

# Utility Search Report

**Site Name:** Milton Road

**Reference:** S260386

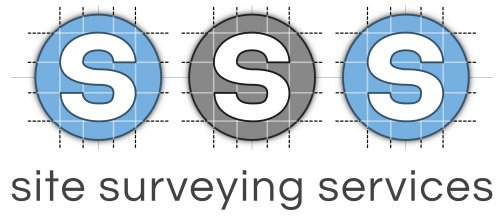
**Address:** Milton Road, Radcliffe, Bury, M26 3QY

**Date:** 01/05/2026



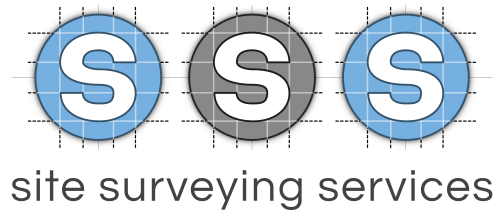
site surveying services

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| Basic Search                  |               |                                                                                      |
| Utility                       | Attached      | Comments                                                                             |
| Gas                           | Yes           |                                                                                      |
| Electricity                   | Yes           |                                                                                      |
| Water                         | Yes           |                                                                                      |
| Sewer                         | Yes           |                                                                                      |
| BT                            | Yes           |                                                                                      |
| Linesearch                    | Yes           |                                                                                      |
| Cable Search                  |               |                                                                                      |
| Virgin Media                  | Yes           | Formerly Telewest & NTL                                                              |
| Vodafone                      | Yes           | Formerly Cable & Wireless                                                            |
| EXA                           | Not affected  | Formerly Interoute, Vtesse & GTT                                                     |
| Colt                          | Yes           |                                                                                      |
| County Broadband              | Not affected  |                                                                                      |
| Cityfibre                     | Yes           |                                                                                      |
| Last Mile                     | Not affected  | Formerly Energetics                                                                  |
| Bring Energy                  | Not affected  |                                                                                      |
| EU Networks                   | Not affected  |                                                                                      |
| Lumen Technologies            | Yes           | Includes CenturyLink, Global Crossing, Global Crossing PEC, Fibrenet UK & Fibrespan. |
| KCom                          | Not affected  |                                                                                      |
| Wight Fibre                   | Not affected  |                                                                                      |
| Sky                           | Yes           |                                                                                      |
| Sota                          | Yes           |                                                                                      |
| Arelion                       | Not affected  | Formerly Telent                                                                      |
| Verizon                       | Yes           |                                                                                      |
| Independent Utilities         |               |                                                                                      |
| Harlaxton                     | Not affected  |                                                                                      |
| UK Power Distribution         | Not affected  |                                                                                      |
| Albion Water                  | Not affected  |                                                                                      |
| Last Mile                     | Not affected  | See Cable Section.                                                                   |
| ES Pipelines                  | Yes           |                                                                                      |
| Fulcrum                       | Yes           |                                                                                      |
| GTC                           | Yes           |                                                                                      |
| SSE                           | Not affected  |                                                                                      |
| Utility Assets                | Not affected  |                                                                                      |
| Energy Assets                 | Not affected  |                                                                                      |
| Leep Utilities                | Not affected  |                                                                                      |
| Icosa Water                   | Not affected  |                                                                                      |
| Eclipse Power                 | Yes           |                                                                                      |
| Transport                     |               |                                                                                      |
| NRTSCO (Highways Comms')      | Not affected  |                                                                                      |
| Highways Loops                | Not affected  |                                                                                      |
| HS1 Rail                      | Not affected  |                                                                                      |
| HS2 Rail                      | Not affected  |                                                                                      |
| London Underground Structures | Not affected  | Includes Crossrail                                                                   |
| London Underground (TFL)      | Not affected  | Traffic Control Equipment                                                            |
| London Underground (LULHV)    | Not affected  | High Voltage Cables                                                                  |
| Network Rail                  | Yes           |                                                                                      |
| Manchester Metrolink          | Not affected  |                                                                                      |
| Additional Searches           |               |                                                                                      |
| Council Street Lighting       | Not requested |                                                                                      |
| Council Drainage              | Not requested |                                                                                      |



# SITE PLAN





# GAS

**From:** plantprotection@cadentgas.com  
**Sent:** 23 April 2026 16:04  
**To:** Stats-Search.co.uk Ltd  
**Subject:** LSBUD Ref: 41286000 Your Ref: S260386 Medium Risk  
**Attachments:** 41286000\_CadentGas.pdf

Date: 23/04/2026  
LinesearchbeforeUdig ref: 41286000  
Your ref: S260386

Dear Sir/Madam,

**Your planned works may proceed with caution.**

We have received a notification from the LinesearchbeforeUdig (LSBUD) platform regarding your plans to carry out works. Based on the information you provided:

**Although there are Cadent gas pipes in the area you're planning to work, you can proceed with your planned work with caution and in line with the guidance. This outcome is based on the information you gave us. If your plans change, or you are unable to work to the guidance please let us know as soon as possible so we can work with you to find a solution.**

**If your works are being carried out in an easement, please ensure that you contact us to obtain formal, signed written consent which will only be provided following consultation with our plant protection team.**

Please find enclosed a copy of our plans for the area and ensure you follow our key guidance document [Specification for Safe Working in the Vicinity of Cadent Assets](#).

**What you need to do**

**BEFORE** carrying out any work you must:

- Carefully read the guidance documents and maps showing the location of our gas apparatus.
- Contact the landowner and ensure any proposed works in private land do not infringe on Cadent's legal rights (i.e. easements or other rights). If the works are in the road or footpath, the relevant local authority should be contacted.
- Ensure that all persons, including direct labour and contractors, working for you on or near Cadent apparatus follow the requirements of the HSE Guidance Notes HSG47 'Avoiding danger from underground services'. This guidance can be downloaded free of charge at [www.hse.gov.uk](http://www.hse.gov.uk)
- In line with the guidance, verify and establish the actual position of gas mains, pipes, services and other apparatus on site before any activities are undertaken.

**DURING** any work you must:

- Comply with all guidance and any further guidance from our specialist team.
- Ensure that access to Cadent apparatus is maintained at all times.
- Prevent the placing of heavy construction plant, equipment, materials or the passage of heavy vehicles over Cadent apparatus unless specifically agreed with us in advance.
- Exercise extreme caution if slab (mass) concrete is encountered during excavation works as this may be protecting or supporting Cadent apparatus.
- Maintain appropriate clearances between gas apparatus and the position of other buried plant.

This outcome is valid for 28 days from the date of this letter. If your work, or the location, date or nature of the work you're doing changes, you must submit another enquiry.

If you need any further information or have any questions about this letter, please contact us at [plantprotection@cadentgas.com](mailto:plantprotection@cadentgas.com) or on **0800 688 588** quoting your reference at the top of this letter.

## Your responsibilities and obligations

It is your responsibility to ensure that the information you have given us is accurate. You must also share all relevant documents, including the guidance notes, with anyone who carries out work on your behalf.

This assessment solely relates to Cadent gas pipes. It doesn't include:

- Cadent's legal interest (easements or other rights) in the land which restricts activity near Cadent's pipes in private land. You must get details of any such restrictions from the landowner in the first instance and if in doubt contact us on **0800 688 588** or at
- Gas service pipes and related apparatus.
- Recently installed apparatus.
- Apparatus owned by other organisations such as other gas distribution networks, local electricity companies and other utilities.

It is your responsibility to consider whether the points above are relevant to you and whether they could be affected by your proposed work.

This letter does not constitute any formal agreement or consent for any proposed development work either generally or related to Cadent's easements or other rights, or any planning or building regulations applications.

Cadent Gas Ltd or their agents, servants or contractors do not accept any liability for any losses arising under or in connection with this information. This limit on liability applies to all and any claims in contract, tort (including negligence), misrepresentation (excluding fraudulent misrepresentation), breach of statutory duty or otherwise. This limit on liability does not exclude or restrict liability where prohibited by the law nor does it supersede the express terms of any related agreements.

### Kind Regards,

Plant Protection Team

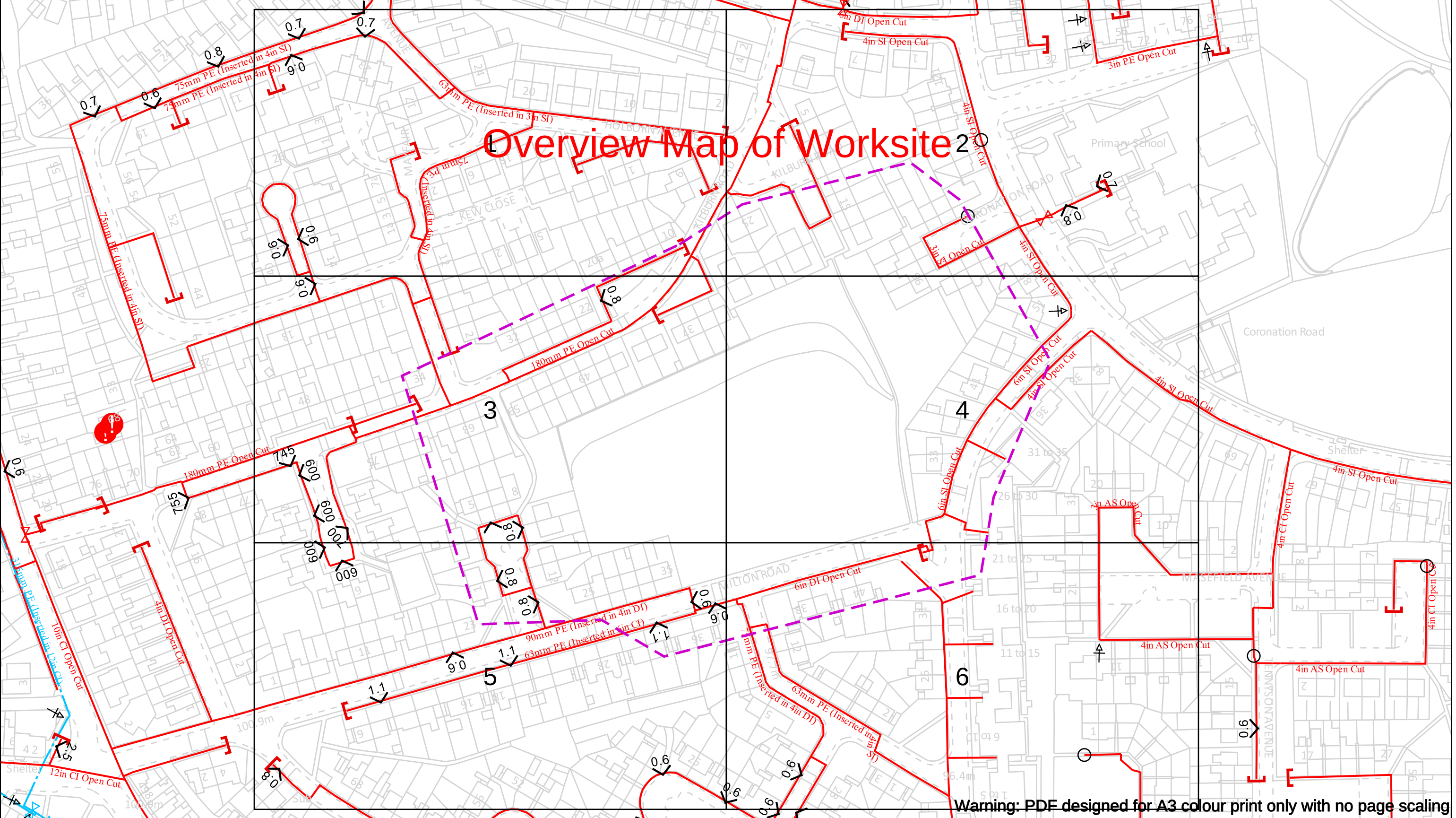
T: 0800 688 588

plantprotection@cadentgas.com

[cadentgas.com](https://www.cadentgas.com)

**We work together** | **We take responsibility** | **We drive performance** | **We shape the future**

**Keeping people warm, *while protecting the planet***



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Date Requested: 23/04/2026  
Job Reference: 41286000  
Site Location: 377099 407730  
Requested by:  
Mr James Sloan  
Your Scheme/Reference:  
S260386

Scale: 1:1537 (When plotted at A3)

View extent: 200m, 115m

**IMPORTANT NOTICES**

This plan shows these pipes owned by Cadent Gas Limited in its role as a Licensed Gas Transporter (GT). Gas pipes owned by other GT's or otherwise privately owned may be present in this area. Information with regards to such pipes should be obtained from the relevant owners. The information shown on this plan is given without warranty, the accuracy thereof cannot be guaranteed. Service pipes, valves, syphons, stub connections etc. are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Cadent Gas Limited or their agents, servants or contractors for any errors or omission. Safe digging practices, in accordance with H5(G)47, must be used to verify and establish the actual position of mains, pipes, services and other apparatus on site before any mechanical plant is used. It is your responsibility to ensure that this information is provided to all persons (either direct labour or contractors) working for you on or near gas apparatus. The information included on this plan should not be referred to beyond a period of 28 days from the date of issue.

**In case of an emergency call 0800 111 999**

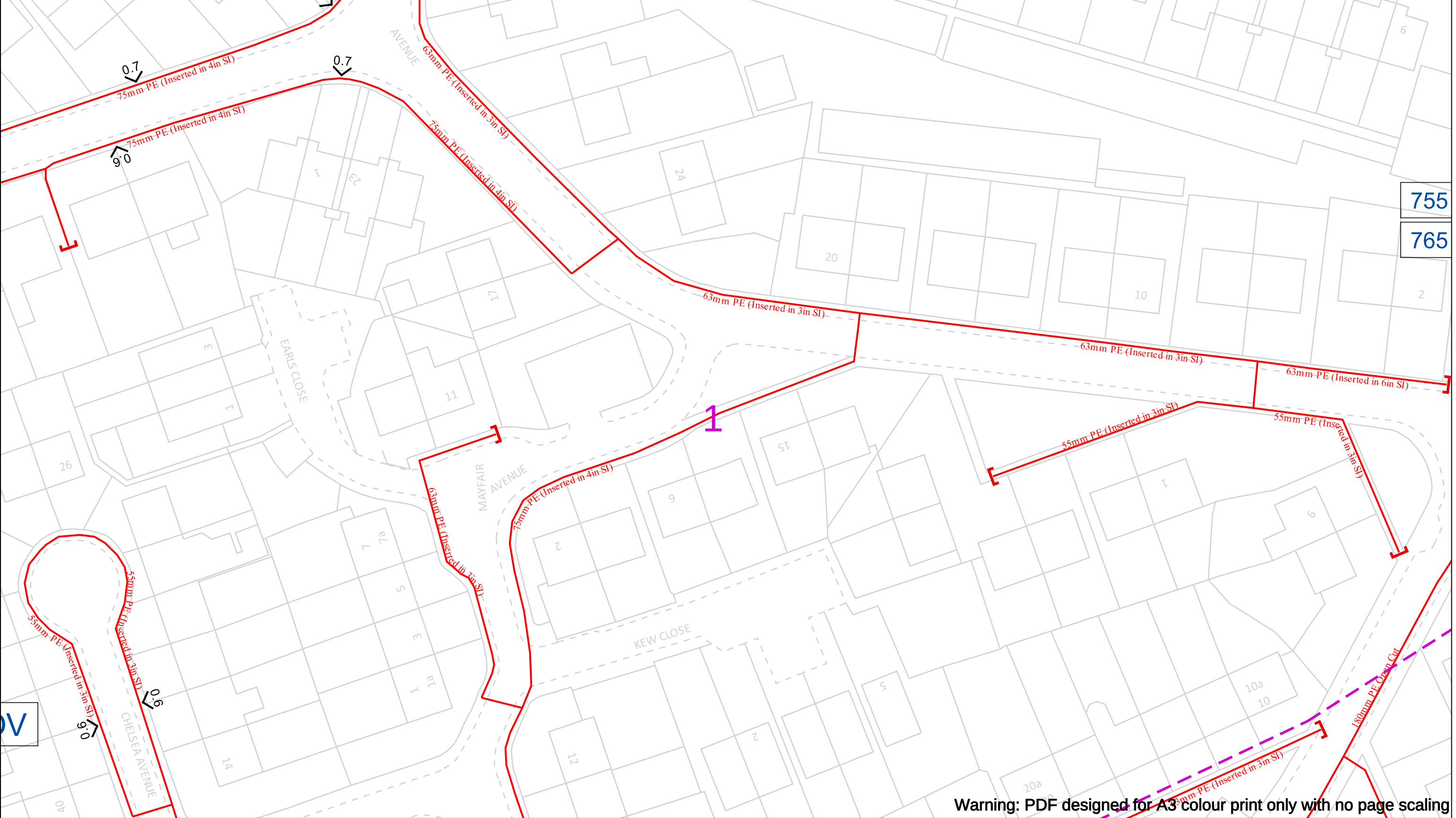
|  |           |  |                |  |                         |
|--|-----------|--|----------------|--|-------------------------|
|  | LP Mains  |  | Area:          |  | Line:                   |
|  | MP Mains  |  | Valve          |  | Diameter Change         |
|  | IP Mains  |  | Depth of cover |  | Material Change         |
|  | LHP Mains |  | Syphon         |  | Out of Standard Service |

Where an out-of-standard service is present please contact plant protection 0800 688 588 for further information. Out-of-standard service symbology may be used to indicate one or more of the following:

- Identification of shallow services
- Identification of dual services
- Recording of non-perpendicular services

A perpendicular service/connection is laid in a straight line from the entry point at the property to the connection at the main – this includes a pipe that has a perpendicular connection and is not straight but does not deviate more than 1m off centre line.

Your Gas Network



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Dig Sites

LP Mains

MP Mains

IP Mains

LHP Mains

Area:

Valve

Depth of cover

Syphon

Line:

Diameter Change

Material Change

Out of Standard Service

50m

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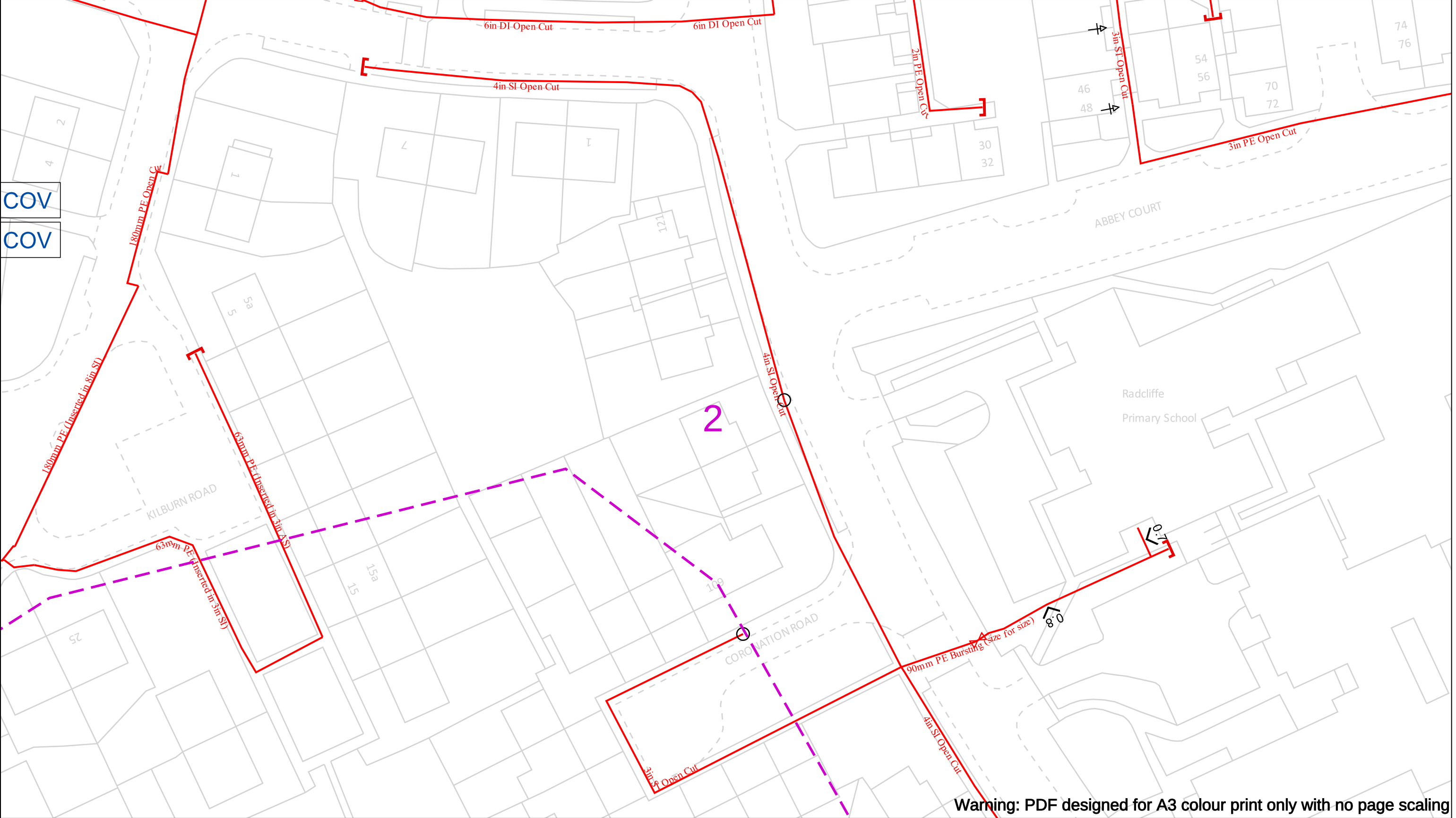
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Scale: 1:500 (When plotted at A3)

View extent: 200m, 115m

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50m

|           |                |                         |
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| LHP Mains |                |                         |

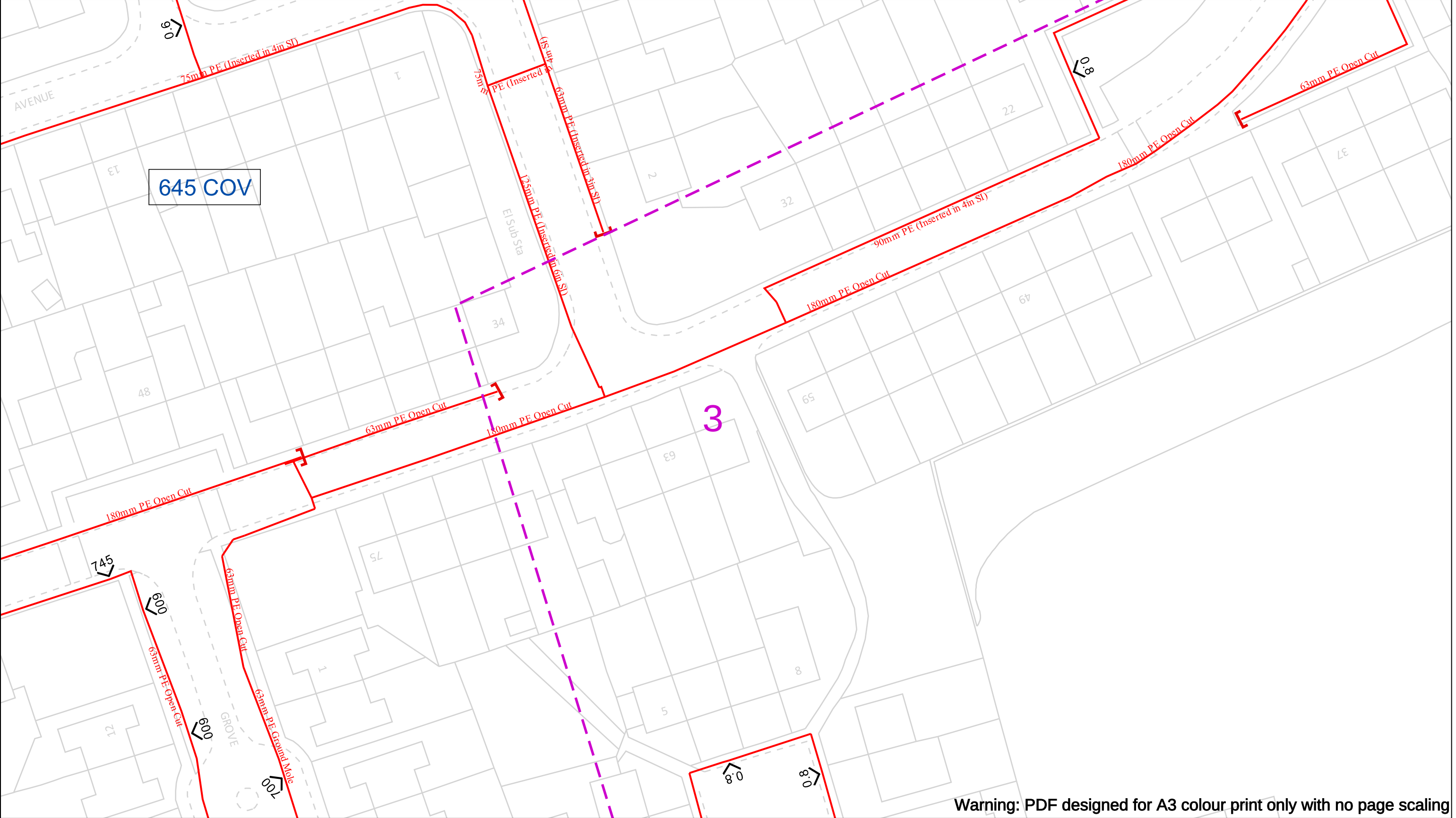
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|                  |           |              |                |              |                         |
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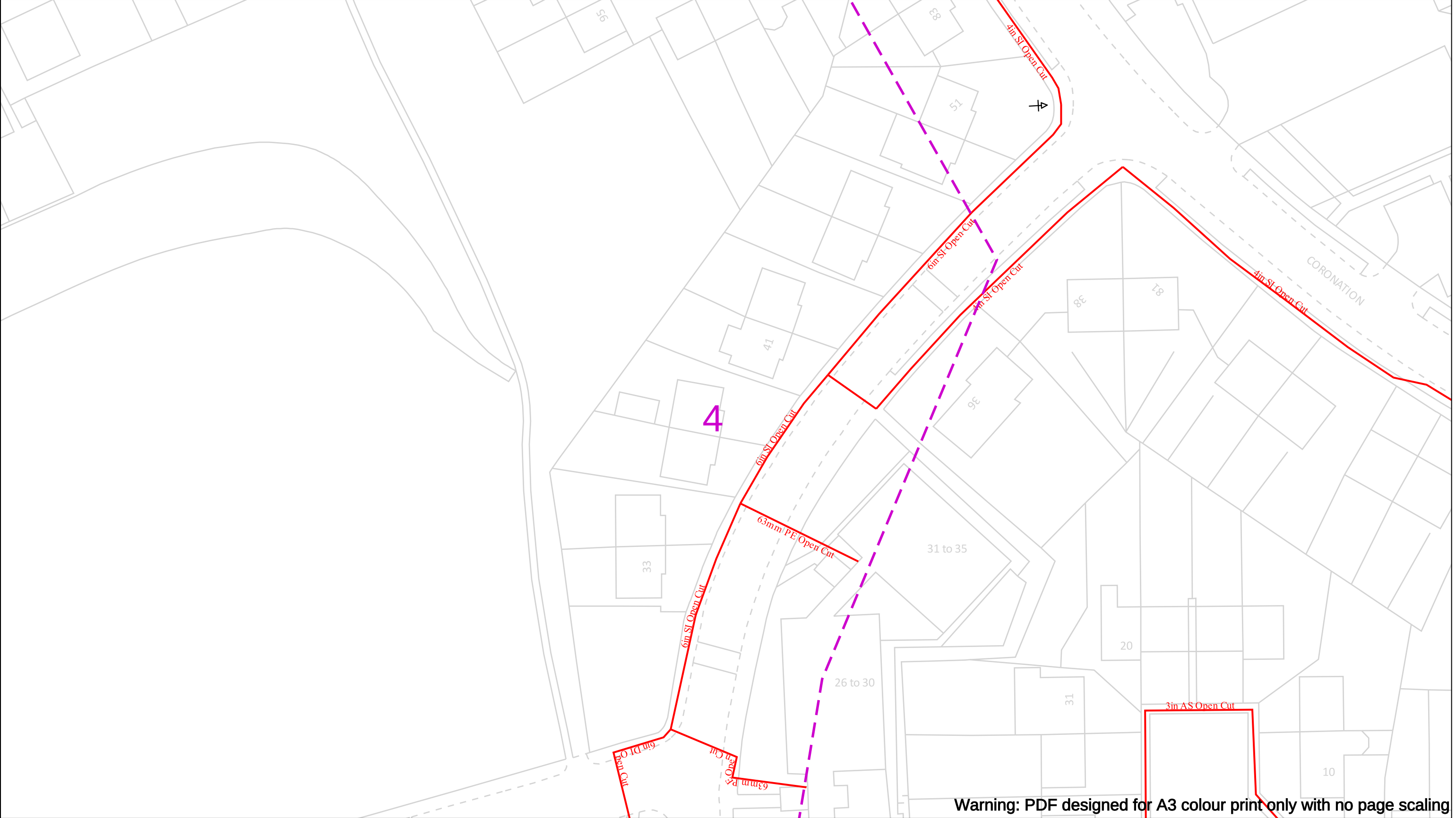
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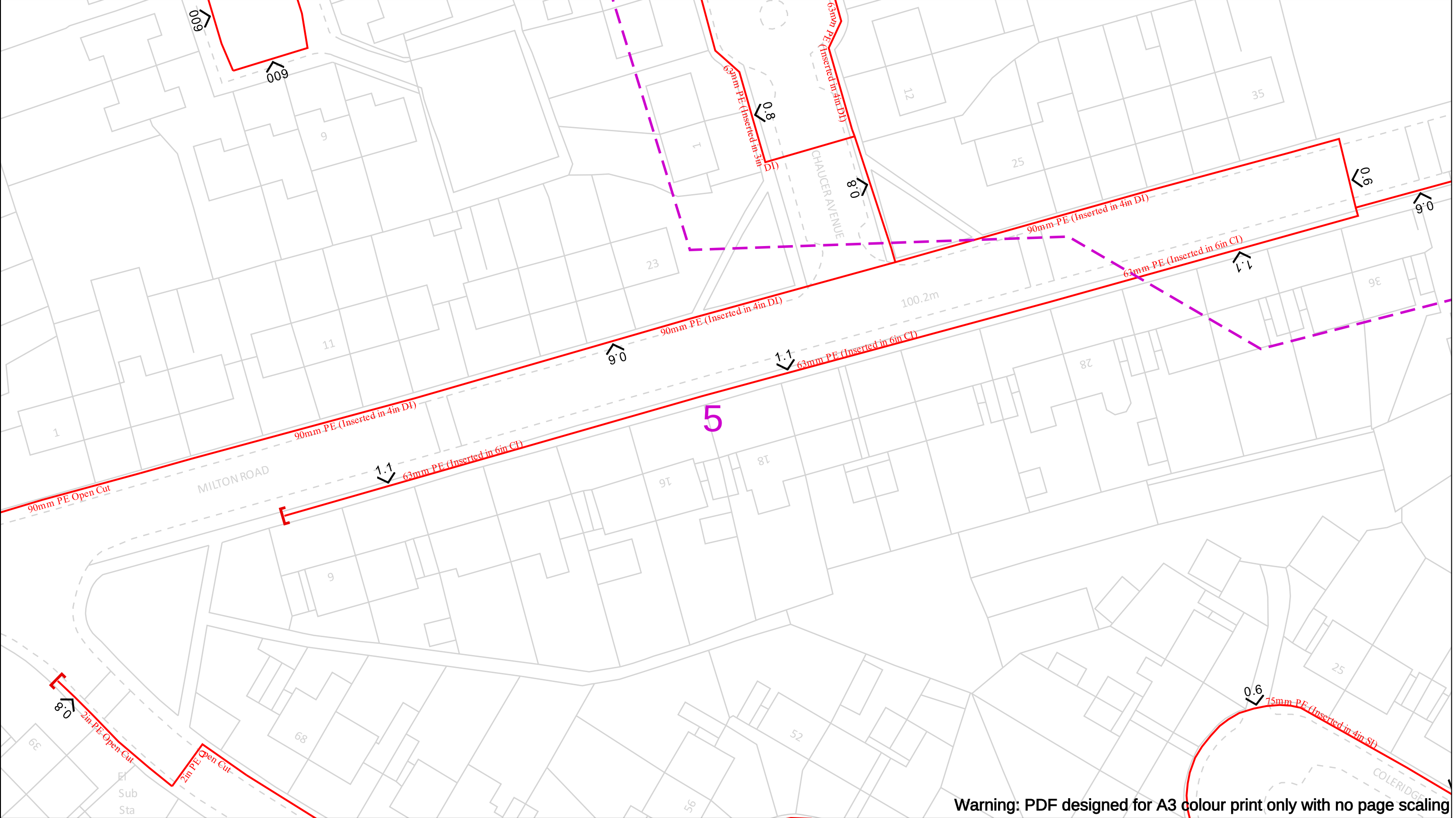
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Area: 

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Line: 

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✕

Valve

▽

Depth of cover

○

Syphon

⚡

Diameter Change

|

Material Change

!

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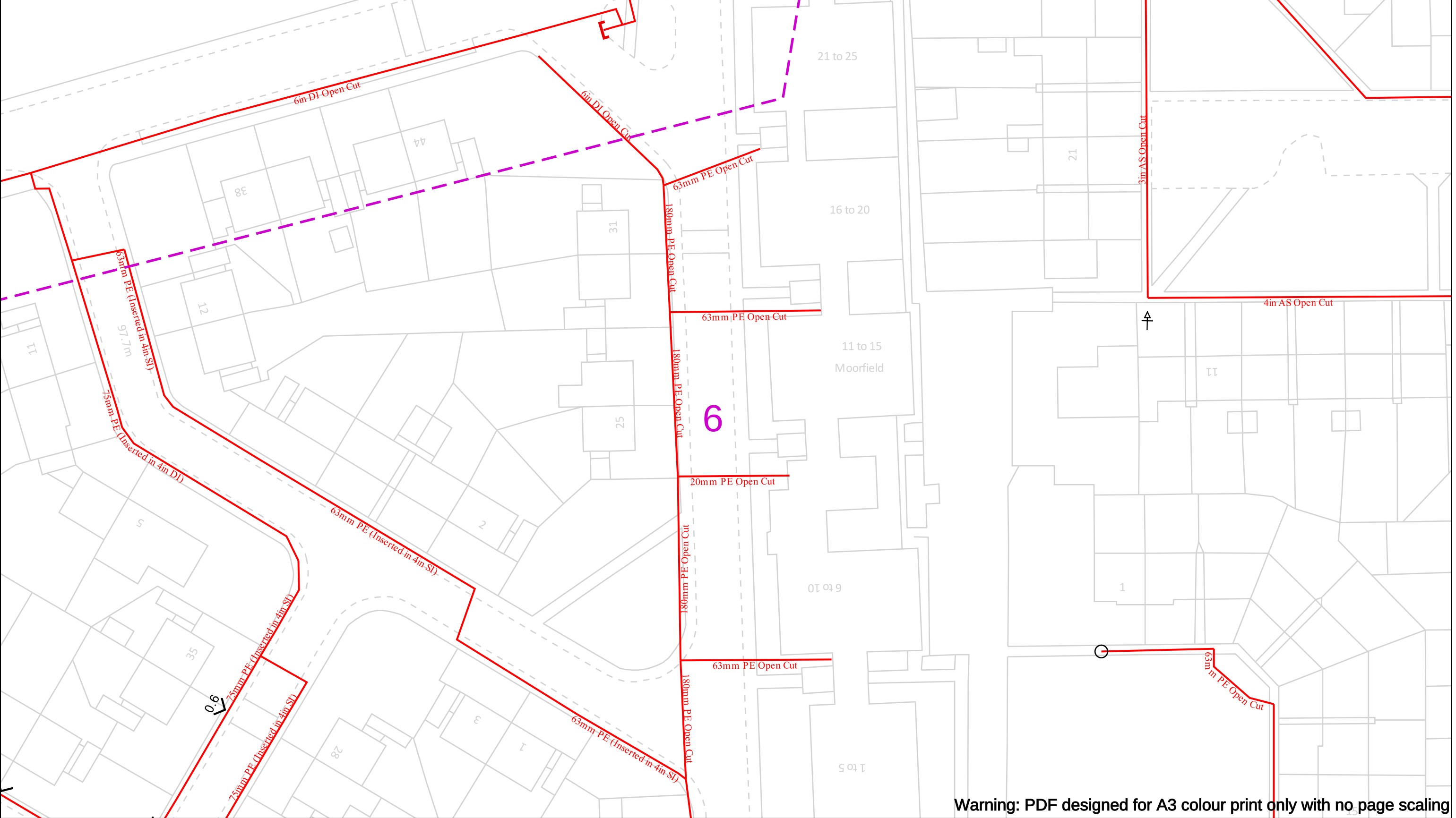
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50m

|                  |              |                 |
|------------------|--------------|-----------------|
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|                  |              |                 |
|                  |              |                 |
|                  |              |                 |
|                  |              |                 |
| LP Mains         | Valve        | Diameter Change |
| MP Mains         |              | Material Change |
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Your Gas Network

# Specification for *Safe Working* in the Vicinity of Cadent Assets



# Cadent Contact Details

## East of England Operations Plant Protection

**Address:** Cadent Gas Limited, Vicarage Farm Road, Peterborough, PE1 5TP

**Email:** [eaplantprotectionops@cadentgas.com](mailto:eaplantprotectionops@cadentgas.com)

## East Midlands Operations Plant Protection

**Address:** Cadent Gas Limited, Effingham Street, Sheffield, S4 7YP

**Email:** [emplantprotectionops@cadentgas.com](mailto:emplantprotectionops@cadentgas.com)

## North London Operations Plant Protection

**Address:** Cadent Gas Limited, Uxbridge Road, Slough, SL2 5NA

**Email:** [nlplantprotection@cadentgas.com](mailto:nlplantprotection@cadentgas.com)

## North West Operations Plant Protection

**Address:** Cadent Gas Limited, Plant Protection (Block C), Mersey Road North, Failsworth, Greater Manchester, M35 9FF

**Email:** [plantprotection.nw@cadentgas.com](mailto:plantprotection.nw@cadentgas.com)

## West Midlands Operations Plant Protection

**Address:** Cadent Gas Limited, Windsor Street, Birmingham, B7 4DN

**Email:** [plantprotection.wm@cadentgas.com](mailto:plantprotection.wm@cadentgas.com)



## Disclaimer

This document is provided for use by third parties for safe working in the vicinity of Cadent assets. Where this document is used by any other party it is the responsibility of that party to ensure that this document is correctly applied.

Users should ensure that they are in possession of the latest edition of this document by referring to the Digging Safely webpage on the Cadent website.  
[www.cadentgas.com/help-advice/digging-safely](http://www.cadentgas.com/help-advice/digging-safely)

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Smell gas? Call the free, 24 hour  
National Gas Emergency Service:

**0800 111 999\***

\*All calls are recorded and may be monitored

# Step by Step Process

## Register with LinesearchbeforeUdig (LSBUD)

LSBUD provide a free online enquiry service giving results within minutes from a grid reference, postcode or street name. This allows you to submit enquiries about activities and work that you are planning which may have an impact on the gas network.

