



making the right connections



Lanwades Park  
Utility Study  
Level 2

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UCML Utility Study – Level 2

Lanwades Park,  
Kentford,  
Newmarket

Produced for: Lochailort Investments Ltd

Prepared by: Joanne Blackburn BA (Hons) – Technical Manager  
Utilities Connections Management Ltd  
Email: [joanne.blackburn@ucml.co.uk](mailto:joanne.blackburn@ucml.co.uk)



Utilities Connections Management Limited  
Mainetti House, Bedwell Road, Wrexham Industrial Estate, Wrexham LL13 0TS  
Tel: 01978 661800 | [www.ucml.co.uk](http://www.ucml.co.uk)

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## 1.0 Introduction

UCML has been instructed by Lochailort Investments Ltd (hereafter referred to as 'the Client') to provide a desktop utility study to identify the outline constraints derived from the statutory utility infrastructure on a proposed residential development of up to 350 no. dwellings. The site is located at Lanwades Park, Kentford. This study includes the land within the red line boundary as indicated within Figure 1.1 below.

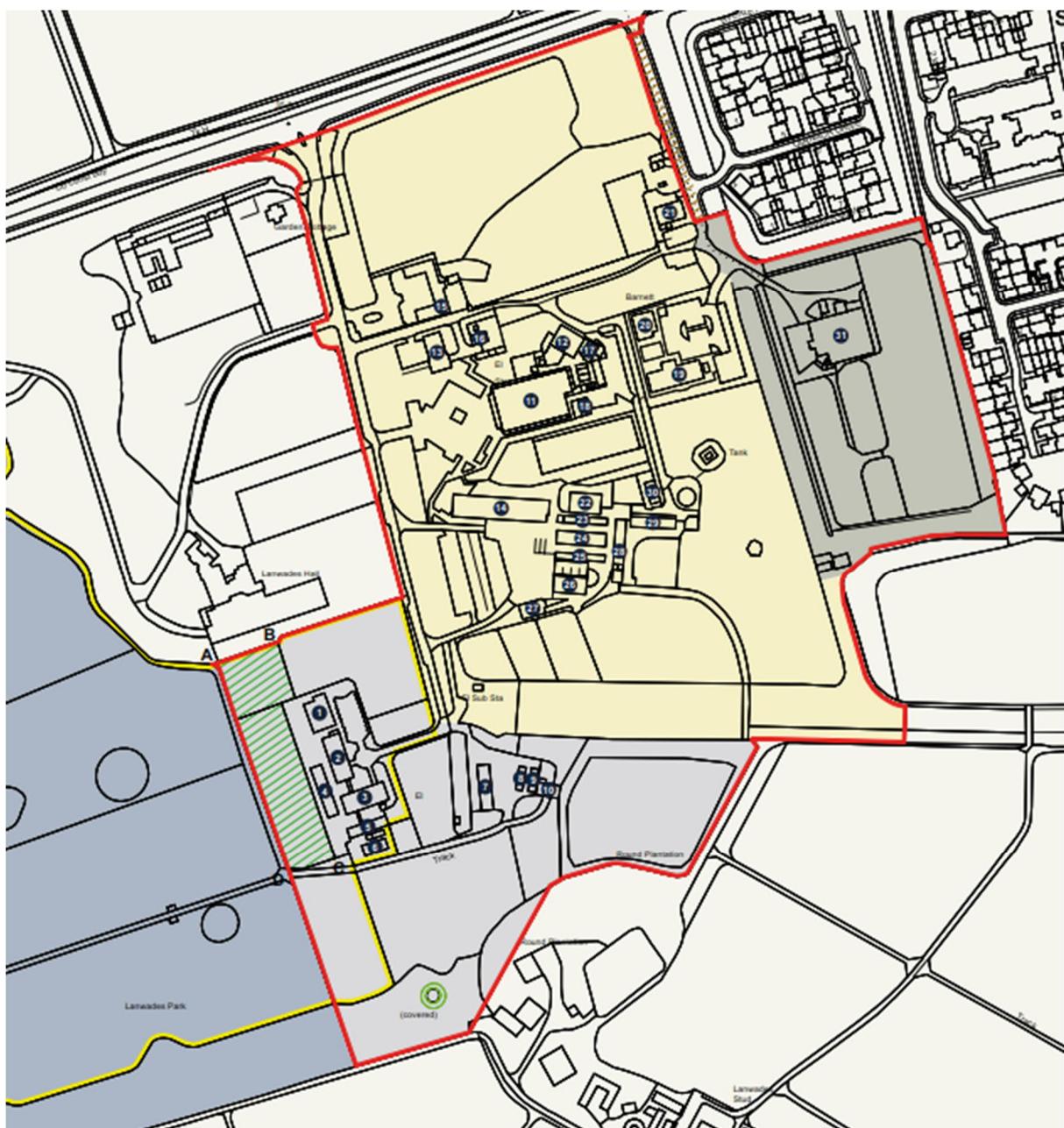


Figure 1.1 – Aerial view of existing site

UCML has been commissioned to provide a desktop utility study defining potential cost and timescale risks that could impact on the overall delivery of the project. The principal aim of this utility study is to identify the key constraints derived from statutory utility infrastructure on the proposed development. At the time of writing a site layout plan was not yet available; therefore, the information provided within this desktop study is based on review of the red line boundary plan shown in Figure 1.1 overleaf.

Table 1.1 below summarises the estimated loads used for the study. Please note, these estimated loads are intended for use as a guide only to produce this study, and it is recommended that a Mechanical and Electrical Consultant is employed to calculate the actual load required based on the final layout design and proposed heating method. Please note, the load estimations for the residential development does not include a figure for individual clean water load requirements. As residential clean water connections are standardised, no individual load assessment for residential dwellings is required.

Utility	Total load
Electricity	1,400 kVA
Gas	705 kW

Table 1.1 – Load summary

The information provided within this desktop study is based on the development consisting of up to 350 no. residential dwellings. The gas load requirements have been estimated by UCML based on up to 50 no. dwellings utilising a gas heating strategy with the remaining 300 no. dwellings utilising an electrical heating strategy. The electricity load estimated is intended to be sufficient for all 350 no. dwellings utilising an electrical heating strategy. UCML has also included an allowance for 1 no. 7.2 kW rated Electric Vehicle (EV) charging point per dwelling.

This desktop study has been produced using the statutory records received from each relevant body. The host statutory network operators which operate in the vicinity of the development site and covered within this study are listed in Table 1.2 overleaf.

Utility	Statutory Operator
Electricity	UK Power Networks
Gas	Cadent Gas
Water	Anglian Water
Telecoms	Openreach Virgin Media

Table 1.2 – Host Statutory Network Operators

UCML is not responsible for the accuracy or quality of the information provided on statutory utility infrastructure records and has attempted to use reasonable skill and care in investigating the existing site services. Unless stated otherwise, UCML has not made any provision for out-of-area water mains, private networks, unrecorded networks, Liquid Petroleum Gas (LPG) networks, street lighting, CCTV, traffic signals/illuminated signage, data centre networks, electricity generation installations, interconnectors, or drainage/sewerage networks.

Please note, all information on the drawings contained within this utility study and elsewhere is indicative only. The verification of the details and plant location given on the relevant infrastructure records should be undertaken using the following methods;

- The use of plant location equipment to trace all underground plant.
- The use of hand dug trial holes to confirm the precise location of plant.
- The use of suitable paint or markers on the surface to clearly indicate the position of buried apparatus.

All works undertaken are to be in accordance and compliance with the Construction Design and Management 2015 Regulations, published Health & Safety Guidelines, and the agreed working practices of the relevant utility companies. The following assumptions must be made in regards to any existing utility apparatus;

- All mains, services cables, and pipes should be assumed live until proven dead prior to any excavation, demolition or groundworks commencing.
- Any existing building is assumed to have live services until proven otherwise.

- Any site is assumed to have existing utility apparatus located within the boundary until proven otherwise.
- Service connections are not indicated on all utility infrastructure records. Where no service connections are indicated, their presence should be anticipated until proven otherwise.

## 2.0 Scope and Objectives

Utilities Connections Management Limited (UCML) is an independent Utility Consultancy providing services relating to the provision of utility connections to all types of developments.

This desktop utility study aims to provide a 'snapshot' in time of the current statutory utility networks and review the potential connection, diversion, and disconnection works that may be required to accommodate the development proposals. The objective of the commission is to provide a level of information relating to budgetary costs and risks, without incurring significant costs relating to distribution network studies. It should be noted that as this study is desktop in nature, no site visits or surveys have been undertaken during its completion.

The scope of works undertaken by UCML may be summarised as follows;

- Obtain the statutory Network Operators' infrastructure records.
- Review the existing utility distribution networks within the local area of the site.
- Application for firm points of connection for electricity, gas, and water supplies to the site to determine the location of proposed connection.
- Consider the impact existing utility apparatus will have on proposed development works and provide a technical review and analysis of all statutory authority infrastructure affected by proposed on and off-site works, including the provision of the following:
  - Budget estimates for anticipated disconnection and diversion works.
  - Budget estimates for connection works, derived from firm non-contestable charges including an estimate of required reinforcement works where applicable.
  - Cost risk and analysis.
  - Timescales for provision and execution of quotations for the required works, highlighting risks to project programme.
  - Highlight of abnormal legal requirements including wayleaves and easements, and explanation of requirements to mitigate risk.

UCML's desktop utility studies provide a detailed overview of the statutory electricity, gas, clean water, and telecommunications infrastructure in the vicinity of a proposed site, ideal for:

- Due diligence prior to land purchase to allow negotiation.
- Risk assessment prior to tender.
- Assistance with site layout design to minimise impact on existing utilities, taking statutory utility infrastructure legal requirements into account.
- Detailed planning statements.
- Investment analysis.

### 3.0 Assumptions and Exclusions

In view of the limitations of the available information, the following assumptions have been made to produce this utility study;

- All estimated loads have been based on information provided in the Network Operators Distribution Code and other documented standards.
- The information provided within the desktop study is based on the development site area as identified on the proposed site layout plan shown in Figure 1.2 within the introduction. Any land falling outside of the provided boundary is outside of the scope of this desktop study and, should it be incorporated within the proposed development boundary, this may affect the information and recommendations provided within this desktop study.
- The desktop study has been produced based on the specification provided by the Client/Developer at the time of instruction. Any changes to the size, type, number of specification of the development (for instance the extent of EV charging provision and/or use of Low Carbon heating solutions) may affect the information and recommendations provided within this desktop study.
- In the timescales and budget costs quoted, no allowances have been made in respect to the following unless stated otherwise;
  - Wayleaves, easements, or access rights.
  - Reinforcement charges.
  - Land transfers or lease arrangements for substation requirements if applicable.
  - Abnormal off-site civils.
  - Specialist traffic management (non-standard).
  - On-site civils and builders work.
  - Seasonal Embargoes.

It should be noted that all budgetary figures quoted are exclusive of any Value Added Tax (VAT) that may be applicable unless stated otherwise.

## 4.0 Terms and Definitions

ADM	After Diversity Maximum Demand. The development demand considering diversity of usage.
CSEP	Controlled System Exit Point. Gas mains connection point.
DNO	Distribution Network Operator. This is the licensed electricity distributor for the geographic region.
EV	Electric Vehicle. Charging points for electric vehicles can significantly increase electricity demand of a development.
FTTP	Fibre to the Premise telecommunications connection.
GT	Gas Transporter. The GT is the licensed gas network operator for a specific geographical area.
ICP	Independent Connection Providers. Undertake new electrical connections, however they do not take ownership of the asset.
IDNO	Independent Distribution Network Operator. Network owners and operators that are not constrained to a geographic area.
IGT	Independent Gas Transporter. A GT that is not governed by its geographic location.
POC	Point of Connection. This is a formal document submitted by the DNO identifying the location for a new electrical connection.

## 5.0 Executive Summary

This study comprises the results of the investigation and appraisal undertaken by UCML of the existing utility infrastructure located in the vicinity of the development site, and provides an overview of the likely demand requirements to support the proposed development works along with a review of any network reconfiguration works that are currently anticipated.

The relevant sections of the study will discuss the development requirements and constraints in further detail, however UCML would highlight the following main site constraints, along with the recommended next steps to be taken:

- UK Power Networks has confirmed the development can be connected to the 11 kV HV distribution network; however, there is currently insufficient capacity available within the network to provide the capacity requested. Network reinforcement works are required to provide additional capacity within the 11 kV HV distribution network.
- Cadent Gas has confirmed the existing LP mains network in the wider vicinity of the development site has sufficient capacity to supply a demand for the first 50 no. dwellings to be constructed; however, up to 3 kilometres of off-site mains lay will be required to bring capacity to the development site boundary from the POC location.
- Anglian Water has confirmed the development can be connected to the distribution mains network; however, there is currently insufficient capacity available within the network to provide the capacity requested. Network reinforcement works are required to provide additional capacity within the clean water distribution network.
- The extent of electricity, water, and Openreach diversionary works required to accommodate the development can only be confirmed following review of the site layout plan, once available.
- Further site investigation is recommended to confirm how the existing units on-site are supplied. If private electricity and clean water networks are present on-site, a suitably qualified contractor will need to be appointed to complete the works.
- Disconnection of Openreach apparatus will be required prior to the assumed demolition of the existing units currently occupying the development site.

## Cost Summary

Table 5.1 below summarises the total anticipated budget costs for the required utility works. Please refer to the relevant section of the study for further detail.

Electricity	Budget Cost
Non-Contestable Works	£152,441.71
Contestable Connection Works	£480,000.00
Diversionary Works	£150,000.00
Disconnection Works	N/A (TBC)
Total Electricity Costs	£782,441.71
Gas	Budget Cost
Connection Works	£542,500.00
Diversionary Works	None required
Disconnection Works	None required
Total Gas Costs	£542,500.00
Water	Budget Cost
Connection Works	£654,000.00
Diversionary Works	£14,000.00
Disconnection Works	N/A (TBC)
Total Water Costs	£668,000.00
Openreach	Budget Cost
Connection Works	£Nil
Diversionary Works	£90,000.00
Disconnection Works	£7,000.00
Survey Fees	£2,500.00
Total Openreach Costs	£99,500.00
Virgin Media	Budget Cost
Connection Works	£Nil
Diversionary Works	N/A (TBC)
Disconnection Works	N/A (TBC)
Total Virgin Media Costs	£Nil

Budgetary sums exclude Value Added Tax, on-site civils, and principal contractor preliminaries.

Table 5.1 – Cost Summary Table

## 6.0 Electricity

### 6.1 Existing Electricity Network

The electricity distribution network in the vicinity of the development site is under the ownership of UK Power Networks and is operated within the terms of its Electricity Distribution License issued by Ofgem. The local electricity distribution network in the immediate vicinity of the site comprises of underground cables and associated substations operating at High Voltage (HV) and Low Voltage (LV).

The figure on the following page illustrates the location of existing UK Power Networks infrastructure which has been extracted from its network records. The cables shown in red are operated at 11,000 Volts (HV), and those shown in blue and brown are operated at 415 Volts (LV). Due to the quality of the record, for clarity the cable routes and asset locations have been highlighted on the figure overleaf. Please refer to the infrastructure record appended to this study for further detail.

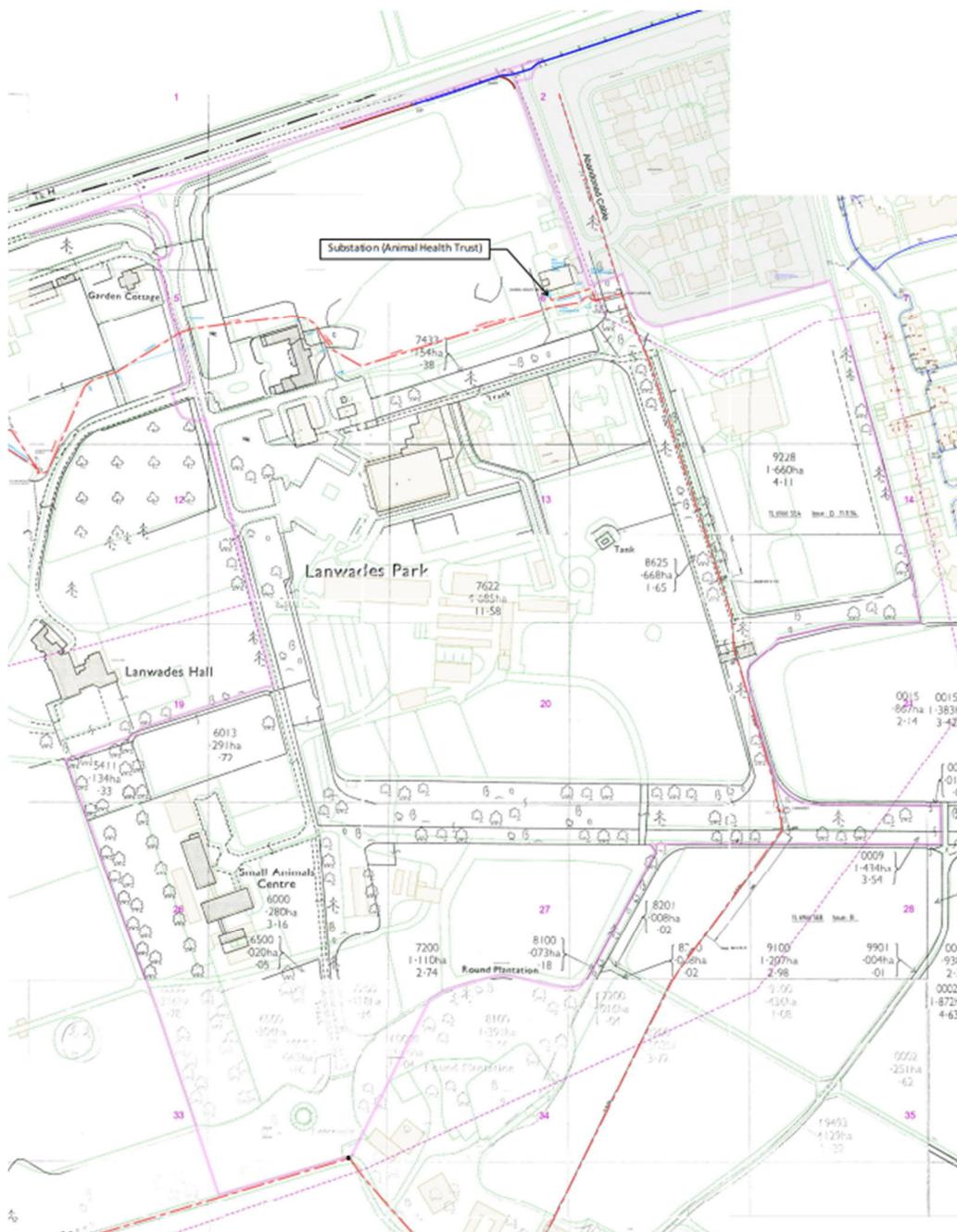


Figure 6.1 – Existing Electricity Infrastructure Plan

NetMAP system	Scanned image	Description
—	— — —	Over 230/400V and up to 11kV (HV) cable route
—	— — —	230/400V (LV) cable route
—	— — —	Pilot cable route
(Only shown this way if independent from HV cable route)		
Abandoned cables are shown and labelled as such when applicable		
NetMAP system	Scanned image	Description
—	— — —	3 phase service with termination
—	— — —	3 phase service with termination (unknown route)
—	— — —	3 phase service with multi-head termination
—	— — —	Single phase service with termination
—	— — —	Single phase service with termination (route unknown)
Street light	— — —	Street lighting cable and termination
Service routes were not always shown on MMS – they were however shown dashed, as indicated above		

## 6.2 Connection Works

### 6.2.1 Non-Contestable Works

The non-contestable element of the connection works are works required to accommodate the provision of capacity for the development, which can only be undertaken by the relevant Distribution Network Operator (DNO). The non-contestable costs are covered within a Point of Connection (POC) quotation.

Based on the development information as outlined within the introduction, UCML has estimated the electrical load requirement for the proposed residential development of 350 no. dwellings to be 1,400 kVA. Based on this estimated load, UCML requested a Point of Connection quotation for the non-contestable works from UK Power Networks.

UK Power Networks has provided a POC quotation for a load of up to 1,400 kVA, confirming the development can be connected to the 11 kV HV distribution network. The POC will be located from an existing 11 kV HV cable routed on Moulton Road to the east of the development site, as indicated in Figure 6.2 below.

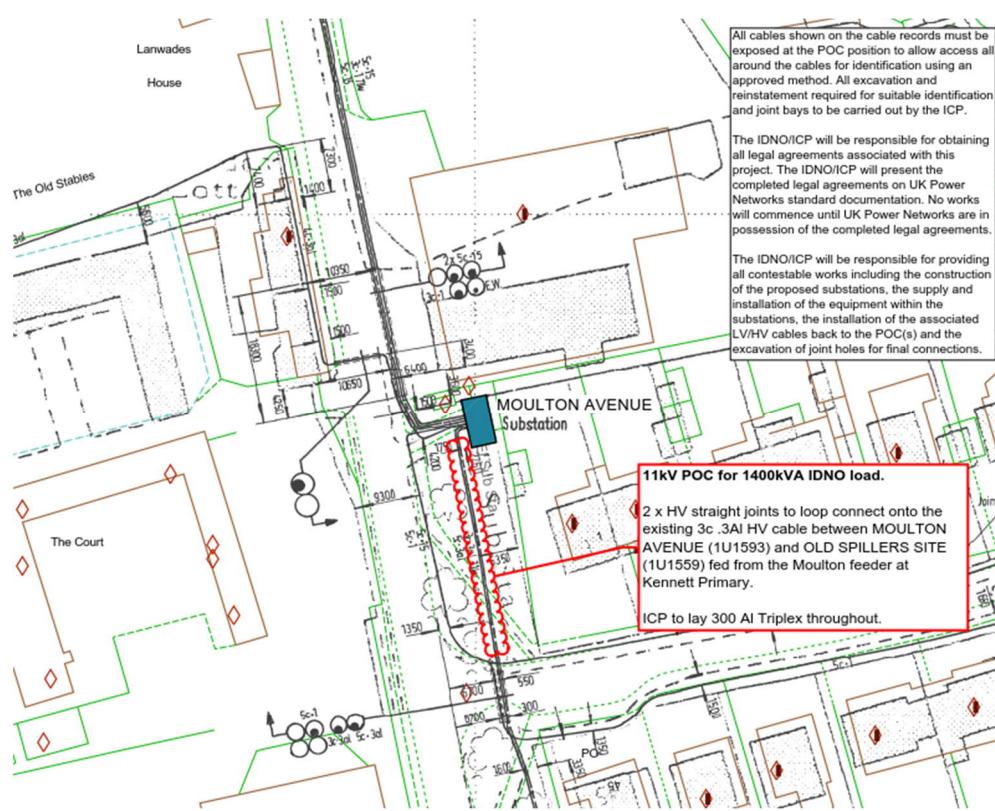


Figure 6.2 – Plan showing electricity HV Point of Connection

Figure 6.3 below indicates the location of the POC in relation to the development site boundary.

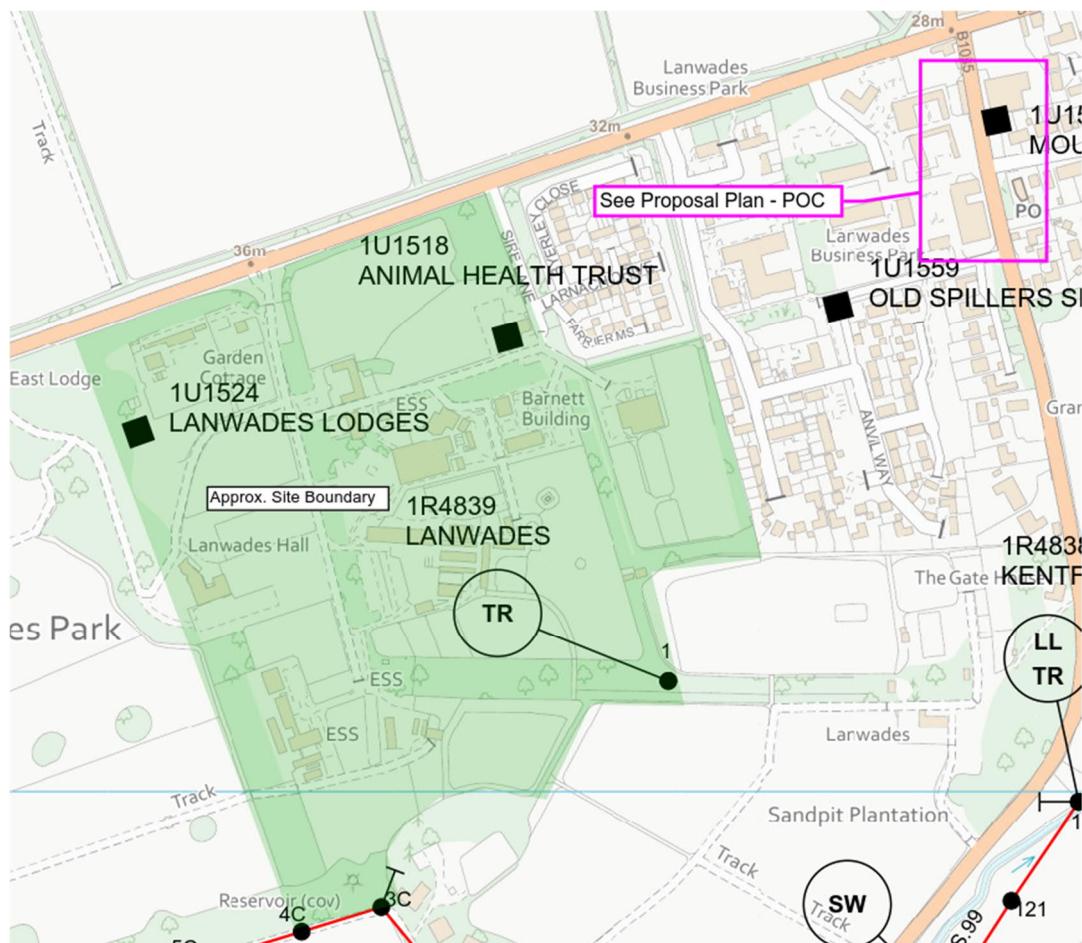


Figure 6.3 – POC Location Plan

UK Power Networks has advised that there is currently insufficient electric capacity available within the existing electricity distribution network to serve the proposed development; therefore, network reinforcement works will be required to provide the requested capacity. UK Power Networks has advised that desktop review has confirmed that the reinforcement works required to provide the additional capacity on the electricity distribution includes the replacement of 15 no. spans of 11 kV HV overhead lines between the Kennett Primary Substation and pole 17S on Station Road. Please see Figure 6.4 overleaf for detail on the location of the overhead lines which need to be replaced.

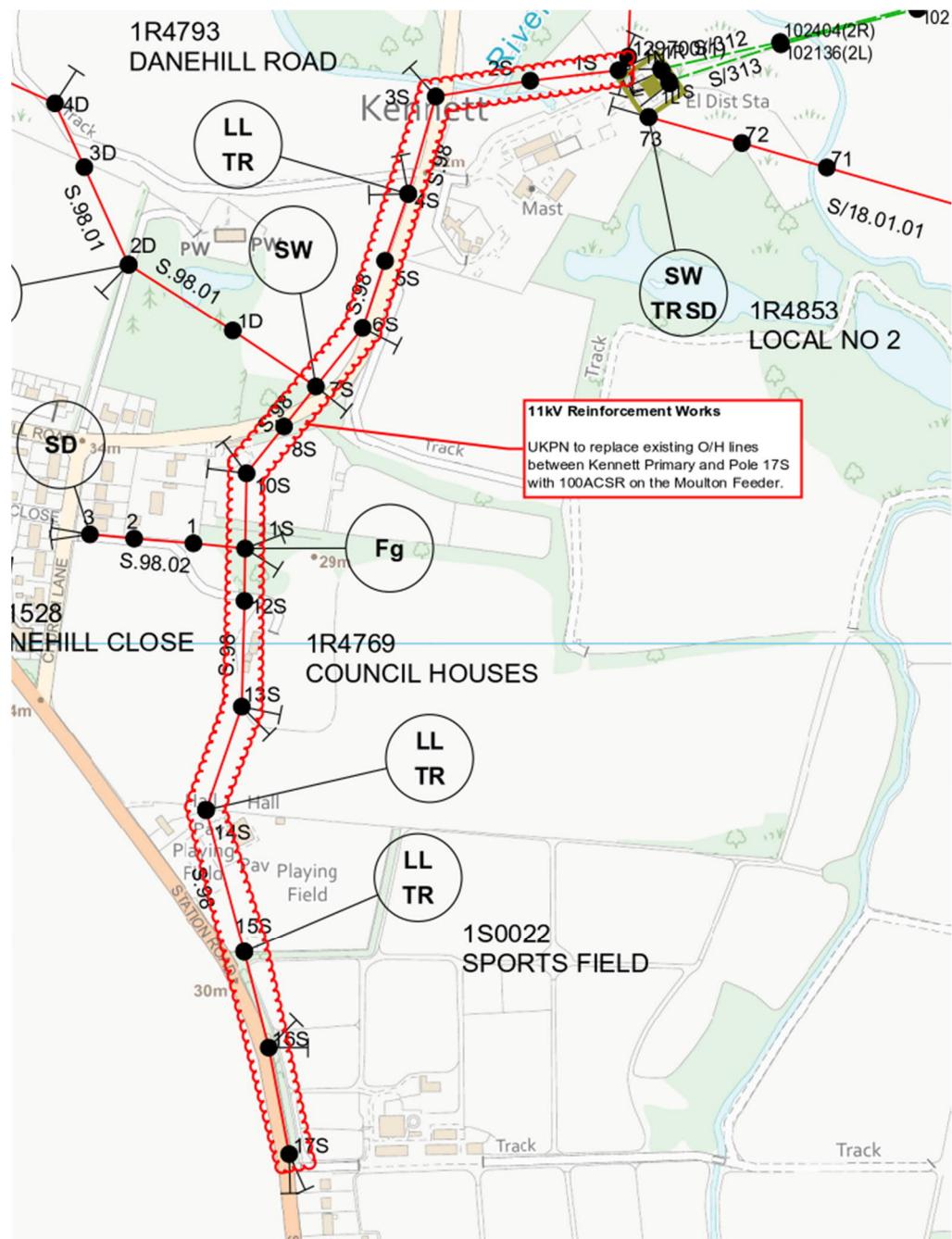


Figure 6.4 – Reinforcement Works Required

UK Power Networks has advised that the network reinforcement works are based on desktop review; therefore, an in depth site survey will need to be undertaken upon acceptance of a valid POC offer to confirm the extent of works required. The reinforcement works must then be fully completed before the total load for the development can be connected to the 11 kV HV network.

As part of the non-contestable works, UK Power Networks will undertake ICP design approval and inspections. Cable jointing works for the POC will typically be undertaken by a UK Power Networks Engineer. Please refer to Section 6.2.2 for further detail on the associated contestable connection works required to utilise the provided HV POC.

The total cost and breakdown of the UK Power Networks non-contestable POC is detailed below:

Description	Cost
Assessment Charges	£1,677.00
Final Closing Joints	£2,399.25
HV Plant	£10,355.06
HV Overhead Mains (Reinforcement)	£89,504.89
HV Pole Mounted Equipment (Reinforcement Works)	£32,657.47
Traffic Management Costs (Reinforcement Works)	£15,848.04
Total Non-Contestable Charges	£152,441.71

Table 6.1 – Point of Connection cost breakdown

### 6.2.2 Contestable Works

Based on the confirmed non-contestable POC provided by UK Power Networks, the following contestable connection works will need to be undertaken to provide connections to the proposed dwellings;

- Lay HV cabling from Point of Connection to proposed substation position.
- Excavate, backfill, and permanently reinstate public highway/footpath to Local Authority standards.
- Install 2 no. on-site substations.
- Supply, install and commission the following within the substation housings:
  - High Voltage Ring Main Units
  - 1 no. 1 MVA and 1 no. 500kVA distribution transformer
  - Low Voltage distribution board
- Lay LV mains infrastructure on-site.
- Install LV service connections to each dwelling, and connect to LV mains infrastructure.

Allow a budget cost of £480,000.00 for the contestable works.

This is based on an estimated allowance of 500 metres of off-site 11 kV HV mains lay from the provided POC on Moulton Road to the site entrance, which is assumed to be at the northern boundary of the site off the B1506. The actual extent of off-site HV mains will need to be confirmed following review of the proposed site layout plan, once available.

The cost provided is based on the developer undertaking all on-site excavation, reinstatement and civils works; including the construction of the substation concrete plinth and housing to the DNO, or appointed Independent Network Operator (IDNO), standard.

As discussed overleaf, the use of a HV POC will trigger the requirement for a minimum of 2 no. secondary substations to be constructed on-site. To accommodate the construction of a secondary substation, a parcel of land of approximately 5m x 5m, along with suitable access and egress, will need to be allowed within the development boundary to accommodate the substation compound.

As the above works are contestable, they can be undertaken by the DNO, or an Independent Connection Provider (ICP) can be appointed to complete the works. The use of an ICP to undertake the contestable connection works provides the opportunity to open the contestable element of the works to competitive tender, which may provide significant cost savings in comparison to the DNO undertaking the works.

If an ICP is appointed, the network can then be adopted by an Independent Distribution Network Operator (IDNO). The license of an IDNO allows for an asset value to be offered to the appointed ICP for the adoption of the constructed network. The asset value offered by the IDNO reflects the anticipated value in adopting the newly constructed network, based on the expected revenue that may be generated from the acquisition of new customers. The cost incurred by the ICP in constructing the network may be offset by any asset value offered by the IDNO, which could provide further cost savings.

### 6.3 Diversions & Disconnections

UK Power Networks infrastructure record indicates an existing secondary substation (UKPN ref. Animal Health Trust) located within the development site boundary, and also indicates 2 no. sections of 11 kV HV cable crossing the site to and from the substation. It can be assumed that this existing apparatus will be affected by the development proposals; however, the extent to which it may be affected and the extent of diversionary works that may be required to reconfigure the 11 kV HV network to accommodate the development proposals will need to be determined through review of the site masterplan, once available. Please see Figure 6.5 below for further detail on the indicated location of the existing apparatus.

