CSUDH

CALIFORNIA STATE UNIVERSITY, DOMINGUEZ HILLS

Trenching & Excavation Program

MAY 2022

Contents

Scope and Purpose

California State University, Dominguez Hills (CSUDH) is dedicated to protecting the health, safety and wellbeing of students, employees, visitors, and the surrounding community. The scope of this program applies to all CSUDH staff who work in and around a trench/excavation and to all CSUDH staff while performing regularly scheduled or emergency trenching and excavation activities.

The Program complies with Cal/OSHA's requirement as it relates to Title 8, subchapter 4, article 6

California Code of Regulations (CCR), Title 8 Section 1541	https://www.dir.ca.gov/title8/1541.html https://www.dir.ca.gov/title8/1541_1.html

The purpose of this program is to;

1. Ensure that scope is determined as to what CSUDH employees will and wont do when working in or around a trench or excavation.
2. Ensure that each employee is trained and made aware of the safety provisions which are to be implemented prior to the start of work.
3. Set limits for CSUDH employees when working trenches or excavations. Work in Trenches/excavations over 5' will only be performed by an approved outside contractor.

Definitions

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 surfaces between levels.

Cave-in- The separation of a mass of soil or rock material from the side of an excavation, or the loss of soil from under a trench shield or support system, and its sudden movement into the excavation, either by falling or sliding, in sufficient quantity so that it could entrap, bury, or otherwise injure and immobilize a person.

Competent Person- Person who is capable of identifying existing and predictable trenching hazards in the work environment, which are hazardous or dangerous, AND has the authority to stop work or take corrective actions to eliminate these conditions.

Distress – When soil is in a condition where a cave-in is imminent or is likely to occur. Distress is evidenced by such phenomena as the development of fissures in the face of or adjacent to an open excavation; the subsidence of the edge of an excavation; the slumping of material from the face or the bulging or heaving of material from the bottom of an excavation; the spilling of material from the face of an excavation; and raveling, i.e., small amounts of material such as pebbles or little clumps of material suddenly separating from the face of an excavation and trickling or rolling down into the excavation.

Excavation- Cal/OSHA defines an excavation as any man-made cut, cavity, trench, or depression in the earth's surface formed by earth removal.

Faces or sides- The vertical or inclined earth surfaces formed as a result of excavation work

Ingress and Egress- "entry" and "exit," respectively. In trenching and excavation operations, they refer

to the provision of safe means for employees to enter or exit an excavation or trench.

Shoring (Shoring system)- A structure such as a metal hydraulic, mechanical or timber shoring system that supports the sides of an excavation and which is designed to prevent cave-ins.

Sloping (Sloping system)- A method of protecting employees from cave-ins by excavating to form sides of an excavation that are inclined away form the excavation so as to prevent cave-ins. The angle of incline required to prevent a cave-in varies with differences in such factors as the soil type, environmental conditions of exposure, and application of surcharge loads.

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. 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 or less, (measured at the bottom of the excavation), the excavation is also considered to be a trench.

Responsibilities

Department Supervisors;

Supervisors are responsible for implementing the CSUDH Trenching and Excavation Program.

Supervisors will implement the program through:

1. Ensuring that work location health and safety practices related to trenching and excavation are communicated and understood through documented training;
2. Establishing any department specific procedures for equipment maintenance to comply with elements of this program;
3. Ensuring that trenching or excavations greater than 5’ are not entered by CSUDH employees. Any Trench/excavation that requires benching, sloping or shoring will be contracted out.
4. Including compliance with health and safety procedures as part of CSUDH Injury Illness Prevention Program (IIPP);
5. Encouraging employees to report safety concerns without fear of reprisal
6. Verifying that any employee who plans to work in or around trenching operations has been properly trained.
7. A trenching/Excavation hazard assessment will be completed when necessary (appendix A) and
8. Ensuring the competent person for the work being performed has reviewed the hazard assessment.

Competent Person

A competent person is one who can identify existing and predictable hazards in the surrounding or working conditions that are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measure(s) to eliminate them. All competent persons must be trained in trenching and excavation, pass an exam, and be certified for completion of the class.