[www.lsbud.co.uk](http://www.lsbud.co.uk)

## Submit an Enquiry

Within LSBUD there are 3 enquiry types, **information only**, **planned works** and **emergency works**. Information only enquiries will not be escalated for operational site-specific advice, should you wish to carry out works you must submit a planned works enquiry. If your works are of a genuine emergency nature (e.g. burst water main etc.) then you should submit an emergency enquiry.

## Review the Response, Asset Location and Enclosed Guidance

LSBUD will auto-generate a response based on your enquiry details and our assets in the area. The assessment will be based on the selected Work Category and Work Type. If your planned works propose activities to be undertaken within the distances specified in this booklet, you must obtain site specific advice from our specialist operational plant protection team.

**If your response says that we need to assess your enquiry further, you must not start any work until we confirm it is safe to do so.**

If you are advised to proceed with caution, then you must ensure that you utilise the provided asset plans and follow the guidance in this document.

## Observe Restrictions

In addition to the guidance contained in this booklet, you must ensure that you observe any site-specific advice provided by our specialist operational plant protection teams.

**If in doubt, contact Cadent by ringing the  
Central Admin Team on 0800 688 588**

# Introduction

## Safe Working in the Vicinity of Cadent Assets: Requirements for Third Parties

**This specification is for issue to third parties carrying out work in the vicinity of Cadent gas assets and associated installations. It is provided to ensure that individuals planning and undertaking work take appropriate measures to prevent damage.**

Any damage to a gas asset, or its coating, can affect its integrity and can result in failure leading to potentially serious hazardous consequences for individuals located in the vicinity.

It is therefore essential that the safety advice outlined in this document, along with any site-specific advice given by our operatives, is complied with when working near to our assets. If Cadent consider any work to be in breach of the requirements stipulated in this document, then the Cadent Plant Protection Officer will request that work is suspended until the non-compliances have been rectified.

Every reasonable precaution shall be undertaken to avoid personal injury or damage to our apparatus. If we incur any direct or indirect costs as a consequence of your works and we are required to repair or divert any gas apparatus, you'll be recharged in full.



Any damage to our apparatus will be subject to legislative reporting responsibilities to the HSE under Reporting of Injuries, Diseases & Dangerous Occurrences Regulations 2013, Gas Safety Management Regulations 1996 and the Pipelines Safety Regulations 1996.

The requirements in this document are in line with the Institution of Gas Engineers and Managers (IGEM) recommendations [IGEM/SR/18 Edition 3 - Safe Working Practices to Ensure the Integrity of Gas Assets](#) and Associated Installations and the HSE's guidance document [HS\(G\)47 Avoiding Danger from Underground Services](#).

It is the responsibility of the third party to ensure that any work carried out also conforms with the requirements of the Construction and Design Management ([CDM Regulations 2015](#)) and all other relevant health and safety legislation. Reference shall be made to our apparatus within your site Health and Safety file.



**Keeping you,  
your workers  
and the public  
safe when  
working near  
our pipelines**

# 1 Scope

This specification sets out the safety precautions and other conditions associated with working in the vicinity of Cadent assets, located in negotiated easements and public highways.

## Mandatory and non-mandatory requirements

In this document:

- Shall: indicates a mandatory requirement
- Should: indicates best practice and is the preferred option

If an alternative method is used then a suitable and sufficient risk assessment shall be completed to show that the alternative method delivers the same, or better, level of protection.

Where the guidance in this document cannot be adhered to, then the diversions process shall be followed.

Before contacting our diversions team, you'll need to have your site information and any design proposals available.

Once you have this information, please contact our diversions team [diversions@cadentgas.com](mailto:diversions@cadentgas.com) or on 0330 678 1034.

Visit [www.cadentgas.com/diversions](http://www.cadentgas.com/diversions) for more information.

You can contact our  
diversions team by email  
[diversions@cadentgas.com](mailto:diversions@cadentgas.com)  
or by phone 0330 678 1034



## 2 Formal Consent

Cadent's assets are either located in an easement agreed with the landowner at the time of installation, or within the highway. As the required arrangements for working in an easement and working in the highway differ, this section describes the specific requirements for these two areas.

Any documents handed to contractors or other individuals undertaking work (e.g. farmers, local authorities etc.), on site by Cadent, shall be signed for and adhered to by the site. All personnel working on site shall be made aware of the potential hazards of working near gas assets and the actions they should follow in case of an emergency.

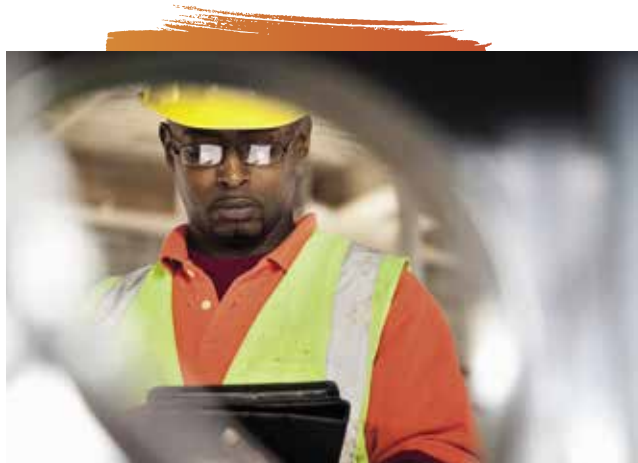
### 2.1 Within an easement

The promoter of any works within an easement shall provide Cadent with details of the proposed works, including a risk assessment and method statement of how the work is intended to be carried out. Work shall not commence in an easement strip until formal written consent has been provided by Cadent. This will include details of Cadent's protection requirements, contact telephone numbers and the emergency telephone number. On acceptance of Cadent's requirements, the promoter of the works shall give Cadent at least 14 days' notice before commencing work on site.

Where clearance to proceed has been granted directly from the system, for example, if your works only affect low pressure assets (operating at less than 75 mbar), but the asset concerned is within an easement, the promoter of the works shall contact the network Plant Protection Office for formal written consent.

In addition to formal written consent, an easement crossing agreement (deed of indemnity) may be required. This shall be discussed with the Cadent Plant Protection Officer prior to the commencement of the works.

The width of an easement is dependent on a number of factors and is mainly dependent on the operating pressure, pipeline material and diameter, as these factors influence safe working requirements and building proximity distances. Easement details should be registered at Land Registry, however if you are unsure please liaise with your Cadent Plant Protection Officer.



Below is a list of our standard easement widths, however, some easements may vary:

| Pressure tier/ Material | Diameter                                 | Easement Width (total)                          |
|-------------------------|------------------------------------------|-------------------------------------------------|
| HP Steel                | 900mm, 1060mm,<br>1200mm (36", 42", 48") | 24.4m (80')                                     |
| HP Steel                | 750mm and 600mm<br>(30" & 24")           | 18.3m (60')                                     |
| HP Steel                | Up to and including<br>450mm (18")       | 12.2m (40')                                     |
| HP RTP                  | Determined on a case by case basis       |                                                 |
| IP Steel                | All sizes                                | 6m plus pipe diameter                           |
| IP PE > 5.5 bar         | Above 500mm (19")                        | 30m plus pipe diameter                          |
|                         | 356mm to 500mm                           | 16m plus pipe diameter                          |
|                         | 126mm to 365mm                           | 12m plus pipe diameter                          |
|                         | Up to and including 125mm                | 12m plus pipe diameter                          |
| IP PE <5.5 bar          | Above 500mm (19")                        | 26m plus pipe diameter                          |
|                         | 356mm to 500mm                           | 8m plus pipe diameter                           |
|                         | 126mm to 365mm                           | 8m plus pipe diameter                           |
|                         | Up to and including 125mm                | 8m plus pipe diameter                           |
| AGI's                   | All sites                                | 3m restrictive width<br>around the installation |
| MP PE                   | Above 500mm (19")                        | 12m plus pipe diameter                          |
|                         | 356mm to 500mm                           | 6m plus pipe diameter                           |
|                         | 126mm to 355mm                           | 5m plus pipe diameter                           |
|                         | Up to and including 125mm                | 4.5m plus pipe diameter                         |
| MP Steel                | All sizes                                | 6m plus pipe diameter                           |
| MP Iron                 | All sizes                                | 6m plus pipe diameter                           |
| LP                      | Above 125mm                              | 3m plus pipe diameter                           |
|                         | Up to and including 125mm                | 1m plus pipe diameter                           |

2.2 Within a highway

Work shall be notified to Cadent in accordance with the requirements of the **New Roads and Street Works Act (NRSWA) and HS(G)47**. The promoter of any works within the highway should provide Cadent with details of the proposed works, including a risk assessment and method statement of how the work is intended to be carried out. This shall be submitted at least 14 days before

the planned work is to be carried out. If similar works are being carried out at several locations in close proximity, a single risk assessment and method statement should be adequate depending on the nature of the works. Work should not go ahead until formal written consent has been given by Cadent. This will include details of Cadent’s protection requirements, contact telephone numbers and the emergency telephone number.

3 Location of Gas Assets

A copy of our plans with your marked-out site is provided in our LSBUD response. Cadent asset records shall be consulted to establish the indicative location of the gas assets in relation to the promoter’s work area.

*If the marked-out area is incorrect you MUST resubmit your enquiry with the correct area marked out.*

Prior to work commencing on site, the gas assets should be located to verify the indicative location from plans.

This should initially be carried out through non-intrusive methods utilising pipe locators where possible. The indicative location should be verified through trial holes. Once located, the gas assets should be marked out at regular intervals using asset location markers with triangular flags (see Appendix A) or other suitable methods.

**For assets exceeding 2 bar, the excavation of all trial holes shall be monitored by Cadent. For assets not exceeding 2 bar, monitoring will be at the discretion of the Cadent Plant Protection Officer.**

Safe digging practices, in accordance with HSE publication HS(G)47, shall be followed. Direct and consequential damage to gas plant can be dangerous both to employees and to the general public.

We utilise marker posts and surface boxes to denote the location of our apparatus providing access to key parts of our network. Free access shall be maintained to such apparatus during and after your works and these shall not be moved, covered or damaged during the works.

- High Pressure
- Intermediate Pressure
- Medium Pressure
- Low Pressure



## 4 Temporary and Permanent Protective Measures

No temporary or permanent protective measures, including the installation of concrete slab protection, shall be installed over or near to a Cadent asset without the prior written consent of Cadent Plant Protection Officer. Cadent will need to approve the material, dimensions and method of installation for the proposed protective measure.

The method of installation shall be confirmed through the submission of a formal written method statement from the contractor to Cadent. Where permanent protection is to be installed over an asset, Cadent will normally carry out a coating survey of metallic assets to check that there is no existing damage to the coating, prior to the slab protection being installed. Cadent shall, therefore, be given at least 14 days' notice prior to the laying of any slab protection to arrange for this survey to be carried out.

Generally, due to the need for future access to below 2 bar gas assets, permanent protection is not permitted, however, can be approved at Cadent's discretion.

The safety precautions detailed in [Sections 5, 6, 7 or 8](#) of this document should also be observed during the installation of the asset protection.



## 5 Working in the Vicinity of a High or Intermediate Pressure Gas Asset (Operating at Pressures Greater than 2 bar)

*The below information shall only be used as guidance, for all works in the vicinity of High and Intermediate Pressure Pipelines the auto-response from the system will advise not to carry out any works until we have undertaken a technical review of the planned works and provided site specific safe working advice.*

*Information only enquiries will not be escalated for operational site-specific advice, should you wish to carry out works you must submit a planned works enquiry for assessment.*



### 5.1 Excavation

Mechanical excavators should not be sited or moved above an asset.

Mechanical excavators, and any other powered mechanical plant, shall not dig on one side of the asset with the cab of the excavator positioned on the other side.

All traffic should be positioned far enough away from the trench to prevent trench wall collapse.

#### 5.1.1 In proximity to an asset in an easement

Following location and marking of assets in agreement with the Cadent Plant Protection Officer, powered mechanical excavation may be used no closer than 3m (see Figure 1). The use of toothed excavator buckets vastly increases the potential for damage to assets, therefore only toothless buckets shall be used.

Any fitting, attachment or connecting pipework on an asset shall be exposed by hand.

If third parties are using any form of trench support system, they shall ensure that none of the components are in contact with the Cadent asset.

Consideration may be given to a relaxation of these limits or lower risk excavation methods by agreement with the Cadent Plant Protection Officer on site.

Where sufficient depth of cover exists and the absence of attachments and projections has been confirmed (e.g. valve spindles, pressure points etc.) and following evidence from hand dug trial holes, light tracked vehicles may be permitted to strip topsoil to a depth of 250mm, using a toothless bucket.

No topsoil or other materials shall be stored within the easement without the written permission of Cadent. No fires are allowed in the easement strip or close to above ground gas installations.

After the completion of the work, the level of cover over an asset should be the same as that prior to work commencing, unless otherwise agreed by Cadent.

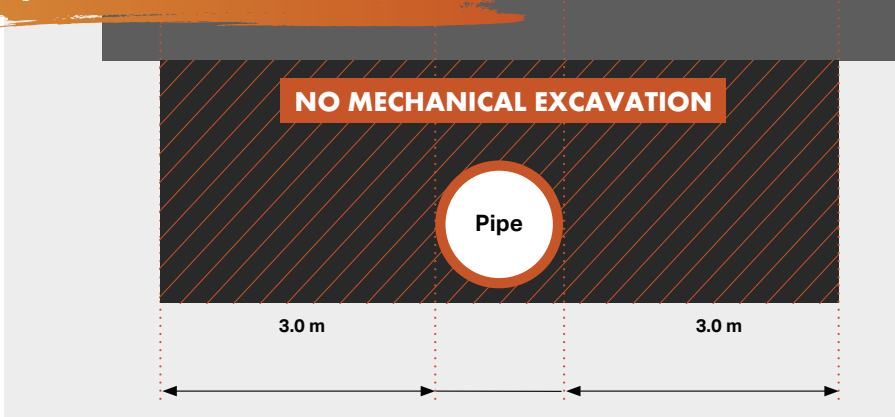
No new service shall be laid parallel to an asset within the easement. In special circumstances, and only with formal written agreement from Cadent, this may be relaxed for short excursions where the service shall be laid no closer than 600mm.

Where work is being carried out parallel to an asset, within or just alongside the easement, suitable barriers shall be erected for protection between the works and the asset to prevent encroachment.

### 5.1.2 In proximity to an asset in the highway

Following locating and marking of assets in agreement with the Cadent Plant Protection Officer, powered mechanical excavation may be used no closer than 3 meters (see Figure 1).

Figure 1. Excavation restrictions



The use of toothed excavator buckets vastly increases the potential for damage to assets, therefore only toothless buckets shall be used.

Any fitting, attachment or connecting pipework shall be exposed by hand.

If third parties are using any form of trench support system, they shall ensure that none of the components are in contact with the Cadent asset.

Removal of the bituminous or concrete highway surface layer by mechanical means is permitted to a depth of 300mm, unless any attachments or projections are present on an asset (e.g. valve spindles, pressure points etc.). The use of chain trenchers is not permitted within 3m of an asset. The Cadent Plant Protection Officer may need to be present to monitor this work. Where the bituminous or concrete highway surface layer extends below 300mm deep, it shall only be removed by handheld power assisted tools under the observation of Cadent.

In special circumstances, consideration may be given to a relaxation of these rules by agreement with the Cadent Plant Protection Officer and only whilst they remain on site.

#### **5.1.3 Crossing over an asset (Open cut)**

Where a new service is to cross over an asset, a clearance distance of 600mm between the crown of the asset and underside of the service should be maintained. If this cannot be achieved, the service shall cross below the asset (see Section 5.1.4).

In special circumstances, this distance may be reduced at the discretion of the Cadent Plant Protection Officer on site.

#### **5.1.4 Crossing below an asset (Open cut)**

Where a service is to cross below an asset, a clearance distance of 600mm between the crown of the new service and underside of the asset shall be maintained. Where lengths of pipe greater than one metre are to be exposed, the Cadent Plant Protection Officer shall be consulted. Exposed assets should be suitably supported and protected by matting and timber cladding. Any supports shall be removed prior to backfilling.

In special circumstances, this clearance distance may be reduced at the discretion of the Cadent Plant Protection Officer on site.

#### **5.1.5 Cathodic Protection (CP)**

Cathodic protection (CP) is applied to Cadent's buried steel pipe and is a method of protecting assets from corrosion by maintaining an electrical potential between the pipe and anodes placed at strategic points along the asset. Where a new service is to be laid and similarly protected, the party installing the CP system shall undertake tests to determine whether the new service is interfering with the cathodic protection of Cadent assets.

Should any cathodic protection posts or associated apparatus need to be moved to facilitate third party works, at least 14 days' notice shall be given to Cadent. Cadent will undertake this work and any associated costs will be borne by the third party.

### 5.1.6 Installation of electrical equipment

Where electrical equipment is being installed close to Cadent's buried steel assets, the effects of a rise of earth potential under fault conditions shall be considered by the third party and a risk assessment and method statement shall be submitted to Cadent for approval, prior to the works commencing.

The installation of electrical cables parallel to Cadent assets may induce currents into the asset. This may interfere with the effective operation of the cathodic protection system. In these instances, Cadent will require the promoter of the works to conduct pre and post energisation potential surveys of Cadent's assets. The costs for any stray current mitigation systems required will be borne by the promoter of the works.

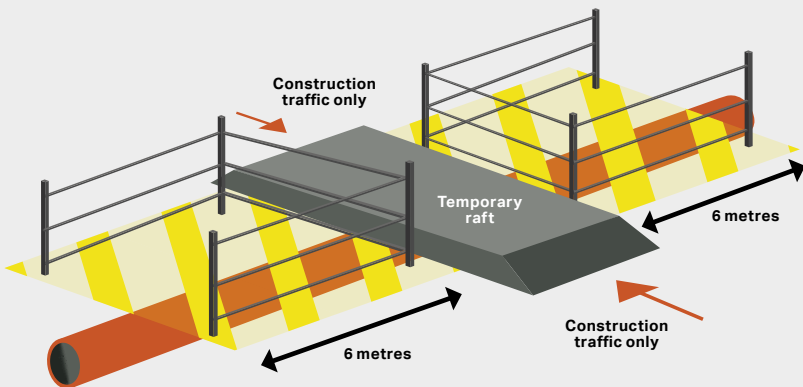
## 5.2 Construction Traffic

Where existing roads cannot be used, construction traffic shall only cross an asset at locations agreed with the Cadent Plant Protection Officer. Notices shall be placed directing traffic to the crossing points. Post and wire fencing shall be erected at all crossing points, and the fence should cover the width of the easement and extend a further 6 metres along the length of the easement on both sides (see Figure 2).

Assets shall be protected at all crossing points by a suitable method agreed with the Cadent Plant Protection Officer prior to installation. The promoter of the works shall review ground conditions, vehicle types and crossing frequencies to determine the type and construction of the protection required.

For larger scale projects or permanent solutions, a protection slab may be required.

Figure 2. Construction traffic requirements



5.3 Specific Activities

This section details the precautions that need to be taken when carrying out certain prescribed activities in the vicinity of an asset. The promoter of works is required to consult Cadent when intending to undertake one of the listed activities and/or further advice is required on whether the work has the potential to affect the asset. The table below shows, for some specific activities, the prescribed distances where the advice of Cadent shall be sought.

| Activity                   | Distance within which Cadent advice shall be sought                                                                                             |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| Piling                     | 15 m                                                                                                                                            |
| Surface mineral extraction | 100m                                                                                                                                            |
| Landfilling                | 100 m                                                                                                                                           |
| Demolition                 | 150 m or 400m for structure mass > 10000 tonnes                                                                                                 |
| Blasting                   | 500 m if the MIC* is greater than 200 kg<br>250 m if the MIC* is greater than 10 kg but less than 200 kg<br>100 m if the MIC* is 10 kg or less. |
| Deep mining                | 1000 m                                                                                                                                          |
| Wind turbine               | 1.5 times mast height                                                                                                                           |

\*MIC - Maximum Instantaneous Charge

5.3.1 Trenchless techniques

Where trenchless techniques are being considered, a formal risk assessment and method statement shall be produced. This risk assessment and method statement shall be formally agreed with Cadent prior to the commencement of the work. Please provide Cadent with at least 14 days' notice as the Cadent Plant Protection Officer may wish to be present to monitor this work.

5.3.2 Changes to depth of cover

The depth of cover over Cadent's asset shall not be altered. Cadent shall be consulted for any activity proposed that will lead to a change in cover over the asset. Expert advice may need to be sought, which will be determined by the Cadent Plant Protection Officer.

5.3.3 Piling

No piling shall be allowed within 15m of an asset without an assessment of the vibration levels at the asset. The peak particle velocity at the asset shall be limited to a maximum level of 75mm/sec. The promoter of the works should provide Cadent the anticipated vibration levels prior to the work commencing. The ground vibration should be monitored by the promoter to verify the anticipated levels and to ensure allowable peak particle velocity is not exceeded. Alarms should be set at suitable increments to provide a forewarning of limit exceedance. The promoter shall retain records of ground vibration levels for provision of the Cadent Plant Protection Officer on request.

Where ground conditions include silt or sand, an assessment of the effect of vibration on settlement and liquefaction at the asset shall be made. Expert advice may need to be sought, which can be arranged through Cadent.

#### **5.3.4 Demolition**

No demolition should be allowed within 150m of an asset, or 400m for a structure mass greater than 10,000t without an assessment of the vibration levels at the asset. The peak particle velocity at the asset shall be limited to a maximum level of 75mm/sec.

The promoter of the works should provide Cadent the anticipated vibration levels prior to the work commencing. The ground vibration should be monitored by the promoter to verify the anticipated levels and to ensure allowable peak particle velocity is not exceeded. Alarms should be set at suitable increments to provide a forewarning of limit exceedance. The promoter shall retain records of ground vibration levels for provision of the Cadent Plant Protection Officer on request.

Where ground conditions include silt or sand, an assessment of the effect of vibration on settlement and liquefaction at the asset shall be made. Expert advice may need to be sought, which can be arranged through Cadent.

#### **5.3.5 Blasting**

The Maximum Instantaneous Charge (MIC) dictates the distance at which an assessment of the vibration levels (at the located asset) is required. The measured distances are as follows:

- 500m if the MIC is greater than 200kg
- 250m if the MIC is greater than 10kg but less than 200kg
- 100m if the MIC is 10kg or less

The peak particle velocity at the asset shall be limited to a maximum level of 75mm/sec.

The promoter of the works should provide Cadent the anticipated vibration levels prior to the work commencing. The ground vibration should be monitored by the promoter to verify the anticipated levels and to ensure allowable peak particle velocity is not exceeded. Alarms should be set at suitable increments to provide a forewarning of limit exceedance. The promoter shall retain records of ground vibration levels for provision of the Cadent Plant Protection Officer on request.

Where ground conditions include silt or sand, an assessment of the effect of vibration on settlement and liquefaction at the asset shall be made. Expert advice may need to be sought, which can be arranged through Cadent.

### 5.3.6 Surface mineral extraction

An assessment shall be carried out on the effect of surface mineral extraction activity within 100 metres of an asset. Consideration should also be given to extraction around other plant and equipment associated with assets (e.g. cathodic protection ground beds).

Where the mineral extraction extends up to the asset easement, a stable slope angle and stand-off distance between the asset and slope crest shall be determined by Cadent. The easement strip should be clearly marked by a suitable permanent boundary, such as a post and wire fence. Additionally, where appropriate, slope indicator markers shall be erected to facilitate the verification of the recommended slope angle as the slope is formed, by the third party. The asset easement and slope need to be inspected periodically to identify any signs of developing instability.

This may include any change of slope profile including:

- Bulging
- The development of tension cracks on the slope or easement
- Any changes in drainage around the slope

The results of each inspection should be recorded

Where surface mineral extraction activities are planned within 100m of the asset but do not extend up to the asset easement boundary, Cadent shall assess whether this could promote instability in the vicinity of the asset. This may occur where the asset is routed across a natural slope or the excavation is deep. A significant cause of this problem is where the groundwater profile is affected by changes in drainage or the development of lagoons.

Where the extraction technique involves explosives, the provisions of [Section 5.3.5](#) apply.



### **5.3.7 Deep mining**

Assets within 1km of active deep mining may be affected by subsidence resulting from mineral extraction. The determination of protective or remedial measures will normally require expert assistance, which can be arranged through Cadent.

### **5.3.8 Landfilling**

The creation of slopes outside of the asset easements may promote instability within the vicinity of an asset. Cadent should carry out an assessment to determine the effect of any landfilling activity within 100m of an asset. The assessment is particularly important if landfilling operations are taking place on a slope in which an asset is routed.

### **5.3.9 Pressure testing**

Hydrostatic testing of a third-party asset should not be permitted within 8 metres either side of a Cadent asset, to provide protection against the effects of a burst. Where this cannot be achieved, typically where the third-party asset needs to cross a Cadent asset, one of the following precautions would need to be adopted:

- limiting of the design factor of the third-party pipeline to 0.3 at the asset's nominated maximum operating pressure (MOP), and the use of pre-tested pipe
- the use of sleeving
- Cadent conduct risk analysis of pipe failure

In either case, the third party shall submit their site-specific risk assessment and safe system of works for consideration by Cadent.

### **5.3.10 Seismic surveys**

The promoter of works shall advise Cadent of any seismic surveying work in the vicinity of an asset that will result in peak particle velocities in excess of 75mm/sec at the asset.

The promoter of the works should provide Cadent the anticipated vibration levels prior to the work commencing. The ground vibration should be monitored by the promoter to verify the anticipated levels and to ensure allowable peak particle velocity is not exceeded. Alarms should be set at suitable increments to provide a forewarning of limit exceedance. The promoter shall retain records of ground vibration levels for provision of the Cadent Plant Protection Officer on request.

### 5.3.11 Hot work

Where a Cadent metallic gas asset has been exposed, welding (or other hot works that may involve naked flames) should not be carried out in proximity of the gas asset. This may be reduced if suitable protection and precautions has been agreed with Cadent.

If the gas asset is PE (polyethylene or a PE asset is contained within a metallic sleeve) welding, or other hot works that may involve naked flames, should not take place within 500mm of the gas asset. This may be reduced if suitable protection and precautions have been agreed with the Cadent Plant Protection Officer to prevent against the effects of sparks, radiant heat transfer etc.

The Cadent Plant Protection Officer shall be present to monitor all welding, burning or other 'hot work' that takes place.

### 5.3.12 Wind turbines

Wind turbines shall not be sited any closer than 1.5 times the proposed height of the turbine mast away from the nearest edge of a gas asset.

Further guidance can be found from UKOPA's Good Practice Guide 13 (UKOPA/GP/013) - Requirements for the Siting and Installation of Wind Turbines Installations in the Vicinity of Buried Pipelines.

### 5.3.13 Solar farms

Solar Farms can be built adjacent to gas assets but never within an easement. Advice shall be sought from Cadent at the early stages of design to ensure that electrical interference, security, future access and construction methods can be mutually agreed.

Further guidance can be found from UKOPA's Good Practice Guide 14 (UKOPA/GP/014) - Requirements for the Siting and Installation of Solar Photovoltaic (PV) Installations in the Vicinity of Buried Pipelines.

## 5.4 Backfilling

No backfilling should be undertaken without Cadent's agreement to proceed and the Cadent Plant Protection Officer will stipulate the necessary requirements. Some equipment may not be suitable for use over or around an asset due to the adverse effects of excessive compaction and vibration levels. The Cadent Plant Protection Officer will be able to advise on suitable equipment. Third parties undertaking work shall provide Cadent with 48 hours' notice, or shorter only if agreed with Cadent, of the intent to backfill over, under or alongside the asset.

This requirement should also apply to any backfilling operations that:

- are within 3 metres of an asset
- could influence the ground stability

Any damage to an asset or its coating shall be reported to Cadent in order that damage can be assessed, and repairs carried out.

Minor damage to pipe coating and cathodic protection test leads will be repaired by Cadent free of charge. If an asset has been backfilled without the knowledge of the Cadent Plant Protection Officer, the third party shall re-excavate to enable the condition of the asset coating to be assessed.



# 6 Working in the Vicinity of a Medium Pressure Gas Asset (Operating at Pressures Greater than 75 mbar but not Exceeding 2 bar)

The below information shall only be used as guidance, and where appropriate, will be supplemented by site specific safe working advice from the network Plant Protection Officer.

Information only enquiries will not be escalated for operational site-specific advice, should you wish to carry out works you must submit a planned works enquiry for assessment.

## 6.1 Temporary and Permanent Structures

No temporary or permanent structures are permitted to be installed above, or in close proximity to a gas asset or easement due to the restriction of access this imposes. This includes, but is not limited to, permanent street furniture such as planters and bollards and temporary buildings such as welfare units and other enclosed spaces. The building proximity distances for medium pressure assets is as follows:

Please note that the easement distance may be greater than the building proximity distance. For any proposed structures in the easement, please consult with the Cadent Plant Protection Officer.

| Material          | Minimum proximity to premises                        |
|-------------------|------------------------------------------------------|
| Cast/Spun Iron    | 3m                                                   |
| Ductile Iron      | 30m                                                  |
| Steel             | 1m                                                   |
| PE (inserted)     | 1m                                                   |
| PE (non-inserted) | 2m for diameters < 500mm<br>5m for diameters > 500mm |



## **6.2 Excavation**

### **6.2.1 General**

Mechanical excavators should not be sited or moved above an asset.

Mechanical excavators and any other powered mechanical plant shall not dig on one side of the asset with the cab of the excavator positioned on the other side. All traffic should be positioned far enough away from the trench to prevent trench wall collapse.

Excavation with a powered mechanical excavator should not be carried out until the asset has been located through vacuum excavation or by hand. No mechanical excavation is permitted within 500mm of a gas asset. Any mechanical excavation should utilise a banksperson. Toothless buckets shall be used due to the potential of damage to assets using toothed excavator buckets.

Consideration shall be given to apparatus installed on gas assets including valves, spindles, pressure points etc. Any fitting, attachment or connecting pipework on an asset shall be exposed by hand.

Where concrete is exposed around gas apparatus, it shall not be removed without first consulting with a Cadent Plant Protection Officer as it could be providing protection or anchorage to live apparatus.

Where a third party is using any trench support system, they shall ensure that none of its components are in contact with an asset.

The use of chain trenchers is not permitted within 3m of the confirmed location of an asset.

### **6.2.2 Working in vicinity of iron pipework**

When deep excavation greater than 1.5m in depth is carried out in the vicinity of iron pipework, steps shall be taken to ensure the risk associated with immediate and latent asset failure are considered and, where necessary, excavations are cut back to reduce the shear factor created by ground disturbance likely to result in settlement. This also includes instances where excavations are part of construction works, including basement conversions, underground car parks, shaft construction, etc.

Care should be taken to ensure that any exposed iron pipework is suitably supported at 1m intervals and protected from damage to avoid creating tensions that could lead to joint disturbance or pipe barrel fracture.

Where fittings or existing repairs are uncovered, care shall be taken to ensure that these are not disturbed.

When working near ductile iron pipework, any corrosion identified on the pipeline shall be reported to 0800 111 999 for a first call operative to attend to undertake a hazard assessment.

### **6.2.3 In proximity to an asset in an easement**

Where sufficient depth of cover exists and the absence of attachments and projections has been confirmed (e.g. valve spindles, pressure points etc.), following evidence from hand dug trial holes, light tracked vehicles may be permitted to strip topsoil to a depth of 250mm using a toothless bucket.

No topsoil or other materials shall be stored within the easement without the written permission of Cadent. No fires are allowed in the easement strip or other gas assets.

After the completion of the work, the level of cover over the asset should be the same as that prior to work commencing.

No new service shall be laid parallel to the asset within the easement.

Where work is being carried out parallel to the asset, within or alongside the easement, suitable barriers shall be erected between the works and the asset to prevent encroachment or damage.

### **6.2.4 In proximity to an asset in the highway**

Where sufficient depth of cover exists, and the absence of attachments and projections has been confirmed (e.g. valve spindles, pressure points etc.), following evidence from hand dug trial holes, removal of the bituminous or concrete highway surface layer by mechanical means is permitted to a depth of 300mm. Where the bituminous or concrete highway surface layer extends below 300mm deep, it shall only be removed by handheld power assisted tools.

### **6.2.5 Crossing over an asset (Open cut)**

Where a new service is to cross over a gas asset, a minimum clearance distance of 1.5 times the diameter of the gas asset or 300mm, whichever is greater, shall be maintained. If this cannot be achieved, the service shall cross below the asset, [see Section 6.2.6](#).

### **6.2.6 Crossing below an asset (Open cut)**

Where a service is to cross below a gas asset, a minimum clearance distance of 1.5 times the diameter of the gas asset or 300mm, whichever is greater, between the crown of the new service and underside of the asset shall be maintained. The exposed asset shall be suitably supported and protected by matting and timber cladding. Any supports shall be removed prior to backfilling.



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### 6.2.7 Cathodic Protection (CP)

Cathodic protection (CP) is applied to some buried steel pipes and is a method of protecting assets from corrosion by maintaining an electrical potential between the asset and anodes placed at strategic points along the asset. Where a new service is to be laid and similarly protected, the party installing the CP system shall liaise with the Cadent Plant Protection Officer and undertake tests to determine whether the new service is interfering with the cathodic protection of the Cadent asset.

Should any cathodic protection posts or associated apparatus need moving to facilitate third party works, at least 14 days' notice shall be given to Cadent. Cadent will undertake this work and any associated costs will be borne by the third party.

### 6.2.8 Installation of electrical equipment

Where electrical equipment is being installed close to Cadent's buried steel assets, the effects of a rise of earth potential under fault conditions shall be considered by the third party, a risk assessment carried out and this shall be provided to the Cadent Plant Protection Officer for inspection. Equipment shall not be installed if the integrity of Cadent's assets is compromised. In this case, diversion of the affected assets is required.

The installation of electrical cables parallel to Cadent assets may induce currents into the asset. This may interfere with the effective operation of cathodic protection systems. In these instances, Cadent will require the promoter of the works to work with the Cadent Plant Protection Officer to ensure that pre and post energisation potential surveys of Cadent's assets are undertaken. The costs for any stray current mitigation systems required will be borne by the third-party promoter.



### 6.3 Construction Traffic

The promoter of the works shall review the ground conditions, vehicle types and crossing frequency to determine the type and construction of crossing that will be required. Additionally, no undue loads such as spoil heaps, lighting columns, permanent traffic lights or road signs should be allowed over gas assets.

Iron pipes, or pipes that are not already within an existing road (such as those within footways or verges), shall not be crossed by construction vehicles without suitable protection and the consent of the Cadent Plant Protection Officer.

Where existing roads cannot be used, construction traffic should only cross Cadent assets at specific locations, with notices directing traffic to the crossing points erected. All crossing points shall:

- Be at right angles to the asset
- Be fenced denoting the existence of the asset to ensure all traffic uses the crossing point. The fencing shall cover

the width of any easements and extend a further 6m along the length of any easements on both sides (see Figure 3).

- Have signs attached to the fence denoting the asset that the crossing point is located over
- Be regularly inspected and maintained in good condition

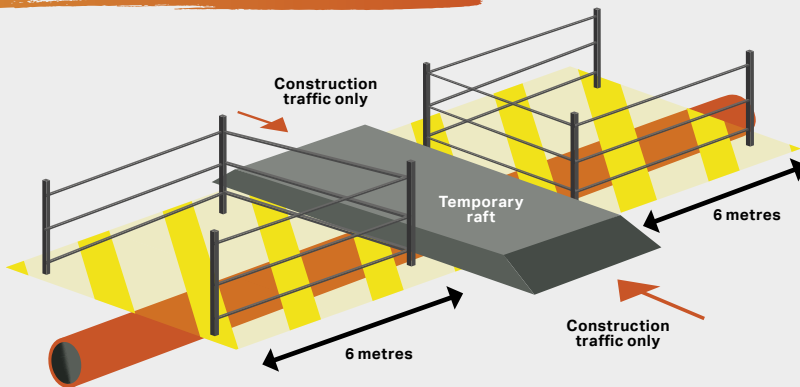
*Note: A 5mph speed restriction should be enforced at all crossing points.*

Suitable protection methods may include:

- Temporary protection slab
- Free-standing bridges (prefabricated modular steel or pre-cast concrete bridges)
- Proprietary access roadways
- Haul roads (including hardcore, sleepers, steel plates or a combination)

For larger scale projects or permanent crossings, diversion of the asset may be required.

Figure 3. Construction traffic requirements



### 6.4 Specific Activities

This section details the precautions that need to be taken when carrying out certain prescribed activities in the vicinity of a Cadent asset. The promoter of works is required to consult Cadent when intending to undertake one of the activities listed below to obtain further site-specific advice on whether the work has the potential to affect the asset. The table to the right shows, for some specific activities, the prescribed distances where the advice of Cadent shall be sought.

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| Activity                   | Distance within which Cadent advice shall be sought                                                                                   |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| Piling                     | 15m                                                                                                                                   |
| Surface mineral extraction | 100m                                                                                                                                  |
| Landfilling                | 100m                                                                                                                                  |
| Demolition                 | 150m or 400m for structure mass > 10000 tonnes                                                                                        |
| Blasting                   | 500m if the MIC is greater than 200kg<br>250m if the MIC is greater than 10kg but less than 200kg<br>100m if the MIC is 10kg or less. |
| Deep mining                | 1000m                                                                                                                                 |
| Wind turbine               | 1.5 times mast height                                                                                                                 |

#### **6.4.1 Carriageway construction (including widening & bell mouth construction)**

Where it is proposed to carry out carriageway construction over an asset previously located in a footway or verge, you must contact the diversions team to determine if diversion or replacement of the asset is required before commencement of your works.

#### **6.4.2 Trenchless techniques**

Where trenchless techniques are being considered, a formal risk assessment and method statement shall be produced and submitted to the Cadent Plant Protection Officer for review prior to commencing work. Please provide Cadent with at least 14 days' notice as we may wish to be present to monitor the work.

##### **6.4.2.1 Tunnelling**

Ground movement may occur when tunnelling in soft ground conditions. Ground movement contours from the tunnelling operation shall be calculated and all gas assets within the affected zone should be identified and assessed.

PE assets can tolerate some differential ground movement.

For cast and ductile iron assets, acceptable limits on stress increase and joint disturbances are defined in the performance acceptance criteria for iron mains.

For steel assets, an integrity assessment should be carried out according to the industry standard **IGEM/TD/12 – Pipework stress analysis for gas industry plant**. An expert on Soil/Pipe Interaction Analysis should be consulted when required for the evaluation of ground movement effects on the assets.

For any proposed tunnelling works, you must contact the diversions team to determine if diversion or replacement of the asset is required before commencement of your works, due to the likely impact on our assets.

#### **6.4.3 Changes to depth of cover**

The depth of cover over Cadent's asset shall not be altered. Where a change in cover is required, contact your Cadent Plant Protection Officer.

