



Meiners Electric, Company Safety Manual

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LAST REVISION:
December 10, 2019

REVIEWED BY:
L. Kirk Berglund, Safety Director

FORM REF No:
SP-TRENCH

SUBJ: **Excavation, Trenching and Shoring**

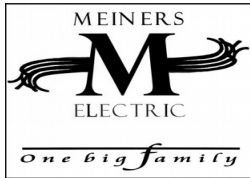
EXCAVATION, TRENCHING AND SHORING

PURPOSE

Some of our contracts involved underground piping, manholes, etc. Whether the ditch or excavation is our responsibility or not, there is still a need for all employees to understand the safety requirements regarding these exposures.

GENERAL RULES

1. Prior to any trenching or excavation operation, 811 Dig shall be contacted and the work location shall be marked for underground services and utilities. When trenching or excavation comes to 18" of a marked service or utility, careful hand digging shall be performed to expose the service or utility. In the event a unmarked service or utility is discovered, Stop Work and notify the client immediately.
2. Only the company assigned competent person shall determine whether excavations, trenches, or cuts are more than 4 feet and whether or not they require shoring or some other method of holdback protection.
3. Excavations shall be inspected daily by the company assigned competent person and **at shift changes** for cracks, slides, and/or scaling. During wet weather conditions (such as rain or snow), and/or other hazardous weather conditions, inspections shall be done more frequently. **Excavations that are near roadways, railroad tracks or areas with heavy equipment movement also warrant additional inspections.**
4. Excavated material and/or other materials (**Spoil Pile**) shall not be placed closer than 2 feet from the edge of the excavation
5. Heavy equipment must be kept back from the edges of all excavations, trenches, or cuts.
6. The access for excavations shall be ladders or steps and shall be located within 25 feet of lateral travel for the employees.
7. Barriers and barricades shall be placed **on all exposed sides** of the excavation to deter the passage of persons or vehicles.
8. In locations where oxygen deficiency is possible, a mechanical blower to provide fresh air may be necessary.
9. Walkways or bridges with standard railings **must be provided** when employees or equipment are required to cross over excavations.
10. The walls and faces of all excavations in which employees are exposed to danger from moving ground **must be guarded** by a shoring system, sloping of the ground, or some other



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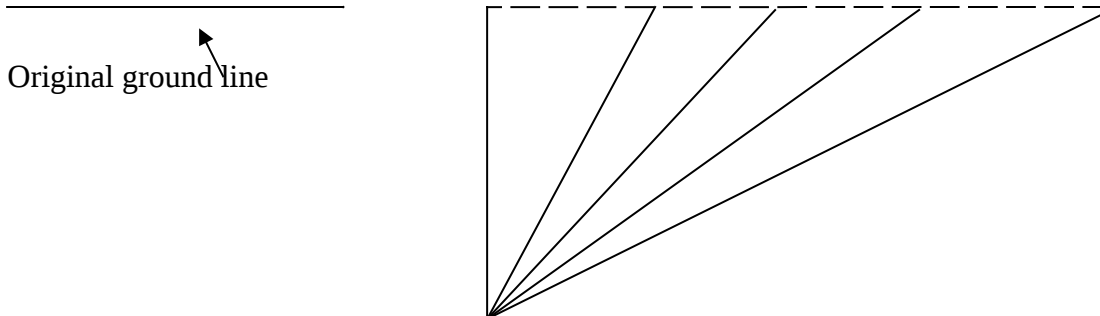
equivalent means.

11. **No person must be permitted** under loads handled by power shovels, derricks, or hoists.
12. **All employees must be protected** with personal protective equipment for the protection of the head, eyes, respiratory system, hands, feet, and other parts of the body.
13. In the event of accumulation of water in a trench or excavation, gas operated trash pumps shall be utilized to reduce water levels to a safe level by a competent person. Additionally, barriers or diversion ditches shall be used to control surface water entering the excavation.
14. The determination of the angle of repose and design of the supporting system shall be based on careful evaluation of pertinent factors, such as:
 - Depth and/or cut/soils classification
 - Possible variation in water content of the material while excavation is open
 - Anticipated changes in materials from exposure to air, sun, water, or freezing
 - Loading imposed by structures, equipment, or overlaying or stored material
 - Vibration from equipment, blasting, traffic, or other sources

Approximate Angle of Repose For sloping of sides of excavations

Note: Clays, silts, loams or non-homogenous soils require shoring and bracing	Solid rock and compact shale (90°)	Compacted angular gravels, glacial till ½:1 (63°26')	Recommended slope For Average soils 1:1 (45°)	Compacted sharp sand 1 ½:1 (33°41')	Well rounded loose sand 2:1 (26°34')
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The presence of ground water requires special treatment





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