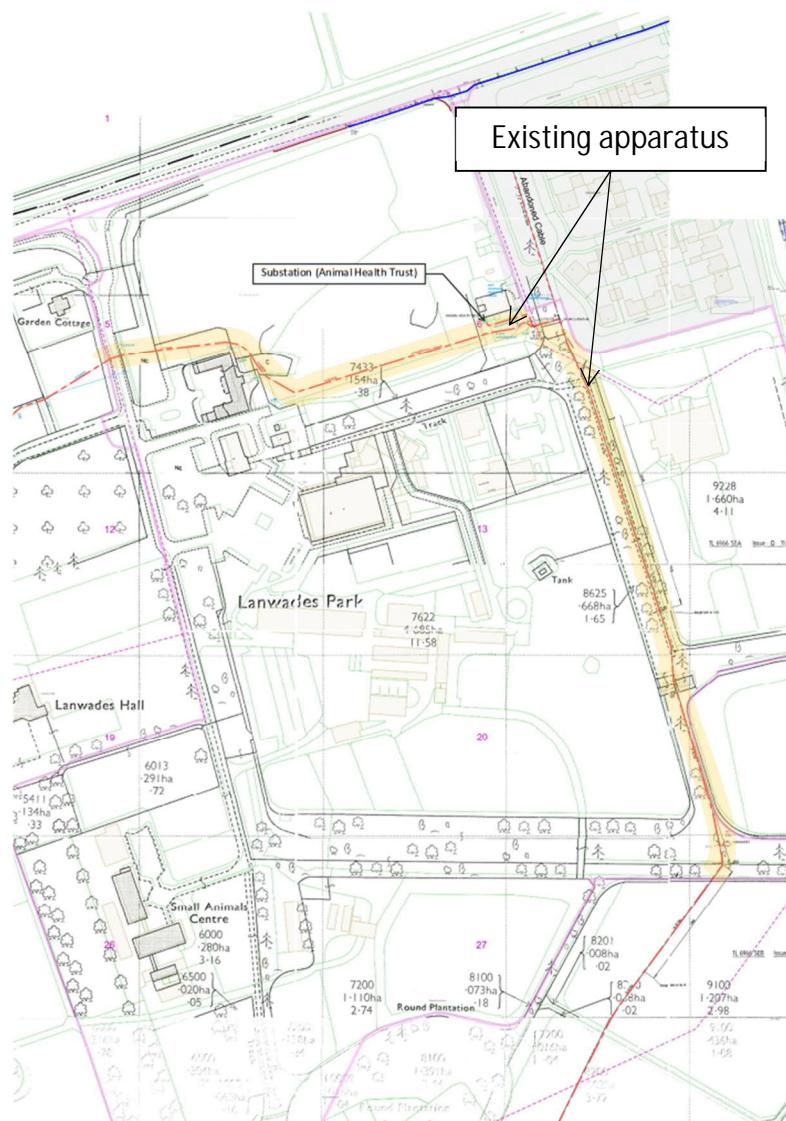


Figure 6.5 – Affected UKPN infrastructure

In advance of the site layout plan being available for review, and assuming an anticipated ‘worst-case’ scenario that the on-site substation will need to be relocated within the development boundary and the cables rerouted across the site, a provisional sum of £150,000.00 is recommended for the diversionary works. This is assuming the substation will be relocated within 100 metres of the current location. However, it is recommended that further formal consultation is undertaken with UK Power Networks to determine the actual extent of works required once a site layout plan has been produced and is available to review.

UK Power Networks infrastructure record indicates an LV cable routed within the site side footpath of the B1506 to the development site boundary. This cable may be affected by the development proposals if a new site entrance is constructed off the B1506 that conflicts with the location of the cable. If the existing site entrance is utilised for the development, it can be assumed that the cable may be unaffected by the development proposals. Review of the site layout plan, once available, will be required to confirm.

The development site is currently occupied by a number of units and, in the absence of a site layout plan, it is assumed that these units will require demolition to accommodate the development works. The UK Power Networks infrastructure record does not show any existing statutory service connections to these units; therefore, further on-site investigation works will be required to confirm if these units have existing electricity connections, and how they are supplied. If they are supplied via a private network which is fed from the on-site substation, a suitably accredited electrical contractor would need to be appointed to complete the disconnection works. At the time of writing, no statutory disconnection works are anticipated.

It should be noted that if the existing substation on-site only supplies a private network which is supplying the units to be demolished, it may be possible to disconnect and remove it from site to reduce the extent of diversionary works required. As previously mentioned, further on-site investigation works are recommended to confirm what apparatus is located on-site.

#### 6.4 Conclusion – Cost & Risk Analysis

Costs relating to the reconfiguration of the existing UK Power Networks distribution system are identified in the following table;

Detail	Cost
Non-Contestable Works	£152,441.71
Contestable Connection Works	£480,000.00
Diversions	£150,000.00
Disconnections	None currently anticipated (TBC)
Total	£782,441.71

Table 6.2 – Electricity costs

The main risks associated with the procurement of proposals and required works are as follows;

- Some figures have been applied based on previous projects of similar size and UCML's experience, others have been provided for budgetary purposes by UK Power Networks.
- The Point of Connection is valid for only 6 months from submission. The network capacity can only be reserved upon submission of signed acceptance and a suitable design from either an Independent Connection Provider or Independent Distribution Network Operator.
- Legal agreements corresponding with the proposed substation installation may cause time delays. To mitigate any potential negative impact on the project programme, it may be prudent to ensure solicitors representing all relevant parties start communication at the earliest opportunity.
- The extent of diversionary works required to accommodate the development can only be confirmed following review of the site layout plan, once available.
- Diversionary works where required are not regulated by Ofgem, it is therefore advised that a work commencement date is identified as early as possible as this may have a significant impact on any construction programme.

- Further site investigation is recommended to confirm how the existing units on-site are supplied. Based on review of the UK Power Networks infrastructure records no statutory disconnection works are anticipated as none are shown. If a private network is present on-site, a suitably qualified electrical contractor will need to be appointed to complete the works.

## 7.0 Gas

### 7.1 Existing Gas Network

The local Gas Distribution Network in the vicinity of the development site is owned and operated by Cadent Gas under its Gas Transportation License issued by Ofgem. Cadent Gas has confirmed that the development site is located in an area with no surrounding gas mains network. The nearest section of gas main is located to the south west of the development site, approximately 2500 metres from the site boundary. The figure below is an extract from Cadent Gas' statutory records and details the currently indicated position of existing infrastructure, however it may be prudent to undertake a below ground survey to ensure there are no services present which are not recorded on statutory records. Please refer to the infrastructure record appended to this study for further detail.

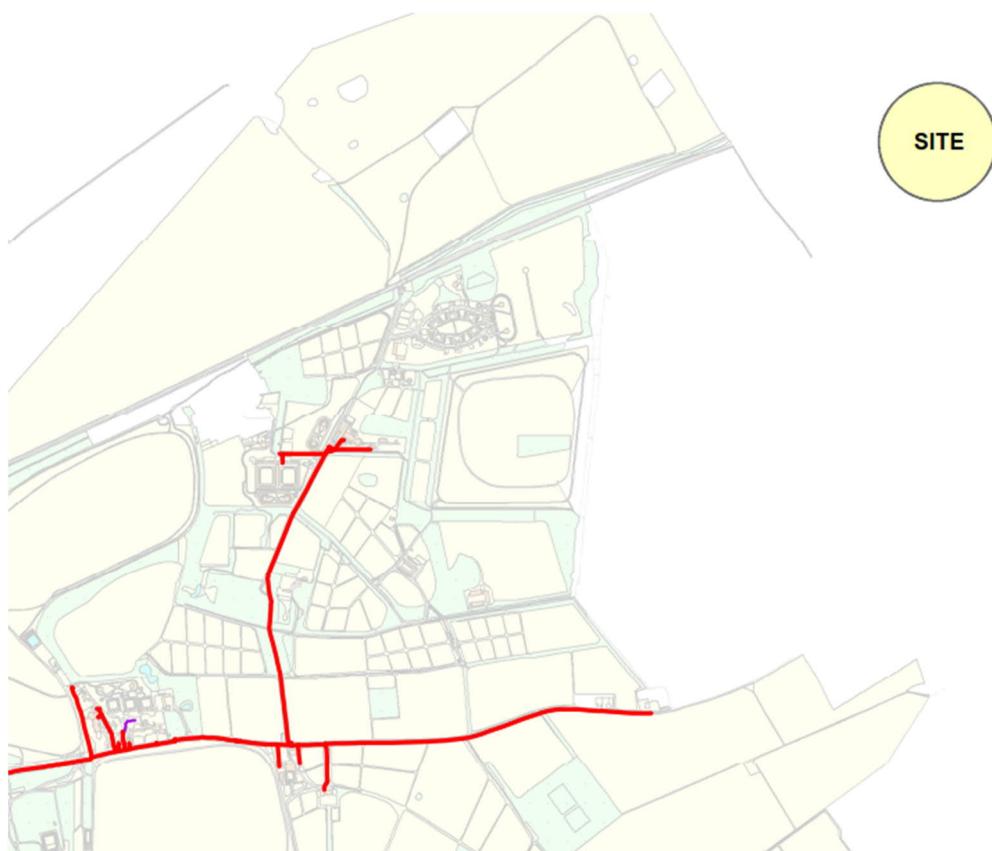
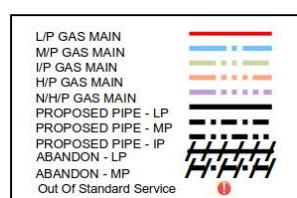


Figure 7.1 – Existing gas infrastructure plan



## 7.2 Proposed Gas Service

Based on the development information as outlined within the introduction, UCML has estimated a gas load requirement for the proposed residential development based on the use of gas heating for the first phase of the development to be 705 kW hourly (902,625 kWh annually), for 50 no. dwellings.

Cadent Gas has undertaken a capacity check on behalf of UCML to confirm the availability of capacity within the existing distribution network. Cadent Gas has advised that the development could be connected to the existing LP network from the 125mm polyethylene LP main located approximately 2500 metres from the development boundary and routed within the access road linking the B1506 and Moulton Road. Please see Figure 7.2 below for further detail.

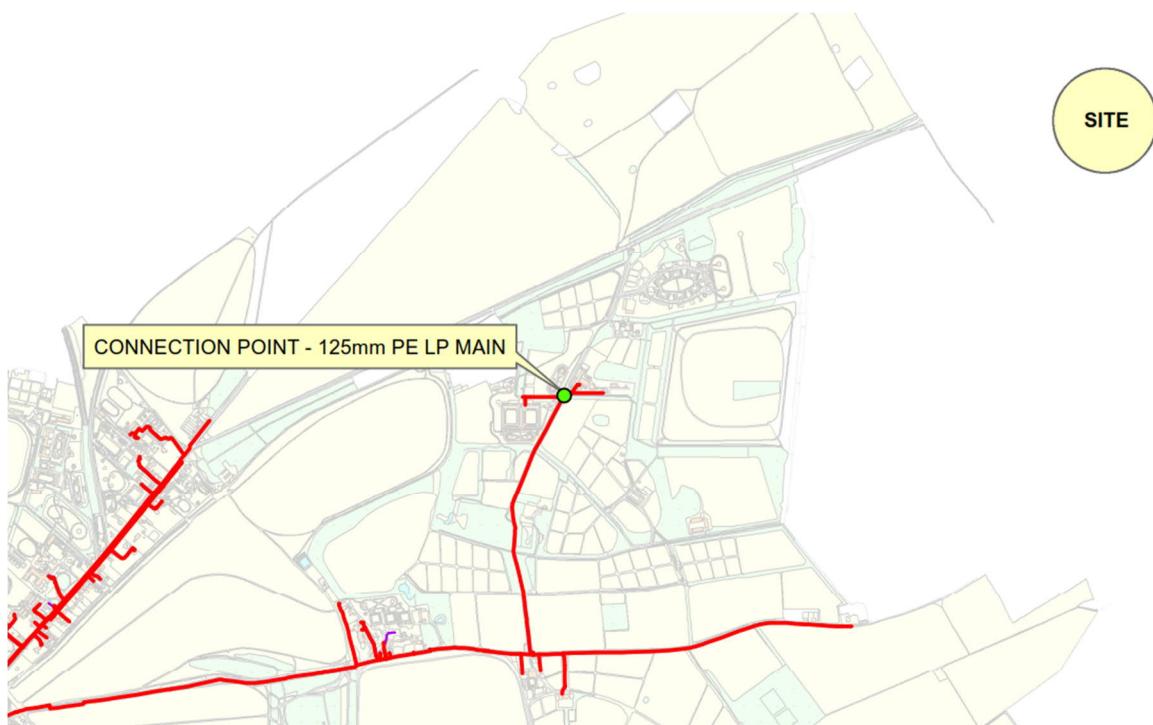


Figure 7.2 – Gas connection point

Cadent Gas has advised that, based on desktop review of the current network, there is sufficient capacity within the existing LP network to provide supply to the proposed residential development without the requirement for network reinforcement works. However, use of the provided connection point will require significant off-site mains lay to bring capacity from the

connection point to the development site. Desktop review indicates that up to 3,000 metres of off-site mains lay would be required to utilise the provided connection point.

Typically, the successful Utility Connection Provider will be required to undertake all excavation, backfill, and permanent reinstatement from the CSEP on the existing network to the development boundary. The developer being responsible for all excavation on-site to the point of supply which will be classed as the meter position for each dwelling, unless otherwise requested. Allow a budget cost of £542,500.00 for connections, based on the approximate distance of off-site mains lay discussed above.

Please note, the budget costs provided are based on the anticipated construction costs for the installation of the gas network to supply the proposed residential dwellings. It is anticipated that an asset value subsidy will be available from an Independent Gas Transporter for the adoption of this network, which may significantly reduce the costs of the network installation.

### 7.3 Diversions & Disconnections

As there is no mains gas network in the immediate vicinity of the development site, no diversionary or disconnection works will be required to accommodate the proposed development works.

### 7.4 Conclusion – Cost & Risk Analysis

Costs relating to the reconfiguration of the existing Cadent Gas network are identified in the following table;

Detail	Cost
Connections	£542,500.00
Diversions	None required
Disconnects	None required
Total	£542,500.00

Table 7.1 – Gas costs

The main risks associated with the procurement of proposals and required works are as follows;

- Cadent Gas may provide a revised CSEP position due to changes in capacity on the existing network. It should be noted that the availability of capacity can only be confirmed following completion of formal design approval for a connection design.
- Formal offers are yet to be received, therefore there is a possibility that costs may fluctuate substantially due to material costs, contractor rates, asset value etc. It is anticipated that significant savings may be made through competitive tender.
- The gas connection costs provided are based on anticipated construction costs. The actual cost of connections may be significantly reduced through an asset value subsidy which would be available from an Independent Gas Transporter for the adoption of the proposed new gas network.
- The utility contractor is required to include for all off-site excavation, backfill and permanent reinstatement within the tender documentation.

## 8.0 Water

### 8.1 Existing Water Network

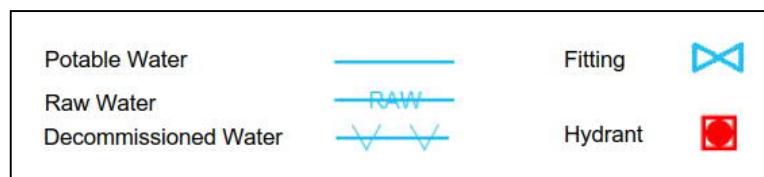
The local clean water distribution network in the vicinity of the development site is owned and operated by Anglian Water within the terms of its statutory license issued by Ofwat. The clean water network in the immediate vicinity of the site comprises of distribution water mains and associated apparatus. Please refer to the infrastructure record appended to this study for further detail.

The figure overleaf is an extract from Anglian Water statutory records and details the current indicated position of existing infrastructure, however it may be prudent to undertake a below ground survey to ensure there are no unknown services which are not recorded.

Please note on rare occasions 'out of area' water supply authorities have water mains crossing other water supply authority areas. This is typically trunk or raw water mains transporting water extracted from reservoirs or water courses between areas. Unless stated otherwise, UCML's utility study covers the statutory water network operator for this region as identified within the introduction only.



Figure 8.1 – Existing water infrastructure plan



## 8.2 Proposed Water Service

UCML has sourced a pre-development response from Anglian Water to establish the availability of capacity within the local distribution network, and confirm the likely connection point for the development. Anglian Water has advised that a connection point for the development can be provided from the existing distribution main routed within Bury Road, to the north east of the development site. Please see Figure 8.2 below for further detail on the location of the provided point of connection.

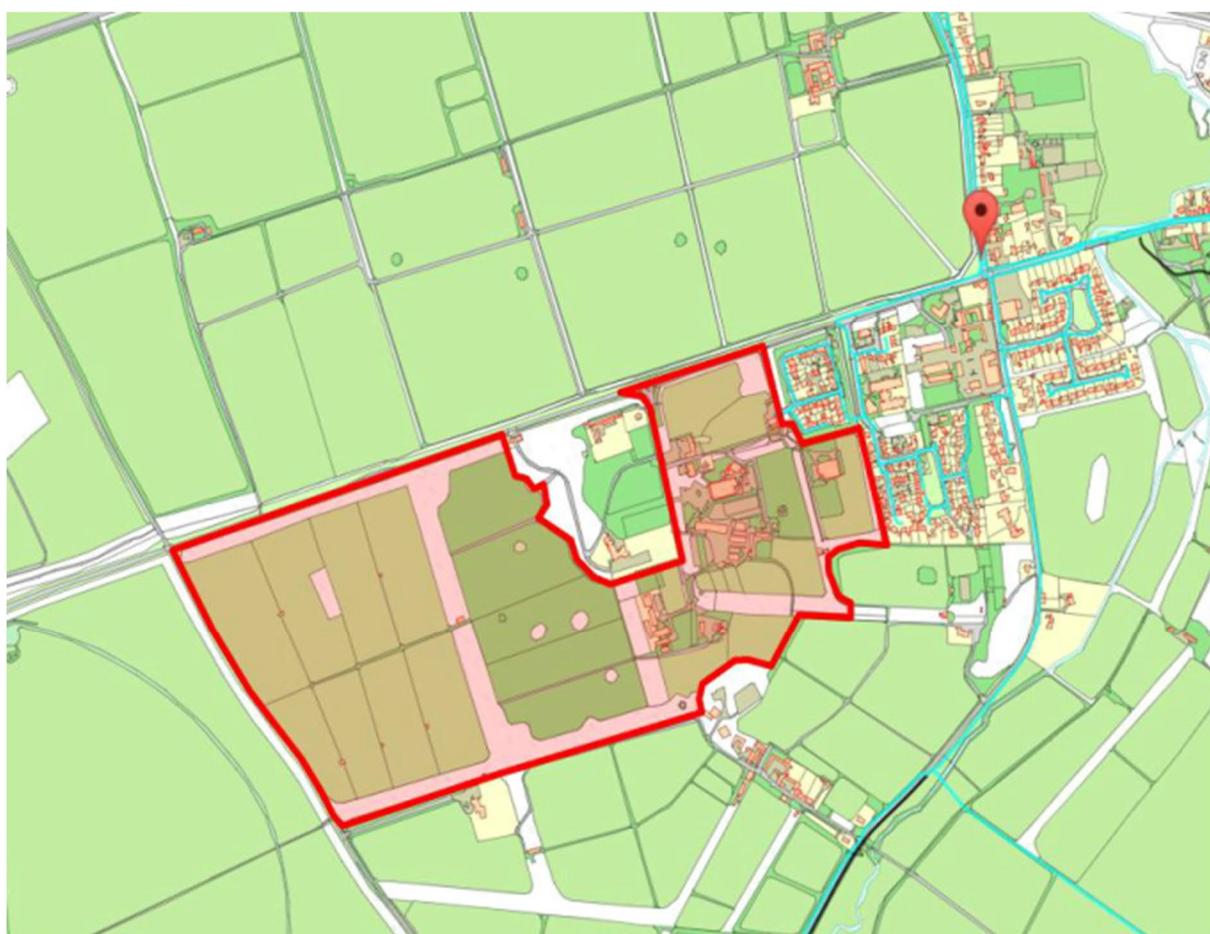


Figure 8.2 – Proposed water connection plan

Anglian Water has advised that the current distribution network does not have sufficient capacity to provide an adequate supply for the development. To provide sufficient clean water supply to the development, network reinforcement works will need to be completed to provide the required additional network capacity. Anglian Water has advised that the reinforcement works required to provide additional capacity within the local distribution

network will include the installation of up to 3.3 kilometres of 250mm of new mains to reinforce the existing network. Anglian Water has confirmed that the completion of these reinforcement works could take up to 18 months from instruction; therefore, it is recommended that a formal mains connection quotation is requested at the earliest appropriate opportunity.

From April 2018, off-site network reinforcement costs have been funded through infrastructure charges which are applied to each new connection. The principle of infrastructure charges recognises that every new connection imposes an additional demand on the overall capacity of the water supply and sewerage systems, and eventually those systems will need to be enlarged. The collection of infrastructure charges is intended to cover the extra demand on the existing network away from the development site. However, if extensive reinforcement works are required a developer may need to provide further contribution to the costs. Any additional contribution required will be advised by Anglian Water following formal application for a mains requisition offer and the completion of any required network modelling works.

Infrastructure charges are calculated based on the estimated costs of all off-site reinforcement works required to facilitate connections to new developments in Anglian Water's supply area over a rolling 5 year period, based on the total anticipated number of new connections within that supply area. Please note, the infrastructure charge costs can vary year on year and therefore long term developments may be affected by the possible variance in infrastructure charges. Each water company has a differing infrastructure charge based on their individual network and anticipated levels of reinforcement works, and the cost of the infrastructure charges for clean and waste water are likely to differ.

The infrastructure charges applicable to developments within Anglian Water's region for the current scheme of charges (2022-2023) are £293.00 per plot for clean water which is applied to the clean water connection costs. Based on this infrastructure charge, allow a budget cost of £654,000.00 for mains and connections.

A Phase 2 ground investigation and risk assessment will be required to precisely identify contaminated and uncontaminated ground within the site. The level of contamination on-site will determine the material used for the water mains and service pipes on-site. If the level of contamination is low, standard polyethylene pipe could be used. However, if the level of contamination on-site is determined to be high, the site will require the use of barrier pipe laid in a sterile trench. Should the use of barrier pipe be required, this will increase the cost of connections significantly.

From April 2020, water companies have transitioned to new charging rules which stipulate that any applicable income offset available for a development is paid against infrastructure charges instead of the mains requisition cost. Previously, any income offset available for a development would be applied to the mains requisition costs. Based on these new charging rules, the full construction cost for the mains requisition is payable by the developer upfront. The income offset is then applied to the infrastructure charges, which are payable once the service connections are made.

As the income offset is paid by Anglian Water against infrastructure charges paid by the developer, it will now be applicable to all connections (including any made to existing water mains) where infrastructure charges are payable. The income offset payment is set by each water company at a set charge per plot, and for connections in Anglian Water's area for 2022-2023 it has been set at £420.00 per plot, and allowance for this has been included within the budget cost provided overleaf. If no infrastructure charges are payable for a connection, no income offset payment will be available.

### 8.3 Diversions & Disconnections

Anglian Water infrastructure record indicates a section of 180mm polyethylene distribution main routed within the development site boundary off Sire Lane which terminates at 2 no. hydrants located within the development site boundary. It can be assumed that this existing apparatus will be affected by the development proposals; however, the extent to which it may be affected and whether diversionary works will be required will need to be determined through review of the site masterplan, once available. Please see Figure 8.3 below for further detail on the indicated location of the existing apparatus.



Figure 8.3 – Existing water infrastructure requiring diversion

In advance of the site layout plan being available for review, and assuming the hydrant can be relocated off-site, a provisional sum of £14,000.00 is recommended for the diversionary works.

The development site is currently occupied by a number of units and, in the absence of a site layout plan, it is assumed that these units will require demolition to accommodate the development works. The Anglian Water infrastructure record does not show any existing on-site mains that may be supplying these units; therefore, further on-site investigation works will be required to confirm if these units have existing clean water connections, and how they are supplied. If they are supplied via a private network which is fed from the 180mm main located at the boundary of the development site off Sire Lane, a suitably accredited contractor would need to be appointed to complete the disconnection works. At the time of writing, no statutory disconnection works are anticipated.

#### 8.4 Conclusion – Cost & Risk Analysis

Costs relating to the reconfiguration of the existing Anglian Water network distribution system are identified in the following table;

Detail	Cost
Mains and Connections	£654,000.00
Diversions	£14,000.00
Disconnections	None currently anticipated (TBC)
Total	£668,000.00

Table 8.1 – Water costs

The main risks associated with the procurement of proposals and required works are as follows;

- Some figures have been applied based on previous projects of similar size and UCML's experience, others have been provided for budgetary purposes by Anglian Water.
- The pre-development response is valid for only 6 months from submission. The available network capacity can vary continually, due to proposed developments taking capacity from the water distribution network within the vicinity of this specific scheme.
- The developer cannot reserve any water capacity and pressure until a formal order has been placed with the relevant water Network Operator.
- Please be aware that the position of any required fire hydrants will be determined and implemented upon the advice and requirements of the Local Fire Authority.
- The extent of diversionary works required to accommodate the development can only be confirmed following review of the site layout plan, once available.
- Further site investigation is recommended to confirm how the existing units on-site are supplied. Based on review of the Anglian Water infrastructure records no statutory disconnection works are anticipated as none are shown. If a private network is present on-site, a suitably qualified contractor will need to be appointed to complete the works.

## 9.0 Communications

### 9.1 Openreach

Openreach own and operate telecommunications apparatus in the vicinity of the development site within the terms of its statutory license issued by Ofcom. The Openreach network in the immediate vicinity of the site comprises of underground cables, overhead lines, and associated apparatus. Please refer to the infrastructure record appended to this study for further detail. The figure below is an extract from Openreach records and details the current indicated position of existing infrastructure, however it may be prudent to undertake a below ground survey to ensure there are no unknown services which are not recorded.

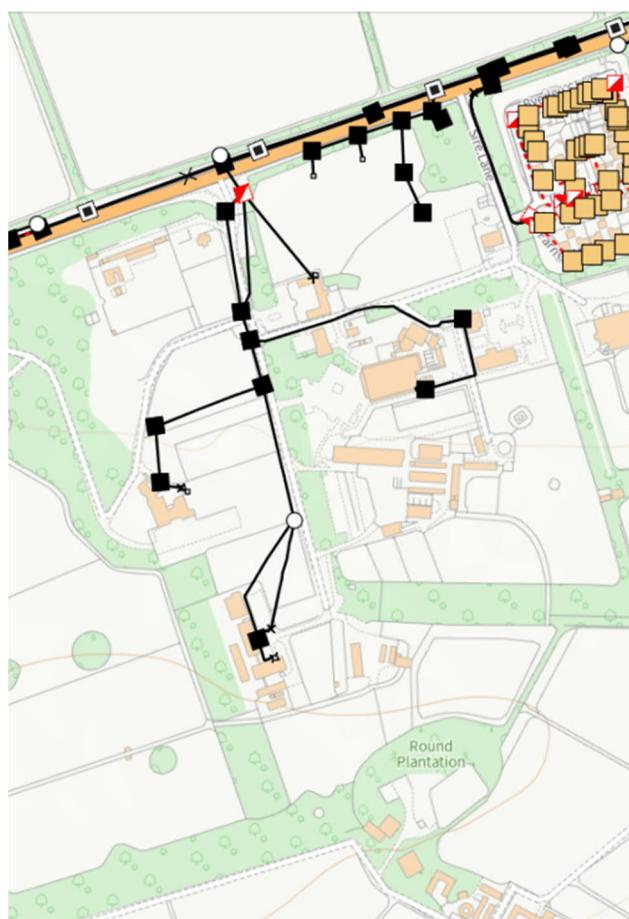


Figure 9.1 – Existing Openreach infrastructure

KEY TO BT SYMBOLS	
DP	○
Planned DP	○
PCP	■
Planned PCP	+
Built	×
Planned	▲
Inferred	■
Building	□
Kiosk	□
Hatchings	□
Pole	○
Planned Pole	○
Joint Box	■
Change Of State	+
Split Coupling	×
Duct Tee	▲
Planned Box	■
Manhole	□
Planned Manhole	□
Cabinet	□
Planned Cabinet	□

### 9.1.1 Openreach Connections

Openreach provide a Fibre to the Premise (FTTP) connection design as standard for new developments. FTTP connections will provide ultrafast broadband speeds to each dwelling and deliver a level of future proofing for broadband as the demand for speed increases. Openreach will provide an allowance of up to £3,400.00 per plot to undertake all off-site works required, however any costs incurred above this allowance will be chargeable to the developer. As the development consists of over 20 no. residential dwellings, Openreach will likely provide FTTP connections free of charge.

Openreach FTTP network is constructed as an Open Access Network, allowing multiple Internet Service Providers (ISPs) to provide services to future residents and customers utilising the same infrastructure. The installation of Open Access Networks mitigate the requirement for multiple service providers installing duplicate infrastructure within the development site.

Typically, the work undertaken by the developer as part of an Openreach FTTP network installation will consist of laying on-site duct and tubing, building all joint boxes, and providing a cable from a designated joint box to each dwelling (with cappings and covers over external entry points). Openreach will carry out all excess construction works outside of the site boundary and in the public highway.

For a FTTP installation, the developer will need to sign a contract and Wayleave agreement with Openreach. This is a legal requirement for Openreach to install and access its infrastructure. However, if the installation of an independent fibre network is being considered for the development site, exclusivity may be required and therefore the Openreach wayleave should not be signed until it is confirmed an independent third party fibre provider will not be used.

As part of the contract for the installation of Openreach connections, the developer may receive a rebate of up to £140.00 per house and £50 per flat for carrying out on-site works as detailed within the contract provided with their connection proposal. The rebate is in line with the Home Builders Federation (HBF) rates and are payable by BT Plc through its Openreach

division. If the developer chooses to self-install the internal FTTP apparatus through Developer Self Install (DSI), an additional rebate payment of £20 per house or apartment will be available.

For the installation of FTTP within an individual dwelling, an Optical Network Termination (ONT) will be installed. The ONT is the Openreach demarcation point and replaces the traditional copper master socket. The Openreach ONT will sit in a wall mounted enclosure along with a Battery Backup Unit (BBU) and the associated wiring. The ONT will include an optical port which connects to the external Customer Splice Point (CSP), an Ethernet port which connects to the communications provider's router, and a telephony port to connect to the voice call network.

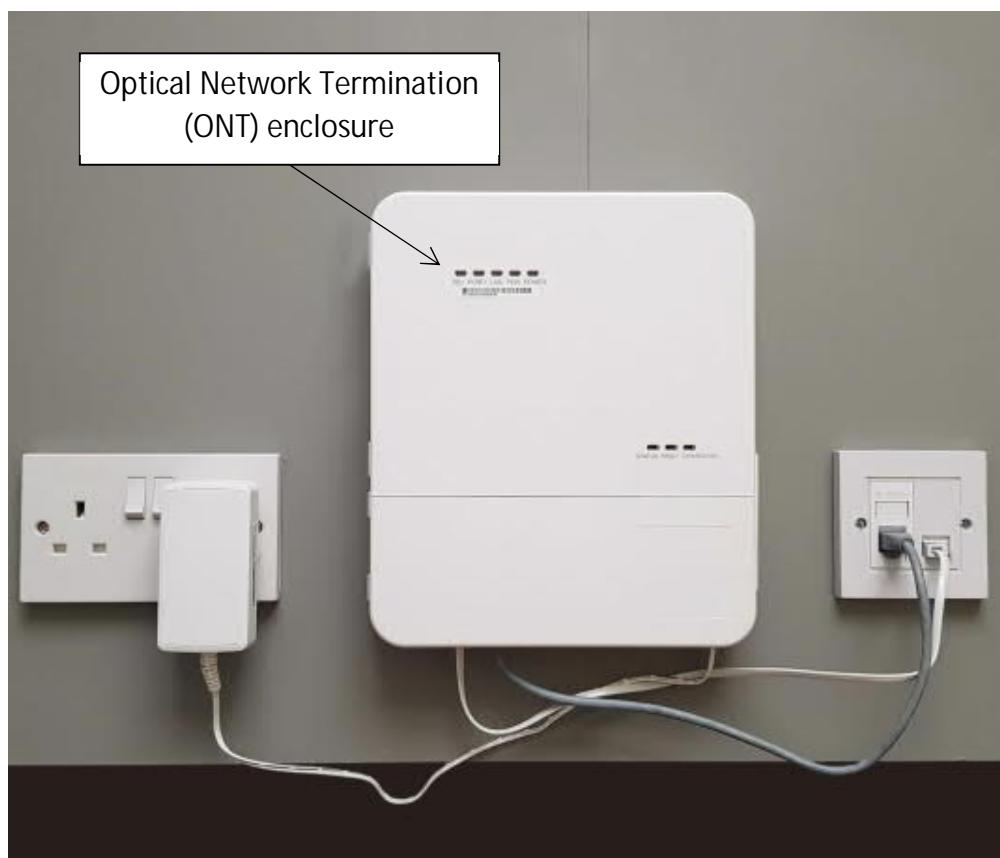


Figure 9.2 – Openreach FTTP Internal Equipment

Should the developer choose for Openreach to install the FTTP equipment, the ONT will be installed at the position of the incoming fibre cable, however, as previously discussed, the developer can choose to self-install the internal FTTP equipment at their preferred internal location within the dwelling. Where a developer opts to undertake the self-install of the internal equipment, Openreach will supply the ONT, BBU, and the required connectorised fibre cable.

Figure 9.3 below illustrates the simplest installation for the FTTP equipment in a domestic dwelling, where the ONT and associated equipment is located adjacent to the outside wall where the incoming fibre cable is located.

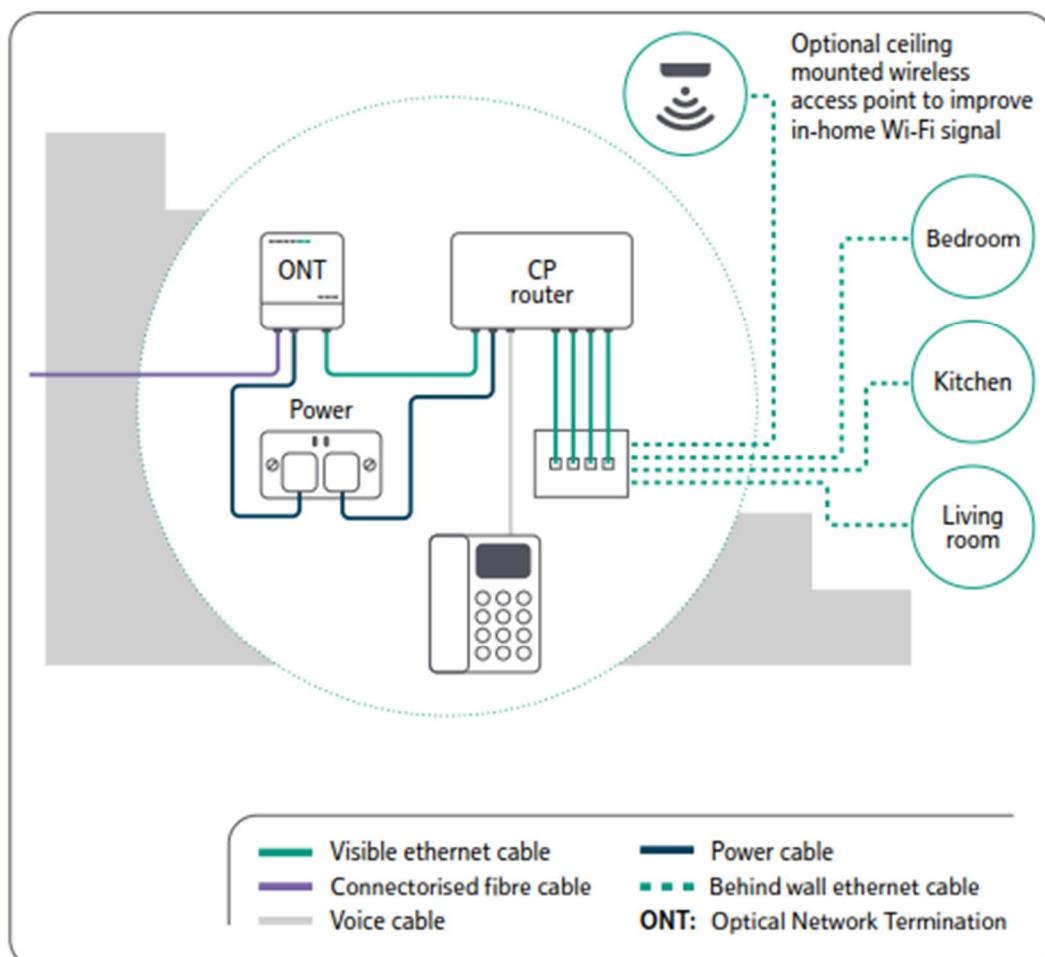


Figure 9.3 – Simple FTTP installation

Figure 9.4 below illustrates a typical example of a developer self-install for the internal equipment, where they have chosen to locate the ONT further inside the dwelling. Further examples of the options for the internal installation are provided within the Openreach Developer Guide for building a fibre network.

