### Land off Bullens Green Lane, Colney Heath, St Albans

**Utility Assessment** 

August 2020





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- Appendix L Affinity Water Pre-Planning Assessment Report
- Appendix M UK Power Networks Quotation
- Appendix M GTC Quotation

### **Report Reference**

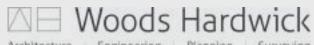
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### **Revision History**

Rev	Amendments	Prepared By	Checked By	Date
First Issue	N/A	JK	GBR	24/08/2020



Introduction



Architecture Engineering Planning Surveying



### Introduction

The following paragraphs state the purpose of this document, and its constraints. A summary of existing and future site details; together with relevant pre-planning correspondence is also provided.

- 1.1 This Utility Assessment (UA) has been prepared by Woods Hardwick Infrastructure LLP on behalf of Canton Ltd in support of an Outline Planning Application for a proposed residential development on a site known as 'Land off Bullents Green Lane, Colney Heath, St Albans'. A Site Location Plan is included within **Appendix A**.
- 1.2 The application boundary for the site covers an approximate area of 5.12ha; the site currently consists of arable agricultural land.
- 1.3 The proposed development is for the construction of up to 100 residential dwellings, including parking and landscaping. A Site Layout Plan is included in **Appendix B**.
- 1.4 This document demonstrates that at present the site can be satisfactorily serviced by all utilities, and that there is a suitable foul drainage outfall.
- 1.5 The plans obtained confirm that a HV electricity cable crosses the north of the site and a BT Telecommunications pole is located along the eastern border. Additionally, there are water mains, low pressure gas mains and Virgin Media apparatus within the immediate vicinity of the site, particularly within the Bullen's Green Lane carriageway which borders the east of the site.
- 1.6 This report concludes that there is no known utility apparatus crossing the site that would serve as an insurmountable constraint to the development; any constraints identified have been accommodated within the illustrative site layout. It also concludes that there is capacity within the various utility networks to supply the site. Where available, budget quotations received from the utility companies are included within the report.
- 1.7 It can therefore be concluded that there is no reason, in terms of utility constraints or supply, why the proposed development should not be fully supported through the planning process.

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### Existing Site and Proposed Development





## Existing Site and Proposed Development

The following paragraphs provide details on the existing and proposed future residential development site; in relation to location, land uses and topography.

- 2.1 Colney Heath is a village within the southern extents of Hertfordshire; approximately 7.5km to the south west of Hatfield and 12.6km to the east of St Albans and 13km to the south of Welwyn Garden City.
- 2.2 The existing site constitutes approximately 5.12ha of arable land and bordering hedgerows. To the north west, the site is bordered by existing residential dwellings fronting Roestock Lane; and to the north east by dwellings fronting Roestock Gardens. To the west, the site is bordered by Roestock Park; to the east by Bullen's Green Lane and to the south by Fellowes Lane.
- 2.3 The proposed development comprises up to 100 residential dwellings, with associated parking, landscaping and open space. Whilst layout is a reserved matter, the illustrative development proposals include both houses and flats, with a mixture of detached, semi-detached and terraced properties. `
- 2.4 The proposed development is to be accessed by one point of vehicular entry post construction, which will take the form of a priority T-junction off Bullen's Green Lane which runs along the east of the site. The access junction has been designed as a 5.5m wide carriageway with 2m wide footpaths either side.
- 2.5 There are a number of Public Right of Way's (PRoW) within the site boundary and within the immediate vicinity of the site. Footpath (FP) 067 and 048 cross the northern half of the site, whilst FP 023 runs along the north eastern border of the site between Roestock Lane and Roestock Park. FP 067 facilitates access east into Hatfield, and FP 023 facilitates access into the wider areas of Colney Heath.
- 2.6 The development proposals plan to retain the PRoW's within the site, in addition to providing new footpaths along either side of the access road.
- 2.7 A Topographical Survey of the site can be viewed in Appendix C.



### **Existing Utilities**





### **Existing Utilities**

The following paragraphs provide details on the existing utilities in the vicinity of the site, focusing on the opportunities and constraints for the development.

#### Potable Water

- 3.1 According to Affinity Water's Record Plans (included in **Appendix D**), their apparatus does not cross the site. The nearest apparatus to the site is a 90mm HPPE distribution water main located under the Bullen's Green Lane carriageway, which runs along the eastern border of the proposed development site.
- 3.2 It is not envisaged that this apparatus will require diverting in order to facilitate the construction of any part of the development proposals; although care will need to be taken during construction of the site access Bullen's Green Lane. Any protection measures which may be required by Affinity Water will be undertaken.

#### <u>Drainage</u>

- 3.3 According to Thames Water's Sewer Record Plans (included in **Appendix E**), their apparatus does not cross the site. The nearest apparatus to the site is a foul sewer network located to the north and north east of the site, serving dwellings off Roestock Lane, Roestock Gardens and the section of Bullen's Green Lane extending north from the site.
- 3.4 Based on the current Site Layout Plan, it is not envisaged that the aforementioned apparatus will require diverting in order to facilitate the construction of the site; however, due care will be taken at the construction stage and any protection measures which may be requested by Thames Water will need to be provided. This apparatus is therefore not considered to be a constraint to the proposed development.

#### **Electricity**

3.5 According to UK Power Network's (UKPN) Record Plans, electricity cables cross the north of the site. There is a High Voltage (HV)1 cable that crosses the north of the site in a north west / south east direction; in addition to a HV5, P1 cable that crosses the centre of the site, and a HV3 cable that crosses the south west of the site in a north west / south east direction. For further details, please refer to UKPN's Record Plans contained in **Appendix F**. 3.6 UKPN were contacted regarding the cables to the north and it was confirmed that they could be moved if necessary; the position of the access may therefore require diversion of these cables. The cables to the south are also able to be diverted if required. Due to the location of the site access on Bullen's Green Lane, the HV5 cable that crosses the carriageway will require diversion. With regards to diversions, UKPN confirmed that timings for diversions (if necessary) would not delay the delivery of the scheme.

<u>Gas</u>

- 3.7 According to Cadent's Record Plans contained in **Appendix G**, no apparatus crosses the site. The nearest apparatus to the site is a 6 Inch Low Pressure main located under Fellowes Lane which borders the south of the site, and a 63mm Low Pressure PE main located under the northern section of Bullen's Green Lane which borders the north east of site.
- 3.8 It is not anticipated that either of these gas mains will pose a significant constraint or require diverting in order to facilitate construction; although care will need to be taken when constructing the access off Bullen's Green Lane. If protection works are required the developer should liaise with Cadent at such time as detailed proposals are prepared.

#### **Telecommunications**

3.9 According to BT Openreach Record Plans contained in **Appendix H**, a pole is located within the north eastern corner of the site. It is not envisaged that this will pose any significant constraint.

<u>Cable</u>

- 3.10 Virgin Media's online coverage checker indicates that they serve the area of Colney Heath. Virgin Media plans, included in **Appendix I**, show that no apparatus directly crosses the site. The closest apparatus is an underground trench located under the Bullen's Green Lane carriageway which runs along the entire eastern border of the site.
- 3.11 It is not envisaged that this apparatus will pose a significant constraint to the development proposals. Notwithstanding this, due care will be necessary at the detailed design and construction stages.

#### Mobile Phones

3.12 A copy of a plan showing the location of mobile phone masts in the vicinity of the site is given in **Appendix J**. From the plan it can be appreciated that there are no mobile phone masts located within the immediate vicinity of the site.

#### Summary

- 3.13 There is no apparatus crossing the site that would serve as an insurmountable constraint to the development proposals. The apparatus which does cross the site includes UK Power Network electricity apparatus and a BT Telecommunications pole. UKPN have also confirmed that their apparatus can be diverted should it be necessary.
- 3.14 The apparatus that is shown to be located close to the border of the site is not considered to represent a significant constraint. It is not anticipated that any apparatus will require diverting; however, the developer should liaise with the owners of the apparatus that has been identified at the detailed design stage and due care should be taken during construction.

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### Existing and Proposed Surface and Foul Water Drainage





PAGE 22

## Existing and Proposed Surface and Foul Water Drainage

The following paragraphs provide an outline of the proposed site generated surface and foul water disposal methods in relation to the proposed development site.

#### Surface Water

- 4.1 All of the recent guidance on the arrangements for storm water disposal from new developments has encouraged the application of a hierarchy for surface water disposal.
- 4.2 The first choice for surface water disposal which should be pursued is via infiltration and only where it has been determined that the ground conditions are not suitable should the second choice of disposal to ditch/watercourse be considered. If there is no alternative the third and last choice of disposal to public sewer can be considered.
- 4.3 A site investigation has been undertaken by Paddock Geo Engineering. The onsite investigations included infiltration testing which confirmed that the underlying material does not support infiltration. Shallow groundwater which would preclude the use of soakways was also recorded beneath the site.
- 4.4 There is a small ditch located to the north of the site, which runs from the far side of Roestock Lane into the northern section of the site. However, the ditch is both narrow and shallow and therefore not deemed suitable for use for drainage purposes at the proposed development site.
- 4.5 According to Thames Water's Record Plans it can be appreciated that there are no surface water sewers to connect to. The surface water connects into the foul sewer network, and therefore the principle for the surface water to drain into the foul sewer is already present.
- 4.6 It is therefore proposed to discharge surface water runoff from the development site to the existing Thames Water public surface water sewer located in Bullen's Green Lane, to the north east of the site. This will require a pumped solution due to the topography of the site.
- 4.7 Thames Water have already confirmed they would accept a connection to the public surface water sewer at MH1150 in Roestock Gardens, at a maximum rate of 9.3l/s which is equivalent to the previously calculated QBAR rate. However, a new connection at this manhole would require crossing third party land. As such, Woods Hardwick have written to Thames Water, requesting a new point of connection at MH3010 in Bullens Green Lane, north east of the site. Their response is currently awaited.

4.8 Surface water runoff from the site will generally be routed towards the surface water pumping station in the northern extent of the site via a gravity fed piped network. From here, surface water flows will be pumped towards the existing public surface water sewer in Bullens Green Lane, north east of the site. Two offline basins will be located in the north eastern extent of the site to provide surface water storage. In addition, swales are proposed alongside the main road, and permeable paving within private areas for surface water treatment.

#### Foul Water

- 4.9 Is it proposed to discharge the site's foul flows, via a pumped connection, to the public foul network in Bullens Green Lane, north east of the site.
- 4.10 A Pre-Planning Enquiry was submitted to Thames Water, requesting confirmation that the existing foul network to the north east of the site has sufficient capacity to accommodate flows from the development. The proposal is to accommodate the foul discharge from the proposed development via a pumped connection to the public foul network in Bullen's Green Lane, to the north east of the site. In their response dated 20<sup>th</sup> August 2020, Thames Water confirmed that they would accept a new connection at MH3011 in Bullens Green Lane at 2.31/s. A full copy of the Thames Pre-Planning Enquiry Response can be viewed in **Appendix K**.
- 4.11 Notwithstanding the above, in accordance with relevant drainage policy, Thames Water are obliged to accept foul water flows from a proposed development, subject to the site receiving planning consent. In anticipation that such a consent will be granted for the proposed residential scheme, it is expected that Thames Water will make the necessary arrangements to ensure that the required provision within their public foul sewer network and treatment works will be available at the time that the Applicant wishes to connect the site's foul sewers to the designated outfall.

**Utility Supplies** 



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### **Utility Supplies**

The following paragraphs provide budget quotations received from the various utility companies to supply the proposed development.

#### Potable Water

- 5.1 Affinity Water's Pre-Planning Enquiry is contained within Appendix L.
- 5.2 The total charge for the proposed works is £169.168.00 (excluding VAT) based upon 100 dwellings. The exact figure will be calculated based upon the rate that is applicable at the time that an application for connection is made. The connection point for the site will be from the south of the site; for the exact location please refer to the map provided within the report contained within **Appendix L**.
- 5.3 The infrastructure charge per property has been calculated at £375.00.
- 5.4 Additionally, the income offset charge is calculated at £435.88 per property according to the 2020-21 charging year.

#### **Electricity**

- 5.5 UK Power Networks (UKPN) was approached to provide a budget quotation for the provision of electricity to the site. UKPN's proposals are based on 100 connections. A breakdown of the quote is provided below:
  - Gas heated dwellings total site load of 171 kVA. The estimated connection charge for the provision of the Connection Works is £190,000.00 (exclusive of VAT). The quote is based upon 100 connections to the PoC to the High Voltage network on site.
  - Electric heated dwellings total site load of 301 kVA. The estimated connection charge for the provision of the Connection Works is £190,000.00 (exclusive of VAT). The quote is based upon 100 connection to the PoC to the High Voltage network on site.
- 5.6 Due to the presence of three HV cables and one pilot cable on site, it is envisaged that diversion will be required in order to accommodate the construction of the site entrance. This would be at an additional cost of £120,000.00. The addition of a substation on site is also required to accommodate connection to the dwellings, the cost of which is included in the total cost for the works. For further details please refer to the UKPN quotation included in **Appendix M**.