A competent person should be able to:

1. Analyze soil;
2. Have knowledge in the use of protective systems; and

3. Be able to detect conditions that could result in cave-ins and failures in protective systems; and
4. Recognize hazardous atmospheres and other hazards including those associated with confined spaces

The competent person will also be required to perform inspections

1. Before the start of each shift for any trench/excavation that is 4' or greater (Appendix B).
2. As dictated by the work being performed in the trench
3. After every rainstorm
4. After other events that could increase hazards, such as windstorms, ground thaw, earthquake, dramatic change in weather, etc.
5. When fissures, tension cracks, undercutting, water seepage, bulging at the bottom, or other similar conditions occur
6. When there is a change in the size, location, or placement of the spoil pile
7. When there is an indication of change or movement in adjacent structures.

EHS

EHS is responsible for the following

1. Initial Roll-out of this program
2. Maintaining and reviewing this program and making updates as necessary.
3. Reviewing any trench or excavation that is 4' or greater.
    - EHS has the ability to halt any trench work that is deemed unsafe.

Contractors

1. Contractors working for CSUDH must have their own Cal/OSHA compliant Trenching and Excavation Program.
2. Contractors performing Trenching and Excavation work on campus greater than 4' are required to apply for an annual permit from Cal/OSHA.
    a. CSUDH is a state agency and therefore is not required to apply for or notify Cal/SOHA when performing trenching or excavating operations

Notification for Trench/Excavation 4' or greater

Any trench/excavation that is 4' to 5' will first need to contact EHS at ehs@csudh.edu . This notification will need to be at least 1 business day before the excavation is dug to a depth of 4' or greater. Along with the notification the department shall submit the Trenching/Excavation hazard assessment for EHS review.

EHS will not approve any trench/excavation where benching, sloping or shoring will be required, either because the depth has reached 5' or due to the nature of the trench/excavation.

Appendix A Trenching/Excavation Hazard Assessment

Date Prepared: _____Location: _____Time: _____
Temperature (degrees F): _____Weather Conditions: _____
Supervisor Name: _____Contact #:_____
Competent Person: _____
Project Manager (if applicable): _____
Start Date: _____ Estimated Completion Date:_____

Shift time: _____ _____	Depth =	
Top	W	L
Bottom	W	L

Soil Type	Tested?
□Solid rock (most stable)	☐
□Average soil	☐
□Fill material	☐
□Loose sand	☐

Comments:_____
_____
_____

Trench/Excavation Hazard Identification	Yes	No	N/A
Any underground utilities have been identified	☐	☐	☐
Excavations may possess other physical hazards that include chemical exposure, noise exposure, and excessive heat exposure to employees while working in the excavation space. Before commencing work in an excavation space, evaluate the potential for the exposures & what PPE is required.	☐	☐	☐
Hard hats, protective boots or shoes, goggles, protective clothing, and protective gloves are available and used as required by CSUDH employees entering trenches/excavations, Protective equipment is appropriate for the work being performed and provides adequate protection.	☐	☐	☐
Workers exposed to vehicle traffic must wear reflective vest. In rainy weather, they must wear reflective raingear.	☐	☐	☐
Inspections			
Daily inspections performed (a) every day before work, (b) after every rainstorm, and (c) as needed, for evidence of possible cave-ins, failure of systems, hazardous atmospheres, etc.	☐	☐	☐
There is no accumulated water in trenches or excavations where employees work, unless special precautions are taken. Water is removed safely and monitored by the Competent Person.	☐	☐	☐
There are no tension cracks, sloughing (small cave-ins), or bulging in trench walls or in the ground near trenches or excavation.	☐	☐	☐
There is no bending, buckling, or shoring in the trench or excavation. (If there is any damage, call a registered professional engineer.)	☐	☐	☐

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Appendix B

Trenching/Excavation Daily inspection sheet			
Exact Location:		Date:	
Competent Person:		Time:	
Finding	Good	Repair	N/A
Trench free of standing water			
Trench location marked by banners, barricades			
Is there any changes in soil type or conditions			
Is there evidence of possible cave-in			
Proper walkways provided when employees cross excavation.			
Correct PPE is being worn			
At least 2 feet set backs for all spoil piles from edge of trench			
The air quality in the trench tested if a hazardous atmosphere is suspected			
Ladder extends 3 ft. out of trench and located within 25 ft. of workers in trenches 4 ft. or more in depth.			
All Utilities Located			
Vehicle Control effective around trench			