A comparison of common pipe installation methods including open cut, jack and bore, pipe bursing, slip lining, microtunneling, horizontal directional drilling (hdd), and directpipe®.
Open cut or direct bury is the traditional and most common method of pipe installation. The pipe is installed into a trench excavated from the existing ground surface. Common steps to an open cut installation include:

- Planning
- Surveying
- Engineering
- Easements
- ROW preparation
- Clearing & Cutting
- Trenching & Shoring
- Hauling & stringing pipe
- Field bending of pipe
- Connection/Welding/Fusing
- Lowering pipe
- Valves or fittings
- Securing
- Testing
- Backfilling
- Restoration
### OPEN CUT OR DIRECT BURY

**ADVANTAGES**

- Often lowest cost per linear foot especially in non-paved areas
- Provides a variety of excavation and trenching options
- High level of control over elevations/slopes
- Allows a direct visual inspection of pipe
- Can be used with a variety of pipe materials (PVC, HDPE, steel)
- Can be used for a variety of types of pipe installation (water, sewer, storm, services)

**DISADVANTAGES**

- Large footprint
- High level of social and environmental impact
- High restoration costs especially in paved areas
- Not preferred by most jurisdictional agencies
- Water table and weather impacts
TRENCH WITH SHORING
MECHANICALLY PLACE PIPE
MECHANICALLY PLACE SECTIONS OF PIPE
TEMPORARY PATCHING
FINAL PAVEMENT & RESTORATION
EXCAVATION FOR JACK AND BORE PIT

BLURRY PHOTO
HYDRAULIC JACK
Auger is in 10' lengths, pit length is bore machine length plus work room plus multiples of 10'. Bore pits are typically 15 to 30' wide.

1. Bore Machine
2. Entry Pit
3. Receiving Pit
4. Carrier Pipe
5. Carrier Stock Pipe
6. Welding Machine

Receiving pit is big enough to make tie-in weld.
Auger is in 10’ lengths. Pit length is bore machine length plus work room plus multiples of 10’. Bore pits are typically 15 to 30’ wide.
PIPE BURSTING
PIPE BURSTING

NEW FUSIBLE PVC

HYD POWER

EXPANDER

ROLLING BLADE CUTTING ROD

QUICKLOCK BURSTING RODS

GRUNDOBURST®

PIPE BURSTING
SLIP LINING
SLIP LINING
SLIP LINING
HORIZONTAL DIRECTIONAL DRILL

BLURRY PHOTO
HORIZONTAL DIRECTIONAL DRILL
MICROTUNNELING
MICROTUNNELING
MICROTUNNELING