<u>Gas</u>

- 5.7 GTC were approached to provide a budget quotation for the provision of gas, electricity and fibre to the site. GTC have assumed a Low Voltage (LV) connection due to the size of the site. GTC have also assumed the Point of Connection adjacent to the site entrance. GTC's quote is based on 100 plots; and the total cost is quoted at £42,855.74. A breakdown of this cost is provided below:
  - Onsite works: £29,144.45
  - Offsite works Gas: £5,625.78
  - Offsite works Electricity: £8,085.51
- 5.8 A full copy of the GTC quotation is included in **Appendix N**.

#### **BT Telecommunications**

5.9 BT Openreach have advised that they are only able to provide a budget quotation at the detailed design stage. It will therefore be necessary to contact BT Openreach seeking a quotation at such time as this information is available. It is not anticipated that providing the site with a telecom connection will be problematic considering the presence of existing BT apparatus within the immediate vicinity of the site.

Summary and Conclusion





### Summary and Conclusion

The following paragraphs summarise the findings of this report and provide a factually conclusive and unbiased recommendation for whether the development should be supported through the planning process.

- 6.1 This Utility Assessment (UA) has been prepared by Woods Hardwick Infrastructure LLP on behalf of Canton Ltd in support of an Outline Planning Application for a proposed residential development on a site known as 'Land off Bullens Green Lane, Colney Heath, St Albans'.
- 6.2 Current development proposals are for the construction of up to 100 residential dwellings with associated infrastructure, parking and landscaping.
- 6.3 The report assessed the existing utility apparatus on and within the vicinity of the site; in addition to the capacity of the various utility networks that will be necessary to serve the site.
- 6.4 There is no apparatus crossing the site that would serve as an insurmountable constraint to the development proposals. The only apparatus which passes through the site that will potentially require diverting are three HV cables and one pilot cable. Based on the current illustrative layout plan it is not anticipated that any other apparatus will require diverting, however due care will need to be taken during construction.
- 6.5 Prior to constructing the site access, it will be necessary for the developer to liaise with the various utility companies to confirm whether their apparatus within Bullen's Green Lane will require protection or diversion.
- 6.6 UK Power Networks (UKPN) was approached to provide a budget quotation for the provision of electricity to the site. The estimated connection charge for the provision of the Connection Works is £190,000.00 (exclusive of VAT). An additional cost of £120,000.00 may be required to divert cables in order to facilitate construction of the site access,
- 6.7 GTC were approached to provide a budget quotation for the provision of electricity, gas and fibre to the site. The estimated connection charge for the provision of the Connection Works is £42,855.74. GTC's quote is based on 100 plots.
- 6.8 In conclusion, it has been demonstrated that there is no utility apparatus on or in the vicinity of the proposed site which precludes its development. It has also been demonstrated that there is capacity within the various utility networks to accommodate the proposed development. Therefore, it can be concluded that the proposed development should be fully supported through the planning process.

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#### NOTES

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PRELIMINARY 🗌 INFO			MATION		TENDE	IDER	
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SCALE 1:1250		@ AZ	DATE	MA	Y 20		
DRAWN	RR		СНК	TF	5		
DRAWING NO.	17981-1002		REY	в			
TITLE	Roundhouse Farm, Roestock Lane Colney Heath						
DETAILS	Site Location Plan						



BEDFORD : HEAD OFFICE 15-17 Goldington Road Bedford MK40 3NH T: +44 (0) 1234 268862

BIRMINGHAM Fort Duniop, Fort Parkway Birmingham B24 9FE T: +44 (0) 121 6297784

ONLINE: mail@woodshardwick.com | woodshardwick.com

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### Appendix B Site Layout Plan



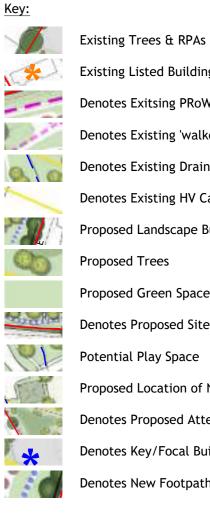




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Existing Listed Building Denotes Exitsing PRoW Denotes Existing 'walked route' Denotes Existing Drainage Denotes Existing HV Cable Proposed Landscape Buffer Proposed Trees Proposed Green Space Denotes Proposed Site Access Potential Play Space Proposed Location of New Pump Station **Denotes Proposed Attenuation** Denotes Key/Focal Buildings

### Denotes New Footpath Route

# DRAFT

D		oundary updated to suit Title Boundary and access location.					TF	13.08.2020
REV	REV DESCRIPTION					DRN	CHD	DATE
	PRELIMINA	RY		INFORMATIO	N		TENDE	R
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DRA	DRAWING NO. 17981/1005 REV				REV	E		
TITL	Land North of Fellows Lane Colney Heath							
DET	AILS	Proposed Illustrative Layout						



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Bedford MK40 3NH

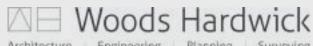
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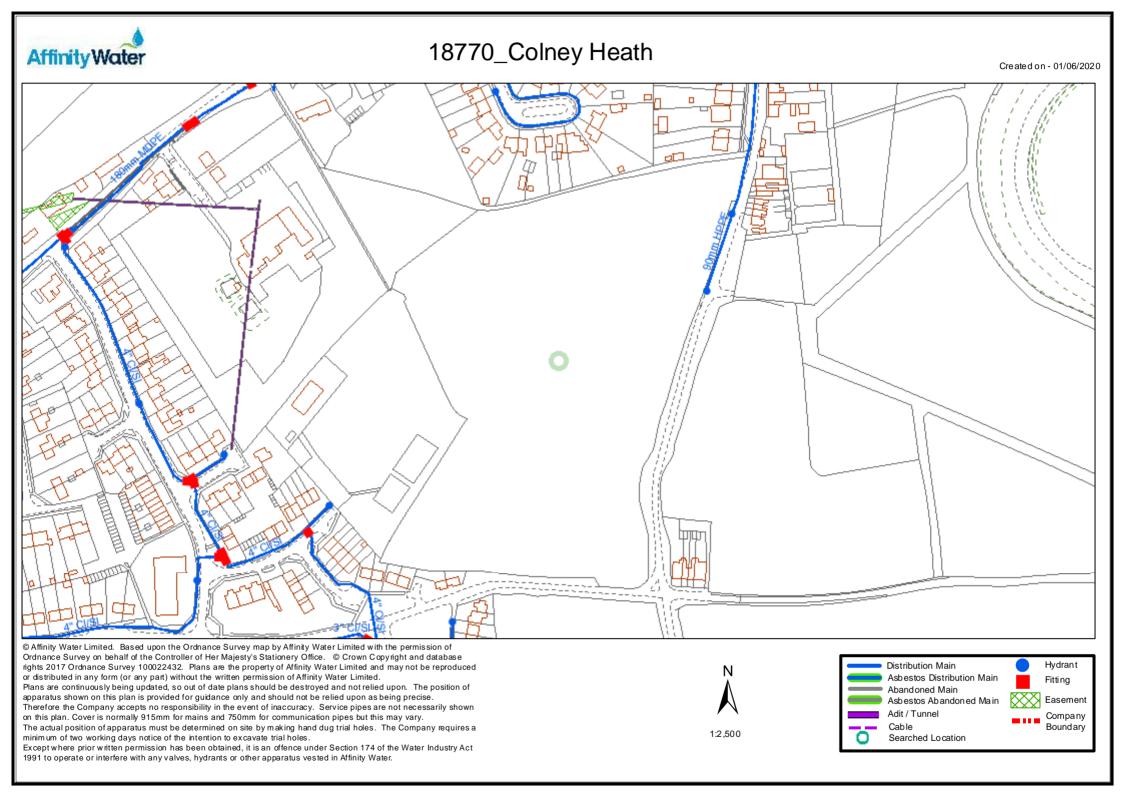
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# Affinity Water Supply Record Plans





## Appendix E Thames Water Sewer Record Plans



# Asset location search



Woods Hardwick Ltd BEDFORD MK40 3NH

Search address supplied

Roundhouse Farm Bullen's Green Lane North Mymms Welwyn Hatfield Hertfordshire AL4 0QT

Your reference 18770\_Colney Heath

Our reference

ALS/ALS Standard/2020\_4193250

Search date

12 June 2020

#### Knowledge of features below the surface is essential for every development

The benefits of this knowledge not only include ensuring due diligence and avoiding risk, but also being able to ascertain the feasibility of any development.

Did you know that Thames Water Property Searches can also provide a variety of utility searches including a more comprehensive view of utility providers' assets (across up to 35-45 different providers), as well as more focused searches relating to specific major utility companies such as National Grid (gas and electric).

Contact us to find out more.



Thames Water Utilities Ltd Property Searches, PO Box 3189, Slough SL1 4WW DX 151280 Slough 13



searches@thameswater.co.uk www.thameswater-propertysearches.co.uk



0845 070 9148





**Search address supplied:** Roundhouse Farm, Bullen's Green Lane, North Mymms, Welwyn Hatfield, Hertfordshire, AL4 0QT

Dear Sir / Madam

An Asset Location Search is recommended when undertaking a site development. It is essential to obtain information on the size and location of clean water and sewerage assets to safeguard against expensive damage and allow cost-effective service design.

The following records were searched in compiling this report: - the map of public sewers & the map of waterworks. Thames Water Utilities Ltd (TWUL) holds all of these.

This searchprovides maps showing the position, size of Thames Water assets close to the proposed development and also manhole cover and invert levels, where available.

Please note that none of the charges made for this report relate to the provision of Ordnance Survey mapping information. The replies contained in this letter are given following inspection of the public service records available to this company. No responsibility can be accepted for any error or omission in the replies.

You should be aware that the information contained on these plans is current only on the day that the plans are issued. The plans should only be used for the duration of the work that is being carried out at the present time. Under no circumstances should this data be copied or transmitted to parties other than those for whom the current work is being carried out.

Thames Water do update these service plans on a regular basis and failure to observe the above conditions could lead to damage arising to new or diverted services at a later date.

#### **Contact Us**

If you have any further queries regarding this enquiry please feel free to contact a member of the team on 0845 070 9148, or use the address below:

Thames Water Utilities Ltd Property Searches PO Box 3189 Slough SL1 4WW

Email: <u>searches@thameswater.co.uk</u> Web: <u>www.thameswater-propertysearches.co.uk</u>





#### Waste Water Services

Please provide a copy extract from the public sewer map.

The following quartiles have been printed as they fall within Thames' sewerage area:

TL2006SE TL2105NW TL2106SW TL2005NE

Enclosed is a map showing the approximate lines of our sewers. Our plans do not show sewer connections from individual properties or any sewers not owned by Thames Water unless specifically annotated otherwise. Records such as "private" pipework are in some cases available from the Building Control Department of the relevant Local Authority.

Where the Local Authority does not hold such plans it might be advisable to consult the property deeds for the site or contact neighbouring landowners.

This report relates only to sewerage apparatus of Thames Water Utilities Ltd, it does not disclose details of cables and or communications equipment that may be running through or around such apparatus.

The sewer level information contained in this response represents all of the level data available in our existing records. Should you require any further Information, please refer to the relevant section within the 'Further Contacts' page found later in this document.

#### For your guidance:

- The Company is not generally responsible for rivers, watercourses, ponds, culverts or highway drains. If any of these are shown on the copy extract they are shown for information only.
- Any private sewers or lateral drains which are indicated on the extract of the public sewer map as being subject to an agreement under Section 104 of the Water Industry Act 1991 are not an 'as constructed' record. It is recommended these details be checked with the developer.

#### Clean Water Services

Please provide a copy extract from the public water main map.

Following examination of our statutory maps, Thames Water has been unable to find





any plans of water mains within this area. If you require a connection to the public water supply system, please write to:

New Connections / Diversions Thames Water Network Services Business Centre Brentford Middlesex TW8 0EE

Tel: 0845 850 2777 Fax: 0207 713 3858 Email: developer.services@thameswater.co.uk

The following quartiles have not been printed as they are out of Thames' water catchment area. For details of the assets requested please contact the water company indicated below:

TL2006SE	Affinity Water
TL2105NW	Affinity Water
TL2106SW	Affinity Water
TL2005NE	Affinity Water

Affinity Water Ltd Tamblin Way Hatfield AL10 9EZ

Tel: 0345 3572401

For your guidance:

- Assets other than vested water mains may be shown on the plan, for information only.
- If an extract of the public water main record is enclosed, this will show known public water mains in the vicinity of the property. It should be possible to estimate the likely length and route of any private water supply pipe connecting the property to the public water network.

