



North American Society for Trenchless Technology  
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## **Pipe Bursting Quality Assurance / Quality Control**

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Pipe Bursting involves replacing a host pipe by fragmenting or cutting the existing conduit and installing a completely new pipe of equal diameter or larger in its place. The process involves initial cracking, followed by fragmenting the host pipe, creation of a new tunnel and simultaneous installation of new replacement pipe. There are several different pipe bursting methods currently available from various manufacturers.

Pipelines of larger diameter and capacity than the host pipe can be installed with pipe bursting. Pipe bursting is a viable alternative when existing line capacity is inadequate. Bursting may also be appropriate to replace pipes that are deteriorated to the point that lining methods may not be employed and open cut replacement is not cost-effective or feasible. Water, sewer, and gas lines, and service laterals may be installed by pipe bursting.

### **Preconstruction Planning & Design**

Proper planning and design of a pipe bursting project is essential for success. Planning and design should consider type of utility line to be replaced and type and size of the replace pipe to be installed. As-built drawings/CCTV inspection records should be reviewed to determine the condition of the existing pipe and any "showstoppers" that would preclude pipe bursting as an option.

The geometry, size and depth of pipe, ground conditions around the existing pipe needs to be determined, i.e., backfill and native soil type conditions. Measures to protect existing utilities and risks associated with the selected method of bursting should be evaluated.

Work areas for insertion/receiving and lateral connection pits need to be designed. The pit length and depth must be designed to accommodate the allowable bend radius of the installed pipe. The bypass system of the existing service needs to be designed to include the physical layout of the bypass system.

## **Specifications and Qualifications**

Generally specifications for the installation of pipe by pipe bursting must be written to address specific concerns of the job such ground heave or settlement. Key items often specified by the owner are type of replacement pipe, surface heave/subsidence limits, and bypass pumping requirements.

The contractor typically must submit qualifications, verification of near-by utilities, installation calculations such as thrust block bearing capacity for static bursting and wall thickness calculations for polyethylene pipe, pulling force calculations, service line location and reconnection method. For rigid pipe, the contractor should submit the maximum allowable jacking loads for the pipe.

Contract plans should specify identify existing pipe material and size, special circumstances such as point repairs, the length of each burst, existing utility locations, and construction easements.

Contract submittal should also provide detail specification of new pipe including manufacturers' technical information and joining/fusion method and should describe the type of bursting method to be used including required licenses, if any. The contractor's submittal should describe the plans for bypass and job site safety.

## **QA/QC Specifications**

Quality may be ensured through laboratory testing of materials at the owner's or a third party laboratory. Quality in the field could be maintained by measuring heave/settlement on the surface, potential vibration from bursting operation, monitoring strain in new HDPE pipe, and/or subsurface monitoring of existing utilities.

Pressure testing or final CCTV inspection is the final step of QA/QC. A knowledgeable and trained inspector plays an important role for QA/QC in a pipe bursting project.

## For Further Information on Pipe Bursting Please Visit



Booth 520



Booth 208



Booth 127 & 129



Booth 721



Booth 319



Booth 300

## For Further Information on Pipe Products & Fusion Tooling Please Visit



Booth 322



Booth 324



Booth 527



Booth 412



Booth 105



Booth 116



Booth 110



Booth 517



Booth 225

# For Further Information on Tracking & Locating Equipment Please Visit



Booth 622



Booth 511 & 513

# For More Information on Bypass Please Visit



Booth 410



Booth 500



Booth 316



Booth 101