Toolbox talk

Underground services

Plan, locate, mark, dig with care

10 minutes

For: Anyone who digs, breaks ground, drives pins or stakes, or operates an excavator on site

Why it matters

Buried electricity cables, gas pipes and water mains can kill or seriously injure if they are hit. HSE guidance says plans alone are not enough to find services, and the absence of records is never proof that the ground is clear. A safe system has three parts: plan the work, locate and identify services, and dig safely.

Key points

1. Get and review plans of all buried services before work starts.
2. Plans only show roughly where services are. Never take depths or distances from them.
3. No plans does not mean no services. Dig as if services are there.
4. Trace services with a cable locator (CAT) and signal generator (Genny) used by a trained person.
5. Mark the line of services with crayon, chalk or paint. Re-check with the locator as you dig.
6. Dig trial holes by hand to confirm the position and depth of a service.
7. Site rule: powered digging stays 500 mm clear; agree any greater owner clearance.
8. Treat every service as live until it is disconnected and proven safe at the point of work.

Underground services

Do

- Dig alongside the service, not straight on top of it.
- Expose services the last bit of the way by digging sideways, not down.
- Use insulated tools when hand digging near electric cables.
- Ease spades in with gentle foot pressure.
- Treat any service you can't identify as a live electricity cable or gas pipe.

Don't

- Don't rely on plans or colour alone to tell you what a service is.
- Don't throw or spike a spade into the ground near services.
- Don't use picks in soft clay or soft soils near services.
- Don't use a mechanical excavator within 500 mm of a gas pipe.
- Don't drive stakes or pins directly above marked services.

Ask the group

- What plans do we have for this dig, and who has checked them against the locator survey?
- Who on this team is trained to use the CAT and Genny, and when was it last checked?
- What would you do if you found a service that isn't on the plans?
- What are the colour codes for UK services, and why can't we trust them on their own?

If it goes wrong: After a cable strike, stay in the cab, keep others away and contact the network operator. Call 999 for injury or fire. For a gas escape, move clear and avoid ignition sources. Call 0800 111 999 (GB) or 0800 002 001 (NI) from safety.

On this site

Nearest first aider _____ Emergency assembly point _____

Site-specific hazards and controls _____

_____

Sources: HSE: Avoiding danger from underground services (HSG47); HSE: HSG47 publication page; HSE: Electricity - underground cables (construction).

This talk supports, but does not replace, your site-specific risk assessment, method statement, training and supervision. Free to copy and use. **tradefoxapp.com/toolbox-talks/underground-services**

Attendance register

Underground services

Site / project

Date and time

Presented by

Company

	Name (print)	Company	Signature
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			

By signing, attendees confirm they took part in this toolbox talk and understood the key points. Keep this record with your site safety file.

Presenter signature

Follow-up actions

Quick check

Underground services

Tick one answer for each question. Your presenter has the answers.

Name _____ Date _____

1. There are no service records for the area. What should you assume?

- [ ] There are no services
- [ ] Services could be there, so dig as if they are
- [ ] Only water pipes are present

2. What is the minimum powered-digging clearance in this talk's site rule?

- [ ] No closer than 500 mm
- [ ] No closer than 100 mm
- [ ] Right on top if you are careful

3. When is a buried service safe to treat as dead?

- [ ] When it looks old
- [ ] When the plans say it's abandoned
- [ ] When it is disconnected and proven safe at the point of work

4. Where should you dig in relation to a located service?

- [ ] Directly above it
- [ ] Alongside it
- [ ] It doesn't matter

5. You smell gas after hitting a pipe. What do you do first?

- [ ] Try to tape it up
- [ ] Carry on and report it later
- [ ] Get everyone away and call the gas emergency number 0800 111 999

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For the presenter

Answers and sources

Quick check answers

1. Services could be there, so dig as if they are

HSE says the absence of records is never proof the area is free of services.

2. No closer than 500 mm

This talk uses a conservative site rule. HSG47 has task-specific 500 mm guidance and exceptions; agree the method and owner requirements.

3. When it is disconnected and proven safe at the point of work

HSE says assume all services are live until disconnected and proven safe at the point of work.

4. Alongside it

HSE says excavate alongside the service rather than directly above it.

5. Get everyone away and call the gas emergency number 0800 111 999

HSG47 says do not attempt repairs, evacuate the area and call 0800 111 999.

Sources

- HSE: Avoiding danger from underground services (HSG47)
  https://www.hse.gov.uk/pubns/priced/hsg47.pdf
- HSE: HSG47 publication page
  https://www.hse.gov.uk/pubns/books/hsg47.htm
- HSE: Electricity - underground cables (construction)
  https://www.hse.gov.uk/Construction/safetytopics/underground.htm

> **Presenting tips:** keep it to about 10 minutes, use real examples from your site, ask the group questions rather than reading everything out, and record attendance on the register.

Every service is live

1. Plans, then CAT and Genny
2. Hand dig near marked services
3. No power tools within 500 mm

Underground services toolbox talk

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Every service is live

1. **Plans, then CAT and Genny**
2. **Hand dig near marked services**
3. **No power tools within 500 mm**

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Sources and qualifications

Underground services

Scope: Great Britain safety legislation unless a nation is identified. Northern Ireland has separate legislation. Site rules can be stricter than minimum legal duties; use the site assessment, instructions and competent supervision.

A4 interface: locating/protecting existing cables and correct isolation. The 500 mm site rule is not an A4 burial-depth requirement. HSG47 and the service owner govern the excavation method.

A4 basis: published IET guidance on BS 7671:2018+A4:2026. The full licensed standard was not available for clause-by-clause verification. This is an editorial/source review, not installation certification. IET: current edition.

S1. HSE HSG47: Avoiding danger from underground services

Plans/locators/safe digging, trial holes and strike response. See paras 104-109 and 150 for the qualified 500 mm guidance; not a cable burial-depth rule.

https://www.hse.gov.uk/pubns/priced/hsg47.pdf

S2. HSE: Underground cables

Planning, finding cables and safe digging; talk sheet, Do/Don't and quiz. The talk's blanket 500 mm clearance is an explicit conservative site rule.

https://www.hse.gov.uk/construction/safetytopics/underground.htm

S3. nidirect: Energy and utilities

Northern Ireland gas emergency contact; emergency box. GB gas emergency is also recorded in HSG47.

https://www.nidirect.gov.uk/articles/energy-power-supply-and-utilities

Presenter qualification: The 500 mm clearance in this talk is a conservative site rule. HSG47 contains task-specific qualifications and exceptions; an agreed method and any greater service-owner clearance remain essential.