

Excavation and Trenching for Underground Utilities

COMPANY

PROJECT / LOCATION

DATE

PREPARED BY

Dig, protect, enter, and close a utility trench next to a road using an excavator, a trench box or shoring, and a ladder. Covers locating utilities, placing spoil (the dug-out soil), and removing cave-in protection safely.

Protective equipment

- Hard hat for falling soil and contact with equipment.
- Safety glasses with side shields for flying soil and debris.
- Work gloves for handling ladders and protective-system parts.
- Work boots with slip-resistant soles.
- High-visibility vest or clothing for work near road traffic and equipment.

Before you start

- Before digging, contact the utility companies or owners, tell them about the work, and have them locate their underground lines. Allow the usual local response time.
- Have the competent person (the person named to inspect the trench) check the trench, the area around it, and the cave-in protection before work starts, every day, as needed during the shift, and after every rainstorm or other event that makes it more dangerous.
- Choose cave-in protection (sloping, a trench box, or shoring) strong enough for the loads it can expect, including road traffic, equipment, and spoil. It may be skipped only in stable rock, or in a trench less than 5 feet deep where the competent person finds no sign of a possible cave-in.
- Plan where the ladders will go, inside the protected area, before anyone enters the trench.

#	JOB STEP	HAZARDS	CONTROLS
1	Set up the work area and locate utilities.	Road vehicles or the excavator can strike workers setting up near the trench. Hitting a buried electric or fuel line while digging can cause electric shock, fire, or burns.	- Separate the work area from traffic with barriers appropriate to the conditions. - Keep workers outside the excavator's travel and swing areas. - Use a spotter when the operator cannot see workers or the travel path. - Find and mark the estimated location of each underground line before opening the trench. - As digging gets close to a marked line, find its exact location by a safe method, such as careful hand digging.

2 Dig the trench and place the spoil.	The excavator bucket or swinging equipment can strike or crush nearby workers.	- Keep workers out of the bucket's path and equipment swing area. - Stop equipment movement before workers approach.
	Spoil, loose soil, or equipment can fall or roll into the trench and bury or strike workers.	- Scale loose rock and soil off the trench walls where it could fall on workers. - Keep spoil and equipment at least 2 feet from the edge, or use retaining devices that prevent them from falling or rolling into the trench. - Have the competent person check the trench edges as digging goes on.
3 Install the trench box or shoring.	Unsupported trench walls can collapse and bury workers during installation.	- Install protection without exposing workers to unsupported trench walls. - Use a trench box or shoring rated for all the loads it can be expected to carry. - Have the competent person inspect the installed system before anyone enters.
	A moving trench box or shoring member can strike or crush workers.	- Keep workers clear of suspended boxes and moving shoring members. - Keep everyone out of the trench box while it is installed, removed, or moved vertically.
4 Set the ladder and enter the protected trench.	A slipping ladder or lost balance can cause a fall into the trench.	- Extend the ladder side rails at least 3 feet above the top of the trench. If the ladder is too short, tie its top to a rigid support and provide a grab rail. - Do not load a ladder beyond its rated capacity. On slippery ground, tie it off or use slip-resistant feet. - Hold the ladder with at least one hand while climbing, and do not carry anything that could make you lose your balance. - Do not move, shift, or extend an occupied ladder.
	An unprotected entry route can expose workers to cave-ins or delay escape.	- Keep workers protected from cave-ins while they enter and leave the trench box. - In trenches 4 feet or deeper, place a ladder, stairway, or ramp so no one has to walk more than 25 feet sideways to reach it.

5	Work inside the protected trench.	Changing soil conditions or failed protection can cause a cave-in and trap workers.	- Keep workers inside the area covered by the trench box or shoring. - Dig no more than 2 feet below the bottom of the trench box, and only if the box is rated for the full trench depth and no soil is being lost from behind or below it. - Get out of the hazardous area when the competent person finds signs of a cave-in, failing protection, or a hazardous atmosphere, and stay out until it is made safe.
		Exposed utilities can break or shift and cause electrical contact or a hazardous release.	- Protect, support, or have the owner remove exposed utility lines while the trench is open. - Keep tools, equipment, and materials from hitting or resting on exposed lines.
6	Exit, remove protection, and backfill the trench.	Removing protection can collapse trench walls or cause system parts to strike workers.	- Have everyone climb out before the trench box or shoring that protects them is removed. - Remove shoring in an order that protects workers from cave-ins, collapse, and being struck by shoring parts. - Keep everyone out of trench boxes during removal or vertical movement.
		Backfill and excavator movement can strike or bury workers during cleanup.	- Keep workers out of the trench during equipment backfilling. - Keep workers clear of the bucket, swing area, and equipment travel path.

Stop work and call the supervisor if

- Stop work, leave the hazardous area, and call the supervisor if soil cracks, sloughs, or moves, or the protective system shifts or shows damage.
- Stop digging and call the supervisor if an unlocated utility is found or a utility is damaged or leaking.
- Stop entry and call the supervisor if protection or safe ladder access is missing, or traffic enters the work area.
- Stop work in the trench after a rainstorm or other event that makes it more dangerous until the competent person inspects again; get out right away if you suspect a hazardous atmosphere (bad air or gas).

Sources: 29 CFR 1926.651, Specific excavation requirements; 29 CFR 1926.652, Requirements for protective systems; 29 CFR 1926.1053, Ladders

Drafted with AI for review by a competent person. Clever Rook writes from the official regulation text it cites, but it doesn't know your site. Check it against your conditions and your company's safety program before use. Not legal advice.

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COMPANY

PROJECT

DATE

REVIEWED BY (COMPETENT PERSON)

REVIEW DATE

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