Zero incidents
Zero harm
Zero compromise
Keeping you healthy and safe, every day at work.

ESSENTIAL STANDARD no.27

Utility Management

Thames Water

Gas Mains

Damage to gas pipes can cause toxic and explosive atmospheres. Various materials are used for gas pipes such as cast iron, steel and plastic. Modern plastic pipes are bright yellow. Cast iron gas pipes look similar to cast iron water pipes and therefore any cast iron pipe must be treated as a gas pipe unless evidence is available stating otherwise.

If heavy plant has to cross a gas pipe, keep the crossing points to a minimum and clearly mark them. Where necessary use sleepers, steel plates or a reinforced concrete slab where the service crosses unmade ground to protect assets from failure due to excessive additional load/ground movement.

Consult the gas company if welding or hot work is proposed adjacent to gas pipes or surface plant. Provide suitable and sufficient protection to prevent damage to plastic or coated pipes from heat sources.

Water Mains

Refer to *Essential Standard 26* for any excavation works on or around live mains.

5. Communication

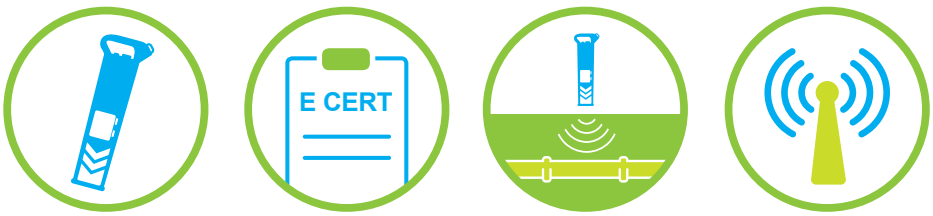
The responsible person in charge of the excavation must brief the permit detail to the work gang who are to complete the works and check that everyone understands. This must include the necessary control measures to be complied with, the associated Risk Assessment and method statements. Record the communication.

Before starting work, the responsible person must ensure that all control measures are in place, and that the precautions detailed in the permit have been taken.

6. Scanning Devices/Techniques

The **minimum** standard scanning tool shall comprise:

- CAT that has immediate data capture to an online system
- Avoidance Mode (A)
- Genny Signal Locate (G)
- Power Signal Locate (P)
- Radio Signal Locate (R)
- Small Ø Locate Frequency
- eCert
- Dynamic Overload Protection
- Depth Estimation
- Genny (Signal Generator)
- Signal Clamp
- Live Cable Connection



You can use ground probing radar as support, but not as a replacement, if deemed necessary by a specific risk assessment for high risk areas such as where a high density of services are known or expected.

The nominated person must ensure all equipment is maintained and calibrated in line with manufacturer's instructions.

Re-scan the area at suitable intervals (150mm layers) when excavating.

7. Identification of Underground Services

Utility companies use a colour-coding scheme to identify apparatus and warning markers. However, it's important to remember that the apparatus may have been buried before the introduction of the universal colour scheme, therefore it is not always safe to assume, or expect, that the apparatus is compliant with the scheme. The current underground service colour-coding scheme is detailed below.

Utility	Duct	Pipe or Cable	Marker or Tape
Gas	Yellow	Yellow	Yellow with Black Legend
Electricity	Black	Black or Red for Some HV	Yellow with Black Legend
Water	Blue	Blue	Blue
Water (Special)		Blue with Brown Stripes	
Sewerage		Black	
Telecommunications	White or Grey	Light Grey or Black	Yellow with Blue Legend
Communications	Grey or Green		White with Blue Legend or Green and Yellow
Street Lighting Scotland	Purple	Purple	Yellow with Black Legend
Street Lighting England & Wales	Orange	Black	Yellow with Black Legend
Communications (Motorway) Scotland	Black or Grey	Black	Yellow with Black Legend
Communications (Motorway) England & Wales	Purple	Grey or Black	Yellow with Black Legend

8. Marking Up Underground Services

Note and mark the line of any identified underground services with waterproof crayon, chalk or paint on paved surfaces (using biodegradable paint or erasing residual markings as far as possible after excavation), or with **wooden pegs** in grassed or unsurfaced areas. Metal road pins are not permitted.

9. Trial Holes

After identifying the approximate location of underground services using all the available information, the authorised person must ensure trial holes are carefully dug by hand to establish the exact location and depth of the underground services throughout the proposed excavation area. Consider taking photos of the area before, after and during trial holing. A Trial Hole Record Sheet should be available to record the findings of trial hole activities.

Where trial holes are required to expose a service, the service should be positively identified. This means the service should be exposed so that:

- It is visible to establish the type, colour and material is consistent with the service expected;
- Its full circumference is visible to confirm the size is consistent with the service expected; and
- Adequate checks are made to ensure no new services have been laid adjacent to a redundant one e.g. by inducing a signal into the service.

It should not be assumed that underground services follow a straight line or are at a consistent depth between trial holes.

10. Training and Competence

A competent person must supervise all works around underground apparatus. Give people working in excavations clear instructions on how to work safely.

Thames Water requires the responsible person/ supervisor to have an appropriate level of competence (training and experience) to supervise any breaking ground activity - SSSTS/SMSTS (for visiting supervision), or IOSH Managing Safely and where undertaking any street works NRASWA training appropriate to their level.

In addition, all persons breaking ground will require Proqual Level 2 training or equivalent in service avoidance.

11. Monitoring and Supervision

Before starting work on a TW contract for the first time, an approved competent supervisor must be present to ensure that persons under their control understand the requirements of any relevant safe systems of work i.e. method statements and risk assessments, and that they have the appropriate plans, records, equipment and materials to carry out the work safely.

The lead person/operator and team must continually monitor the site for changing conditions throughout the duration of the work. Record all monitoring. Suspend work and perform or review a point of work risk assessment for any significant changes before continuing. Record changes on the permit, or reissue the permit as necessary. Install any additional safety controls before recommencing work. Check and record findings from data logging records regularly to ensure compliance regarding the accurate/regular use of service avoidance equipment.

12. Emergencies

Make emergency arrangements to deal with any contingency relating to the work. Identify emergency contacts (including telephone numbers) who must make contact with the Service Provider and the Emergency Services (where appropriate) in the event of a damaged service or other emergency.

Identify specific actions to deal with the danger relating to the type of service e.g. gas leaks would involve evacuating the immediate vicinity, prohibiting smoking, naked flames, or ignition sources, contacting the Service Provider, contacting the Police and Fire Service, advising local occupants and generally assisting as directed by the Service Provider or Emergency Services.

Consider first aid arrangements where appropriate. Instruct all personnel to be aware of the actions needed in the event of any emergency including any degree of damage to a service.

13. Incident/Near Miss Reporting and Investigation

Report all underground apparatus strikes through Safeguard. Perform a full investigation on any strike on electrical services and conduct an MD led call within 24hrs. Perform an executive incident review for all significant incidents with the potential for loss or injury. Following a service strike the team must undergo a drug and alcohol test at the very fist opportunity following the incident