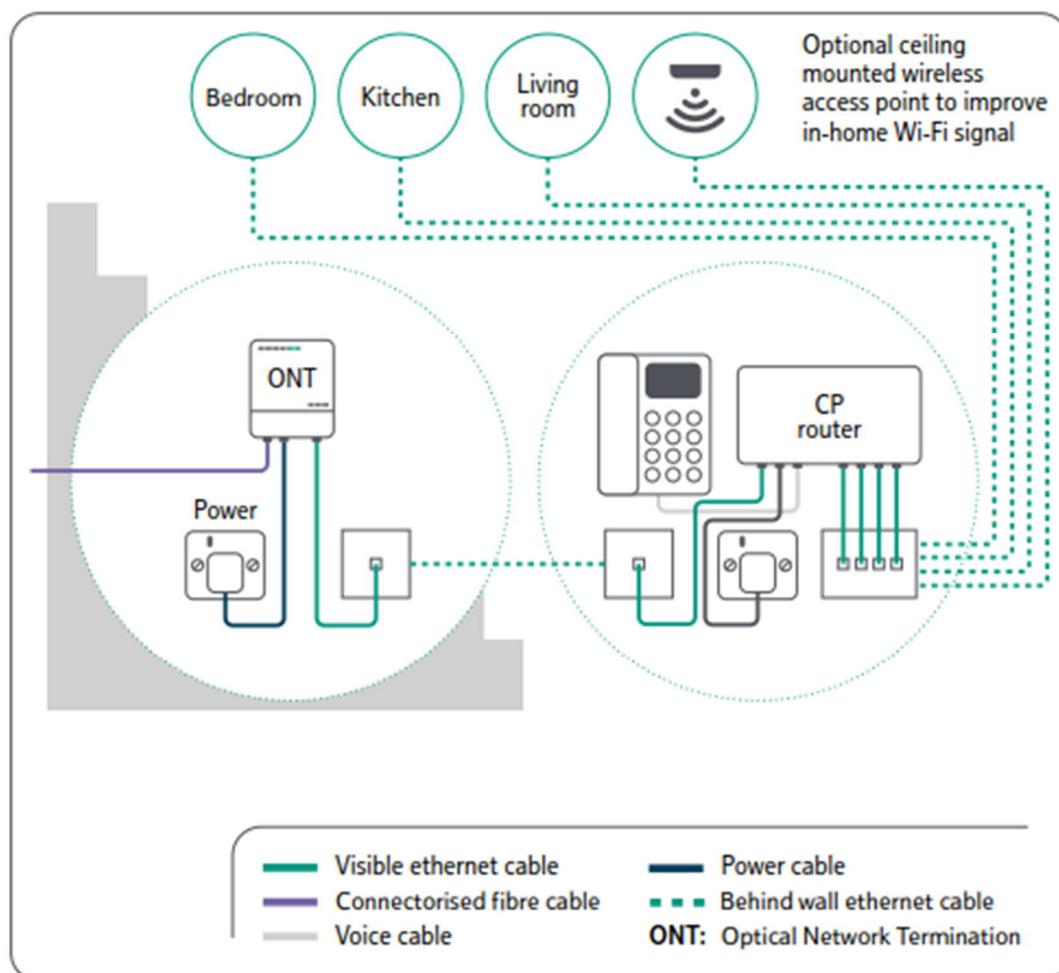


Figure 9.4 – Alternative Option for FTTP installation (DSI)

### 9.1.2 Diversions & Disconnections

Openreach infrastructure record indicates apparatus located within the adjacent side verge of the B1506 to the development site boundary. Provided no alterations are made to the line or level of the carriageway of the B1506 or the adjacent verge as part of the development proposals, it can be assumed that this apparatus will not be affected by the development to the extent diversionary works are required. Review of the final site layout plan, once available, will be required to confirm.

Openreach infrastructure record indicates a section of underground duct, cables, and associated apparatus routed along Sir Graham Kirkham Avenue, which is indicated as being located within the development site boundary. It can be assumed that this existing apparatus will be affected by the development proposals, and as this apparatus is proving a supply to 'Lanwades Hall' located adjacent to the development site a supply will need to be retained; however, the extent to which it may be affected and whether diversionary works will be required will need to be determined through review of the site masterplan, once available.

In advance of a site layout plan being available for review, a provisional sum of £90,000.00 is recommended for diversionary works based on a maximum diversion length of 200 metres along Sir Graham Kirkham Avenue. Please see Figure 9.5 overleaf for further detail on the indicated location of the existing apparatus.

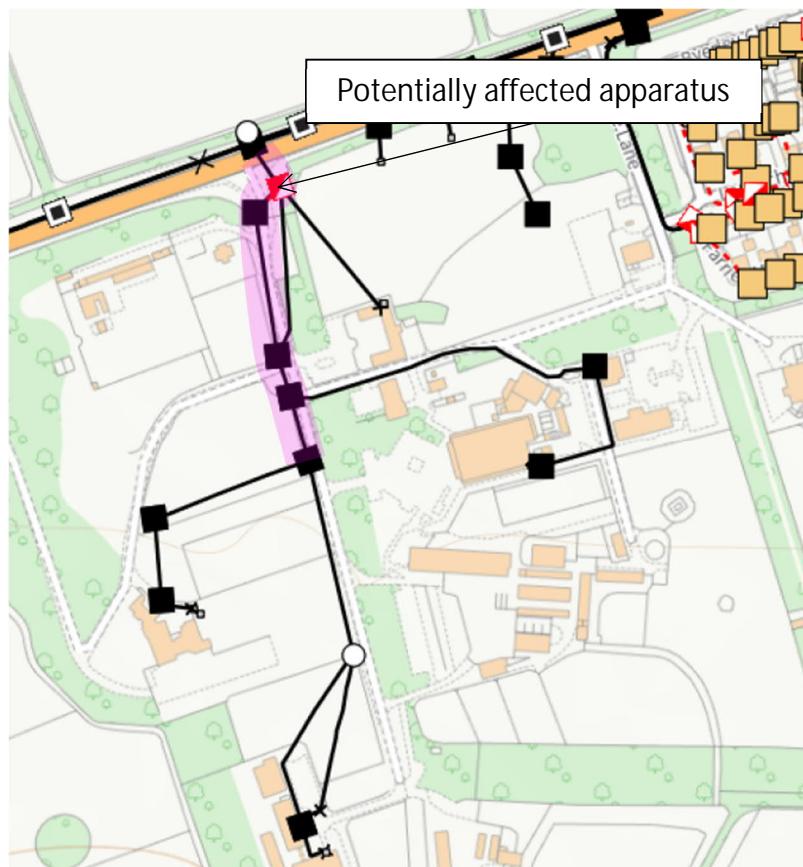


Figure 9.5 – Extract from Openreach infrastructure record

The development site is currently occupied by a number of units and, in the absence of a site layout plan, it is assumed that these units will require demolition to accommodate the development works. The Openreach infrastructure record indicates multiple sections of apparatus within the development site boundary supplying these units, which will require disconnection to clear site prior to the completion of demolition works. A provisional sum of £7,000.00 is recommended for disconnection works. Please see Figure 9.6 overleaf for further detail on the indicated location of the aforementioned apparatus.

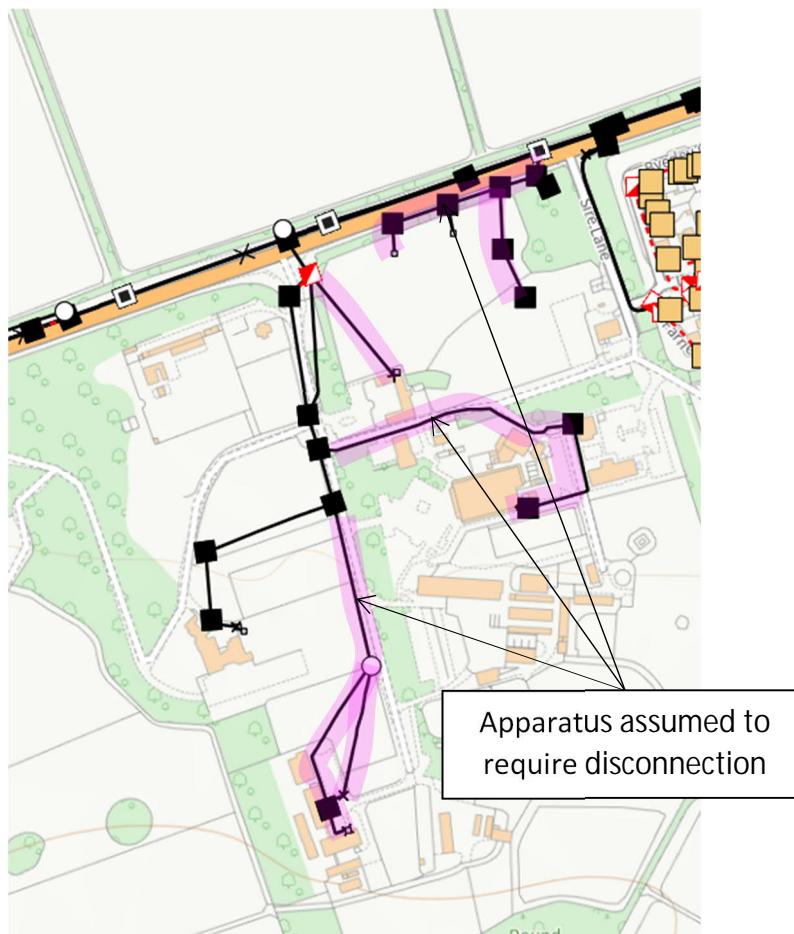


Figure 9.6 – Extract from Openreach infrastructure record

UCML recommend that Openreach is formally contacted in the early stages of the scheme for Openreach to provide a survey to determine the extent of any potential diversionary works and the associated costs. Openreach will need to undertake a site survey to produce a detailed estimate of works, and the provision of a site survey will be subject to payment of a survey fee. The survey fee is site specific and will be confirmed by Openreach following formal application for a quotation; however, a budget cost of £2,500.00 is recommended for the survey fee.

Please note, Openreach infrastructure records currently do not differentiate between copper and fibre optic cables, and as such the type of infrastructure within the ground cannot be determined by reviewing their statutory infrastructure records. Please note, the presence of fibre optic cables could multiply anticipated diversion costs significantly.

### 9.1.3 Conclusion – Cost & Risk Analysis

Costs relating to the reconfiguration of the existing Openreach distribution network are identified in the following table;

Detail	Cost
Connections	£Nil
Diversions	£90,000.00
Disconnects	£7,000.00
Survey Fees	£2,500.00
Total	£99,500.00

Table 9.1 – Openreach Costs

The main risks associated with the procurement of proposals and the required works are as follows;

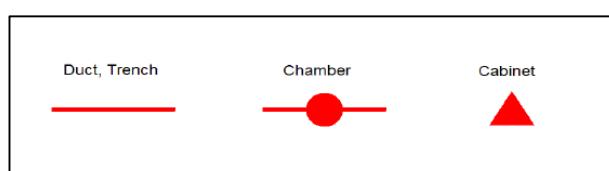
- Provisional sums have been applied based on previous projects of similar size and UCML's experience.
- Openreach infrastructure records currently do not differentiate between copper and fibre optic cables, and as such the type of infrastructure within the ground cannot be determined through desktop review of their statutory infrastructure records. Please note, the presence of fibre optic cables could multiply anticipated diversion costs significantly.

## 9.2 Virgin Media

Virgin Media has confirmed that they own and operate telecommunications apparatus in the vicinity of the development site. The Virgin Media network in the immediate vicinity of the site comprises of underground cables and associated apparatus. The figure below is an extract from Virgin Media records and details the current indicated position of existing infrastructure, however it may be prudent to undertake a below ground survey to ensure there are no unknown services which are not recorded. Please refer to the infrastructure record appended to this study for further detail.



Figure 9.7 – Existing Virgin Media Infrastructure



### 9.2.1 Virgin Media Connections

Should the developer require Virgin Media connections, UCML anticipates that the new development can be connected to the existing network through the extension of the existing Virgin Media network. If the Client requires a Virgin Media connection proposal, it is recommended they are consulted at the earliest appropriate opportunity to confirm they can extend their network to service the development site.

If a Virgin Media proposal can be provided, as part of the provision of new connections to the development, Virgin Media will undertake all off-site works to enable the required connections, however it will be the responsibility of the main contractor to undertake all on-site works as detailed by Virgin Media to their specification. Typically, the work undertaken by the developer will consist of laying all on-site duct (roped) and the installation of all on-site chambers as per the agreed layout provided by Virgin Media.

The contractor will also be required to install 1 no. Omni box at the cable exit point (external), install 1 no. external ground level termination box, install a minimum of 2 no. internal sockets at agreed locations and install Virgin Media faceplates over the connection points within each dwelling. If the specified works are completed by the contractor within agreed timescales and to the required standard, Virgin Media may provide a rebate payment of up to £125.00 per plot. The actual rebate payment will be agreed by the appointed New Build Officer on issue of the proposal.

Please note, Virgin Media networks are constructed as Closed Access Networks. The infrastructure installed within the development site as part of a Virgin Media installation can only be utilised by Virgin Media as the ISP, and cannot be utilised by any alternative ISP's.

### 9.2.2 Virgin Media - Diversions & Disconnections

Virgin Media infrastructure record indicates apparatus located within the adjacent side verge of the B1506 to the development site boundary. Provided no alterations are made to the line or level of the carriageway of the B1506 or the adjacent verge as part of the development proposals, it can be assumed that this apparatus will not be affected by the development to the extent diversionary works are required. Review of the final site layout plan, once available, will be required to confirm.

Virgin Media infrastructure record does not indicate any apparatus within the development site boundary that may be affected by on-site works.

### 9.2.3 Conclusion – Cost & Risk Analysis

Costs relating to the reconfiguration of the existing Virgin Media network are identified in the following table;

Detail	Cost
Connections	£Nil
Diversion	None currently anticipated (TBC)
Disconnects	None currently anticipated (TBC)
Total	£Nil

Table 9.2 – Virgin Media costs

The main risks associated with the procurement of proposals and the required works are as follows;

- Provisional sums have been applied based on previous projects of similar size and UCML's experience.
- Virgin Media networks are constructed as Closed Access Networks. The infrastructure installed within the development site as part of a Virgin Media installation can only be utilised by Virgin Media as the ISP, and cannot be utilised by alternative ISP's.
- Virgin Media infrastructure records currently do not differentiate between coaxial and fibre optic cables, and as such the type of infrastructure within the ground cannot be determined by reviewing their statutory infrastructure records. Please note, the presence of fibre optic cables could multiply anticipated diversion costs significantly.

### 9.3 Alternative Fibre Providers

Several alternative fibre providers operate nationally, who are able to provide Fibre to the Premise (FTTP) connections as an alternative to the standard option of the installation of an Openreach and/or Virgin Media telecommunications network.

Some alternative fibre providers can also offer installation of a Fibre Integrated Reception System (FIRS) which can deliver digital, terrestrial, and satellite TV, and digital radio direct to individual dwellings through a centrally located satellite dish and aerial array.

It should be noted that some alternative fibre providers will require exclusivity on a development site as part of the contract for installation, meaning only their infrastructure can be installed within the site boundary. This restricts the option for installing alternative fibre apparatus alongside Openreach and/or Virgin Media infrastructure. These alternative fibre networks are constructed as Open Access Networks, providing a choice of ISP to the end user. However, there can be restrictions as to which ISP's can operate on certain networks which would need to be considered prior to proceeding with an alternative fibre network installation.

Alternatively, there are several alternative fibre providers who do not require exclusivity for installation and so can be installed on a development site in addition to Openreach and/or Virgin Media networks to provide a greater selection of choice to end users. These providers can also utilise Openreach proposed duct layout routes for installing their equipment which negates the duplication of physical infrastructure on a development site.

## 10.0 Other

In addition to the statutory network operators operating within the vicinity of the development site, UCML has contacted several Independent Distribution Networks Operators (IDNOs), Independent Gas Transporters (IGTs), telecommunications providers, pipeline operators, and other third parties who own and operate apparatus nationwide to determine whether any apparatus is located within the vicinity of the development site.

The companies contacted, and their associated response, are summarised within Table 10.2 overleaf. Please refer to the key provided below for further detail on the definitions used.

Table Key	Definition
Affected	Utility apparatus is indicated as being located within the vicinity of the development site.
Not Affected	Utility apparatus is not indicated as being located within the vicinity of the development site.
No Response	No response has been received from the utility provider to date.
Desk Research	Any response determined from desktop research is indicated in this column. This indicates utility infrastructure records have been obtained in house using mapping software provided by the relevant utility provider.

Table 10.1 – Plant Enquiry Response Key

Utility	Company	Desk Research	Affected (date issued)	Not Affected (date issued)	No Response
IDNO	Engie				21/12/2022
IDNO	Leep Utilities			24/10/2022	
IDNO	Utility Assets				21/12/2022
IDNO	Eclipse Power Networks Ltd			24/10/2022	
IDNO	G2 Energy				21/12/2022
IGT	BBL Company				21/12/2022
IGT	GTC*	✓	20/10/2022		
IGT	Indigo Pipelines				21/12/2022
IGT	Interconnector UK LTD				21/12/2022
Comms	Arqiva				21/12/2022
Comms	Arelion (formerly Telia Carrier)	✓		20/10/2022	
Comms	Cityfibre	✓		20/10/2022	
Comms	Colt (CA Telecom)			14/11/2022	
Comms	Instalcom**			27/10/2022	
Comms	Interoute (Plancast)				21/12/2022
Comms	McNicholas (TATA)				21/12/2022
Comms	Mobile Broadband Network LTD				21/12/2022
Comms	Sky UK LTD			25/10/2022	
Comms	SOTA			25/10/2022	
Comms	Spectrum Communications				21/12/2022
Comms	Telent			21/10/2022	
Comms	Verizon			27/10/2022	
Comms	Vodafone			27/10/2022	
Transport	National Highways			02/11/2022	
Transport	Network Rail			21/10/2022	
Transport	Traffic Master				21/12/2022
Other	Mastdata.com (Mobile Phone Masts)	✓		20/10/2022	

Table 10.2 – Plant Enquiry Responses

\*Note GTC includes: GTC Pipelines Ltd, Independent Pipelines Ltd, Quadrant Pipelines Ltd, Electricity Network Company Ltd, Independent Power Networks Ltd, Independent Water Networks Ltd, Independent Fibre Networks Ltd, and Independent Community Heating Ltd.

\*\* Instalcom includes: Lumen Technologies (formerly CenturyLink Communications UK Limited, Level 3, Global Crossing (UK) Ltd, Global Crossing PEC, Fibernet UK Ltd and Fibrespan Ltd.

## Optional Searches

Some utility providers are rarely confirmed to be in the vicinity of infrastructure record searches and are therefore only included within the search upon request, as the charge per enquiry is disproportionate to the number of affected responses received. Please advise UCML if you would like to include these additional searches at an additional cost. These optional searches are as follows;

Optional Searches		
IDNO	Harlaxton	Approximate cost £35 (plus VAT)
IDNO	UK Power Distribution	Cost ranges from £9 - £95 (plus VAT) subject to site size
Comms	Vtesse	Approximate cost £55 (plus VAT)

Table 10.3 – Optional Searches

## LinesearchbeforeUDig

Several asset owners are registered with LinesearchbeforeUDig (LSBUD), an online service used to review the location of utility assets in relation to a development site location. UCML has undertaken an LSBUD search for this development site, and the response is shown in Figure 10.1 below.

**LSBUD Members who have assets registered on the LSBUD service within the vicinity of your search area.**

List of affected LSBUD members			
Asset Owner	Phone/Email	Emergency Only	Status
Cadent Gas	0800688588	0800111999	Await response
UK Power Networks	08000565866	08000565866	Await response

**LSBUD Members who do not have assets registered on the LSBUD service within the vicinity of your search area. Please be aware that LSBUD Members make regular changes to their assets and this list may vary for new enquiries in the same area.**

List of not affected LSBUD members		
Angus Energy	AWE Pipeline	B & D Energy Limited
Balfour Beatty Investments Limited	BOC Limited (A Member of the Linde Group)	Box Broadband
BP Exploration Operating Company Limited	BPA	Carrington Gas Pipeline
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 Abandoned Pipelines)
DIO (MOD Live Pipelines)	E.ON UK CHP Limited	EirGrid
Eleclink Limited	Electricity North West Limited	Energy Assets Networks
ENI & Himor c/o Penspen Ltd	EnQuest NNS Limited	EP Langage Limited
ESP Utilities Group	ESSAR	Esso Petroleum Company Limited
euNetworks Fiber UK Ltd	EXA Infrastructure	Exolim Pipeline System
Fulcrum Electricity Assets Limited	Fulcrum Pipelines Limited	Gamma
Gas Networks Ireland (UK)	Gateshead Energy Company	Gigadear Ltd
Harbour Energy	Heathrow Airport LTD	Humbly Grove Energy
IGas Energy	INEOS FPS Pipelines	INEOS Manufacturing (Scotland and TSEP)
INOVYN ChlorVinyls Limited	INOVYN Enterprises Limited	Intergen (Corbyton Energy or Spalding Energy)
Jurassic Fibre Ltd	Last Mile	Mainline Pipelines Limited
Manchester Jetline Limited	Manx Cable Company	Marchwood Power Ltd (Gas Pipeline)
Melbourn Solar Limited	Moray East Offshore Windfarm	Murphy Utility Assets
National Grid Electricity Distribution	National Grid Electricity Transmission	National Grid Gas Transmission
Neos Networks	Northumbrian Water Group	NPower CHP Pipelines
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	Premier Transmission Ltd (SNIP)	Redundant Pipelines - LPDA
RWE - Great Yarmouth Pipeline (Bacton to Great Yarmouth Power Station)	RWEpower (Little Barford and South Haven)	SABIC UK Petrochemicals
SAS Utility Services Ltd	Scottish and Southern Electricity Networks	Scottish Power Generation
Seabank Power Ltd	SES Water	SGN
Shell	Shell NOP	SP Energy Networks
Squire Energy Networks	SSE Generation Ltd	SSE Transmission
SSE Utility Solutions Limited	Tata Communications (c/o JSM Construction Ltd)	Total Cribrook Pipelines
Total Finaline Pipelines	Transmission Capital	Uniper UK Ltd
University of Cambridge Granta Backbone Network	Vattenfall	Veolia ES SELCHP Limited
Veolia ES Sheffield Ltd	Voneus Limited	VPI Power Limited
Wales and West Utilities	West of Duddon Sands Transmission Ltd	Westminster City Council
Zayo Group UK Ltd c/o JSM Group Ltd		

Figure 10.1 – LSBUD search result

### 10.1 GTC

GTC are an IDNO and IGT that own and operate independent inset electricity and gas networks nationwide. GTC has advised that they own and operate an electricity network in the vicinity of the development site which supplies the adjacent housing development located off Sire Lane on Larnarch Drive and Bryerley Close. Based on the location of the GTC mains, and assuming no development works will encroach within the boundary of this adjacent development, it can be assumed that this apparatus will not be affected by the development proposals. Review of the proposed site layout plan, once available, will be required to confirm.

## 11.0 Conclusion

Based on the information currently available for review, the existing utility infrastructure within the vicinity of the development site appears to be capable of supporting the additional demand required to provide connections for the proposed development. As discussed within the study, UCML has undertaken capacity checks with the relevant statutory network operators who have provided confirmation that the existing gas and telecoms services in the wider vicinity of the development site currently have sufficient capacity to serve the development. However, as noted within the relevant section of the study, significant off-site gas mains lay will be required to utilise the provided connection point.

As discussed within the study, UCML has undertaken capacity checks with the relevant statutory network operators who have provided confirmation that the existing electricity and clean water networks in the vicinity of the development are not currently able to support the additional demand required to provide connections for the proposed development. As discussed within the body of the utility study, it is anticipated that network reinforcement works will be required to provide the required capacity to service the development site. It is recommended that formal applications are made to the relevant statutory network operators to identify the extent and costs associated with any required network reinforcement works.

Figure 11.1 overleaf indicates the locations of the points of connection provided by the statutory utility operators in relation to this development.



Figure 11.1 – Aerial Image indicating position of points of connection

The above figure includes indicative routes from the points of connection to the development site, which have been included for information and guidance only, and are subject to change. The final routes of utility apparatus to the development site will be provided by the relevant appointed utility provider and are subject to design approval from the adopting network owner, highway authority or landowner and the completion of relevant legal searches.

Based on the information provided by the relevant network operators, no abnormal legal requirements are currently anticipated to utilise the proposed electricity or clean water connection points as they are located within publicly adopted land. Figures 11.2 and 11.3 overleaf are extracted from the FindMyStreet adopted road mapping service confirming the above.

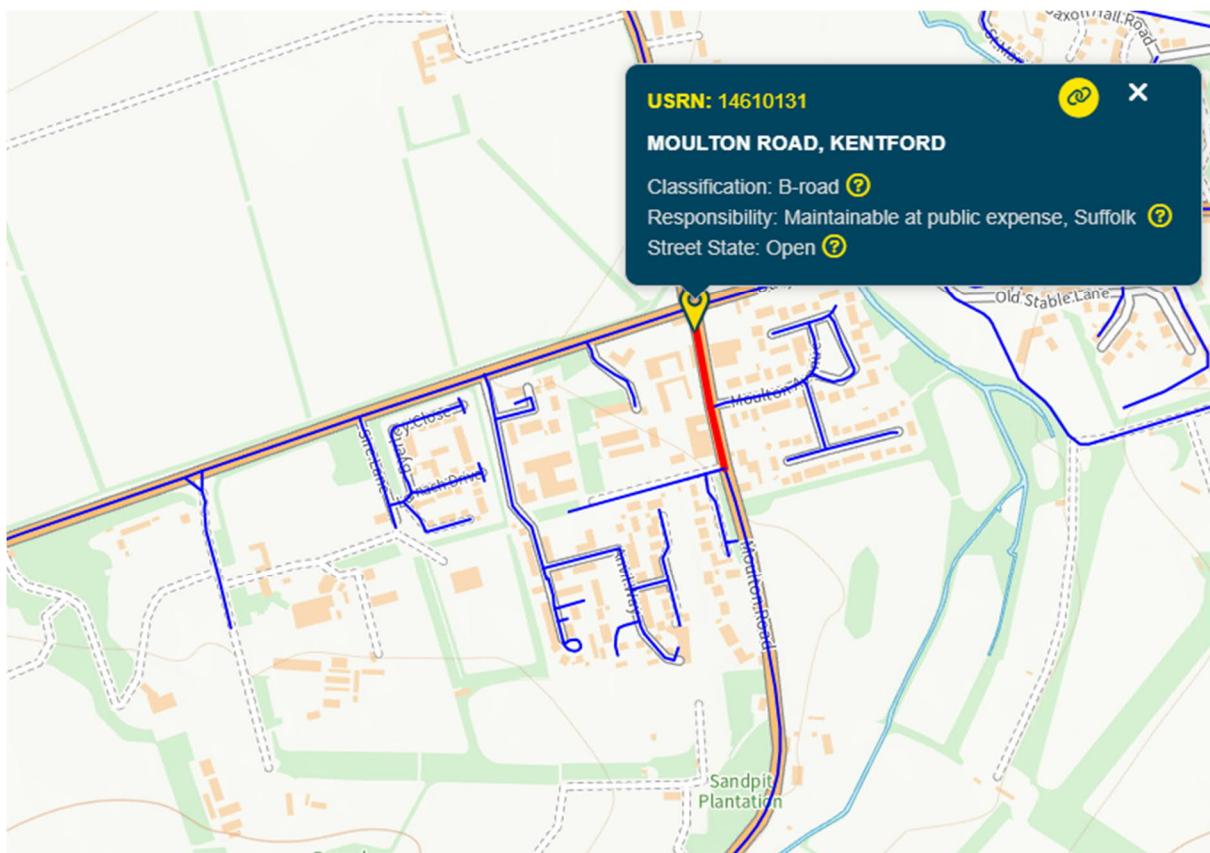


Figure 11.2 – FindMyStreet Search (Moulton Road)

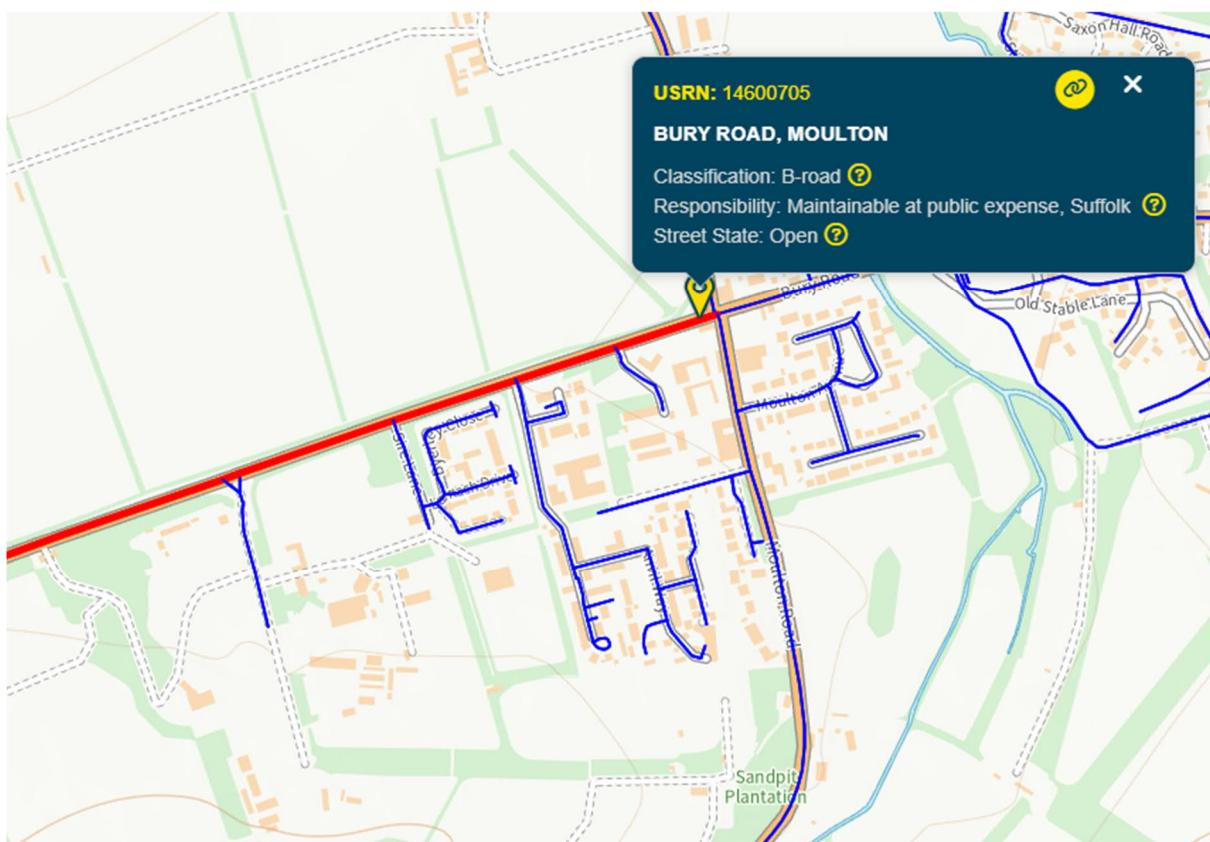


Figure 11.3 – FindMyStreet Search (Bury Road)

Based on the information provided by Cadent Gas in regards to the location of the proposed gas point of connection, UCML anticipate that legal agreements such as wayleaves or easements may be required with third party landowners as the road where the POC is located is not adopted and is a private access road; therefore, legal agreements will be required to utilise the connection point. It may be possible that an alternative point of connection is available within publicly adoptable land, however this may be located a further distance from the development site which may increase off-site mains laying costs. To utilise the provided point of connection, it is recommended that following acceptance of a connection proposal, negotiations with all parties' solicitors are commenced at the earliest opportunity to mitigate any potential delays. Figure 11.4 below is extracted from the FindMyStreet adopted road mapping service confirming the above.

