

## Safe Work Instruction - Trenching and Ground Support

**DO NOT** use this plant\* or complete this task unless you have been inducted in its safe use and operation by an Authorised Experienced Operator

This SWI may not cover all possible hazards and risks and should be referred to as a control measure in the risk assessment process.  
Additional training may be required for high risk plant/work. Site and task may change required PPE.

### PERSONAL PROTECTIVE EQUIPMENT



Eye protection must be worn



High visibility clothing must worn



Hearing protection must be worn



Foot protection must be worn



Hand protection must be worn



Head protection must be worn

### POTENTIAL HAZARDS AND RISKS

- Electrical Shock or Burn**  
Electrical shock or burn from plant contact with live electrical conductors
- Crushing**  
Crushing due to trench collapse  
Crushing due to plant tipping or rolling over
- Other**  
Exposure to toxic fumes  
Exposure to hazardous chemicals  
Drowning  
Injury due to fall from heights  
Exposure to atmospheric contamination  
Injury due to plant malfunction or misuse
- Manual Task Injury**  
Manual task injury from incorrect manual handling techniques
- Slip, Trips, Falls**  
Slip, trip, fall due to uneven or slippery work surfaces  
Slip, trip, fall due to steep working surfaces
- Exposure to Dust/Fumes**  
Exposure to Dust

### PRE-OPERATIONAL SAFETY CHECKS

- ✓ Complete Site Specific SWMS
- ✓ A second site specific risk assessment must be completed after the trench has been dug to determine any risks with respect to ground conditions and depth of trench
- ✓ Subsequent risk assessments are to be completed if the work activity and/or the method used, conditions or staff change, after collapses or falls of materials and after adverse weather conditions
- ✓ All workers on site shall be involved in planning and preparation. At a minimum, the following shall be considered during the planning and preparation stage
  - Assessment of risks
  - Method to prevent injuries (control measures)
  - Assessment of ground conditions and working environment including past contamination by chemicals and/or toxic waste
  - Suitable and safe access to and from the workplace (*Note: ladder must extend at least 1m above trench*)
  - Area of excavation work appropriately defined, barricades and/or sign posted
  - Work does not affect the structural integrity of adjoining buildings or structures, roads or footpaths, or plans in place to address. For example, replace footpath upon completion of work

- Security of the site when unattended
- Emergency and rescue procedures
- Consider applicability of Confined Space Work requirements

#### Note: Trenching Site Fencing guidelines –

- **Hard Fencing** complete with no gaps or missing panels and joins any existing fencing or structures (Shrubs or trees are not acceptable fencing). *Used to prevent entry during work and after hours where intruder injury or fatality may result.*
- **Hard Fencing panels** are securely clamped together, will not collapse from wind, cannot be crawled underneath and have nothing stacked against for climbing on or over.
- **Entrance gate** has a chain and lock fitted. The chain should not be so long that gates can be opened enough to allow someone or a child to slip through. *Used to prevent entry during work and after hours where intruder injury or fatality may result.*
- **Alternate Fencing** – Parawebbing/Barrier Mesh must be secured to posts/steel pickets at intervals to prevent sagging and access to site/restricted area. Steel pickets must have protective caps on top. *Often used around restoration work, smaller jobs, pedestrian control and where there is minimal possibility of intruder injury.*

- ✓ Work must be examined prior to commencement of work at regular intervals to ensure that the excavation and its supporting systems are stable and intact. The risk assessment should determine the intervals of inspection.
- ✓ Ensure workers have "Dial Before You Dig Plan" before commencement of work and are aware of the position of electricity, gas and water services
- ✓ Always operate within the prescribed safe working distances of overhead power lines, utilising a spotter if required

