

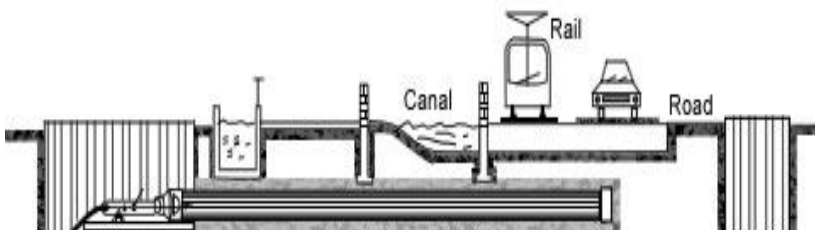
PIPE RAMMING – THE COST-EFFECTIVE SOLUTION

PIPE RAMMING SYSTEM

Pipe Ramming is a method of trenchless installation whereby a steel duct is installed under obstacles such as roads, rails, canals, rivers etc.

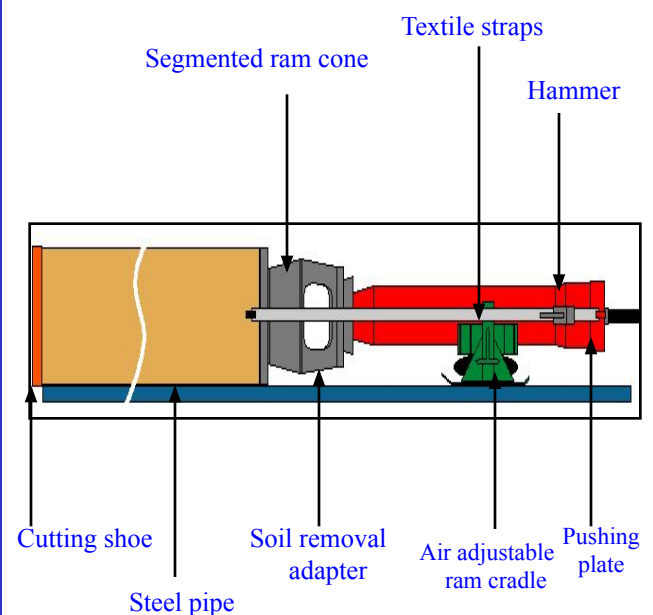
The technique involves driving an open-ended steel pipe through the ground by means of a pneumatic hammer. When the pipe is installed, the material is then removed from the inside. As a result there is no risk of loss of ground during the works. The only displacement is the wall thickness of the pipe and 10mm for the cutting shoe.

The time taken to complete a crossing will vary depending on the diameter of pipe, the length of drive and the ground conditions. Most crossings can be completed in one week. This method involves a non-steerable system and is not suitable for rock.



Two pits are dug, one at either side of the crossing. The steel pipe is usually in 6m or 12m lengths. There are no thrust walls or fixed abutments required. The driving pit needs to be 10m or 16m in length to accommodate the pipe length and the hammer. A frame or runner is placed into the base of the driving pit onto which the first pipe length is lifted. A cutting shoe is welded to the front end of this pipe. This protects the end of the pipe from damage and, with its hardened edge, will break any large cobbles or boulders encountered. The runner is adjusted to the line level required.

Next the hammer is fitted to the end of pipe and strapped into place. A series of concentric rings are used to fit the hammer to the various pipe sizes. The hammer is then connected to a compressor and driving can commence. The volume of air delivered governs the rate of hammering. If the installation is for a sewer, it is crucial at this stage to check and adjust the level of the pipe. The first length is driven slowly until the pipe is established in the ground, in order to maintain line and level.



Luas crossings for service ducts at Mayor Street, Dublin.

ADVANTAGES:

- **Cost-effective** solution for trenchless crossings.
- **Straight and accurate** bores.
- **Fast and reliable** in adverse ground conditions



Typical sizes of steel pipe which can be installed:

- 300mm
- 400mm
- 500mm
- 600mm
- 762mm
- 914mm
- 1,200mm



Pipes installed at Grangegorman, Dublin for service ducts.