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#### **6.4.4 Piling**

No piling shall be allowed within 15m of an asset without an assessment of the vibration levels at the asset.

For steel or PE assets, the peak particle velocity at the asset shall be limited to a maximum level of 75mm/sec.

For iron assets, the peak particle velocity at the asset shall be limited to a maximum level of 25mm/sec.

The promoter of the works should provide the Cadent Plant Protection Officer with the anticipated vibration levels prior to the work commencing. The ground vibration should be monitored by the promoter to verify the anticipated levels and to ensure the allowable peak particle velocity is not exceeded. Alarms should be set at suitable increments to provide a forewarning of limit exceedance. The promoter shall retain records of ground vibration levels for provision of the Cadent Plant Protection Officer on request.

Where ground conditions include silt or sand, an assessment of the effect of vibration on settlement and liquefaction at the asset shall be made, which may require expert advice.

#### **6.4.5 Demolition**

No demolition should be allowed within 150m of an asset for 400m for a structure mass greater than 10,000 tonnes without an assessment of the vibration levels at the asset.

For steel or PE assets, the peak particle velocity at the asset shall be limited to a maximum level of 75mm/sec.

For iron assets, the peak particle velocity at the asset shall be limited to a maximum level of 25mm/sec.

The promoter of the works should provide the Cadent Plant Protection Officer with the anticipated vibration levels prior to the work commencing. The ground vibration should be monitored by the promoter to verify the anticipated levels and to ensure the allowable peak particle velocity is not exceeded. Alarms should be set at suitable increments to provide a forewarning of limit exceedance. The promoter shall retain records of ground vibration levels for provision of the Cadent Plant Protection Officer on request.

Where ground conditions include silt or sand, an assessment of the effect of vibration on settlement and liquefaction at the asset shall be made. Expert advice may need to be sought, which can be arranged through Cadent.

#### 6.4.6 Blasting

The Maximum Instantaneous Charge (MIC) dictates the distance at which an assessment of the vibration levels (at the located asset) is required. The measured distances are as follows:

- 500m if the MIC is greater than 200kg
- 250m if the MIC is greater than 10kg but less than 200kg
- 100m if the MIC is 10kg or less

For steel or PE assets, the peak particle velocity at the asset shall be limited to a maximum level of 75mm/sec.

For iron assets, the peak particle velocity at the asset shall be limited to a maximum level of 25mm/sec.

The promoter of the works should provide the Cadent Plant Protection Officer with the anticipated vibration levels prior to the work commencing. The ground vibration should be monitored by the promoter to verify the anticipated levels and to ensure allowable peak particle velocity is not exceeded. Alarms should be set at suitable increments to provide a forewarning of limit exceedance. The promoter shall retain records of ground vibration levels for provision of the Cadent Plant Protection Officer on request.

Where ground conditions include silt or sand, an assessment of the effect of vibration on settlement and liquefaction at the asset shall be made. Expert advice may need to be sought, which can be arranged through Cadent.

#### 6.4.7 Surface mineral extraction

An assessment shall be carried out on the effect of surface mineral extraction activity within 100m of a gas asset. Consideration should also be given to extraction around plant and equipment associated with assets (e.g. cathodic protection ground beds).

Where the mineral extraction extends up to the asset easement, a stable slope angle and stand-off distance between the asset and slope crest shall be determined. Where an easement exists, the easement strip shall be clearly marked by a suitable permanent boundary, such as a post and wire fence. Additionally, where appropriate, slope indicator markers shall be erected to facilitate the verification of the recommended slope angle as the slope is formed, by the third party. The asset easement and slope need to be inspected periodically to identify any signs of developing instability. This may include any change of slope profile including:

- Bulging
- The development of tension cracks on the slope or easement
- Any changes in drainage around the slope

The results of each inspection should be recorded.

Where surface mineral extraction activities are planned within 100m of the asset but do not extend up to the asset easement boundary, an assessment should be made as to whether this could promote instability in the vicinity of the asset. This may occur where the asset is routed across a natural slope or the excavation is deep. A significant cause of this problem is where the groundwater profile is affected by changes in drainage or the development of lagoons.

Where the extraction technique involves explosives, the provisions of [Section 6.4.6](#) apply.

#### **6.4.8 Deep mining**

Gas assets within 1km of active deep mining may be affected by subsidence resulting from mineral extraction. The determination of protective or remedial measures will normally require expert assistance, which can be arranged through Cadent.

#### **6.4.9 Landfilling**

The creation of slopes outside of the asset easements may promote instability within the vicinity of the asset. Cadent should carry out an assessment to determine the effect of any landfilling activity within 100m of an asset. The assessment is particularly important if landfilling operations are taking place on a slope in which the asset is routed.

#### **6.4.10 Pressure testing**

Pressure testing should not be permitted within 8m of an asset unless suitable precautions have been taken against the effects of a pipe failure.

#### **6.4.11 Seismic surveys**

The promoter of works shall advise Cadent of any seismic surveying work in the vicinity of PE or steel assets that will result in peak particle velocities in excess of 75mm/sec at the asset or for iron assets that will result in peak particle velocities in excess of 25mm/sec at the asset.

The promoter of the works should provide Cadent the anticipated vibration levels prior to the work commencing. The ground vibration should be monitored by the promoter to verify the anticipated levels and to ensure allowable peak particle velocity is not exceeded. Alarms should be set at suitable increments to provide a forewarning of limit exceedance. The promoter shall retain records of ground vibration levels for provision of the Cadent Plant Protection Officer on request.



#### 6.4.12 Hot work

Where the Cadent's metallic gas assets have been exposed, welding (or other hot works that may involve naked flames) should not be carried out in proximity of the gas asset. This may be reduced if suitable protection and precautions have been agreed with Cadent.

If the gas asset is PE (or a PE asset is contained within a metallic sleeve) welding, or other hot works that may involve naked flames, shall not take place within 500mm of the gas asset. For further advice contact your network Plant Protection Officer.

Protection measures shall be agreed with the Cadent Plant Protection Officer prior to installation to prevent the effects of sparks, radiant heat transfer etc.

Any hot works in proximity to a Cadent gas asset require leakage surveys prior to, during and after the works. If gas is detected, all works shall stop, and the leak immediately reported to the National Gas Emergency Service on 0800 111 999.

The Cadent Plant Protection Officer will determine the need to remain on site to monitor all welding, burning or other 'hot work' that takes place.

#### 6.4.13 Wind turbines

Wind turbines shall not be sited any closer than 1.5 times the proposed height of the turbine mast away from the nearest edge of the asset.

Further guidance can be found from UKOPA's Good Practice Guide 13 ([UKOPA/GP/013](#)) - Requirements for the Siting and Installation of Wind Turbines Installations in the Vicinity of Buried Pipelines.

#### 6.4.14 Solar farms

Solar Farms can be built adjacent to gas assets, but never within an easement. Advice shall be sought from Cadent at the early stages of design to ensure that electrical interference, security, future access and construction methods can be mutually agreed.

Interference checks shall be completed by the third party to ensure that the solar installations and associated infrastructure have no negative effect on cathodic protection systems.

Further guidance can be found from UKOPA's Good Practice Guide 14 ([UKOPA/GP/014](#)) - Requirements for the Siting and Installation of Solar Photovoltaic (PV) Installations in the Vicinity of Buried Pipelines.

#### 6.4.15 Lifting operations

Where lifting operations are planned to be carried out in the vicinity of medium pressure apparatus a site-specific risk assessment and lift plan is required to be reviewed by the Cadent Plant Protection Officer.

Protection shall be afforded to live apparatus when carrying out the works to prevent impact damage in the event of an uncontrolled failure or drop. Any loads shall be secured using suitable and sufficient lifting accessories to reduce the likelihood of the load being dropped.

Consideration shall be given to the location of lifting equipment and the loads induced into the ground to avoid the potential overloading of buried apparatus. Where the site cannot be laid out to avoid loading gas apparatus, the asset shall be suitably protected with the consent of the

Cadent Plant Protection Officer. Alternatively, the asset will require replacement/diversion.

## **6.5 Backfilling and Reinstatement**

Reinstatement around Cadent apparatus still poses a risk to the integrity of the asset. A gas asset must not be located within the footway or carriageway construction as this has the potential to cause damage to the apparatus during and post completion of the reinstatement.

No backfilling should be undertaken without Cadent's agreement to proceed. Some equipment may not be suitable for use over or around assets due to the adverse effects of excessive compaction and vibration levels.

A gas asset shall not be encased in concrete or have concrete positioned within 300mm of the asset, or anywhere above an iron gas asset due to the need for future access.

The fine fill material should be firmly packed around the pipe in 100mm layers to achieve a compacted thickness of 75mm and shall be laid to a minimum depth of 150mm above the crown of the asset.

Mechanical compaction equipment shall not be used until a 250mm hand rammed layer has been compacted above the crown of the pipe.

For backfilling and reinstatement in the vicinity of iron apparatus, in addition to the above, the maximum weight of compaction equipment used above the crown of the asset shall not exceed 1.5t/m<sup>2</sup> and vibratory compaction shall not be used.

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Material used in the backfill shall conform to the following requirements:

- Sand shall be well-graded in accordance with BS EN 13242:2002+A1:2007
- It shall not contain any sharp objects, large stones or bricks
- Foamed concrete shall not be used

We will require marker tape to be installed at least 250mm above the crown of the main.

Prior to backfilling, if the asset is coated, Cadent require the opportunity to inspect its condition in order to assess and to carry out any repairs as necessary. Please contact your network Plant Protection office to arrange this. Any damage to the asset or coating shall be reported to the Cadent Plant Protection Officer so that damage can be assessed, and repairs carried out.

Minor (and existing) damage to pipe coating and cathodic protection test leads will be repaired by Cadent free of charge. If the asset has been backfilled without the knowledge of the Cadent Plant Protection Officer, the third party will need to re-excavate to enable the condition of the asset coating to be assessed.

All temporary supports shall be removed prior to backfill but only when the asset is sufficiently supported by bedding material around the pipe.

## 7 Working in the Vicinity of a Low Pressure Gas Asset (Operating at Pressures up to 75 mbar)

*For planned and emergency works in the vicinity of Low Pressure gas assets, the promoter will be advised proceed with caution. The guidance contained within this section must be followed. If it cannot, contact shall be made with the network Plant Protection office for advice.*

### 7.1 Temporary and Permanent Structures

No temporary or permanent structures are permitted to be installed above, or in close proximity to a gas asset or easement due to the restriction of access this imposes. This includes, but is not limited to, permanent street furniture such as planters and bollards and temporary buildings such as welfare units and other enclosed spaces. The building proximity distances for low pressure assets is 1m.

Please note that the easement distance may be greater than the building proximity distance, for any proposed structures in the easement please consult with the Cadent network Plant Protection Officer.

### 7.2 Excavation

#### 7.2.1 General

Mechanical excavators should not be sited or moved above an asset.

Mechanical excavators and any other powered mechanical plant shall not dig on one side of an asset with the cab of the excavator positioned on the other side. All traffic should be positioned far enough away from the trench to prevent trench wall collapse.

Excavation with a powered mechanical excavator should not be carried out until gas assets have been located through vacuum excavation or by hand. No mechanical excavation is permitted within 500mm of gas assets. Any mechanical excavation should utilise a banks person. Toothless buckets shall be used due to the potential of damage to assets using toothed excavator buckets.

Consideration shall be given to apparatus installed on gas assets including valves, spindles, pressure points etc. Any fitting, attachment or connecting pipework on the asset shall be exposed by hand.

Where concrete is exposed around gas apparatus this shall not be removed as it could be providing protection or anchorage to the live apparatus.

Where a third party is using any trench support system, they shall ensure that none of its components are in contact with the asset.



The use of chain trenchers to do this is not permitted within 3m of the confirmed location of the asset.

### **7.2.2 Working in vicinity of iron pipework**

When deep excavation greater than 1.5m in depth is carried out in the vicinity of iron pipework, steps shall be taken to ensure the risk associated with immediate and latent asset failure are considered, and where necessary, excavations are cut back to reduce the shear factor created by ground disturbance likely to result in settlement. This also includes instances where excavations are part of construction works including basement conversions, underground carparks, shaft construction, etc.

Care should be taken to ensure that any exposed iron pipework is suitably supported at 1m intervals and is protected from damage to avoid creating tensions that could lead to joint disturbance or pipe barrel fracture.

Where fittings or existing repairs are uncovered care shall be taken to ensure that these are not disturbed.

When working near ductile iron pipework should any corrosion be identified on the pipeline this shall be reported to 0800 111 999 for a first call operative to attend to undertake a hazard assessment.

### **7.2.3 In proximity to an asset in an easement**

Where sufficient depth of cover exists and the absence of attachments and projections has been confirmed (e.g. valve spindles, pressure points etc.), following evidence from hand dug trial holes, light tracked vehicles may be permitted to strip topsoil to a depth of

250mm using a toothless bucket.

No topsoil or other materials shall be stored within the easement without the written permission of Cadent. No fires are allowed in the easement strip or other gas assets.

After the completion of the work, the level of cover over an asset should be the same as that prior to work commencing.

No new service shall be laid parallel to an asset within an easement.

Where work is being carried out parallel to an asset, within or alongside an easement, suitable barriers shall be erected between the works and the asset to prevent encroachment or damage.

### **7.2.4 In proximity to an asset in the highway**

Where sufficient depth of cover exists, and the absence of attachments and projections has been confirmed (e.g. valve spindles, pressure points etc.), following evidence from hand dug trial holes, removal of the bituminous or concrete highway surface layer by mechanical means is permitted to a depth of 300mm. Where the bituminous or concrete highway surface layer extends below 300mm deep, it shall only be removed by handheld power assisted tools.

### **7.2.5 Crossing over an asset (Open cut)**

Where a new service is to cross over an asset, a minimum clearance distance of 1.5 times the diameter of the gas asset or 300mm, whichever is greater shall be maintained. If this cannot be achieved, the service shall cross below the asset, [see Section 7.2.6](#).

### **7.2.6 Crossing below an asset (Open cut)**

Where a service is to cross below an asset, a minimum clearance distance of 1.5 times the diameter of the gas asset or 300mm, whichever is greater, between the crown of the new service and underside of the asset shall be maintained. The exposed asset shall be suitably supported and protected by matting and timber cladding. Any supports shall be removed prior to backfilling.

### **7.2.7 Cathodic Protection (CP)**

Cathodic protection (CP) is applied to some buried steel pipes and is a method of protecting assets from corrosion by maintaining an electrical potential between the asset and anodes placed at strategic points along the asset. Where a new service is to be laid and similarly protected, the party installing the CP system shall undertake tests to determine whether the new service is interfering with the cathodic protection of the Cadent asset.

Should any cathodic protection posts or associated apparatus need moving to facilitate third party works, appropriate notice, shall be given to Cadent. Cadent will undertake this work and any associated costs will be borne by the third party.

### **7.2.8 Installation of electrical equipment**

Where electrical equipment is being installed close to Cadent's buried steel assets, the effects of a rise of earth potential under fault conditions shall be considered by the third party and a risk assessment carried out. Equipment shall not be installed if the integrity of Cadent's

assets is compromised. In this case, diversion of the affected assets will be required.

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The installation of electrical cables parallel to Cadent assets may induce currents into the asset. This may interfere with the effective operation of cathodic protection systems. In these instances, Cadent will require the promoter of the works to conduct pre and post energisation potential surveys of Cadent's assets. The costs for any stray current mitigation systems required will be borne by the third-party promoter.

## **7.3 Construction Traffic**

The promoter of the works should review the ground conditions, vehicle types and crossing frequency to determine the type and construction of crossing that will be required. Additionally, no undue loads such as spoil heaps, lighting columns, permanent traffic lights or road signs shall be allowed over gas assets.

Iron pipes, or pipes that are not already within an existing road such as those within footways or verges shall not be crossed by construction vehicles without suitable protection being designed and installed. Consideration shall be given to the requirement for access to low pressure apparatus therefore for large scale, long duration projects, or permanent crossings, the diversions process shall be followed to determine whether the asset requires diversion/

replacement in advance of the works taking place.

Where existing roads cannot be used, construction traffic should only cross Cadent assets with a minimum depth of cover of 750mm (post crossing construction) at specific locations, with notices directing traffic to the crossing points erected. All crossing points shall:

- Be at right angles to the asset
- Be fenced denoting the existence of the asset to ensure all traffic uses the crossing point. The fencing shall cover the width of any easements and extend a further 6m along the length of any easements on both sides (see Figure 2 on page 13).
- Have signs attached to the fence denoting the asset that the crossing point is located over
- Be regularly inspected and maintained in good condition

*Note: A 5mph speed restriction should be enforced at all crossing points.*

Suitable protection methods may include:

- Temporary protection slab
- Free-standing bridges (prefabricated modular steel or pre-cast concrete bridges)
- Proprietary access roadways
- Haul roads (including hardcore, sleepers, steel plates or a combination)

## 7.4 Specific Activities

This section details the precautions that need to be taken when carrying out certain prescribed activities in the vicinity of a Cadent asset. The promoter of works is required to consult Cadent when intending to undertake one of the activities listed below and further advice is required on whether the work has the potential to affect the asset.

### 7.4.1 Carriageway construction (including widening & bell mouth construction)

Where it is proposed to carry out carriageway construction over an asset previously located in a footway or verge you must contact the diversions team to determine if diversion or replacement of the asset is required before commencement of your works.

### 7.4.2 Trenchless techniques

Where trenchless techniques are being considered, a formal risk assessment and method statement shall be produced prior to commencing work.

Trial holes shall be undertaken to ensure that sufficient clearance exists between gas assets and the proposed third-party asset (or the pipe to be split if a pipe splitting technique is being used) prior to the works.

If an asset is to be replaced using pipe splitting techniques in the vicinity of iron mains, in addition to the below clauses, an integrity assessment shall be undertaken.

When running parallel to gas assets, the minimum clearance shall be:

- 1m

When crossing gas assets, the minimum clearance shall be:

- 500mm or 1.5 times the diameter of the asset, whichever is greater.

Clearances may need to be increased due to the following factors:

- Ground conditions
- Largest reamer diameter
- Type of reamer used, e.g. hollow, finned, etc.
- Accuracy of equipment being used
- Construction of adjacent services and structures
- Configuration of other underground services crossing or running parallel to the drill path
- Consequences of damage
- Pipe stress increase from potential ground movement

The exposed asset should be suitably supported and be protected by matting and suitable timber cladding to reduce the risk of damage from any broken pipe fragments (if pipe splitting is used).

Supports shall be removed prior to backfill but only when the asset is sufficiently supported by bedding material around the pipe.

All lateral crossings shall be exposed around their full circumference with an additional 250mm clearance below. The width of the excavation shall be three times the diameter of the largest reamer or 500mm either side of the largest reamer, whichever is the greatest. These clearances shall be measured from the drill path centre. Each crossing should be manned during the drilling/splitting operation to watch the reamer/splitter pass.

For pipe splitting running parallel to a buried gas asset, trial holes should be undertaken at suitable and frequent locations along the proposed route to confirm sufficient clearance distances exist, and the pipe route is confirmed.

The line of the pipe to be installed/split should be monitored along its length to ensure no variance from its path.

Consideration should be given for a leakage survey to be undertaken before work starts, during the works if safe to do so and following completion. If there is any likelihood of damage to the asset, the operation shall be stopped immediately.

#### **7.4.2.1 Tunnelling**

Ground movement may occur when tunnelling in soft ground conditions. Ground movement contours from the tunnelling operation shall be calculated and all gas assets within the affected zone should be identified and assessed.

PE assets can tolerate some differential ground movement.



For cast and ductile iron assets, acceptable limits on stress increase and joint disturbances are defined in the performance acceptance criteria for iron mains.

For steel assets an integrity assessment should be carried out according to the industry standard **IGEM/TD/12 – Pipework stress analysis for gas industry plant**.

An expert on Soil/Pipe Interaction Analysis should be sought when required for the evaluation of ground movement effects on the assets.

For any proposed tunnelling works, due to the likely impact on our assets you must contact the diversions team to determine if diversion or replacement of the asset is required before commencement of your works.

#### **7.4.3 Changes to depth of cover**

The depth of cover over or around Cadent's iron assets shall not be altered. If a change in the depth of cover is required, you must contact the diversions team to arrange for diversion or replacement of the asset before commencement of your works.

For PE and steel pipes, reductions in depth of cover are only permitted if the below minimum depths of cover can be maintained (following investigation across the affected length):

- In fields and agricultural land 1.1m
- In roads and verges 750mm
- In footpaths 600mm
- In private property 600mm

Substantial increases in depth of cover shall not be permitted.

Where a change in the depth of cover affects attachments and projections such as services and valves, liaison with our diversions team is required to ensure these are appropriately protected or altered.

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or by phone 0330 678 1034**

#### **7.4.4 Piling**

No piling shall be allowed within 15m of an asset without an assessment of the vibration levels at the asset.

For steel or PE assets, the peak particle velocity at the asset shall be limited to a maximum level of 75mm/sec.

For iron assets, the peak particle velocity shall be limited to a maximum level of 25mm/sec.

The promoter of the works should determine the anticipated vibration levels prior to the work commencing. The ground vibration should be monitored by the promoter to verify the anticipated levels and to ensure the allowable peak particle velocity is not exceeded. Alarms should be set at suitable increments to provide a forewarning of limit exceedance. The promoter shall retain records of ground vibration levels for provision of the Cadent Plant Protection Officer on request.

Where ground conditions include silt or sand, an assessment of the effect of vibration on settlement and liquefaction at the asset shall be made, which may require expert advice.

#### 7.4.5 Demolition

No demolition should be allowed within 150m of an asset for 400m for a structure mass greater than 10,000 tonnes without an assessment of the vibration levels at the asset.

For steel or PE assets, the peak particle velocity at the asset shall be limited to a maximum level of 75mm/sec.

For iron assets, the peak particle velocity at the asset shall be limited to a maximum level of 25mm/sec.

The promoter of the works should determine the anticipated vibration levels prior to the work commencing. The ground vibration should be monitored by the promoter to verify the anticipated levels and to ensure the allowable peak particle velocity is not exceeded. Alarms should be set at suitable increments to provide a forewarning of limit exceedance. The promoter shall retain records of ground vibration levels for provision of the Cadent Plant Protection Officer on request.

Where ground conditions include silt or sand, an assessment of the effect of vibration on settlement and liquefaction at the asset shall be made. Expert advice may need to be sought.

Where demolition is proposed you must ensure that the gas supply to the premises has been isolated in a suitable, identified location.

#### 7.4.6 Blasting

The Maximum Instantaneous Charge (MIC) dictates the distance at which an assessment of the vibration levels (at the located asset) is required. The measured distances are as follows:

- 500m if the MIC is greater than 200kg
- 250m if the MIC is greater than 10kg but less than 200kg
- 100m if the MIC is 10kg or less

For steel or PE assets, the peak particle velocity at the asset shall be limited to a maximum level of 75mm/sec.

For iron assets, the peak particle velocity at the asset shall be limited to a maximum level of 25mm/sec.

The promoter of the works should determine the anticipated vibration levels prior to the work commencing. The ground vibration should be monitored by the promoter to verify the anticipated levels and to ensure allowable peak particle velocity is not exceeded. Alarms should be set at suitable increments to provide a forewarning of limit exceedance. The promoter shall retain records of ground vibration levels for provision of the Cadent Plant Protection Officer on request.

Where ground conditions include silt or sand, an assessment of the effect of vibration on settlement and liquefaction at the asset shall be made. Expert advice may need to be sought.

#### 7.4.7 Surface mineral extraction

An assessment shall be carried out on the effect of surface mineral extraction activity within 100m of an asset. Consideration should also be given to extraction around plant and equipment associated with assets (e.g. cathodic protection ground beds).

Where the mineral extraction extends up to the asset easement, a stable slope angle and stand-off distance between the asset and slope crest shall be determined.

Where an easement exists, the easement strip shall be clearly marked by a suitable permanent boundary, such as a post and wire fence. Additionally, where appropriate, slope indicator markers shall be erected to facilitate the verification of the recommended slope angle as the slope is formed, by the third party. The asset easement and slope need to be inspected periodically to identify any signs of developing instability.

This may include any change of slope profile including:

- Bulging
- The development of tension cracks on the slope or easement
- Any changes in drainage around the slope

The results of each inspection should be recorded.

Where surface mineral extraction activities are planned within 100m of the asset but do not extend up to the asset easement boundary, an assessment should be made as to whether this could promote instability in the vicinity of the asset. This may occur where the asset is routed across a natural slope or the excavation is deep. A significant cause of this problem is where the groundwater profile is affected by changes in drainage or the development of lagoons.

Where the extraction technique involves explosives, the provisions of [Section 7.4.6](#) apply.

#### **7.4.8 Deep mining**

Assets routed within 1km of active deep mining may be affected by subsidence resulting from mineral extraction. The determination of protective or remedial measures will normally require expert assistance.

#### **7.4.9 Landfilling**

The creation of slopes outside of the asset easements may promote instability within the vicinity of the asset. An assessment shall be carried out by the promoter of the works to determine the effect of any landfilling activity within 100m of an asset. The assessment is particularly important if landfilling operations are taking place on a slope in which the asset is routed.

#### **7.4.10 Pressure testing**

Pressure testing should not be permitted within 8m of an asset unless suitable precautions have been taken against the effects of a pipe failure.



#### **7.4.11 Seismic surveys**

The promoter of works shall advise Cadent of any seismic surveying work in the vicinity of PE or steel assets that will result in peak particle velocities in excess of 75mm/sec at the asset or for iron assets that will result in peak particle velocities in excess of 25mm/sec at the asset.

The promoter of the works should determine the anticipated vibration levels prior to the work commencing. The ground vibration should be monitored by the promoter to verify the anticipated levels and to ensure allowable peak particle velocity is not exceeded. Alarms should be set at suitable increments to provide a forewarning of limit exceedance. The promoter shall retain records of ground vibration levels for provision of the Cadent Plant Protection Officer on request.

#### **7.4.12 Hot work**

Where the Cadent's metallic gas asset has been exposed, welding (or other hot works that may involve naked flames) should not be carried out in proximity of the gas asset.

If the gas asset is PE (or a PE asset is contained within a metallic sleeve) welding, or other hot works that may involve naked flames, shall not take place within 500mm of the gas asset.

Protection measures shall be installed to prevent the effects of sparks, radiant heat transfer etc.

Any hot works in proximity to a Cadent gas asset shall require leakage surveys prior to, during and after the works. If gas is detected, all works shall stop, and the leak immediately reported to the National Gas Emergency Service on 0800 111 999.

#### **7.4.13 Wind turbines**

Wind turbines shall not be sited any closer than 1.5 times the proposed height of the turbine mast away from the nearest edge of the asset.

Further guidance can be found from UKOPA's Good Practice Guide 13 ([UKOPA/GP/013](#)) - Requirements for the Siting and Installation of Wind Turbines Installations in the Vicinity of Buried Pipelines.

#### **7.4.14 Solar farms**

Solar Farms can be built adjacent to assets but never within an easement.

Interference checks shall be completed by the third party to ensure that the solar installations and associated infrastructure have no negative effect on cathodic protection systems.

Further guidance can be found from UKOPA's Good Practice Guide 14 ([UKOPA/GP/014](#)) - Requirements for the Siting and Installation of Solar Photovoltaic (PV) Installations in the Vicinity of Buried Pipelines.

#### **7.4.15 Lifting operations**

Where lifting operations are planned to be carried out in the vicinity of low pressure apparatus a site-specific risk assessment and lift plan is required.

Protection shall be afforded to live apparatus when carrying out the works to prevent impact damage in the event of an uncontrolled failure or drop. Any loads shall be secured using suitable and sufficient lifting accessories to reduce the likelihood of the load being dropped.

Consideration shall be given to the location of lifting equipment and the loads induced into the ground to avoid the potential overloading of buried apparatus.

Where the site cannot be laid out to avoid loading gas apparatus, the asset shall be suitably protected with the consent of the Cadent Plant Protection Officer. Alternatively, the asset will require replacement/diversion.

## 7.5 Backfilling and Reinstatement

Reinstatement around Cadent apparatus still poses a risk to the integrity of the asset. A gas asset must not be located within the footway or carriageway construction as this has the potential to cause damage to the apparatus during and post completion of the reinstatement.

No backfilling should be undertaken without Cadent's agreement to proceed. Some equipment may not be suitable for use over or around assets due to the adverse effects of excessive compaction and vibration levels.

A gas asset shall not be encased in concrete or have concrete positioned within 300mm of the asset or anywhere above an iron gas asset due to the need for future access.

The fine fill material should be firmly packed around the pipe in 100mm layers to achieve a compacted thickness of 75mm and shall be laid to a minimum depth of 150mm above the crown of the asset

Mechanical compaction equipment shall not be used until a 250mm hand rammed layer has been compacted above the crown of the pipe

For backfilling and reinstatement in the vicinity of iron apparatus, in addition to the above, the maximum weight of compaction equipment used above the crown of the pipe shall not exceed 1.5t/m<sup>2</sup> and vibratory compaction shall not be used.

Material used in the backfill shall conform to the following requirements:

- Sand shall be well-graded in accordance with BS EN 12620:2002+A1:2007
- It shall not contain any sharp objects, large stones or bricks
- Foamed concrete shall not be used

We will require marker tape to be installed at least 250mm above the crown of the pipe. Any damage to the asset or coating shall be reported to the Cadent Plant Protection Office so that damage can be assessed, and repairs carried out.

Minor (and existing) damage to pipe coating and cathodic protection test leads will be repaired by Cadent free of charge. If the asset has been backfilled without the knowledge of the Cadent Plant Protection Officer, the third party will need to re-excavate to enable the condition of the asset coating to be assessed.

All temporary supports shall be removed prior to backfill but only when the asset is sufficiently supported by bedding material around the pipe.

**You can contact our  
diversions team by email  
[diversions@cadentgas.com](mailto:diversions@cadentgas.com)  
or by phone 0330 678 1034**

## 8 Working in the Vicinity of a Pressure Reduction Installation (PRI)

Pressure reduction installations come in a variety of forms:

- Above Ground Installation (AGI) – Sites with exposed pipes surrounded by fencing
- Above Ground Installation (AGI) – District governors often found in large above ground kiosks with vent stacks attached
- Below Ground Installation – District governors with large surface governors for valves and pressure reduction equipment with an above ground control cabinet and vent stack
- Service governor Installations – Small service governors providing gas to a small number of customers in an area often identified by a small green or brick kiosk

Where excavations are to be made within 10 metres of the perimeter of a pressure reduction installation (above or below ground), with the exception of service governor installations, appropriate protection methods should be determined and recorded by the Cadent Plant Protection Officer.

These installations may have magnetic slam shut devices which could operate in the event of high vibration levels being caused by the works. Advice on whether these are present shall be sought from the Cadent Plant Protection Officer and we may need to have an operative, with the competence to reset the plant, on site whilst your works are being undertaken.

Hazardous areas may be present around these installations and no ignition sources are permitted within these zones. Information on the zonings shall be sought from the Cadent Plant Protection Officer prior to commencement of any works on site.

There may be telemetry and pressure recording lines in the vicinity of these installations therefore extreme caution must be exercised when planning and undertaking works in the vicinity of these assets.

In addition to this, the safety advice detailed in either or a combination of [Sections 5, 6 or 7](#) shall be observed when working in the proximity of an AGI.

Access to gas assets shall be maintained at all times.



## 9 Tree Planting

**Before any tree planting is carried out in the vicinity of a Cadent asset or its easement, written consent should be obtained. This approval should be subject to Cadent retaining the right to remove any trees which might become a danger or restrict access to the asset at any time in the future.**

The only hardwood plants which can be planted directly across an asset are shallow rooting hedge plants such as Quickthorn, Blackthorn, etc., and these shall only be planted where a hedge is necessary for screening or to indicate a field boundary.

Raspberries, Gooseberries and Blackcurrants shall not be planted within 2m of the outside edge of the pipe.

Dwarf Apple Stocks shall not be planted within 3m of an asset.

Christmas trees (*Picea Abies*) shall not be planted within 3 metres of an asset. However, permission may be given on the strict understanding that Christmas trees are clear-felled at intervals not exceeding seven years.

The following trees, and those of similar size which may be deciduous or evergreen, shall not be planted within 6 metres of an asset:

- Ash, Beech, Birch, most Conifers, Elm, Maple, Horse Chestnut, Oak, Sycamore, Apple, Lime and Pear trees.

Dense mass planting shall not be carried out within 10m of the outside edge of the pipe.

Poplar and Willow trees shall not be planted within 10m of the outside edge of the pipe.

For further guidance please refer to **Street Works UK Volume 4 and Appendix B.**



# 10 Unidentified Exposed Pipes

An unidentified pipe is one that is not shown on any current or historical records.

Iron and steel water pipes and gas pipelines may appear very similar. If any such pipe is uncovered, it shall be treated as if it were a gas pipe.

If upon checking with all other utilities you believe an unidentified pipe to be a gas pipe, the promoter of the works shall contact [plantprotection@cadentgas.com](mailto:plantprotection@cadentgas.com) with the following information:

- LSBUD enquiry reference
- Site address (please include postcode and grid references)
- Site contact details
- Size of pipe

- Pipe material
- Confirmation that the unidentified pipe is exposed (if not, it will need to be exposed prior to our attendance)
- Confirmation that Cadent and all other asset owners plans, are available for review and inspection
- Photos of the pipe

---

*Please be aware that it can take up to 28 days for us to confirm whether the unidentified exposed pipe is a gas asset or not.*

---



# 11 Action in Case of Damage to an Asset

**If you hit a gas asset, whether the damage is visible or not, or in the event of an emergency, call the National Gas Emergency Service immediately on 0800 111 999\*.**

**If the Cadent asset is damaged, even slightly, and even if no gas leak has occurred, then the following precautions shall be taken immediately:**

- Shut down all plant and machinery and extinguish any potential sources of ignition
- Evacuate all personnel from the vicinity of the asset
- Notify Cadent using the free 24-hour emergency telephone number 0800 111 999\*
- Notify the Cadent responsible person immediately using the contact telephone number provided
- Ensure no one approaches the asset
- Do not try to stop any leaking gas
- Provide assistance as requested by Cadent, or emergency services to safeguard persons and property

\*All calls are recorded and may be monitored



# 12 References

| Reference                | Description                                                                                                               |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------|
| HASAWA                   | The Health and Safety at Work etc Act 1974                                                                                |
| CDM                      | The Construction (Design and Management) Regulations 2015                                                                 |
| LOLER                    | Lifting Operations and Lifting Equipment Regulations 1998                                                                 |
| RIDDOR                   | Reporting of Injuries, Diseases & Dangerous Occurrences Regulations 2013                                                  |
| GS(M)R                   | Gas Safety (Management) Regulations 1996                                                                                  |
| PSR                      | Pipelines Safety Regulations 1996                                                                                         |
| NRSWA                    | New Roads and Street Works Act 1991                                                                                       |
| HS(G)47                  | Avoiding Danger from Underground Services                                                                                 |
| IGEM/SR/18               | Safe Working Practices to Ensure the Integrity of Gas Pipelines and Associated Installations                              |
| IGEM/TD/12               | Pipework stress analysis for gas industry plant                                                                           |
| Street Works UK Volume 4 | Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees                      |
| UKOPA/11/0027            | Requirements for the Siting of Wind Turbines Close to HP Pipelines                                                        |
| UKOPA/GP/013             | Requirements for the Siting and Installation of Wind Turbines Installations in the Vicinity of Buried Pipelines           |
| UKOPA/GP/014             | Requirements for the Siting and Installation of Solar Photovoltaic (PV) Installations in the Vicinity of Buried Pipelines |

## 13 Glossary of Terms

| Term                            | Definition                                                                                                                                                                                                                                                                                                                                                                                            |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Easement                        | Easements are negotiated legal entitlements between Cadent and landowners and allow Cadent to lay, operate and maintain assets within the easement strip. Easement strips may vary in width, typically between 6 and 25 metres depending on the diameter and pressure of the pipeline. Consult Cadent for details of the extent of the easement strip where work is intended.                         |
| Liquefaction                    | Liquefaction is a phenomenon in which the strength and stiffness of the soil is reduced by earthquake shaking or other rapid loading. Liquefaction occurs in saturated soils, that is, soils in which the space between individual particles is completely filled with water. When liquefaction occurs, the strength of the soil decreases and the ability of the soil to support assets are reduced. |
| Promoter of works               | The person or persons, firm, company or authority for whom new services, structures or other works in the vicinity of existing Cadent assets and associated installations.                                                                                                                                                                                                                            |
| Cadent Plant Protection Officer | The person or persons appointed by Cadent with the competencies required to act as the Cadent representative for the purpose of monitoring a particular activity.                                                                                                                                                                                                                                     |
| Banksperson                     | <p>Another person who assists the machine operator from a position where they can safely see into the excavation and warn the driver of any services or other obstacles.</p> <p>This person should remain outside of the operating radius of the excavator arm and bucket.</p>                                                                                                                        |

## Appendix A - Typical Asset Location Markers

**Cadent**

Your Gas Network

**DANGER**

**GAS ASSET**

**DIAL BEFORE YOU DIG**

**CALL 0800 688 588**

24hrs NATIONAL GAS EMERGENCY NUMBER

**0800 111 999\***

\*CALLS WILL BE RECORDED AND  
MAY BE MONITORED



# Appendix B - Tree Planting Guidance

Distance is measured from the edge of the pipeline



\*except for hedges where approved

## Emergency

If you hit an asset, whether the damage is visible or not, or in the event of an emergency, call the National Gas Emergency Service immediately on

**0800 111 999\***

## Self-service for Plant Protection Enquiries

If you are planning to do work near or in the vicinity of Cadent assets please submit an enquiry online at **lsbud.co.uk**

This is a free online enquiry service giving enquiry service giving an instant risk assessed response for your work activity relative to the Cadent gas assets in the vicinity.

If you require any assistance please contact the plant protection team for free on **0800 688 588** or at **plantprotection@cadentgas.com**

## Action in Case of Damage to an Asset

- Shut down all plant and machinery and extinguish any potential sources of ignition
- Evacuate all personnel from the vicinity of the asset
- Notify Cadent using the free 24-hour emergency telephone number 0800 111 999\*
- Notify the Cadent responsible person immediately using the contact telephone number provided
- Ensure no one approaches the asset
- Do not try to stop any leaking gas
- Provide assistance as requested by Cadent, or emergency services to safeguard persons and property

\*All calls are recorded and may be monitored



# Avoiding danger from underground services



**HSG47 (Third edition),  
Published 2014**

This guidance is aimed at all those involved in commissioning, planning, managing and carrying out work on or near underground services. It will also be of use to the owners and operators of such services.

It outlines the potential dangers of working near underground services and gives advice on how to reduce any direct risks to people's health and safety, as well as the indirect risks arising through damage to services.

It explains the three basic elements of a safe system of work during excavation:

- Planning the work
- Locating and identifying buried services
- Safe excavation

This third edition brings the guidance up to date, but the basic requirements remain the same.

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First edition 1989  
Second edition 2000  
Third edition 2014

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This guidance is issued by the Health and Safety Executive. Following the guidance is not compulsory, unless specifically stated, and you are free to take other action. But if you do follow the guidance you will normally be doing enough to comply with the law. Health and safety inspectors seek to secure compliance with the law and may refer to this guidance.

