

Soil types

List trenching jobs on site

Explain dangers

An unstable trench can collapse, killing or injuring workers. Soil type is a critical factor for trench strength and stability.

Identify controls

Trench stability is affected by a number of factors such as weather, moisture, vibration, and previous excavation. Time is also a critical factor. Some trenches will remain open for a long period, then suddenly collapse for no apparent reason.

Soil type is one of the most important factors.

In a single trench, soil properties can vary widely from top to bottom or along its length. Even hard soil may contain faults in seams or layers that make it unstable when excavated.

Let's take a closer look at soil types.

There are four general types of soil from dry, dense, and hard (Type 1) to wet, muddy, and unable to support itself (Type 4).

- TYPE 1**
- Hard, very dense. You can only penetrate it with difficulty by using a small sharp object.
 - Low natural moisture content, high degree of internal strength.
 - No signs of water seepage.

- You need mechanical equipment to excavate this stuff.

- TYPE 2**
- Very stiff, dense. You can penetrate it with moderate difficulty by using a small sharp object.

- Low to medium natural moisture content, medium degree of internal strength.

- Has a damp appearance after it's excavated.

- TYPE 3**
- Stiff to firm, compact to loose in consistency. May be previously excavated soil.

- Signs of surface cracking and water seepage.

- When dry, it may run easily into a well defined conical pile.

- Low degree of internal strength.

- TYPE 4**
- Soft to very soft, very loose in consistency, very sensitive to vibration and motion.

- Any disturbance significantly reduces its natural strength.

- Runs easily or flows unless completely supported before excavation.

- Almost no internal strength.

- Wet or muddy.

- Exerts substantial fluid pressure on its supporting system.

Demonstrate

Demonstrate tests for different types of soil. Examine soil samples on site.