#### Payment for this Search

A charge will be added to your suppliers account.





#### **Further contacts:**

#### Waste Water queries

Should you require verification of the invert levels of public sewers, by site measurement, you will need to approach the relevant Thames Water Area Network Office for permission to lift the appropriate covers. This permission will usually involve you completing a TWOSA form. For further information please contact our Customer Centre on Tel: 0845 920 0800. Alternatively, a survey can be arranged, for a fee, through our Customer Centre on the above number.

If you have any questions regarding sewer connections, budget estimates, diversions, building over issues or any other questions regarding operational issues please direct them to our service desk. Which can be contacted by writing to:

Developer Services (Waste Water) Thames Water Clearwater Court Vastern Road Reading RG1 8DB

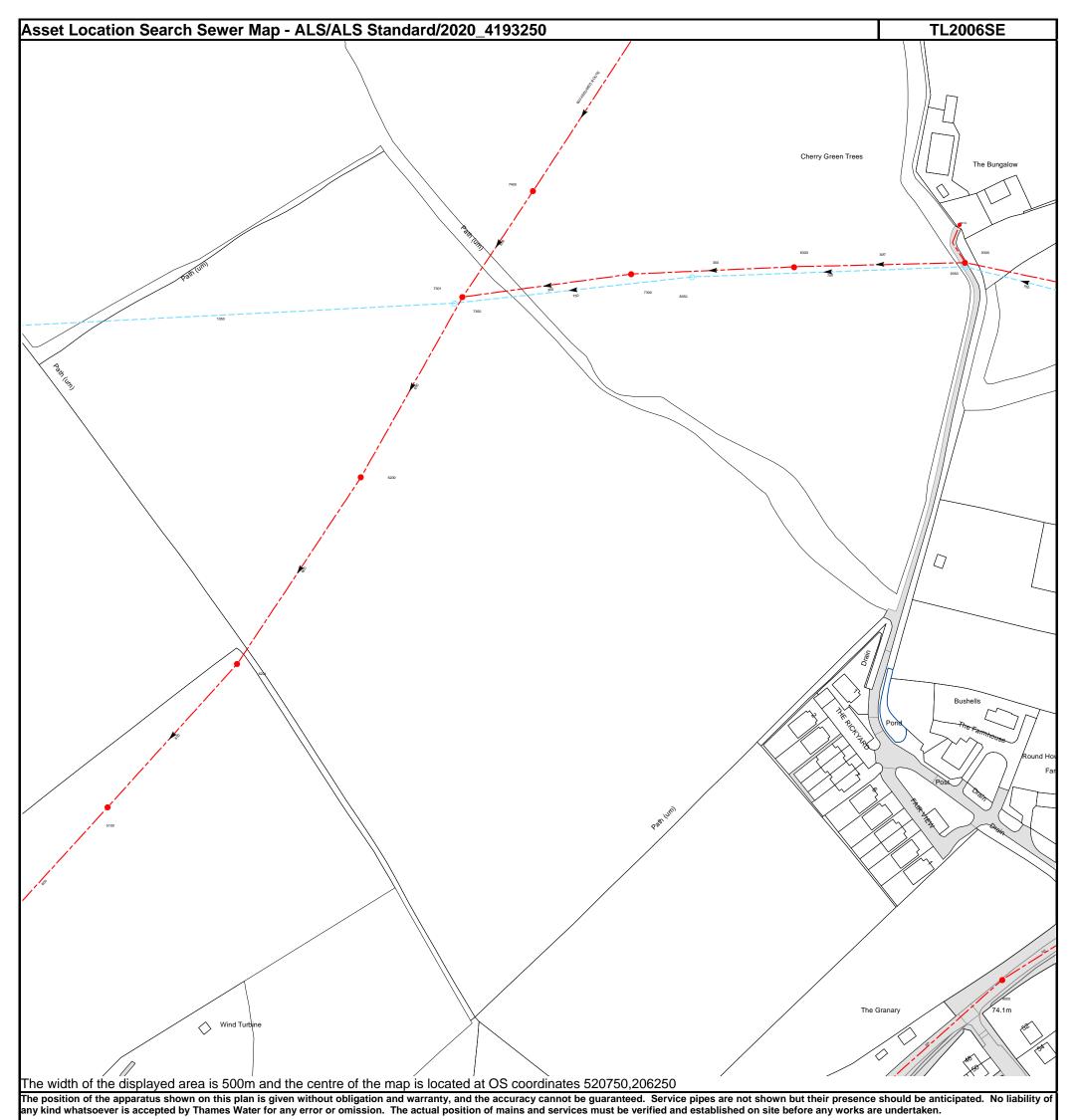
Tel: 0800 009 3921 Email: developer.services@thameswater.co.uk

#### **Clean Water queries**

Should you require any advice concerning clean water operational issues or clean water connections, please contact:

Developer Services (Clean Water) Thames Water Clearwater Court Vastern Road Reading RG1 8DB

Tel: 0800 009 3921 Email: developer.services@thameswater.co.uk

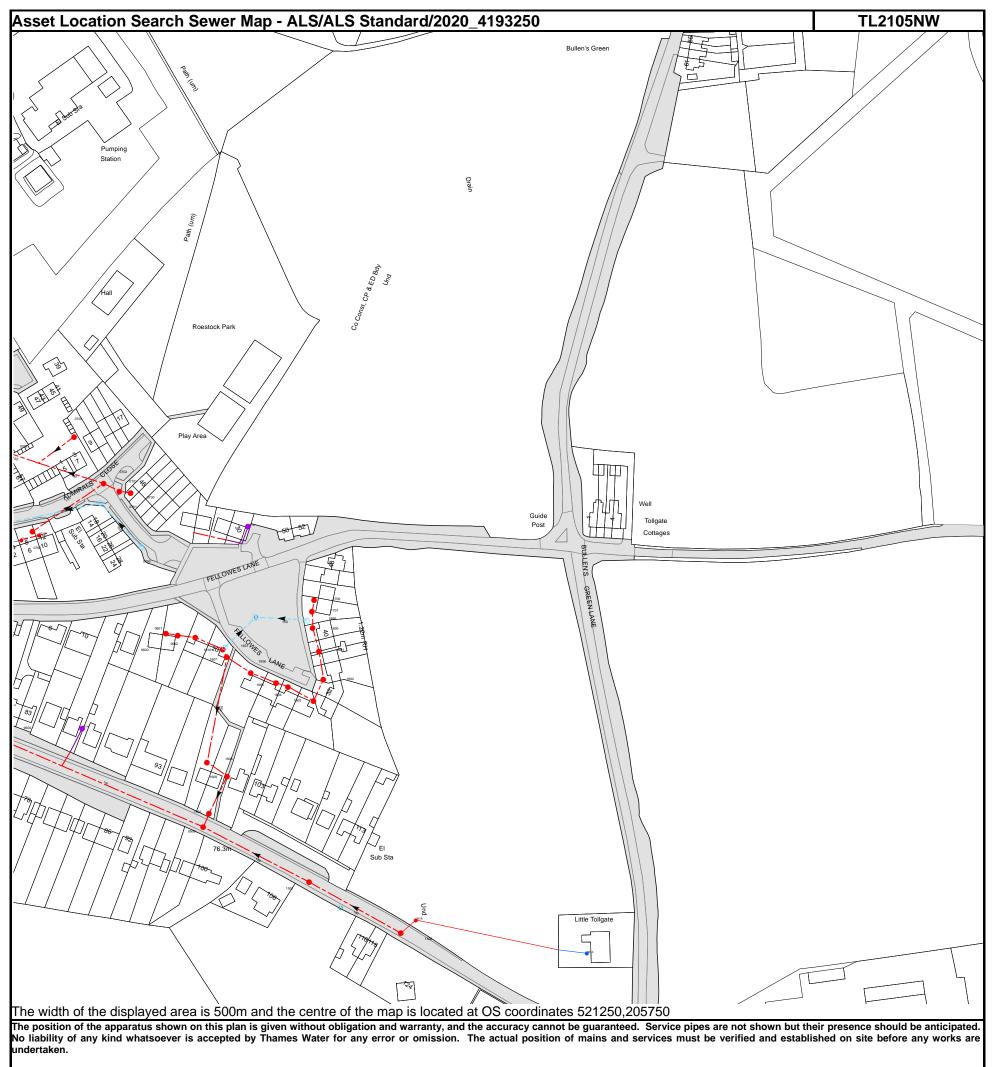


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NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates that no survey information is available

Manhole Reference	Manhole Cover Level	Manhole Invert Level		
9000	74.2	72.1		
5100	75.01	69.58		
6201	74.89	69.67		
6200	73.74	69.83		
7350	72.31	69.18		
7301	72.28	69.92		
8350	72.84	70.16		
7300	72.33	70.51		
8300	74.18	70.94		
9350	74.61	71.14		
9300	74.6	71.35		
941A	n/a	n/a		
7400	71.96	69.99		
The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position				

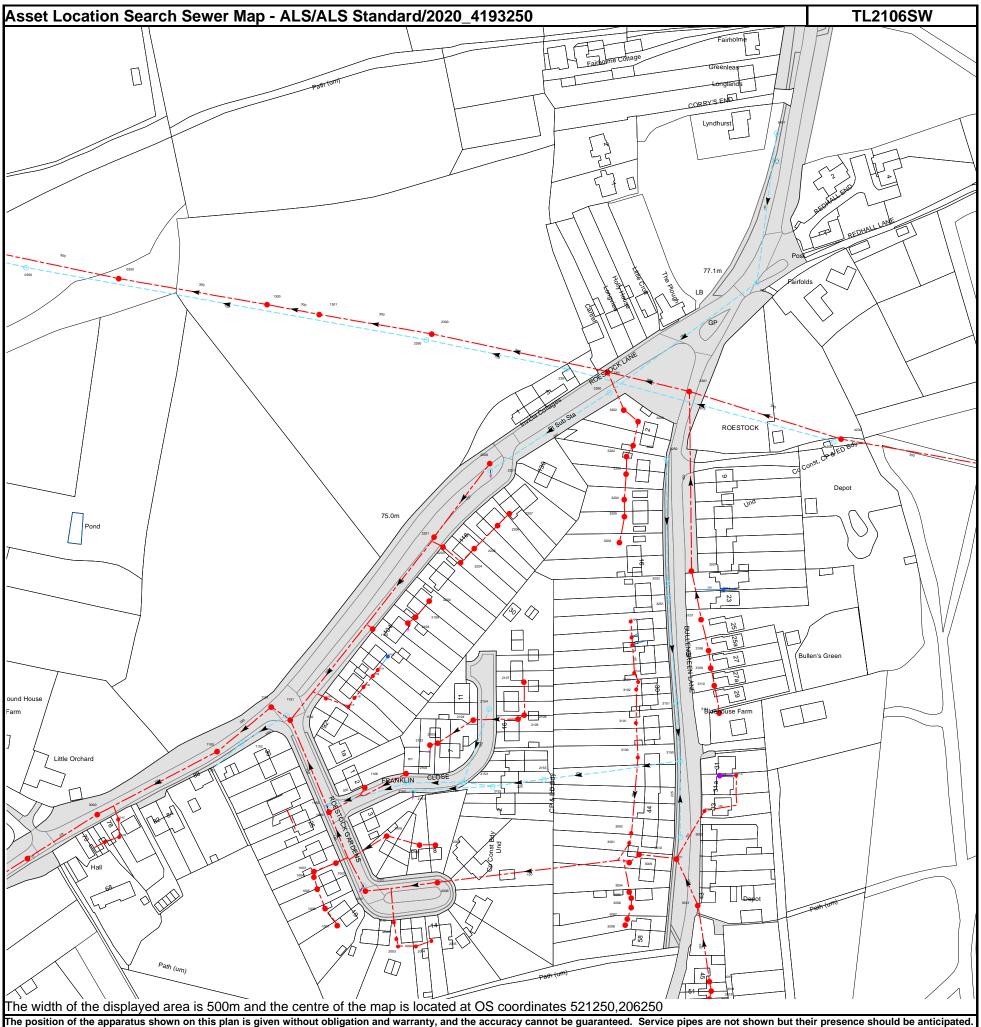
shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual posi of mains and services must be verified and established on site before any works are undertaken.



