



Ting Signaltape® Case Study



Third Party Excavation Damage

Ting is a rapidly growing provider of fiber internet services across the nation who has historically experienced significant excavation damage in new construction subdivisions. They are often the first utility installed and consequentially Ting's buried fiber conduit frequently gets hit when other utilities install their services. A recent internal evaluation of excavation damages examined ten of their Greenfield, NC subdivisions. The study revealed that nine of them have experienced reoccurring excavation damage costing around \$72,000 so far. To proactively prevent third party damages, Ting trialed 5,000 feet of signaltape brand underground warning tape. The underground warning tape was installed in approximately half of their New Belvedere subdivision, a Charlottesville, VA location comparable to their Greenfield NC subdivisions. Signaltape is an innovative damage prevention product containing a 3,000lb aramid fiber core material; this core material ensures the warning tape pulls to the surface to warn the excavator. As a result, it addresses the two largest gaps in current damage prevention products and systems.

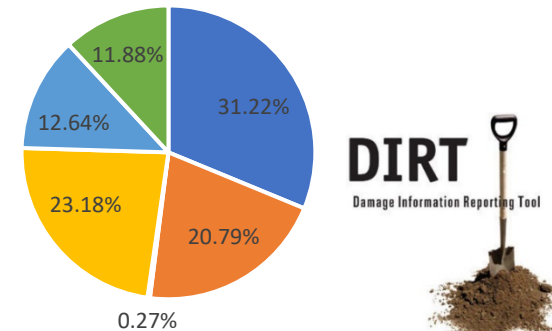
Gaps in Damage Prevention Products

The Common Ground Alliance's Dirt Report tracks annual excavation damages to underground utilities. During Ting's 2019 case study on signaltape, this 2018 report was the most current version.

1st Gap: Operator Compliance

Existing systems and products rely on excavation operator compliance and proactivity to prevent damages to underground utilities. For example, for a location technology like tracer wire to function, the excavation operator must call 811 and wait for the locate to take place prior to beginning excavation work. However,

2018 CGA Dirt Report



Root Cause Groups

- Excavation Issues
- Locating Issues
- Miscellaneous
- Notification Not Made
- Other Notification Issues
- Uknown/Other



23.18% of damages occur because no notification is made to the One-Call Center. An additional 12.64% of damages occur because of "other notification issues" which include causes such as not waiting for a valid start time. Overall, 35.82% of damages are the result of non-compliance. Since tracer wire and other location technologies require operator compliance to prevent damages they cannot protect against noncompliance.

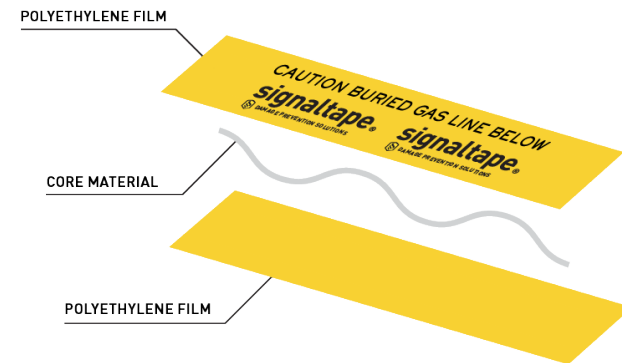
2nd Gap: No direct warning

Excavation operators need to know where to dig; however, location technologies like tracer wire don't communicate directly with the operator. It is the locator who finds the lines, and then marks the ground appropriately. Unfortunately, an additional 20.79% of

damages are due to location issues such as mismarks. Moreover, 31.22% of damages are due to excavator issues, for instance not following the correct procedures when excavating near a facility. Because these technologies don't communicate with the excavator directly, they cannot warn the excavator if the lines are mismarked—they cannot warn the excavator if he/she is digging too close to a line—ultimately, location technologies cannot provide an effective last line of defense.

Signaltape Damage Prevention Solution

Signaltape was specifically engineered to address these two gaps in damage prevention. By pulling out of the ground when encountered by excavation equipment, it directly alerts the operator, and does not require additional proactivity or compliance to do so. It consists of a 3,000lb tensile strength aramid fiber core material laminated between two pieces of film. This core material is woven in a sine wave within the tape to not only provide protection at any angle of approach, but also to create high strength slack needed to pull the tape to the surface. This performance is unique for marker tapes which historically shear underground and get lost in the slag pile.



Signaltape Case Study Results:

In 2019 in the New Belvedere subdivision in Charlottesville, VA. Ting installed approximately 5,000 feet of 6" signaltape about 12" above a 1.5" telecommunications conduit. They also installed conduit with only tracer wire in the remaining half of the neighborhood.

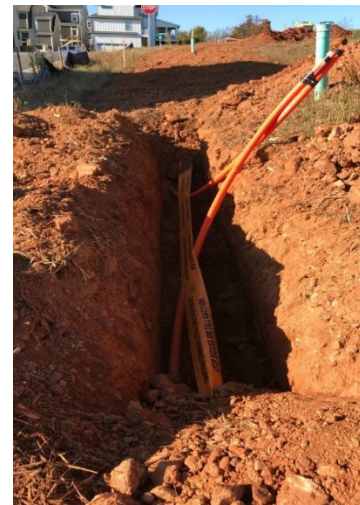


Figure 1: Signaltape installed above Ting Conduit



Figure 2: No Signaltape installed above Ting Conduit

One year after installation, the New Belvedere subdivision had a total of two strikes where the signaltape was NOT installed. In both cases, the conduit was damaged near turn up points in a handhole. There were two additional cases where the signaltape pulled up to the surface, warned the operator, and successfully protected the utility. The Fiber Construction Manager discovered that signaltape had prevented these two strikes when he arrived on site and found the ground disturbed and the tape on the surface.

Conclusions:

Tings's early installations have increased the risk of conduit strikes; however, that risk can be significantly reduced by filling their gaps in protection. Ting will continue to monitor their New Belvedere subdivision in Charlottesville VA.



Figure 3: Signaltape Prevented Damage #1

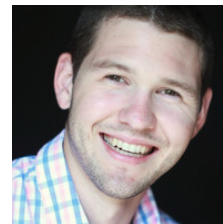


Figure 4: Signaltape Prevented Damage #2



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Author:

Kit Moore is the Integrated Products Manager at Damage Prevention Solutions. He manages the 3M cobranded product lines. Most recently he was part of the development team responsible for DPS's newest product, boretrace- a two in one tracer wire and marker tape delivery system for Horizontal Directional Drilling (HDD) installations.