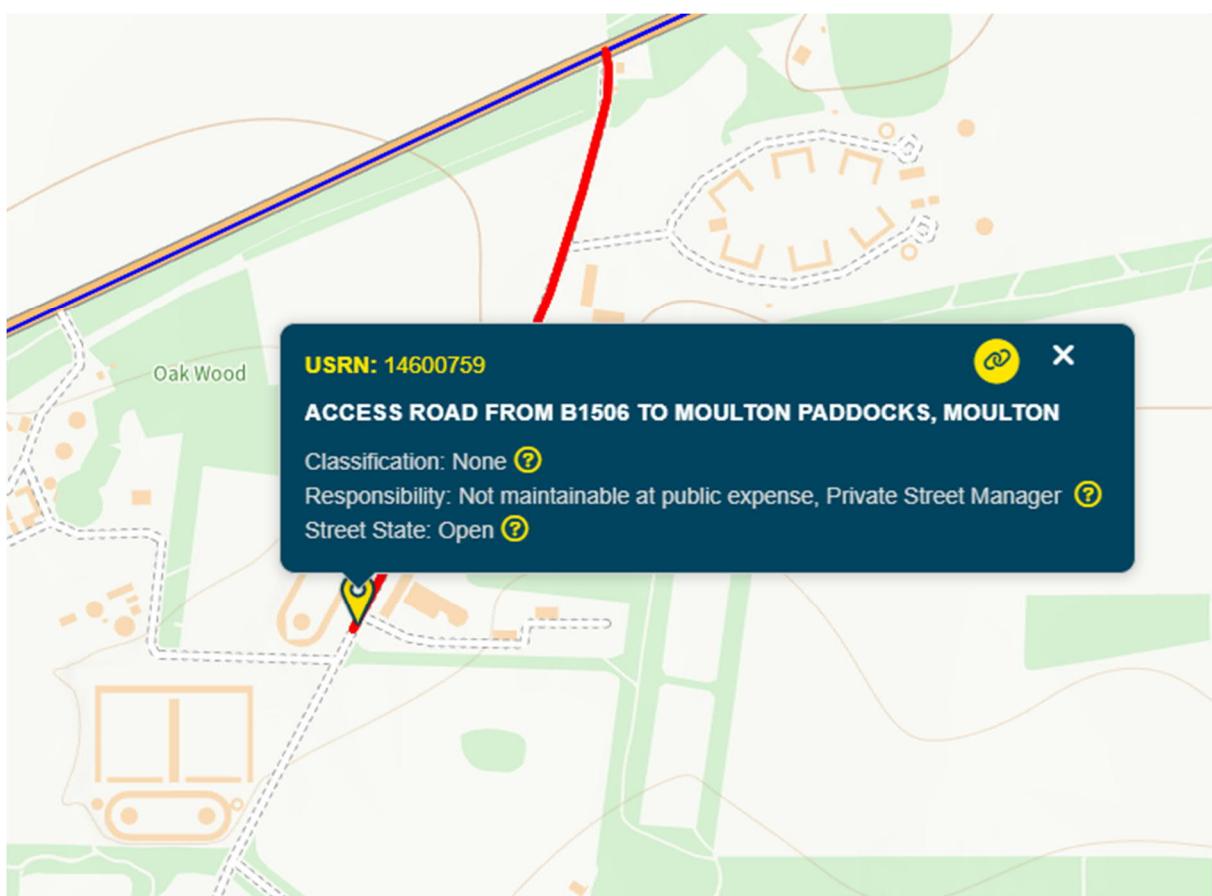


Figure 11.4 – FindMyStreet Search

The connection costs provided in the main body of the report are based on individual utility connection proposals being accepted. It may be possible to undertake the connections works as part of a multi utility offering which can combine the installation of electricity, gas, water, and telecoms under a single works contract. For some sites, the appointment of a multi utility provider may be more cost-effective option for the connections.

## 12.0 Risk Matrix

Based upon the anticipated utility works required for this development discussed within this study, UCML has drawn up an indicative risk matrix for the development. For the risk matrix, each item is allocated a 'traffic light' score based on the anticipated risk to the development and associated timescales based on the key shown below.

Matrix Key	
<span style="background-color: green; width: 15px; height: 15px; display: inline-block;"></span>	Do not envisage any major issues.
<span style="background-color: yellow; width: 15px; height: 15px; display: inline-block;"></span>	Could cause delay that can be measured in weeks, and can also be prevented.
<span style="background-color: orange; width: 15px; height: 15px; display: inline-block;"></span>	Could cause delay that can be measured in months, and may be prevented.
<span style="background-color: red; width: 15px; height: 15px; display: inline-block;"></span>	Could cause major delay, that may not be mitigated.
Utility	Risk
Electricity	
Connection Works – 11 kV HV POC and network reinforcement works, off-site and on-site 11 kV HV mains lay, installation of on-site secondary substations, installation of on-site LV network, and installation of LV service connections to each dwelling.	<span style="background-color: red; width: 15px; height: 15px; display: inline-block;"></span>
Diversionary Works – Relocation of secondary substation (if required) and diversion of 11 kV HV cables.	<span style="background-color: red; width: 15px; height: 15px; display: inline-block;"></span>
Disconnection Works – No statutory disconnection works currently anticipated; however, private network may require disconnection by a suitably accredited contractor.	<span style="background-color: red; width: 15px; height: 15px; display: inline-block;"></span>
Gas	
Connection Works – Off-site LP mains lay, on-site LP mains lay, and installation of LP service pipes to 50 no. dwellings.	<span style="background-color: red; width: 15px; height: 15px; display: inline-block;"></span>
Diversionary Works – None required.	<span style="background-color: red; width: 15px; height: 15px; display: inline-block;"></span>
Disconnection Works – None required.	<span style="background-color: red; width: 15px; height: 15px; display: inline-block;"></span>
Water	
Connection Works – Off-site network reinforcement works, of-site mains lay, on-site mains lay, and installation of service connection to each dwelling.	<span style="background-color: red; width: 15px; height: 15px; display: inline-block;"></span>
Diversionary Works – Relocation of 2 no. hydrants and mains reconfiguration.	<span style="background-color: red; width: 15px; height: 15px; display: inline-block;"></span>
Disconnection Works – No statutory disconnection works currently anticipated; however, private network may require disconnection by a suitably accredited contractor.	<span style="background-color: red; width: 15px; height: 15px; display: inline-block;"></span>
Telecoms – Openreach	
Connection Works – FTTP connections to each dwelling.	<span style="background-color: orange; width: 15px; height: 15px; display: inline-block;"></span>
Diversionary Works – Diversion of underground apparatus, if required.	<span style="background-color: orange; width: 15px; height: 15px; display: inline-block;"></span>
Disconnection Works – Disconnection of apparatus to clear site prior to demolition.	<span style="background-color: orange; width: 15px; height: 15px; display: inline-block;"></span>
Telecoms – Virgin Media	
Connection Works – Connection to each dwelling.	<span style="background-color: yellow; width: 15px; height: 15px; display: inline-block;"></span>
Diversionary Works – None currently anticipated.	<span style="background-color: yellow; width: 15px; height: 15px; display: inline-block;"></span>
Disconnection Works – None currently anticipated.	<span style="background-color: yellow; width: 15px; height: 15px; display: inline-block;"></span>

Table 12.1 – UCML Risk Matrix

## 13.0 Street Works UK

Existing and new utilities are assumed to be located in accordance with the Street Works UK (formerly the National Joint Utility Group) guidelines. However, in reality, existing utilities are often not laid to these guidelines. Where new road entrances are being formed it is recommended that trial hole investigations are carried out to verify the precise position and depth of infrastructure. In some cases, if the utility infrastructures are sufficiently deep, this may enable the extent and cost of diversions to be reduced.

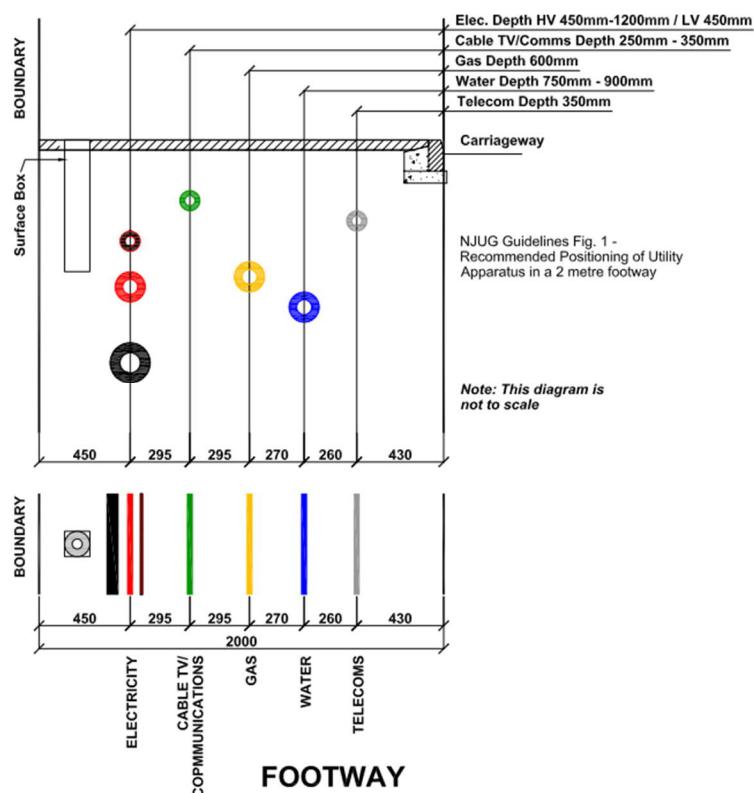
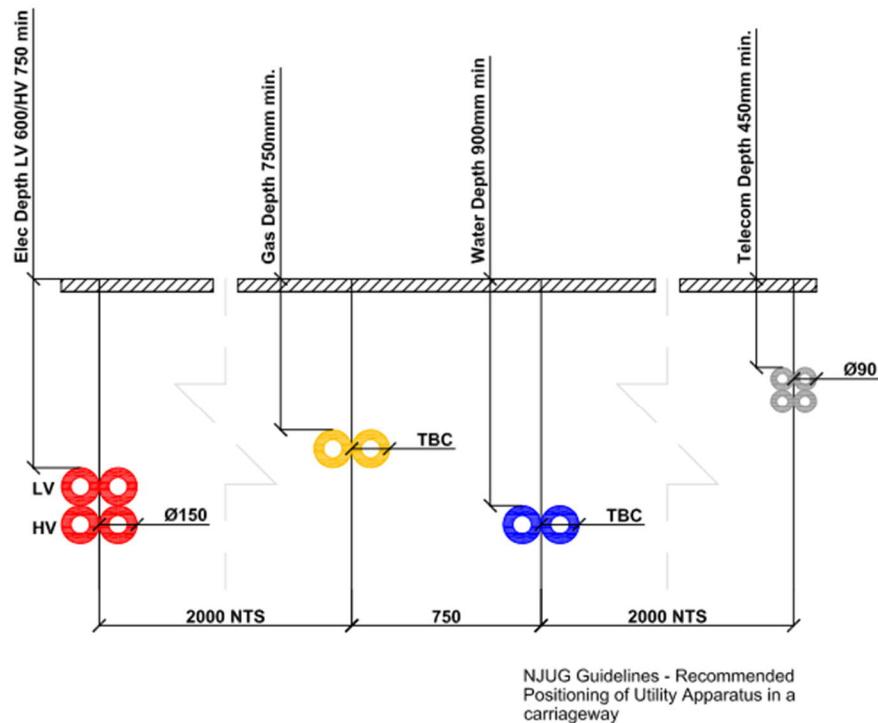


Figure 13.1 – Recommended positioning of utility apparatus in a footpath

The position and depths of underground and overhead apparatus as indicated on infrastructure records included within the utility study are approximate and may deviate from the marked route. The plan information shown is given without warranty and is derived from statutory network information provided by others. The accuracy thereof must not be relied upon in the event of any development or works without further below ground investigations taking place.



## CARRIAGEWAY

Figure 13.2 – Recommended positioning of utility apparatus in carriageway

When on-site, the contractor must use safe digging practices, in accordance with HSG 47, to verify and establish the actual position of mains, pipes, services, and any other apparatus on-site before any mechanical plant is used. The responsibility for locating the apparatus precisely before commencing any works rests entirely upon the person undertaking or directly responsible for those works.

The Contractor is to refer to the following documents before works commence within the vicinity of existing services;

- Health and Safety Guidance HSG 47 Avoiding Dangers from Underground Services.
- Health and Safety Guidance GS6 Avoiding Danger from Overhead Electric Lines.
- Street Works UK (formerly NJUG) Guidelines.
- General Safety Measures to Avoid Injury and Damage to Gas Apparatus.
- CDM Regulations 2015 (Regulation 25 – Energy Distribution Installations).

This desktop utility study covers statutory infrastructures surrounding the site. All information has been taken from the records of the statutory authorities and although this information is the most accurate available it may be prudent to undertake trial excavations in strategic locations to definitively determine the depth and location of infrastructure. Utility Providers Networks are constantly under review and subject to applications from other parties and the capacities and loads currently available may be subject to change.

The costs provided are advised as a predicted worst-case scenario of the foreseeable works. However, as these are only budget figures the actual costs entailed will not be determined until detailed proposals are received from the owners of the infrastructure.

Prepared by:

Joanne Blackburn BA (Hons) – Technical Manager  
Utilities Connections Management Ltd.

Checked by:

Casey Watmore – Technical Coordinator  
Utilities Connections Management Ltd.

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No individual is personally liable in connection with the preparation of this Desktop Utility Study. By receiving this study and acting on it, the client or any other person accepts that no individual is personally liable whether in contract, tort, for breach of statutory duty or otherwise.

Completeness – Due care and effort is made to locate all Utility companies in a search area, however, due to the existence of redundant utilities, emergence of new companies and the combining of, takeover or sale of existing companies, UCML cannot guarantee to provide details on all utilities in a given area.

There may be a time delay between the physical installation, repair or upgrading of utilities networks and the subsequent recording of the works on utility infrastructure records. Therefore, it should be noted there may be utilities present that are not shown on the records.

## 14.0 Further UCML Services

### Technical Procurement

UCML's technical procurement service deals with the obtaining of capacity checks as well as disconnection, diversion, connection, service alteration and temporary supply quotations. These include electricity, gas, clean water, and telecom supplies for all forms of residential, commercial, and industrial developments. Use of our technical procurement services can result in;

- Considerable cost savings.
- Reduced overheads.
- Reduced timescales.
- Reduced delays.
- Reduced time expenditure.
- Removal of provisional sums from tender submissions.

The services provided by UCML's Technical Procurement service includes;

- Review of proposed meter positions to ensure technical and regulatory viability.
- Application for:
  - Existing statutory infrastructure records.
  - Disconnection quotations including meter removals where required.
  - Statutory infrastructure diversion quotations.
  - Temporary building supplies.
  - New connections quotations.
  - Legal searches including easement, wayleaves, and Land Registry title searches.
- Technical review of all quotations received including technical and commercial comparison across all competing quotes.
- Submission of successful quotations for acceptance.
- Single point of contact for project administration, and an assigned Technical Engineer to each scheme.

## Project Management

UCML's Project Management service deals with the project management of disconnections, diversions, connections, service alterations, capacity checks and temporary supply installations for all forms of residential, commercial, and industrial developments. Our Project Management team can work in conjunction with our Technical Procurement service or as a stand-alone offering to manage the delivery of all electricity, gas, clean water, and telecom works. Use of our Project Management service can result in:

- Improved program planning accuracy.
- Reduced time expenditure.
- Reduced abortive visit charges.
- Reduced delivery timescales and as a result less delays.

The services provided by UCML's Project Management service includes;

- Management of statutory connections from quotation acceptance to completion.
- Assigned Project Manager to the scheme to provide a single point of contact for site staff, and attend site meetings and design team meetings as required.
- Provision of a site pack including existing and proposed drawings and relevant technical information relating to dimensions and layout of metering enclosures.
- Management of legal agreements required including wayleaves, easements, and adoption agreements.
- Programming of all mains, connections, and metering works through proactive communication with site staff.

## Appendices

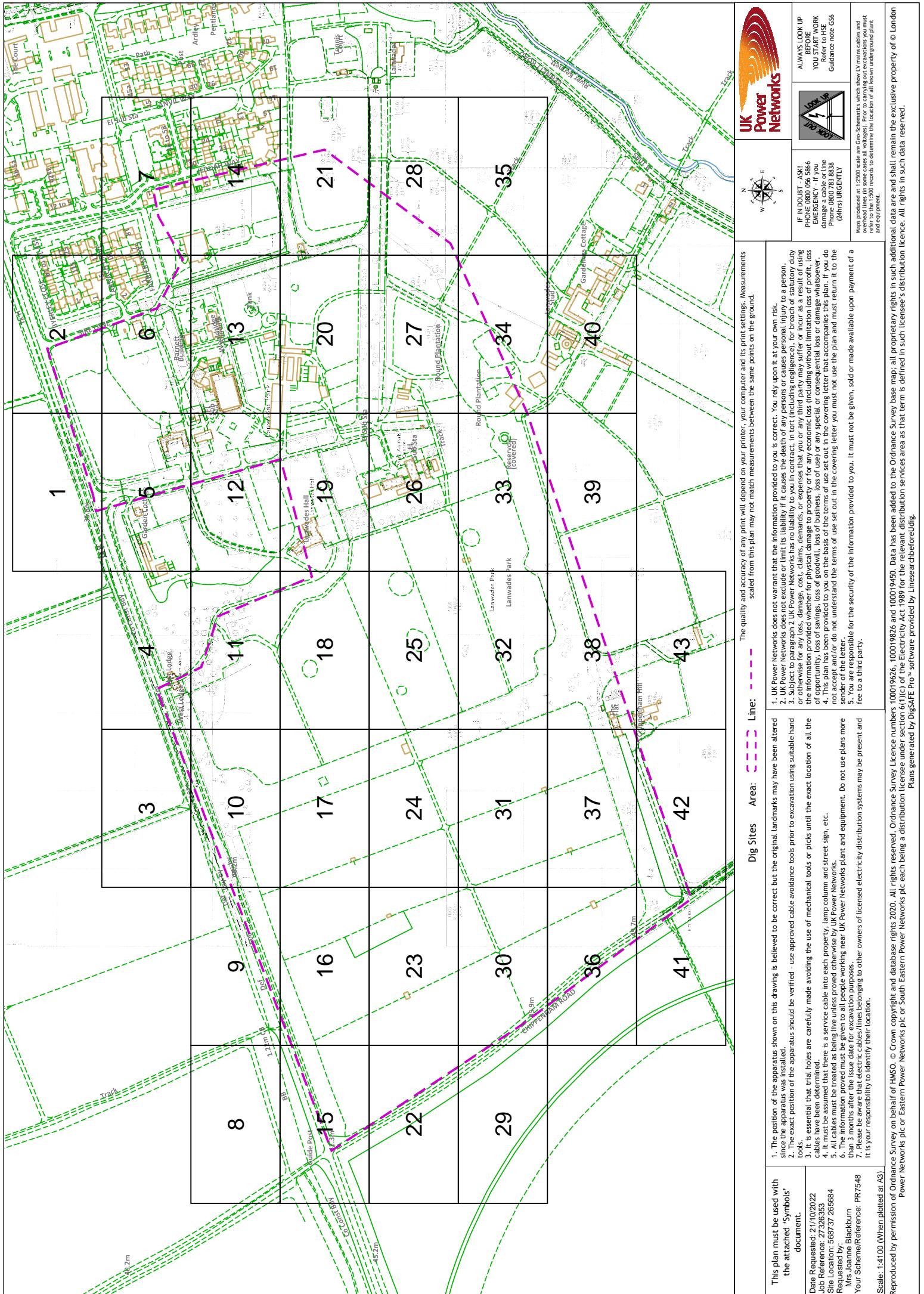
Appendix 1 – UK Power Networks Infrastructure Plan

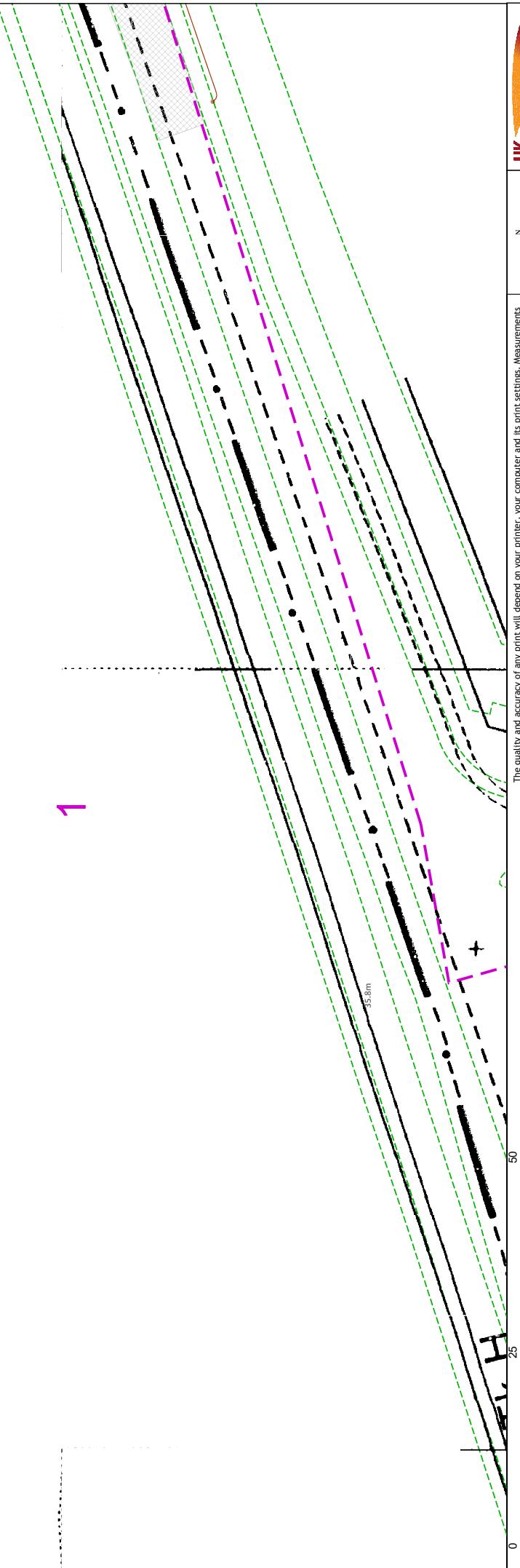
Appendix 2 – Cadent Gas Infrastructure Plan

Appendix 3 – Anglian Water Infrastructure Plan

Appendix 4 – Openreach Infrastructure Plan

Appendix 5 – Virgin Media Infrastructure Plan





This plan must be used with the attached 'Symbols' document.

Date Requested: 2/10/2022  
Site Location: 568737 285884  
Requested by:  
Mrs Joanne Blackburn  
Your Scheme Reference: PR7548  
7. Please be aware that electric cables/lines belonging to other owners of licensed electricity distribution systems may be present and it is your responsibility to identify their location.

1. The position of the apparatus shown on this drawing is believed to be correct but the original landmarks may have been altered since the apparatus was installed.
2. The exact position of the apparatus should be verified using approved cable avoidance tools prior to excavation using suitable hand tools.
3. It is essential that trial holes are carefully made avoiding the use of mechanical tools or picks until the exact location of all the cables have been determined.
4. It must be assumed that there is a service cable in each property, lamp column and street sign, etc.
5. All cables must be treated as being live unless proved otherwise by UK Power Networks.
6. The information provided must be given to all people working near UK Power Networks plant and equipment. Do not use plans more than 3 months after the issue date for excavation purposes.
7. Please be aware that electric cables/lines belonging to other owners of licensed electricity distribution systems may be present and it is your responsibility to identify their location.

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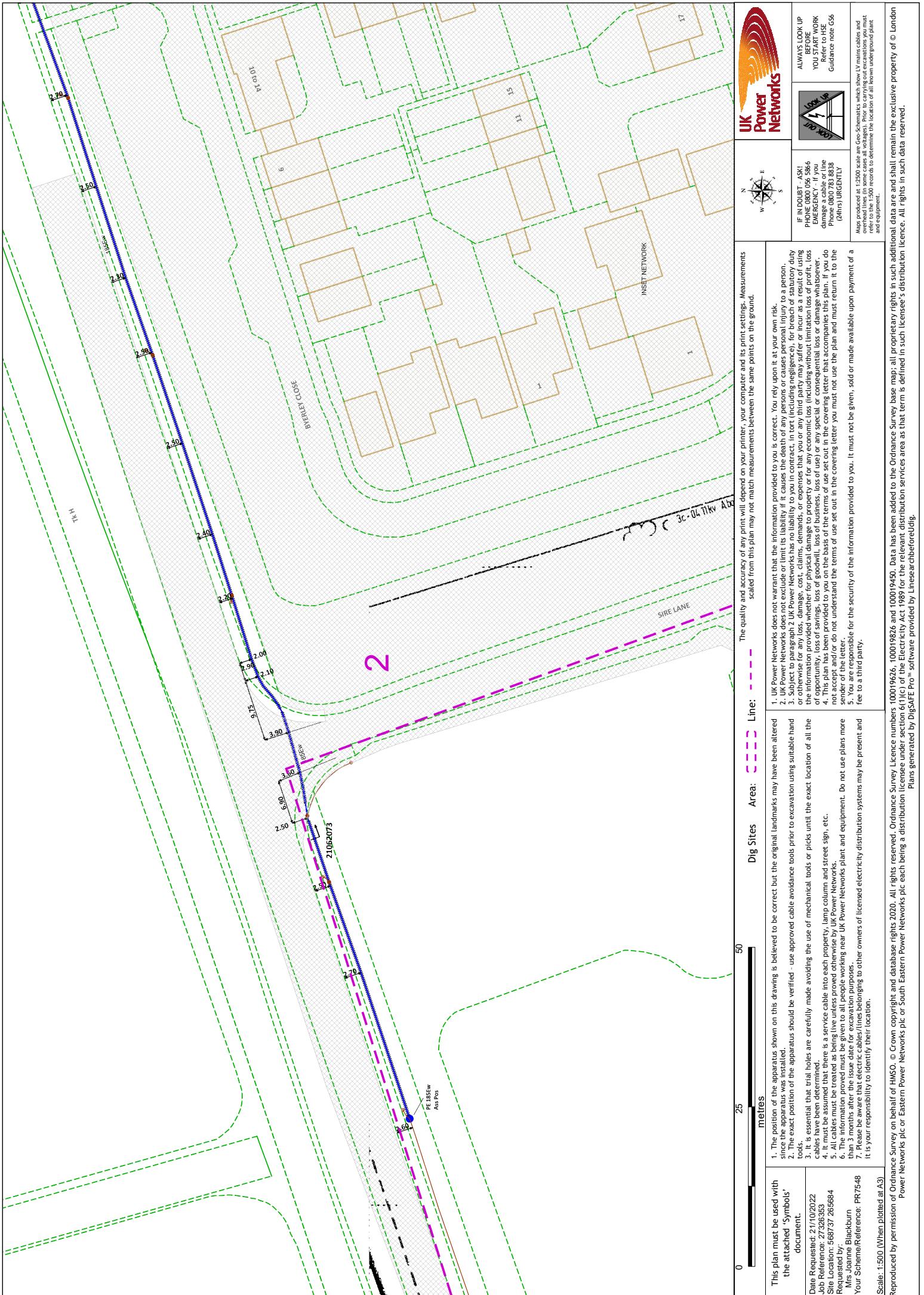


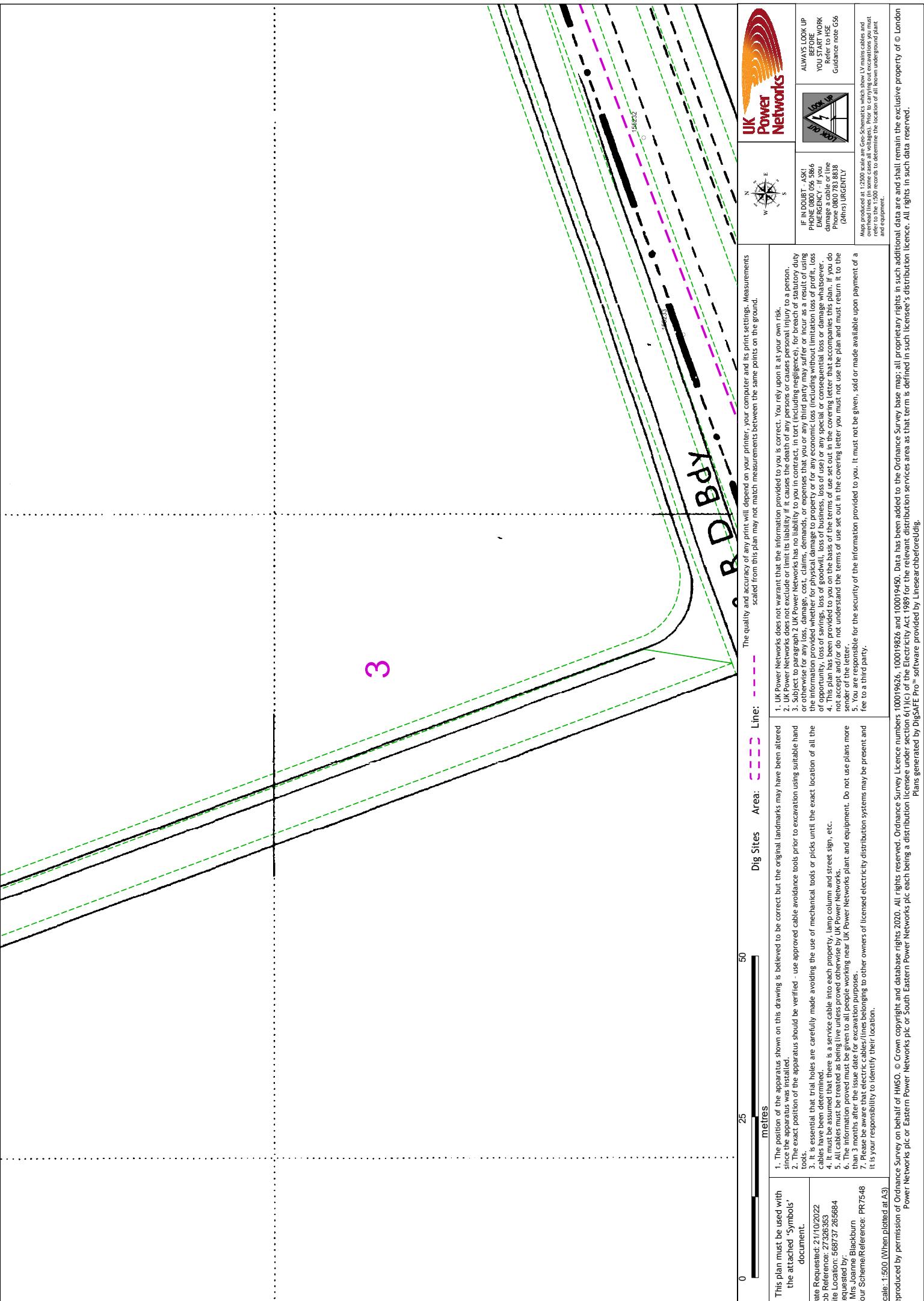
IF IN DOUBT - ASK!  
PHONE 0800 059 5866  
EMERGENCY - If you  
damage a cable or line  
Phone 0800 783 8388  
(24hrs) URGENTLY

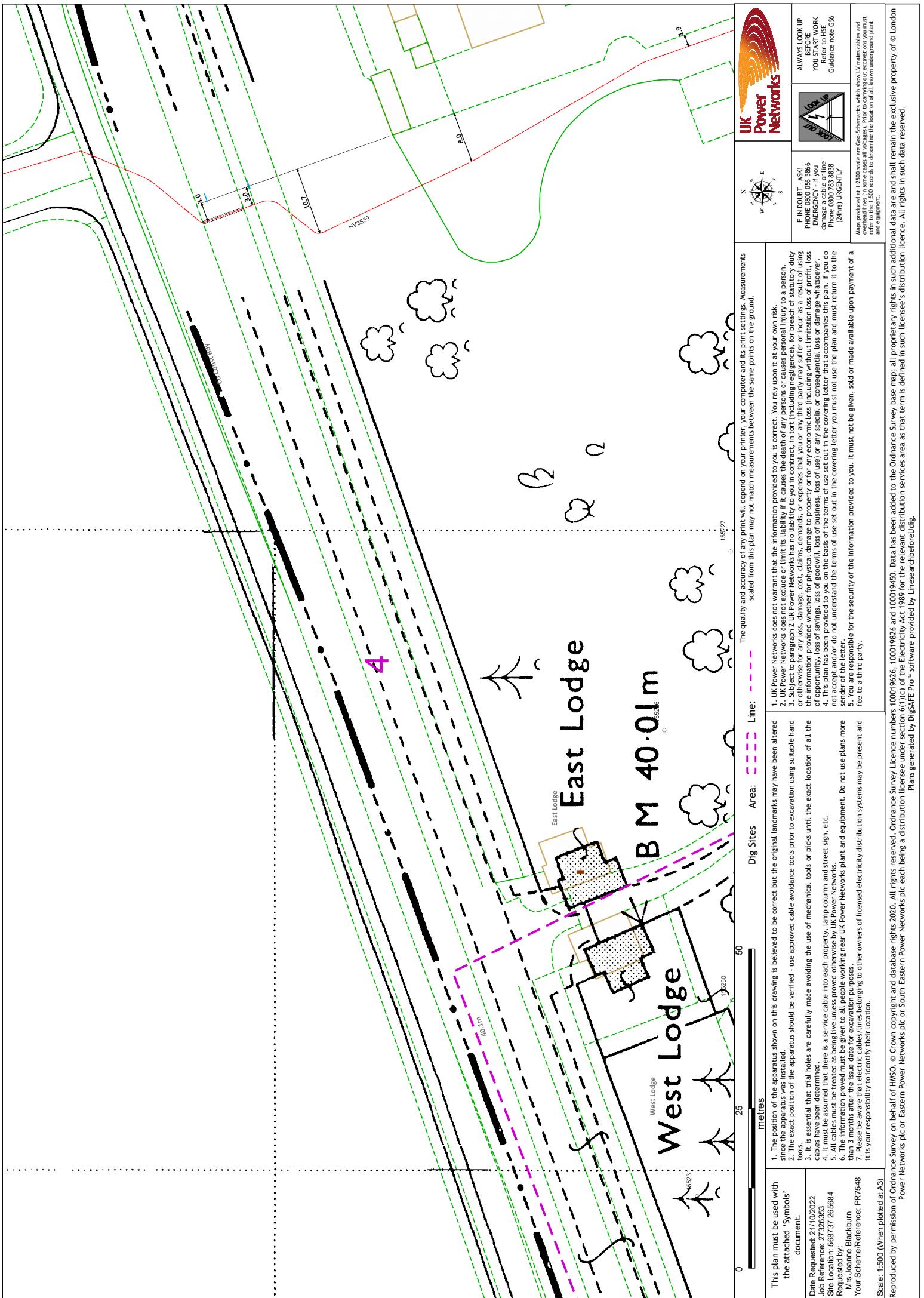
ALWAYS LOOK UP  
BEFORE YOU START WORK  
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Guidance note G56

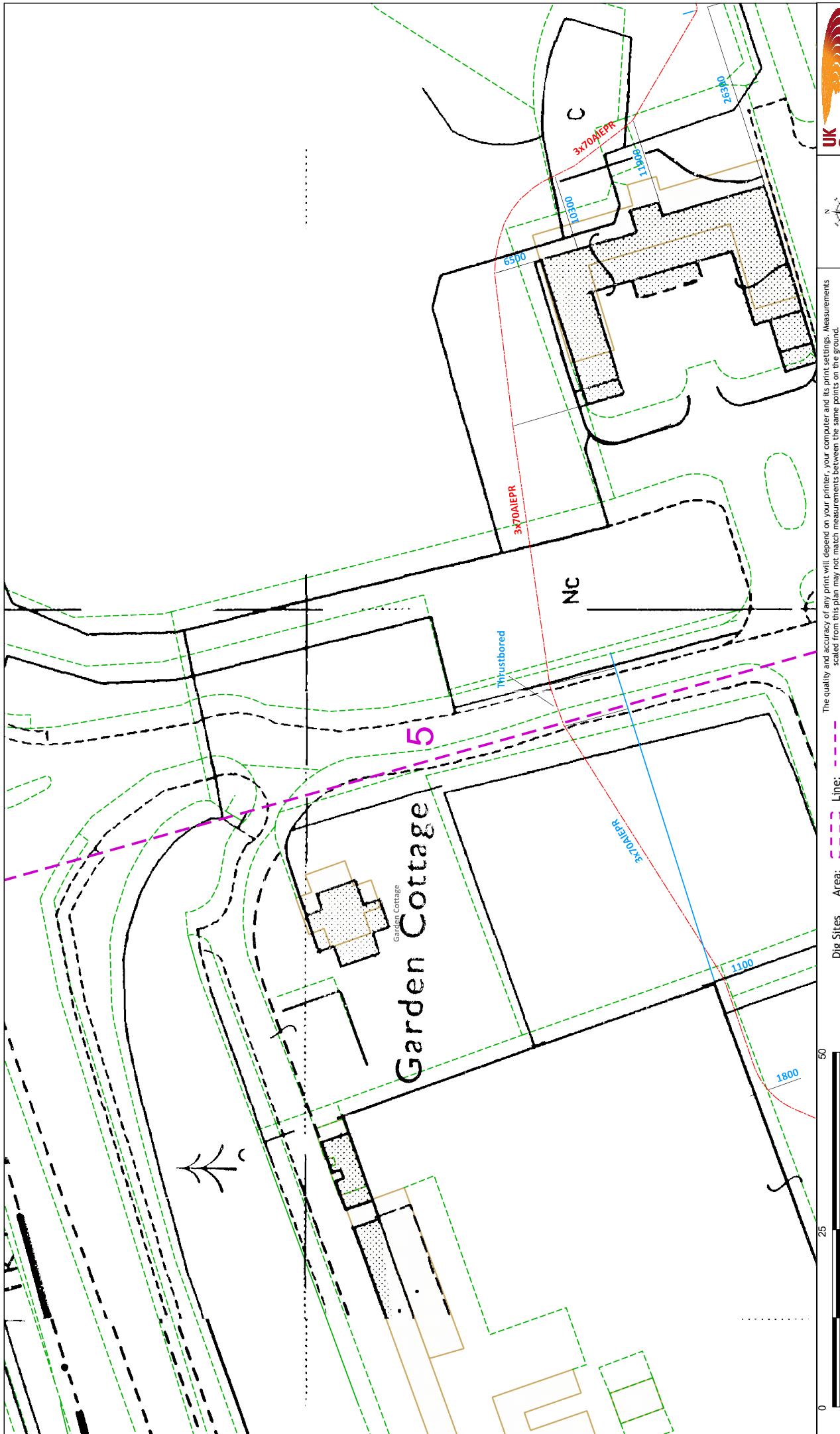
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Maps produced at 1:500 scale are Geo-Schematics which show LV mains cables and overhead lines (in some cases all voltages). Prior to carrying out excavations you must refer to the 1:500 records to determine the location of all known underground plant and equipment.