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NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates that no survey information is available	Э
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Manhole Reference	Manhole Cover Level	Manhole Invert Level
251A	n/a	n/a
1500	76.88	75.03
251B	n/a	n/a
1550	n/a	75.97
1501	76.54	74.59
1603	75.93	75.06
1602	75.74	75.14
1601	75.78	75.24
1600	75.77	75.27
1650	75.9	74.9
1701	75.88	75.33
1700	75.88	75.38
171A	n/a	n/a
0751	75.82	74.47
0700	76.01	74.56
0701	75.89	74.44
0702	75.78	74.34
0704	75.99	74.98
071A	n/a	n/a
0703	76.06	74.82
071B	n/a	n/a
061A	n/a	n/a
0750	76	74.98
0600	75.72	75.07
0601	75.73	74.99
0602	75.76	74.91
0500	76.37	74.31
1608	76.34	74.6
1502	76.31	74.41
1610	75.75	74.85
1651	75.72	74.82
1607	75.79	74.78
1609	76.42	74.52
1606	75.77	74.84
1652	n/a	74.54
1605	75.79	74.89
1604	75.89	74.94
1007	15.03	1
shown but their presence should be antici		d the accuracy cannot be guaranteed. Service pipes are no y Thames Water for any error or omission. The actual position



The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

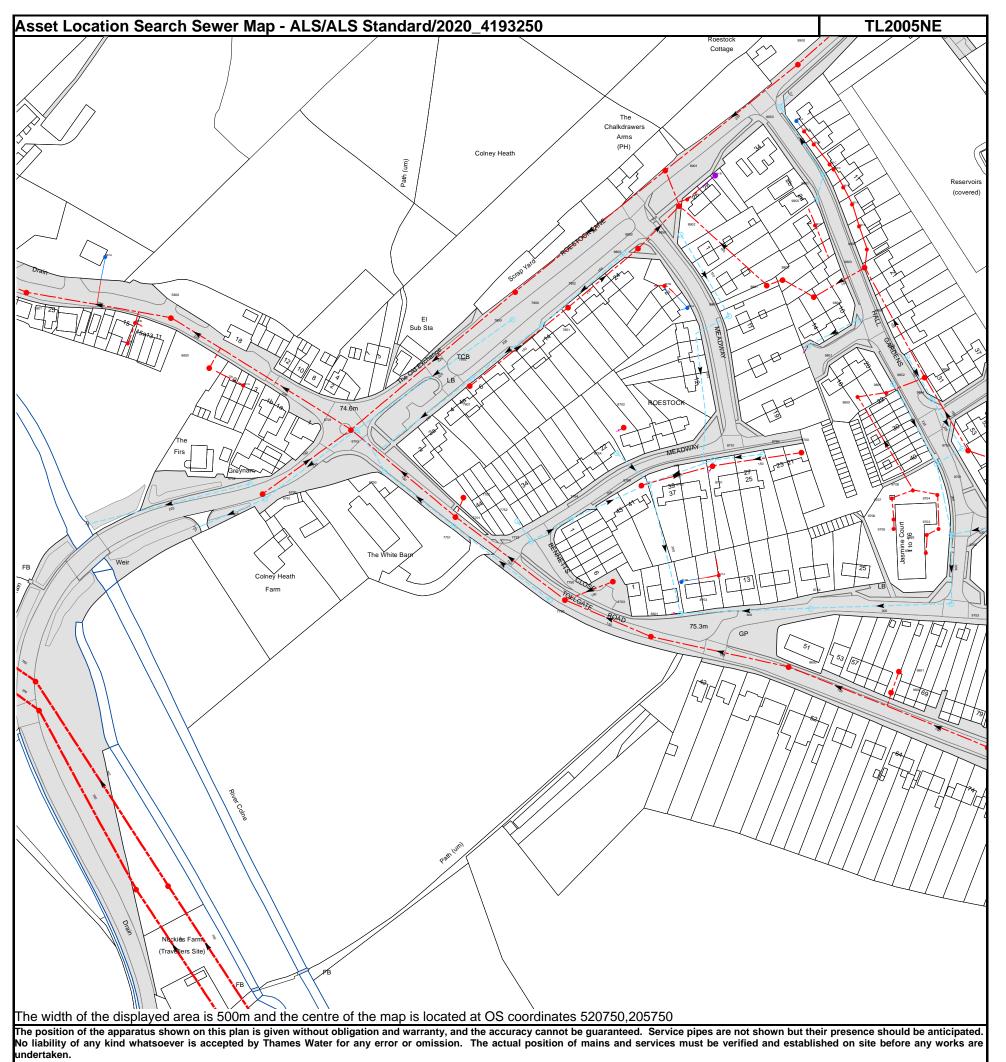
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480         1957         76.7           2105         75.71         74.55           2107         75.83         75.20           2108         76.20         75.20           2109         76.71         74.50           2109         76.71         74.60           2100         76.71         74.60           2101         76.71         74.60           2101         76.71         74.60           2101         76.71         75.33           2101         76.71         75.33           2102         75.83         75.73           2103         76.73         75.83           2104         75.74         76.70           2105         76.71         76.71           2106         77.43         76.71           2107         76.74         76.73           2108         77.43         76.71           2109         77.43         76.51           2111         77.63         76.51           2111         77.63         76.52           2111         77.63         76.51           2111         77.63         77.62           2111         77.	Manhole Reference	Manhole Cover Level	Manhole Invert Level
2165         75.71         74.56           2167         75.83         74.56           2168         75.62         74.55           2000         76.71         74.57           3001         76.71         74.89           3002         76.57         76.51           3005         76.57         76.51           3005         76.57         76.33           3104         76.76         75.33           3105         76.77         75.33           3106         76.76         75.9           3101         76.77         76.1           3103         76.72         76.4           3104         76.72         76.4           3105         76.74         76.2           3106         76.76         76.2           3107         77.46         76.2           3108         77.58         76.2           3109         77.59         76.2           3111         77.69         76.2           3112         77.69         76.2           3113         77.69         76.2           3114         77.69         76.2           3115         77.61			
2165     75.75     74.59       2655     76.02     75.26       3009     77     74.57       3009     76.7     74.57       3002     76.7     76.33       3005     76.7     76.33       3005     76.7     76.33       3016     76.7     76.33       3017     76.7     76.33       318     10.6     75.72       3100     76.73     75.88       3101     76.76     75.89       3100     76.76     75.4       3101     76.76     75.9       3102     76.61     76.11       3103     76.61     76.13       3104     77.42     75.22       3105     76.61     76.3       3107     77.43     76.73       3108     77.43     76.73       3109     77.35     76.57       3111     77.42     75.22       3220     77.42     75.22       3231     77.63     76.5       3232     77.64     76.5       3233     77.62     76.5       3244     76.53     75.6       3235     77.64     76.5       3204     75.84     76.5 <tr< th=""><th>2105</th><td>75.71</td><td>74.56</td></tr<>	2105	75.71	74.56
2155         76.02         75.26           3009         76.7         74.57           3010         76.37         74.59           3020         76.7         74.59           3021         76.7         74.59           3022         76.7         76.3           3101         76.73         75.3           3102         76.73         75.39           3103         76.72         75.4           3104         76.72         75.4           3105         76.71         75.39           3106         76.71         76.07           3107         76.11         76.11           3108         76.61         76.11           3109         77.43         76.22           3100         77.33         76.24           3101         77.62         76.57           3111         77.62         76.52           3112         76.62         77.42           3113         77.62         76.52           3114         76.63         77.42           3115         76.64         77.22           3116         77.42         76.52           3117         76.53 <th>2107</th> <td></td> <td></td>	2107		
3009         77         74.57           3061         76.71         74.59           3105         76.71         75.51           3105         76.77         75.33           3105         76.76         75.33           3118         10.4         10.4           3104         76.76         75.33           3105         76.76         75.33           3106         76.76         75.33           3107         76.76         75.4           3108         76.79         75.4           3109         77.46         76.23           3101         77.61         76.23           3102         77.41         76.32           3103         77.42         76.4           3104         77.43         76.4           3105         77.43         76.24           3106         77.42         76.73           3111         77.69         76.73           3124         77.42         76.45           3250         75.59         74.57           3261         75.63         75.67           3262         75.63         76.61           3263         76.64 <th></th> <th></th> <th></th>			
3001         76.71         74.69           3002         76.77         76.81           3004         76.77         76.81           3016         76.77         75.83           3104         76.76         75.73           3104         76.76         75.73           3104         76.78         75.83           3104         76.78         75.84           3105         76.78         75.84           3106         76.79         75.9           3107         77.06         76.9           3108         76.71         76.11           3109         77.32         76.6           3109         77.33         76.4           3109         77.34         76.23           3109         77.35         76.4           3109         77.36         76.43           3101         77.80         76.37           3102         77.80         76.37           3103         77.80         76.37           3104         76.43         76.43           3105         77.64         76.43           3106         77.45         76.45           3207         76.53			
3002         7,7         7,4,8           3118         na         na           3119         na         na           3119         na         na           3119         na         na           3119         7,6,7         7,6,33           3100         7,6,73         7,5,4           3101         7,6,07         7,6,4           3101         7,6,01         7,6,32           3103         7,6,01         7,6,32           3104         7,6,01         7,6,32           3105         7,7,34         7,6,33           3106         7,33         7,6,23           3107         7,36         7,6,73           3108         7,33         7,6,23           3109         7,36         7,6,73           3111         7,6,9         7,6,73           3251         7,07         7,6,13           3252         7,5,66         7,4,73           3203         7,5,36         7,4,73           3204         7,1,7         7,6,44           3205         7,5,45         7,6,44           3204         7,1,07         7,6,44           3205         7,5,2	3001	76.71	74.69
3165         76.87         76.33           3146         76.71         75.81           3140         75.71         75.84           3140         75.72         75.4           3100         76.72         75.4           3101         77.09         74.61           3103         76.79         74.61           3104         77.09         74.61           3105         76.71         76.32           3106         77.11         76.32           3107         77.33         76.47           3108         77.33         76.47           3109         77.69         76.73           3111         77.69         76.21           3222         77.00         76.21           3233         76.55         74.57           3244         76.55         74.57           3251         77.67         75.55           3262         75.56         74.57           3203         77.22         76.61           3204         77.22         76.61           3205         77.72         76.73           3206         77.72         76.74           3207         76			
318         na         na           3104         76,76         75,33           3101         76,76         75,93           3101         76,76         75,93           3101         76,79         75,93           3103         76,79         75,93           3104         77,102         76,07           3105         76,11         76,11           3106         77,38         76,33           3108         77,38         76,51           3109         77,38         76,51           3109         77,38         76,51           3101         77,07         76,41           3103         77,07         76,41           3204         77,09         76,52           3214         76,56         74,47           3207         74,25         76,82           3203         75,43         74,43           3204         77,10         76,82           3205         76,43         74,43           3206         76,43         74,43           3206         76,43         74,43           3207         76,64         74,33           3203         76,52<			
3104         7,56         7,5.3           3102         7,6.88         75,88           3103         7,6.98         75,89           3104         7,6.98         74,69           3105         7,7.06         74,59           3106         7,6.91         76,51           3107         77,12         76,67           3108         7,7.5         76,64           3109         77,35         76,64           3109         77,35         76,51           3111         7,69         76,73           3109         77,35         76,54           3111         7,69         76,32           3111         7,69         76,33           3220         75,55         74,57           3231         76,64         74,33           3207         75,36         74,37           3208         75,55         74,57           3209         75,56         74,57           3201         75,56         75,57           3202         75,56         75,57           3203         75,56         75,57           3204         75,55         75,57           3205 <td< th=""><th></th><th></th><th></th></td<>			
3102         76,88         75,88           3103         76,79         75,9           3104         76,79         75,9           3105         76,61         76,11           3105         76,61         76,51           3107         71,38         76,32           3108         71,38         76,31           3109         71,38         76,31           3109         71,38         76,31           3109         71,38         76,31           3101         71,07         76,21           3251         71,09         76,22           3251         71,09         76,22           3260         77,76         76,52           327         71,09         76,52           3281         76,63         74,42           3207         77,26         76,56           3208         77,72         76,61           3209         76,73         75,11           3201         76,24         76,59           3202         76,74         76,11           3203         77,22         76,11           3204         76,74         75,11           3205         75,			
3100         7,72         7,54           3013         7,72         7,59           3014         7,76         7,48           3015         7,71         7,63           3016         7,73         7,63           3016         7,73         7,63           3016         7,73         7,64           3016         7,73         7,64           3109         7,33         7,64           3109         7,33         7,64           3101         7,5         7,63           3101         7,5         7,63           3101         7,6         7,64           3232         7,00         7,62           3234         7,66         7,43           3235         7,70         7,62           3236         7,63         7,33           3236         7,72         7,63           3237         7,10         7,64           3238         7,72         7,64           3239         7,71         7,64           3230         7,701         7,64           3231         7,53         7,53           3232         7,64         7,53 <t< th=""><th></th><th></th><th></th></t<>			
3103         76.79         75.9           3161         77.02         76.07           3161         77.12         76.07           3160         76.31         76.13           3109         77.38         76.34           3109         77.38         76.34           3109         77.38         76.34           3109         77.38         76.31           3111         77.69         76.37           3111         77.69         76.37           3111         77.69         76.37           3222         75.56         74.37           3287         77.42         75.82           2204         75.56         74.37           2205         75.56         74.37           2206         75.73         73.76           2207         76.83         75.87           2208         77.12         76.49           2207         76.83         75.87           3280         77.12         76.49           2207         76.84         75.87           3281         76.51         75.81           3282         76.54         75.91           3283         7			
301077.0674.69315077.0676.07315076.4176.11316077.1576.41316077.3576.41310077.3576.51310077.3876.51311177.6976.73325177.0776.21326177.6976.23327177.6276.23328275.5574.67220575.5674.67220575.4374.67220575.4376.63220677.1276.63220776.6375.87220877.1276.49220975.2876.43220175.2876.43220276.6375.87320377.0276.17220575.2876.41220675.2876.41220776.6375.61220877.0276.17220976.5375.61320377.0276.17221876.6475.95320976.6475.95320177.6475.61320276.6475.33320376.6475.33320476.6473.85320575.4175.85320676.5575.65320776.6475.22320876.6473.85320976.6473.85320177.3576.13320276.6473.			
3160         76.91         76.13           3060         71.1         76.32           3107         77.38         76.34           3108         77.38         76.34           3109         77.38         76.34           3109         77.38         76.34           3109         77.38         76.34           3101         77.07         76.27           3231         Na         Na           3232         77.09         76.22           324         Na         Na           3252         77.42         75.82           2204         75.56         74.57           2205         75.56         74.57           2206         75.76         76.43           2207         76.63         73.76           2208         77.12         76.49           2207         76.63         75.87           3203         77.02         76.17           3204         77.12         76.49           2205         75.34         75.81           3204         77.04         76.99           3202         76.64         75.39           3203         76.55	3010	77.06	74.69
3960         77.1         76.32           3106         77.38         76.23           3108         77.38         76.4           3110         77.38         76.4           3111         77.5         76.7           3111         77.5         76.7           3111         77.5         76.7           3111         77.5         76.7           3214         70.9         76.22           3237         77.42         75.82           3207         77.42         75.82           3208         77.28         76.65           2204         75.55         75.7           3205         77.12         76.43           2206         75.78         75.91           3205         77.12         76.43           3206         75.87         75.81           3207         76.63         75.87           3208         77.32         76.54           3209         73.22         76.54           3201         70.42         76.54           3202         76.54         75.29           3203         76.54         75.84           3204         76.55			
3107         77.38         76.23           3108         77.38         76.24           3109         77.38         76.51           3110         77.55         76.57           3111         77.69         76.37           3111         77.69         76.37           3111         77.69         76.32           3224         77.09         76.22           32307         77.42         75.82           2204         75.56         74.37           2205         75.56         74.37           2206         75.73         75.01           2207         75.63         75.64           2208         77.12         76.49           2207         76.63         75.33           3203         77.02         76.17           2204         75.57         75.54           2205         75.56         75.54           2206         77.22         76.17           2207         76.63         75.51           3203         77.01         75.34           3204         76.55         75.54           3205         76.64         75.29           3206 <td< th=""><th></th><th></th><th></th></td<>			
3108         77.36         76.4           3110         77.36         76.51           3111         77.69         76.73           3251         77.07         76.21           3261         77.07         76.21           3262         76.9         76.21           3263         77.42         76.22           3264         75.55         74.67           2205         75.56         74.73           3206         77.26         76.67           3207         75.73         75.01           3208         77.12         76.49           3209         75.73         75.61           3201         77.12         76.47           3202         77.12         76.47           3203         77.12         76.47           3204         77.02         76.17           3205         77.02         76.41           3206         77.32         76.64           3207         76.44         75.51           3208         76.53         73.65           3209         76.53         73.65           3201         76.54         73.85           3202         76			
