



Saturday, January 11, 2003

Hancor Design Aids Section

- ▶ Products
- ▶ Markets
- ▶ Design Aids
- ▶ Ducks Unlimited
- ▶ Ordering
- ▶ About Hancor
- ▶ Contact Us
- ▶ Monthly Drawing
- ▶ Featured Products
- ▶ Case Studies
- ▶ Installation Video
- ▶ Co-op Advertising
- ▶ Hot News

6-3 TRENCH EXCAVATION

The width of the trench depends on the pipe diameter, backfill material, and the method of compaction. Trenches that are too narrow will not allow for proper pipe installation, whereas trenches that are overly wide are unnecessarily costly. As a practical matter, standard bucket sizes may also factor into the decision.

Minimum trench widths are as shown in Table 6-1.

Table 6-1 – Minimum Trench Widths

Pipe Diameter in. (mm)	4-8 (100- 200)	10 (250)	12 (300)	15 (375)	18 (450)	24 (600)
Minimum Trench in. (m)	*	24 (0.6)	28 (0.7)	35 (0.9)	43 (1.1)	56 (1.4)
*Usually dependant on the smallest bucket size available						
Pipe Diameter in. (mm)	30 (750)	36 (900)	42 (1050)	48 (1200)	54 (1350)	60 (1500)
Minimum Trench in. (m)	60 (1.5)	65 (1.7)	84 (2.1)	91 (2.3)	97 (2.5)	103 (2.6)

These minimum trench widths are necessary for suitable in-situ soils. These widths generally allow for backfill material to flow on either side of the pipe and permit many types of compaction equipment. If the width is not sufficiently wide for the materials and methods proposed, a wider trench allowing for proper installation should be constructed. 6" - 8" (0.15 - 0.20m) on either side of the pipe is about the minimum acceptable trench width allowed when compaction equipment is not required.

In very poor native soils (for example; peat, muck, or highly expansive soils), a wider trench width will be required. This wider trench width should be based on an evaluation of the in-situ soil, and the design and construction loads.

Trench widths for smaller diameter pipe are often determined by the bucket size available for the excavator, and in many cases can exceed twice the nominal pipe diameter. From an economical point of view, it's best to keep the trench width in perspective with the pipe diameter.

One common misconception is that wide trenches are necessary for flexible pipe. Wide trenches are not only costly to excavate and fill with backfill material; they can actually detract from the structural integrity of the pipe/backfill system in many cases. Years of consolidation create a very stable soil environment. The desire is to destroy as little of that stability as necessary when digging the trench. Stable trench walls actually enhance



the structural integrity of the system when the trench is relatively narrow. Overly wide trenches also require more backfill material and more compaction which may not form a structure as stable as the undisturbed native material.

The depth of the trench is dictated by the geography of the site and the pipe slope required. However, if an adequate foundation for the pipe is not available at the desired depth, additional excavation will be needed. Rock outcroppings, muck, and other unsuitable materials do not provide proper support. They should be removed and replaced with suitable granular material. Refer also to [Figure 6-1](#).

Featured Products

BLUE SEAL	Sure-Lok	LandMax	Hi-Q	EnviroChamber	TerraFiber
------------------	-----------------	----------------	-------------	----------------------	-------------------

[Home](#) • [About Hancor](#) • [Ordering](#)
[Contact Us](#) • [Monthly Drawing](#) • [Hot News](#)

© Copyright 1999 - 2003 , Hancor Inc.

