Interference refers to objects or sources that can disrupt or distort the frequency of a locater, making it more difficult to trace the utility and potentially leading to a mislocate. Interference can be both passive and active in nature. Active interference comes from sources that have their own electrical signal that can distort the frequency of a locater, such as underground fences or cable lines. Passive Interference comes from sources without their own signal, but which can still distort a frequency – chain link fences, for example.

Locate technicians should always do a visual inspection of a jobsite before beginning a locate to identify any signs of passive or active interference.

It's also best practice for locate technicians to begin their locate with the lowest possible frequency, usually between 263hz and 870hz, and move up to a higher frequency like 8.01khz if unable to find the utility. While higher frequencies are often easier to pick up by a locater (meaning it's usually easier to complete a locate), higher frequencies also run a higher risk of bleeding off on to sources of interference, which can lead to a mislocate. For this reason, lower frequencies are usually a better option to begin with, especially in areas of high interference.

Another best practice for locate technicians is to avoid developing a favorite frequency they always use as that frequency may not be the best frequency choice for every jobsite.

Finding and following the best frequency will allow locate technicians to accurately trace and mark a utility, helping underground construction crews better understand their jobsite and plan their construction path to avoid damage.

Properly Exposing Utilities

While locating utilities is the first step toward making educated decisions in underground construction, exposing utilities is the most thorough way to avoid utility strikes or cross bores. Exposing a utility (daylighting) is when a contractor is crossing or working near an existing utility. As opposed to utility locating, which gives contractors a readout of where utilities are, exposing a utility allows contractors to actually see and avoid it while working.

There are three primary reasons that contractors expose a utility:

1. If it is in the path of utility installation, even if the locate technician found the utility deeper or shallower than the level of construction.

2. To make sure it doesn't veer into the path of construction. This is typically done by potholing when working parallel to a utility. While every municipality has its own regulations on potholing, this technique helps contractors confirm that a utility's path is consistent. For example, if construction is 20 feet from a utility, a crew may pothole every 50 feet to confirm the locate.

3. To visually confirm a locate. Especially when working in congested areas or areas of high interference, double-checking a locate by exposing the utility will further reduce the chance of a strike.

Soft excavation methods are ideal when exposing a utility and mitigating damage, which is why vacuum excavation has become popular. With their simplicity, ease-of-use and versatility, vacuum excavators are ideally designed for soft excavation practices such as utility exposition.

Following operational best practices for vacuum excavation is also pivotal to jobsite efficiency. Contractors should always keep their nozzle eight inches away from the utility to prevent equipment and utility damage; air or water pressure should be kept below 3,000 psi and the nozzle should be consistently moved when excavating. These best practices allow for the most efficient and safe excavation and allow contractors to expose utilities more easily.

In this Together

So how do these different safety steps support each other? The underground construction industry is busy. There is a ballooning demand for work and a limited supply of workers. This is a fact in every area of underground construction. All underground professionals are in it together. Accurately locating and properly excavating utilities helps contractors and locate technicians stay safe and successful.

Locate technicians shouldn't cut corners on a jobsite. Properly troubleshooting interference and completing the most accurate locate possible allows contractors to avoid unnecessary downtime and stay efficient on the job – two pivotal goals in today's industry.

Similarly, exposing utilities is the best way for contractors to double-check the work of a locate technician. Damage mitigation is a team game, and everyone has the same goal, and properly locating and exposing utilities are the two best tools in pursuit of that goal. ESG

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