
Trenching and Excavation Shoring Inspection Safety SOP

1.0 Objective & Intent

The objective of this SOP is to establish mandatory safety protocols for the inspection of trenching and excavation shoring systems at our cabinet and millwork manufacturing facility. This procedure is designed to prevent catastrophic soil collapse, worker entrapment, and fatalities by ensuring all shoring, shielding, and sloping systems are structurally sound and compliant with WorkSafeBC Part 20 (Construction, Excavations) and Part 9 (Confined Spaces) regulations. The specific risk mitigated is the sudden failure of protective systems during excavation work, which poses an immediate life-threatening hazard.

2.0 Operational Scope

This procedure applies to all maintenance personnel, contractors, and supervisors involved in trenching and excavation activities on company property, including utility trenching, foundation excavations, and drainage work. It covers all excavations deeper than 1.2 meters (4 feet) that require shoring, shielding, or sloping, as well as any excavation where a worker may enter. The scope includes pre-entry inspections, daily inspections, and post-rain/weather event inspections of all protective systems (timber shoring, hydraulic shoring, trench boxes, and benched/sloped excavations). This SOP does not apply to minor surface grading or excavations less than 1.2 meters deep that do not involve worker entry.

3.0 Hazard Identification & Mandatory PPE

- **Soil Collapse/Cave-In:** Unstable soil conditions, vibration from equipment, or improper shoring can cause sudden trench wall failure.
- **Falling Objects:** Loose rocks, tools, or equipment at the trench edge can fall onto workers below.
- **Atmospheric Hazards:** Oxygen deficiency, toxic gases (hydrogen sulfide, carbon monoxide), or flammable vapors may accumulate in deeper excavations.
- **Utility Strikes:** Contact with buried electrical, gas, or water lines can cause electrocution, explosion, or flooding.
- **Water Accumulation:** Groundwater or surface runoff can weaken shoring and create drowning hazards.
- **CSA-Approved Steel Toed Boots** with puncture-resistant soles
- **CSA-Approved Hard Hat** (Class E or G) with chin strap
- **High-Visibility Safety Vest** (Class 2 or 3) for all personnel near equipment
- **Safety Glasses** with side shields (Z87.1) or full-face shield if debris risk
- **Cut-Resistant Gloves** (ANSI A4 or higher) for handling shoring materials
- **Hearing Protection** (earplugs or earmuffs) when near heavy equipment
- **Fall Protection Harness and lanyard** if working near unguarded trench edges over 2 meters

4.0 Required Safety Equipment & Tools

- **Lockout/Tagout (LOTO) Kit** with personal lock and hasp for isolating nearby equipment
- **Four-gas atmospheric monitor** (O2, LEL, CO, H2S) calibrated and bump-tested
- **Trench shoring inspection checklist** (company-specific or WorkSafeBC template)
- **Measuring tape** (30m) and **laser distance measurer** for depth and width verification

- Soil classification kit (pocket penetrometer, soil test tubes, moisture meter)
- Shoring system manufacturer's manual and load rating charts
- Portable lighting (explosion-proof if flammable atmosphere possible)
- Emergency rescue equipment: tripod, winch, full-body harness, and retrieval line
- Communication devices (two-way radios or cell phones) with emergency numbers programmed
- Barricade tape, cones, and warning signs for perimeter control

5.0 Step-by-Step Safety Procedure

1. Verify that a valid excavation permit has been issued and that all underground utilities have been located and marked by BC One Call (or local equivalent) at least 48 hours prior to work. Confirm that the excavation area is barricaded and warning signs are posted at all access points.
2. Conduct a pre-inspection atmospheric test of the excavation using a calibrated four-gas monitor. Lower the monitor into the trench on a retrieval line and record readings for oxygen (19.5-23.5%), LEL (<10%), CO (<35 ppm), and H₂S (<10 ppm). If any reading is out of range, do not enter and ventilate the trench before re-testing.
3. Classify the soil type (Type A, B, or C) using a pocket penetrometer and visual/manual tests per WorkSafeBC guidelines. Record the soil classification on the inspection checklist. This determines the required shoring spacing and load ratings.
4. Inspect the shoring system components for visible damage: check hydraulic struts for leaks, bent cylinders, or cracked welds; inspect timber members for rot, splits, or insect damage; verify that all pins, nuts, and bolts are tight and secure. Reject any damaged components and tag them out of service.
5. Measure and verify that the shoring system is installed per the manufacturer's specifications and engineering design: confirm strut spacing, vertical spacing, and that the top of the shoring extends at least 300 mm (12 inches) above the trench edge. Use the measuring tape and laser distance measurer to check dimensions.
6. Inspect the trench edges for signs of instability: look for tension cracks, sloughing, or water seepage. Ensure that spoil piles, equipment, and materials are kept at least 1 meter (3 feet) from the trench edge. If any instability is observed, stop work and have a professional engineer assess the site.
7. Verify that a safe means of egress is provided: ladders or stairways must be within 7.5 meters (25 feet) of any worker in the trench. Ensure ladders extend at least 1 meter above the trench edge and are secured against displacement. Check that the ladder is free of defects and on stable footing.
8. Document all inspection findings on the trench shoring inspection checklist. Include date, time, weather conditions, soil type, shoring type, measurements, and any deficiencies found. The competent person performing the inspection must sign and date the form. Attach any photos or notes.
9. If any deficiency is identified that cannot be immediately corrected, lock out the excavation area using LOTO procedures: remove all personnel, install barricades, and post a danger tag. Notify the safety supervisor and arrange for a professional engineer to design a corrective plan before any re-entry.
10. Re-inspect the shoring system after any rain event, freeze-thaw cycle, or significant vibration (e.g., nearby blasting or heavy equipment operation). Repeat steps 2 through 8 before allowing worker re-entry. Maintain all inspection records for at least 2 years per WorkSafeBC requirements.

Regulatory Disclaimer: This document is a generic safety template provided for educational and informational purposes only. It does not constitute professional engineering, legal, or regulatory compliance advice. The end-user assumes all liability for validating all safety protocols against specific machinery manufacturer manuals and local occupational health and safety regulations (e.g., WorkSafeBC, CSA standards) before deployment.