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Site Location: 568737 285884  
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Mrs Joanne Blackburn  
Your Scheme Reference: PR7548

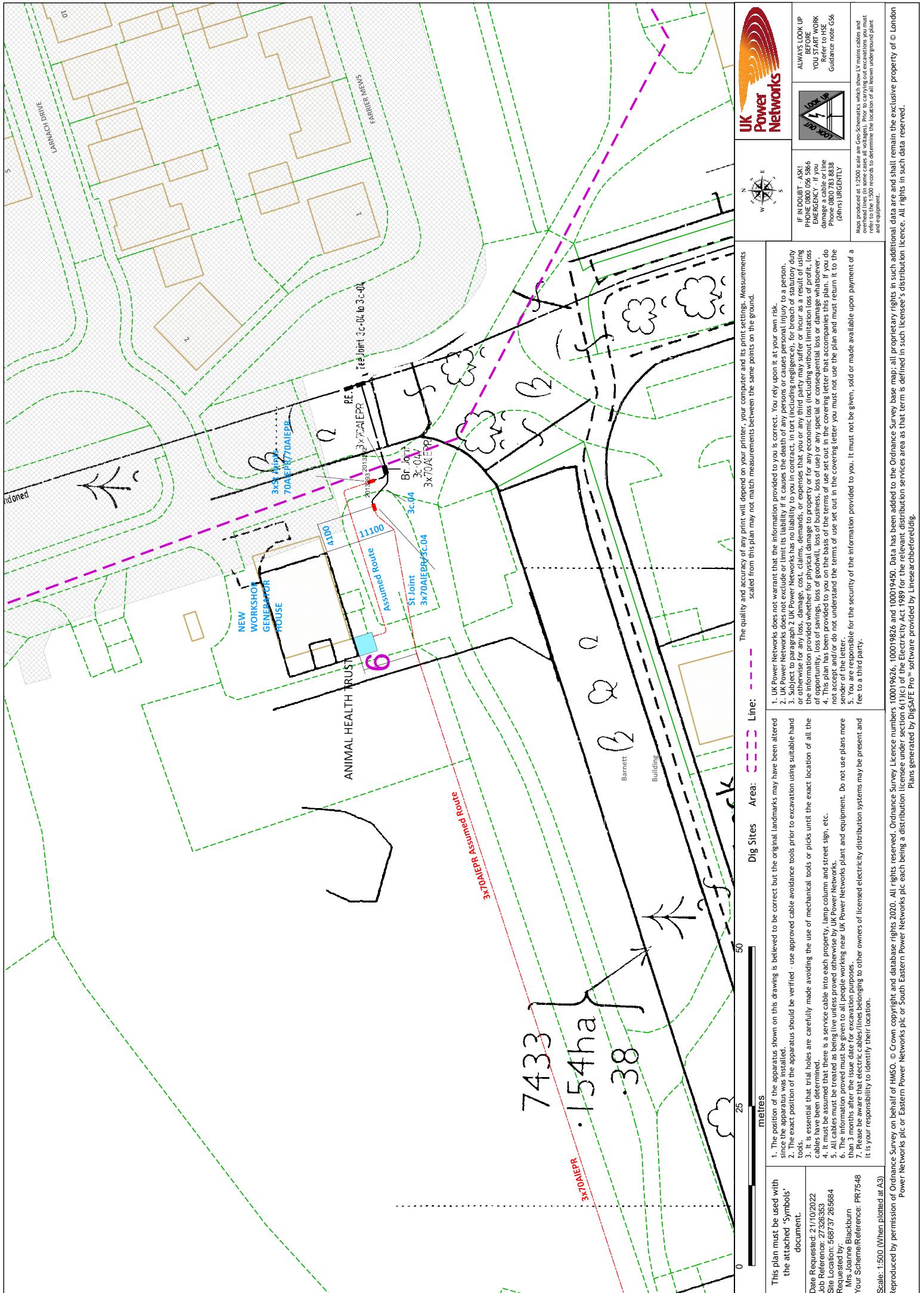
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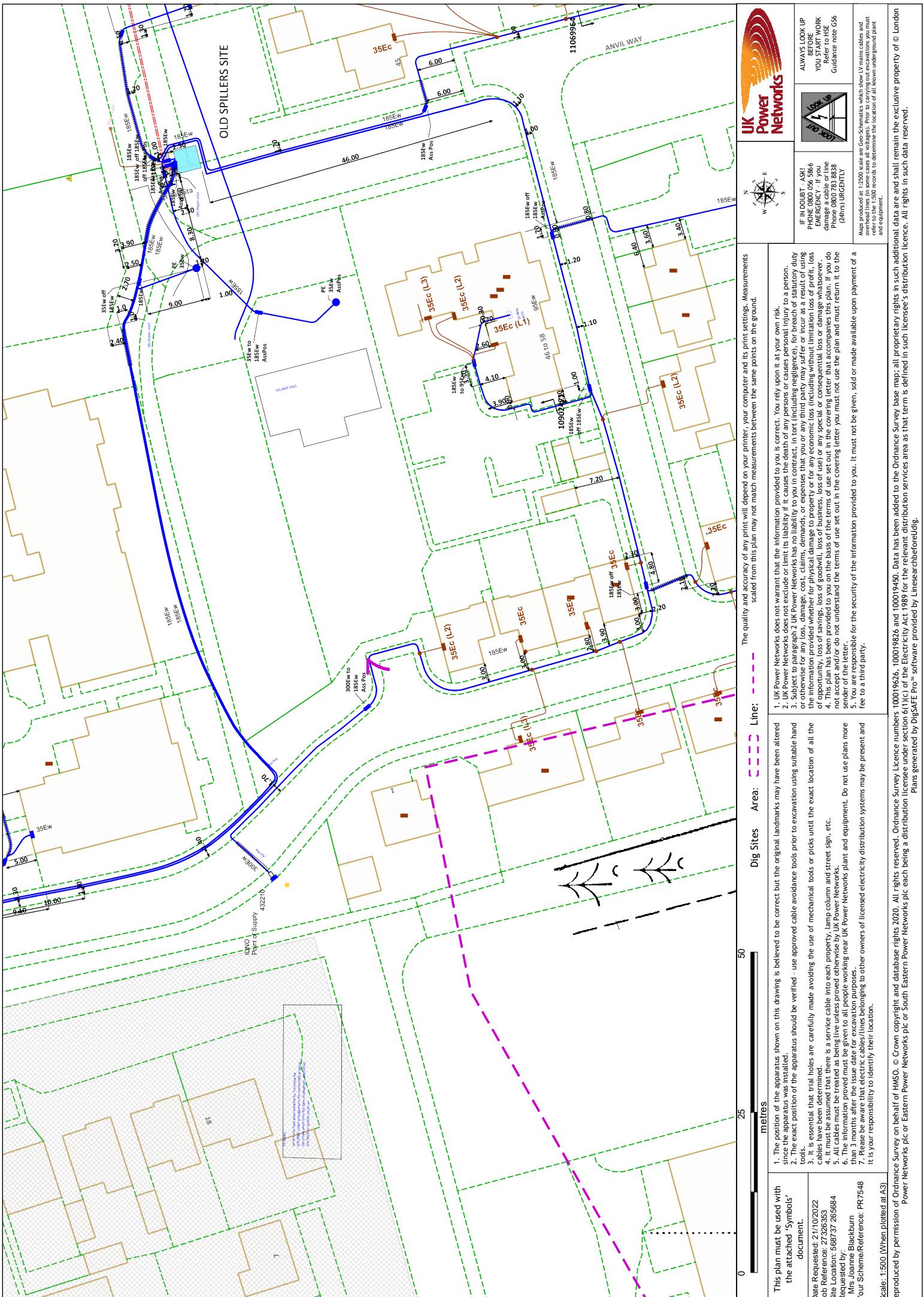
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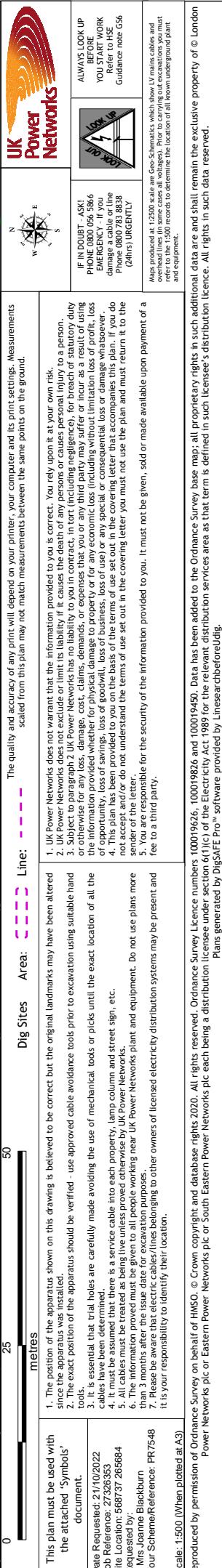
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EMERGENCY - If you  
damage a cable or line  
Phone 0800 783 8838  
(24hrs URGENTLY)  
Maps produced at 1:500 scale are Geo-Schematics which show LV mains cables and overhead lines (in some cases all voltages). Prior to carrying out excavations you must refer to the 1:500 records to determine the location of all known underground plant and equipment.

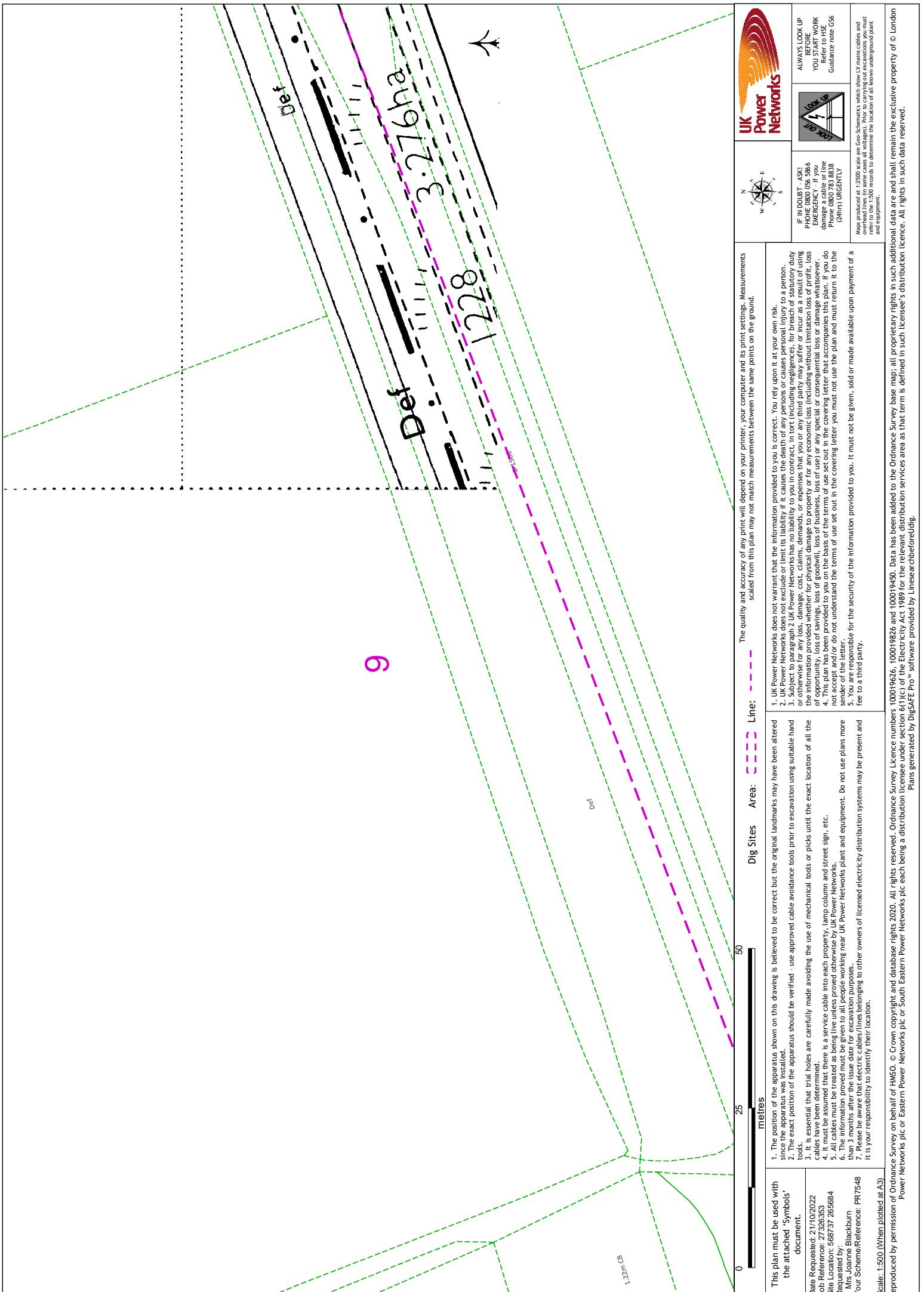
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Refer to HSE  
Guidance note G56



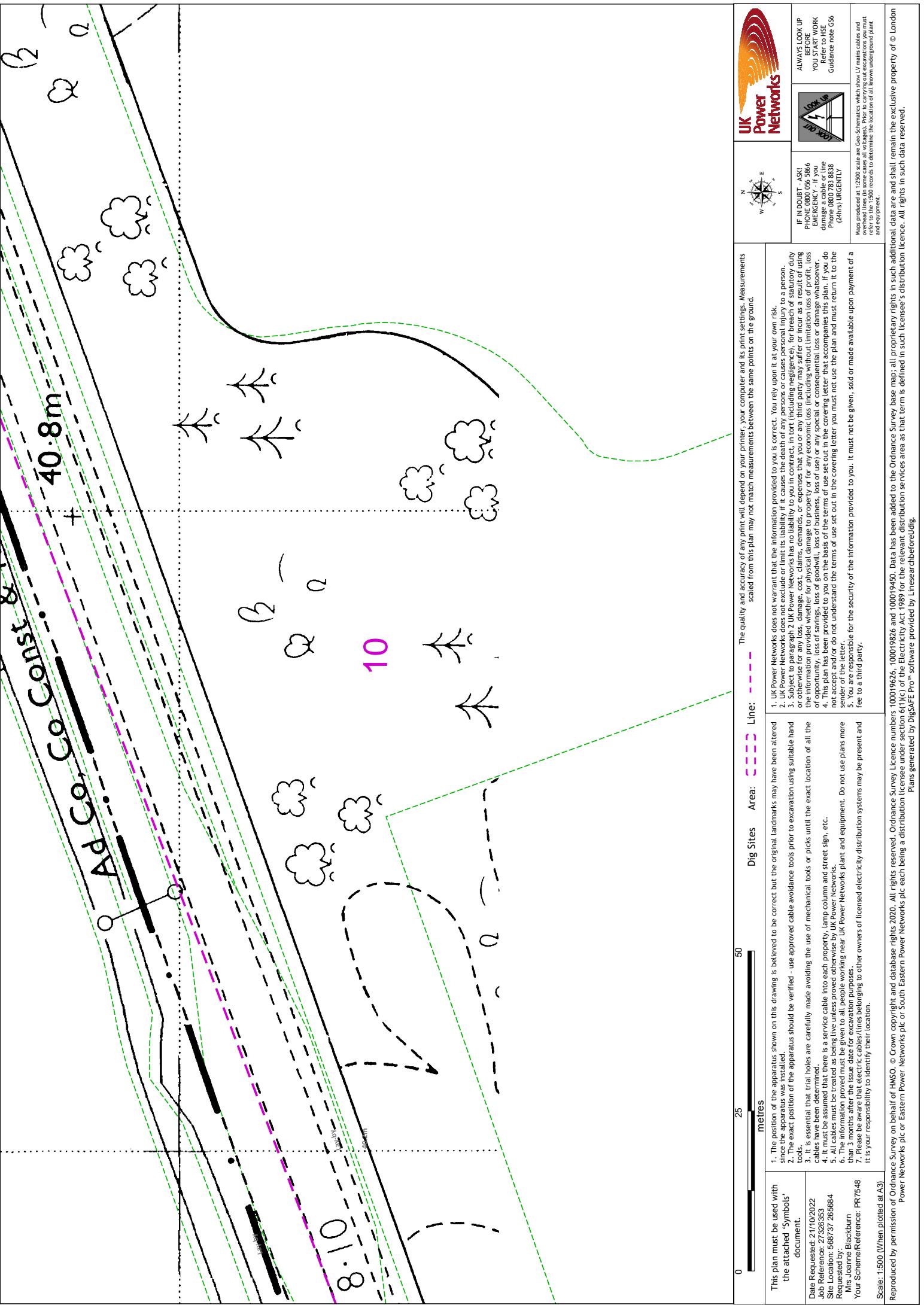


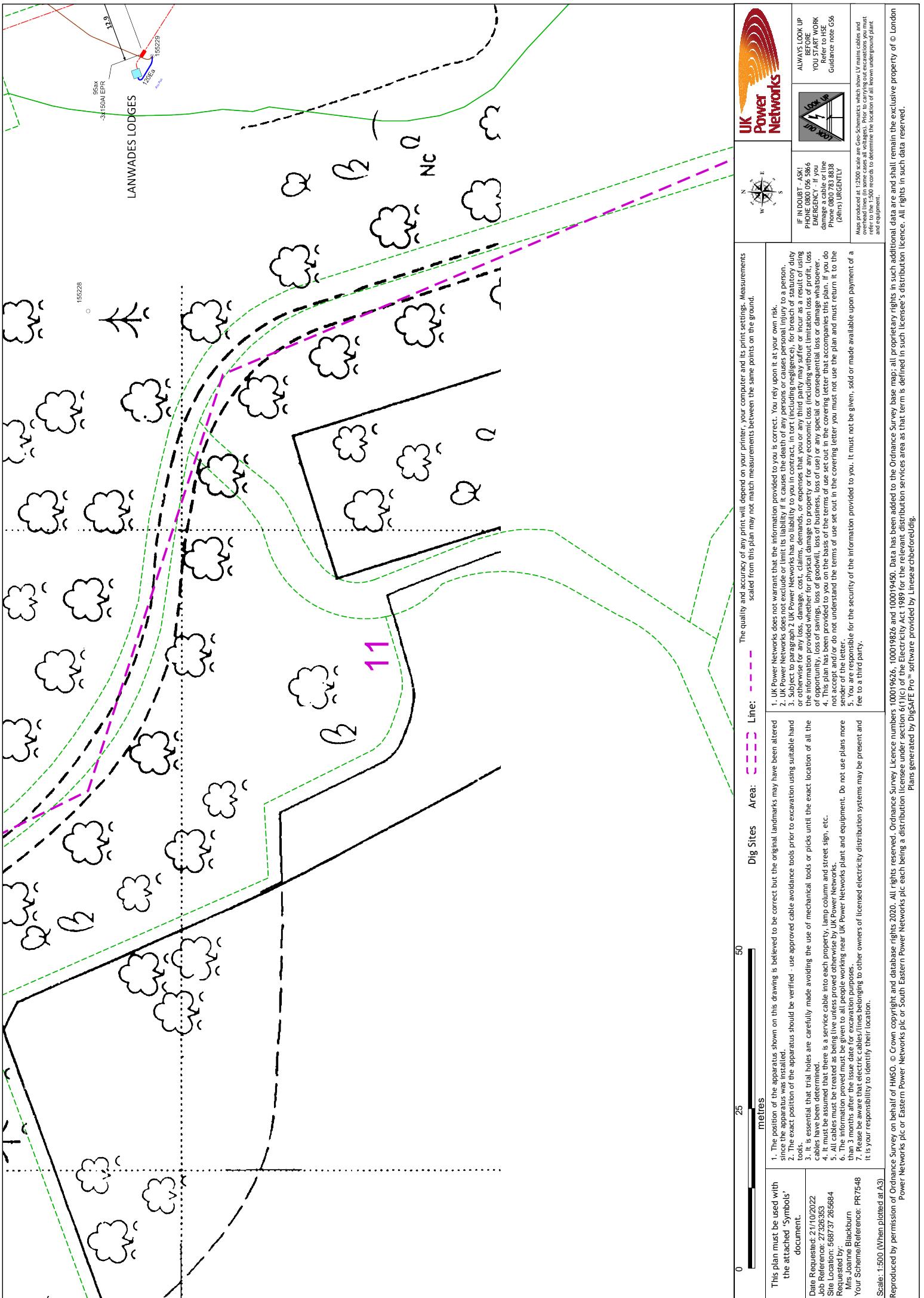
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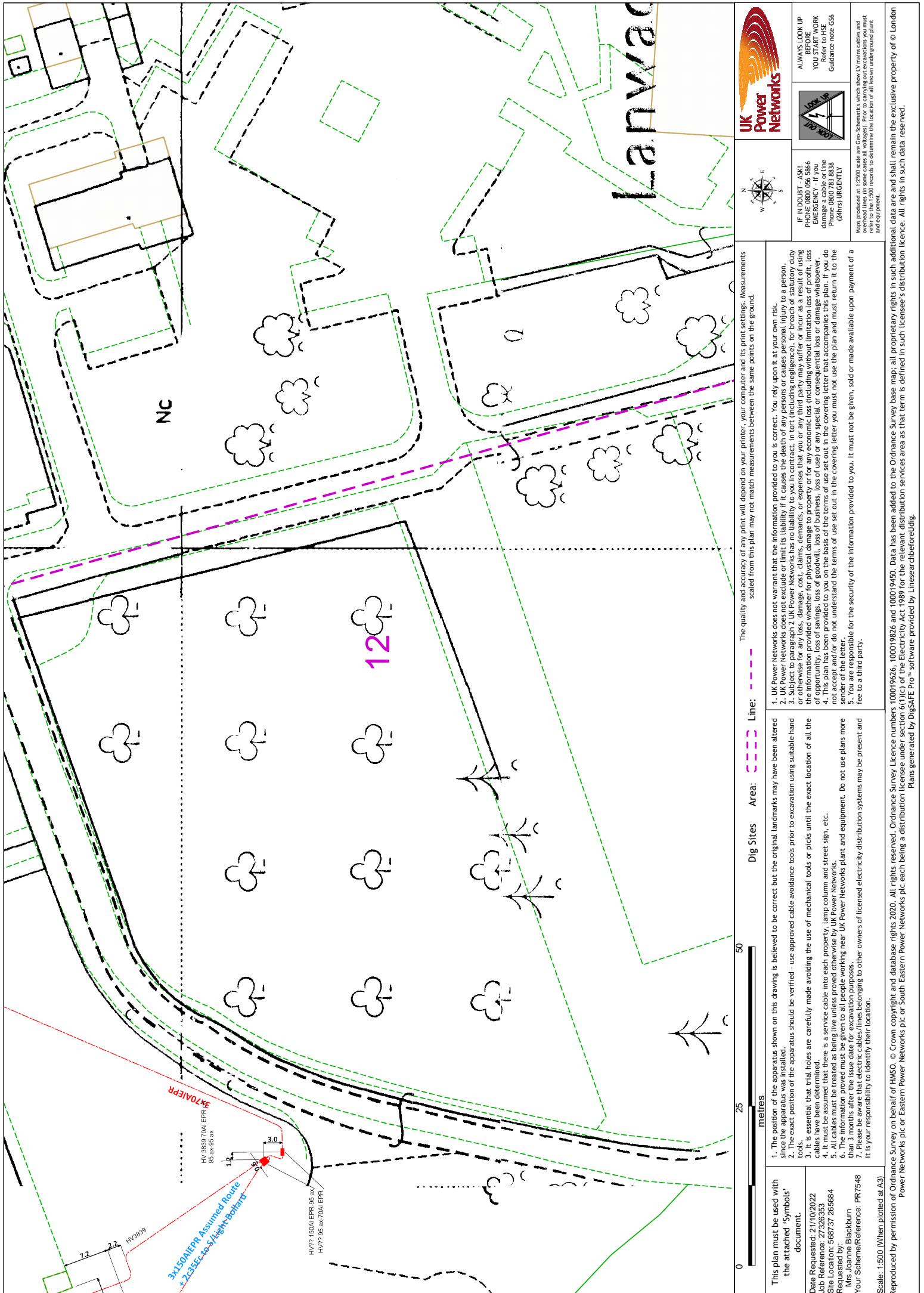




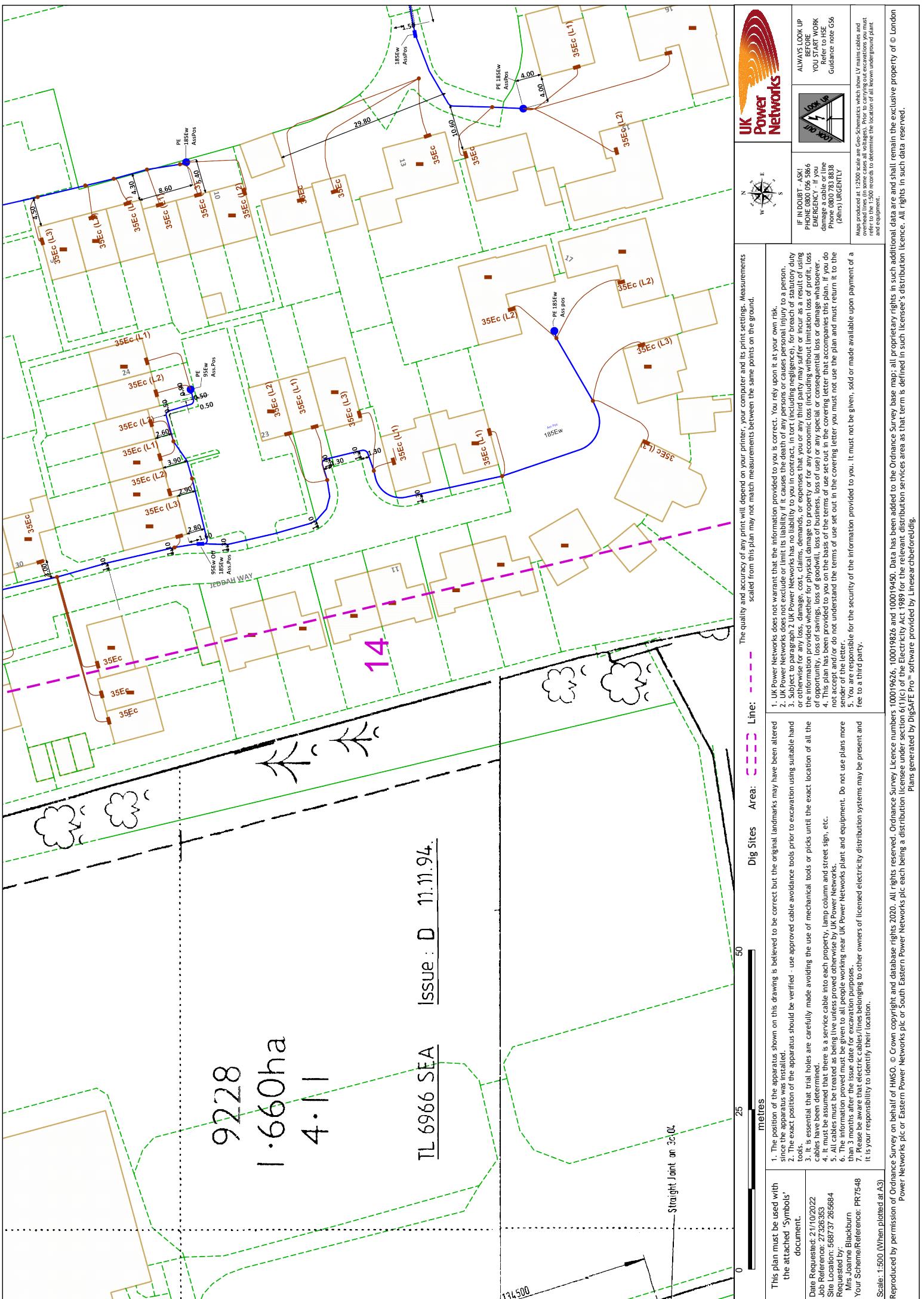
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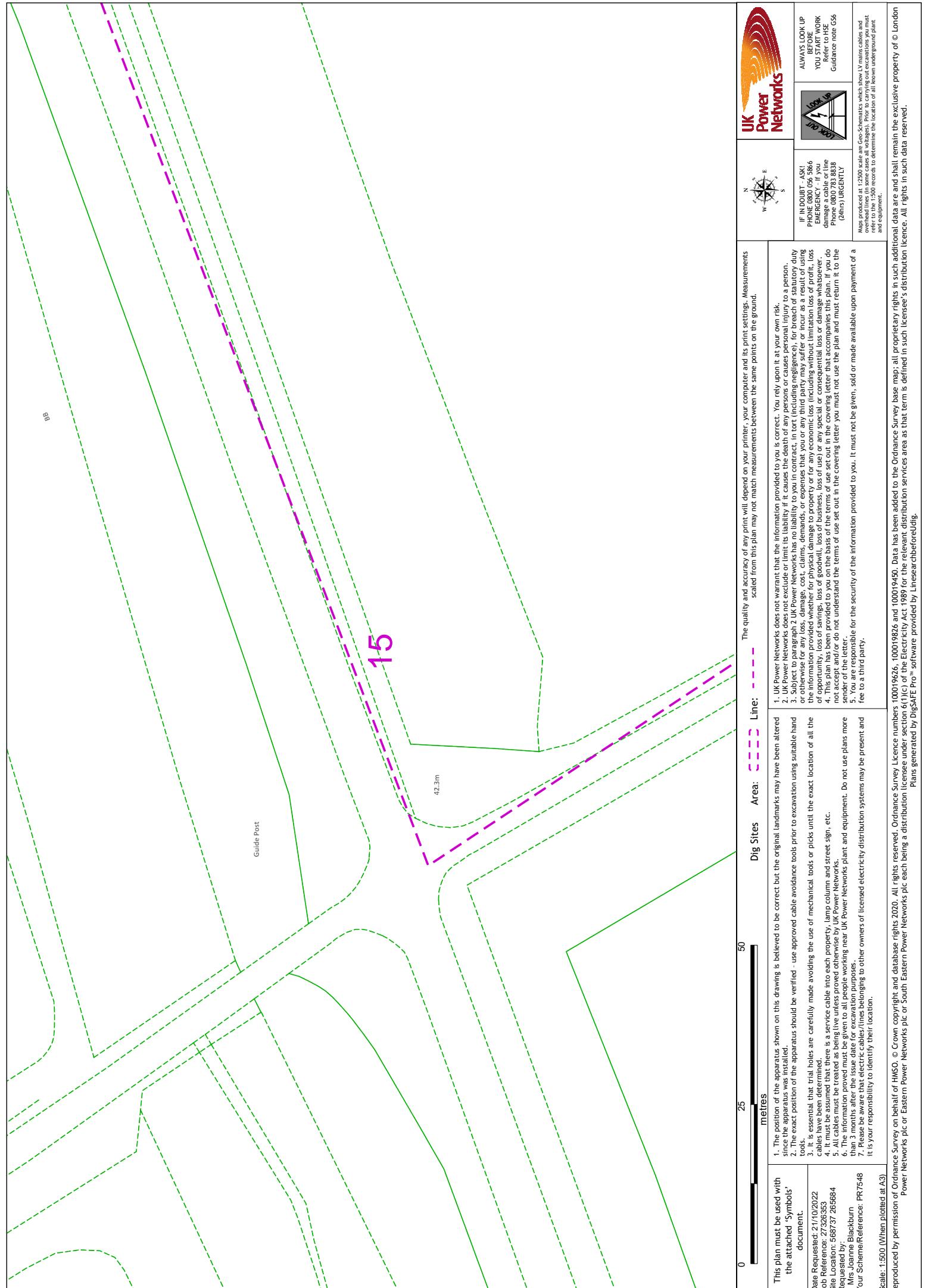




