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Soft Trencher

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SOFT TRENCHER

THE NEED

Excavation near existing electrical lines, gas lines and other underground utilities can be dangerous and time consuming. Traditional methods using an excavator can easily damage underground utilities causing injury, death, or at a minimum construction delays. Hand excavation, while somewhat more controlled, has the same risks as machine excavation but at an increase in expense and time.

FIGURE 1 SOFT TRENCHER

THE TECHNOLOGY

A self propelled trencher called the Soft Trencher developed by Battelle Memorial Institute, Columbus, Ohio uses supersonic air to loosen dirt which is then vacuumed up into a truck or piled into a windrow for later removal of backfill. The supersonic air used to break up the soil is harmless to underground utilities and cables. Unlike traditional excavation methods there is no downward force that can be exerted on the underground utilities.

Unlike conventional vacuum trucks the Soft Trencher is designed for continuous operation with a capacity of approximately 15 c.f./min. Widths of trenches are from 1' on a single pass and 6' on multiple passes. Depths of 10' are possible.

THE BENEFITS

Particularly in areas of high congestion of underground utilities where damage to those utilities would cause disruption the Soft Trencher may be beneficial. Locating of existing utilities is a time consuming and costly operation.

STATUS

Its principal uses are for trenching and existing utility location. Other possible applications include excavation in contaminated areas where isolation of the operator is required, excavation where buried waste containers are present, and buried ordinance locations. Recently, the Soft Trencher was used in the Boston's "Big Dig" highway construction project.

BARRIERS

Only one Soft Trencher exists at the current time. Therefore the availability to demonstrate the equipment and develop a demand for it is limited.

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REFERENCES

1. Battelle Memorial Institute, 1995 Press Releases.
2. EPRI-Electric Power Research Institute, Distribution News, September 1997.

REVIEWERS

Peer reviewed as an emerging construction technology

DISCLAIMER

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