3110         77.5         76.57           3251         77.69         76.73           3251         77.07         76.21           3253         77.09         76.22           3254         77.09         76.22           3257         77.56         74.52           2205         75.55         74.52           2205         75.43         74.28           3206         77.26         76.65           2201         75.33         73.76           2202         75.43         75.61           2206         75.78         75.62           2206         75.712         76.85           2207         76.63         75.80           2208         76.55         75.33           2209         77.02         76.81           2201         77.04         76.94           2202         77.04         76.94           2203         76.54         73.85           2204         76.54         73.85           2205         75.34         72.81           2206         76.53         73.95           2207         76.54         73.85           2308	3108	77.35	76.4
3111         77.89         76.73           3214         n/a         n/a           3214         n/a         n/a           3214         n/a         n/a           3214         n/a         76.21           3217         77.42         78.82           3207         77.42         78.82           3208         75.35         74.57           3208         75.45         74.57           3208         75.78         76.65           2201         75.33         73.76           3203         77.12         76.49           3204         77.12         76.49           3203         77.02         76.17           3204         77.12         76.33           3203         76.53         75.81           3204         77.02         76.44           3205         76.64         75.51           3206         76.33         73.86           3207         76.64         75.51           3208         76.53         73.86           3209         76.33         73.86           3201         76.34         73.86           3201         76.53			
3251     77.07     76.21       321A     Na     Na       3252     77.09     76.22       3207     77.42     75.82       2204     75.56     74.57       2205     75.56     74.73       2206     75.30     75.61       2207     75.61     74.73       2208     75.73     76.61       2209     75.73     75.61       2206     75.73     75.61       2207     76.63     75.87       2208     77.12     76.38       2209     76.63     75.87       2201     77.02     76.17       2202     76.53     75.37       2203     77.02     76.17       2204     77.04     75.94       2205     77.32     76.54       2206     77.32     76.54       2207     76.63     75.91       2308     77.04     75.94       2309     77.04     75.94       2300     76.64     75.29       2301     76.54     73.85       2302     76.74     75.51       2303     76.55     73.85       2304     76.54     73.85       2305     75.57     74.58			
321A         Na         Na           3252         77.09         76.22           3207         77.42         75.82           3203         75.55         74.57           2204         75.55         74.73           2205         75.66         74.73           3206         77.26         76.65           3207         75.43         75.66           3208         77.26         76.65           3204         77.12         76.38           3203         77.02         76.17           3203         77.02         76.17           3204         77.32         76.54           3203         77.02         76.17           3204         76.55         75           3205         77.32         76.54           3206         76.35         75.86           3201         77.04         75.81           3202         76.74         75.51           3203         76.63         74.65           3204         76.53         73.83           3205         75.53         73.81           3206         76.53         73.83           3207         76.54 <th></th> <th></th> <th></th>			
3207         7.42         7.5.82           2204         7.5.55         7.4.57           2205         7.5.56         7.4.73           2206         7.5.63         7.4.73           3206         7.7.26         7.6.65           2208         7.5.78         7.5.01           3206         7.7.78         7.6.43           2208         7.6.78         7.6.43           2208         7.6.17         7.6.43           2208         7.6.53         7.6           2208         7.6.53         7.5           3250         7.7.32         7.6.54           3201         7.0.44         7.6.04           3202         7.7.0.4         7.6.64           3201         7.6.43         7.5.51           3202         7.6.74         7.5.51           3200         7.6.53         7.5.63           3201         7.6.43         7.2.2           3201         7.6.43         7.2.2           3202         7.6.74         7.5.51           3203         7.6.53         7.5.63           3204         7.6.54         7.2.2           3205         7.6.64         7.2.2	321A	n/a	n/a
2204         75.55         74.37           2205         75.56         74.73           2203         75.43         74.28           2204         75.33         73.76           2205         75.78         75.01           2206         75.78         75.01           2207         76.63         75.87           3204         77.12         76.49           2207         76.63         75.87           3204         77.17         76.38           3204         77.02         76.54           22250         75.58         76.54           2202         77.04         76.54           2203         76.74         75.51           3204         76.53         73.53           3200         76.54         73.53           3201         76.64         75.29           3300         76.53         73.85           3301         76.57         72.62           3301         76.57         73.85           3301         75.57         73.85           3301         76.57         73.85           3301         75.57         74.33           3014 <td< th=""><th></th><th></th><th></th></td<>			
2205         75.56         74.73           2203         75.43         74.28           3206         77.26         76.65           2201         75.53         73.76           2206         75.78         75.01           2206         77.12         76.49           2207         76.63         75.87           3203         77.02         76.17           2208         75.28         n/a           3203         77.02         76.41           3204         77.71         75.64           3205         73.22         76.64           3202         77.04         76.64           3203         76.63         73.85           3204         76.34         75.29           3205         76.64         73.35           3206         76.53         74.63           3207         76.54         73.85           3208         76.57         72.52           3209         76.53         73.85           3210         76.57         72.52           3230         76.57         72.52           3230         76.57         75.82           3351         77			
2203         75.43         74.28           2206         77.66         76.65           2206         75.78         75.01           2206         75.78         75.01           3205         77.12         76.49           3204         77.17         76.33           3203         77.02         76.17           3204         75.28         Na           2207         76.63         75           3203         77.02         76.17           2216         75.28         Na           3202         77.44         76.64           3201         77.04         76.64           3202         76.74         75.51           3200         76.54         75.83           3201         76.64         75.29           3202         76.74         73.55           3203         76.57         72.22           3204         76.57         72.52           3205         76.43         74.63           3206         76.57         72.52           3207         76.51         73.85           32101         75.57         72.52           32101         77.58 </th <th></th> <th></th> <th></th>			
2201         75.33         73.76           2206         75.78         75.01           3205         77.12         76.49           3204         77.17         76.38           3203         77.02         76.17           3203         77.02         76.17           3203         77.02         76.17           2251         75.28         1/a           3202         77.04         76.04           3201         77.01         75.96           3202         77.04         75.61           3201         76.54         75.63           3202         76.74         75.51           3203         76.83         74.63           3204         76.33         73.85           3205         75.64         75.29           3206         76.43         75.23           3207         76.54         73.85           32301         76.34         74.63           32301         76.34         74.63           32301         75.37         72.52           3203         75.67         74.83           3214         77.08         75.32           3215 <td< th=""><th>2203</th><th>75.43</th><th>74.28</th></td<>	2203	75.43	74.28
2206         75.78         75.01           3205         77.12         76.49           2207         76.63         75.87           3204         77.17         76.38           3203         77.02         76.17           3203         77.02         76.17           3203         77.02         76.54           3202         77.04         76.04           3202         77.01         75.96           3202         77.01         75.96           3200         76.53         75.68           3202         76.74         75.51           3300         76.64         75.29           3301         76.53         73.85           3300         76.53         73.85           3350         76.54         73.85           3351         75.57         72.52           3351         75.57         75.82           3450         1/a         1/a           3014         77.32         76.33           351         75.64         74.83           3013         77.51         76.1           2004         75.99         74.27           2005         75.16<			
3205         77.12         76.49           2207         76.63         75.87           3204         77.17         76.38           3203         77.02         76.17           2251         75.28         n/a           2208         76.55         75           3250         77.32         76.64           3201         77.01         75.96           3202         77.04         76.04           3201         77.01         75.96           3200         76.95         75.68           3300         76.64         75.29           3301         76.83         74.63           3300         76.33         73.95           3350         76.5         73.85           2351         75.57         72.52           3300         76.33         75.38           2351         75.57         75.22           3301         77.37         76.15           3351         77.35         76.3           3450         n/a         n/a           3014         77.37         76.15           3013         75.57         74.18           3014         75.69			
2207         76.63         75.87           3204         77.17         76.38           3203         77.02         76.17           3203         75.28         n/a           3204         75.528         n/a           3205         75.32         76.64           3202         77.04         76.04           3201         77.01         75.96           3202         76.74         75.51           3200         76.95         75.68           3300         76.64         75.29           3301         76.63         73.95           3301         76.53         73.85           3300         76.53         73.85           3301         75.57         72.51           3301         75.57         72.82           3301         75.57         75.83           3351         77.28         75.38           3450         n/a         n/a           3131         77.51         76.1           2004         75.99         74.27           2005         75.16         74.18           2005         75.16         74.18           2005         75.16 <th>3205</th> <th>77.12</th> <th>76.49</th>	3205	77.12	76.49
3203         77.02         76.17           2251         75.28         n/a           2208         76.55         75           3200         77.32         76.54           3201         77.04         76.64           3202         77.04         76.64           3200         76.95         76.68           3300         76.74         75.39           3301         76.83         74.63           3302         76.74         75.39           3301         76.83         74.63           3300         75.34         72.52           3301         75.57         72.52           3301         77.54         75.38           3311         77.28         75.38           3315         77.35         76.33           3316         77.35         76.33           3450         n/a         n/a           3014         77.37         76.15           3013         75.51         74.38           3014         77.51         76.15           3013         75.51         74.39           3014         77.51         76.15           3017         75.65 <th>2207</th> <th>76.63</th> <th>75.87</th>	2207	76.63	75.87
2251         75.28         n'a           2208         76.55         75           3250         77.32         76.54           3201         77.04         76.044           3201         77.04         76.64           3200         76.95         75.88           3302         76.74         75.51           3303         76.63         74.83           3300         76.33         73.95           3301         76.53         73.85           3300         76.54         72.51           3301         75.57         73.85           2350         75.34         72.51           3301         75.57         73.85           3351         77.28         75.52           3450         n/a         n/a           3351         77.35         76.53           3451         77.35         76.33           3014         77.37         76.1           2004         75.99         74.27           2005         75.16         74.39           2004         76.86         73.91           3007         76.86         76.33           3007         76.86 <th></th> <th></th> <th></th>			
2208         76.55         75           3250         77.32         76.54           3202         77.04         76.04           3201         77.01         75.96           3200         76.95         75.68           3300         76.74         75.51           3301         76.64         75.29           3301         76.83         74.63           3300         76.34         72.51           3301         76.54         73.85           2351         75.57         72.52           3001         75.34         72.51           3011         77.28         73.83           3351         77.08         73.82           3351         77.35         76.15           3014         77.36         76.15           3015         77.37         76.15           3014         77.37         76.15           3013         75.51         74.43           2004         75.99         74.27           2003         75.57         74.83           3004         76.89         76.39           3012         74.93         73.94           3005         76.			
3202         77.04         76.04           3201         77.01         75.56           4250         79.32         76.61           3200         76.74         75.51           3302         76.74         75.51           3303         76.83         74.63           3301         76.33         73.95           3300         76.33         73.95           2351         76.57         72.52           2300         n/a         n/a           3311         75.57         72.52           2300         n/a         n/a           3451         77.08         76.33           3014         77.35         76.15           3013         75.57         74.27           2004         75.09         74.27           2003         75         74.18           2004         75.09         74.27           2003         75.57         74.33           2004         75.57         74.33           2005         75.16         74.13           2006         76.86         76.29           1012         74.38         73.94           2006         76.86	2208	76.55	75
3201       7,01       7,586         3200       76,95       75,68         3302       76,74       75,51         3300       76,64       75,29         3301       76,83       74,63         3300       76,53       73,85         2350       75,54       72,51         3301       76,5       73,85         2350       75,54       72,52         3301       75,57       72,52         3351       77,28       75,38         3451       77,08       75,82         3450       n/a       n/a         3015       77,35       76,15         3014       77,37       76,15         3013       75,51       76,13         3014       75,59       74,42         2003       75       74,43         2004       75,57       74,43         2005       75,16       74,13         2006       74,98       74,13         2007       74,88       73,94         3008       76,86       75,92         3014       76,86       75,92         3015       76,46       73,85 <td< th=""><th></th><th></th><th></th></td<>			
4250       79.32       76.1         3200       76.74       75.58         3302       76.74       75.51         3350       76.64       75.29         3301       76.83       74.63         3300       76.33       73.85         2351       76.5       73.85         2350       75.34       72.51         2300       na       na         3451       77.28       75.38         3451       77.28       76.33         3014       77.35       76.15         3015       77.35       76.13         3014       77.37       76.15         3014       77.37       76.15         3013       75.16       74.13         2004       75.09       74.13         2003       75       74.43         2004       75.57       74.83         2005       75.16       74.13         2006       74.98       73.41         1007       75.57       74.83         3008       76.86       73.9         3006       76.96       75.95         3007       76.86       75.95         30			
3200         76,35         75,68           3302         76,74         75,51           3350         76,64         75,29           3301         76,83         74,63           3300         76,33         73,95           2350         75,54         73,95           2350         75,54         72,51           3301         76,53         73,85           2350         75,57         72,52           3351         77,28         75,38           3451         77,28         75,38           3450         n/a         n/a           3014         77,37         76,15           3013         77,51         76,15           3014         77,37         76,15           3013         75,61         74,48           2004         75,09         74,27           2003         75         74,48           2004         75,82         74,39           2005         75,16         74,83           3006         76,89         76,29           1007         75,85         73,94           3006         76,85         75,95           3004         76,96 </th <th></th> <th></th> <th></th>			
