

Excavations & Breaking Ground

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What is breaking ground?



- Any disturbance of the ground – this even includes driving a fence post, or drilling

Breaking Ground – before you start



- Do you have to ‘break ground’ to carry out the task – avoid it if possible!
- Consult site maps, and service drawings to help identify; power cables, phone & data cables, water & gas pipes and other obstructions.
- Consider the surrounding environment – e.g. would you want a large excavation next to an existing structure?
- Consider the possibility of contaminated ground (check site records)
 - Personal exposure & waste arising disposal

Breaking Ground – before you start



- Before carrying out any work ensure relevant staff (& other site users where applicable) are consulted and are aware of the work being carried out
 - There may be other services you are not aware of and are not shown on your plans
- Consult with service providers if you are unsure of service runs or need additional advice



Breaking Ground – permits



- No breaking ground should be carried out without a permit (or high level risk assessment) being completed
- To complete the permit various actions are required;
- Mark out, on the ground, the area of dig - include a 1 metre boundary around the perimeter so that it can be included in the scan

Permits



- Scan the ground with a service tracing tool (e.g. CAT scanner) – this must be within calibration date and used by a trained operator
 - This tool can be used for a variety of cable detection & the trained operator will know the correct mode
- Mark out on the area any known, or discovered services. Next to the line signify the type of buried service – e.g. E for electricity, G for gas, W for water or S for other service
- List any control measures for contaminated ground or suspected munitions



Permits



- Ensure the machine operator is aware of the significance, and location, of the services
- The machine operator and site responsible person must sign the permit before excavation starts

Carrying out the excavation



- Isolate any services crossing the area if reasonably practicable
- Where services are known or suspected a trial hole will be hand dug (using non-powered, insulated, hand tools) to expose the service, so that it can be properly identified & protected
- The remainder of the identified service will either be left in situ, or hand dug to expose it all

Emergency Plan



- Consider a banksman to inspect the area being exposed if services are suspected
- An emergency plan should be in place before the excavation starts – this will include contact details for
 - Service providers
 - Brett management

Emergency Plan



- In the event of an electricity cable being struck and exposed to the wiring - if the operator is in a rubber tyred excavator they should remain in the cab and either track away from the service or call for aid
- In the event of striking any other service the excavation should immediately stop and local management contacted
- You should prevent any other people coming into the area.

Excavations;

- Neither the shallowness of an excavation or the appearance of the ground should be automatically taken as indications of safety.
- Check the soil types and decide which type of support system is required in consultation with a competent person before the excavation starts.
- Erect suitable barriers to guard the excavation to prevent access by unauthorised persons.



Excavations



- Ensure that adequate and sufficient ladders are provided for safe access
- Ensure mobile plant is not parked next to an excavation; the weight of the plant could cause a collapse and the exhaust gases can enter the excavation reducing the oxygen content.
- Additionally do not store butane, propane or other gases denser than air next to an excavation
- Any haul routes or pedestrian routes are directed away from excavations

Excavations



- Material is not stockpiled adjacent to excavations.
- Vibrating compaction equipment is not used near any excavations if there is a possibility of the vibration causing collapse.
- If there is any doubt about the quality of the atmosphere within the excavation a gas detector is used prior to entry, this must have a current calibration certificate.



Excavations



- An inspection of the excavation is made prior to access each day & is recorded . As a minimum this includes;
 - Ensure all support systems are secure and properly maintained.
 - Check for signs of overstress in the support system or any damage that may have been caused by plant.
 - Check for any water or soil that may be seeping through the support system (Re-inspect after heavy rain).
 - Check for signs of earth peeling or cracking at unsupported faces
 - Check that there are adequate ladders, that they are maintained, secured and used correctly.
 - Check that any gas detector being used is working correctly

Excavations



- Any faults detected are reported to the Site Manager immediately and work is stopped until deemed safe.
- Reports are to be kept available for inspection by HSE inspectors at site until work is completed & then for 3 months

Excavation check sheet example

Sample Excavation Checklist:

To be completed by Competent Person:

Daily and before each shift

After any precipitation, windstorm, thaw, vehicular movement or other activity that might increase hazards

When fissures, tension cracks, sloughing, undercutting, water seepage, bottom bulging, or other similar circumstances occur

When there is any change in the size, location or placement of the spoil pile

When there is any indication of change or movement in adjacent structures

Surface Conditions

- No Cracks or Cracking
- Spoil piles set back 2 feet from edge
- No equipment or materials stored near edge
- Water in excavation pumped out
- No sources of vibration

Shoring and Shielding

- In place
- Appropriate for loads expected
- Hydraulic cylinders, if used are not leaking

Existing Utilities

- Support adequate
- Utilities identified and protected

Vehicular Traffic

- Eliminated in area of Excavation

Spoil Piles

- Temporary Pile at least 2 feet from excavation
- Permanent Pile location and transportation means identified prior to initiating excavation
- Any water leaking from Temporary Pile directed away from excavation

Access and Egress

- Trench access every 25 feet
- Stairs, ladders, and ramps set properly
 - Extend 36" above excavation
 - No metal ladders near electrical lines

Banks and Sides of Slope or Trench

- No Cracks or Cracking
- No Spalling
- Slope of 1.5 (width) to 1 (depth)

Sources of fumes or gases

- Eliminated in area of Excavation

Surface Crossing

- Prohibited unless
 - Rated for 4 times expected load
 - Minimum 20" wide
 - Fitted with Railings at base and 36" height
 - Extend 24" past trench walls on each side

Any other potential hazards: _____

Note Weather conditions: _____

Name: _____

Signature: _____

Date: _____

Excavation Purpose: _____

Summary



- Ensure adequate planning takes place before any excavation begins
- Consider the surrounding environment
- Carry out a permit for any 'breaking ground'
- Ensure any excavation is adequately supported
- Keep others away
- Carry out regular inspections