## **Acknowledgments**

Figure 3 is reproduced with permission of Electricity North West and PelicanCorp.

Figure 4 is reproduced with permission of National Grid.

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# Introduction

1 This guidance outlines the potential dangers of working near underground services and gives advice on how to reduce the risks. It deals principally with risks to health and safety rather than damage to services. However, precautions taken which reduce risks to people's health and safety will generally also reduce the risk of damage to services, which can directly or indirectly pose a risk to people's health and safety.

## Who is this guidance for?

2 The guidance is aimed at all of those involved in commissioning, planning, managing and carrying out work on or near underground services, as well as the owners and operators of such services.

## Where does the guidance apply?

3 The guidance applies to situations where underground services may be found and disturbed, including:

- street works;
- road works;
- excavation, drilling and piling;
- demolition and site remediation;
- site investigation surveys;
- any other work that involves penetrating the ground at or below surface level.

Underground services are widespread. Assume they are present unless you have been shown otherwise.

## How to use the guidance

4 The guidance is divided into four chapters:

- Identifying and managing the dangers;
- Planning the work;
- Detecting, identifying and marking underground services;
- Safe excavation.

Guidance on the general precautions to prevent damage to all types of underground services is in the sections 'Planning the work' and 'Detecting, identifying and marking underground services'. Additional guidance for particular services is in the 'Safe excavation' section.

## Terms used in the guidance

### Service(s)

5 All underground pipes, cables and equipment associated with electricity, gas, water (including piped sewage) and telecommunications. Also includes other pipelines which transport a range of petrochemical and other fluids. It does not include underground structures such as railway tunnels etc.

**Service connection(s)**

6 Pipes or cables between distribution mains and individual premises.

**Emergency work**

7 Work that needs to be done immediately to repair damaged services in order to prevent continuing risk(s) to health and safety either directly, such as stopping a gas leak, or indirectly when restoring power to traffic signals at a major junction. It does not mean restoration of service to meet customer service targets.

**Client**

8 Any person or organisation for whom a project or work is carried out.

**Design**

9 Includes drawings, design details, specifications and bills of quantities. A designer is anyone who prepares or modifies these; for example, people planning the route of a new cable television scheme are designers.

## Identifying and managing the dangers

### Underground services: the dangers

10 Damage to underground services can cause fatal or severe injury as well as significant disruption and environmental damage; it can also delay the project and incur considerable costs.

#### Case study 1

A construction company paid £210 000 in fines and costs after an employee died in an explosion following damage to an 11 000-volt live cable within an excavation.

The worker suffered burns over 60% of his body while he and other workers were using breakers and a shovel within the excavation. He died of his injuries 13 days later. The company had not informed workers that there were live cables in the excavation and failed to put adequate measures in place to prevent them being damaged.

### Electricity cables

11 Injuries are usually caused by the explosive effects of arcing current, and by any associated fire or flames that may result when a live cable is penetrated by a sharp object such as the point of a tool (see front cover). Such effects can also occur when a cable is crushed severely enough to cause internal contact between the conductors, or between metallic sheathing and one or more conductors. Typically, injuries are severe – potentially fatal – burns to the hands, face and body; electric shock is possible but less likely.

12 Incidents may also arise from cables, connections and terminations which have been damaged but left unreported and unrepaired, or which have deteriorated with age.

13 Other nearby services, such as plastic gas pipes, may also be at risk from damaged live electricity cables. This could result in explosions and a greater fire risk.

### **Gas pipes**

14 Damage to gas pipes and connections can cause leaks that may lead to fire or explosion. There are two types of damage:

- damage that causes an immediate leak;
- damage that causes a leak some time later.

The damage may occur when the work is carried out, or subsequently; for example, poor reinstatement may leave a pipe inadequately supported or subject to unequal forces.

15 The risk from leaking liquified petroleum gas (LPG) is greater than from a natural gas leak as it is heavier than air and does not disperse so readily. It can also travel great distances below ground level before accumulating at low level, for example in basements and cellars.

### **Water pipes and sewers**

16 Although damage to water pipes is less likely to result in injury, the following may occur:

- A jet of water from a main can be of sufficient pressure and intensity to injure a person. It may also contain stones or other hard objects ejected from the ground around the pipe.
- Leaks of water from underground pipes can affect adjacent services and reduce support for other structures.
- Damage to mains pipes can result in flooding, leading to subsequent risks from drowning or the rapid collapse of support to the sides of an excavation; water can enter gas pipes if they are also damaged.

17 While some sewage is pumped at pressure, sewers are generally gravity-fed and the main risks from damage to a sewer are to the health of workers from exposure to raw sewage, the chance of ground collapse and possibility of environmental contamination and pollution.

### **Other pipelines**

18 The danger arising from damage to other pipelines depends on the nature of the conveyed fluid. Fluids and their associated risks include:

- flammable liquids and gases – risk of fire and explosion;
- fluids at elevated pressure – risk of injury from sudden release of contents;
- toxic liquids and gases – risk of poisoning;
- inert gases such as nitrogen and argon – risk of asphyxiation.

19 Very often a fluid will present a combination of risks; for example, a liquid may be both toxic and flammable.

### **Telecommunication cables**

20 Damage to telecommunication and TV cables may require expensive repairs and can cause considerable disruption to those relying on the system. However, the risk of personal injury to workers is normally very low.

21 Flammable and toxic gases can enter cable-carrying ducts, particularly if the duct has been damaged. Such gases can accumulate in chambers, manholes etc and pose a risk to operatives who may need to work there.



**Figure 1** Aftermath of a gas explosion, following damage to an underground gas service pipe

## Working safely

22 A safe system of work has three basic elements:

- planning the work;
- detecting, identifying and marking underground services;
- safe excavation/safe digging practices.

23 These key elements complement each other, and all three are essential when working near underground services. More details of each are given in the chapters that follow. A flow diagram, outlining the process, is at Figure 2.

24 Anyone planning or undertaking work that may disturb underground services must contact the owners/operators of those services for information about the location and status of the services. Those owners and operators should in turn provide any relevant information about the location of services in the work area. Service owners and operators should be prepared to help locate and identify the services (for example, by sending a representative to the site). Long-term plans or formal arrangements for co-operation may be needed with other utilities, local authorities and contractors who carry out road and footway excavation.

25 Plan work to avoid underground services. Where this is not possible, develop plans to minimise the risk of damage to those services in the work area.

26 Detecting underground services will require information from those who own the services. Individuals with sufficient experience and technical knowledge should carry out a comprehensive survey of the work area using the appropriate survey tools and equipment.

27 When carrying out excavations, it is important that:

- those supervising and carrying out the work have sufficient skills, knowledge and experience to do so safely;

- safe working practices are put in place and used;
- appropriate traffic signing is used on highways; this is described in *Safety at street works and road works. A Code of Practice*<sup>1</sup> and chapter 8 of the *Traffic signs manual*;<sup>2,3</sup>
- risks from other sources, such as collapse of excavations, are avoided;
- adequate welfare facilities are available to those doing the work.

A brief look at the process from referring to plans on site to the start of work near underground services

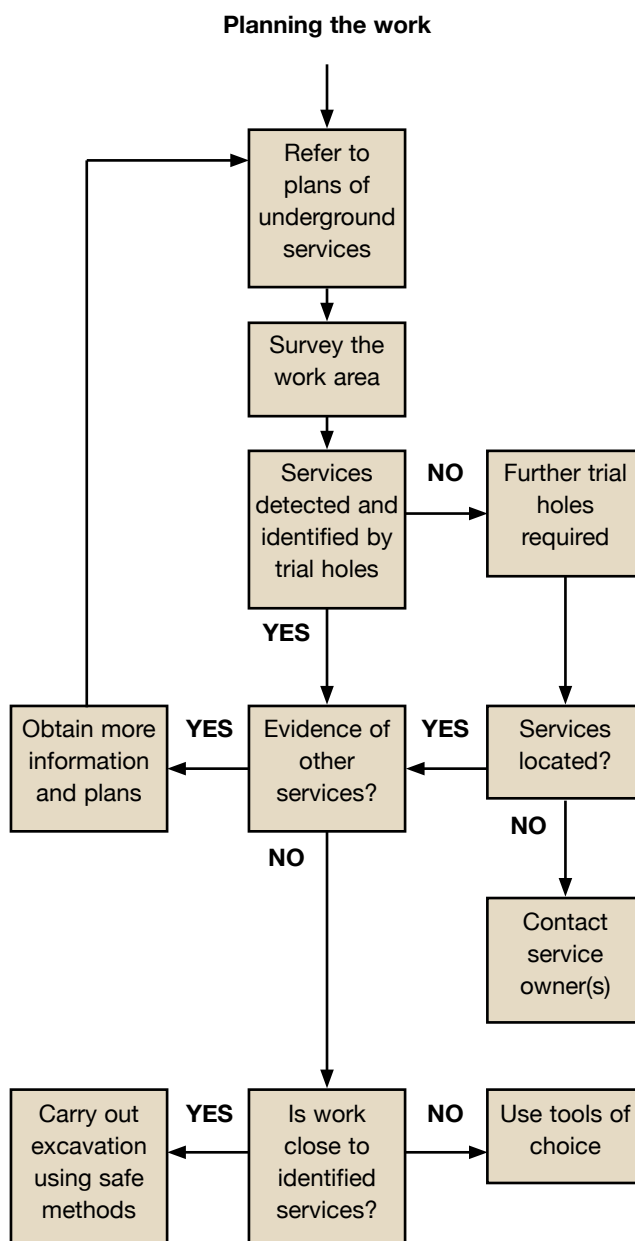


**Figure 2** A safe system of work

# Planning the work

## In summary

Identify clearly the extent of the work area and find out what underground services are within the area before considering whether they are likely to be disturbed:

- Obtain service drawings from utilities companies and other organisations with relevant information about the site.
- Survey the site to identify the services and other underground structures. Record the location of any services.
- Review/assess the planned work to avoid disturbing services where possible.
- Allow sufficient time and provide sufficient resource to do the work safely.
- Emergency work still requires planning and assessment of the risks arising from the work. A precautionary approach must be taken when breaking ground.

## Obtaining information on services

28 Obtain plans or other suitable information about all underground services in the area when the work is being planned. Wherever possible, you must consult owners/operators. Remember that for some services there may be more than one owner/operator.

29 There are a number of 'one-call' services available that can simplify the process of identifying who may have underground services in the work area and arranging for copies of plans and service records to be provided. Some of these services are free to use while others may charge.

30 Where it is not possible for those undertaking the work to obtain information, as may be the case when emergency work has to be undertaken, the work **must** be carried out as though there are underground services in the area.

### Electricity

31 Most electrical service cables belong to the regional distribution network operator (DNO). However, some cables belong to other bodies, such as: the highway or roads authority; the street lighting authority; electricity generating companies; National Grid; Ministry of Defence; railway operator (usually Network Rail); Independent Distribution Network Operators (IDNOs); or other companies.

### Gas

32 Most underground gas pipes are operated by public gas transporters (PGTs). The main exceptions are new developments, often supplied by independent gas transporters (IGTs) and properties fed from bulk-stored LPG, where the pipes may be owned by the property owners or other private individuals. In the latter case, owners/managers should be able to provide information but on certain estates owners and managers may not be available round the clock. You can obtain further information from the LPG supplier, whose name and telephone number (manned 24 hours) should be displayed at the bulk storage vessel compound or, for underground LPG tanks, at the segregated area above the tanks.

33 Where the presence of gas pipes which operate at pressures of 2 bar (30 psig) and above is indicated, consult the owner/operator before work begins.

#### **Other services**

34 Other underground pipes may be found on or around: hospitals; airports; Ministry of Defence sites; universities; research parks; petrochemical, nuclear and other industrial sites. Where work is planned on such sites, make contact with the owner/occupier of the sites to request specific information about underground services.

35 Because of the difficulty in detecting some telecommunication cables and the cost of damage to them, telecommunication companies may prefer to visit the site to locate the cables.

#### **Provision of plans by service owners**

36 Owners should provide either up-to-date, readable plans, which show the recorded line and depth (where known) of all their known services buried in the proposed work area, or other suitable information which achieves the same aim. A symbol key is important to help the recipient understand the plans.

37 Owners should do everything reasonably practicable to make sure that such information is made available to enquirers. They are likely to receive many routine applications for information and should consider how best to make information available at short notice. They should also make arrangements to deal with emergencies outside office hours so that operatives can be given plans of underground services when they receive their work instructions.

38 Some owners may have reservations, for reasons of security, about supplying copies of their underground services plans for areas such as those around important civil and military establishments. In such cases, an alternative method should be used; for example, a representative could be sent to the site to provide information.

#### **Use and limitation of plans**

39 Plans alone are not sufficient to identify and locate services before starting work. They provide basic information on which to base a thorough site survey before work begins.

40 Plans vary in scale, content and style. Two examples are shown in Figures 3 and 4. Provide adequate instruction and training in how to read and interpret plans to anyone who needs to use them. Ideally, plans should be in colour to assist their interpretation and understanding.

41 Plans can give an indication of the location, configuration and number of underground services at a particular site and should help subsequent tracing by detecting devices or locators. However, they are not always drawn accurately to scale and, even if they claim to be, you should not rely on them to obtain distances or depths. For example, errors may have been made during drafting, or reproduction may have changed the scale, especially if the plan was obtained from a microfiche slide or digital map. Accuracy may be further limited because:

- the position of reference points (eg the kerb line) may have changed since the plans were drawn;
- re-grading of the surface may mean that the depths shown are now incorrect;
- services, particularly cables, may have been moved without the knowledge of their owners/operators;

- in many cases service connections are not marked;
- services marked as straight lines may, in practice, snake. Excessively long cables may have been laid in horizontal loops outside substations, switch rooms etc;
- plans may show spare ducts;
- the routes of older services in particular may not have been recorded, so the absence of records should never be taken as proof that the area in question is free of underground services.

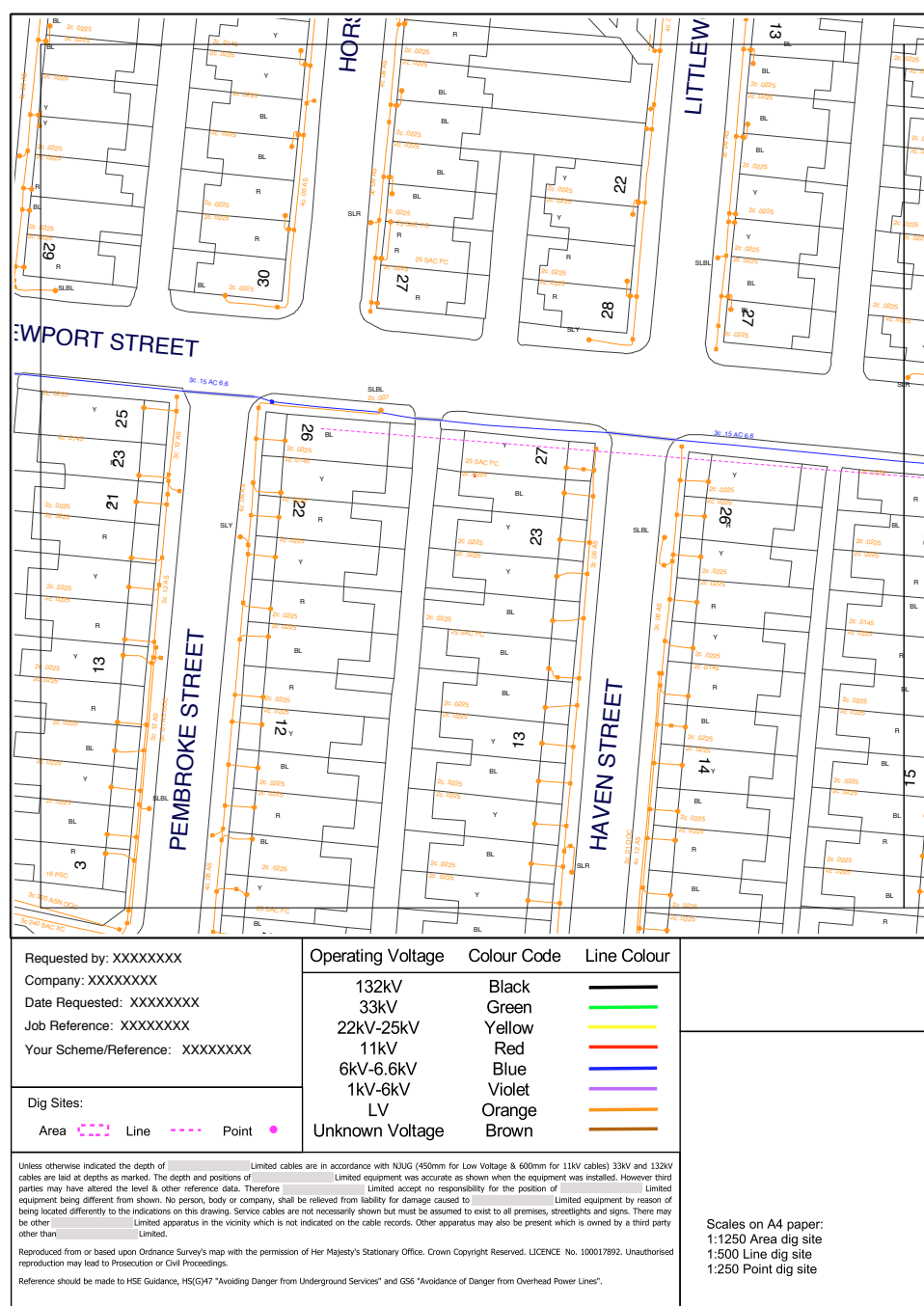


**Figure 3** Example of an electricity plan

42 These limitations make it very important that you take into account other indicators and use a suitable detecting device and safe digging methods.



**Figure 4** Example of a plan of gas pipes

43 The service location information should be copied onto the working drawings for the guidance of those carrying out the work. Information should include all relevant features, such as valve pits, depths etc. Take particular care where topographical changes have occurred since services were laid.

44 Those using or interpreting plans need to have sufficient knowledge and experience to understand what the plans show in order to determine the likely presence of services on the work site.

### Case study 2

A 3-phase electrical cable was struck during excavation works by a renewable energy company. The cable was not marked with tape or tiles. The cable was shallower than shown on the plan. The work area was not surveyed to locate underground services. Relying on plans is not sufficient. The work area should be surveyed to accurately locate services shown on plans.

### Service identification surveys

45 A service detection and mapping survey of the work area should be undertaken at the planning stage as its findings will be useful to the designer(s) and contractor(s) in designing out and planning to reduce the risk of damage to the underground services.

46 Time spent on a survey at this stage can save significant costs and delays to the work by allowing for the avoidance of damage to underground assets and efficient programming of the work.

47 More information on identification surveys is given in 'Detecting, identifying and marking underground services'.

### Your duties as a client

48 Clients have a duty to make reasonable enquiries about underground services and pass relevant information to the designer(s) and contractor(s). Your own files and other records may contain information on underground services. If they do, remember that it may have been obtained for previous work and may be out of date. The most up-to-date information should be included in the tender information.

49 A client who is unable or unwilling to obtain this information **must** allow the contractor sufficient time and resource to do so instead.

50 Clients need to consider how contractors have addressed the risks from underground services.

### Your duties as a designer

51 Designers have a duty to reduce or 'design out' the risks arising from damage to underground services. Having reduced the risks to a level as low as reasonably practicable by design, information should be provided to those doing the work about the risks that remain. In most cases, the best way of informing contractors and individuals doing the work is by providing this on working drawings.

52 You will need to know if there are underground services present so that you can amend the design to avoid them where possible.

53 For building work, re-siting the services away from the work is often a reasonably practicable means of avoiding the risk. Ask the service owner/operator to do this and include adequate notice.

54 Other options to re-siting the services may include:

- repositioning or redesigning structures or parts of structures to ensure that services are avoided during the work;

- arranging for the supply to be disconnected during the work; or, if none of these are possible;
- choosing methods to avoid the services; for example, by using ground beams to bridge or span the services.

55 For electricity cables more than other services, there may be a need to make them dead for the work to proceed safely. Contact electricity companies as early as possible to allow them to isolate supplies. Plan project schedules to allow sufficient time for this to happen.

56 If the cable cannot be made dead, an alternative safe way of doing the work will be required.

57 Permanent structures such as buildings should generally not be built over services, nor should services be encased in concrete as this may introduce additional risks to construction workers and can prevent future access to the services. If it is not possible to avoid building structures over any service, make arrangements with the utility to relocate the services in a duct or something similar.

58 Consider the location of underground gas pipelines when planning building, excavation, landfill or other such work. Such activities may either cause damage to the pipelines or deny access to them for maintenance purposes. Make suitable arrangements for future access and maintenance before undertaking the work.

59 Consider ancillary work, including the erection of perimeter fencing and walling, or the position of temporary and permanent roadways onto the site that may affect underground services at the site perimeter. Early identification and planning are essential if you are to control risks during the entire construction phase of the project, including enabling works.

### Case study 3

A self-employed sub-contractor was burnt when he struck a 415 V electrical cable with an electrical breaker he was using to break up some concrete. The client had chosen to build over the cable rather than have it diverted. The cable had been protected by a conduit and its location was known. The client did not tell the contractor of its location before starting work and the contractor did not ask. The cable was diverted following the incident.

### Some specific situations

#### *New housing developments*

Underground services within the confines of partly completed housing developments are especially prone to damage from ongoing construction work. Each utility company should keep to its agreed position; see *Guidelines on the positioning of underground utilities apparatus for new development sites Volume 2*.<sup>4</sup> A common trench may help to control the position and separation of underground services. Special arrangements may be necessary to restrict vehicle and mobile plant crossings to locations where temporary protection for the services has been provided.

Where new services such as electrical or gas supplies are being installed, it may be possible to reduce risks by not installing or commissioning them until other groundworks and work on the installation have been completed.

This should be considered early in the design process to allow the works to be sequenced accordingly.

Close liaison should be maintained between the developers, their contractors and the utilities. The builder/developer should keep a marked-up plan of the estate showing the up-to-date position of underground services (including any variations from planned routes) on site for the information of those involved in excavation and groundwork.

#### *Major hazard pipelines*

Pipelines are used to convey a wide range of fluids, including oils and other petrochemicals, ethylene, oxygen, nitrogen and similar industrial gases and a number of other chemicals.

The more hazardous of these pipelines (known as major accident hazard pipelines) are not normally found in residential areas. They are usually in rural areas and often near chemical and petrochemical installations. Cross-country pipelines are also found on agricultural land. They usually cross roads, railways and motorways etc at right angles.

It is important to consider the location of underground pipelines before carrying out building, excavation, landfill or other such work. Such activities may not only cause damage to pipelines but could also affect future access to them for maintenance purposes. Both the landowner and local authority should be contacted for further information; it is a statutory requirement for plans of pipelines to be lodged with local authorities.

Liaison with the pipeline operator is important, as information can be provided about not only the location but also the nature of the fluid being transported, any restrictions on excavations near the pipeline, the precautions to be taken during excavating and action to be taken in an emergency. Accordingly, where work is proposed near pipelines, the specific requirements of pipeline operators should be adhered to.

#### ***Installing new services near existing services***

60 New underground services often have to be laid in ground which contains existing services. Where it is reasonably practicable to do so, the designer planning the new installation should aim to site it so that it is separated from all existing underground services by the distances specified in *Guidelines on the positioning and colour coding of underground utilities' apparatus Volume 1*.<sup>5</sup>

61 It is important to have information about existing services to help select a route for the new service that avoids them. The risk of contact with existing services can be reduced by choosing a route with a low density of underground services. For example, a cable television duct might be routed at the side of a road if there is a reduced cable density there.

62 Designers of pipelines should also be aware of the guidance in *A guide to the Pipelines Safety Regulations 1996*,<sup>6</sup> which advises that the parallel running of similar pipelines in the street should be avoided. Liaison with the owners of services is important as they are in a position to provide information to the designers to enable them to make such decisions.

63 Where you cannot achieve the recommended separation, there should be as great a separation as is reasonably practicable. Where the installation of a service would obstruct access to an existing service you should use all reasonably practicable means to avoid this. In particular, avoid the practice of laying multiple ducts directly above other services. This may require diversion of services or the installation of accessible shared service ducts or chambers.

64 If the utility or its contractors laying the new service have had to reduce the separation, they should inform the owner/operator whose service has been affected so that they can then amend their records for future reference.

### **Your duties as a contractor**

65 Contractors must prepare safe systems of work for their employees by identifying the hazards they are likely to encounter during the work and making a suitable and sufficient assessment of the risks posed by those hazards. Clear information on the type, location and status of underground services and the tools, equipment and working practices they will require to avoid damaging the services is essential.

66 Make sure that those doing the work have sufficient information, clear instruction and training to work safely, and that proper management and supervision of the work ensures that it is done safely.

67 Information about the risks from underground services should be provided before arriving on site. Where services have been disconnected, this should be recorded and information about where and when the disconnection was done should be given to the contractors working in that area. Co-operate with any principal contractor to make sure any rules or agreed methods of working are adhered to.

68 Anyone who carries out work near underground gas pipes and associated equipment should observe any specific requirements made by the gas transporter, and make sure that access to the equipment is available at all times. Do not make any unauthorised repairs to gas pipes. If in doubt, seek advice from the appropriate gas transporter.

69 Where heavy plant may have to cross the line of any vulnerable service during construction work defined crossing points should be provided and used. Keep the number of crossing points to a minimum, indicate them clearly and do not allow crossings at other places along the line of the service. Where an existing road does not adequately protect the pipe, crossing points should be suitably reinforced with sleepers, steel plates or a specially constructed reinforced concrete raft, as necessary. The owner/operator of the service will advise on the type of reinforcement necessary.

70 On completion of the work, provide information on underground services, found or newly installed, to the client and the owners of other services encountered. This will allow them to update their own records on the position of their services and should be made available to others who will need to use this information for subsequent maintenance, repair and construction work.

### Emergency work

71 There will be occasions where it is necessary to do emergency work to repair damaged services in order to make them safe or restore them following damage. Often this emergency work may just require a temporary fix before a permanent repair can be done, though circumstances may mean it is appropriate to make a permanent repair immediately.

72 Routine work that does not arise from a safety-critical situation, and could be planned, should not be done as emergency work.

73 Emergency work still requires planning and assessment of the risks before and while carrying it out. Attempts must be made to obtain information about underground services in the area.

74 Inevitably, there will be greater emphasis on the work on site to locate services and excavate safely. This is not an excuse for cutting corners or running unacceptable or avoidable risks. The work must be done by individuals with sufficient knowledge and experience, and be reviewed as it is undertaken.

75 Those managing emergency work must balance the risk of potential damage to underground services against the continuing risk from the emergency situation. For example, the risk of damage to cables while isolating a gas pipe to stop a leak must be weighed against the risk of fire and explosion from the continued leak. In all cases, make sure that the overall risk to safety is not increased.

## Detecting, identifying and marking underground services

### In summary

Locate the services identified at the planning stage survey as being in the work area.

Make sure those involved in detecting and identifying services are competent in the proper use of survey tools and detecting devices as well as reading/interpreting plans.

Once detected, identify and mark the services and confirm their status – ie whether electricity cables are live, whether gas pipes are pressurised – and then record their location.

### Detecting services

76 There are different levels of survey:

- *Desktop study:* Involves requesting and considering the service drawings from the owners of underground services. This should be done for all projects that involve excavation or penetrating the ground.

- *Desktop study and site investigation:* Involves using the information from the desktop study to assist a physical inspection of the site (looking for physical signs such as inspection hatches, reinstated excavations, street lights and telecoms boxes) and a survey using detection tools.
- *Physical identification of the services:* In addition to the above, this involves taking steps to detect and identify the underground services through trial holes to verify their location, depth and identity. It may also involve passing a tracing device through a pipe or tunnel.

77 The level of survey needed will depend on the nature of the work site. Some congested urban locations will require a more detailed survey than some brown and green field sites. The decision on the necessary level of survey should be informed by an assessment of the likelihood of underground services being present, based on the information obtained for the work site. The designer should make this decision at the planning stage in consultation with the contractor and surveyor.

78 The results of the survey should be shared with the designer and recorded in a clear, usable format on working drawings to be shared with those working on the site and, where possible, marked out on site.

79 Those doing the survey need to have sufficient knowledge and experience in the use of survey equipment and techniques. They will need to understand the limitations of the equipment, the effect of differing ground conditions on the survey results, how to survey a given area effectively, and to appreciate the limitations of plans and drawings provided by the service owners. Some training providers offer courses in service detection and mapping and an NVQ qualification in utility mapping.

80 The position of any services in or near the proposed work area should be pinpointed as accurately as possible using a detecting device in conjunction with up-to-date service plans and other information which provides a guide to the possible location of services, and help interpret the signal.

81 Take account of any indications that underground services exist, such as the presence of lamp posts, illuminated traffic signs, gas service pipes entering buildings, pit covers, pipeline marker posts, evidence of reinstated trenches etc. However, if there are no such indications, this does not mean that there are no underground services.

82 Plans do not normally show the position of gas service connections and their existence should be assumed. It may be possible to estimate the probable line of the service connection pipe from the gas meter position, or from the point of entry into the premises.

83 Gas plant may be shown by valve boxes, pits and housings. However, covers for valve boxes and pits will sometimes not show clearly whether gas is the service present; if in doubt, contact the gas transporter.

84 Anyone selecting detection tools and survey methods must understand the range of methods and tools and their limitations. In particular, they need to be aware of the potential for false readings or signals in certain techniques as they may lead to inaccurate information being included in the plan of work and, in turn, lead to a false sense of security.

## Types of detecting devices or locators

85 The main types available can be classed as follows:

- *Hum detectors* are receiving instruments that detect the magnetic field radiated by electricity cables which have a current flowing through them. They do not respond to:
  - cables where there is little or no current flowing; for example, service connection cables to unoccupied premises or street lighting cables in the daytime;
  - direct current cables;
  - some well-balanced high-voltage cables, where these generate relatively little field (which in turn may be further screened by the cable sheathing);
  - pot-ended cables, see paragraph 89.
- *Radio frequency detectors* are receiving instruments that respond to low-frequency radio signals, which may be picked up and re-emitted by long metallic pipes and cables. If radio frequency detection is used, other metallic objects such as abandoned pipes, cables and tram tracks may re-radiate the signal and results may vary appreciably according to locality, length of the underground cable or pipe and distance from the termination and geographical orientation.
- *Transmitter/receiver instruments*, where a small portable transmitter or signal generator can be connected to a cable or pipe, or placed very close to it so that the signal is introduced into it. The receiver, typically the same radio frequency detectors mentioned above, can then detect this signal. Usually the location of some part of the cable or pipe needs to be already known so that the transmitter can be properly positioned. A direct connection is not required but accuracy will be greatly improved if a direct connection can be made. Some signal generators can be sent along pipes. They can provide useful information in difficult situations where the techniques using hum detectors and radio frequency detectors have not been successful. **Use of signal generators will significantly increase the accuracy of the service location.**
- *Metal detectors* are conventional detectors, which will usually locate flat metal covers, joint boxes etc, but may well miss round cables or pipes.



**Figure 5** Using a cable locator

- *Ground probing radar* is a method capable of detecting anomalies in the ground. When these anomalies can be plotted into a continuous line it may indicate a cable, duct or pipe. However, this technique alone would not determine the precise nature of the service and it should be supported by information available about the services present and also, preferably, by the use of other more conventional forms of detecting device. Knowledge of ground conditions is important. For example, false readings are most likely where there are boulders and debris in the ground or where the ground has often been disturbed. Because of equipment costs and the need for specialist training it may be cost-effective to use firms specialising in this technique.
- *Radio frequency identification (RFID)* is a system increasingly used to mark or 'tag' new services. These markers can be programmed with information about the particular service and its depth, and this information can be read by detecting devices. The accuracy of the information depends on the marker being properly attached to the service. As a developing system, RFID will often be found on new services so will not necessarily assist with older services. RFID marker systems may require specific detecting tools that may not be compatible with one another.

86 Some instruments use more than one of the technologies listed and may include a depth-measuring facility.

### Using a detecting device

87 The degree of confidence with which underground services can be detected depends on a number of factors, such as:

- the training, skill, hearing and experience of the operator;
- the characteristics of the device being used;
- the calibration and reliability of the detecting device;
- the type, length and depth of the service;
- for cables, the magnitude of the current being carried;
- the effects of other nearby services;
- the nature of surface conditions, eg reinforced concrete;
- the nature of the ground conditions;
- whether or not a signal generator is being used.

88 Anyone who uses a locator should have received thorough training in its use and limitations. Always use detection devices in accordance with the manufacturer's instructions, check and calibrate regularly, and maintain in good working order.

89 Occasionally, cables are terminated in the ground by means of a seal, sometimes with external mechanical protection. These 'pot-ended' or 'bottle-ended' cables should be treated as live and should not be assumed to be abandoned or disused. They can be difficult to detect with locators even when 'live'.



**Figure 6** Congested services

90 A locator may not be able to distinguish between cables or pipes running close together and may represent them as a single signal. If, for example, two are sited one above the other the lower one may not be detected. Use signal generators whenever possible as they greatly increase the accuracy of detecting and tracing an underground service.

91 Locators (with the possible exception of ground-probing radar) do not detect plastic pipes or other non-metallic services unless:

- a metallic tracer wire has been laid with the pipe. This enables a signal transmitter/receiver to be used. Plastic gas and water pipes are the non-metallic services most likely to be encountered and few have been laid with metallic tracer wires in the past, with the exception of plastic pipes on LPG-metered estates; or
- a small signal transmitter or tracing rod is inserted into and pushed along the pipe or duct. This is a sophisticated technique which may not be appropriate for many jobs; or
- RFID markers, or similar, have been affixed to or overlay the pipes.

92 **Note:** Tracer wire(s) on a service may not be continuous due to being damaged or not properly laid out, therefore the true length of a particular service may be missed.

93 If a service recorded on a plan cannot be located, seek appropriate assistance or advice from the service owner.

94 Many telecommunication and railway signalling cables cannot be located by detecting devices, unless metal components (such as a metal sheath) are connected to earth, they have been tagged with location markers, or they are laid in ducts where tracing rods can be used.

95 Services should be traced through the full extent of the work area as they may not run in straight lines. Cables will often have kinks or loops and pipes may have joints or bends that are not shown on service drawings.

96 Use trial holes to positively identify a service and its depth. Exposing a service safely in this way will allow its status to be checked and may make it easier for a tracing signal to be applied.

97 Note the line of any identified services and mark with waterproof crayon, chalk or paint on paved surfaces (use biodegradable paint or erase residual markings as far as possible after excavation), or with wooden pegs in grassed or un-surfaced areas, preferably to one side of the service. Steel pins, spikes or long pegs which could damage services laid at shallow depth should not be used.

# Safe excavation

## In summary

Determine the method or technique for excavating near underground services before work starts, taking account of:

- the nature and scope of the work;
- the type, position and status of underground services;
- the ground conditions;
- site constraints.

Provide those doing the work with a written plan, including information about the location and nature of underground services. They should be competent, provided with appropriate personal protective equipment (PPE) and work equipment, and allowed sufficient time.

Identified services should be carefully exposed and clearly marked. A permit system may be appropriate for particularly hazardous work. This will involve written authorisation by a responsible person, identifying the work to be done and the precautions to be taken. A permit system needs suitable supervision and monitoring to ensure that the conditions of a permit are complied with (see paragraph 163).

Backfilling of excavations must properly support and protect the underground services. Concrete must not be used to encase services when backfilling.

If an underground service suffers damage during the excavation or subsequent work, inform the owner/operator. In the case of electricity cables, gas pipes, other pipelines or high-pressure water mains, arrange to keep people well clear of the area until it has been repaired or otherwise made safe by the owner/operator.

## Exposing services

98 All those working to expose services and those supervising them must be competent to do so. They should have had sufficient information, instruction and training to:

- understand the risk to safety from damaging services;
- use detection tools;
- practise safe excavation techniques and understand the value of hand digging and the risks from using power tools or mechanical excavators.

99 Excavation work should follow safe digging practices. Once a detecting device has been used to determine position and route, excavation may proceed, with trial holes dug (using suitable hand tools or vacuum excavation), as necessary, to confirm the position of any detected services. Take special care when digging above or close to the assumed line of such a service.

100 You should carefully plan and manage mechanical excavation, which is a common source of damage to services. Another person should assist the excavator driver, from a position where they can safely see into the excavation and

warn the driver of any services or other obstacles. This person should remain outside the operating radius of the excavator arm and bucket.

101 Instruct drivers to stay in the cab if a cable is struck. If drivers climb down, they may be electrocuted. When a cable is struck, the area should be isolated and secured; no one should go into the excavation or approach the excavator or the cable until the cable owner has made the damaged cable safe.

102 The danger created by damaging a gas pipe with an excavator is much greater than if the damage is done with a hand-held power tool, the opposite is true for work near electricity cables.

103 Remember that the effects may not only occur at the point of impact, for example:

- damage to a service connection may result in unseen damage to the connection inside the building;
- gas from a damaged pipe may travel along the line of a service pipe into a building, causing a dangerous build-up of gas there.

104 Hand-held power tools can damage services and should be used with care until the exact position of the service has been determined. You may use them to break a paved or concrete surface above a service, unless there are any indications that the service is particularly shallow or too close to the surface to be broken up.

105 Hand tools are a common source of accidents if incorrectly used. However, when used carefully, they can normally provide a satisfactory way of exposing services.

106 Make every effort to excavate alongside the service rather than directly above it. Avoid using hand-held power tools over the service unless:

- the service has already been exposed by digging under the surface to be broken out and it is at a safe depth (at least 300 mm) below the bottom of the hard surface material; or
- physical precautions have been taken to prevent the tool striking the service.

107 Mechanical excavators and power tools can be used to break up hard surfaces where the survey has proved that there are no services, or the services are deep enough so as not to be damaged by such tools.

108 Using hand-held power tools to break up hard surfaces often leads to accidents. Where practicable, only use such power tools 500 mm or more away from the indicated line of a service buried in or below a hard surface. Having done so, the service should then be positively located by careful hand digging under the hard surface. Gradually remove the hard surface until the cable is exposed. If the cable is not so exposed, then assume it is embedded within the surface.

109 Use a cable locator as a depth guide down the side of the excavation. The 500 mm safety margin may be reduced:

- where congestion of services renders it impracticable; or
- where surface obstructions limit the space available;

but **only** if the line of the cable has been positively identified by plans, confirmed by a locator, and additional precautions are used to prevent damage to the services.

110 Final exposure of the service by horizontal digging is recommended, as the force applied to hand tools can be controlled more effectively. Use insulated tools when hand digging near electric cables. In particular:

- spades and shovels (preferably those with curved edges) should be used rather than other tools. They should not be thrown or spiked into the ground, but eased in with gentle foot pressure;
- picks, pins or forks may be used with care to free lumps of stone etc, and to break up hard layers of chalk or sandstone;
- picks should not be used in soft clay or other soft soils near to underground services.