3350         76,64         75,29           3301         76,33         74,63           3300         76,33         73,95           2351         76,5         73,85           2350         75,54         72,51           1301         75,57         72,52           3351         77,28         75,38           3451         77,28         75,33           355         76,33         74,27           3014         77,35         76,15           3015         77,35         76,15           3014         77,51         76,15           3013         77,51         74,18           2004         75,09         74,27           2003         75         74,18           2005         75,16         74,39           2005         75,16         74,39           2004         76,86         75,99           1012         74,83         73,94           3006         76,95         76,11           1006         74,68         73,9           3007         76,86         75,92           1012         74,83         73,48           1005         74,55<	3200	76.95	75.68
3301         76.83         74.63           3300         76.33         73.95           2351         76.5         73.85           2350         75.34         72.51           2300         n/a         n/a           3351         77.28         75.38           3451         77.08         76.33           3014         77.08         76.33           3015         77.35         76.15           3014         77.37         76.15           3013         77.51         74.17           2004         75.09         74.27           2005         75.16         74.39           2005         75.16         74.33           2005         75.57         74.43           2005         75.68         76.1           2006         76.86         73.94           3007         76.86         73.94           3007         76.86         73.94           3007         76.86         73.95           3006         76.96         75.95           3007         76.86         73.94           3007         76.86         75.95           3006         76.96<			
3300         76.33         73.85           2351         76.5         73.85           2350         75.34         72.51           1301         75.57         72.52           3351         77.28         75.38           3451         77.28         75.32           3450         n/a         n/a           3014         77.08         76.15           3013         77.51         76.1           2004         75.99         74.27           2003         75         74.18           2004         75.99         74.27           2003         75.16         74.13           2004         75.99         74.27           2005         75.16         74.39           2002         74.98         74.13           1007         75.57         74.83           3008         76.89         76.29           1012         74.83         73.94           3005         76.96         75.95           3015         76.96         75.95           3005         76.96         75.92           1010         74.58         73.48           1005         74.61 <th></th> <th></th> <th></th>			
2351         76.5         73.85           2350         75.34         72.51           2300         n/a         n/a           3311         75.57         72.52           2300         n/a         n/a           3351         77.28         75.38           3451         77.08         76.33           3015         77.35         76.33           3014         77.37         76.15           2003         75.62         74.18           2004         75.09         74.27           2005         75.16         74.39           2005         75.16         74.39           2005         75.689         76.29           1007         75.89         76.29           3008         76.89         76.29           1012         74.83         73.94           3007         76.86         76.1           1016         74.68         73.9           3006         76.95         76.07           3012         77.14         75.24           3005         76.96         75.95           3004         76.96         75.92           1005         74.55	3300	76.33	73.95
1301         75.57         72.52           2300         n/a         n/a           3351         77.28         75.38           3451         77.08         75.82           3014         77.35         76.33           3015         77.35         76.13           3014         77.37         76.15           3013         77.51         76.1           2004         75.09         74.27           2003         75         74.18           2005         75.16         74.13           2005         75.57         74.83           3008         76.89         76.29           1007         75.57         74.83           3008         76.86         73.94           3007         76.86         73.9           3006         76.95         76.07           3012         77.14         75.24           3005         76.96         75.95           3004         76.96         75.95           3004         76.96         73.69           105         74.58         73.48           1005         74.51         73.65           1050         74.61	2351		
2300         n/a         n/a           3351         77.28         75.38           3351         77.08         75.82           3450         n/a         n/a           3451         77.35         76.33           3014         77.37         76.15           3013         77.51         76.1           2004         75.09         74.27           2003         75         74.18           2005         75.16         74.39           2002         74.98         74.13           1007         75.57         76.29           1012         74.83         73.94           3006         76.89         76.29           1012         74.83         73.94           3006         76.95         76.1           3006         76.96         75.92           3012         77.14         75.24           3005         76.96         75.95           304         76.96         75.92           3005         74.53         73.48           1005         74.54         73.69           2006         74.33         73.78           1002         74.6			
3351         77.28         75.38           3451         77.08         75.82           3450         n/a         n/a           3015         77.35         76.33           3014         77.37         76.15           3013         75.09         74.27           2004         75.09         74.31           2005         75.16         74.39           2002         74.98         74.13           2003         75.57         74.83           3008         76.89         76.29           1012         74.83         73.94           3006         76.89         76.1           3007         76.86         76.1           1006         74.68         73.9           3007         76.86         75.92           1012         77.14         75.24           3005         76.96         75.92           1010         74.58         73.48           1005         74.61         73.69           2006         74.93         73.74           1003         74.39         73.74           1004         74.49         73.62           1005         74.61 </th <th></th> <th></th> <th></th>			
3450         n/a         n/a           3015         77.35         76.33           3014         77.37         76.15           3013         77.51         76.1           2004         75.09         74.27           2003         75         74.18           2005         75.16         74.39           2002         74.98         74.13           1007         75.57         74.83           3008         76.89         76.29           1012         74.83         73.94           3007         76.86         76.1           1006         74.68         73.9           3007         76.86         76.1           1016         74.68         73.9           3005         76.95         76.07           3012         77.14         75.24           3005         76.96         75.92           1010         74.58         73.48           1050         74.61         73.69           2006         74.93         73.74           1002         74.06         73.62           1102         74.06         73.62           1114         n/a	3351	77.28	75.38
3015       77.35       76.33         3014       77.37       76.15         3013       77.51       76.1         2004       75.09       74.27         2003       75       74.18         2002       74.98       74.13         1007       75.57       74.83         3008       76.89       76.29         1012       74.83       73.94         3007       76.86       76.1         1006       74.68       73.9         3006       76.95       76.07         3012       77.14       75.24         3005       76.96       75.95         3004       76.96       75.95         3004       76.96       75.92         1010       74.55       73.48         1005       74.61       73.69         2006       74.93       73.76         1003       74.39       73.74         1004       74.49       73.65         1005       74.35       73.05         1004       74.49       73.76         1005       74.33       73.55         1006       74.35       73.05			
3014         77.37         76.15           3013         77.51         76.1           2004         75.09         74.27           2003         75         74.18           2005         75.16         74.39           2002         74.98         74.13           1007         75.57         74.83           3008         76.89         76.29           1012         74.83         73.94           3007         76.86         76.1           1006         74.68         73.9           3006         76.95         76.07           3012         77.14         75.24           3005         76.96         75.92           3004         76.96         75.92           1010         74.55         73.85           1050         74.61         73.69           2006         74.93         73.76           1003         74.39         73.74           1004         74.49         73.55           1102         74.06         72.68           1102         74.06         73.62           1102         74.33         73.55           1104         74.3 </th <th></th> <td></td> <td></td>			
3013       77.51       76.1         2004       75.09       74.27         2005       75.16       74.39         2002       74.98       74.13         1007       75.57       74.83         3008       76.89       76.29         1012       74.83       73.94         3007       76.86       76.1         1006       74.68       73.9         3007       76.86       75.95         3012       77.14       75.24         3005       76.96       75.92         3012       77.14       75.24         3005       76.96       75.92         3004       76.96       75.92         1010       74.58       73.48         1005       74.61       73.69         1004       74.49       73.76         1003       74.33       73.74         1004       74.33       73.5         1102       74.06       72.68         1114       n/a       n/a         11150       74.33       73.55         1000       74.33       73.05         1114       n/a       n/a         1			
2003         75         74.18           2005         75.16         74.39           2002         74.98         74.13           1007         75.57         74.83           3008         76.89         76.29           0112         74.83         73.94           3007         76.86         76.1           1006         74.68         73.9           3007         76.86         76.07           3012         77.14         75.24           3005         76.96         75.92           3010         74.58         73.48           1005         74.55         73.85           1050         74.61         73.69           2006         74.93         73.76           1004         74.49         73.76           1003         74.39         73.76           1004         74.39         73.76           1002         74.6         73.62           1102         74.06         72.68           111H         n/a         n/a           11150         74.35         73.05           111F         n/a         n/a           1116         74.57	3013	77.51	76.1
2005         75.16         74.39           2002         74.98         74.13           1007         75.57         74.83           3008         76.89         76.29           1012         74.83         73.94           3007         76.86         76.1           1006         74.68         73.9           3007         76.86         76.07           3012         77.14         75.24           3005         76.96         75.95           3004         76.96         75.92           1010         74.58         73.48           1005         74.61         73.69           2006         74.39         73.74           1002         74.6         73.62           1002         74.6         73.62           1003         74.33         73.74           1002         74.6         73.62           1114         n/a         n/a           1150         74.3         73.5           1000         74.35         73.05           1114         n/a         n/a           1115         n/a         n/a           1116         n/a <t< th=""><th></th><th></th><th></th></t<>			
2002         74.98         74.13           1007         75.57         74.83           3008         76.89         76.29           1012         74.83         73.94           3007         76.86         76.1           1006         74.68         76.07           3012         77.14         75.24           3005         76.96         75.95           3004         76.96         75.92           1010         74.58         73.48           3005         76.96         75.92           3010         74.58         73.48           1005         74.55         73.85           1010         74.58         73.48           1005         74.61         73.69           2006         74.93         73.76           1003         74.39         73.74           1002         74.6         72.68           111H         n/a         n/a           1150         74.33         73.55           1000         74.35         73.05           111F         n/a         n/a           111E         n/a         n/a           1100         74.33			
1007         75.57         74.83           3008         76.89         76.29           1012         74.83         73.94           3007         76.86         76.1           1006         74.68         73.9           3006         76.95         76.07           3012         77.14         75.24           3005         76.96         75.95           3004         76.96         73.94           1010         74.58         73.48           1005         74.61         73.69           2006         74.93         73.78           1004         74.39         73.74           1002         74.6         73.62           1102         74.06         72.68           1114         n/a         n/a           1150         74.3         73.5           1000         74.35         73.05           1114         n/a         n/a           1150         74.3         73.5           1100         74.35         73.05           1114         n/a         n/a           1150         74.3         73.5           1100         74.35 <t< th=""><th>2002</th><td>74.98</td><td>74.13</td></t<>	2002	74.98	74.13
1012       74.83       73.94         3007       76.86       76.1         1006       74.68       73.9         3006       76.95       76.07         3012       77.14       75.24         3005       76.96       75.95         3004       76.96       75.92         1010       74.58       73.48         1005       74.55       73.85         1005       74.61       73.69         2006       74.93       73.78         1004       74.39       73.74         1002       74.6       73.62         1102       74.06       72.68         111H       n/a       n/a         1150       74.35       73.5         1100       74.35       73.5         111H       n/a       n/a         111F       n/a       n/a         111F       n/a       n/a         111E       n/a       n/a         111B       n/a       n/a	1007	75.57	74.83
3007       76.86       76.1         1006       74.68       73.9         3006       76.95       76.07         3012       77.14       75.24         3005       76.96       75.95         3004       76.96       75.92         1010       74.58       73.48         1005       74.61       73.69         2006       74.93       73.78         1004       74.49       73.76         1002       74.6       73.62         1102       74.06       72.68         1102       74.06       72.68         1101       n/a       n/a         1111       n/a       n/a         11150       74.35       73.05         1111F       n/a       n/a         1111E       n/a       n/a         1111E       n/a       n/a         11102       74.57       73.75         1111B       n/a       n/a			
100674.6873.9300676.9576.07301277.1475.24300576.9675.95300476.9675.92101074.5873.48100574.6173.69200674.9373.78100474.4973.76100274.673.62110274.673.62110474.3373.5105074.373.5100474.4973.76100574.373.62111Hn/an/a111En/an/a111En/an/a111Bn/an/a111Bn/an/a			
3006         76.95         76.07           3012         77.14         75.24           3005         76.96         75.95           3004         76.96         75.92           1010         74.58         73.48           1005         74.55         73.85           1050         74.61         73.69           2006         74.33         73.76           1003         74.39         73.74           1002         74.6         73.62           1102         74.06         72.68           111H         n/a         n/a           111F         n/a         n/a           111E         n/a         n/a           111D         n/a         n/a           111B         n/a         n/a	1006	74.68	73.9
3005       76.96       75.95         3004       76.96       75.92         1010       74.58       73.48         1005       74.55       73.85         1050       74.61       73.69         2006       74.93       73.78         1004       74.49       73.76         1003       74.39       73.74         1002       74.6       73.62         1102       74.06       72.68         111H       n/a       n/a         1150       74.35       73.05         111F       n/a       n/a         111E       n/a       n/a         111D       n/a       n/a         111B       n/a       n/a	3006	76.95	76.07
3004       76.96       75.92         1010       74.58       73.48         1005       74.55       73.85         1050       74.61       73.69         2006       74.93       73.76         1004       74.49       73.76         1003       74.39       73.74         1002       74.6       73.62         1102       74.06       72.68         111H       n/a       n/a         1150       74.3       73.5         1000       74.35       73.05         111F       n/a       n/a         111E       n/a       n/a         111D       n/a       n/a         111B       n/a       n/a			
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1106       74.57       73.75         1104       74.83       73.5         111B       n/a       n/a			
1104     74.83     73.5       111B     n/a     n/a			73.75
	1104	74.83	73.5
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Manhole Reference	Manhole Cover Level	Manhole Invert Level			
111A	n/a	n/a			
1009	75.01	73.96			
111G	n/a	n/a			
2100	74.88	73.92			
2150	74.78	73.98			
2108	74.93	74.15			
2151	75	74.21			
2109	75.21	74.16			
2000	75.15	74.25			
2200	75.3	74.33			
2102	75.02	74.15			
2001	75.18	74.4			
2103	75.08	74.15			
2153	75.24	74.24			
2104	75.51	74.41			
2154	75.5	74.82			
2152	75.69	74.86			
001D	n/a	n/a			
001A	n/a	n/a			
001B	n/a	n/a			
001C	n/a	n/a			
0000	74.08	72.36			
1100	73.96	72.56			
1152	n/a	n/a			
1151	74.08	73.28			
1101	n/a	n/a			
1300	75.3	72.4			
0300	74.32	71.87			
0350	73.65	71.45			
3011	76.94	74.97			
301A	n/a	n/a			
311C	n/a	n/a			
311A	n/a	n/a			
The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.					



