Excavation Trenching and Shoring

Revised April 2024

Purpose

The Excavation, Trenching and Shoring program is designed to provide specific direction throughout the district to ensure our employees are afforded a safe workplace free from recognized hazards. This program identifies employee responsibilities to reduce risk of exposure to hazards associated with excavations and trenching that may result in severe injury and/or loss of life.

Applicability

The Excavation, Trenching and Shoring program applies to all District employees who work in or near to active trenching and excavation projects. This also follows the scope and application of WAC 296-45-195 Trenching and excavation and WAC 296-155-650 Scope, application, and definitions applicable to *this part*. (*this part*is in reference to WAC 296-155 Part N Excavation, Trenching, and Shoring)

Responsibility and Communication

Management Responsibilities

- Implement this program within their scope of responsibility.
- Conduct workplace safety assessments.
- Ensure that employees are trained on Excavation, Trenching and Shoring requirements.
- Ensure that employees actively participate in rescue training on an annual basis.

Employee Responsibilities

- Complete the Excavation, Trenching and Shoring plan prior to working on or in a trench or excavation that exceeds 48”in depth. Note: shoring may be required in excavations less than 48” when site conditions are abnormal such as water intrusion and when surcharge loading makes the trench unstable.
- Discuss the site hazards during the tailboard and designate the competent person in charge of the project.
- Utilize stop work authority if conditions change such as water intrusion, spalling or unlocated infrastructures are identified.
- Ensure that proper PPE is utilized (hard hat, eye, foot, ear, and hand protection)
- Notify safety and management when deficiencies in this program are identified.

Safety Department Responsibilities

- Program administration to include audit, inspection, and overall implementation.
- Assist the tool committee with the selection of shoring tools and equipment.
- Participate in risk assessments, program development and management implementation.

Excavation and Trenching

The District classifies all soils as class "C" except for solid rock

Below is for routine trenching only.

For complex jobs consult Safety, Line Training, and WAC 296-155-Part N

- Prior to excavating / trenching
  - Ensure all underground utilities have been located.
  - Assess site conditions such as exposure to vehicular traffic, mobile equipment, and unstable structures.
  - Conduct a tailboard meeting that includes completing the excavation plan, identifying the competent person for the excavation, and emergency rescue procedures.
  - Identify and discuss the protective system that will be used. Note; if speed shore jacks are used ensure you have the tabulated data sheets on site.
- Excavating and trenching
  - All trenches in excess of 48” must be shored, sheeted, braced by means of sufficient strength to prevent a collapse.
  - Trenches less than 48” must be shored if there are indications that hazardous ground movement is possible.
  - Spoil piles must be placed a minimum of 24” from the trench.
  - Adjacent structures must be supported if their stability may be impacted by the excavation operations.
  - Sidewalks and other roadway structures must not be undermined unless a method of protection is in place.
  - When excavations approach the location of underground installations, the exact location must be by safe and acceptable means. (hand digging or Vactor)
  - Any trench in excess of 20’ deep must have a shoring plan approved by an engineer.
- Working in a trench
  - Inspect the trench and shoring system for hazardous conditions prior to entry on a daily basis.
  - Test for atmospheric hazards, (oxygen deficiency, flammable gas, vapor, and H2S), on a continuous basis when employees enter a trench.
  - A top person must be assigned to monitor employees in the trench.
  - Assign a signal person when the operator is out of view of the employees in the trench.
  - Protect from hazards associated with water accumulation.
  - Access: Ramps into excavations must be easily walkable, ladders must be placed within 25’ of employees.
  - Employees must not jump across open trenches.
  - If flammable gases or oxygen deficiency is identified, forced ventilation must be utilized with continuous monitoring prior to entry.
  - Entry into an enclosed space is prohibited if the atmospheric hazards cannot be eliminated by ventilation. See the Confined Space Entry Program for additional entry procedures.
  - Fall protection is required for all employees not actively engaged in the trenching operation when a fall to a lower level exceeds 10’. Note: Ribbon or barricades should be used to prevent unauthorized people form approaching an open trench.

- Rescue
  - Rescue equipment must be available and readily deployed in the event of an emergency.
  - Employees must be trained and proficient in the means and methods of the District's rescue techniques and equipment on an annual basis.

For specific information regarding protective system requirements see WAC 296-155-655 General Protection Requirements and or the manufacturer's instructions.

Definitions

Excavation. Any person-made cut, cavity, trench, or depression in the earth's surface, formed by earth.

Benching (benching system). A method of protecting employees from cave-ins by excavating the sides of an excavation to form one or a series of horizontal levels or steps, usually with vertical or near vertical

Competent person. One who can identify existing or predictable hazards in the surroundings that are unsanitary, hazardous, or dangerous to employees. Also has authorization or authority by the nature of their position to take prompt corrective measures to eliminate them. The person must be knowledgeable in the requirements of WAC 296-155-650.

Protective system. A method of protecting employees from cave-ins, from material that could fall or roll from an excavation face or into an excavation, or from the collapse of adjacent structures. Protective systems include support systems, sloping and benching systems, shield systems, and other systems that provide the necessary protection.

Support system. A structure such as underpinning, bracing or shoring, which provides support to an adjacent structure, underground installation, or the sides of an excavation.

Trench (trench excavation). A narrow excavation in relation to its length made below the surface of the ground. In general, the depth is greater than the width, but the width of a trench (measured at the bottom) is not greater than 15 feet (4.6m). If forms or other structures are installed or constructed in an excavation so as to reduce the dimension measured from the forms or structure to the side of the excavation to 15 feet (4.6 m) or less (measured at the bottom of the excavation), the excavation is also considered to be a trench.

Hazardous atmosphere: An atmosphere that may expose employees to the risk of death, incapacitation, impair their ability to self-rescue (escape unaided from a permit-required confined space), injury, or acute illness caused by one or more of the following:

(a) Flammable gas, vapor, or mist in excess of ten percent of its lower flammable limit (LFL) or lower explosive limit (LEL).

(b) Airborne combustible dust at a concentration that meets or exceeds its LFL. The concentration may be approximated as a condition in which the dust obscures vision at a distance of five feet or less.

(c) Atmospheric oxygen concentration below 19.5 percent or above 23.5 percent

(d) Atmospheric concentration of any substance which may exceed a permissible exposure limit. (PEL)

(e) Any other atmospheric condition that is immediately dangerous to life or health.

Training and Resources

Trenching and Shoring training is available in Learning Central and can be assigned to applicable employees' Learning Plans.

Link to: District Shoring and Emergency Response Plan

WAC 296-155 Safety standards for construction work