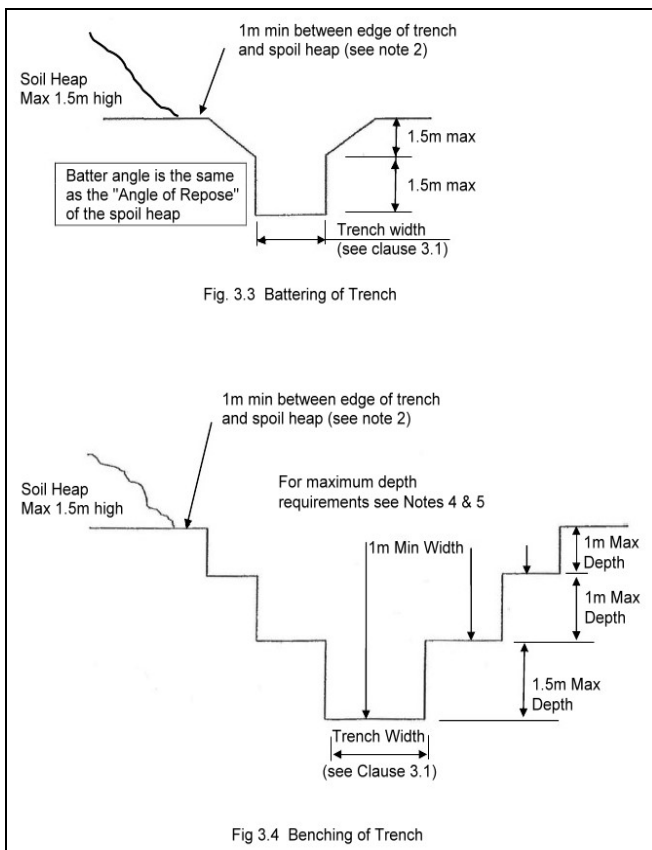
## OPERATING PROCEDURES

### TRENCHES LESS THAN 1.5 METRES IN DEPTH

- ✓ Trenches less than 1.5m in depth should be risk assessed and the following steps taken to prevent possible collapse
  - All pre-excavated material (from old services/trenches etc.) to be removed from trench walls
  - If unable to remove all pre-excavated material, trenches are to be excavated so that they are twice as wide as they are deep, plus pipe O/D (e.g. 240mm pipe, 1.0 metre deep = 2.240 meter wide trench)
  - Pipe to be centrally located in trench
  - Competent observer on-site at all times monitoring hazards and the effectiveness of controls

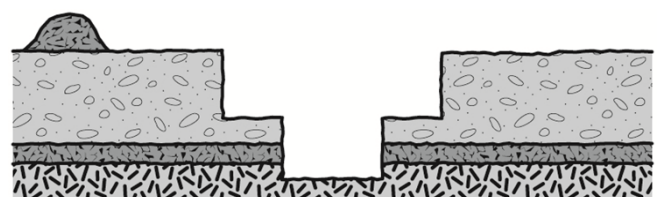
### TRENCHES OVER 1.5 METRES IN DEPTH

- ✓ Any trench over 1.5m in depth requires approved shoring, benching or battering if employees will be required to enter the trench to work/complete tasks.



#### Notes:

1. Providing sufficient open ground is available, benching can be used to meet any depth requirement
  2. Where sufficient ground is available, 1.0m minimum should be maintained between the bottom of the spoil heap and edge of trench, battering or benching.
  3. Trenches up to 3m deep, a 1m minimum width bench can be used. Trenches 4m to 5m deep, special requirements exist (seek advice)
  4. Over 5m deep, geotechnical approval is required.
- ✓ Excavated material should be placed at a minimum 1000mm from the edge of any trench
  - ✓ Shoring shall be used in **WATER CHARGED** ground at all times
  - ✓ If other potential water sources exist which could create the risk of drowning, for example, gravity sewers, sewer rising mains or water pressure mains, isolation procedures are to be followed to prevent ingress into the trench
  - ✓ If liquid is leaking into the trench from a pipe break or rain etc. the liquid should be pumped out to prevent water levels from rising to dangerous levels
  - ✓ If there are static loads within the zone of influence, for example, structures, spoil piles, or plant, consideration should be given to removing or reducing the loads from near the excavation. If this is not possible, additional shoring may be necessary
  - ✓ If there are dynamic loads within the zone of influence, for example, traffic or plant, consideration should be given to providing stops or barriers to prevent the approach of machinery near the edge of excavation
  - ✓ If trench is not battered, a suitable ladder for safe entry and exit shall be used. The ladder shall extend from the base of the trench to at least 1 metre above the top of the trench. The ladder must be secured both top and bottom against movement



**BENCHING**



**BATTERING**

## **ENDING OPERATIONS**

- ✓ Ensure that trenches are properly secured overnight, isolate the area to prevent injury to the public
- ✓ If excavations are less than 1.5m deep, hard fencing should be used unless there is minimal possibility of intruder injury, then the use of well strained Para webbing and star pickets is suitable.
- ✓ For excavations greater than 1.5m deep, hard fencing must be used.
- ✓ Remove ladders when no one is in the trench
- ✓ Immobilise plant to prevent unauthorised use

## **DO NOT**

- ✗ Do not use if plant is faulty. Attach an Out of Service tag and report fault to your supervisor
- ✗ Do not commence excavation prior to completing the SWMS
- ✗ Do not work outside the protection of the ground support system if working in the excavation
- ✗ Do not operate heavy plant and vibrating equipment near the edge of the trench
- ✗ Do not operate motorised equipment (generators etc.) near the edge of the trench as toxic gases may enter the trench

**\*Plant in this SWI refers to any machinery, equipment, appliance, container, implement and tool.**