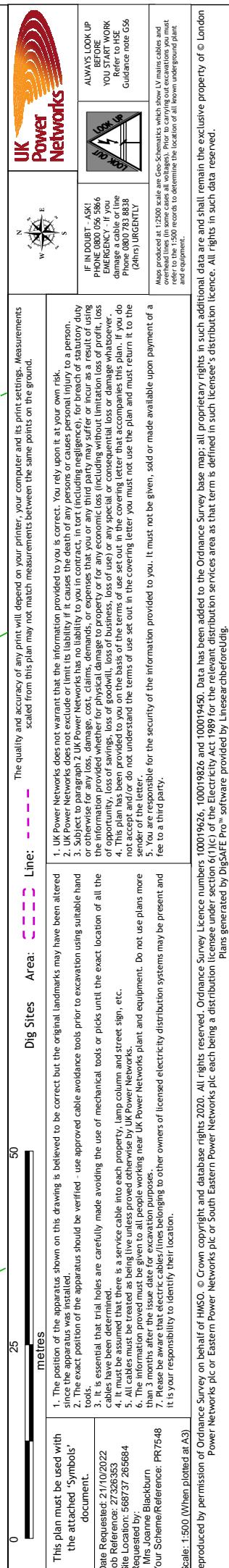




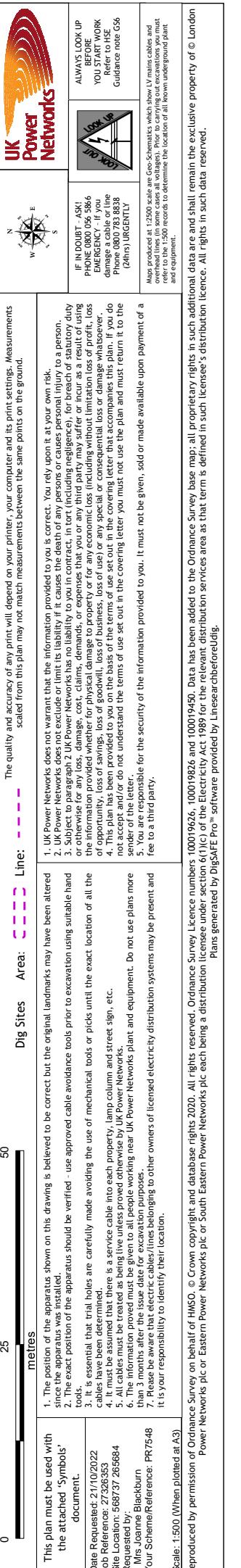




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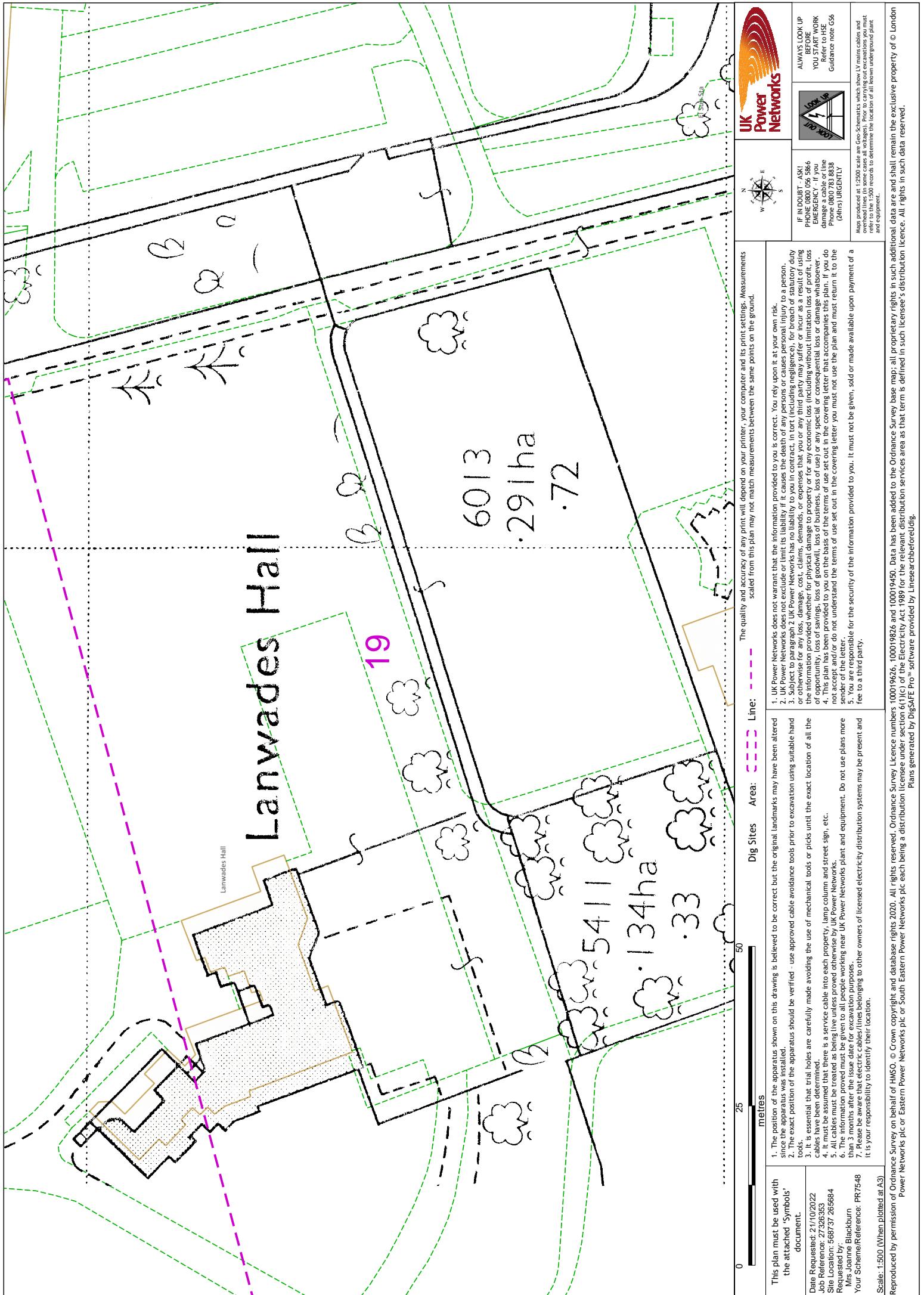


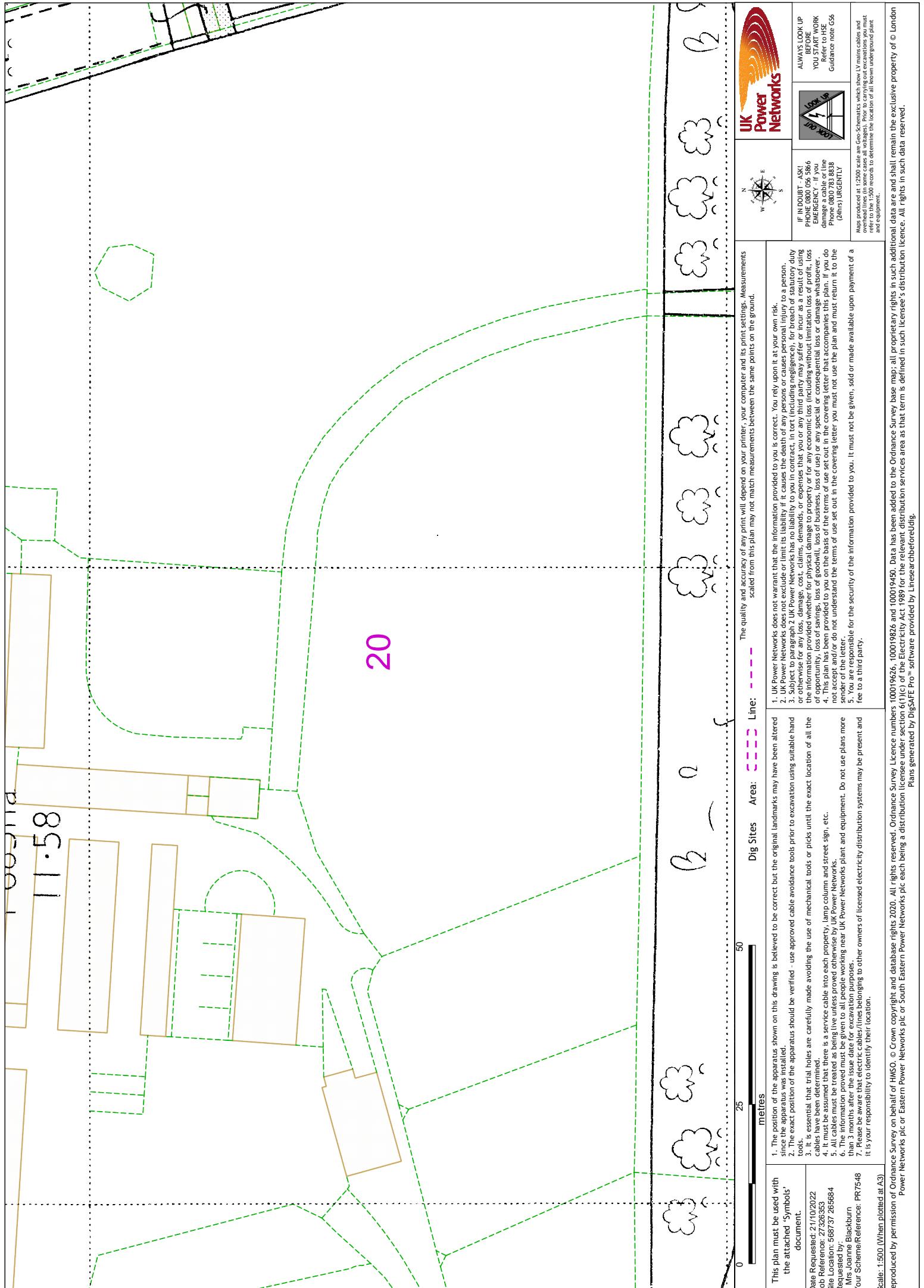
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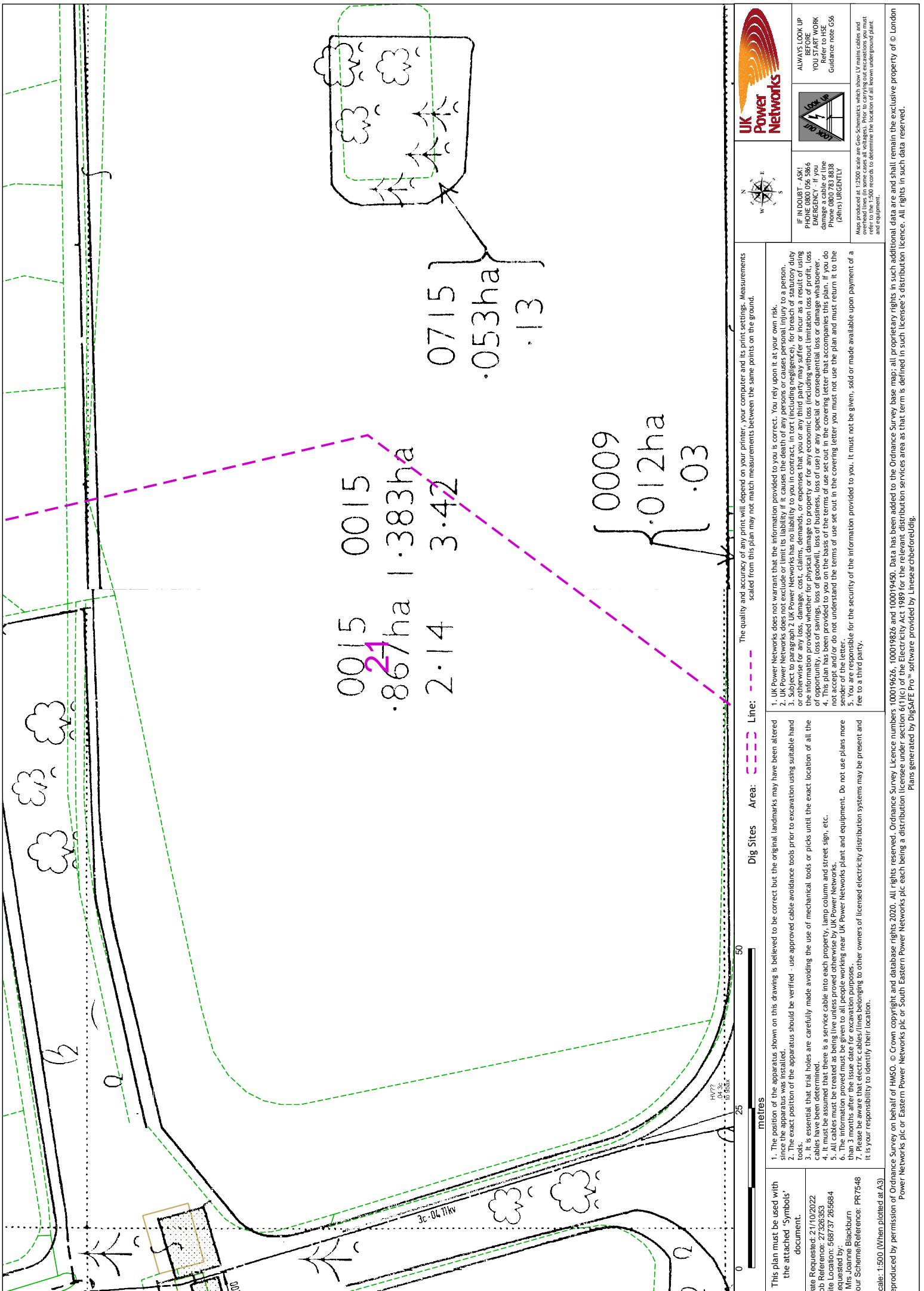
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<b>25</b>  <b>Metres</b>	<b>50</b>  <b>Metres</b>
<b>Dig Sites</b> 	<b>Area:</b> 
<b>Line:</b> 	

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<p>1. The position of the apparatus shown on this drawing is believed to be correct but the original landmarks may have been altered since the apparatus was installed.            2. The exact position of the apparatus should be verified using approved cable avoidance tools prior to excavation using suitable hand tools.            3. It is essential that trial holes are carefully made avoiding the use of mechanical tools or picks until the exact location of all the cables have been determined.            4. It must be assumed that there is a service cable in each property, lamp column and street sign, etc.            5. All cables must be treated as being live unless proved otherwise by UK Power Networks.            6. The information provided must be given to all people working near UK Power Networks plant and equipment. Do not use plans more than 3 months after the issue date for excavation purposes.            7. Please be aware that electric cables/lines belonging to other owners of licensed electricity distribution systems may be present and it is your responsibility to identify their location.</p>	
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<p>IF IN DOUBT - ASK!            PHONE 0800 059 5866            EMERGENCY - If you damage a cable or line            Phone 0800 783 838            (24hrs) URGENTLY</p>	
<p>ALWAYS LOOK UP            BEFORE YOU START WORK            Refer to HSE            Guidance note G56</p>	
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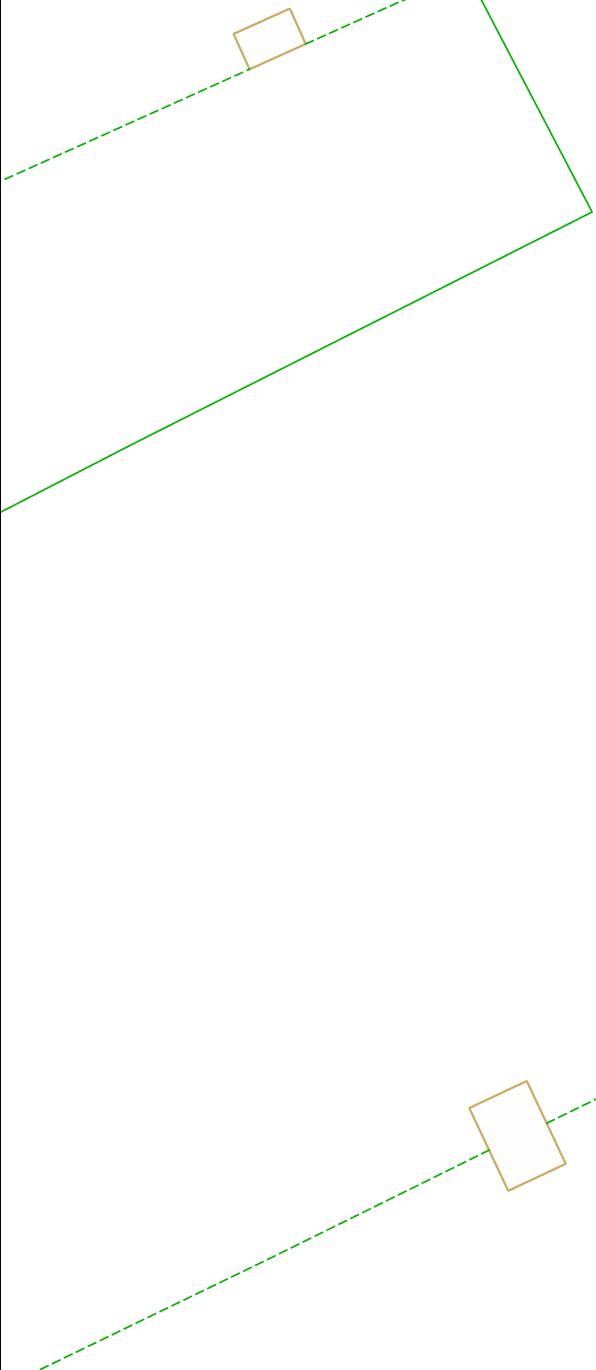
Metres	0	25	50	Dig Sites	Area:	Line:
This plan must be used with the attached 'Symbols' document. Date Requested: 2/10/2022 Job Reference: Z728353 Site Location: 568737 285884 Requested by: Mrs Joanne Blackburn Your Scheme Reference: PR7548 Scale: 1:500 (When plotted at A3)	1. The position of the apparatus shown on this drawing is believed to be correct but the original landmarks may have been altered since the apparatus was installed. 2. The exact position of the apparatus should be verified using approved cable avoidance tools prior to excavation using suitable hand tools. 3. It is essential that trial holes are carefully made avoiding the use of mechanical tools or picks until the exact location of all the cables have been determined. 4. It must be assumed that there is a service cable in each property, lamp column and street sign, etc. 5. All cables must be treated as being live unless proved otherwise by UK Power Networks. 6. The information provided must be given to all people working near UK Power Networks plant and equipment. Do not use plans more than 3 months after the issue date for excavation purposes. 7. Please be aware that electric cables/lines belonging to other owners of licensed electricity distribution systems may be present and it is your responsibility to identify their location.	1. UK Power Networks does not warrant that the information provided to you is correct. You rely upon it at your own risk. 2. UK Power Networks does not exclude or limit its liability if it causes the death of any persons or causes personal injury to a person, or otherwise for any loss, damage, cost, claims, demands, or expenses that you or any third party may suffer or incur as a result of using the information provided whether for physical damage to property or for any economic loss (including without limitation loss of profit, loss of opportunity, loss of savings, loss of goodwill, loss of business, loss of or use of any special or consequential loss or damage whatsoever). 3. This plan has been provided to you on the basis of the terms of use set out in the covering letter that accompanies this plan. If you do not accept and/or do not understand the terms of use set out in the covering letter you must not use the plan and must return it to the sender of the letter. 4. You are responsible for the security of the information provided to you. It must not be given, sold or made available upon payment of a fee to a third party.				

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Produced at 1:500 scale are Geo-Schematics which show LV mains cables and overhead lines (in some cases all voltages). Prior to carrying out excavations you must refer to the 1:500 records to determine the location of all known underground plant and equipment.

23



35

8.208ha



scaled from this plan may not match measurements between the same points on the ground.

25	50	Metros
0	50	Dig Sites Area: Line:
<p>This plan must be used with the attached 'Symbols' document.</p> <p>Request Date: 21/10/2022 Job Reference: 27326353 Site Location: 566737 205684 Mrs Joanne Blackburn Our Scheme Reference: PR7548</p> <p>The quality and accuracy of any print will depend on your printer, your computer and its print settings. Measurements scaled from this plan may not match measurements between the same points on the ground.</p>		
<ol style="list-style-type: none"> <li>1. The position of the apparatus shown on this drawing is believed to be correct but the original landmarks may have been altered since the apparatus was installed.</li> <li>2. The exact position of the apparatus should be verified using approved cable avoidance tools prior to excavation using suitable hand tools.</li> <li>3. It is essential that trial holes are carefully made avoiding the use of mechanical tools or picks until the exact location of all the cables has been determined.</li> <li>4. It must be assumed that there is a service cable into each property, lamp column and street sign, etc.</li> <li>5. All cables must be treated as being live unless proved otherwise by UK Power Networks.</li> <li>6. The information provided must be given to all people working near UK Power Networks plant and equipment. Do not use plans more than 3 months after the issue date for excavation purposes.</li> <li>7. Please be aware that electric cables/lines belonging to other owners of licensed electricity distribution systems may be present and may be a third party.</li> <li>8. You are responsible for the security of the information provided to you. It must not be given, sold or made available upon payment of a fee to a third party.</li> </ol>		

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24

2700  
2.669



Metres

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Dig Sites Area: Line: - - - Line: - - -

50

25

0

Metres

This plan must be used with the attached 'Symbols' document.

Date Requested: 2/10/2022

Job Reference: Z7282533

Site Location: 568737 285884

Requested By:

Mrs Joanne Blackburn

Your Scheme Reference: PR7548

7. Please be aware that electric cables/lines belonging to other owners of licensed electricity distribution systems may be present and

it is your responsibility to identify their location.

Scale: 1:500 (When plotted at A3)

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3. Subject to paragraph 2 UK Power Networks has no liability for breach of statutory duty or for breach of statutory duty or otherwise for any loss, damage, cost, claims, demands, or expenses that you or any third party may suffer or incur as a result of using the information provided whether for physical damage to property or for any economic loss (including without limitation loss of profit, loss of opportunity, loss of savings, loss of goodwill, loss of business, loss of or use of any special or consequential loss or damage whatsoever).  
4. This plan has been provided to you on the basis of the terms of use set out in the covering letter that accompanies this plan. If you do not accept and/or do not understand the terms of use set out in the covering letter you must now use the plan and must return it to the sender of the letter.  
5. You are responsible for the security of the information provided to you. It must not be given, sold or made available upon payment of a fee to a third party.

IF IN DOUBT... ASK!  
PHONE 0800 059 5866  
EMERGENCY - If you  
damage a cable or line  
Phone 0800 781 8838  
(24hrs URGENTLY)

ALWAYS LOOK UP  
BEFORE YOU START WORK  
Refer to HSE  
Guidance note G56

LV mains cables which show LV mains cables and overhead lines (in some cases all voltages). Prior to carrying out excavations you must refer to the 1:500 records to determine the location of all known underground plant and equipment.



N  
E  
S  
W

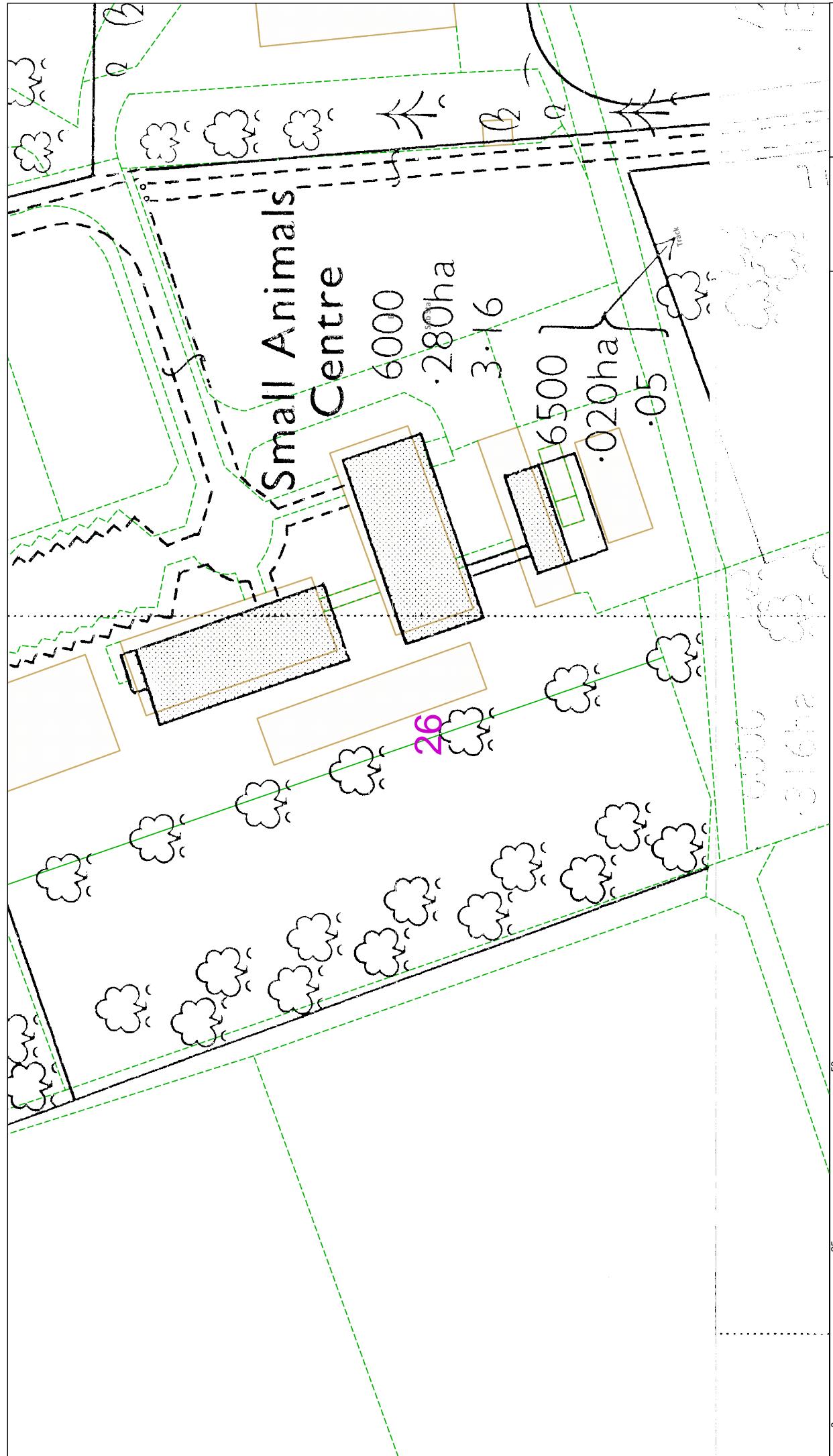
4300  
3.048ha

The quality and accuracy of any print will depend on your printer, your computer and its print settings. Measurements scaled from this plan may not match measurements between the same points on the ground.

Metres  
0 25 50

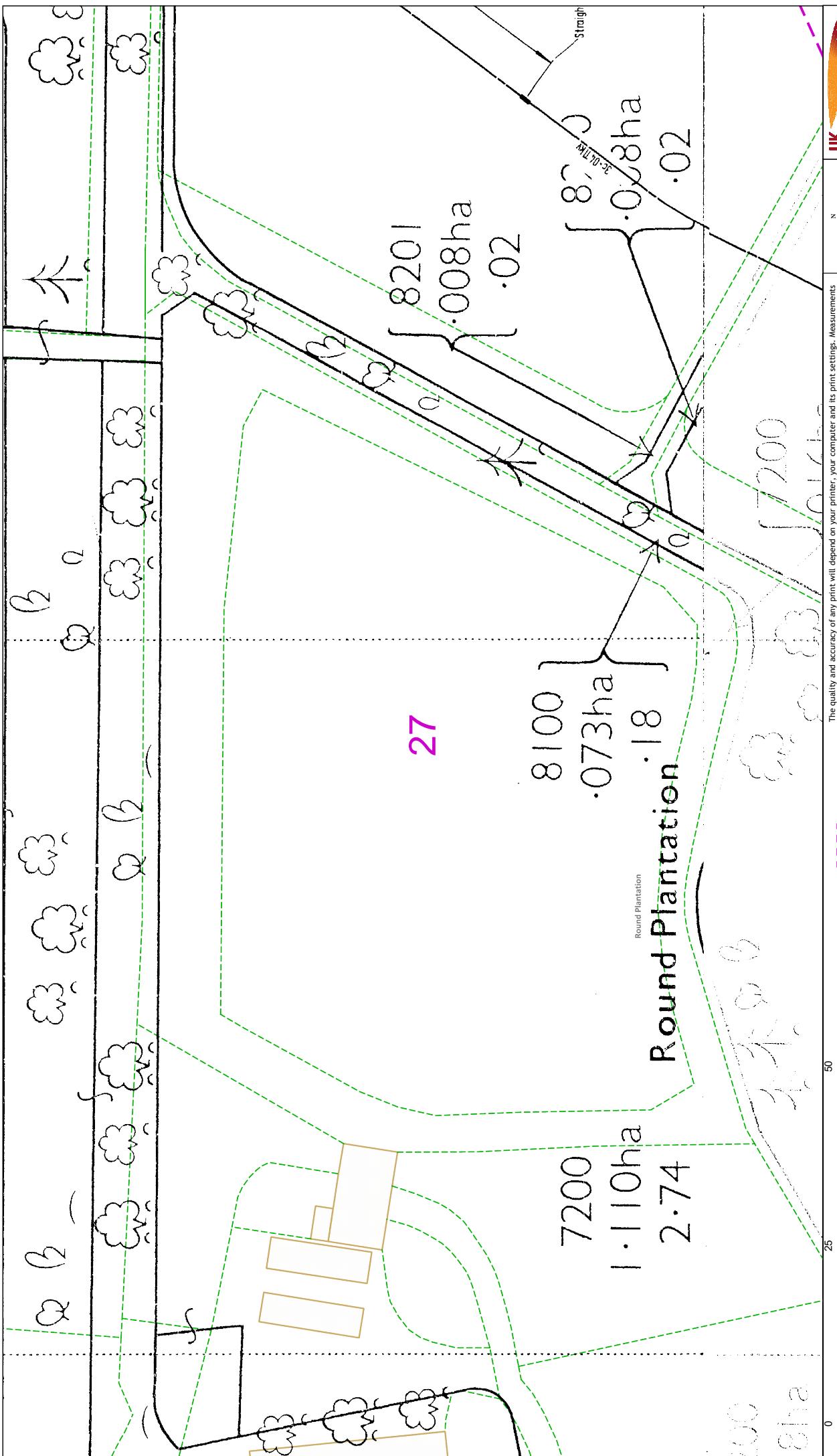
Metres  
0 25 50

ha



UK Power Networks	
N	S
E	W
The quality and accuracy of any print will depend on your printer, your computer and its print settings. Measurements scaled from this plan may not match measurements between the same points on the ground.	
IF IN DOUBT - ASK! PHONE 0800 059 5866 EMERGENCY - If you damage a cable or line Phone 0800 783 8838 (24hrs) URGENTLY	ALWAYS LOOK UP BEFORE YOU START WORK Refer to HSE Guidance note G56
1. UK Power Networks does not warrant that the information provided to you is correct. You rely upon it at your own risk. 2. UK Power Networks does not exclude or limit its liability if it causes the death of any persons or causes personal injury to a person. 3. Subject to paragraph 2 UK Power Networks has no liability to you in contract, in tort (including negligence), for breach of statutory duty or otherwise for any loss, damage, cost, claims, demands, or expenses that you or any third party may suffer or incur as a result of using the information provided whether for physical damage to property or for any economic loss (including without limitation loss of profit, loss of opportunity, loss of savings, loss of goodwill, loss of business, loss of or use of any special or consequential loss or damage whatsoever). 4. This plan has been provided to you on the basis of the terms of use set out in the covering letter that accompanies this plan. If you do not accept and/or do not understand the terms of use set out in the covering letter you must not use the plan and must return it to the sender of the letter. 5. You are responsible for the security of the information provided to you. It must not be given, sold or made available upon payment of a fee to a third party.	
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This plan must be used with the attached 'Symbols' document.  
Date Requested: 21/10/2022  
Job Reference: Z728353  
Site Location: 568737 285884  
Requested By:  
Mrs Joanne Blackburn  
Your Scheme Reference: PR7548  
Scale: 1:500 (When plotted at A3)



This plan must be used with  
the attached ‘Symbols’  
document.

- Notes**

  1. The position of the apparatus shown on this drawing is believed to be correct but the original landmarks may have been altered since the apparatus was installed.
  2. The exact position of the apparatus should be verified - use approved cable avoidance tools prior to excavation using suitable hand tools.
  1. UK Power Networks does not warrant that the information provided to you is correct. You rely upon it at your own risk.  
2. UK Power Networks does not exclude or limit its liability if it causes the death of any persons or causes personal injury to a person, in tort, (including negligence), or by breach of statutory duty  
3. Subject to the above, UK Power Networks has no liability to you in contract, for any loss, damage, cost, claims, demands, or expenses that you or any third party may suffer, or incur as a result of using

Date Requested: 21/10/2022  
Job Reference: 27326353

Location: 568/3/ 265684  
Requested by:

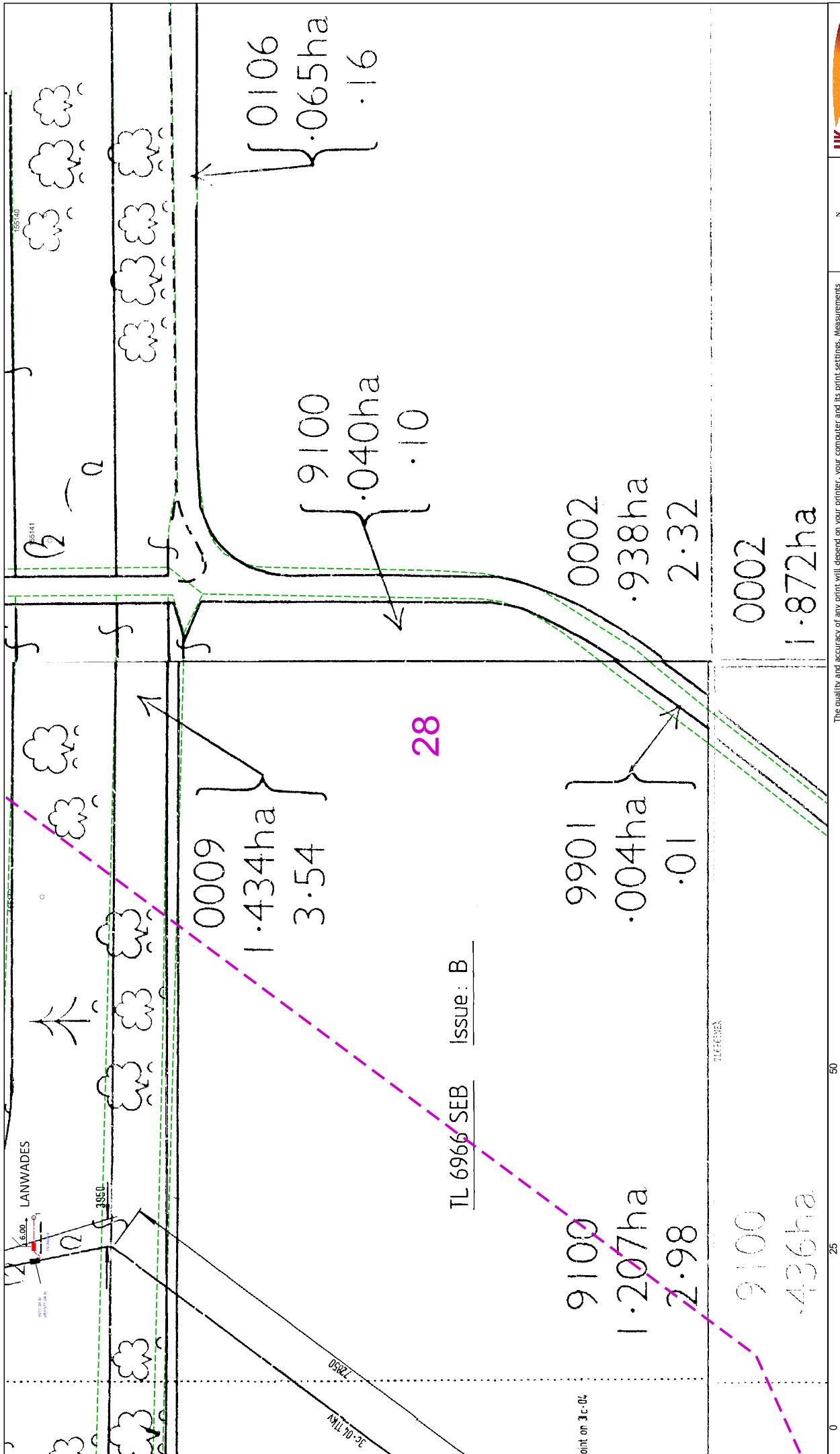
6. The information provided must be given to all people involved in the excavation project.  
7. Please be aware that electric cables, lines belonging to your responsibility, i.e. domestic, telephone, etc., may be located in the area.