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NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates that no survey information is available

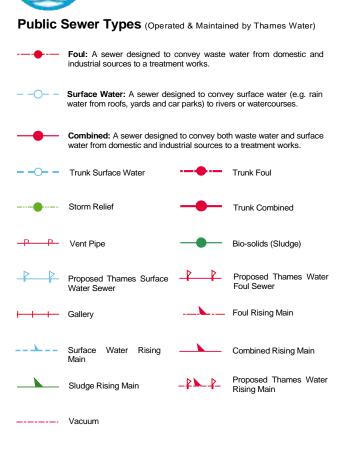
Manhole Reference	Manhole Cover Level	Manhole Invert Level
8950	74.46	73.94
8900	74.18	71.81
9853	75.48	74.54
9851	75.62	74.06
9850 8851	75.35 75.46	74.31 73.87
8851 881A	75.46 n/a	73.87 n/a
9804	75.33	73.16
881B	n/a	n/a
8801	75.4	73.05
8803 9803	n/a 75.19	n/a 73.36
9805	75.26	73.86
8850	75.29	74.2
991G	n/a	n/a
991H 8902	n/a 75.13	n/a 72.02
9902 991F	n/a	72.02 n/a
9950	74.85	74.24
891C	n/a	n/a
991E 891B	n/a n/a	n/a n/a
991B 9951	n/a 74.72	n/a 74.06
8901	74.85	71.65
991D	n/a	n/a
991C	n/a	n/a
991B 991A	n/a n/a	n/a n/a
891A	n/a	n/a
5801	73.08	70.25
581A	n/a 72.25	n/a 70.56
5800 6800	73.35 73.62	70.56 72.26
681A	n/a	n/a
6752	73.82	72.22
6700	74.03	71.37
6751 6701	74.09 74.66	72.14 70.94
6753	n/a	n/a
6750	74.75	73.27
7751	74.99	73.74
7701	74.92 75 25	72.07 73.5
7702 7801	75.25 75.1	73.5 73.9
7852	75.24	74.18
7850	74.97	74.12
7800	75 74 08	71.29
7752 7851	74.98 75.42	74.45 74.4
7802	75.47	73.41
7754	75.11	73.58
8754	75.31	73.79
8702 8852	75.41 n/a	73.71 n/a
8800	75.42	72.78
9702	76.1	75.04
9705	76.05	74.91
9703 9706	76.07 76.06	74.93 74.81
9707	76.06	74.59
9704	76.04	74.64
9708	75.91 75.50	74.24
8700 8752	75.56 75.38	74.36 73.18
8701	75.56	74.04
9751	76	74.02
8751	75.54 75.60	73.48
8750 9700	75.69 75.61	73.74 74.42
9709	75.85	73.77
9750	75.9	74.18
9854	75.78	74.38
9800 9801	75.88 75.73	73.93 73.64
9852	75.57	74.26
9802	75.69	73.6
C123	70.64	67.13 67.17
CC123 CC124	71.73 71.65	67.17 67.29
C124	71.61	67.29
7753	75.08	74.06
7750	75.56	74.3
7700 8703	75.42 75.35	72.42 73.85
8703	75.35 74.49	73.85 72.63
8753	75.46	72.98
871B	n/a	n/a
871A 8600	n/a 75.64	n/a 72.97
8600 9754	75.64 75.54	72.97 73.4
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Manhole Reference	Manhole Cover Level	Manhole Invert Level		
9602	75.84	74.67		
9601	75.99	75.06		
9701	76.07	75.27		
9753	75.8	73.83		
9752	76.05	73.86		
9600	76.25	73.65		
961A	n/a	n/a		
581C	n/a	n/a		
581B	n/a	n/a		
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ALS Sewer Map Key



#### **Sewer Fittings**

A feature in a sewer that does not affect the flow in the pipe. Example: a vent is a fitting as the function of a vent is to release excess gas.

- Air Valve Dam Chase Fitting
- ≥ Meter

Π

0 Vent Column

#### **Operational Controls**

A feature in a sewer that changes or diverts the flow in the sewer. Example: A hydrobrake limits the flow passing downstream.

X Control Valve Ф Drop Pipe Ξ Ancillary Weir

Outfall

Inlet

Undefined End

#### End Items

いし

End symbols appear at the start or end of a sewer pipe. Examples: an Undefined End at the start of a sewer indicates that Thames Water has no knowledge of the position of the sewer upstream of that symbol, Outfall on a surface water sewer indicates that the pipe discharges into a stream or river.

#### **Other Symbols**

Symbols used on maps which do not fall under other general categories

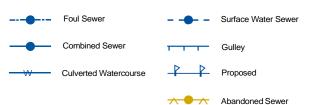
- **\**/ Public/Private Pumping Station
- \* Change of characteristic indicator (C.O.C.I.)
- Ø Invert Level
- < Summit

#### Areas

Lines denoting areas of underground surveys, etc.

Agreement **Operational Site** :::::: Chamber Tunnel Conduit Bridge

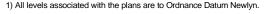
#### Other Sewer Types (Not Operated or Maintained by Thames Water)



#### Notes:

hames

Water



2) All measurements on the plans are metric.

- 3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate direction of flow.
- 4) Most private pipes are not shown on our plans, as in the past, this information has not been recorded.

5) 'na' or '0' on a manhole level indicates that data is unavailable.

6) The text appearing alongside a sewer line indicates the internal diameter of the pipe in milimetres. Text next to a manhole indicates the manhole reference number and should not be taken as a measurement. If you are unsure about any text or symbology present on the plan, please contact a member of Property Insight on 0845 070 9148.

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All sales are made in accordance with Thames Water Utilities Limited (TWUL) standard terms and conditions unless previously agreed in writing.

- 1. All goods remain in the property of Thames Water Utilities Ltd until full payment is received.
- 2. Provision of service will be in accordance with all legal requirements and published TWUL policies.
- 3. All invoices are strictly due for payment 14 days from due date of the invoice. Any other terms must be accepted/agreed in writing prior to provision of goods or service, or will be held to be invalid.
- 4. Thames Water does not accept post-dated cheques-any cheques received will be processed for payment on date of receipt.
- 5. In case of dispute TWUL's terms and conditions shall apply.
- 6. Penalty interest may be invoked by TWUL in the event of unjustifiable payment delay. Interest charges will be in line with UK Statute Law 'The Late Payment of Commercial Debts (Interest) Act 1998'.
- 7. Interest will be charged in line with current Court Interest Charges, if legal action is taken.
- 8. A charge may be made at the discretion of the company for increased administration costs.

A copy of Thames Water's standard terms and conditions are available from the Commercial Billing Team (cashoperations@thameswater.co.uk).

We publish several Codes of Practice including a guaranteed standards scheme. You can obtain copies of these leaflets by calling us on 0800 316 9800

If you are unhappy with our service you can speak to your original goods or customer service provider. If you are not satisfied with the response, your complaint will be reviewed by the Customer Services Director. You can write to her at: Thames Water Utilities Ltd. PO Box 492, Swindon, SN38 8TU.

