TO DIG OR NOT TO DIG?

Richard Winters | Circuit Rider I

The latest way to cut costs in line replacement seems to be in the form of TRENCHLESS technology. Wikipedia has the following definition of this:

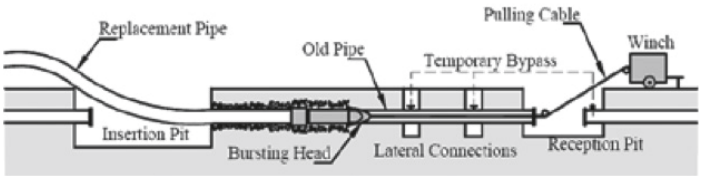
Trenchless technology is a type of subsurface construction work that requires few trenches or no continuous trenches. It is a rapidly growing sector of the construction and civil engineering industry. It can be defined as "a family of methods, materials, and equipment capable of being used for the installation of new or replacement or rehabilitation of existing underground infrastructure with minimal disruption to surface traffic, business, and other activities.

TRENCHLESS CONSTRUCTION

Trenchless construction includes such construction methods as tunneling, microtunneling (MTM), horizontal directional drilling (HDD) also known as directional boring, pipe ramming (PR), pipe jacking (PJ), moling, horizontal auger boring (HAB) and other methods for the installation of pipelines and cables below the ground with minimal excavation. Large diameter tunnels such as those constructed by a tunnel boring machine (TBM), and drilling and blasting techniques are larger versions of subsurface construction. The difference between trenchless and other subsurface construction techniques depends upon the size of the passage under construction.

The method requires considering soil characteristics and the loads applied to the surface. In cases where the soil is sandy, the water table is at shallow depth, or heavy loads like that of urban traffic are expected, the depth of excavation has to be such that the pressure of the load on the surface does not affect the bore, otherwise there is danger of surface caving in.

TRENCHLESS REHABILITATION:



Pipe replacement by pipe bursting

Trenchless rehabilitation includes such construction methods as sliplining, thermoformed pipe, pipe bursting, shotcrete, gunite, cured-in-place pipe (CIPP), grout-in-place pipe, mechanical spot repair, and other methods for the repair, rehabilitation, or replacement of existing buried pipes and structures without excavation, or at least with minimal excavation. Mechanical spot repair is applied where damaged pipelines require the re-instatement of structural integrity. Sliplining, CIPP, and thermoformed pipe lining involve pulling or inverting a new liner into an existing pipe, then applying heat and/or pressure to force the liner to expand to fill the pipe. CIPP technologies combine a carrier (felt or fiberglass) impregnated with heat, ultraviolet light, or ambient curable resin to form a "pipe within a pipe". Pipe bursting fractures a pipe from the inside and forces the fragments outwards while a new pipe is drawn in to replace the old. The other methods are primarily for fixing spot leaks. Trenchless rehabilitation methods are generally more cost-effective than traditional exhume (dig) and replace methods.

There are hundreds of companies that sell the type of equipment used in the TRENCHLESS methods described above and can be found by simply doing a search on the web.