Power  
Networks



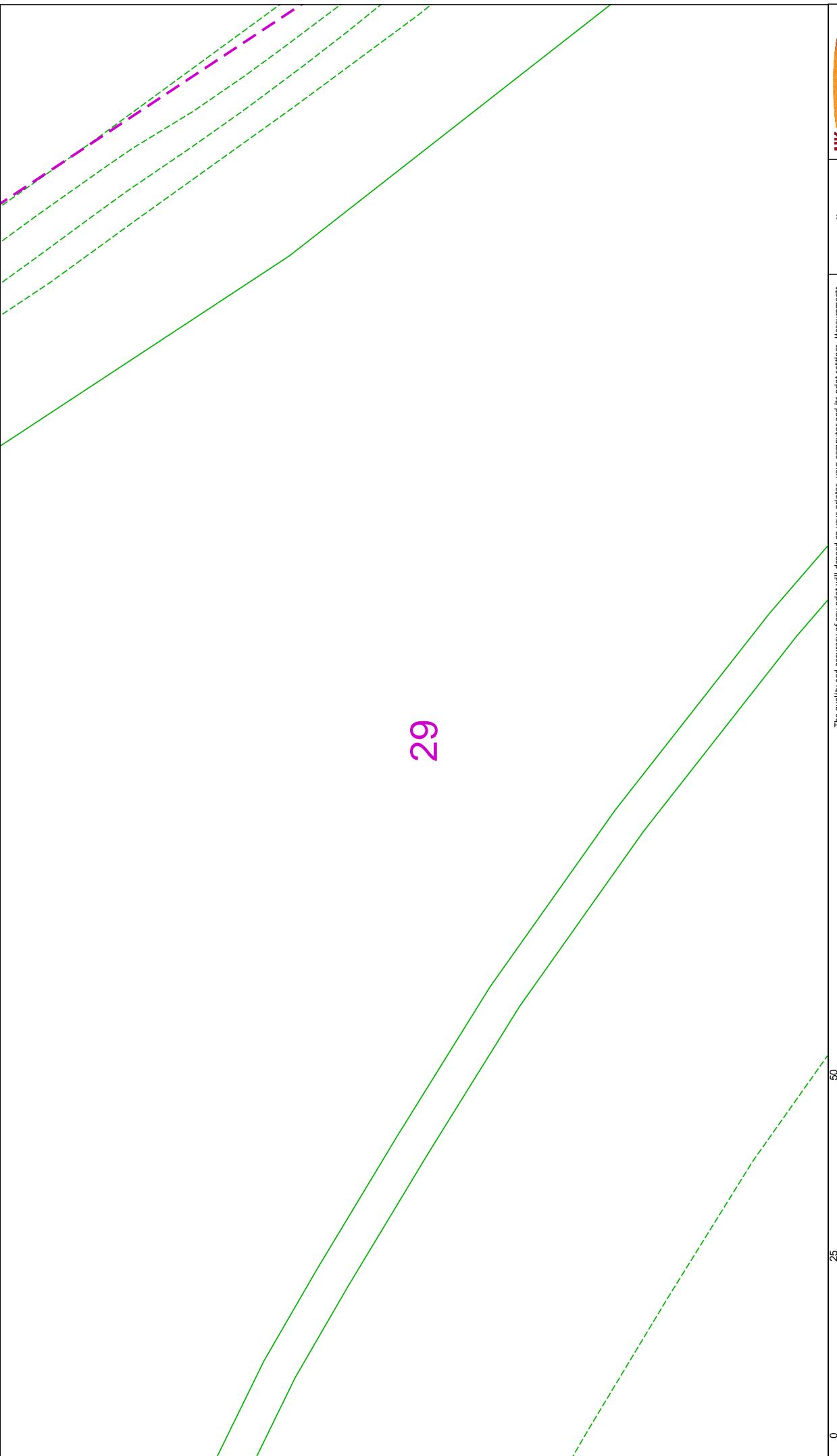
ALWAYS LOOK UP  
BEFORE  
YOU START WORK  
Refer to HSE  
Guidance note G56

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<p>This plan must be used with the attached 'Symbols' document.</p> <p>Date Requested: 2/10/2022 Site Location: 568737 285884 Revised by: Mrs Joanne Blackburn Your Scheme Reference: PR7548 Scale: 1:500 (When plotted at A3)</p>		<p>1. The position of the apparatus shown on this drawing is believed to be correct but the original landmarks may have been altered since the apparatus was installed. 2. The exact position of the apparatus should be verified using approved cable avoidance tools prior to excavation using suitable hand tools. 3. It is essential that trial holes are carefully made avoiding the use of mechanical tools or picks until the exact location of all the cables have been determined. 4. It must be assumed that there is a service cable in each property, lamp column and street sign, etc. 5. All cables must be treated as being live unless proved otherwise by UK Power Networks. 6. The information provided must be given to all people working near UK Power Networks plant and equipment. Do not use plans more than 3 months after the issue date for excavation purposes. 7. Please be aware that electric cables/lines belonging to other owners of licensed electricity distribution systems may be present and it is your responsibility to identify their location.</p>	<p>1. UK Power Networks does not warrant that the information provided to you is correct. You rely upon it at your own risk. 2. UK Power Networks does not exclude or limit its liability if it causes the death of any persons or causes personal injury to a person, or otherwise for any loss, damage, cost, claims, demands, or expenses that you or any third party may suffer or incur as a result of using the information provided whether for physical damage to property or for any economic loss (including without limitation loss of profit, loss of opportunity, loss of savings, loss of goodwill, loss of business, loss of use or any special or consequential loss or damage whatsoever). 3. This plan has been provided to you on the basis of the terms of use set out in the covering letter that accompanies this plan. If you do not accept and/or do not understand the terms of use set out in the covering letter you must not use the plan and must return it to the sender of the letter. 4. You are responsible for the security of the information provided to you. It must not be given, sold or made available upon payment of a fee to a third party.</p>
<p>05140</p> <p>05141</p> <p>28</p> <p>TL 6966 SEB Issue: B</p>	<p>00009</p> <p>1.434ha</p> <p>3.54</p> <p>0002</p> <p>1.872ha</p> <p>2.32</p> <p>0106</p> <p>0.065ha</p> <p>0.16</p> <p>9100</p> <p>1.207ha</p> <p>2.98</p> <p>9100</p> <p>1.207ha</p> <p>2.98</p> <p>9100</p> <p>1.207ha</p> <p>2.98</p> <p>9100</p> <p>1.207ha</p> <p>2.98</p>	<p>0 25 50 Metres</p> <p>0 25 50 Metres</p> <p>0 25 50 Metres</p> <p>0 25 50 Metres</p>	<p>UK Power Networks</p> <p>ALWAYS LOOK UP BEFORE YOU START WORK Refer to HSE Guidance note G56</p> <p>LOCK UP</p> <p>LOCK UP</p> <p>Map produced at 1:500 scale are Geo-Schematics which show LV mains cables and overhead lines (in some cases all voltages). Prior to carrying out excavations you must refer to the 1:500 records to determine the location on all known underground plant and equipment.</p>

29



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卷之三

Line: — — —

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2

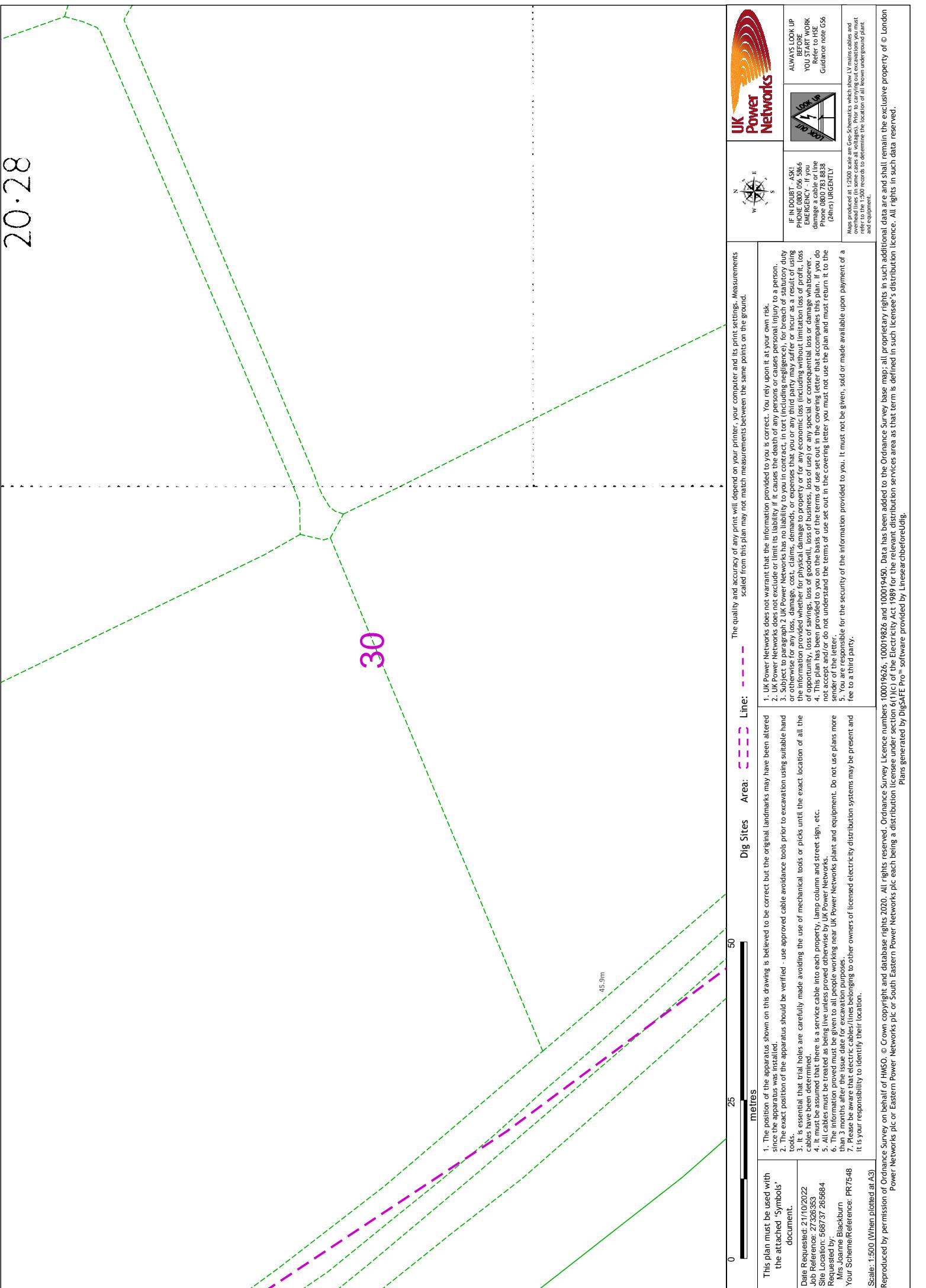


If IN DOUBT - ASK!  
PHONE 0800 056 5866  
EMERGENCY - If you  
damage a cable or tire  
Phone 0800 783 8838  
(24hrs) URGENTLY

ALWAYS LOOK UP  
BEFORE  
YOU START WORK  
Refer to HSE  
Guidance note G56

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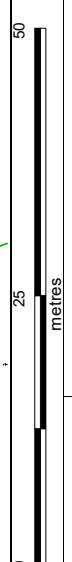
20.28



<p>This plan must be used with the attached 'Symbols' document.</p> <p>Date Requested: 2/10/2022 Job Reference: Z728533 Site Location: 568737 285884 Replied by: Mrs Joanne Blackburn Your Scheme Reference: PR7548</p> <p>Scale: 1:500 (When plotted at A3)</p>		<p>1. The position of the apparatus shown on this drawing is believed to be correct but the original landmarks may have been altered since the apparatus was installed. 2. The exact position of the apparatus should be verified using approved cable avoidance tools prior to excavation using suitable hand tools. 3. It is essential that trial holes are carefully made avoiding the use of mechanical tools or picks until the exact location of all the cables have been determined. 4. It must be assumed that there is a service cable in each property, lamp column and street sign, etc. 5. All cables must be treated as being live unless proved otherwise by UK Power Networks. 6. The information provided must be given to all people working near UK Power Networks plant and equipment. Do not use plans more than 3 months after the issue date for excavation purposes. 7. Please be aware that electric cables/lines belonging to other owners of licensed electricity distribution systems may be present and it is your responsibility to identify their location.</p>	<p>1. UK Power Networks does not warrant that the information provided to you is correct. You rely upon it at your own risk. 2. UK Power Networks does not exclude or limit its liability if it causes the death of any persons or causes personal injury to a person, or otherwise for any loss, damage, cost, claims, demands, or expenses that you or any third party may suffer or incur as a result of using the information provided whether for physical damage to property or for any economic loss (including without limitation loss of profit, loss of opportunity, loss of savings, loss of goodwill, loss of business, loss of or use of any special or consequential loss or damage whatsoever). 3. This plan has been provided to you on the basis of the terms of use set out in the covering letter that accompanies this plan. If you do not accept and/or do not understand the terms of use set out in the covering letter you must not use the plan and must return it to the sender of the letter. 4. You are responsible for the security of the information provided to you. It must not be given, sold or made available upon payment of a fee to a third party.</p>	<p>IF IN DOUBT - ASK! PHONE 0800 059 5866 EMERGENCY - If you damage a cable or line Phone 0800 783 838 (24hrs URGENTLY)</p> <p>ALWAYS LOOK UP BEFORE YOU START WORK Refer to HSE Guidance note G56</p> <p>LOCK UP LOCK OUT</p> <p>Maps produced at 1:500 scale are Geo-Schematics which show LV mains cables and overhead lines (in some cases all voltages). Prior to carrying out excavations you must refer to the 1:500 records to determine the location of all known underground plant and equipment.</p>
<p>The quality and accuracy of any print will depend on your printer, your computer and its print settings. Measurements scaled from this plan may not match measurements between the same points on the ground.</p>		<p>Dig Sites      Area:      Line:      - - - Line:</p>	<p>0      25      50      Metres</p>	

6.59

31



This plan must be used with  
the attached 'Symbols'  
document.

Date Requested: 2/10/2022

Job Reference: 2728353

Site Location: 568737 285884

Requested By:  
Mrs Joanne Blackburn

Your Scheme Reference: PR7548

7. Please be aware that electric cables/lines belonging to other owners of licensed electricity distribution systems may be present and  
it is your responsibility to identify their location.

Scale: 1:500 (When plotted at A3)

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Always look up  
before you start work  
Refer to HSE  
Guidance note G56

If in doubt - ask!  
Phone 0800 059 866  
Emergency - If you  
damage a cable or line  
Phone 0800 783 838  
(24hrs) URGENTLY

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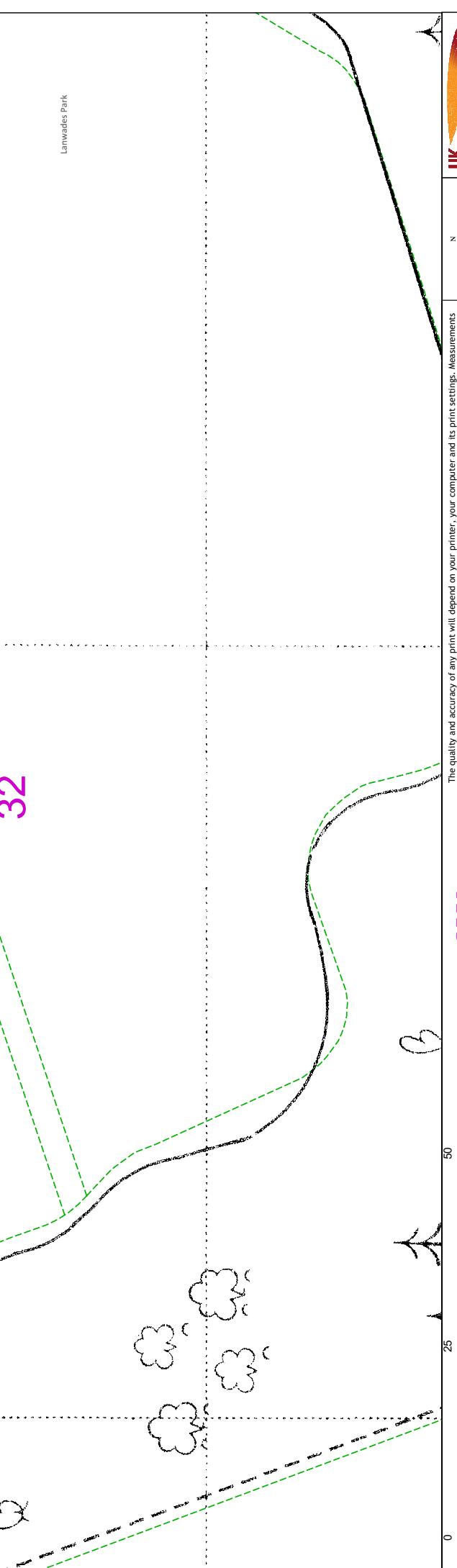
Plans generated by DigSAFE Pro™ software provided by Linsearch cbf/eDig.

7.53

# Lanwades Par

32

Lanwades Park



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<b>Dig Sites</b>	<b>Area:</b>	<b>Line:</b>
		<b>- - -</b>

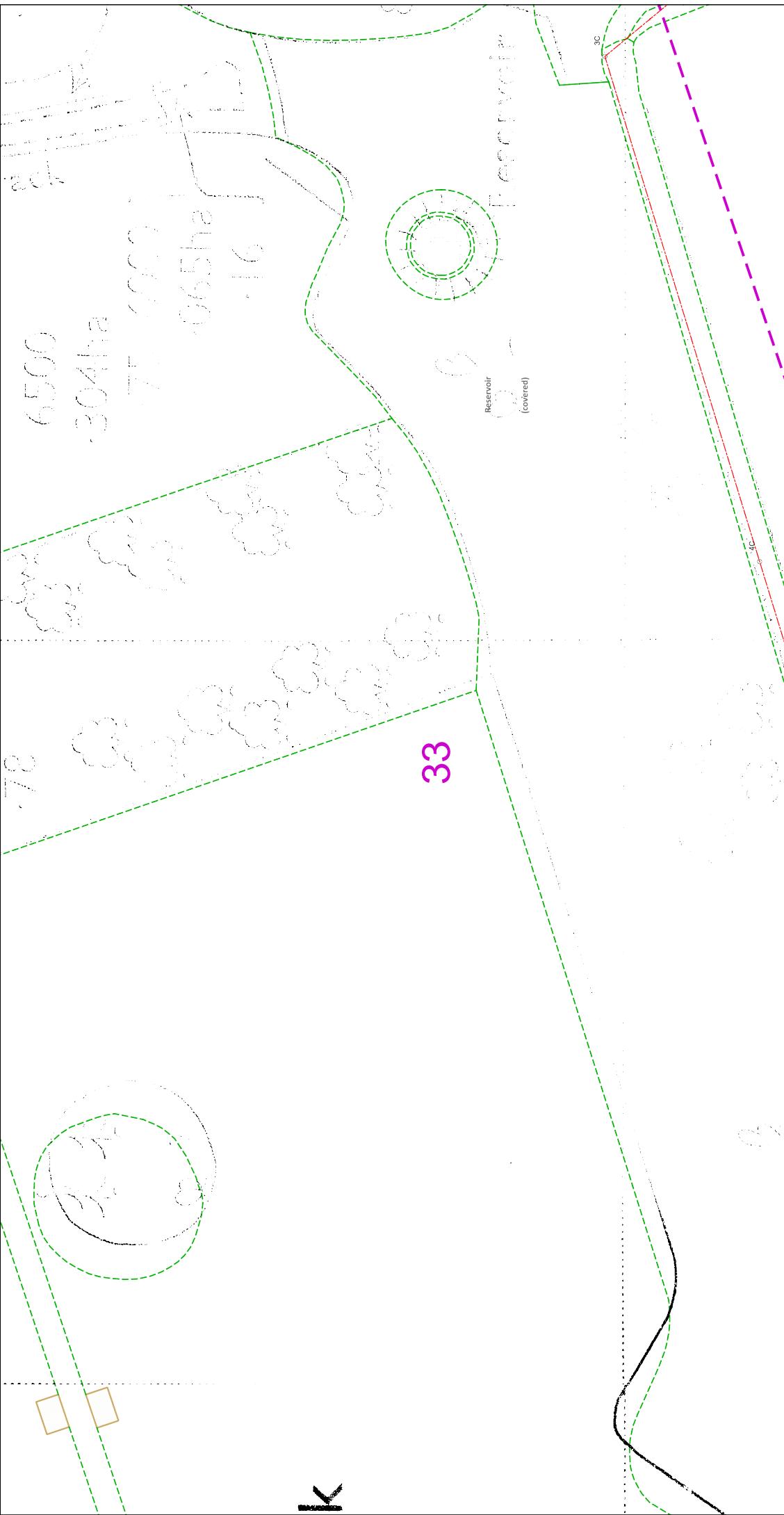
This plan does not warrant that the information provided to you is correct. You rely upon it at your own risk.  
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2. UK Power Networks does not exclude or limit its liability for breach of statutory duty.  
3. Subject to paragraph 2 UK Power Networks has no liability for damage, cost, claims, demands, or expenses that you or any third party may suffer or incur as a result of using or otherwise for any loss, damage, cost, claims, demands, or expenses that you or any third party may suffer or incur as a result of using or otherwise for any economic loss (including without limitation loss of profit, loss of opportunity, loss of savings, loss of goodwill, loss of business, loss of or use of any special or consequential loss or damage whatsoever).  
4. This plan has been provided to you on the basis of the terms of use set out in the covering letter that accompanies this plan. If you do not accept and/or do not understand the terms of use set out in the covering letter you must not use the plan and must return it to the sender of the letter.  
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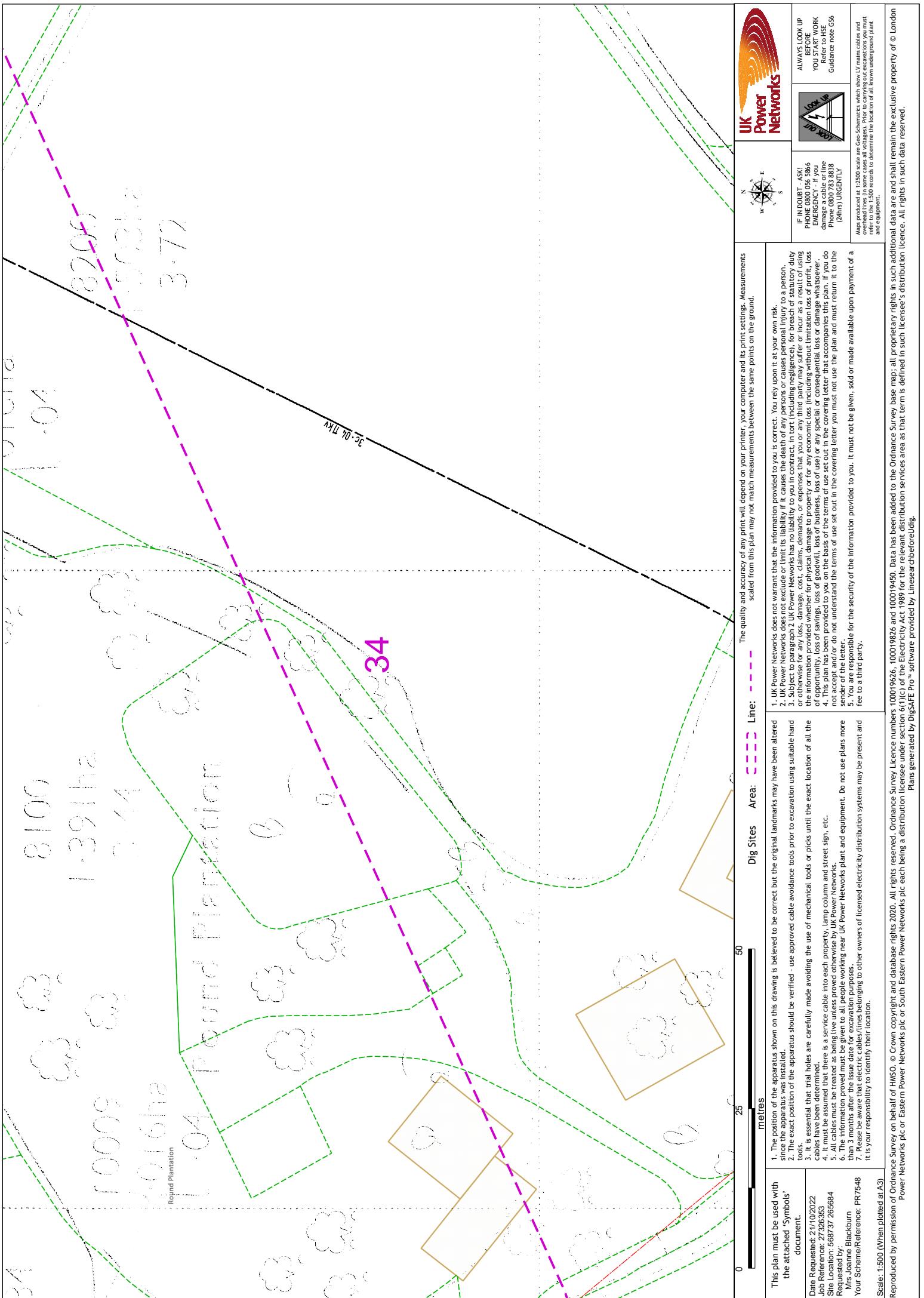
Date Requested: 2/10/2022  
Job Reference: Z7282353  
Site Location: 568737 285884  
Requested By:  
Mrs Joanne Blackburn  
Your Scheme Reference: PR7548  
Scale: 1:500 (When plotted at A3)

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 <b>UK Power Networks</b>	
	
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<p>This plan must be used with the attached 'Symbols' document.</p> <p>Date Requested: 2/10/2022 Job Reference: Z728353 Site Location: 568737 285884 Requested By: Mrs Joanne Blackburn Your Scheme Reference: PR7548 Scale: 1:500 (When plotted at 43)</p>	
<p>1. The position of the apparatus shown on this drawing is believed to be correct but the original landmarks may have been altered since the apparatus was installed. 2. The exact position of the apparatus should be verified using approved cable avoidance tools prior to excavation using suitable hand tools. 3. It is essential that trial holes are carefully made avoiding the use of mechanical tools or picks until the exact location of all the cables have been determined. 4. It must be assumed that there is a service cable in each property, lamp column and street sign, etc. 5. All cables must be treated as being live unless proved otherwise by UK Power Networks. 6. The information provided must be given to all people working near UK Power Networks plant and equipment. Do not use plans more than 3 months after the issue date for excavation purposes. 7. Please be aware that electric cables/lines belonging to other owners of licensed electricity distribution systems may be present and it is your responsibility to identify their location.</p>	
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<p>3. Subject to paragraph 2 UK Power Networks has no liability to you in contract, in tort (including negligence), for breach of statutory duty or otherwise for any loss, damage, cost, claims, demands, or expenses that you or any third party may suffer or incur as a result of using the information provided whether for physical damage to property or for any economic loss (including without limitation loss of profit, loss of opportunity, loss of savings, loss of goodwill, loss of business, loss of or use of any special or consequential loss or damage whatsoever).</p>	
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<p></p>	
<p>ALWAYS LOOK UP BEFORE YOU START WORK Refer to HSE Guidance note G56</p>	



1.08

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The quality and accuracy of any print will depend on your printer, your computer and its print settings. Measurements scaled from this plan may not match measurements between the same points on the ground.

This plan must be used with the attached 'Symbols' document.

Date Requested: 21/10/2022  
Job Reference: 2728353  
Site Location: 568737 285884  
Requested By:  
Mrs Joanne Blackburn  
Your Scheme Reference: PR7548  
Scale: 1:500 (When plotted at A3)

1. The position of the apparatus shown on this drawing is believed to be correct but the original landmarks may have been altered since the apparatus was installed.
2. The exact position of the apparatus should be verified using approved cable avoidance tools prior to excavation using suitable hand tools.
3. It is essential that trial holes are carefully made avoiding the use of mechanical tools or picks until the exact location of all the cables have been determined.
4. It must be assumed that there is a service cable in each position (including without limitation loss of profit, loss of opportunity, loss of savings, loss of goodwill, loss of business, loss of or use of any special or consequential loss or damage whatsoever).
5. All cables must be treated as being live unless proved otherwise by UK Power Networks.
6. The information provided must be given to all people working near UK Power Networks plant and equipment. Do not use plans more than 3 months after the issue date for excavation purposes.
7. Please be aware that electric cables/lines belonging to other owners of licensed electricity distribution systems may be present and it is your responsibility to identify their location.

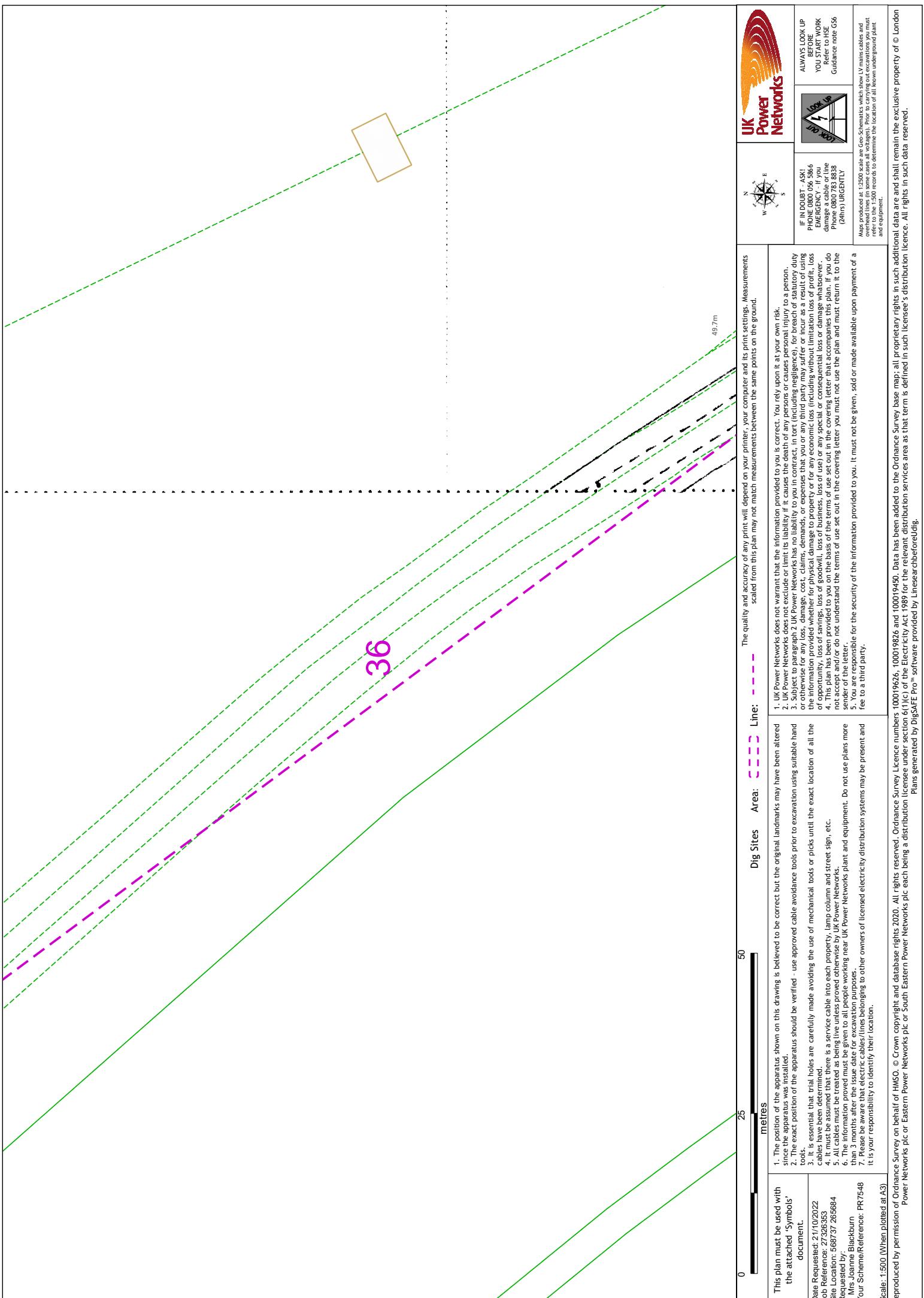
<b>UK Power Networks</b>	
0	50
Dig Sites	Area:
Metres	

Always look up before you start work. Refer to HSE Guidance note G56.

