

1. EXCAVATIONS & TRENCHING

1.1 PURPOSE

Before Contractors start any excavation or trench work they must obtain the necessary permits, review the project and comply with all OSHA and the Florida Department of Labor and Employment Security (DLES). Excavating or trenching must be done in a manner which will not expose employees to possible injury. To inform Contractors of their responsibility while performing excavation and trenching operations at Nova Southeastern University.

1.2 GENERAL

Excavation and trenching activities present a unique set of hazards. The primary hazard associated with excavation and trenching activities is cave-in which may result in entrapment and eventual suffocation of workers in an unprotected excavation.

The OSHA standing for excavation and trenching also sets forth the requirements for shoring and sloping of excavations.

Excavation and trenching hazards include:

damage to underground utilities	egress limitations
cave-ins	water accumulation
hazardous atmospheres	chemical or biological hazards
stability of adjacent structures	fall protection
mobile equipment	

1.3 RESPONSIBILITIES

Contractors shall be responsible for the safety of their employees as well as NSU employees, when performing excavation and trenching activities.

- 1) The Contractor is responsible for providing a “Competent Person” at every excavation site. This individual must be capable of identifying existing and predictable hazards in the surrounding or working conditions which are unsanitary, hazardous, or dangerous to employees and who has the authorization to make prompt corrective measures to eliminate them.
- 2) The “Competent Person” through experience or training must be able to determine the suitability of equipment or materials used for support systems, shield systems, and other protective systems.
- 3) Prior to starting the actual excavation, the Contractor must ensure all underground utility installations in the area (such as electrical, phone, gas, sewage, and water irrigation and fuel lines) have been identified. The Contractor is to contact Facilities Management to request a utility marking.
- 4) Excavation work shall not commence until all underground utilities have been identified and marked.

- 5) The Contractor shall ensure the evaluation of the trenching site by a “Competent Person” who knows and is trained to identify soil types, proper protective systems and hazardous conditions.
- 6) Prior to beginning any trenching operations, all surrounding hazards must be evaluated, including the location of tress, large rocks, buildings and sidewalks. These items should be either removed or made safe.
- 7) The Contractor will place warning signage on all sides of a trench or excavation to prevent pedestrians from crossing the opening.
- 8) Contractors must slope or shore all excavations 5 feet or more in depth, in accordance with OSHA 29 CFR 1926 Subpart P.
- 9) All slopes shall be excavated to the angle of repose. All excavations shall be sloped at an angle not steeper than 34 degrees from the horizontal.
- 10) Excavations which are less than 5 feet in depth may not require sloping or shoring if determined by a “Competent Person” that there is no risk for cave-in.
- 11) When excavations are deeper than 4 feet, the Contractor must provide properly designed means of access and egress (ladders) such that at no time is the employee required to travel more than 25 feet to egress, between ladders. Ladders must extend 36 inches above the top surface of the excavation and used in accordance with the manufacturer’s instructions.
- 12) The Contractor shall ensure there are daily documented inspections of the excavation and the adjacent areas prior to work and as needed during the workday (e.g. after rain). If there are any unsafe conditions, work in the excavation shall stop and personnel removed until the problems are corrected.
- 13) The Contractor shall design the excavation to prevent the accumulation of water in the trench. Contractors shall not permit their employees to work in an excavation where water accumulates.
- 14) The Contractor shall monitor and test the atmosphere within the trench/excavation for oxygen deficiency, flammable gases or other air contaminants as deemed necessary by the “Competent Person”. The Contractor shall provide its own equipment for the testing and the equipment shall be calibrated.
- 15) All protective material and equipment must be checked for any damage.
- 16) Trenches or excavations where there is a hazardous atmosphere without regard to ventilation shall be classified as Permit-Required Confined Spaces. The Contractor will follow the procedures set forth in this manual for Confined Spaces. The Contractor shall provide ventilation for excavations where there is a hazardous atmosphere as determined by testing. The ventilated atmosphere must be maintained below 10% of the lower explosive limit for flammable gases.
- 17) The Contractor shall provide the appropriate respiratory protection and other personal protective equipment in situations where the atmosphere cannot be adequately ventilated for human health.
- 18) The Contractor will identify areas where structural integrity of neighboring facilities may be compromised as a result of excavation activities. The Contractor will notify Facilities Management of any at-risk structures.
- 19) The Contractor is responsible for the design and installation of guardrails or other means of protecting other employees and the public from falling into the excavation.

- 20) Pits, shafts and trenches must be covered or properly barricaded and illuminated.
- 21) When heavy equipment will be operated nearby an excavation, the shoring or bracing shall be able to withstand this extra load regardless of the depth of the excavation. Excavations that will be entered by employees shall have all dirt, debris and excavation material stored or retained at least 2 feet from the edge of the excavation.
- 22) Signs and barricades shall be displayed at all excavation and trenching sites.
- 23) Barricades at least 3 to 5 feet high shall be spaced no further than 10 feet apart and yellow and black "Caution, Do Not Enter" construction tape shall be stretched securely between the barricades.
- 24) For excavations of more than 20 feet deep require the design of a registered professional engineer.
- 25) Excavations must be covered overnight whenever possible.

1.4 REGULATIONS

OSHA 29 CFR 1926 Subpart P	Trenching and Excavations
OSHA 29 CFR 1926.650	Excavations – Scope, Application and Definitions
OSHA 29 CFR 1926.651	Excavations - Specific Excavation Requirements
OSHA 29 CFR 1926.652	Excavations – Requirements for Protective Systems
Florida Department of Labor and Employment Security (DLES)	

1.5 ACCOUNTABILITY

All contactors will be responsible for complying with the guidelines as described above. Contractors are to communicate to their employees and Subcontractors all the guidelines and relevant information. All work shall be performed in accordance with University policies and procedures as well as all applicable laws and regulations.