**Figure 7** Using an air digging tool

111 Safe methods of excavating may include vacuum excavation, which may incorporate use of water jetting and high-velocity air jets. They can be very effective in congested excavations where mechanical excavation and use of hand tools is difficult. However, they have limitations and will not work on all ground conditions or materials such as concrete.

112 Assess the precautions needed to prevent injury – to the operative or those nearby – from ejected soil and other material and put in place appropriate controls.

113 Assess carefully the use of jetting tools to excavate around cables as there is potential for old and fragile cables to be damaged by the jet of water or air.

**114 Make frequent and repeated use of locators during the course of the work. Service location is likely to become more accurate as cover is removed.**

**115 Once exposed, services may need to be supported and should never be used as handholds or footholds for climbing out of excavations.**

116 Sometimes there may be joints in cables. These may be enclosed in earthenware pipes, filled compound, or be of cast iron or plastic epoxy-filled casings. They need proper support and should not be roughly treated. Do not move, except in consultation with the owner.

117 Where gas pipes cross or run alongside excavations, changes in backfill etc may cause differential ground settlement and increased stress in the pipe. Wherever an excavation may affect support for a gas pipe, consult the owner. In some cases, it may be necessary to divert the gas pipe before work begins.

**118 Assume all services are live until disconnected and proven safe at the point of work. Obtain written confirmation of disconnection from the owner/operator before removing a redundant service.**

### Protective clothing

119 Burns are the main injuries that result from damage to live electrical cables or from fire or explosion following a gas leak. In many cases, burns are made more severe by the injured person working bare-chested. Even ordinary work clothing can greatly reduce the severity of the burns and protective clothing is better. However, clothing made from man-made fibres such as nylon may melt and stick to the skin, increasing the severity of the burns.

120 Where electricity cables may be encountered during excavation work, employers should consider whether the work justifies wearing clothing designed to protect against electric arc, or flame-retardant clothing. Advice on the suitability and performance of protective clothing should be available from reputable companies specialising in its supply.

**121 Wearing protective clothing is not a substitute for a safe system of work.**

### Identifying exposed services

122 Once underground services have been uncovered, failure to identify them correctly is another common cause of accidents. A wide variety of materials and colours have been used for services over the years. Furthermore, some services may be very similar in appearance and some services run in ducts made of various materials, including asbestos cement, making them difficult to identify. Adopt the following approaches until you have positively confirmed the identity of the service:

- Water pipes, electricity cables and telecommunication cables may be covered in black plastic. If any black plastic service is found, assume it is a live electricity cable.
- Iron and steel water pipes and gas pipelines may appear very similar. If any such pipe is uncovered, treat it as if it were a gas pipe.
- Always treat continuously welded steel pipes as if they contain a hazardous or high-pressure fluid.
- At collieries, beware of electricity cables, some of which are yellow or blue and may be mistaken for other services.
- On some building sites beware of electricity cables being placed in yellow service pipes or blue water pipes.
- Where there is any doubt about the identity of an exposed service treat it as an electricity cable or gas pipe until proved otherwise.

123 For modern installations, most utilities have agreed a national colour coding system for underground services, described in *Guidelines on the positioning and colour coding of underground utilities' apparatus*. This colour coding system should not be confused with the one contained in BS 1710:1984,<sup>7</sup> which generally applies to above-ground building and process services.

124 Remember that:

- old, non-utility services or other pipelines may not conform to this system;
- colours may look different under poor or artificial lighting;
- ducts could include any of the services.

125 Once the exposed service(s) is identified, determine its status, ie is it live or dead? **The status of the service may change, eg an electricity cable may become live or a pipe pressurised, so check the status when work near the service begins.**

### Marking identified services

126 The system used to mark the identified services needs to be agreed and understood by all those working on site. If you use a colour coding system, this should correspond to the national colour coding system referred to in paragraph 123.

127 The services should be marked on site plans and on the ground. Markings on the ground are typically done with paint, though stakes, pins or posts can be used. Take great care if using stakes, pins or posts to make sure that they are not driven into ground where they could damage the services. For example, do not use them directly above the identified services.

### Safety at excavations

128 Excavations should be properly supported, stepped or battered back to prevent them collapsing. Excavation support may involve the use of shuttering and shoring or a trench box system. Provide a safe means of access into the excavation, such as a secured ladder.

129 Provide edge protection, fencing and or coverings to prevent anyone falling into the excavation. Also take steps to prevent excavated material falling into the excavation.

### Backfilling

130 Backfilling of any excavation should be done carefully to make sure that services are not damaged. Put back warning tiles, tape etc in their original position above the services unless visual examination after exposure showed this to be incorrect, in which case replace them above the service to which they refer. Do not use warning tape for any other purpose (for example, guarding an excavation) and do not discard it in an excavation during backfilling.

131 If road construction is close to the top of a gas pipe, ask the owner/operator about necessary precautions. Do not reduce the road construction depth without permission from the local highway or roads authority.

132 Backfill materials containing items likely to damage the services, such as large pieces of rock and hard core, should not be used. You can obtain further information on backfilling from:

- utilities and owner/operators, for their particular services;
- the Code of Practice (under Section 71 of the New Roads and Street Works Act 1991) *Specification for the reinstatement of openings in highways*.<sup>8</sup>

133 When backfilling an exposed gas pipe, observe the following:

- Backfill material adjacent to gas plant should be suitable fine material or sand, containing no stones, bricks or lumps of concrete.

- The backfill should be suitably compacted. Where the excavation has exposed an existing gas pipe, compaction should give comparable support and protection to that before the excavation. In all situations, compaction beneath the pipe is particularly important to prevent any settlement that would subsequently damage the pipe.
- There should be no power compaction until 200 mm cover of selected fine fill has been suitably compacted.
- Do not use concrete backfill within 300 mm of a gas pipe.

#### Use of concrete as backfill

134 Services should not be buried or encased in concrete as excavating close to them is dangerous. Using mechanical means to break up concrete can cause damage to cables or pipes which, if live, will likely mean that anyone present will be injured. Service owners should ensure that their own employees and contractors are aware that this practice is unacceptable.

### Updating plans

135 If the plans or other information have proved to be inaccurate (for example, a service has been found well away from its recorded position), or if the present work changes the path or depth of a service, inform the service owners/operators (preferably before the excavation is backfilled) and they should amend their records accordingly.

136 The plans for new services should show how they have been laid, not how they were designed. Contractors may need to amend the design drawings accordingly.

### Electricity cables

137 Most underground cables are laid in trenches between 450 mm and 1 m deep. Some high-voltage cables will be deeper. **However, never assume depths; you may find cables at shallower depths.**

138 In most cases, there will be no permanent surface marker posts or other visible indication of the presence of an underground cable. Even if no cables are shown on plans, or detected by a locator, there may still be cables present that could be live and you should keep a close watch for any signs that could indicate their presence.

139 A cable is positively located only when it has been safely exposed. Even then, digging should still proceed with care as there may be other cables and services adjacent or lower down. In addition, some lines of 11 kV or greater can be laid out as separate single-phase cables, spread out up to 600 mm across, particularly near cable joints. Where it is clear there is a risk of damage to a cable during the course of any work, the owner(s) may wish to be present on site.

#### Cables in concrete

140 It is bad practice for cables to be encased or buried in concrete. Unfortunately, it is not uncommon to find cables encased in concrete.

141 Using hand-held power tools to break up concrete can damage cables and, if the cable is live, anyone present is likely to be injured.

142 Careful planning is important to find alternative routes or, failing that, to arrange to make the cable dead. Cable owners are likely to want to attend the site to verify the circumstances surrounding any request to make dead. Electricity companies should co-operate, subject to the request being reasonable, and deal with the request as soon as possible. An alternative supply or bypass arrangement could be used to allow the cable to be made dead.

143 Work with the cable live should only be done if the circumstances mean it is unreasonable to make the cable dead, and if you take suitable precautions to prevent injury. If there is no alternative route, and the cable cannot be made dead, then you should agree alternative safe methods of excavation with the cable owners. Remember that powered hand tools used close to live cables are likely to represent the greatest risk of injury.

144 When work can proceed safely only after a cable has been made dead, the parties involved should continue to liaise to ensure that work is completed, and workers are clear, before the circuit is re-energised. A permit-to-work system may assist in managing this process.

145 Cables may have been laid directly in the ground with a bed or surround of fine soil or sand, or in cement-bound sand, or in earthenware or plastic pipes or ducts. Very occasionally, they may be in steel pipes. They may have a layer of tiles, slabs or coloured plastic marker tape laid above them. However, any such protection may have been disturbed and moved and you should not rely on them to give an accurate indication of a cable position.

## Gas pipelines

146 The depth of cover for gas mains laid in a roadway is normally about 750 mm, and for those laid in a footway about 600 mm. The depth of cover for gas service connections is normally about 450 mm in both roads and footways. However, on private property, including at entry positions to buildings, the depth of cover for the service connection may be less, about 375 mm. High-pressure gas transmission pipelines are usually buried with at least 900 mm cover. **However, never assume depths; pipes may be found at shallower depths.**

147 Gas pipes are generally laid directly in the ground, although in certain soils selective backfill may have been used as a bed and pipe surround and, on occasion, pipes may be laid in ducts. Ductile iron pipe will sometimes be found wrapped in loose-fit polyethylene (PE) sleeving as protection against corrosion. PE mains may be inserted into redundant iron gas mains and PE service connection pipes may be inserted into yellow convoluted ducting on new housing estates.

148 Markers may also have been used to indicate gas services, namely:

- marker tiles, which may have been used above gas pipes; for example, when they have been laid at shallow depths in bridges or above cellars;
- coloured plastic markers, including for PE mains;
- marker posts/plates, which may show the position and size of valves or test points on gas mains.

However, such markers may have been disturbed and you should not rely on them as an accurate indicator of position.

149 Locate PE gas pipes by hand digging before mechanical excavation begins. This may also be necessary for metallic pipes if they have not been successfully located by a pipe-detecting device. This is particularly important for service connection pipes, which will not be marked on plans. A suitable hand-digging method is to dig a trial trench along the road near the kerb or in the footway where the service connection pipes are likely to be at their shallowest. When the position and depth of the pipes have been determined, work can proceed.

150 Gas pipes may have projections such as valve housings, siphons and stand pipes that are not shown on the plans. To allow for this, do not use mechanical excavators within 500 mm of a gas pipe. The gas transporter may advise greater safety distances, depending on the pipeline pressure.

151 Never disturb pipe restraints or thrust blocks (or the ground supporting them) where they are close to gas mains as this can cause sudden failure of the main.

### **Gas leak or damage**

152 If a gas leak is suspected, do not attempt repairs. Instead, take the following action immediately:

- Evacuate everyone from the immediate vicinity of the escape. If the service connection to a building or the adjacent main has been damaged, warn the occupants to leave the building, and any adjoining building, until it is safe for them to return.
- Inform the gas distribution network operator by telephoning the National Gas Emergency number 0800 111 999.
- Prohibit smoking, and extinguish all naked flames and other sources of ignition within at least 5 m of the leak.
- Help gas transporter staff, police or fire services, as requested.

153 Report any damage, however slight, to the owner. Where an excavation uncovers a gas pipe with a damaged wrapping, tell the owner so that they can make repairs to prevent future corrosion and leakage.

### **Other work near gas pipelines**

154 Because of the risks they pose, do not undertake the following without consulting the pipeline owner/operator:

- the use of explosives within 30 m of any gas pipe;
- piling or vertical boring within 15 m of any gas pipe;
- excavation work within 10 m of any above-ground gas installation;
- building a manhole, chamber or other structure over, around or under a gas pipe;
- work that results in a reduction of cover or protection over a pipe.

155 If you are to carry out welding or other hot work involving naked flames within 10 m of exposed gas plant, ask the gas transporter to check the atmosphere before work begins and continue monitoring during the work. Take care to make sure that no damage occurs, particularly to plastic gas pipes or to the protective coatings on other gas pipes.

## **Water pipes and sewers**

156 To avoid the effects of frost, water mains and sewers are generally laid at depths of 900 mm or more; water services to premises normally have about

750 mm cover; unless local circumstances necessitate shallower depths. In general, work near underground water pipes is of low risk and most precautions are more concerned with reducing the cost of damage than with eliminating the risk.

157 However, there are some dangers and precautions should include:

- Where work is carried out near water mains, obtain plans from the relevant water company and use a pipe locator. However, plastic pipes will not be detectable by most detecting devices. Follow safe digging practices, using hand tools as far as practicable.
- At bends in mains, concrete thrust blocks may be used. Under no circumstances should either thrust blocks or the ground supporting them be disturbed, as this can cause sudden failure of the main.
- Support exposed water pipes, as necessary, and use the correct method of backfilling. For advice, contact the relevant water company or water authority.
- If a water pipe or its wrapping is damaged, inform the relevant water company or water authority – and the owners of any other underground services which may be affected – immediately. Do not make unauthorised repairs.

## **Major hazard pipelines**

158 These pipelines may be laid directly in the ground, although sometimes selective backfill will have been used as a bed and pipe surround. They are normally buried with at least 900 mm cover and may be even deeper where they cross roads and railways. Therefore, they are unlikely to be affected by shallow excavations.

159 Although marker posts/plates are sometimes used to indicate the position, size and ownership of pipelines, such markers may have been disturbed and you should not rely on them as an accurate indicator of position.

160 Locate pipelines by hand digging before using mechanical excavators nearby. In any event, do not use mechanical excavators within 500 mm of a pipeline.

161 Most pipelines will be protected against corrosion by a coating. This will normally be:

- coal tar or bitumen – coloured black, sometimes with traces of white limewash;
- polyethylene cladding – usually yellow;
- fusion-bonded epoxy powder – can be any colour, usually green or beige.

162 Some pipelines will be protected against corrosion by an alternative method known as cathodic protection, which will be linked to the pipeline by cabling. Both pipeline coatings and cathodic protection systems are susceptible to damage, even with hand tools, so take great care when excavating and backfilling and use a physical means of prevention (such as boards etc) where appropriate. It is important to report to the owner/operator any damage, including to the corrosion protection, before reburying the service.

#### Case study 4

A worker suffered severe burns after drilling in to a low-voltage cable during work to install street furniture. The electrical cable had been moved, wrapped in plastic and encased in reinforced concrete during earlier works to redevelop the street environment. Its location had not been recorded by the contractor managing the work.



The cable should not have been encased in concrete. It should have been moved in consultation with the electricity distribution company.

### Permit to work

163 A permit-to-work system is a formal recorded process used to control work that is identified as potentially hazardous. It is also a means of communication between managers, supervisors and operatives who carry out the hazardous work.

164 A permit-to-work system aims to ensure that proper consideration is given to the risks of a particular job, and authorises certain people to carry out specific work at a specific site at a certain time – and sets out the precautions needed to complete the job safely.

165 Essential features of permit-to-work systems are:

- clear identification of who may authorise particular jobs and who is responsible for specifying the necessary precautions;
- clear identification of the types of work considered hazardous;
- clear identification of permitted tasks, risks, duration and control measures to be applied.

166 A permit-to-work system will be more effective if you have consulted operatives. Imposing systems without consultation can lead to procedures that do not reflect the circumstances on site.

### Some specific sites and situations

#### *Safe systems of work for trenchless methods*

167 Trenchless methods are increasingly used for laying and renovating underground pipes and cables, particularly where there is a need to avoid surface disruption. The most widely used techniques are directional drilling, impact moling, microtunnelling, pipe bursting and auger boring.

168 Use plans, detecting devices and trial excavations to locate existing services in the same way as for open-cut excavation methods. The route of the device being used should then be planned accordingly to avoid colliding with, and damaging,

other services. In addition, if moling or pipe bursting are undertaken too near to other services or ducts, displaced soil may damage or enter them.

169 As a general guide, to avoid damage and to allow sufficient clearance for maintenance of the services, the minimum clearance between adjacent services should be either 250 mm or one and a half times the diameter of the pipe being laid, whichever is the greater. For electricity cables, clearances for maintenance work should be approximately 300 mm.

170 However, clearances for any technique may need to be varied, taking into account such factors as the construction of adjacent plant, ground conditions, bore diameter, the accuracy and reliability of the technique/equipment being used and whether the other plant is parallel to or crosses the proposed line. You should take into account any requirements of the owners of adjacent services.



**Figure 8** Horizontal drilling being used for laying a cable under a road

171 Moles can be prone to deflection from their original course and, if there are existing services in the vicinity, you should use a mole-tracking device. Where you are using trenchless techniques, all equipment should be effectively earthed at all times it is in use using an equipotential mat, as required, in case it hits a power cable and causes the machinery to become live.

172 Further information in *Trenchless and minimum excavation techniques: Planning and selection*<sup>9</sup> and *Trenchless techniques*.<sup>10</sup>

### **Demolition sites**

173 Special problems can arise in the case of service terminations in derelict property or on demolition sites. Anyone concerned with demolition work should give adequate notice to the relevant gas, electricity and water services of their intention to demolish any premises. Do not start work until they have confirmed in writing that either the supply has been disconnected or other appropriate safeguarding action has been taken.

174 Underground services on industrial or commercial sites may be owned by the site occupier. A contractor who is to demolish buildings or plant on such a site should contact the owner or occupier, in addition to the utilities and other service operators, to ensure that all relevant services are isolated before work starts.

175 Even where supplies have been disconnected, beware of, for example:

- services that run through sites and are not part of the site supplies;
- pot-ended or bottle-ended cables.

If in doubt, treat services as 'live'.

176 Further advice on demolition can be found in BS 6187:2011.<sup>11</sup>

### Case study 5

A devastating explosion destroyed part of a former hospital building undergoing refurbishment to convert it into residential apartments. A demolition contractor cut through a 6-inch cast-iron gas main in an underground tunnel. No checks were made about the pipe, its contents and whether it had been properly isolated.



When doing demolition and refurbishment works, confirm that gas and electricity supplies are properly identified, located and point of isolation confirmed before work starts on site.

## Appendix 1: Legislation

1 The following summary outlines the main legal requirements that apply to work near underground services. The list is not exhaustive and does not give a definitive interpretation of the law. It summarises the main issues to bear in mind when carrying out such work.

### ***The Health and Safety at Work etc Act 1974***

2 The 1974 Act applies to all work activities. Section 2(1) imposes a duty on an employer to ensure so far as is reasonably practicable the health, safety and welfare of employees while at work. This extends to the provision and maintenance of safe systems of work as well as such information, instruction, training and supervision as is necessary.

3 Section 3(1) imposes a duty on employers to take precautions, so far as is reasonably practicable, to ensure the health and safety of people not in their employment. This duty could apply to any owner/operator of underground services, to clients, local authorities or contractors.

4 Section 3(2) imposes a similar duty on the self-employed for the health and safety of themselves and others.

5 Section 4(2) imposes a duty on people in control of non-domestic premises to ensure, so far as is reasonably practicable, the health and safety of people not in their employment who are using those premises. The definition of premises is wide-ranging and is not confined to buildings.

6 Section 7 imposes duties on each employee to take reasonable care for their own health and safety and for the health and safety of anyone else who may be affected by their acts or omissions at work, and to co-operate with their employer to enable the employer to comply with their duties.

***The Management of Health and Safety at Work Regulations 1999***

7 These Regulations require employers and the self-employed to assess the risks arising from work activities. They should do this with a view to identifying the measures which need to be taken to comply with relevant health and safety legislation, therefore eliminating risks where possible and controlling those which remain.

***The Construction (Design and Management) Regulations 2007***

8 The Construction (Design and Management) Regulations 2007 apply to all construction projects and set out requirements in relation to their design and management. They place responsibilities on all those who can contribute to improving health and safety, including clients, designers and contractors. These responsibilities relate to planning, management, design and co-operation between those involved in the project. Risks should be properly managed by action during the design, planning and execution phases of the project.

***The Provision and Use of Work Equipment Regulations 1998***

9 These Regulations require that equipment is maintained in good repair. Employers should ensure that employees who use work equipment or who manage or supervise its use, have received adequate training in the risks involved, methods of use and precautions to be adopted.

***The Electricity at Work Regulations 1989***

10 These Regulations require that those in control of part or all of an electrical system should ensure that the system is safe when provided, safe to use, and that it is maintained in a safe condition. They also require that any work activity on or near an electrical system be carried out in such a manner as to prevent danger – excavation work should not be carried out unless all suitable and sufficient steps have been taken to identify and, as far as is reasonably practicable, prevent any risk from any underground cable or other underground electrical service (regulation 4(3)).

11 Regulation 14 requires that work should not be done on or near a live conductor, where danger may arise, unless:

- it is unreasonable in all the circumstances for it to be dead;
- it is reasonable in all the circumstances for the work to be done while it is live;
- suitable precautions are taken to prevent injury.

***The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013***

12 These Regulations require employers and the self-employed to report certain occupational injuries, diseases and dangerous occurrences to the relevant enforcing authority (for incidents arising during excavation work this will almost certainly be the Health and Safety Executive via an online reporting system).

13 Any work-related injury which results in a worker being unable to carry out the full range of their duties for more than seven days (including rest days and holidays) is reportable. There is also a range of injuries defined as specified injuries.

14 Where there are no reportable injuries, underground electrical cable strikes become reportable as dangerous occurrences where the resulting fire or electrical explosion had the potential to cause death, or if it puts the cable out of action for more than 24 hours.

15 Certain pipeline incidents, including gas escapes, are also reportable as dangerous occurrences by the operator of the pipeline. Schedule 2, part I, paragraphs 21 and 22 list dangerous occurrences associated with pipelines which

are reportable. (Certain pipelines are exempted, corresponding to those to which the Pipelines Safety Regulations do **not** apply, eg water mains, drains and sewers.)

16 The dangerous occurrences include:

*Electrical incidents causing explosion or fire*

17 Any explosion or fire caused by an electrical short circuit or overload (including those resulting from accidental damage to the electrical plant) which either:

- results in the stoppage of the plant involved for more than 24 hours; or
- causes a significant risk of death.

18 Where the failure of an item of electrical equipment (including as a result of accidental damage) results in a fire or explosion, the failure is reportable as a dangerous occurrence if the equipment concerned is rendered unusable for over 24 hours, or if the occurrence was one with the potential to cause the death of any person. The incident is reportable even if the system in which the damaged equipment was installed is put back into service using new equipment within 24 hours. In such a case, an assessment should be made on how long a repair to the damaged equipment would have taken had it been attempted. Repair time does not include incidental time delays such as those associated with travelling to repair plant in remote locations, or with sourcing parts.

*Pipelines or pipeline works*

19 In relation to a pipeline or pipeline works:

- any damage to, accidental or uncontrolled release from, or inrush of anything into a pipeline;
- the failure of any pipeline isolation device, associated equipment or system; or
- the failure of equipment involved with pipeline works;

which could cause personal injury to any person, or which results in the pipeline being shut down for more than 24 hours;

- the unintentional change in position of a pipeline, or in the subsoil, which requires immediate attention to safeguard the pipeline's integrity or safety.

20 The incidents listed are reportable in respect of onshore pipelines or pipeline works. The following types of pipeline are **not** covered by these requirements:

- a drain or sewer;
- any pipe used to provide heating or cooling, or for domestic purposes;
- a pipe used in the control or monitoring of plant;
- a pipe used for the conveyance of air, water vapour or steam;
- a water pipe, other than when used for the purposes of injecting water into an underwater well or reservoir containing mineral resources;
- a pipeline contained wholly within the premises of a single undertaking;
- a pipeline contained wholly within a caravan site;
- a pipeline contained wholly within land classed as a railway asset;
- any part of a gas-supply pipeline which is downstream of an emergency control.

21 The phrase 'accidental or uncontrolled release' is not intended to include minor leaks from pipelines, eg small leaks from valve stems, flanges etc. However, sudden or uncontrolled escapes requiring immediate attention or action should be reported.

22 Examples of reportable damage with the potential for harm would include such things as gouging, denting, buckling etc caused by external interference requiring immediate action. Such damage may or may not have resulted in any escape of the pipeline contents. External coating damage without damage to the underlying substrate would not be reportable.

### ***The Gas Safety (Management) Regulations 1996***

23 These Regulations are aimed at ensuring the natural gas distribution network is safely managed. To deal with gas leaks, they require the following:

- BG Group plc (or its successors) to provide a continuously manned, national freephone telephone service, so that people can report gas escapes;
- where BG Group plc (or its successors) is notified of escapes they should straight away notify the relevant gas conveyor or emergency service provider;
- the relevant gas conveyor or emergency service provider should go to where the gas is escaping as soon as reasonably practicable;
- gas conveyors/emergency service providers should stop gas escaping within 12 hours.

24 Where a gas escape from a service pipe or main has, or was likely to have, resulted in a fire or explosion, then the gas conveyor has to ensure an investigation is carried out.

### ***The Pipelines Safety Regulations 1996***

25 These Regulations deal with the safe design, construction and operation of pipelines. The scope includes requirements that:

- no person shall cause such damage to a pipeline as may give rise to a danger;
- pipeline operators shall take reasonable steps to inform people of the existence and whereabouts of a pipeline to prevent damage to it.

### ***New Roads and Street Works Act 1991***

26 This Act requires utilities and other undertakers (undertaker is a defined term under the Act) to give notice of their planned works under a variety of circumstances, depending upon the type of street in which the works are to be carried out and the type of works to be done. Emergency, urgent and some minor works can be started without issuing notice.

27 The Act also requires undertakers to record the location of apparatus belonging to them, to keep records up to date and to make them available for inspection at all reasonable hours, free of charge to any person having authority to carry out works in the street.

28 The terms 'emergency', 'urgent' and 'minor' works referred to above relate only to notifications for the purpose of the NRSWA and do not affect the legal obligations under the Health and Safety at Work etc Act 1974 (HSW Act) to give and obtain information needed to ensure safe working.

29 The HSW Act requirements apply to all work regardless of NRSWA classification and include work not covered by the NRSWA. There is also a specific duty on electricity companies to supply information under the Electricity Safety Quality and Continuity Regulations 2002 (see paragraph 31).

30 Section 67 of NRSWA requires that for any street works, work is supervised by a person qualified under the Street Works (Qualifications of Supervisors and Operatives) Regulations 1992. There also has to be an operative qualified under the same Regulations on site while work is in progress.

**Electricity Safety Quality and Continuity Regulations 2002**

31 A supplier of electricity has a duty under regulation 15 of the Regulations to make and, so far as is reasonably practicable, keep up to date 'a map or series of maps indicating the position and depth below surface level of all his works'. The supplier must provide these maps free of charge to anyone who has good reason for requiring them. Regulation 14 of the Regulations imposes requirements for the protection of underground cables and also imposes requirements for the depth and manner of their installation.

**Fire Services Act 1947**

32 Section 16 requires notice to be given to the fire authority of works which will affect a water supply or a fire hydrant.

## References and further reading

- 1 *Safety at street works and road works. A Code of Practice* (also known as the Red Book) Department for Transport 2011 ISBN 978 0 1155 119580
- 2 *Traffic signs manual Chapter 8 (Part 1). Road works and temporary situations – design* The Stationery Office 2009 ISBN 978 0 11 553051 7
- 3 *Traffic signs manual Chapter 8 (Part 2). Road works and temporary situations – operations* The Stationery Office 2009 ISBN 978 0 11 553052 4
- 4 *Guidelines on the positioning of underground utilities apparatus for new development sites (Issue 3) Volume 2* National Joint Utilities Group 2010
- 5 *Guidelines on the positioning and colour coding of underground utilities' apparatus (Issue 6) Volume 1* National Joint Utilities Group 2012
- 6 *A guide to the Pipelines Safety Regulations 1996. Guidance on Regulations L82* HSE Books 1996 ISBN 978 0 7176 1182 9  
[www.hse.gov.uk/pubns/books/l82.htm](http://www.hse.gov.uk/pubns/books/l82.htm)
- 7 BS 1710:1984 *Specification for identification of pipelines and services* British Standards Institution
- 8 *Specification for the reinstatement of openings in highways: A Code of Practice* (Second edition) The Stationery Office 2002 ISBN 978 0 11 552538 4
- 9 *Trenchless and minimum excavation techniques: Planning and selection* (SP147) Construction Industry Research and Information Association (CIRIA) ISBN 978 0 8601 7483 7
- 10 *Trenchless techniques* IGEM/SR/28 Institution of Gas Engineers & Managers
- 11 BS 6187:2011 *Code of practice for demolition* British Standards Institution

## Guidance

*Guidelines on the management of third party cable ducting Volume 3* National Joint Utilities Group 2007

*Dealing with gas escapes* IGEM/SR/29  
Institution of Gas Engineers & Managers

*Trenching practice* (Second edition) R97 Construction Industry Research and Information Association (CIRIA) ISBN 978 0 8601 7192 8

*The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR)*  
[www.hse.gov.uk/riddor](http://www.hse.gov.uk/riddor)  
[www.hse.gov.uk/riddor/examples-reportable-incidents.htm](http://www.hse.gov.uk/riddor/examples-reportable-incidents.htm)

*Memorandum of guidance on the Electricity at Work Regulations 1989. Guidance on Regulations* HSR25 (Second edition) HSE Books 2007  
ISBN 978 0 7176 6228 9  
[www.hse.gov.uk/pubns/hsr25.htm](http://www.hse.gov.uk/pubns/hsr25.htm)

*A guide to the Gas Safety (Management) Regulations 1996. Guidance on Regulations* L80 HSE Books 1996 ISBN 978 0 7176 1159 1  
[www.hse.gov.uk/pubns/books/l80.htm](http://www.hse.gov.uk/pubns/books/l80.htm)

*Managing health and safety in construction. Construction (Design and Management) Regulations 2007. Approved Code of Practice* L144  
HSE Books 2007 ISBN 978 0 7176 6223 4  
[www.hse.gov.uk/pubns/books/l144.htm](http://www.hse.gov.uk/pubns/books/l144.htm)

*Managing for health and safety*  
[www.hse.gov.uk/managing/index.htm](http://www.hse.gov.uk/managing/index.htm)

## **Useful links**

HSE  
[www.hse.gov.uk](http://www.hse.gov.uk)  
Source of guidance and access to HSE publications

National Joint Utilities Group  
[www.njug.org.uk](http://www.njug.org.uk)  
Source of guidance and information on street works and detecting underground services

Energy Networks Association  
[www.energynetworks.org](http://www.energynetworks.org)  
Information about gas and electricity supply companies

Utility Strike Avoidance Group  
[www.utilitystrikeavoidancegroup.org](http://www.utilitystrikeavoidancegroup.org)  
A collaborative group of utilities asset owners, industry groups and contractors developing standards of safety when carrying out work on services

Utility Mapping Association  
[www.utilitymappingassociation.com](http://www.utilitymappingassociation.com)  
A trade body developing standards of training and competence for surveyors

The Survey Association  
[www.tsa-uk.org.uk](http://www.tsa-uk.org.uk)  
A trade body for commercial surveyors and source of information about surveying companies and technologies

Association of Geotechnical and Geoenvironmental Specialists

[www.ags.org.uk](http://www.ags.org.uk)

Trade association for those involved in site investigation. Provides guidance for clients and practitioners

UKOPA

[www.ukopa.co.uk](http://www.ukopa.co.uk)

Industry body for pipeline operators. Source of information about pipeline safety

UKSTT

[ukstt.org.uk](http://ukstt.org.uk)

Source of information about trenchless technology

Linewatch

[www.linewatch.co.uk/index.php](http://www.linewatch.co.uk/index.php)

Source of information and guidance about some major hazard pipelines

British Standards Institution

[www.bsigroup.co.uk](http://www.bsigroup.co.uk)

Institution of Gas Engineers & Managers

[www.igem.org.uk](http://www.igem.org.uk)

Electrical Safety Council

[www.electricalsafetycouncil.org.uk](http://www.electricalsafetycouncil.org.uk)

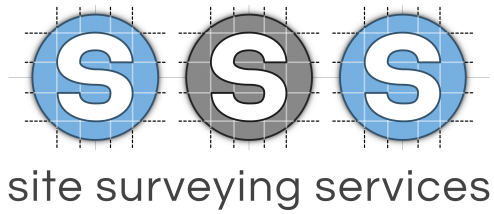
## Further information

For information about health and safety, or to report inconsistencies or inaccuracies in this guidance, visit [www.hse.gov.uk/](http://www.hse.gov.uk/). You can view HSE guidance online and order priced publications from the website. HSE priced publications are also available from bookshops.

British Standards can be obtained in PDF or hard copy formats from BSI:

<http://shop.bsigroup.com> or by contacting BSI Customer Services for hard copies only Tel: 0845 086 9001 email: [cservices@bsigroup.com](mailto:cservices@bsigroup.com).

The Stationery Office publications are available from The Stationery Office, PO Box 29, Norwich NR3 1GN Tel: 0870 600 5522 Fax: 0870 600 5533 email: [customer.services@tso.co.uk](mailto:customer.services@tso.co.uk) Website: [www.tsoshop.co.uk](http://www.tsoshop.co.uk) (They are also available from bookshops.) Statutory Instruments can be viewed free of charge at [www.legislation.gov.uk](http://www.legislation.gov.uk) where you can also search for changes to legislation.



# ELECTRICITY

**From:** planrequest@enwl.co.uk  
**Sent:** 23 April 2026 16:04  
**To:** Stats-Search.co.uk Ltd  
**Subject:** Plant Enquiry Ref Job No. 41286000  
**Attachments:** 41286000\_Electricity North West.pdf; SP ENWL Conditions and Information regarding electricity mains.pdf

23/04/2026

LinesearchbeforeUdig ref: 41286000

Your ref: S260386

Dear Sir/Madam,

Thank you for contacting us.

**Please see attached information specific to your enquiry:**

1. Plan (please print in colour):
2. Conditions and information regarding electricity mains.

I acknowledge with thanks your request dated above for information on the location of our services.

You must ensure safe digging practices, in accordance with HSE publication HSG47 "Avoiding Danger from Underground Services". You must verify and establish the actual position of mains, pipes, services and other apparatus on site before any mechanical plant is used. It is your responsibility to ensure that this information is provided to all relevant people (direct labour or contractors) working for you on or near assets.

Please find enclosed plan(s) showing the approximate position of our apparatus known to be in the vicinity of this site.

I attach Conditions and information regarding electricity mains, which details contact numbers for additional services (i.e. new supplies, connections, diversion). In addition you should ensure they are made available to anyone carrying out any works which may affect our apparatus.