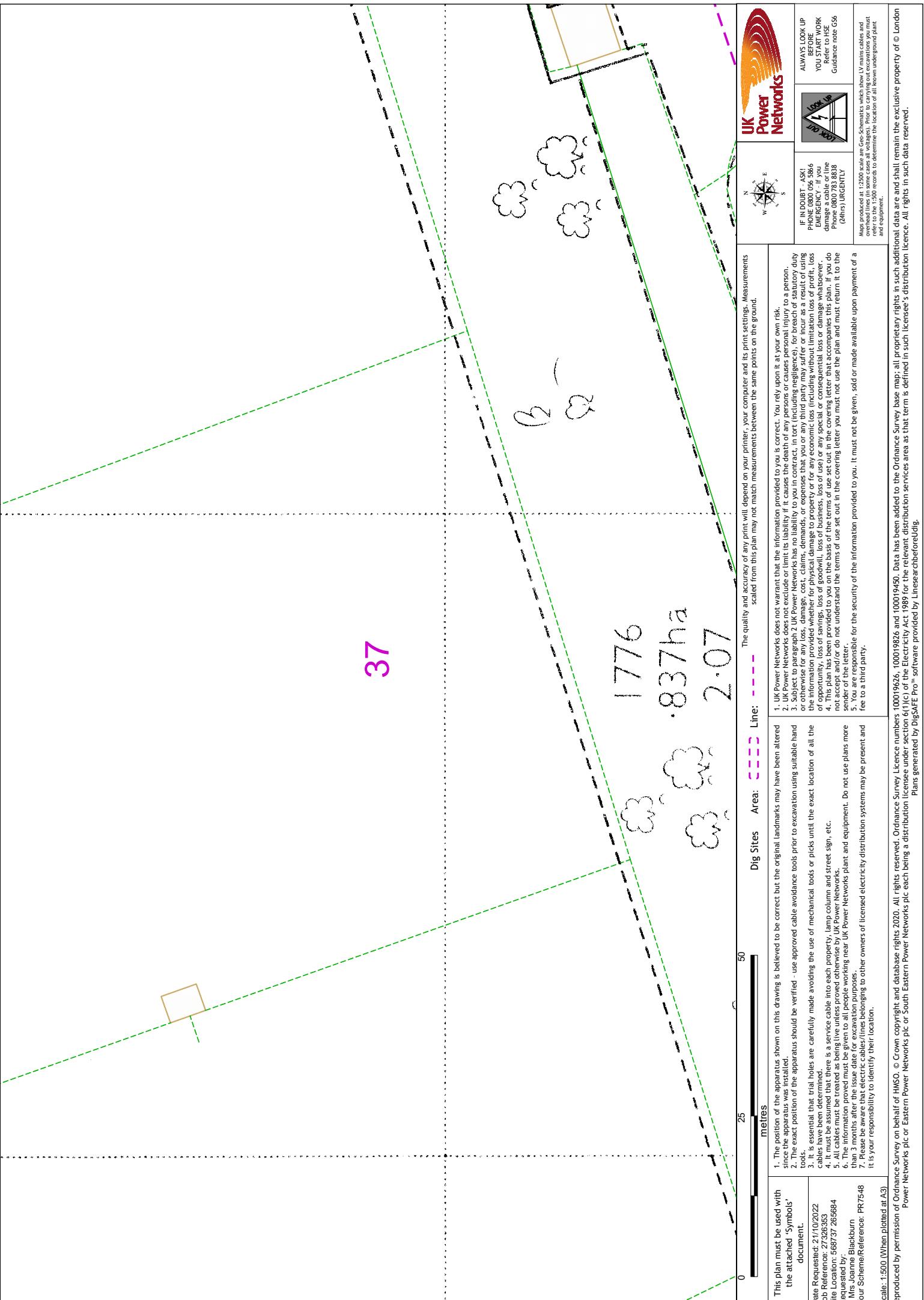
If in doubt - ask! Phone 0800 059 8666 Emergency - if you damage a cable or line Phone 0800 783 8838 (24hrs URGENTLY)

Maps produced at 1:500 scale are Geo-Schematics which show LV mains cables and overhead lines (in some cases all voltages). Prior to carrying out excavations you must refer to the 1:500 records to determine the location of all known underground plant and equipment.

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 <b>UK Power Networks</b>	
	<b>LOCK UP</b> <b>LOCK ON</b>
<b>IF IN DOUBT... ASK!</b> <b>PHONE 0800 056 866</b> <b>EMERGENCY - If you</b> <b>damage a cable or line</b> <b>Phone 0800 783 838</b> <b>(24hrs) URGENTLY</b>	<b>ALWAYS LOOK UP</b> <b>BEFORE</b> <b>YOU START WORK</b> <b>Refer to HSE</b> <b>Guidance note G56</b>
<p>Maps produced at 1:500 scale are Geo-Schematics which show LV mains cables and overhead lines (in some cases all voltages). Prior to carrying out excavations you must refer to the 1:500 records to determine the location on all known underground plant and equipment.</p>	
<p>This plan must be used with the attached 'Symbols' document.</p>	
<p>Date Requested: 2/10/2022 Job Reference: Z7282353 Site Location: 568737 285884 Revised By: Mrs Joanne Blackburn Your Scheme Reference: PR7548 Scale: 1:500 (When plotted at 43)</p>	
<p>1. The position of the apparatus shown on this drawing is believed to be correct but the original landmarks may have been altered since the apparatus was installed. 2. The exact position of the apparatus should be verified using approved cable avoidance tools prior to excavation using suitable hand tools. 3. It is essential that trial holes are carefully made avoiding the use of mechanical tools or picks until the exact location of all the cables have been determined. 4. It must be assumed that there is a service cable in each property, lamp column and street sign, etc. 5. All cables must be treated as being live unless proved otherwise by UK Power Networks. 6. The information provided must be given to all people working near UK Power Networks plant and equipment. Do not use plans more than 3 months after the issue date for excavation purposes. 7. Please be aware that electric cables/lines belonging to other owners of licensed electricity distribution systems may be present and it is your responsibility to identify their location.</p>	
<p>1. UK Power Networks does not warrant that the information provided to you is correct. You rely upon it at your own risk. 2. UK Power Networks does not exclude or limit its liability if it causes the death of any persons or causes personal injury to a person, or otherwise for any loss, damage, cost, claims, demands, or expenses that you or any third party may suffer or incur as a result of using the information provided whether for physical damage to property or for any economic loss (including without limitation loss of profit, loss of opportunity, loss of savings, loss of goodwill, loss of business, loss of or use of any special or consequential loss or damage whatsoever). 3. This plan has been provided to you on the basis of the terms of use set out in the covering letter that accompanies this plan. If you do not accept and/or do not understand the terms of use set out in the covering letter you must not use the plan and must return it to the sender of the letter. 4. You are responsible for the security of the information provided to you. It must not be given, sold or made available upon payment of a fee to a third party.</p>	



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The quality and accuracy of any print will depend on your printer, your computer and its print settings. Measurements scaled from this plan may not match measurements between the same points on the ground.

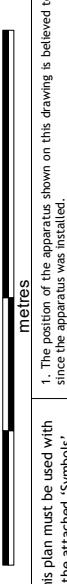


ALWAYS LOOK UP  
BEFORE YOU START WORK  
Refer to HSE Guidance note G56

Maps produced at 1:500 scale are Geo-Schematics which show LV mains cables and overhead lines (in some cases all voltages). Prior to carrying out excavations you must refer to the 1:500 records to determine the location of all known underground plant and equipment.

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Plans generated by DigiSAFE Pro™ software provided by Linsearch cbfe/digig.



Metres

16

39

This plan must be used with the attached 'Symbols' document.

Date Requested: 2/10/2022  
Job Reference: 2728353  
Site Location: 568737 285884  
Requested By:  
Mrs Joanne Blackburn  
Your Scheme Reference: PR7548  
Scale: 1:500 (When plotted at 1:3)

1. The position of the apparatus shown on this drawing is believed to be correct but the original landmarks may have been altered since the apparatus was installed.
2. The exact position of the apparatus should be verified using approved cable avoidance tools prior to excavation using suitable hand tools.
3. It is essential that trial holes are carefully made avoiding the use of mechanical tools or picks until the exact location of all the cables have been determined.
4. It must be assumed that there is a service cable in each property, lamp column and street sign, etc.
5. All cables must be treated as being live unless proved otherwise by UK Power Networks.
6. The information provided must be given to all people working near UK Power Networks plant and equipment. Do not use plans more than 3 months after the issue date for excavation purposes.
7. Please be aware that electric cables/lines belonging to other owners of licensed electricity distribution systems may be present and it is your responsibility to identify their location.

1. UK Power Networks does not warrant that the information provided to you is correct. You rely upon it at your own risk.  
2. UK Power Networks does not exclude or limit its liability if it causes the death of any persons or causes personal injury to a person, or otherwise for any loss, damage, cost, claims, demands, or expenses that you or any third party may suffer or incur as a result of using the information provided whether for physical damage to property or for any economic loss (including without limitation loss of profit, loss of opportunity, loss of savings, loss of goodwill, loss of business, loss of or use of any special or consequential loss or damage whatsoever).

3. This plan has been provided to you on the basis of the terms of use set out in the covering letter that accompanies this plan. If you do not accept and/or do not understand the terms of use set out in the covering letter you must not use the plan and must return it to the sender of the letter.

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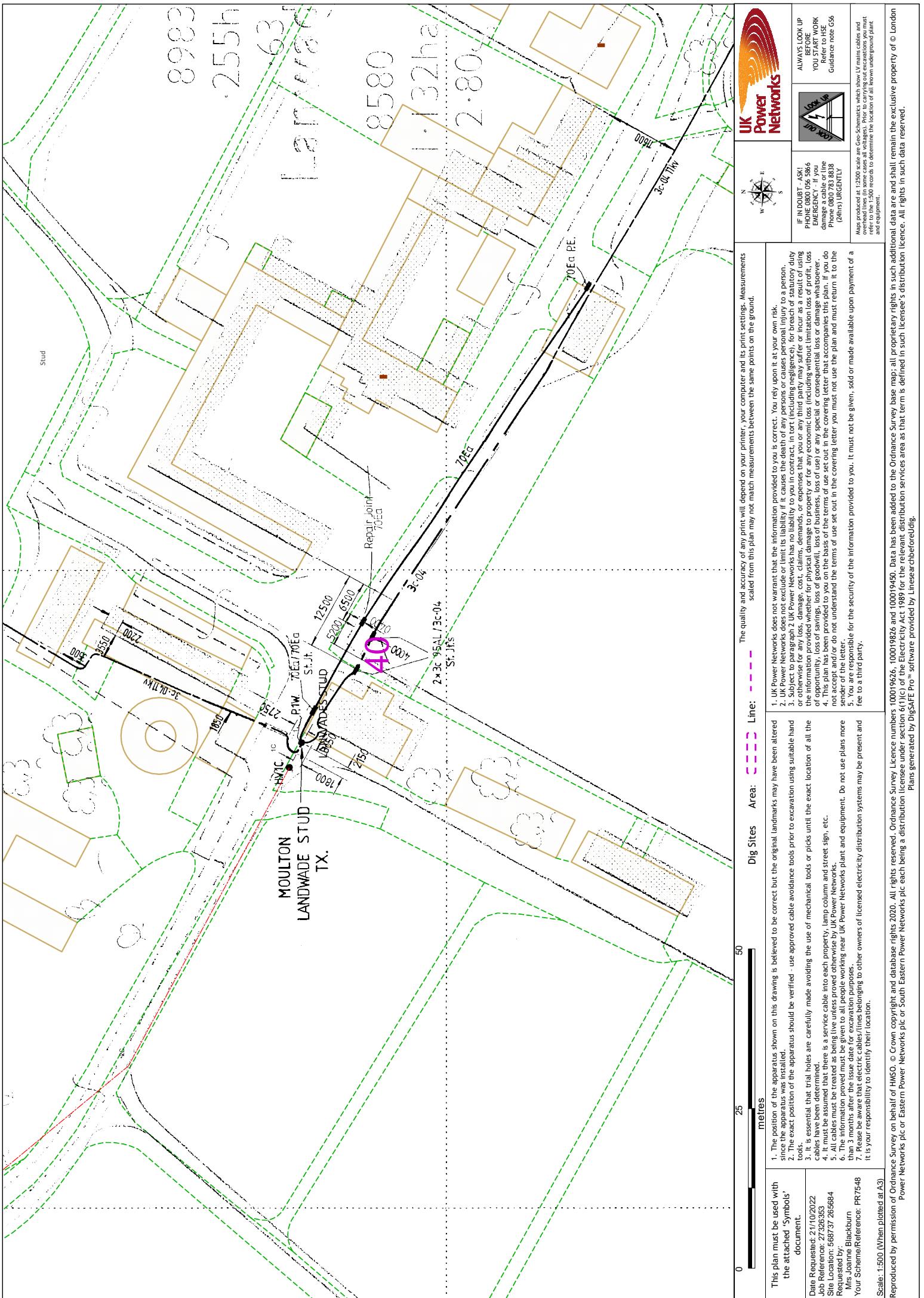
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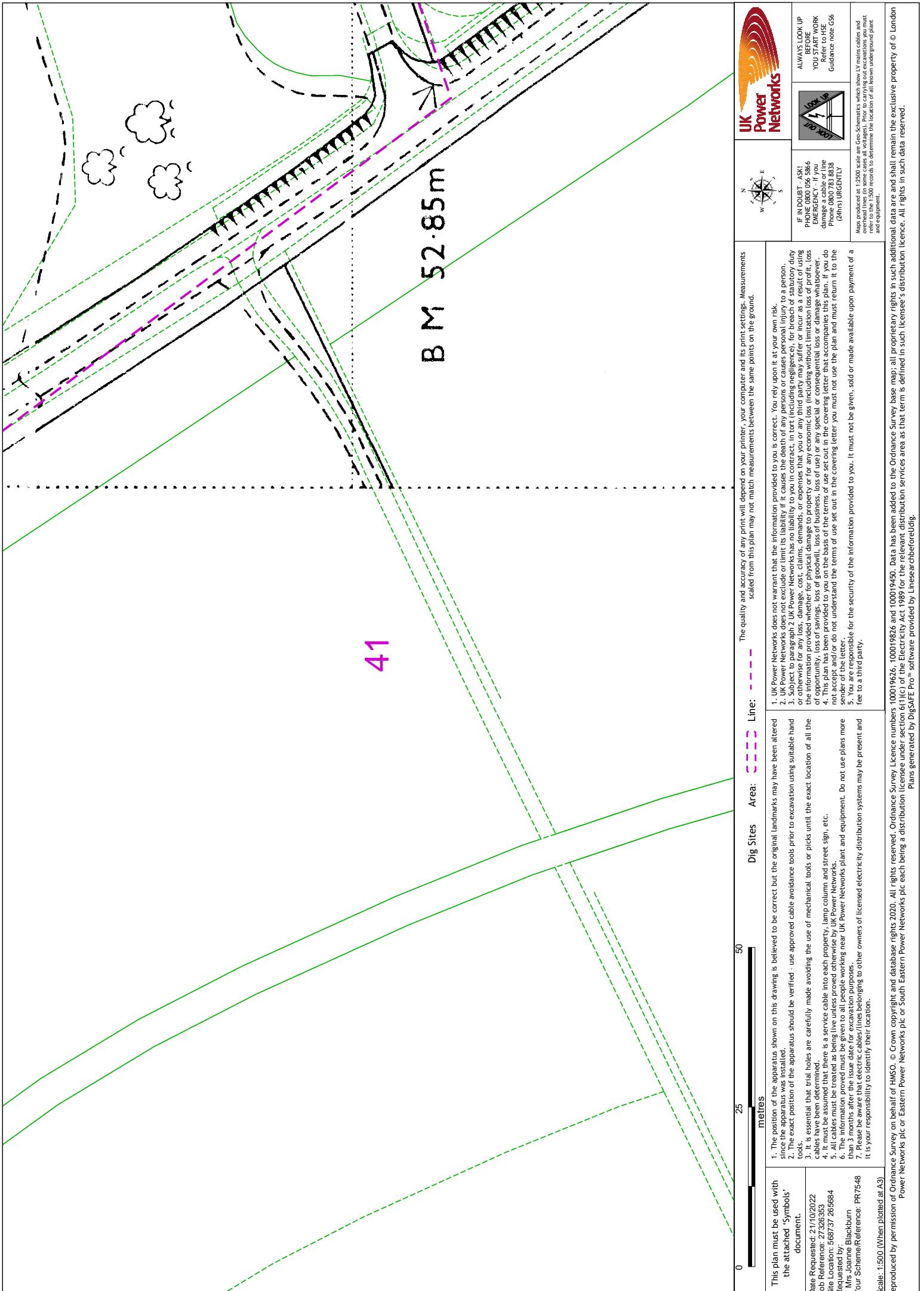
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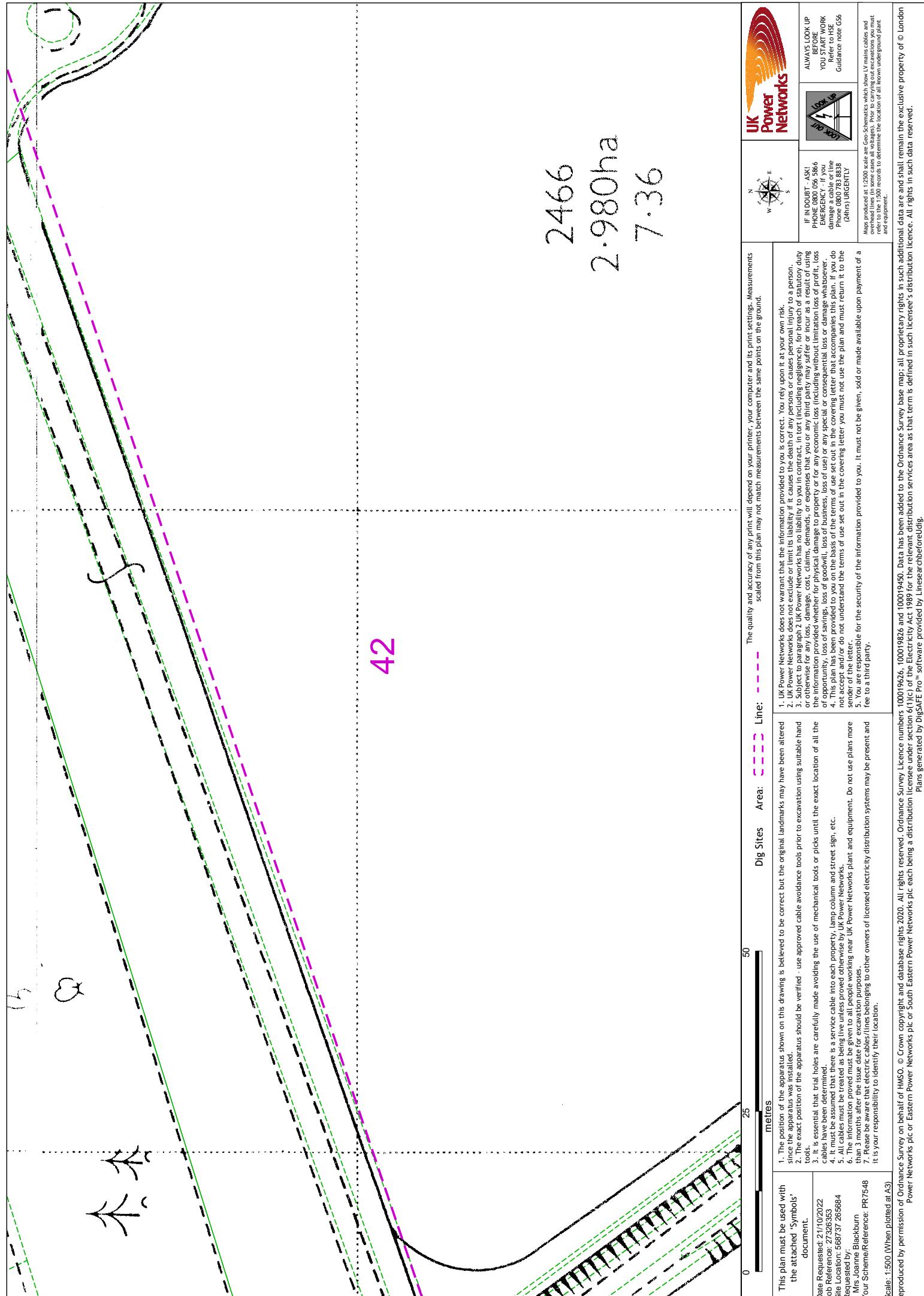
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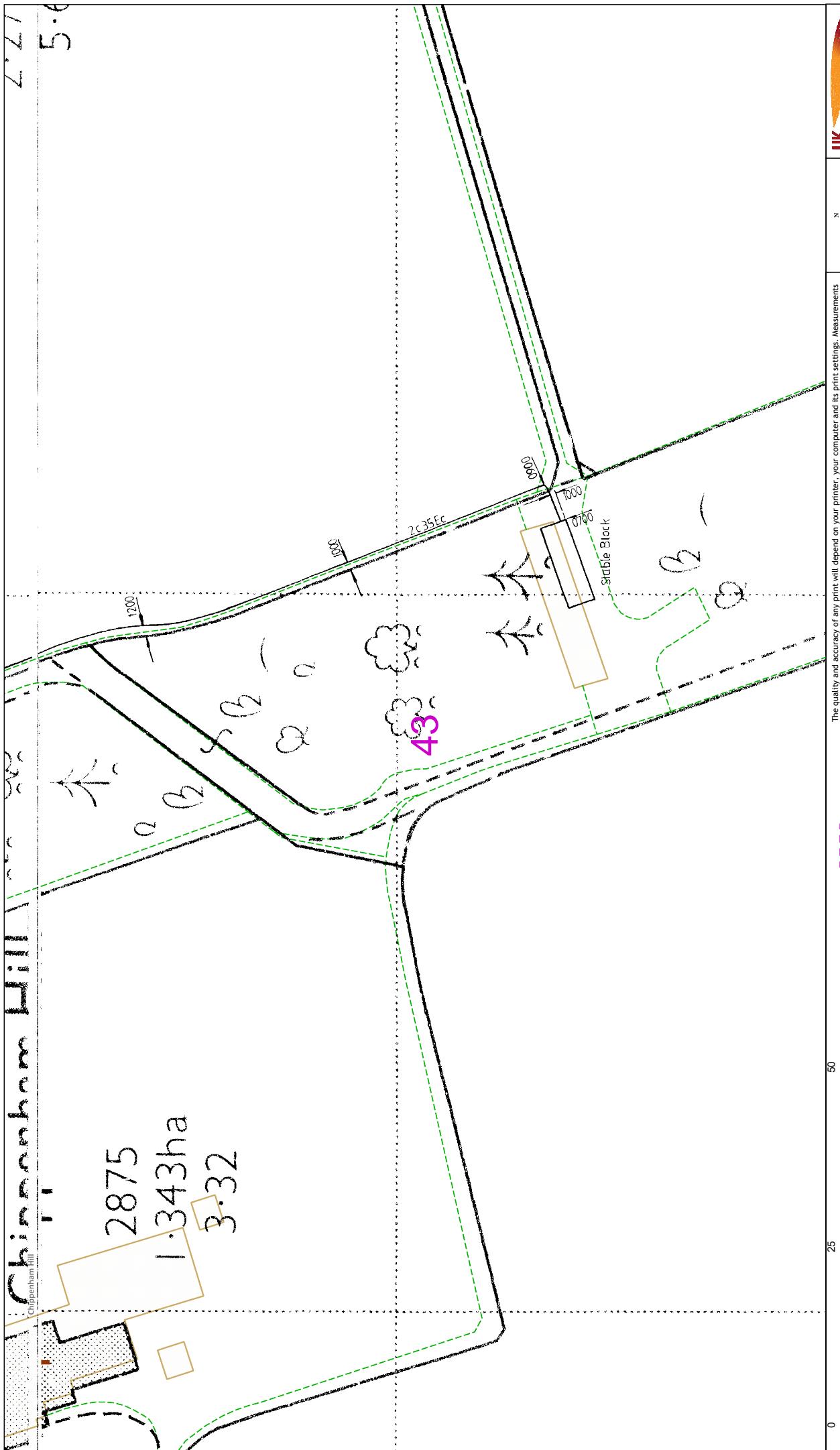
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UK Power Networks	
 N E S W	
Dig Sites	Area: Line: - - -
50	25
Metres	Metres
The quality and accuracy of any print will depend on your printer, your computer and its print settings. Measurements scaled from this plan may not match measurements between the same points on the ground.	
<small>           1. UK Power Networks does not warrant that the information provided to you is correct. You rely upon it at your own risk.            2. UK Power Networks does not exclude or limit its liability if it causes the death of any persons or causes personal injury to a person, or otherwise for any loss, damage, cost, claims, demands, or expenses that you or any third party may suffer or incur as a result of using the information provided whether for physical damage to property or for any economic loss (including without limitation loss of profit, loss of opportunity, loss of savings, loss of goodwill, loss of business, loss of or use of any special or consequential loss or damage whatsoever).            3. This plan has been provided to you on the basis of the terms of use set out in the covering letter that accompanies this plan. If you do not accept and/or do not understand the terms of use set out in the covering letter you must not use the plan and must return it to the sender of the letter.            4. You are responsible for the security of the information provided to you. It must not be given, sold or made available upon payment of a fee to a third party.            5. You are responsible for the security of the information provided to you. It must not be given, sold or made available upon payment of a fee to a third party.         </small>	
<small>           1. UK Power Networks 2 UK Power Networks has no liability for breach of statutory duty.            2. Subject to paragraph 2 UK Power Networks does not exclude or limit its liability if it causes the death of any persons or causes personal injury to a person, or otherwise for any loss, damage, cost, claims, demands, or expenses that you or any third party may suffer or incur as a result of using the information provided whether for physical damage to property or for any economic loss (including without limitation loss of profit, loss of opportunity, loss of savings, loss of goodwill, loss of business, loss of or use of any special or consequential loss or damage whatsoever).            3. This plan has been provided to you on the basis of the terms of use set out in the covering letter that accompanies this plan. If you do not accept and/or do not understand the terms of use set out in the covering letter you must not use the plan and must return it to the sender of the letter.            4. You are responsible for the security of the information provided to you. It must not be given, sold or made available upon payment of a fee to a third party.            5. You are responsible for the security of the information provided to you. It must not be given, sold or made available upon payment of a fee to a third party.         </small>	
<small>           1. IF IN DOUBT... ASK!            PHONE 0800 059 5866            EMERGENCY - If you            damage a cable or line            Phone 0800 783 8388            (24hrs) URGENTLY         </small>	
<small>           ALWAYS LOOK UP            BEFORE YOU START WORK            Refer to HSE            Guidance note G56         </small>	
<small>           Maps produced at 1:500 scale are Geo-Schematics which show LV mains cables and overhead lines (in some cases all voltages). Prior to carrying out excavations you must refer to the 1:500 records to determine the location on all known underground plant and equipment.         </small>	

WARNING! This area contains Gas Mains Operating at Low Pressure of between 2 and 7 bar. Before entering the area contact the local gas operator.  
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 WARNING! This area contains Gas Mains Operating at Low Pressure of between 2 and 7 bar. Before entering the area contact the local gas operator.  
 WARNING! This area contains double handed / 118 26 and this layer is switched off in the map polygons and this layer is switched off in the map



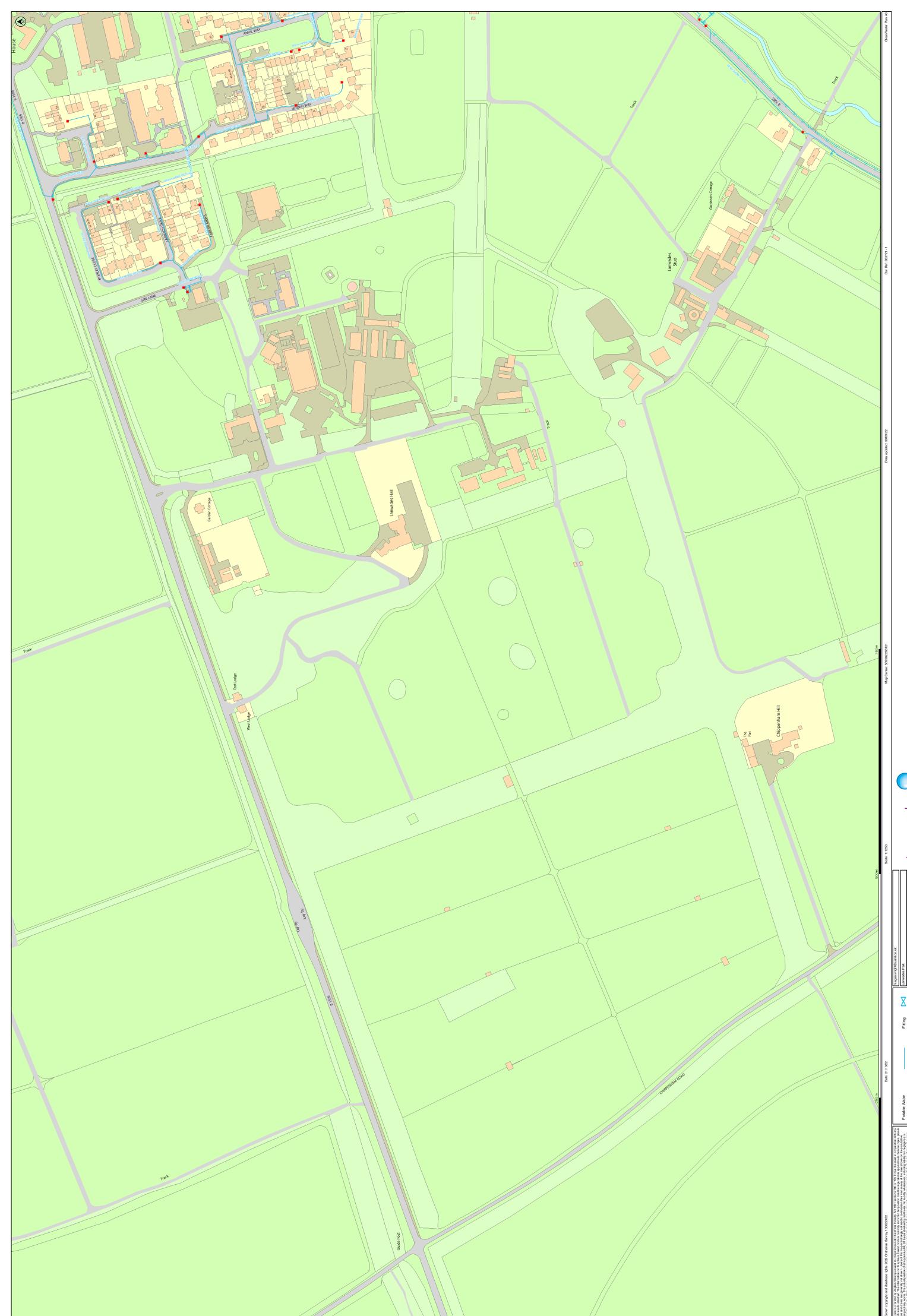
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**Cadent**

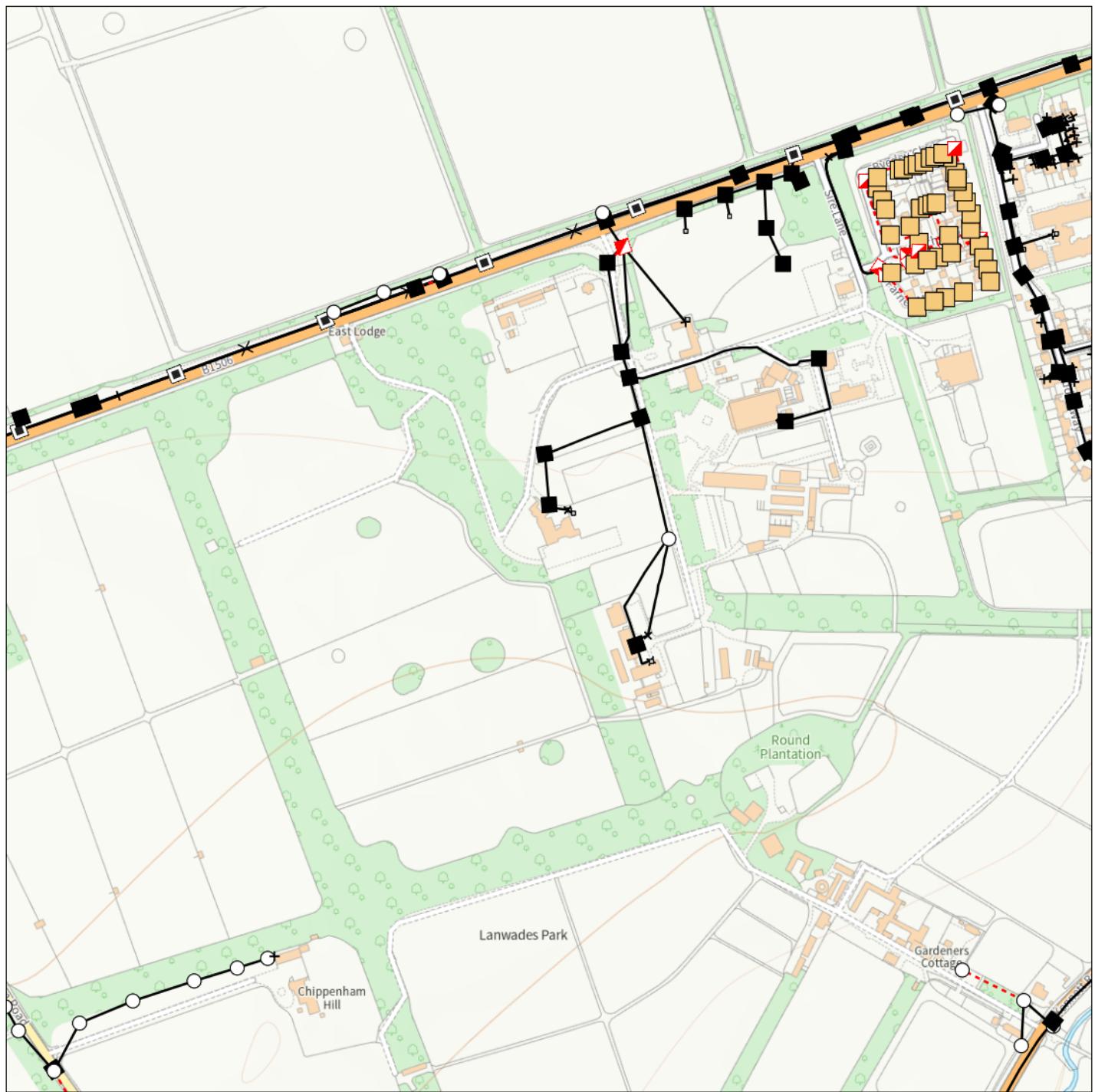
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This plan shows those pipes owned by Cadent in its role as a Licensed Gas Transporter (GT). Gas pipes owned by other GTs, or otherwise privately owned, may be present in this area information with regard to such pipes should be obtained from the relevant owners. The information shown on this plans given without warranty, the accuracy thereof cannot be guaranteed. Service pipes, valves, siphons, 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 error, omission. Safe digging practices, in accordance with HS(G)47 must be used to verify and establish the actual position of mains, pipes, services and any 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.

SCHEME: <NG GDFO Scheme Name>	LUP GAS MAIN	
DESIGN: <NG GDFO Design Number>	MP GAS MAIN	
REVISION: <NG GDFO Revision>	IP GAS MAIN	
INTERNAL USE ONLY	NHIP GAS MAIN	
OS Ref: 878685, 265865	PROPOSED PIPE - LP	
CENTRE: <Centre>	ABANDON - IP	
Some examples of Plant items:	ABANDON - MP	
Valve	Syphon	Change of Material
Depth of Cover	Depth of Cover	Depth of Cover



# Maps by email 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 [cbyd@openreach.co.uk](mailto:cbyd@openreach.co.uk)

ADVANCE NOTICE REQUIRED  
(Office hours: Monday - Friday 08.00 to 17.00)  
[www.openreach.co.uk/cbyd](http://www.openreach.co.uk/cbyd)

## 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

KEY TO BT SYMBOLS		Change Of State	+	Hatchings
Planned	■	Live	Split Coupling	X
PCP	■	■	Duct Tee	▲
Pole	○	○	Building	■
Box	■	■	Kiosk	K
Manhole	■	■	Duct	~
Cabinet	■	■		

Other proposed plant is shown using dashed lines.  
BT Symbols not listed above may be disregarded.  
Existing BT Plant may not be recorded.  
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 : EPX103771

Map Reference : (centre) TL6952266155

Easting/Northing : (centre) 569522,266155

Issued : 20/10/2022 10:37:27

**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)**

