



Risk Management Considerations for Shoring of Excavations and Trenches

Background

Every year construction accidents are reported with respect to excavations and trenches not being properly shored. Shoring is the mechanism of supporting the earth fill on the sides of the excavation/trench allowing safe access into the trench. Inadequate shoring can result in equipment falling into the excavation/trench and injury or death to the workers.

Ontario regulation 213/91 defines a trench as an excavation where the depth exceeds the width. If this criteria is not met, then it is referred to as an excavation.

Municipalities are involved in many excavation and trenching jobs across their jurisdiction. Work is performed either by the city roads department or by contractors. The city supervisor for the project is responsible to ensure that safety precautions are followed and that the policies and procedures for excavation and trenching are not circumvented by substitution of materials or alternative procedures without the approval of the project supervisor and the regulators.

Important Factors

The project supervisor must be knowledgeable about:

1. Soil types (i.e. clay, sand, glacial till and their behaviours).
2. Moisture content of the soil.
3. Vibration – transmitted by moving equipment or blasting.
4. Surcharge caused by nearby loads from buildings or equipment.
5. Existing underground and overhead utilities.
6. Weather-rain, thaw, water overflow.
7. Capability of the construction equipment.

Protection from Cave-Ins

There are 3 basic methods to control cave-ins:

1. Slope the side banks of the excavation.
2. Use trench boxes-designed by a professional engineer.

3. Shoring (i.e. sheet piling).

The method chosen is usually dependent on the space available and the stability of the soil.

Policies and Procedures

- The project supervisor should review the policies and procedures for each project.
- Regular site inspections by the project supervisor should be conducted.
- A procedure for substitution of materials or methods must involve all the responsible parties – project supervisor, city permit department, ministry of labour, engineering consultant.
- A procedure for confined spaces should be in place.
- Awareness training of site workers – truck drivers, traffic control persons
- Daily inspection of trench boxes should be checked for cracking of welds, bent or missing struts.
- Ontario regulation 213/91 requires Ministry of Labour notification for any trench deeper than 4'.

Summary

The potential for claims can be mitigated using consistent construction safety practices with respect to excavations and trenches.