The attached files are in PDF format, to view them you will need Adobe Acrobat Reader(R). You can download it free of charge from <http://get.adobe.com/reader>

**Contact Us**

**Mapping Enquiries:**

If you have an enquiry relating to this letter or the attached map plan, please contact us using the following information:

Telephone: 0800 195 4141

Email: [planrequest@enwl.co.uk](mailto:planrequest@enwl.co.uk)

Our symbology guide can be found via this [link](#)

**LinesearchbeforeUdig:**

If you have an enquiry relating to the use of the LSBUD website, please contact LSBUD using the following information:

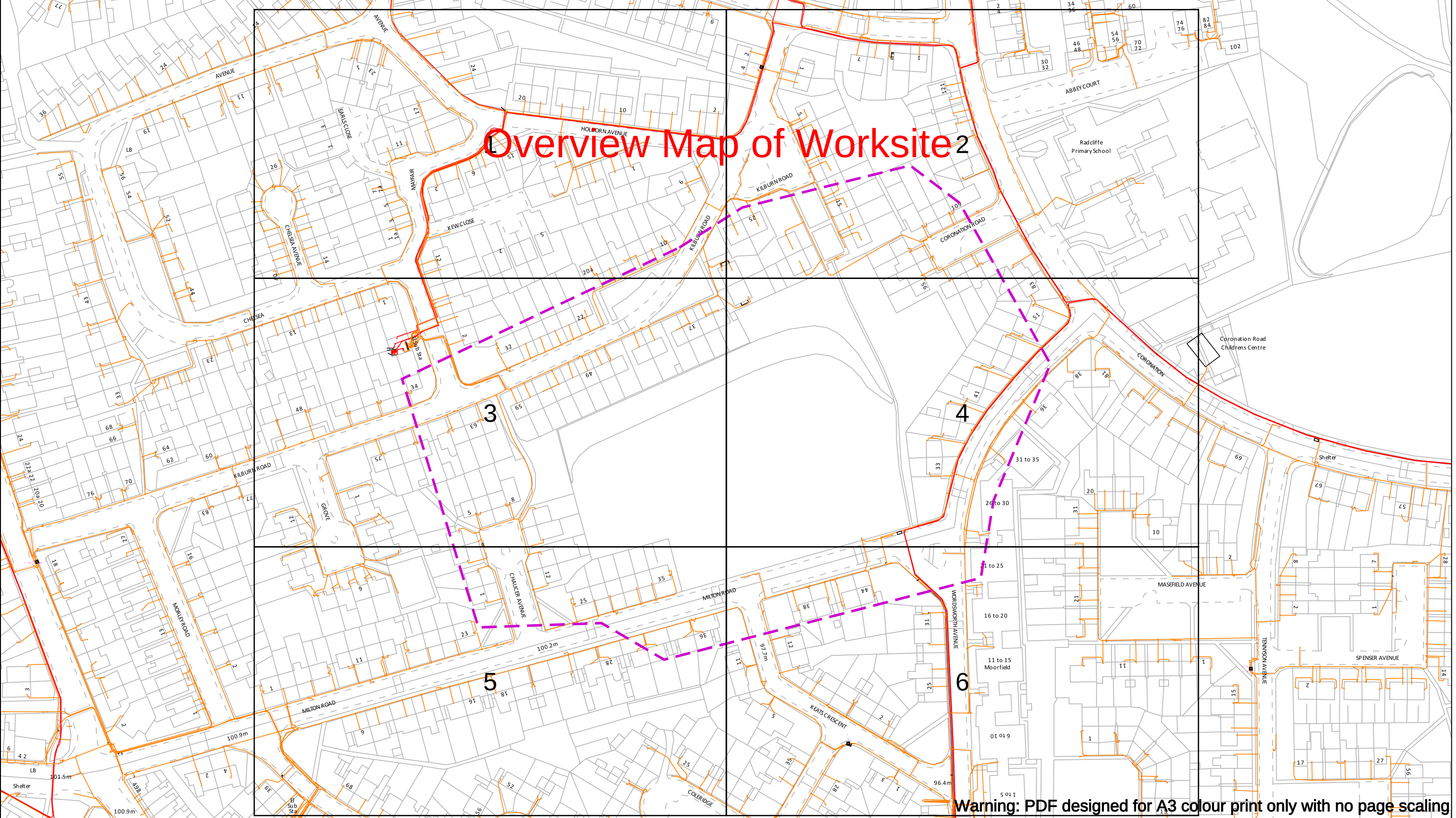
Telephone: 0345 437 7365

Email: [enquiries@lsbud.co.uk](mailto:enquiries@lsbud.co.uk)

Website: [www.lsbud.co.uk](http://www.lsbud.co.uk)

**For more information, visit our website [www.enwl.co.uk](http://www.enwl.co.uk)**

Kindest regards,



Warning: PDF designed for A3 colour print only with no page scaling

In an emergency call 105,  
24 hours a day

Date Requested: 23/04/2026  
Job Reference: 41286000  
Site Location: 377099 407730  
Requested by:  
Mr James Sloan  
Your Scheme/Reference:  
S260386

Scale: 1:1538 (When plotted at A3)

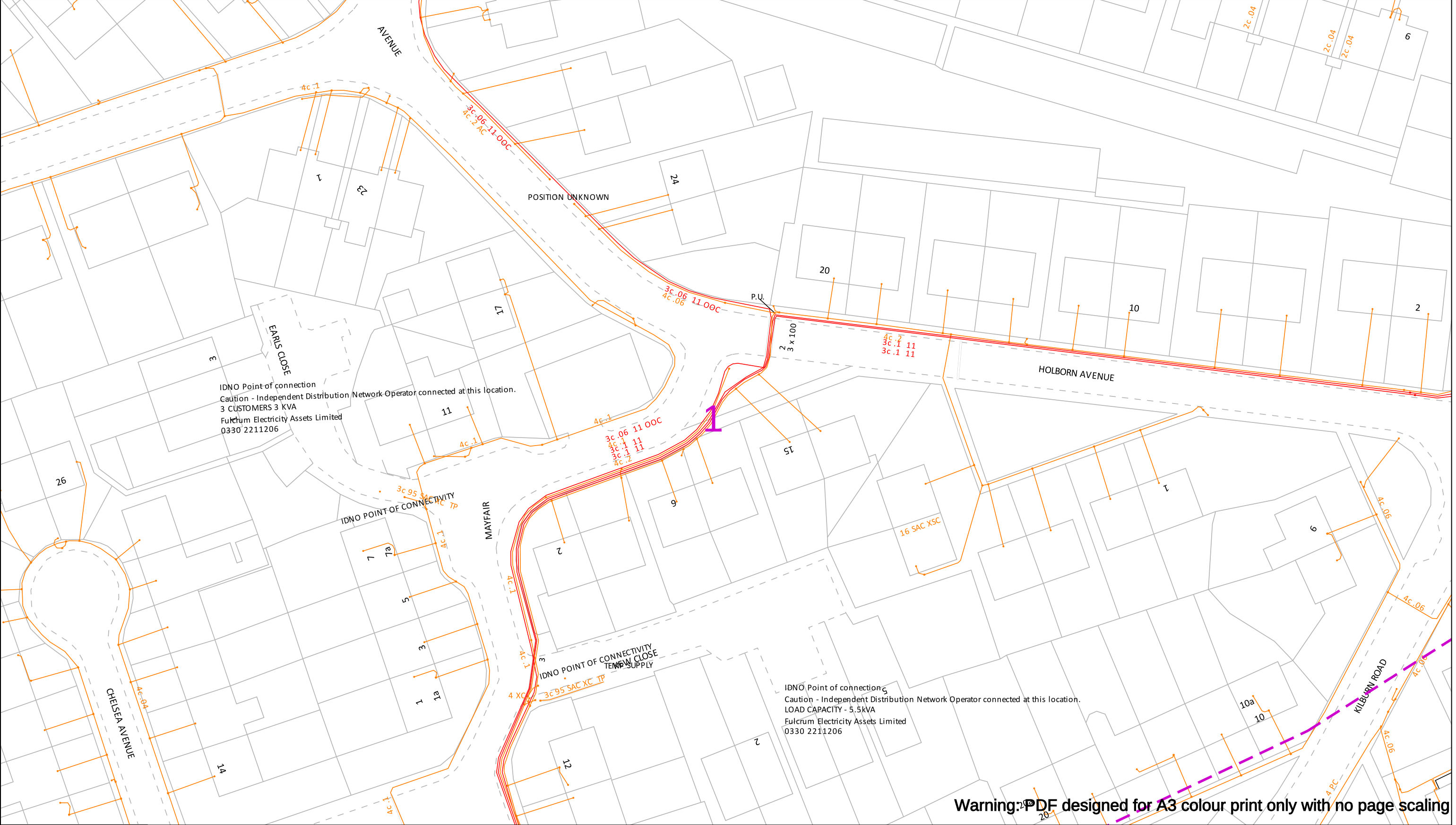
**IMPORTANT INFO**  
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Reference should be made to HSE Guidance, HS(G)47 "Avoiding Danger from Underground Services" and GS6 "Avoiding Danger from Overhead Power Lines". Electricity North West Limited, Borron Street, Portwood, Stockport, Cheshire, SK1 2JD Registered in England and Wales. Registered No 02366949

| Operating Voltage | Colour Code | Line Colour | Dig Sites         |
|-------------------|-------------|-------------|-------------------|
| 132kV             | Black       | <div></div> | Area: <div></div> |
| 33kV              | Green       | <div></div> | Line: <div></div> |
| 22kV-25kV         | Yellow      | <div></div> |                   |
| 11kV              | Red         | <div></div> |                   |
| 6kV-6.6kV         | Blue        | <div></div> |                   |
| 1kV-6kV           | Violet      | <div></div> |                   |
| LV                | Orange      | <div></div> |                   |
| Unknown Voltage   | Brown       | <div></div> |                   |



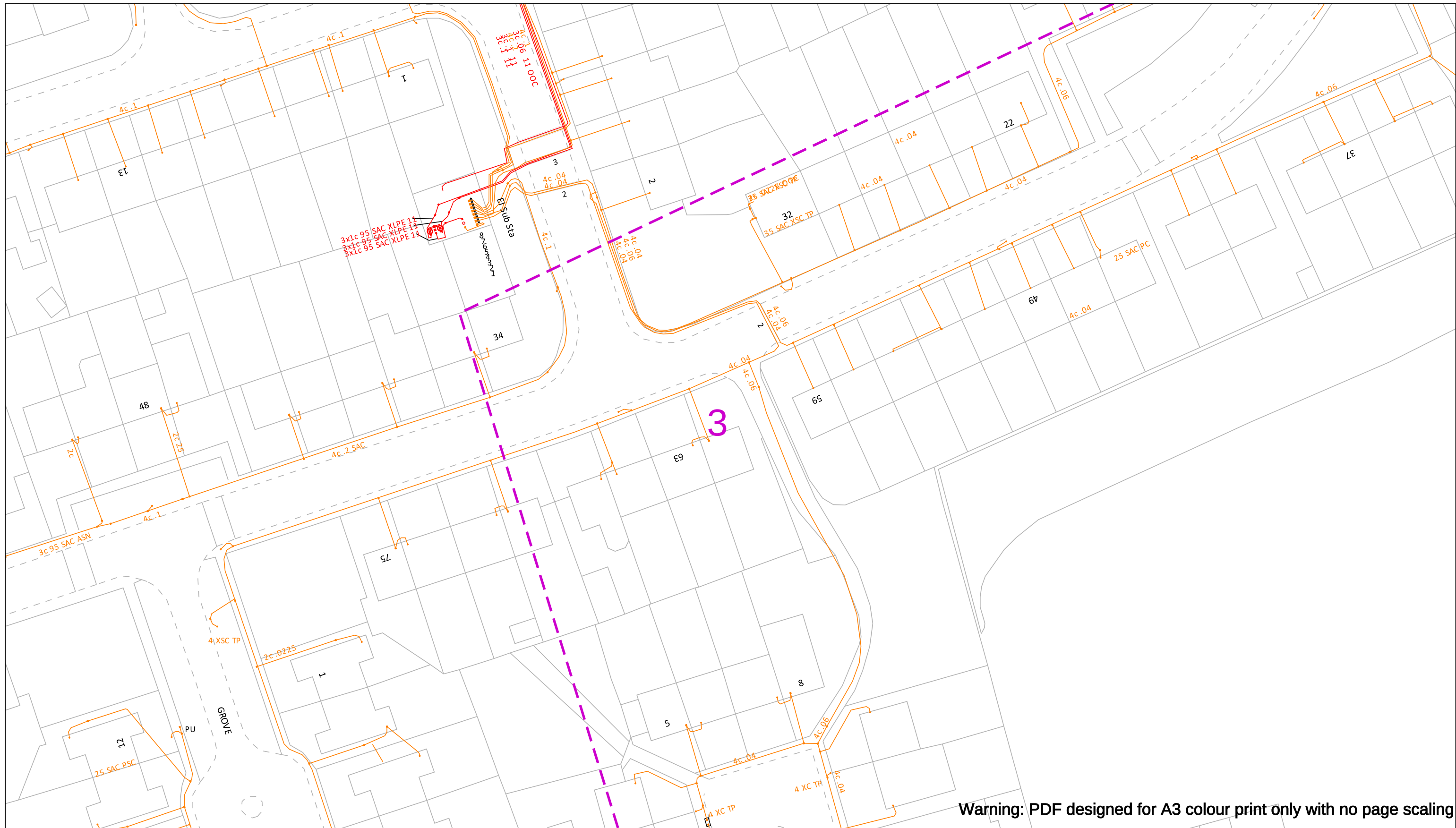
Electricity North West  
Borron Street  
Portwood, Stockport  
Cheshire, SK1 2 JD  
Phone: 0800 195 4141  
Email: planrequest@enwl.co.uk



Warning: PDF designed for A3 colour print only with no page scaling

| <p>In an emergency call 105,<br/>24 hours a day</p> | <p><b>IMPORTANT INFO</b></p> <p>Unless otherwise indicated the depth of Electricity North West Limited cables are in accordance with NJUG (450mm for Low Voltage &amp; 600mm for 11kV cables) 33kV and 132kV cables are laid at depths as marked. The depth and positions of Electricity North West Limited equipment was accurate as shown when the equipment was installed. However third parties may have altered the level &amp; other reference data. Therefore Electricity North West Limited accept no responsibility for the position of Electricity North West Limited equipment being different from shown. No person, body or company, shall be relieved from liability for damage caused to Electricity North West Limited equipment by reason of being located differently to the indications on this drawing or from any regulatory loss of income or incentive, or expense, which may be suffered by Electricity North West Limited and which is caused or contributed to by any loss of supply as a result of any damage caused to Electricity North West Limited's equipment. Service cables are not necessarily shown but must be assumed to exist to all premises, streetlights and signs. There may be other Electricity North West Limited apparatus in the vicinity which is not indicated on the cable records. Other apparatus may also be present which is owned by a third party other than Electricity North West Limited.</p> <p>Reference should be made to HSE Guidance, HS(G)47 "Avoiding Danger from Underground Services" and GS6 "Avoiding Danger from Overhead Power Lines". Electricity North West Limited, Borron Street, Portwood, Stockport, Cheshire, SK1 2JD Registered in England and Wales. Registered No 02366949</p> | <table><tr><th>Operating Voltage</th><th>Colour Code</th><th>Line Colour</th></tr><tr><td>132kV</td><td>Black</td><td><div></div></td></tr><tr><td>33kV</td><td>Green</td><td><div></div></td></tr><tr><td>22kV-25kV</td><td>Yellow</td><td><div></div></td></tr><tr><td>11kV</td><td>Red</td><td><div></div></td></tr><tr><td>6kV-6.6kV</td><td>Blue</td><td><div></div></td></tr><tr><td>1kV-6kV</td><td>Violet</td><td><div></div></td></tr><tr><td>LV</td><td>Orange</td><td><div></div></td></tr><tr><td>Unknown Voltage</td><td>Brown</td><td><div></div></td></tr></table> | Operating Voltage | Colour Code | Line Colour | 132kV | Black | <div></div> | 33kV | Green | <div></div> | 22kV-25kV | Yellow | <div></div> | 11kV | Red | <div></div> | 6kV-6.6kV | Blue | <div></div> | 1kV-6kV | Violet | <div></div> | LV | Orange | <div></div> | Unknown Voltage | Brown | <div></div> | <table><tr><th>Dig Sites</th></tr><tr><td>Area: <div></div></td></tr><tr><td>Line: <div></div></td></tr></table> | Dig Sites | Area: <div></div> | Line: <div></div> | <div></div> <p>Electricity North West<br/>Borron Street<br/>Portwood, Stockport<br/>Cheshire, SK1 2 JD<br/>Phone: 0800 195 4141<br/>Email: planrequest@enwl.co.uk</p> |
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| Operating Voltage                                   | Colour Code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Line Colour                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                   |             |             |       |       |             |      |       |             |           |        |             |      |     |             |           |      |             |         |        |             |    |        |             |                 |       |             |                                                                                                                  |           |                   |                   |                                                                                                                                                                       |
| 132kV                                               | Black                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                   |             |             |       |       |             |      |       |             |           |        |             |      |     |             |           |      |             |         |        |             |    |        |             |                 |       |             |                                                                                                                  |           |                   |                   |                                                                                                                                                                       |
| 33kV                                                | Green                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                   |             |             |       |       |             |      |       |             |           |        |             |      |     |             |           |      |             |         |        |             |    |        |             |                 |       |             |                                                                                                                  |           |                   |                   |                                                                                                                                                                       |
| 22kV-25kV                                           | Yellow                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                   |             |             |       |       |             |      |       |             |           |        |             |      |     |             |           |      |             |         |        |             |    |        |             |                 |       |             |                                                                                                                  |           |                   |                   |                                                                                                                                                                       |
| 11kV                                                | Red                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                   |             |             |       |       |             |      |       |             |           |        |             |      |     |             |           |      |             |         |        |             |    |        |             |                 |       |             |                                                                                                                  |           |                   |                   |                                                                                                                                                                       |
| 6kV-6.6kV                                           | Blue                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                   |             |             |       |       |             |      |       |             |           |        |             |      |     |             |           |      |             |         |        |             |    |        |             |                 |       |             |                                                                                                                  |           |                   |                   |                                                                                                                                                                       |
| 1kV-6kV                                             | Violet                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                   |             |             |       |       |             |      |       |             |           |        |             |      |     |             |           |      |             |         |        |             |    |        |             |                 |       |             |                                                                                                                  |           |                   |                   |                                                                                                                                                                       |
| LV                                                  | Orange                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                   |             |             |       |       |             |      |       |             |           |        |             |      |     |             |           |      |             |         |        |             |    |        |             |                 |       |             |                                                                                                                  |           |                   |                   |                                                                                                                                                                       |
| Unknown Voltage                                     | Brown                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                   |             |             |       |       |             |      |       |             |           |        |             |      |     |             |           |      |             |         |        |             |    |        |             |                 |       |             |                                                                                                                  |           |                   |                   |                                                                                                                                                                       |
| Dig Sites                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                   |             |             |       |       |             |      |       |             |           |        |             |      |     |             |           |      |             |         |        |             |    |        |             |                 |       |             |                                                                                                                  |           |                   |                   |                                                                                                                                                                       |
| Area: <div></div>                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                   |             |             |       |       |             |      |       |             |           |        |             |      |     |             |           |      |             |         |        |             |    |        |             |                 |       |             |                                                                                                                  |           |                   |                   |                                                                                                                                                                       |
| Line: <div></div>                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                   |             |             |       |       |             |      |       |             |           |        |             |      |     |             |           |      |             |         |        |             |    |        |             |                 |       |             |                                                                                                                  |           |                   |                   |                                                                                                                                                                       |





In an emergency call 105,  
24 hours a day

Date Requested: 23/04/2026  
Job Reference: 41286000  
Site Location: 377099 407730  
Requested by:  
Mr James Sloan  
Your Scheme/Reference:  
S260386

Scale: 1:500 (When plotted at A3)

## IMPORTANT INFO

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### Operating Voltage

132kV

33kV

22kV-25kV

11kV

6kV-6.6kV

1kV-6kV

LV

### Unknown Voltage

Colour Code

Black

Green

Yellow

Red

Blue

Violet

Orange

Brown

Line Colour



## Dig Sites

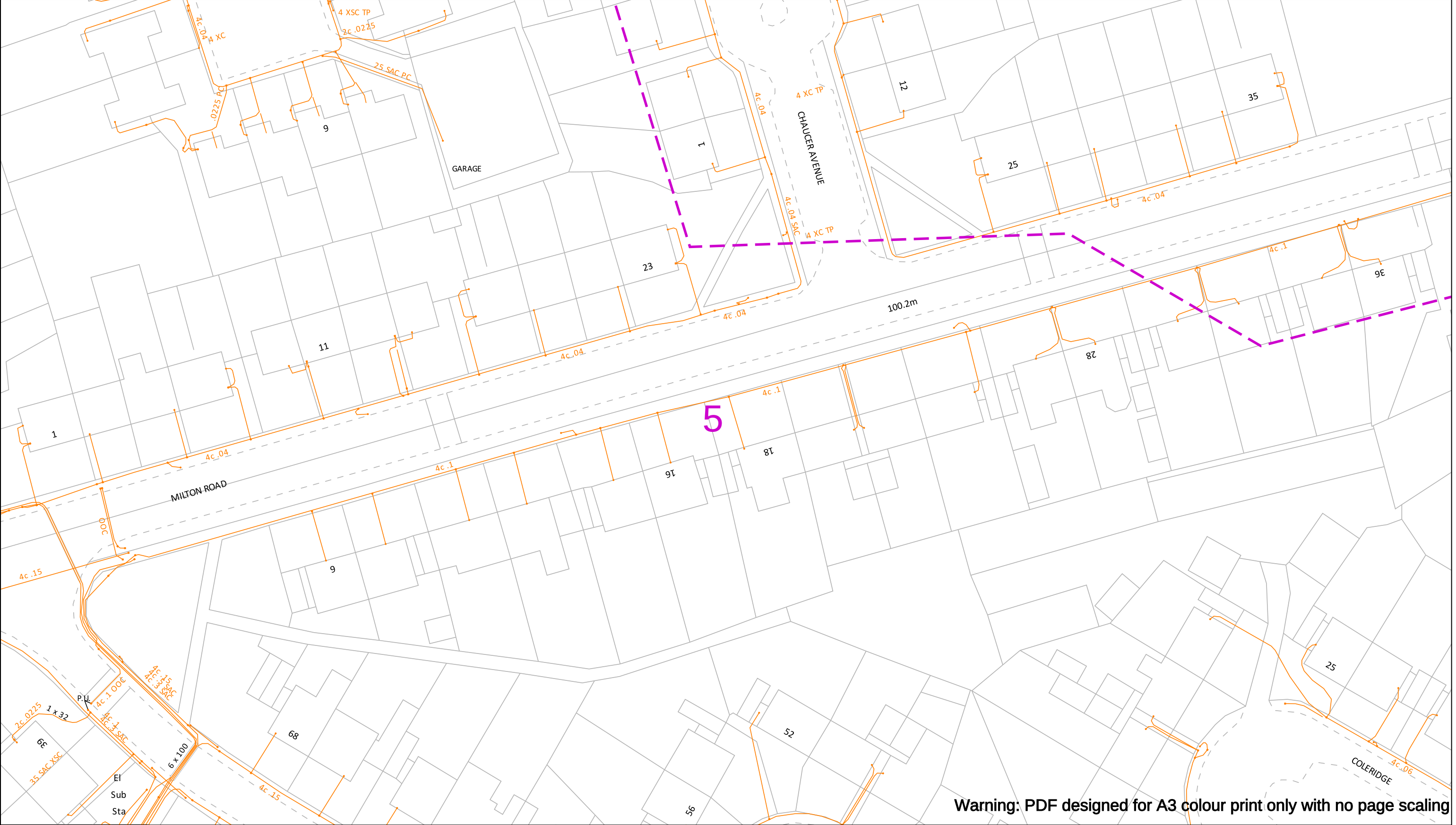
Area: 

Line:           



Electricity North West  
Borron Street  
Portwood, Stockport  
Cheshire, SK1 2 JD  
Phone: 0800 195 4141  
Email: [planrequest@enwl.co.uk](mailto:planrequest@enwl.co.uk)





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| Operating Voltage                                   | Colour Code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Line Colour                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Dig Sites         |             |             |           |       |       |  |       |      |       |  |       |           |        |  |  |      |     |  |  |           |      |  |  |         |        |  |  |    |        |  |  |                 |       |  |  |                                                                                                                                                                        |
| 132kV                                               | Black                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Area:             |             |             |           |       |       |  |       |      |       |  |       |           |        |  |  |      |     |  |  |           |      |  |  |         |        |  |  |    |        |  |  |                 |       |  |  |                                                                                                                                                                        |
| 33kV                                                | Green                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Line:             |             |             |           |       |       |  |       |      |       |  |       |           |        |  |  |      |     |  |  |           |      |  |  |         |        |  |  |    |        |  |  |                 |       |  |  |                                                                                                                                                                        |
| 22kV-25kV                                           | Yellow                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                   |             |             |           |       |       |  |       |      |       |  |       |           |        |  |  |      |     |  |  |           |      |  |  |         |        |  |  |    |        |  |  |                 |       |  |  |                                                                                                                                                                        |
| 11kV                                                | Red                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                   |             |             |           |       |       |  |       |      |       |  |       |           |        |  |  |      |     |  |  |           |      |  |  |         |        |  |  |    |        |  |  |                 |       |  |  |                                                                                                                                                                        |
| 6kV-6.6kV                                           | Blue                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                   |             |             |           |       |       |  |       |      |       |  |       |           |        |  |  |      |     |  |  |           |      |  |  |         |        |  |  |    |        |  |  |                 |       |  |  |                                                                                                                                                                        |
| 1kV-6kV                                             | Violet                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                   |             |             |           |       |       |  |       |      |       |  |       |           |        |  |  |      |     |  |  |           |      |  |  |         |        |  |  |    |        |  |  |                 |       |  |  |                                                                                                                                                                        |
| LV                                                  | Orange                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                   |             |             |           |       |       |  |       |      |       |  |       |           |        |  |  |      |     |  |  |           |      |  |  |         |        |  |  |    |        |  |  |                 |       |  |  |                                                                                                                                                                        |
| Unknown Voltage                                     | Brown                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                   |             |             |           |       |       |  |       |      |       |  |       |           |        |  |  |      |     |  |  |           |      |  |  |         |        |  |  |    |        |  |  |                 |       |  |  |                                                                                                                                                                        |



## Conditions and information regarding electricity mains

These general conditions and precautions apply to the electricity distribution system of Electricity North West Limited.

Please ensure that a copy of these conditions is passed to your representative and contractor on site.

1. There may be other Electricity North West Limited apparatus in the vicinity, which is not indicated on the cable records. Other apparatus may also be present which a third party owns other than Electricity North West Limited.
2. Before any machines are used, all of Electricity North West's underground apparatus should be located by manual excavation taking the appropriate safety precautions in accordance with the **Health and Safety Executive Guidance note HS(G)47 "Avoiding danger from underground services"**. This contains advice to site personnel when working near underground services.

Underground services, particularly electricity and gas, can be dangerous. Damage to electricity cables can cause a dangerous flash, leading to severe burns or even death. Gas leaks can cause fire or explosion.

Damage can result from excavation or penetration of the ground, e.g. by a road pin.

Underground services may be found in roads, footpaths and on sites. Always assume that they are present. Treat any services found anywhere as live.

Accidents have happened because people have mistaken one service for another, e.g. black plastic covered electricity cables look like black plastic water pipes and cast iron gas and water mains look alike. Check before you act.

3. Before starting work you must:
  - Make sure you have plans of the underground services in the area. This may not always be possible for emergency or unforeseen works. **Remember that service connection cables and pipes from the main to building or streetlight may not be shown.**
  - Use a cable and pipe locator to trace electricity cables and metal pipes.
  - Look for signs of service connection cables or pipes, e.g. a gas meter or service connection entry into a house or a streetlight.
  - Hand dig trial holes (as many as necessary) to confirm the position of services in close proximity to the area of work.

4. When you start work:

- Hand dig near buried services whenever possible. Spades and shovels are safer than picks, pins or forks.
- Remember that cables may be embedded in concrete. Electricity cables embedded in concrete **must** either be made dead before the concrete is broken out or another safe way of working agreed with the cable owner.
- Watch out for signs of services as work continues.
- Report damage to a cable, pipe or pipe coating however slight.
- Do not use hand held power tools within 0.5m of the marked position of an electricity cable, unless this is impracticable and the line of the cable has been identified by plans and positively confirmed by a locator.
- Do not use hand held power tools directly over the marked line of cable unless:
  - a) You have already found the cable at that position by careful hand digging beneath the surface and it is at a safe depth (at least 300mm) below the bottom of the surface to be broken, or
  - b) Physical means have been used to prevent the tool striking it.
- If an excavator is used near an electricity cable keep everyone clear of the bucket while it is digging. Buckets should not be used near cable – hand dig.
- Do not use exposed services as a convenient step or handhold.
- Do not handle or attempt to alter the position of an exposed service.
- Do not install plant close to an existing service.
- Do not build existing services into a manhole or other structure or encase them in concrete.

Please ensure that all site operators have this information and if any electrical apparatus is damaged, they/you should contact Electricity North West Limited on **0800 195 4141 (option 1)**.

5. **Overhead lines** are not necessarily shown on the Electricity North West Limited cable records but may be present. In the event of work being carried out adjacent to overhead lines (including access, storage etc.) please always ensure strict adherence to the requirements of the **Health and Safety Executive's Document GS6 "Avoiding Danger from Overhead Power Lines"**.

Extreme personal danger can result from contact, or near contact, with live conductors or overhead lines.

**Treat all overhead lines and other electrical apparatus as live. If in doubt, get advice.**

6. Electricity North West Limited must be consulted if work is to take place within 15 metres of overhead lines on steel towers or 9 metres of overhead lines on wood, concrete or steel pylons. (All distances should be measure at ground level from a position estimated by eye to be vertically under the outermost conductor at a tower or pole position) Any person involved in work in the vicinity of overhead lines should:
- Understand and follow the instructions given on safe working areas and methods of work.
  - Make sure that warning notices are in the cabs of machines working in the vicinity of an overhead line.
  - Make sure that barriers and warning notices are erected as required.
  - Not tip soil or stack material underneath overhead lines as this may reduce the clearance to an unsafe distance.
  - Make sure when handling or using platforms, scaffold, poles, piping, ladders, hand tools etc., that they are kept at a safe distance from overhead lines.
  - Not steady a suspended load, skip, hoist wire, slings etc., unless satisfied that there isn't any danger from overhead lines.
  - Remember that when mobile plant, such as a crane or excavator, is operating near overhead lines, the raising or slewing of the jib may introduce danger.
  - Always keep overhead lines in view when manoeuvring mobile plant.
  - Never operate a machine unless carefully guided by an experienced banksman.
  - Not approach or touch any broken or fallen conductors or any plant in contact with an overhead line before Electricity North West Limited confirms that conditions are safe. Warn others to keep well clear.

**Machine operators should note that:** if a machine comes into contact with an overhead line and cannot be disentangled by backing off, remain seated in the cab and warn others to keep clear of the machine until Electricity North West Limited confirms that conditions are safe. If it is essential to

leave the machine while it is in contact with the overhead line, for example if it catches fire, jump well clear – and **do not** attempt to climb down in the normal way nor touch any part of the machine when on the ground.

7. Electricity North West Limited provides approximate locations of its electricity mains or apparatus according to its records but these records are not necessarily accurate or complete and do not always show the position of private cables from mains to properties. No person or company shall be relieved from liability for any damage caused by reason of the actual positions and/or depths being different from those indicated.

8. Care should be taken when excavating near cables. Known road crossings are highlighted on the enclosed plans. Should any cable, or Electricity North West Limited apparatus indicated on the attached plans, be affected by your proposals please contact us as follows:

Electricity North west Limited  
Borron Street  
Portwood, Stockport  
Cheshire  
SK1 2JD

Telephone: **0800 195 4141 (option 4)**

Details of diversion costs, if any, will be provided on request once your firm proposals have been submitted.

9. Please note that service cables may be affected by some of the works being carried out on site.

If any services do require temporary disconnection please phone **0800 195 4141 (option 2)** for domestic and commercial disconnection, so that arrangement can be made to disconnect before work commences on site.

11. Please note that cable records supplied may not be up to date, or may be incomplete, if the area concerned is a new site.

12. For information regarding wayleave or easement agreements contact [WayleaveEnquiries@enwl.co.uk](mailto:WayleaveEnquiries@enwl.co.uk)

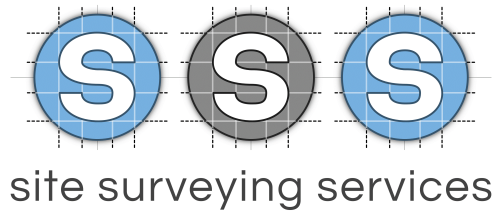
13. The latest cable records are always available for inspection during normal working hours and you should satisfy yourself that the information you have is up to date at the time you commence work. This service is consistent with the requirement of Regulation 36 of the Electricity Supply Regulations and paragraph 79 of the New Road and Street Works Act.



Electricity North West Ltd  
Borron Street, Portwood  
Stockport  
SK1 2JD

[www.enwl.co.uk](http://www.enwl.co.uk)

Registered in England and Wales  
Registered Number 02366949



# WATER & SEWERS

stats-search.co.uk Limited

1  
Foxfield Road,  
Wirral,  
CH47 0NJ

FAO:

**How to contact us:**

**United Utilities Water Limited  
Property Searches  
Haweswater House  
Lingley Mere Business Park  
Great Sankey  
Warrington  
WA5 3LP**

**Telephone: 0370 7510101**

**E-mail: [propertysearches@uuplc.co.uk](mailto:propertysearches@uuplc.co.uk)**

**Your Ref: S260386  
Our Ref: UUPS-ORD-726350  
Date: 23/04/2026**

**Dear Sirs**

**Location: S260386**

I acknowledge with thanks your request dated 23/04/2026 for information on the location of our services.

Please find enclosed plans showing the approximate position of United Utilities' apparatus known to be in the vicinity of this site.

The enclosed plans are being provided to you subject to the United Utilities terms and conditions for both the wastewater and water distribution plans which are shown attached.

If you are planning works anywhere in the North West, please read United Utilities' access statement before you start work to check how it will affect our network. <http://www.unitedutilities.com/work-near-asset.aspx>.

I trust the above meets with your requirements and look forward to hearing from you should you need anything further.

If you have any queries regarding this matter please [contact us](#).

Yours Faithfully,



Karen McCormack  
Property Searches Manager

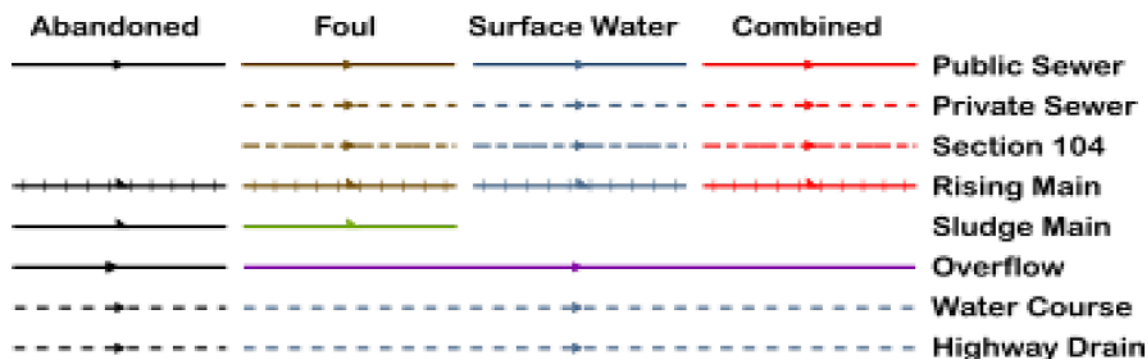
## **TERMS AND CONDITIONS - WASTEWATER AND WATER DISTRIBUTION PLANS**

These provisions apply to the public sewerage, water distribution and telemetry systems (including sewers which are the subject of an agreement under Section 104 of the Water Industry Act 1991 and mains installed in accordance with the agreement for the self construction of water mains) (UUWL apparatus) of United Utilities Water Limited "(UUWL)".

### **TERMS AND CONDITIONS:**

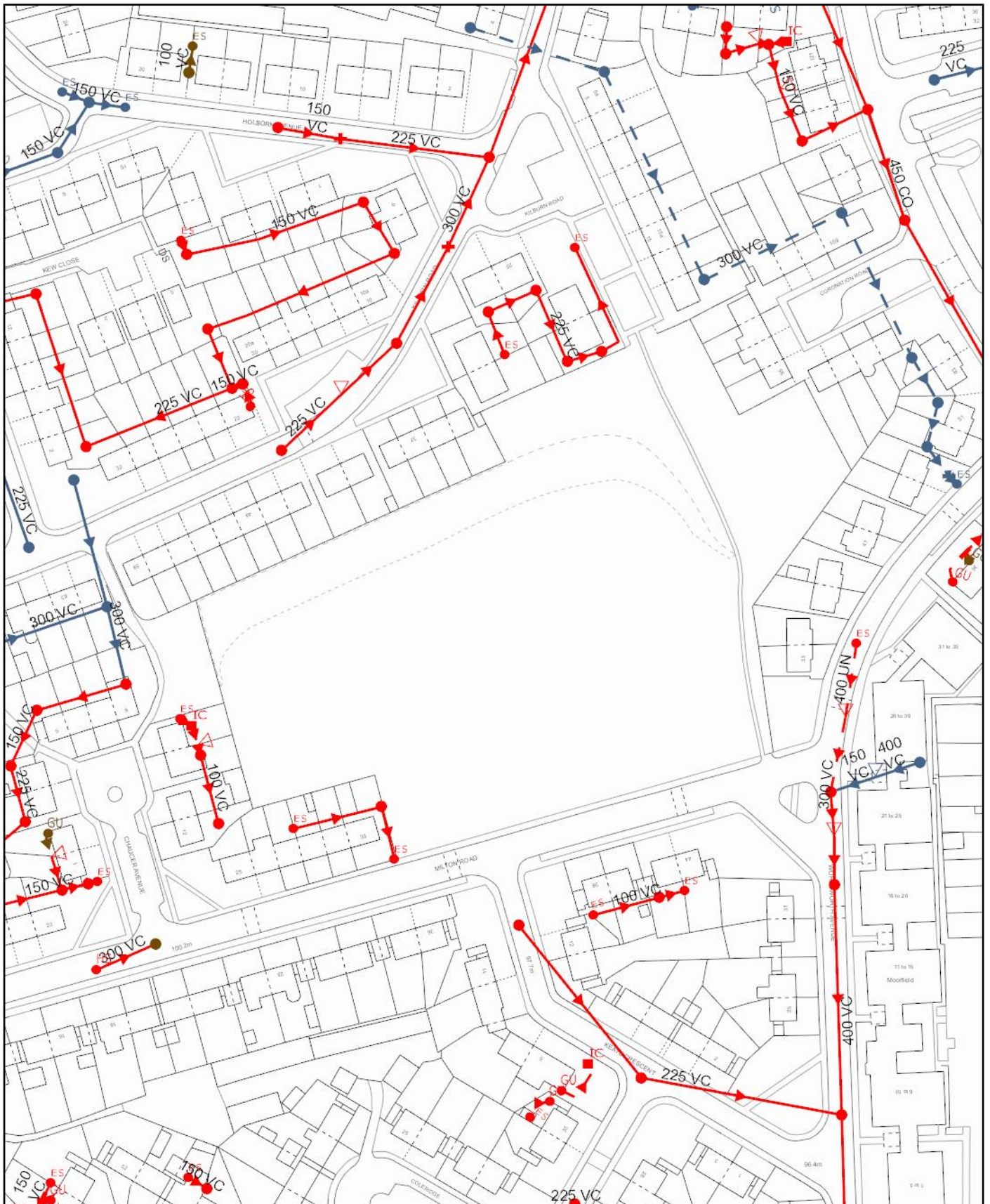
- This Map and any information supplied with it is issued subject to the provisions contained below, to the exclusion of all others and no party relies upon any representation, warranty, collateral contract or other assurance of any person (whether party to this agreement or not) that is not set out in this agreement or the documents referred to in it.
- This Map and any information supplied with it is provided for general guidance only and no representation, undertaking or warranty as to its accuracy, completeness or being up to date is given or implied.
- In particular, the position and depth of any UUWL apparatus shown on the Map are approximate only. UUWL strongly recommends that a comprehensive survey is undertaken in addition to reviewing this Map to determine and ensure the precise location of any UUWL apparatus. The exact location, positions and depths should be obtained by excavation trial holes.
- The location and position of private drains, private sewers and service pipes to properties are not normally shown on this Map but their presence must be anticipated and accounted for and you are strongly advised to carry out your own further enquiries and investigations in order to locate the same.
- The position and depth of UUWL apparatus is subject to change and therefore this Map is issued subject to any removal or change in location of the same. The onus is entirely upon you to confirm whether any changes to the Map have been made subsequent to issue and prior to any works being carried out.
- This Map and any information shown on it or provided with it must not be relied upon in the event of any development, construction or other works (including but not limited to any excavations) in the vicinity of UUWL apparatus or for the purpose of determining the suitability of a point of connection to the sewerage or other distribution systems.
- No person or legal entity, including any company shall be relieved from any liability howsoever and whensoever arising for any damage caused to UUWL apparatus by reason of the actual position and/or depths of UUWL apparatus being different from those shown on the Map and any information supplied with it.
- If any provision contained herein is or becomes legally invalid or unenforceable, it will be taken to be severed from the remaining provisions which shall be unaffected and continue in full force and affect.
- This agreement shall be governed by English law and all parties submit to the exclusive jurisdiction of the English courts, save that nothing will prevent UUWL from bringing proceedings in any other competent jurisdiction, whether concurrently or otherwise.

