

Trenching—Protection

Explain dangers

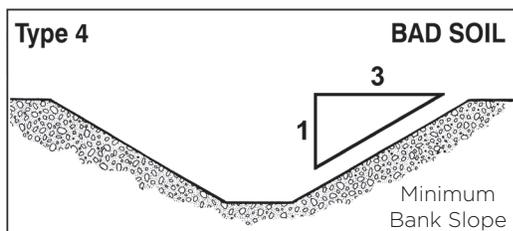
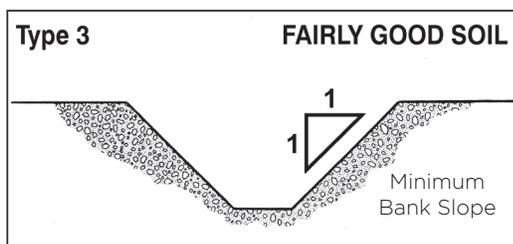
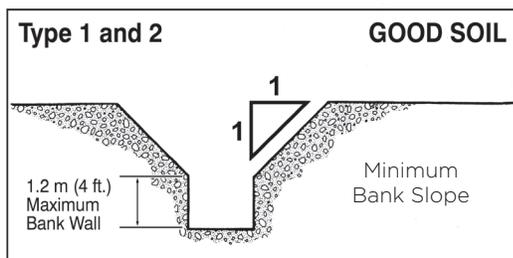
You risk injury or death if you enter a trench deeper than 1.2 metres (4 feet) that has not been sloped, shored, or protected by a trench box.

Identify controls

SLOPING

Sloping the walls is one way to keep a trench from collapsing. The angle of the slope depends on soil conditions.

- **Type 1 and 2 soils:** Cut trench walls back at an angle of 1-to-1 or 45°. That's 1 m (3 ft) back for each 1 m up. Walls should be sloped starting at 1.2 m (4 ft) up the wall.
- **Type 3 soil:** Cut walls back at an angle of 1-to-1, but from the bottom of the trench.
- **Type 4 soil:** Slope the walls at 1-to-3. That's 3 m (10 ft) back for every 1 m (3 ft) up from the trench bottom.



SHORING

Shoring is a system that supports walls to prevent soil movement. It also helps to support underground utilities, roadways, and foundations.

The two types of shoring used most commonly are timber and hydraulic. Both consist of posts, wales, struts, and sheathing. One major advantage of hydraulic shoring is that you don't have to enter the trench to install the system. Installation can be done from the top of the trench.

Whenever possible, shoring should be installed as excavation proceeds. If there's any delay between digging and shoring, no one should enter the unprotected trench.

TRENCH BOXES

Trench boxes aren't meant to shore up or support trench walls. They're only meant to protect workers in case of a cave-in.

The space between the box and the trench wall should be backfilled. Otherwise a cave-in or collapse may cause the trench box to tilt or turn over. It's also easier to enter the box if soil comes right up next to it.

Trench boxes are commonly used in open areas away from utilities, roadways, and foundations. If you're in the trench, stay inside the box.

LADDERS

Whether the trench is sloped, shored, or protected by a trench box, you need a way to climb in and out safely.

Trenches must have ladders in the areas protected by shoring or trench boxes. The ladder must be securely tied off at the top, extend above the shoring or box by at least 1 m (3 ft), and be inspected regularly for damage.

A ladder should be placed as close as possible to where you're working—and never more than 7.5 m (25 ft) away.

Demonstrate

Review the protective systems used on site. Check condition of sloping, shoring, or trench box. Are ladders provided for getting in and out? Show participants the sloping diagrams.