

Excavations and Buried Services

Collapse, buried services and confined spaces · a cubic metre of soil weighs more than a tonne

Scope and limitations — read before use

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1. Excavation collapse

A collapse does not have to be deep to kill. A person buried to the chest cannot breathe against the weight of the soil. Collapses happen without warning and rescue rarely succeeds in time.

Control	Detail
Support, batter or step the sides	Trench boxes, sheeting and props, or cut the sides back to a safe angle. Decide before digging, not after.
Never enter an unsupported excavation	Whatever the depth, whatever the soil, however brief the task.
Keep loads back from the edge	Spoil, plant, materials and vehicles at least a distance equal to the depth back from the edge. Spoil surcharges the sides.
Safe access and egress	A secured ladder within reasonable reach of any person working in the excavation.
Edge protection	Barriers around the excavation to stop people and vehicles falling in.
Inspection	By a competent person before each shift, after any event likely to affect stability, and after any accidental fall of material. Recorded.
Water	Pump out and reassess. Water dramatically weakens the sides.
Nearby structures	Check that the excavation will not undermine footings, walls or poles.

2. Buried services — safe digging per HSG47

Striking a live cable or a gas main kills and maims. The method is plans, locate, mark, dig carefully — every time, not just when you expect something.

Step	What to do
1. Plans	Obtain service plans from every utility for the area before work starts. Plans are a guide only and are frequently inaccurate.
2. Locate	Scan with a cable avoidance tool and signal generator (CAT and genny) by a trained user. Scan repeatedly as the dig progresses, not just once at the start.
3. Mark	Mark the located routes on the ground.
4. Dig carefully	Hand dig trial holes to confirm position and depth before machine digging. Use insulated tools. Dig alongside the service, not directly over it.
5. Assume the worst	Treat every service as live. Watch for marker tape, tiles, ducting and backfill that looks different.
6. Support and protect	Support exposed services. Never use them as steps or hand holds.

Service	Usual colour	Notes
Electricity	Red or black ducting, red marker tape	Assume live. Arc flash can kill without contact.
Gas	Yellow	Evacuate and call the emergency number on any suspected strike. No ignition sources.
Water	Blue	Flooding can cause collapse.
Telecoms	Grey, green or white	Rarely dangerous but very expensive.
Sewer and drainage	Black or brown	Confined space and biological hazards.
Fuel and high pressure	Varies, often marked	Specialist controls. Stop and get advice.

Colours are a guide only and older installations vary. Never rely on colour alone.

3. Confined spaces

Manholes, deep chambers, sewers, tanks and some deep excavations can be confined spaces under the Confined Spaces Regulations 1997. People die in them every year, and rescuers die trying to help.

- Do not enter unless there is no reasonably practicable alternative.
- Where entry is unavoidable there must be a safe system of work, normally under a permit, with atmospheric testing, ventilation, communication and a rescue plan that does not depend on the emergency services arriving.
- This is specialist work. If you are not set up for it, do not do it.
- Never enter to rescue somebody without the right equipment. Most confined space deaths include would-be rescuers.

4. Excavation inspection record

Required before each shift and after any event affecting stability.

Date and time	Location / depth	Support method	Sides stable? Y/N	Access safe? Y/N	Edge protection? Y/N	Water? Y/N	Services protected? Y/N	Safe to work? Y/N	Inspected by

5. Permit to dig

Field	Entry
Location and extent of dig	
Date and duration	
Service plans obtained? (utilities, dates)	
CAT and genny scan by (name, trained? Y/N)	
Services located and marked	
Trial holes dug? Y/N	
Support method for the excavation	
Spoil placement agreed	
Edge protection and barriers	
Access and egress	
Confined space? Y/N — if yes, permit ref	
Emergency arrangements	

Permit issued by	Work supervisor	Date	Permit closed (date and signature)