## Wastewater Symbolology



All point assets follow the standard colour convention: **red** – combined **brown** - foul  
**blue** – surface water **purple** - overflow

|                         |                                     |
|-------------------------|-------------------------------------|
| <b>Manhole</b>          | <b>Side Entry Manhole</b>           |
| <b>Head of System</b>   | <b>Outfall</b>                      |
| <b>Extent of Survey</b> | <b>Screen Chamber</b>               |
| <b>Rodding Eye</b>      | <b>Inspection Chamber</b>           |
| <b>Inlet</b>            | <b>Bifurcation Chamber</b>          |
| <b>Discharge Point</b>  | <b>Lamp Hole</b>                    |
| <b>Vortex</b>           | <b>T Junction / Saddle</b>          |
| <b>Penstock</b>         | <b>Catchpit</b>                     |
| <b>Washout Chamber</b>  | <b>Valve Chamber</b>                |
| <b>Valve</b>            | <b>Vent Column</b>                  |
| <b>Air Valve</b>        | <b>Vortex Chamber</b>               |
| <b>Non Return Valve</b> | <b>Penstock Chamber</b>             |
| <b>Soakaway</b>         | <b>Network Storage Tank</b>         |
| <b>Gully</b>            | <b>Sewer Overflow</b>               |
| <b>Cascade</b>          | <b>Ww Treatment Works</b>           |
| <b>Flow Meter</b>       | <b>Ww Pumping Station</b>           |
| <b>Hatch Box</b>        | <b>Septic Tank</b>                  |
| <b>Oil Interceptor</b>  | <b>Control Kiosk</b>                |
| <b>Summit</b>           | <b>DNM Network Monitoring Point</b> |
| <b>Drop Shaft</b>       | <b>Change of Characteristic</b>     |
| <b>Orifice Plate</b>    |                                     |



Scale: 1:1431  
Date: 23/04/2026

## SEWER RECORDS



Address or Site Reference: S260386  
Printed by: Property Searches

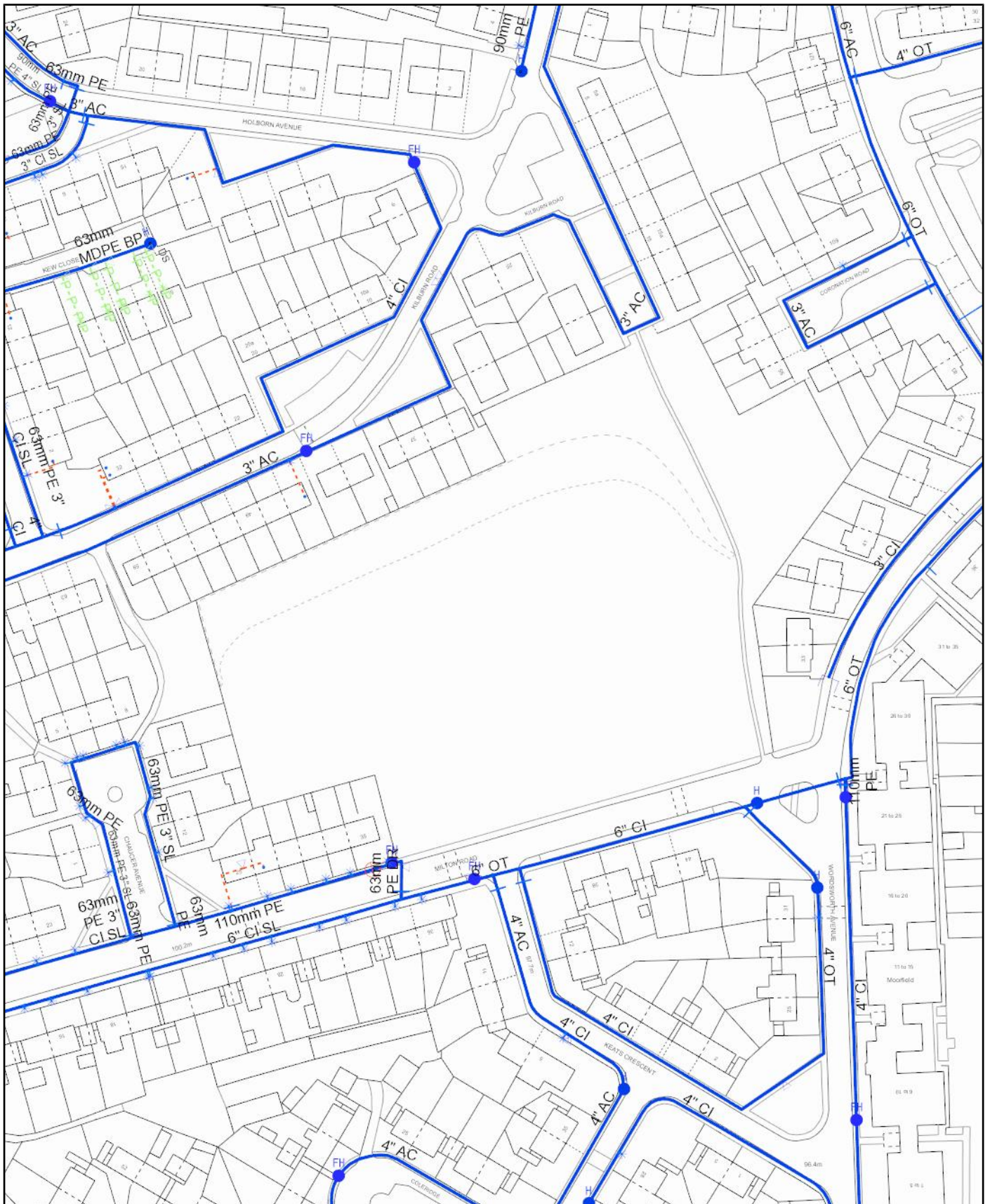
The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. United Utilities Water will not accept liability for any loss or damage caused by the actual position being different from those shown.

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## Clean Water Symbolology

| Proposed | Abandoned | Live |                           |
|----------|-----------|------|---------------------------|
|          |           |      | Distribution Main         |
|          |           |      | Trunk Main                |
|          |           |      | Comms Pipe                |
|          |           |      | Private Pipe              |
|          |           |      | Concessionary Service     |
|          |           |      | Raw Water                 |
|          |           |      | LDTM Raw Water            |
|          |           |      | LDTM Treated Water        |
|          |           |      | Air Valve                 |
|          |           |      | AC Valve, open            |
|          |           |      | AC Valve, closed          |
|          |           |      | CC Valve, open            |
|          |           |      | CC Valve, closed          |
|          |           |      | Non Return Valve          |
|          |           |      | Pressure Management Valve |
|          |           |      | OMS Valve                 |
|          |           |      | Stop Tap                  |
|          |           |      | Flow Meter                |
|          |           |      | Domestic Meter            |
|          |           |      | Commercial Meter          |
|          |           |      | Pump                      |
|          |           |      | Hydrant                   |
|          |           |      | Fire Hydrant              |
|          |           |      | Anode                     |
|          |           |      | Chlorination Point        |
|          |           |      | De-chlorination Point     |
|          |           |      | Strainer Point            |
|          |           |      | Access Point              |
|          |           |      | Hatch Box                 |
|          |           |      | IP Point                  |
|          |           |      | Sampling Station          |
|          |           |      | Logger Box                |
|          |           |      | Bore Hole                 |
|          |           |      | Inlet Point               |
|          |           |      | Bulk Supply Point         |
|          |           |      | End Cap                   |
|          |           |      | Site Termination          |
|          |           |      | Change of Characteristic  |
|          |           |      | Condition Report          |
|          |           |      | <u>Property Types</u>     |
|          |           |      | Water Tower               |
|          |           |      | Valve House               |
|          |           |      | Booster Pumping Station   |
|          |           |      | Intake Pumping Station    |
|          |           |      | Water Treatment Works     |
|          |           |      | Supply Reservoir          |
|          |           |      | Service Reservoir         |
|          |           |      | Impounding Reservoir      |
|          |           |      | Pipe Bridge               |

Symbology for proposed assets is the same as above, but shown in **green**  
 Symbology for abandoned assets is the same as above, but shown in **black**



Scale: 1:1431  
Date: 23/04/2026

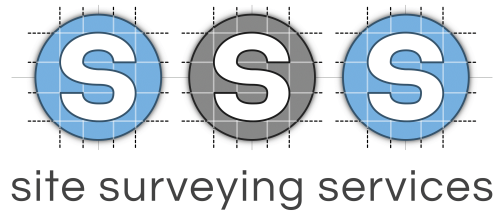
## WATER MAINS RECORDS



Address or Site Reference: S260386  
Printed by: Property Searches

The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. United Utilities Water will not accept liability for any loss or damage caused by the actual position being different from those shown.

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BT

Our Ref: Ref shown on map

Date of issue: shown on map

email: [nnhc@openreach.co.uk](mailto:nnhc@openreach.co.uk)

Dear Customer,

**NR & SW ACT 1991 – PROPOSED WORKS AT: \*\*SITE LOCATION\*\***

Prior to commencement of work: For free onsite guidance and accurate up to date location of BT Apparatus please contact our Plant Protection Service by the following methods:-

Email the Click Before You Dig Team [CBYD@openreach.co.uk](mailto:CBYD@openreach.co.uk)

Visit the Click Before You Dig Website [www.openreach.co.uk/cbyd](http://www.openreach.co.uk/cbyd)

Thank you for your request of \*\*/\*\*/\*\* describing the above proposals.

Enclosed are copies of our drawings marked up to show the approximate locations of BT apparatus in the immediate vicinity of your works. It is intended for general guidance only. No guarantee is given of its accuracy.

The drawings are valid for 90 days from the date of issue and should not be relied upon after this time period has expired.

When planning excavation work or other works near to BT apparatus, please be mindful our apparatus may exist at various depths and may deviate from the marked route.

To avoid damage it is recommended that mechanical excavators or borers are not used within 600mm of BT apparatus. If scaffolding is erected, please ensure that our equipment is not enclosed, blocked, covered or otherwise obstructed by the scaffolding.

In the event of BT apparatus being in the area of your works we recommend that your plant/vehicle crossing is either resited, or apply for a budget estimate by submitting detailed plans to our Network Relocation Team at <https://www.ournetwork.openreach.co.uk/altering-our-network.aspx>

Yours faithfully,

**Julie Cullum**  
**NNHC & MBE Manager**

# Maps on Demand Plant Information Reply



## IMPORTANT WARNING

Information regarding the location of BT apparatus is given for your assistance and is intended for general guidance only. No guarantee is given of its accuracy. It should not be relied upon in the event of excavations or other works being made near to BT apparatus which may exist at various depths and may deviate from the marked route.

**openreach**

## CLICK BEFORE YOU DIG

FOR PROFESSIONAL FREE ON SITE ASSISTANCE PRIOR TO COMMENCEMENT OF EXCAVATION WORKS INCLUDING LOCATE AND MARKING SERVICE

email [cbjd@openreach.co.uk](mailto:cbjd@openreach.co.uk)

ADVANCE NOTICE REQUIRED  
(Office hours: Monday - Friday 08.00 to 17.00)  
[www.openreach.co.uk/cbjd](http://www.openreach.co.uk/cbjd)

## Accidents happen

If you do damage any Openreach equipment please let us know by calling 0800 023 2023 (opt 1 + opt 1) and we can get it fixed ASAP

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## KEY TO BT SYMBOLS

|             | Planned     | Live     | Change Of State                                                                                                                                                                                                                                            | +          | Hatchings |  |
|-------------|-------------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-----------|--|
| PCP         |             |          | Split Coupling                                                                                                                                                                                                                                             | ×          | Built     |  |
| Pole        |             |          | Duct Tee                                                                                                                                                                                                                                                   | ▲          | Planned   |  |
| Box         |             |          | Building                                                                                                                                                                                                                                                   |            | Inferred  |  |
| Manhole     |             |          | Kiosk                                                                                                                                                                                                                                                      |            | Duct      |  |
| Cabinet     |             |          | Other proposed plant is shown using dashed lines.<br>BT Symbols not listed above may be disregarded.<br>Existing BT Plant may not be recorded.<br>Information valid at time of preparation. Maps are only valid for 90 days after the date of publication. |            |           |  |
|             | Pending Add | In Place | Pending Remove                                                                                                                                                                                                                                             | Not In Use |           |  |
| Power Cable |             |          |                                                                                                                                                                                                                                                            |            |           |  |
| Power Duct  |             |          |                                                                                                                                                                                                                                                            | N/A        |           |  |

BT Ref : VRR10184L

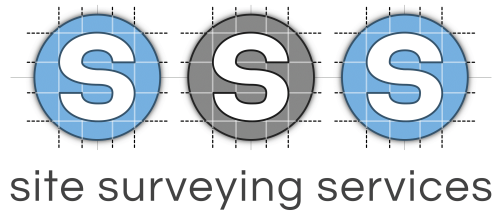
Map Reference : (centre) SD7711507731

Easting/Northing : (centre) 377115,407731

Scale : 1:250

Issued : 24/04/2026 10:18:16

**WARNING: IF PLANNED WORKS FALL INSIDE HATCHED AREA IT IS ESSENTIAL BEFORE PROCEEDING THAT YOU CONTACT THE NATIONAL NOTICE HANDLING CENTRE. PLEASE SEND E-MAIL TO: [nnhc@openreach.co.uk](mailto:nnhc@openreach.co.uk)**



# LINESEARCH

### Enquirer

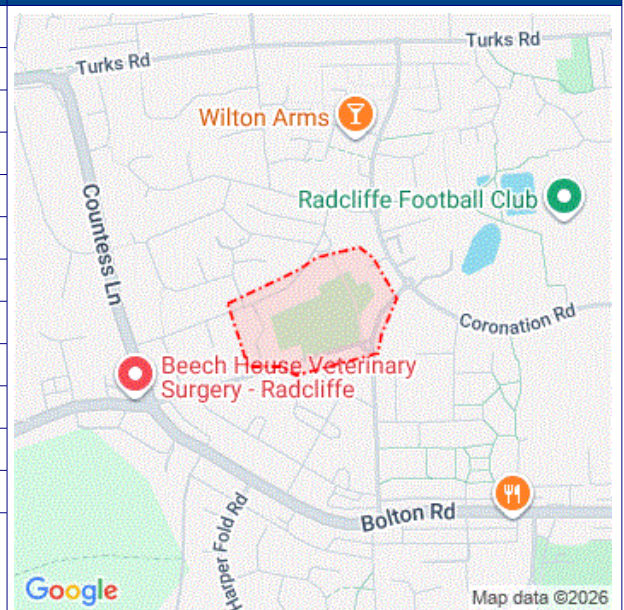
|         |                                     |        |              |
|---------|-------------------------------------|--------|--------------|
| Name    | Mr James Sloan                      | Phone  | 07833491772  |
| Company | stats-search.co.uk Limited          | Mobile | Not Supplied |
| Address | 1 Foxfield Road Wirral MSY CH47 0NJ |        |              |
| Email   | plans@stats-search.co.uk            |        |              |

### Enquiry Details

|                      |                                               |
|----------------------|-----------------------------------------------|
| Enquiry type         | Planned Works                                 |
| Work category        | Utility Works                                 |
| Work type            | Multiple excavations site (1.5m or shallower) |
| Work type buffer*    | 25 metres                                     |
| Start date           | 24/04/2026                                    |
| End date             | 31/05/2026                                    |
| Scheme/Reference     | S260386                                       |
| Search location      | XY= 377115, 407731                            |
| Confirmed location   | 377099 407730                                 |
| Site size            | 39920 metres square                           |
| Site Contact Name    | Samuel Knott                                  |
| Site Phone No.       | 07519111092                                   |
| Description of Works | admin@sitesurvey.co.uk                        |
|                      |                                               |

\* The WORK TYPE BUFFER is a distance added to your search area based on the Work type you have chosen.

### Site Map



Please note that the above map only displays the location of the proposed work site and will not display any of the Members' pipes and cables. It is imperative that this area accurately reflects the proposed work site.

### Affected LSBUD members

(LSBUD Members who have assets registered on LSBUD within the vicinity of your search area.)

Do not proceed until all Members listed below have confirmed that your works can continue.

| Asset Owner                            | Asset Type    | Phone/Email | Emergency Only | Status         |
|----------------------------------------|---------------|-------------|----------------|----------------|
| Cadent Gas                             | Gas           | 0800688588  | 0800111999     | Await response |
| Electricity North West Limited         | Electricity   | 08001954141 | 08001954141    | Await response |
| ESP Utilities Group                    | Multi-utility | 01372227560 | 01372227560    | Await response |
| Fulcrum Electricity Assets Limited     | Electricity   | 08081644714 | 08081644714    | Await response |
| National Grid Electricity Transmission | Electricity   | 08000014282 | 0800404090     | Await response |

### Status explanation

**Await Response** means that the asset owner will contact you. This is typically by sending the plan response but they may ask for further information before being able to do so, particularly if any payments or authorisations are required.

**Email Additional Info** means that the asset owner needs further information about your works to assess your enquiry before providing a response. Please provide any details you have available including plans, method statements etc. if available.

### Important notices

It is very important that you correctly understand what the service does and the procedures in order for you to work safely. Please refer to the LSBUD Support Page ([www.lsbud.co.uk/linesearchbeforeudig-support](http://www.lsbud.co.uk/linesearchbeforeudig-support)) for further guidance.

This information includes how to provide additional information to the LSBUD Members who request it to provide a response to your enquiry.

**Validity and search criteria.** The results of this enquiry are based on the confirmed information you entered and are valid only as at the date and time of the enquiry. It is your responsibility to ensure that the Enquiry Details are correct, and LinesearchbeforeUdig (LSBUD) accepts no responsibility for any errors or omissions in the Enquiry Details or any consequences thereof. LSBUD Members update their asset information on a regular basis so you are advised to consider this when undertaking any works. It is your responsibility to choose the period of time after which you need to resubmit any enquiry but the maximum time (after which your enquiry will no longer be dealt with by the LSBUD Helpdesk and LSBUD Members) is 28 days. If any details of the enquiry change, particularly including, but not limited to, the location of the work, then a further enquiry must be made.

**Terms and Conditions.** Please note that this enquiry is subject always to our standard terms and conditions available at [www.lsbud.co.uk](http://www.lsbud.co.uk) ("Terms of Use") and the disclaimer at the end of this document. Please note that in the event of any conflict or ambiguity between the terms of this Enquiry Confirmation and the Terms of Use, the Terms of Use shall take precedence.

### List of not affected LSBUD members (LSBUD Members who do not have assets registered on the LSBUD service within the vicinity of your search area.)

|                                                   |                                          |                                                                  |
|---------------------------------------------------|------------------------------------------|------------------------------------------------------------------|
| Advanced Electricity Networks                     | Air Products PLC                         | AllPoints Fibre                                                  |
| Angus Energy                                      | AWE Pipeline                             | B & D Energy Limited                                             |
| Bakkafrost Scotland Limited                       | Balfour Beatty Investments Limited       | BOC Limited (A Member of the Linde Group)                        |
| Box Broadband                                     | BP Exploration Operating Company Limited | BPA                                                              |
| Burwell 11 Solar Limited                          | Cambridge Water                          | Cambridgeshire County Council Climate Change and Energy Services |
| CATS Pipeline c/o Wood Group PSN                  | Cemex                                    | Centrica Storage Ltd                                             |
| CNG Services Ltd                                  | Concept Solutions People Ltd             | ConocoPhillips (UK) Teesside Operator Ltd                        |
| D.S.Smith                                         | Diamond Transmission Corporation         | DIO (MOD Live Pipelines)                                         |
| Drax Power Limited                                | E.ON UK Network Assets Limited           | Eden Estuary Energy Limited                                      |
| EDF Energy Renewables Ltd                         | EET Fuels                                | EirGrid                                                          |
| Eleclink Limited                                  | Energy Assets Networks                   | ENI & Himor c/o Penspen Ltd                                      |
| EnQuest Heather Ltd                               | EP Langage Limited                       | ESB CCGT Power station (Carrington Gas Pipeline)                 |
| Esso Petroleum Company Limited                    | euNetworks Fiber UK Ltd                  | EXA Infrastructure                                               |
| Exolum Pipeline System                            | Fulcrum Pipelines Limited                | G.Network Communication Ltd c/o JSM Group Ltd                    |
| Gamma                                             | Gas Networks Ireland (UK)                | Gateshead Energy Company                                         |
| Gigaclear Ltd                                     | Greenlink Interconnector Ltd             | Harbour Energy                                                   |
| Heathrow Airport LTD                              | Humbly Grove Energy                      | IGas Energy                                                      |
| Impala Terminals Infrastructure Ltd               | Indigo Networks                          | INEOS FPS Pipelines                                              |
| INEOS Manufacturing (Scotland and TSEP)           | INOVYN ChlorVinyls Limited               | INOVYN Enterprises Limited                                       |
| Intergen (Coryton Energy or Spalding Energy)      | Kensa Utilities                          | Last Mile                                                        |
| Liverpool City Region Connect                     | Mainline Pipelines Limited               | Manchester Jetline Limited                                       |
| Manx Cable Company                                | Marchwood Power Ltd (Gas Pipeline)       | Melbourn Solar Limited                                           |
| Mining Remediation Authority                      | MUA Group Limited                        | Mutual Energy                                                    |
| National Gas Transmission                         | National Grid Electricity Distribution   | National Grid Ventures                                           |
| Neos Networks                                     | Northern Gas Networks Limited            | Northumbrian Water Group                                         |
| NTT Global Data Centers EMEA UK Ltd               | NYnet Ltd                                | Ogi                                                              |
| Oikos Storage Limited                             | Ørsted                                   | Palm Paper Ltd                                                   |
| Perenco UK Limited (Purbeck Southampton Pipeline) | Petroineos                               | Phillips 66                                                      |
| Portsmouth Water                                  | Redundant Pipelines - LPDA               | RWE Generation (NGT)                                             |
| SABIC UK Petrochemicals                           | SAS Utility Services Ltd                 | Scottish and Southern Electricity Networks                       |
| Scottish Power Generation                         | Seabank Power Ltd                        | SES Water                                                        |
| SGN                                               | Shell                                    | Shell NOP                                                        |

|                                                               |                                                               |                                                |
|---------------------------------------------------------------|---------------------------------------------------------------|------------------------------------------------|
| South Staffs Water                                            | SP Energy Networks                                            | Spring Fibre Limited                           |
| SSE Generation Ltd                                            | SSE Private Networks / iDNO                                   | SSE Transmission                               |
| Storengy                                                      | Sutton Bridge Power Generation                                | Tata Communications (c/o JSM Construction Ltd) |
| TfL – London Underground HV Cables (Road & Track Side Cables) | toob Limited                                                  | Total (Colnbrook) c/o Penspen                  |
| Total Finaline Pipelines                                      | Transmission Capital                                          | Trojan Energy Limited                          |
| UK Power Distribution                                         | UK Power Networks                                             | Uniper UK Ltd                                  |
| University of Cambridge Granta Backbone Network               | Vattenfall                                                    | Veolia ES SELCHP Limited                       |
| Veolia ES Sheffield Ltd                                       | Virgin Media O2                                               | Voneus Limited                                 |
| VPI Power Limited                                             | Wales and West Utilities                                      | Welsh Power                                    |
| West of Duddon Sands Transmission Ltd                         | West Sussex OpenNetwork (Cooperative National Infrastructure) | Westminster City Council                       |
| Winnington CHP Ltd                                            | Zayo Group UK Ltd c/o JSM Group Ltd                           |                                                |

#### Disclaimer

Please refer to LSBUD's Terms of Use for full terms of use available at [www.lsbud.co.uk](http://www.lsbud.co.uk)

The results of this Enquiry are personal to the Enquirer and shall not be shared with or relied upon by any other party. The asset information on which the Enquiry results are based has been provided by LSBUD Members, therefore LSBUD will provide no guarantee that such information is accurate or reliable nor does it monitor such asset information for accuracy and reliability going forward. There may also be asset owners which do not participate in the enquiry service operated by LSBUD, including but not exclusively those set out above. Therefore, LSBUD cannot make any representation or give any guarantee or warranty as to the completeness of the information contained in the enquiry results or accept any responsibility for the accuracy of the mapping images used. LSBUD and its employees, agents and consultants accept no liability (save that nothing in this Enquiry Confirmation excludes or limits our liability for death or personal injury arising from our negligence, or our fraud or fraudulent misrepresentation, or any other liability that cannot be excluded or limited by English law) arising in respect thereof or in any other way for errors or omissions including responsibility to any person by reason of negligence.

Our Ref: 41286000      S260386

Thursday, 23 April 2026

James Sloan  
1 Foxfield Road

MSY  
CH47 0NJ

National Grid House  
Warwick Technology Park  
Gallows Hill, Warwick  
CV34 6DA

**Electricity Emergency Number:**  
**0800 40 40 90\***  
\*Available 24 hours, 7 days/week.  
Calls may be recorded and monitored.  
[www.nationalgrid.com](http://www.nationalgrid.com)

Asset Protection  
National Grid Electricity Transmission  
Warwick  
Email: [assetprotection@nationalgrid.com](mailto:assetprotection@nationalgrid.com)

## National Grid Electricity – No Assets Affected

Dear Sir/ Madam,

An assessment has been carried out with respect to NGET apparatus and the proposed work location. Based on the search area entered in the LSBUD system for assessment the search area has been found to not affect any NGET apparatus.

Please note this response and any attached map(s) are valid for 28 days

Yours sincerely

**Asset Protection Team**

## Your Responsibilities and Obligations

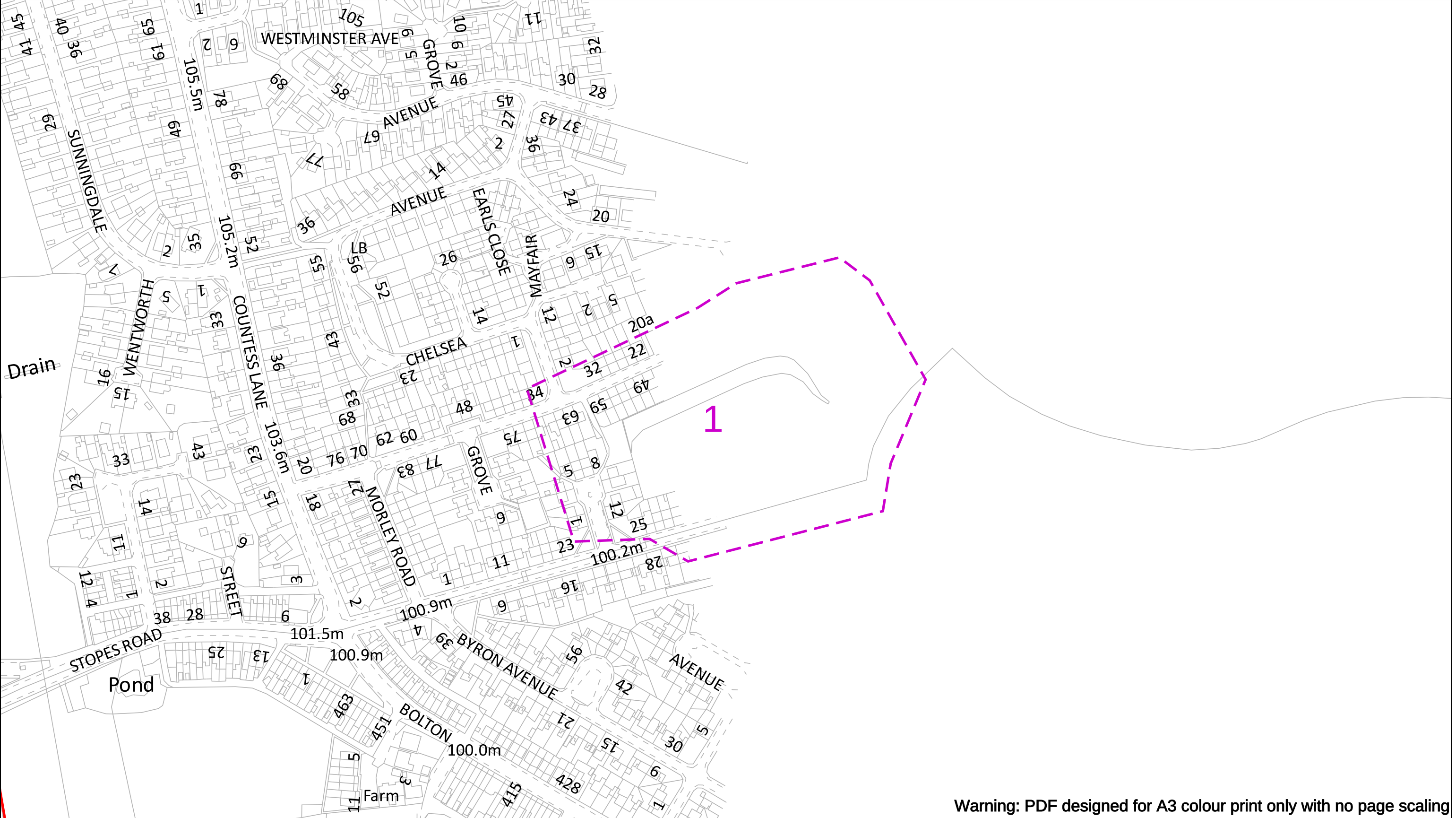
It is your responsibility to ensure that the information you have submitted is accurate and that all relevant documents including links are provided to all persons (either direct labour or contractors) working for you near National Grid Electricity Transmission plc's apparatus, as legally required including under the Construction (Design and Management) Regulations 2015.

The assessment solely relates to the physical apparatus of National Grid Electricity Transmission plc (NGET)  
It does **NOT** cover:

- Apparatus owned by other people or organisations, e.g., Cadent, other gas distribution operators, local electricity companies, other utilities, landowners etc
- Apparatus owned by National Grid Gas plc.
- NGET's legal rights and interests (such as those contained in easements or wayleaves) in or concerning the land, which restrict activity in proximity to NGET's assets in private land. You must obtain details of any such restrictions from the landowner in the first instance and/or from HM Land Registry and/or you should seek legal advice. If in doubt, contact Asset Protection.

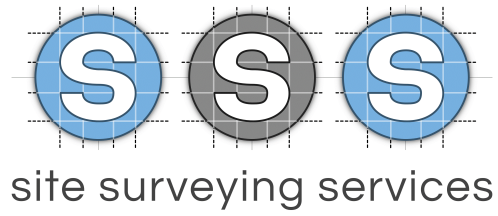
It is **YOUR** responsibility to consider whether any of the items or factors listed above may be present or relevant and if they could be affected by your proposed activities.

NGET or its agents, servants or contractors do not accept any liability for any losses arising under or in connection with this information. This limit on liability applies to all and any claims in contract, tort (including negligence), misrepresentation (excluding fraudulent misrepresentation), breach of statutory duty or otherwise. This limit on liability does not exclude or restrict liability, which is prohibited by law, nor does it supersede the express terms of any related agreements.



Warning: PDF designed for A3 colour print only with no page scaling

|                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                       |                                                                             |                                                                                                                                                                                                |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>Date Requested: 23/04/2026</div> <div>Job Reference: 41286000</div> <div>Site Location: 377099 407730</div> <div>Requested by:<br/>Mr James Sloan</div> <div>Your Scheme/Reference: S260386</div> <div>Scale: 1:2500 (When plotted at A3)</div> | <div>EXTREME CAUTION - HIGH VOLTAGE</div> <div>**RISK OF DEATH OR SERIOUS INJURY**</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <div>National Grid Electricity Emergency Number: 0800 40 40 90</div> <div>Available 24 hours, 7 days/week. Calls may be recorded and monitored</div>                                                                                  | <div>Warning: PDF designed for colour print only with no page scaling</div> | <div></div> <div><div>NationalGrid House</div><div>Warwick Technology Park</div><div>Gallows Hill</div><div>Warwick</div><div>CV34 6DA</div></div> <div>AssetProtection@NationalGrid.com</div> |
|                                                                                                                                                                                                                                                      | <div>IMPORTANT NOTICES</div> <div>This plan shows those pipes owned by National Grid Electricity Transmission plc in its role as a Licensed Electricity Transporter (ET). Electricity cables owned by other ETs, or otherwise privately owned, may be present in this area. Information with regards to such cables should be obtained from the relevant owners. The information shown on this plan is given without warranty, the accuracy thereof cannot be guaranteed. Ancillary equipment such as cooling systems and communication cables are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by National Grid Electricity Transmission plc or their agents, servants or contractors for any error or omission. Safe digging practices, in accordance with HS(G)47, must be used to verify and establish the actual position of cables and other apparatus on site before any mechanical plant is used. It is your responsibility to ensure that this information is provided to all persons (either direct labour or contractors) working for you on or near electricity apparatus. The information included on this plan should not be referred to beyond a period of 28 days from the date of issue.</div> | <div><div>0</div><div></div><div>200 m</div></div> <div><div>Dig Sites</div><div>Area: </div><div>Line: </div></div> <div><div></div>Underground Cables</div> <div><div></div>Overhead Lines</div> <div><div></div>Fibre Cables</div> |                                                                             |                                                                                                                                                                                                |



# CABLE



**From:** National Plant Enquiries <OSM.enquiries@atkinsrealis.com>  
**Sent:** 24 April 2026 17:42  
**To:** Stats-Search.co.uk Ltd  
**Subject:** RE: C2 Plant Enquiries - Site Ref: S260386, Milton Road

Please accept this email as confirmation that Vodafone: Fixed **does not** have apparatus within the vicinity of your proposed works detailed below.

Many thanks.

Plant Enquiries Team (BRK)  
T: +44 (0)1454 662881  
E: [osm.enquiries@atkinsglobal.com](mailto:osm.enquiries@atkinsglobal.com)

**ATKINS** working on behalf of Vodafone: Fixed



This response is made only in respect to electronic communications apparatus forming part of the Vodafone Limited electronic communications network formerly being part of the electronic communications networks of Cable & Wireless UK, Energis Communications Limited, Thus Group Holdings Plc and Your Communications Limited.

**PLEASE NOTE:**

The information given is indicative only. No warranty is made as to its accuracy. This information must not be solely relied upon in the event of excavation or other works carried out in the vicinity of Vodafone plant. No liability of any kind whatsoever is accepted by Vodafone, its servants, or agents, for any error or omission in respect of information contained on this information. The actual position of underground services must be verified and established on site before any mechanical plant is used. Authorities and contractors will be held liable for the full cost of repairs to Vodafone's apparatus and all claims made against them by Third parties as a result of any interference or damage. The information included on this plan should not be referred to beyond a period of 90 days from the date of issue.

**IMPORTANT - PLEASE READ:**

Diversions may be necessary if the existing line of the highway/railway or its levels are altered, where apparatus is affected. Where apparatus is affected and requires diversion, you must submit draft details of the proposed scheme with a request for a 'C3 Budget Estimate' to [c3requests@vodafone.com](mailto:c3requests@vodafone.com). These estimates should be provided by Vodafone normally within 20 working days from receipt of your request. Please include proof of this C2 response when requesting a C3 (using the 'forward' option).



Please consider the environment before printing this e-mail

At Atkins - member of the SNC-Lavalin Group, we work flexible hours around the world. Although I have sent this email at a time convenient for me, I don't expect you to respond until it works for you.

---

**From:** Stats-Search.co.uk Ltd <plans@stats-search.co.uk>  
**Sent:** Thursday, April 23, 2026 8:58 PM  
**Subject:** C2 Plant Enquiries - Site Ref: S260386, Milton Road

**From:** Plantenquiries - CA Telecom <plantenquiries@catelecomuk.com>  
**Sent:** 24 April 2026 11:06  
**To:** Stats-Search.co.uk Ltd  
**Subject:** RE: C2 Plant Enquiries - Site Ref: S260386, Milton Road

**Please Note: Our search criteria has changed. We previously searched for Colt Network which was within 200 metres, this has now changed to 50 metres. The negative response will be for all enquiries that the network is 50 metres or more away from the place of enquiry.**

Dear Sir/Madam,

Thank you for your enquiry for the above reference.

We can confirm that Colt Technology Services do not have apparatus near the above location as presented on your submitted plan, if any development or scheme amendments fall outside the 50 metre perimeter new plans must be submitted for review.

Search is based on Overseeing Organisation Agent data supplied; we do not accept responsibility for O.O. Agent inaccurate data.

If we can be of any further assistance please do not hesitate to contact us.

Kind regards,

**Plant Enquiry Team**



**Please consider the environment before printing this email.**

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**From:** online.plantenquiries@cityfibre.com  
**Sent:** 24 April 2026 10:18  
**To:** Stats-Search.co.uk Ltd  
**Subject:** CityFibre Plant Enquiry, issued on 4/24/26 9:18 AM. Reference c4bf3317-ee13-4510-a92f-465202017029.  
**Attachments:** emap.pdf

You recently requested information pertaining to the above location and in relation to CityFibre Holdings Ltd plant.

Reference c4bf3317-ee13-4510-a92f-465202017029

User: User

Title: S260386

Comment:

Please find attached a plan of the area of your interest that may contain plant which may be affected by your proposed works.

The validity of this response is 6 weeks, after such time a new enquiry would need to be made.

Please see the points of contact below if they are required:

Plant Enquiries  
Rutherford House  
Birchwood Park  
Warrington  
WA3 6ZH  
asset.team@cityfibre.com

Please quote the Reference ID in the subject line in any correspondence.

Please be aware that all information included in this eMap is the property of the sender and subject to copyright.

It is illegal to copy or send this information to any third party without the permission of the sender.



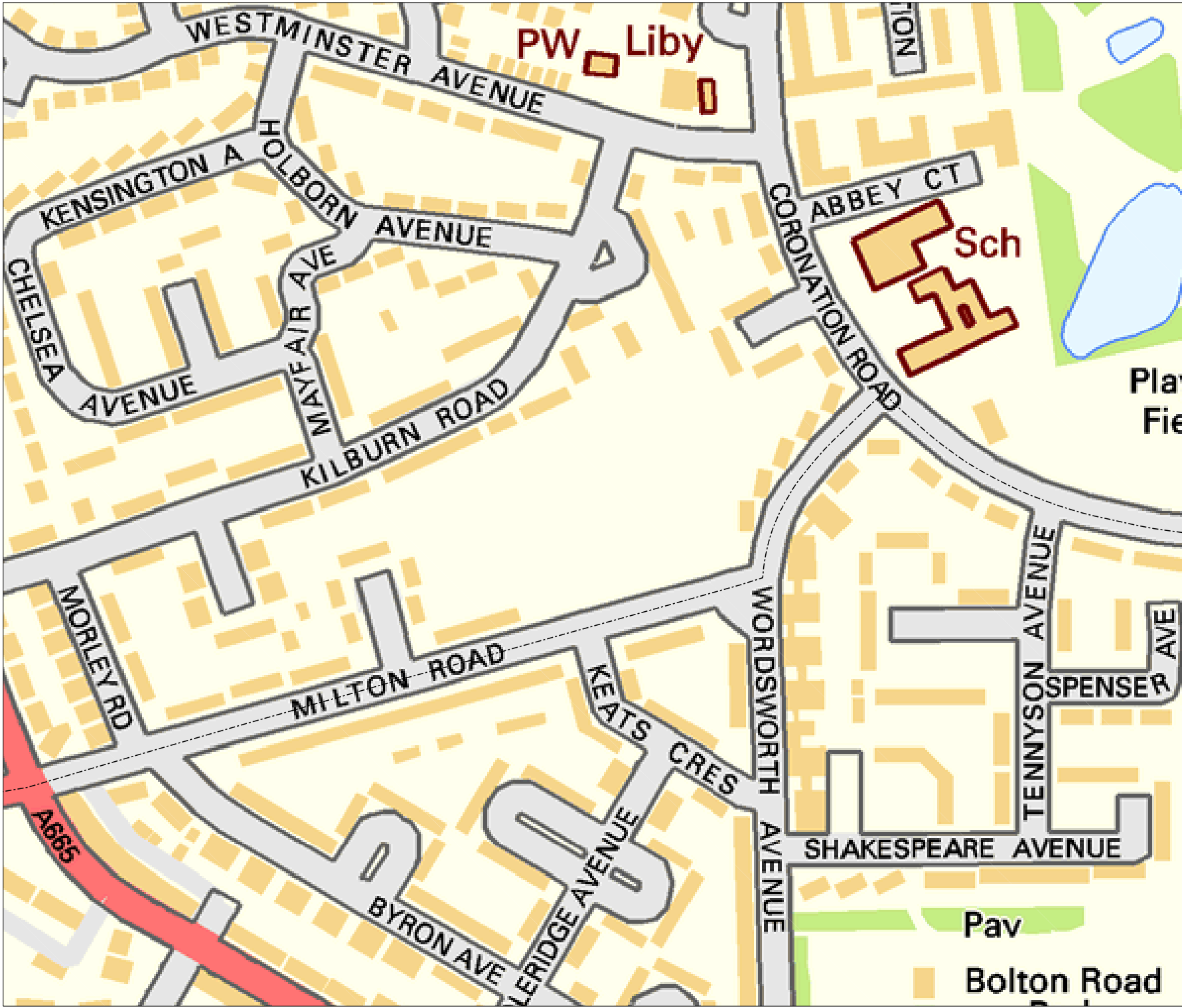
**E:** plant.enquiries@cityfibre.com

**T:** 0203 5100 602

**M:** 0203 5100 602

**Discover more |** [cityfibre.com](https://cityfibre.com)

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bitmap\_layout select\_raster

# LEGEND

- EXISTING PLANT
- EXISTING PLANT

bitmap\_layout select\_raster

Head Office  
CityFibre Holdings Ltd  
15 Bedford Street,  
London,  
WC2E 9HE

Tel: 0845 293 0774  
Web: www.cityfibre.com

Asset Office  
CityFibre Holdings Ltd,  
Rutherford House,  
Birchwood,  
Warrington,  
WA3 6ZH

Email: asset.team@cityfibre.com

## Disclaimer:

Information shown on this plan is for general guidance only. No warranty is made as to its accuracy. This plan must not be solely relied upon in the event of excavation or other works being carried out in the vicinity of Cityfibre plant. No liability of any kind is accepted by Cityfibre, its agents or servants for any error, omission, discrepancy or deviation. This information is valid for the date printed.

Project

Plant Enquiry

Drawing

Existing Plant

Drawn by:

smallworld

Date: 24/04/2026

Drawing No.

CFH\_EP\_000001

Revision

001

Scale: 1:2500

A4



**From:** Plantenquiries <Plantenquiries@ocugroup.com>  
**Sent:** 30 April 2026 13:29  
**To:** Stats-Search.co.uk Ltd  
**Subject:** E04-26-7902 RE: C2 Plant Enquiries - Site Ref: S260386, Milton Road

Dear Sir or Madam,

Thank you for your plant enquiry below.

We can confirm that Lumen Technologies (formerly CenturyLink Communications UK Limited, Level 3, Global Crossing (UK) Ltd, Global Crossing PEC, Fibernet UK Ltd and Fibrspan Ltd) do not have any apparatus within the indicated works area.

OCU responds to plant enquiries for all of the above and therefore you only need send one plant enquiry to cover all of these companies.

**Please note that this response is only valid for 3 months. If your works do not commence within this time period, please resubmit your plant enquiry for assessment before any works commence.**

Please note that our email address has changed from [plantenquiries@instalcom.co.uk](mailto:plantenquiries@instalcom.co.uk) to [plantenquiries@ocugroup.com](mailto:plantenquiries@ocugroup.com). Could you please update your records accordingly.

Response times for plant requests are up to 10 working days. Please allow for 10 working days to pass before chasing requests.

Regards

Plant Enquiries Dept  
OCU  
Borehamwood Ind. Park  
Rowley Lane  
Borehamwood  
WD6 5PZ

Office: +44 (0)208 731 4613  
Fax: +44 (0)208 731 4601  
Email: [plantenquiries@ocugroup.com](mailto:plantenquiries@ocugroup.com)  
Web: <http://www.ocugroup.com>



## Stats-Search.co.uk Ltd

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**From:** NRSWA <nrswa.nrswa@sky.uk>  
**Sent:** 24 April 2026 13:37  
**To:** Stats-Search.co.uk Ltd  
**Subject:** C2 Plant Enquiries - Site Ref: S260386, Milton Road



Thank you for your enquiry.

Please be advised that Sky Telecommunications Services Ltd will not be affected by your proposal.

Best endeavours have been made to ensure accuracy, however if you require further information, please contact us by email at [nrswa@sky.uk](mailto:nrswa@sky.uk).

Regards



**NRSWA Department**

**Sky UK - Technology Operations**



**[nrswa@sky.uk](mailto:nrswa@sky.uk)**



**+44 2070323234**

---

**From:** Stats-Search.co.uk Ltd <plans@stats-search.co.uk>  
**Sent:** 23 April 2026 16:28  
**Subject:** [EXTERNAL] C2 Plant Enquiries - Site Ref: S260386, Milton Road

## Stats-Search.co.uk Ltd

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**From:** SOTA Plant Enquiries <SOTA.PlantEnquiries@ocugroup.com>  
**Sent:** 01 May 2026 11:53  
**To:** Stats-Search.co.uk Ltd  
**Subject:** S05/26-0205 RE: C2 Plant Enquiries - Site Ref: S260386, Milton Road



Dear Sir or Madam,

With reference to your plant enquiry below, we can confirm that SOTA do not have any apparatus within the immediate proximity of your proposed works.

If you require any further information, please do not hesitate to contact us.

**This response is only valid for 3 months. If your works do not commence within this time period, please resubmit your plant enquiry for assessment before any works commence.**

**Please note that our email address has changed from [sota.plantenquiries@instalcom.co.uk](mailto:sota.plantenquiries@instalcom.co.uk) to [sota.plantenquiries@ocugroup.com](mailto:sota.plantenquiries@ocugroup.com). Could you please update your records accordingly.**

**Response times for plant requests are up to 10 working days. Please allow for 10 working days to pass before chasing requests.**

Regards

Plant Enquiries Dept

OCU

Borehamwood Ind. Park

Rowley Lane

Borehamwood

WD6 5PZ

**From:** osp-team@verizon.com <dntsnt1ic0002.drpnauc5372@verizon.com>  
**Sent:** 23 April 2026 16:31  
**To:** Stats-Search.co.uk Ltd  
**Cc:** osp-team@uk.verizon.com  
**Subject:** RE: C2 Plant Enquiries - Site Ref: S260386, Milton Road

Dear Sir/Madam,

Verizon is a Licensed Statutory Undertaker.

We have reviewed your plans and have determined that Verizon (Formally known as MCI WorldCom, MFS) has no apparatus in the areas concerned.

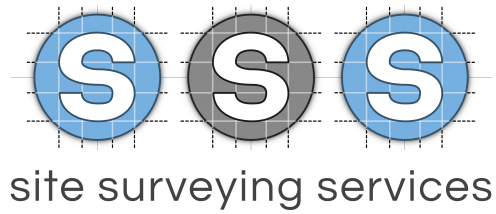
If you have any further queries please do not hesitate to get in touch.

Yours faithfully  
Plant Protection Officer (BOT)  
Email osp-team@uk.verizon.com

**Note: dntsnt1ic0002.drpnauc5372@verizon.com is an unmonitored mailbox and your responses will not be processed.**

**If you need to contact us then please use osp-team@uk.verizon.com.**

**Verizon UK Limited** is a company registered in England & Wales - registered number 2776038 - registered office at Reading International Business Park, Basingstoke Road, Reading, Berkshire, UK RG2 6DA - VAT number 823 8170 33. Please note that the information provided in this response including any accompanying attachments is intended for general information purposes only and should not be construed as professional advice. While we strive to ensure the accuracy and relevance of the information, we cannot guarantee its completeness or applicability to your specific situation. Any reliance you place on such information is therefore strictly at your own risk. Additionally, please be aware that this communication may contain confidential and privileged information. If you are not the intended recipient, please notify us immediately and delete all copies of this message and accompanying attachments. Any unauthorised use, disclosure, dissemination, distribution or copying of the information contained herein is strictly prohibited. This message does not guarantee the confidentiality, completeness or proper receipt of the messages sent and is susceptible to alteration.



# INDEPENDENT UTILITIES

**From:** ESP@safedigs.co.uk  
**Sent:** 23 April 2026 16:03  
**To:** Stats-Search.co.uk Ltd  
**Subject:** ESP Utilities Group (ESP) Enquiry Ref Job No. 41286000  
**Attachments:** 9106191\_1.pdf; 9106192\_1.pdf; Guidelines When Working in the Vicinity of ESP Gas Pipelines August 2023.pdf



**ESP Utilities Group Ltd**

Bluebird House

Mole Business Park

Leatherhead

Surrey

KT22 7BA

Date: 23 Apr 2026

To: Mr James Sloan

---

**Please DO NOT SEND A REPLY to this email as it has been automatically generated and replies are not monitored.**

We acknowledge with thanks your LSBUD request (referenced below) dated 23 Apr 2026 16:02:28 pm for information on the location of our assets.

|                         |          |
|-------------------------|----------|
| <b>LSBUD REFERENCE:</b> | 41286000 |
| <b>YOUR REFERENCE:</b>  | S260386  |

We can confirm that ESP Utilities Group Ltd (**ESP**) may have water, gas and electric assets within the vicinity of your search.

Please refer to the attached plan(s) showing the approximate position of our apparatus.

**WARNING: When working in the vicinity of ESP Utilities Group Ltd's assets you have a legal Duty of Care that must be observed.**

As your plans for the proposed work develop you are required to keep ESP regularly updated about the extent and nature of your proposed works in order for us to fully establish whether any additional precautionary or diversionary works are necessary to protect our gas & electric network.

Safe digging practices, in accordance with HSE publication HSG47 "[Avoiding danger from underground services](#)" must be used to verify and establish the actual position of mains, pipes, cables, services and other apparatus on site before any mechanical plant is used. It is your responsibility to ensure that this information is provided to all relevant people (direct labour or contractors) working for you.

Arrangements can be set in place so that one of our representatives can meet on site (date to be agreed) and we will be happy to discuss the impact of your proposals on the gas network once we have received the details.

ESP are continually laying new gas and electricity networks and this notification is valid for 90 days from the date of this letter. If your proposed works start after this period of time, please re-submit your enquiry.

Please do not hesitate to contact us for further assistance.

Yours sincerely,

**ESP Utilities Group Ltd**

ESP Utilities Group Ltd can be contacted at:

Office Tel: [01372 587500](tel:01372587500)

Email: [PlantResponses@espug.com](mailto:PlantResponses@espug.com)

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**Important Notice**

This enquiry response, including any associated documentation, has been assessed and compiled from the information detailed within the LSBUD enquiry outlined above. **Please ensure that the LSBUD enquiry details and this response accurately reflect your proposed works.**

This response is intended for use only by the addressee. If you have received the enquiry response in error, please let us know by telephone and delete all copies; you are advised that copying, distributing, disclosing or otherwise acting in reliance on the response is expressly prohibited. Full terms can be found at [www.lsbud.co.uk](http://www.lsbud.co.uk)

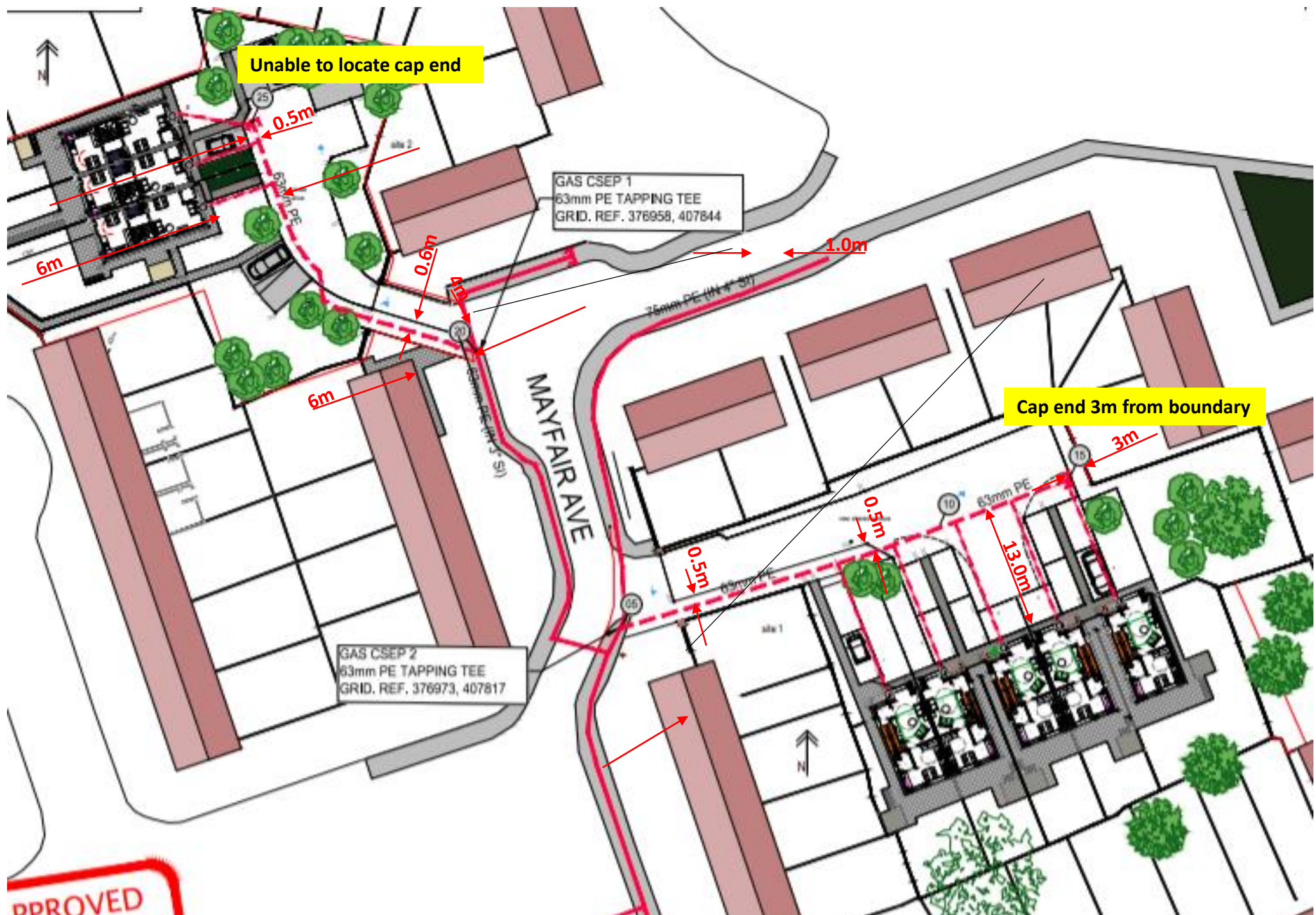
**Disclaimer:** While reasonable measures have been taken to ensure the accuracy of the information contained in this plan response, neither ESP Utilities Group Ltd nor PelicanCorp shall have any liability whatsoever in relation to any loss, damage, cost or expense arising from the use of this plan response or the information contained in it or the completeness or accuracy of such information. Use of such information is subject to and constitutes acceptance of these terms. Full terms can be found at [www.lsbud.co.uk](http://www.lsbud.co.uk)

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Compiled with **TicketAccess** by PelicanCorp





TYPICAL ARRANGEMENT OF MAINS IN A CARRIAGEWAY.

NOTES\*

1. THE LAYOUT OF MAINS IS GENERALLY IN ACCORDANCE WITH THE 'REPORT OF JOINT COMMITTEE ON LOCATION OF UNDERGROUND SERVICES' PUBLISHED BY THE INSTITUTION OF CIVIL ENGINEERS.

2. THE DIMENSIONS SHOWN REPRESENT THE PREFERRED ARRANGEMENT IN STRAIGHT ROUTES ON RESIDENTIAL ESTATES. VARIATIONS MAY BE NECESSARY AT CURVES AND CHANGES OF GRADIENT.

3. THE SPACE ALLOCATED IS CONSIDERED TO BE THE ABSOLUTE MINIMUM AND IN CERTAIN CIRCUMSTANCES E.G. WHERE BOTH HV AND LV CABLES ARE LAID - THE LV CABLE WILL BE LAID IN THE ALTERNATIVE POSITION AND ADDITIONAL WIDTH MAY BE REQUIRED.

4. WHERE SERVICES ARE TO BE CONNECTED TO GAS MAINS A MINIMUM DISTANCE OF 2.0m IS REQUIRED BETWEEN THE BUILDING LINE AND THE CENTRE LINE OF THE MAIN.

5. REVISED IN LINE WITH IGE/TD/3. DEPTH OF COVER OF GAS MAINS IN FOOTWAY - 600mm DEPTH OF COVER OF GAS MAINS IN ROADWAY - 750mm

6. MINIMUM DISTANCE OF ANY SERVICE TO ANY SURFACE/FOUL WATER STRUCTURE IS 300mm.

CARRIAGEWAY SURFACE

TELECOM 650

WATER 800

GAS 750

CABLE TV 650

ELEC LV 650

ELEC HV 750

280

270

295

295

LAI D TO RECOMMENDED DEPT HS UNLESS OTHERWISE STATED

RECOMMENDED ARRANGEMENT OF MAINS IN A 2M FOOTPATH

LAMP STANDARD

2000

1720

1550

1255

960

690

430

BOUNDARY

OUTSIDE STOP MARK

280

270

295

295

600

450

600

600

750

600

430

CARRIAGEWAY

LAI D TO RECOMMENDED DEPT HS UNLESS OTHERWISE STATED

NOTES\*

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6. MINIMUM DISTANCE OF ANY SERVICE TO ANY SURFACE/FOUL WATER STRUCTURE IS 300mm.

The main site plan illustrates the proposed gas main layout for Mayfair Avenue in Radcliffe. It shows a network of 63mmPE gas mains connecting various buildings and infrastructure. Key features include:

- Buildings:** Labeled 1 through 8, with building 8 being a larger structure on the left.
- Gas Main Layout:** Red lines indicate the proposed 63mmPE gas mains. A 'CAPPED END' is marked near building 8, and another 'CAPPED END' is shown further along the route.
- Annotations:** 'CAPPED END REMOVED, PIECED THROUGH FROM THIS POINT' is noted near a junction. 'EXISTING 63mmPE' is labeled on a section of the main.
- Infrastructure:** A '1 x 90° BEND' is indicated on the existing main. A '0.60m Cover' is noted at a specific point.
- Site Labels:** 'site 1' and 'site 2' are labeled near the bottom and middle of the plan.
- Dimensions:** Various distances are marked, such as 0.53m, 6.58m, 10.52m, 7.24m, 2.65m, 4.48m, 1.42m, 0.60m, 2.35m, 2.16m, 0.38m, 13.70m, 13.94m, 14.03m, 10.06m, 0.57m, 6.35m, and 1.78m.
- North Arrow:** A north arrow is located at the top center of the plan.

0 2.5 5.0 m  
A1 PLOT SCALEBAR 1:250m  
0 5.0 10.0 m  
A3 PLOT SCALEBAR 1:500m

AS BUILT KEY:

MP GAS MAIN:

LP GAS MAIN:

EXISTING GAS MAIN:

GAS MAIN IN DUCT:

REDUCER:

VALVE:

CAPPED END:

SERVICE PIPE:

TRENCH CROSS SECTION MARKER:

DEPTH MARKER:

POSITION NODE:

AS BUILT INFORMATION

Supplied by Matrix ABC Limited

Office: 2-14 (A Block), Duxley Hill Business Centre,  
Knollies Lane, Bradford, West Yorkshire, BD4 9SW.  
Tel: 01274 723447

AS BUILT INFORMATION  
AS BUILT INFORMATION  
AS BUILT INFORMATION

STATUS: AS BUILT GAS REV: A

SCHEME:  
MAYFAIR AVENUE  
RADCLIFFE

PROJECT MANAGER: ANDY SEDMAN

PRINCIPAL QUANTITIES - INFO TO 18.09.18

| FROM | TO    | SIZE   | LENGTH IN m |
|------|-------|--------|-------------|
| P1   | CSEP1 | 63mmPE | 33.8        |
| P2   | CSEP2 | 63mmPE | 45.8        |

SURVEYOR: APTAR SINGH CONTACT No: 07786738299

Rev. Description/Details

Rev. Date

Rev. by

A FIRST ISSUE. SEE PRINCIPAL QUANTITIES

24.09.18

SMA

B UPDATED. 63mmPE NOW PIECED ONTO

12.12.18

SMA

EXISTING 63mmPE @ CSEP1. ALL P

NUMBERS UPDATED TO SUIT.

Customer.

Contractor.

Scheme / Site Name.

MAYFAIR AVENUE  
RADCLIFFE

Site Developer. -

Grid Reference: E: 466758 N: 339042

Drawing Status: AS BUILT GAS

Contractor Ref. No. BU0043 IDNO/DNO Ref. No. -

Contractor Dwg. No. BU0043-G-AB-001

Designed by SMA Drawn by BT Checked by MB Approved by MB Sheet 1 of 1

Scale 1:250 Orig. Size A1 Date drawn 12.12.18 Revision B

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## PRECAUTIONS TO BE TAKEN WHEN CARRYING OUT WORK IN THE VICINITY OF UNDERGROUND GAS PIPES

### ADVICE TO SITE PERSONNEL

#### MANAGEMENT NOTE

Please ensure that a copy of this note is read by your site management and to your site operatives.

Early consultation with ESP Utilities Group prior to excavation is recommended to obtain the location of plant and precautions to be taken when working nearby.

This Guidance Note should be read in conjunction with the Health and Safety Executive guidance HSG47 "Avoiding danger from underground services".

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#### Introduction

Damage to ESP Utilities Group's plant can result in uncontrolled gas escapes which may be dangerous. In addition, these occurrences can cause expense, disruption of work and inconvenience to the public.

Various materials are used for gas mains and services. Cast Iron, Ductile Iron, Steel and Plastic pipes are the most widely found. Modern Plastic pipes are either bright yellow or orange in colour.

Cast Iron and Ductile Iron water pipes are very similar in appearance to Cast Iron and Ductile Iron gas pipes and if any Cast Iron or Ductile Iron pipe is uncovered, it should be treated as a gas pipe. ESP Utilities Group do not own any Cast Iron or Ductile Iron gas pipes but their gas network infrastructure may be connected to Cast Iron, Ductile Iron or Steel pipes owned by a regional gas distribution network, either Cadent Gas, Northern Gas Networks, Wales and West Utilities or SGN.

The following general precautions apply to \*Intermediate Pressure (2-7barg MOP), Medium Pressure (75mbarg-2barg MOP), Low Pressure (up to 75mbarg MOP) and other gas mains and services likely to be encountered in general site works and are referred to within this document as 'pipes'.

\*Whenever an IP main has been confirmed to be present following a plant enquiry, the enquirer MUST NOT continue with work until contact is made with ESP and the work discussed in detail. This may result in on site attendance during the work by an ESP representative. It may be necessary for ESP to attend site in relation to potential works on other pressure tiers of pipes depending on the level of risk associated with the works.

#### Locating Gas Pipes

It should be assumed when working in urban and residential areas that gas mains and services are likely to be present. On request, ESP Utilities Group will give approximate locations of pipes derived from their records. The records do not always show the position of gas service pipes as they are not a regulatory requirement, but their probable line can be deduced from the gas meter position. ESP Utilities Group staff will be pleased to assist in the location of gas plant and provide advice on any precautions that may be required. The records and advice are given in good faith but cannot be guaranteed until manual excavation has taken place to positively identify the location of ESP plant. Proprietary pipe and cable locators are available and should be used to detect underground plant wherever possible although generally these will not locate plastic pipes.

#### Safe working Practices

To ensure safe working conditions adjacent to gas plant the following **must** be observed:

- Observe any specific request made by ESP Utilities Group staff or Gas Emergency Provider personnel
- Gas pipes must be located by hand digging before mechanical excavation is undertaken.
- Once a gas pipe has been located, mechanical excavation must proceed **with care**. A mechanical excavator **must not** in any instance be used within 0.5 metres of a gas pipe and greater safety distances may be advised by ESP Utilities Group depending on the mains maximum operating pressure (MOP).
- **No apparatus or plant must be laid over and along the line of a gas pipe, irrespective of clearance.**
- Where heavy plant may have to cross the line of a gas pipe during construction work, the number of crossing points should be kept to a minimum. Crossing points should be clearly indicated and crossings at other places along the line of the pipe should be prevented. Where the pipe is not adequately protected by an existing road, crossing points should be suitably reinforced with sleepers, steel plates or a specially constructed reinforced concrete raft as necessary. ESP Utilities Group staff will advise on the type of reinforcement necessary.
- No explosives should be used within 30 metres of any gas pipe without prior consultation and the agreement of ESP Utilities Group.
- **ESP Utilities Group must be consulted prior to carrying out excavation work within 10 metres of any above ground gas installation.** ESP Utilities Group above ground installations will have a sign with a site number; please quote this site number in any correspondence.
- Where it is proposed to carry out piling or boring within 15 metres of any gas pipe, ESP Utilities Group should be consulted prior to the commencement of the works.

- Access to gas plant must be maintained at all times during on site works.

#### Proximity of Other Plant

- For gas pipes operating at a pressure a pressure of up to 2bar (Low Pressure and Medium Pressure) other utility plant or apparatus **must not be installed within 250mm** of the gas pipe.
- For gas pipes operating in excess of 2 bar (Intermediate Pressure) other utility plant or apparatus **must not be installed within 600mm** of the gas pipe.
- These minimum proximities are required in to facilitate repair, whether the adjacent plant be parallel to or crossing the gas pipe.
- No manhole or chambers shall be built over or around a gas pipe and no work should be carried out which results in a reduction of cover or protection over a gas pipe, without consultation with ESP Utilities Group.

#### Support and Backfill

Where excavation of trenches adjacent to any pipe affects its support, the pipe must be supported to the satisfaction of ESP Utilities Group and must not be used as an anchor or support in any way. In some cases, it may be necessary to divert the gas pipe before work commences.

Where a trench is excavated crossing or parallel to the line of the gas pipe, the backfill should be adequately compacted, particularly beneath the pipe, to prevent any settlement which could subsequently cause damage to the pipe.

In special cases it may be necessary to provide permanent support to the gas pipe, before backfilling and reinstatement is carried out. Backfill material adjacent to gas plant must be selected fine material or sand, containing no stones, bricks or lumps of concrete, etc., placed to a minimum depth of 150mm around the pipes and well compacted by hand. No power compaction should take place until 300 mm of selected fine fill has been suitably compacted.

If the road construction is in close proximity to the top of the gas pipe, a "cushion" of selected fine material such as sand must be used to prevent the traffic shock being transmitted to the gas pipe. The road construction depth must not be reduced without permission from the local Highway Authority.

No concrete or other hard material must be placed or left under or adjacent to any Cast Iron pipe as this may cause fracture of the pipe at a later date.

Concrete backfill should not be used closer than 300 mm to the pipe.

#### Damage to Coating

Where a gas pipe is coated with special wrapping and this is damaged, even to a minor extent ESP Utilities Group must be notified so that repairs can be made to prevent future corrosion and subsequent leakage.

#### Welding or "Hot Works"

When welding or other "hot works" involving naked flames are to be carried out in close proximity to ESP Utilities Group gas plant and the presence of gas is suspected, ESP Utilities Group must be contacted before work commences to check the atmosphere. Even when a gas free atmosphere exists care must be taken when carrying out hot works in close proximity to gas plant in order to ensure that no damage occurs. Suitable method statements and risk assessments should be undertaken.

Particular care must be taken to avoid damage by heat or naked flame to plastic gas pipes or to the protective coating on other gas pipes. When works on copper pipes are undertaken near to other metallic gas pipes, care should be taken to avoid flux coming into contact with other metallic pipework to prevent accelerated corrosion which can lead to leakage.

#### Leakage from Gas Apparatus

**If damage or leakage is caused or an escape of gas is smelt or suspected the following action must be taken at once:**

- Remove all personnel from the immediate vicinity of the escape;
- Contact National Gas Emergency Number, on: **0800 111 999**;
- Prevent any approach by the public, prohibit smoking, extinguish all naked flames or other source of ignition within 15 metres from the gas leak as a minimum;
- Assist gas personnel, Police or Fire Service as requested.

**REMEMBER – IF IN DOUBT, SEEK ADVICE FROM ESP UTILITIES GROUP.**

**ESP Utilities Group can be contacted at:**

**Office Address:** Bluebird House, Mole Business Park, Leatherhead, Surrey KT22 7BA

**Office Tel:** 01372 587500; **Fax:** 01372 377996

**From:** FulcrumElectricity@safedigs.co.uk  
**Sent:** 23 April 2026 16:03  
**To:** Stats-Search.co.uk Ltd  
**Subject:** Plant Enquiry Ref Job No. 41286000  
**Attachments:** DaCI-0288-01E.pdf

23/04/2026

LinesearchbeforeUdig ref: 41286000

Your ref: S260386

Dear Sir/Madam,

Thank you for contacting us regarding equipment and apparatus operated by Fulcrum Electricity.

We can confirm that Fulcrum Electricity currently has (or is planning to have) assets in the vicinity of your proposed works. A copy of our drawings and site location has been enclosed to aid you in locating them.

We will do everything that we can to assist you in safe working procedures. However, it is important to note that we are not responsible for any incidents or accidents that may occur during your work around our network.

Furthermore, we draw your attention to the following general guidance notes:

- This information is given as a general guide for information purposes only and Fulcrum Electricity Ltd gives no warranty, representation, or guarantee, whether express or implied, that the content is accurate, complete, or up to date.
- No liability of any kind whatsoever is accepted by Fulcrum Electricity, its agents, servants or contractors for any error, omission, or misstatement.
- Please note that all Fulcrum Electricity equipment on site should be assumed to be LIVE until proven otherwise.
- Referral to the HSE document HSG47 is essential for any information regarding trial holes and safe digging practice when working near our pipe networks. A copy of this document can be downloaded from the following HSE website link - <https://www.hse.gov.uk/pubns/books/hsg47.htm>.
- Fulcrum Electricity reserves its position completely to enforce the terms of any easement against the landowner, even if this results in any planning permission granted not being able to be fully implemented.
- You must not build over any of our plant or enclose our apparatus or equipment.
- Additional costs may be incurred if our plant must be relocated due to your proposed works.
- Do please note that other gas transporters may have plant in the area which could be affected by your proposed works.
- In the case of an emergency please phone 0800 111 999.

If you require advice in connection with your search, please contact the relevant number below.

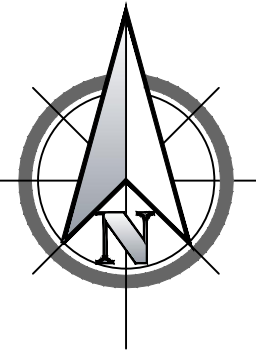
Yours sincerely,

Fulcrum Electricity  
Telephone: 03330 146 466  
Email: [records@fulcrumea.co.uk](mailto:records@fulcrumea.co.uk)

**LinesearchbeforeUdig:**

If you have an enquiry relating to the use of the LinesearchbeforeUdig website, please contact LinesearchbeforeUdig using the following information:

Telephone: 0845 437 7365  
Email: [enquiries@lsbud.co.uk](mailto:enquiries@lsbud.co.uk)  
Website: [www.lsbud.co.uk](http://www.lsbud.co.uk)



**ENWL SPECIFICATION**

1. **MARKER TAPE:** 150mmx0.1mm 365m rolls to comply with ENATS 12-23 and BS EN12613 supplied by Centriforce Liverpool.
2. **DUCT:** Red, Smooth Walled, 150mm Internal Diameter, to comply with ES400D4 and supplied by Emtelle.

### LEGEND

MAYFAIR AVE  
RADCLIFFE,  
MANCHESTER, M26 3ND

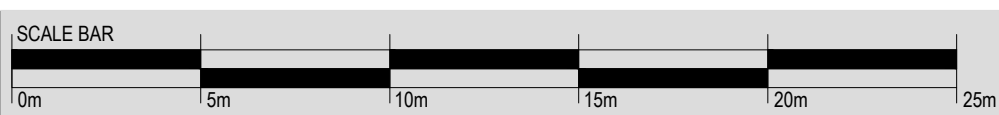
|                           |       |                   |     |
|---------------------------|-------|-------------------|-----|
| DRAWING No: DaCI-0288-01E |       | SCALE: 1:200 @ A1 |     |
| REV                       | NOTES | DATE              | ENG |



**BEMUS**  
CONSTRUCTION SERVICES LTD  
UTILITIES DIVISION

| SCHEDULE          |         |            |                    |              |
|-------------------|---------|------------|--------------------|--------------|
| DIAMETER OF CABLE | VOLTAGE | LENGTH (m) | NUMBER OF FITTINGS |              |
|                   |         |            | JOINT's            | BOTTLE END's |
| 3c95              | LV      | 81         | -                  | 2            |
| 3c185             | LV      | -          | -                  | -            |
| 3c300             | LV      | -          | -                  | -            |
|                   |         |            |                    |              |
|                   |         |            |                    |              |
|                   | TOTAL   | 81         | -                  | 2            |

A red stamp with the text "UNAPPROVED CONSTRUCTION DRAWING" in a bold, sans-serif font, tilted at an angle.



**From:** plantenquiryservice@gtc-uk.co.uk  
**Sent:** 24 April 2026 10:18  
**To:** Stats-Search.co.uk Ltd  
**Subject:** GTC Plant Enquiry - Ref- 6523721  
**Attachments:** 6523721.png

## **GTC Apparatus Not Found In Search Area**

**Our Plant Enquiry Service Ref: 6523721**

**Your Enquiry Ref: S260386**

Dear James ,

Thank you for your enquiry concerning apparatus in the vicinity of your proposed work. GTC can confirm that we have no apparatus in the vicinity but please note that other asset owners may have and ensure all utility owners have been consulted. For your records, the search area is shown in the attached map.

Please note our assets now include those owned and operated by:

- GTC Pipelines Limited
- Independent Pipelines Limited
- Quadrant Pipelines Limited
- Electricity Network Company Limited
- Independent Power Networks Limited
- Independent Water Networks Limited
- Open Fibre Networks Limited
- Independent Community Heating Limited

If you have any queries or require any further information please do not hesitate to contact us.

**Your sincerely,**

GTC Plant Enquiry Service.

GTC  
Synergy House  
Woolpit Business Park  
Woolpit  
Bury St Edmunds  
Suffolk, IP30 9UP  
Tel: 01359 240363  
plant.enquiries@gtc-uk.co.uk

**NOTE:**

This E-Mail originates from GTC, Synergy House, Woolpit Business Park, Woolpit, Bury St Edmunds, Suffolk, IP30 9UP

VAT Number: GB688 8971 40. Registered No: 029431.

## Location Search / C2 Utility Stats Searches

Our Network Asset Search platform will highlight where we may have plant or apparatus within the vicinity of the co-ordinates you enter.

It is important to note that the search result information provided is to be used as a guide only. To ensure safety during the activity, your organisation must follow HSG47 guidelines to locate any buried services in the vicinity and follow a safe system of work during the work activity.

|                                                    |                                      |
|----------------------------------------------------|--------------------------------------|
| Eastings X                                         | <input type="text" value="377115"/>  |
| Northings Y                                        | <input type="text" value="407731"/>  |
| Project Reference                                  | <input type="text" value="S260386"/> |
| Message/Comment<br><div><input type="text"/></div> |                                      |
| <div>Submit</div>                                  |                                      |

**Note:** Please search with a minimum of 5 digits to get the nearby Power network locations.

We have identified that we do not have any network assets within 500m of your searched location.

### Asset Search Disclaimer

Thank you for using Eclipse Power's Location asset search tool. Before you continue, kindly note the following advice:

This information is to be used solely for the purpose for which it was requested and the copyright and other intellectual property rights in all material on our website is owned by us and may not be reproduced, online or offline, without Eclipse Power Networks prior written consent.

Please ensure a full search of area required as the search parameters provide results within 500m only. Should you require a search covering a larger area e.g. 600m, please submit additional alternative reference points to fully cover the area of the plan.

Whilst Eclipse Power Networks takes all reasonable steps to ensure that the information available is correct, we do not guarantee the correctness nor completeness of material on this website as the material is supplied by others.

Underground Assets

It is the responsibility of the on-site worker to be HSG47 compliant when undertaking works on site; and we strongly advise the use of a Cat and Genny assist the process.

Eclipse Power Networks or any other party (whether involved in producing, maintaining or delivering this website), shall be not liable or responsible for any kind of loss or damage that may result to you (or a third party) because of the information that has been provided.

This exclusion shall include servicing or repair costs and, without limitation, any other direct, indirect or consequential loss.

Above Ground Assets

Eclipse Power Networks also operates and maintains a range of above ground assets, including high voltage air insulated substations.

Any work taking place within the vicinity of our AIS sites, we encourage implementing the following minimum electrical safety clearances, which are used as a basis for the Energy Networks Association (ENA) TS 43-8. These standards have been agreed by the European Committee for Electrotechnical Standardisation and form part of the British Standard BS EN 50341-1:2012 Overhead Electrical Lines exceeding AC 1kV.

| Normal System Voltage |                   |        | Minimum distance from live conductor' |
|-----------------------|-------------------|--------|---------------------------------------|
| Up to and including   | but not exceeding | 33kV   | 0.8m                                  |
| Exceeding 33kV        | but not exceeding | 66kV   | 1.0m                                  |
| Exceeding 66kV        | but not exceeding | 132kV  | 1.4m                                  |
| Exceeding 132kV       | but not exceeding | 275 kV | 2.4m                                  |
| Exceeding 275kV       | but not exceeding | 400 kV | 3.1m                                  |

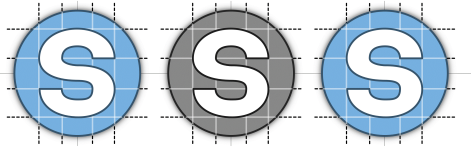
Impressed Voltage Management

If you are working adjacent to our live HV substations, we advise a safe system of work is established to control and manage associated risks of impressed voltages. Any conducting materials, or temporary positioned objects (i.e. cranes) installed near high-voltage equipment could be raised to an elevated voltage compared to the local earth, regardless of direct contact.

If any further information is required, please feel free to contact Eclipse Power Networks directly using the following email address:

[assetenquiries@eclipsepower.co.uk](mailto:assetenquiries@eclipsepower.co.uk)

Thanks for your continued support and cooperation.



site surveying services

# TRANSPORT

**From:** Dain Fuller <Dain.Fuller@networkrail.co.uk> on behalf of OP Buried Services Enquiries <OPBuriedServicesEnquiries@networkrail.co.uk>  
**Sent:** 23 April 2026 16:30  
**To:** Stats-Search.co.uk Ltd  
**Subject:** RE: C2 Plant Enquiries - Site Ref: S260386, Milton Road

OFFICIAL

Dear Enquirer,

With regards to your enquiry, Network Rail does not believe there is any Network Rail owned apparatus or underground services within the area you have defined. As there is always the possibility that new works could be planned and undertaken in this area by Network Rail this information is valid as at today's date and is supplied for general guidance only.

Please be aware that this response is based on Network Rail's records and knowledge and no guarantee can be given regarding accuracy or completeness. CAT scans, safe digging practices (as contained in HSE publications) and other appropriate investigative techniques should always be carried out.

There may be other apparatus or underground services owned or operated by Utility Companies and accordingly you should contact individual utilities for information.

If, in connection with your investigations and/or work, you become aware of Network Rail apparatus or underground services within your area of work, please ensure these are notified to our Asset Protection team via the following link as a matter of urgency so that appropriate measures for avoidance of risk and damage can be put in place.

Contact details can be found in the following link: [Network Rail Asset Protection Teams](#)

If you require any further clarification on any of the information provided by the team, please contact [opburiedservicesenquiries@networkrail.co.uk](mailto:opburiedservicesenquiries@networkrail.co.uk).

Regards,

**Dain Fuller**

Worksite Survey Manager



**Worksite Survey | Asset Information Services**

National Records Centre | Audax Road | York YO30 4US

**W:** [www.networkrail.co.uk](http://www.networkrail.co.uk)

*At Network Rail we work flexibly – so whilst it suits me to email now, I do not expect a response or action outside of your own working hours*