If the Goods or Services covered by this invoice falls under the regulation of the 1991 Water Industry Act, and you remain dissatisfied you can refer your complaint to Consumer Council for Water on 0121 345 1000 or write to them at Consumer Council for Water, 1st Floor, Victoria Square House, Victoria Square, Birmingham, B2 4AJ.

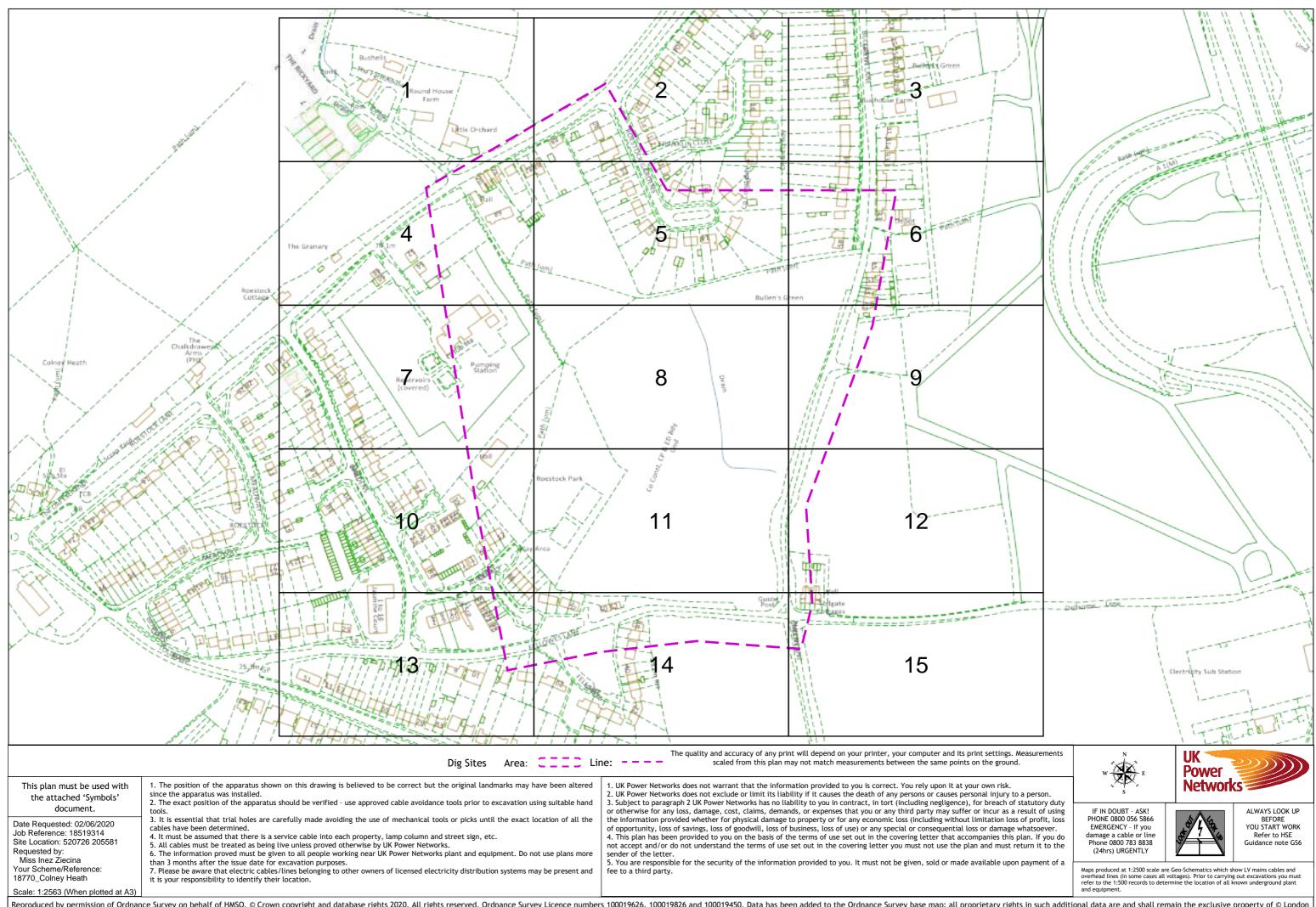
Credit Card	BACS Payment	Telephone Banking	Cheque
Call <b>0845 070 9148</b> quoting your invoice number starting CBA or ADS / OSS	Account number 90478703 Sort code 60-00-01 A remittance advice must be sent to: Thames Water Utilities Ltd., PO Box 3189, Slough SL1 4WW. or email ps.billing@thameswater. co.uk	By calling your bank and quoting: Account number <b>90478703</b> Sort code <b>60-00-01</b> and your invoice number	Made payable to ' <b>Thames</b> Water Utilities Ltd' Write your Thames Water account number on the back. Send to: <b>Thames Water Utilities</b> Ltd., PO Box 3189, Slough SL1 4WW or by DX to 151280 Slough 13

#### Ways to pay your bill

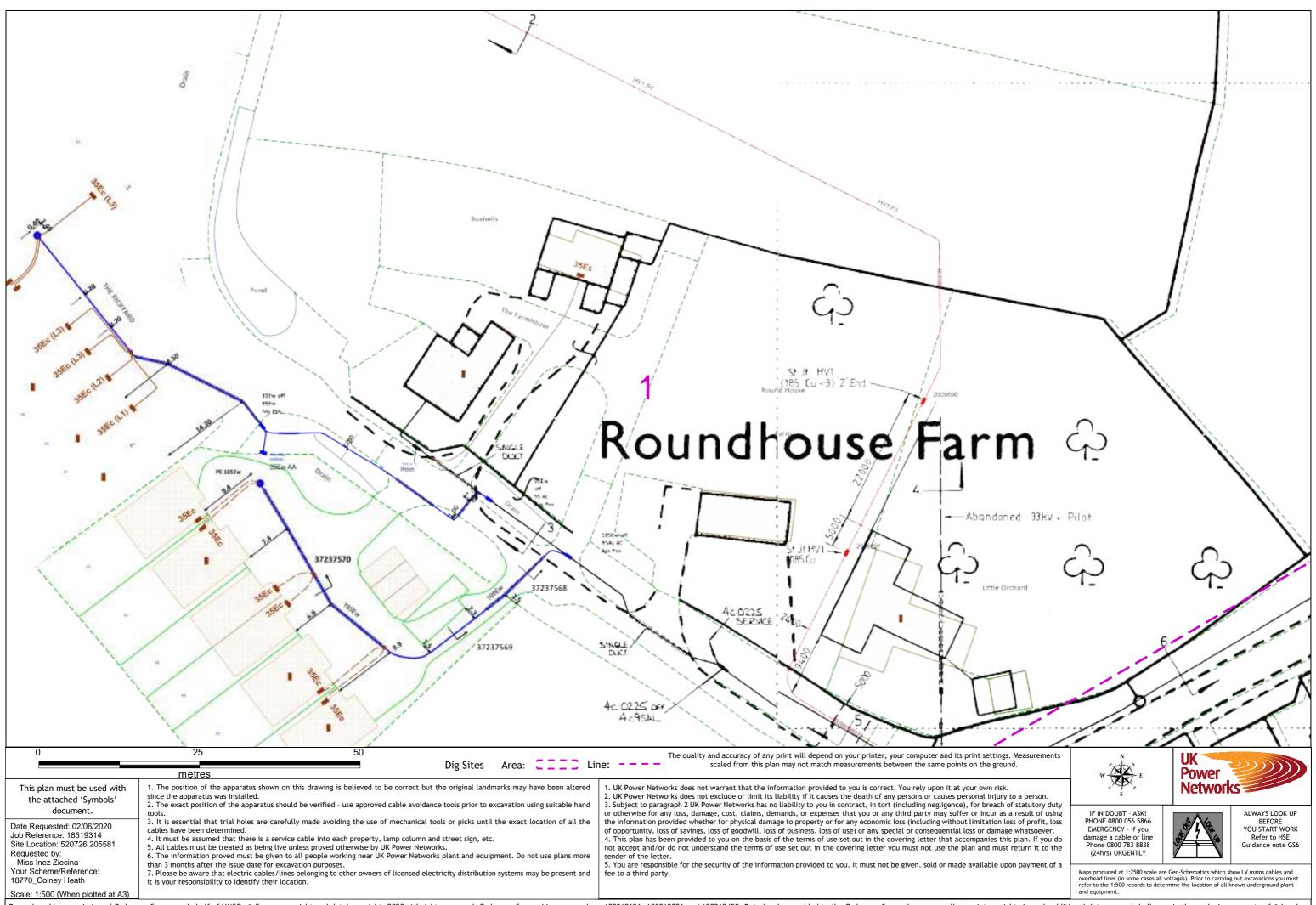
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## **Appendix F** UK Power Network Record Plans



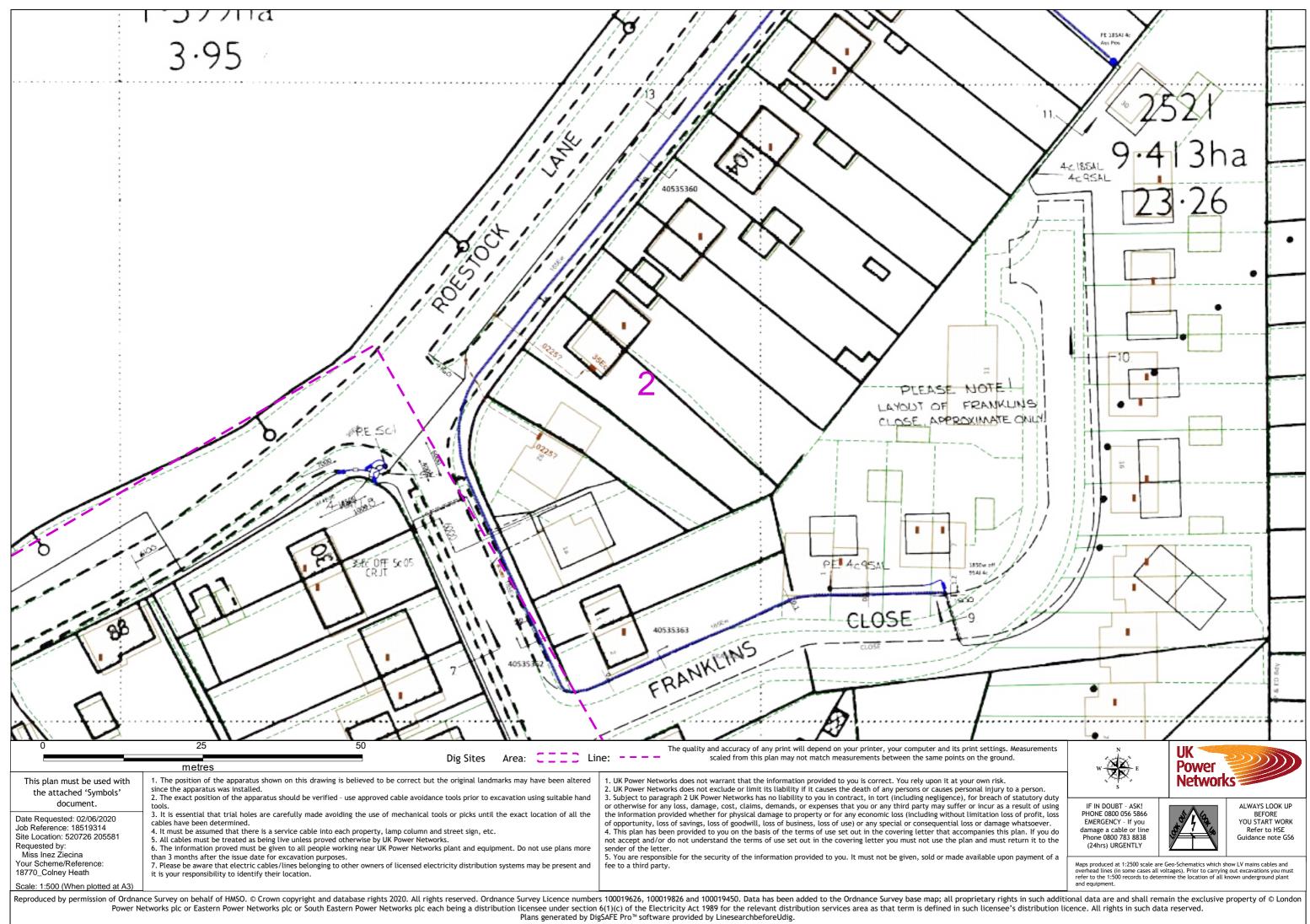


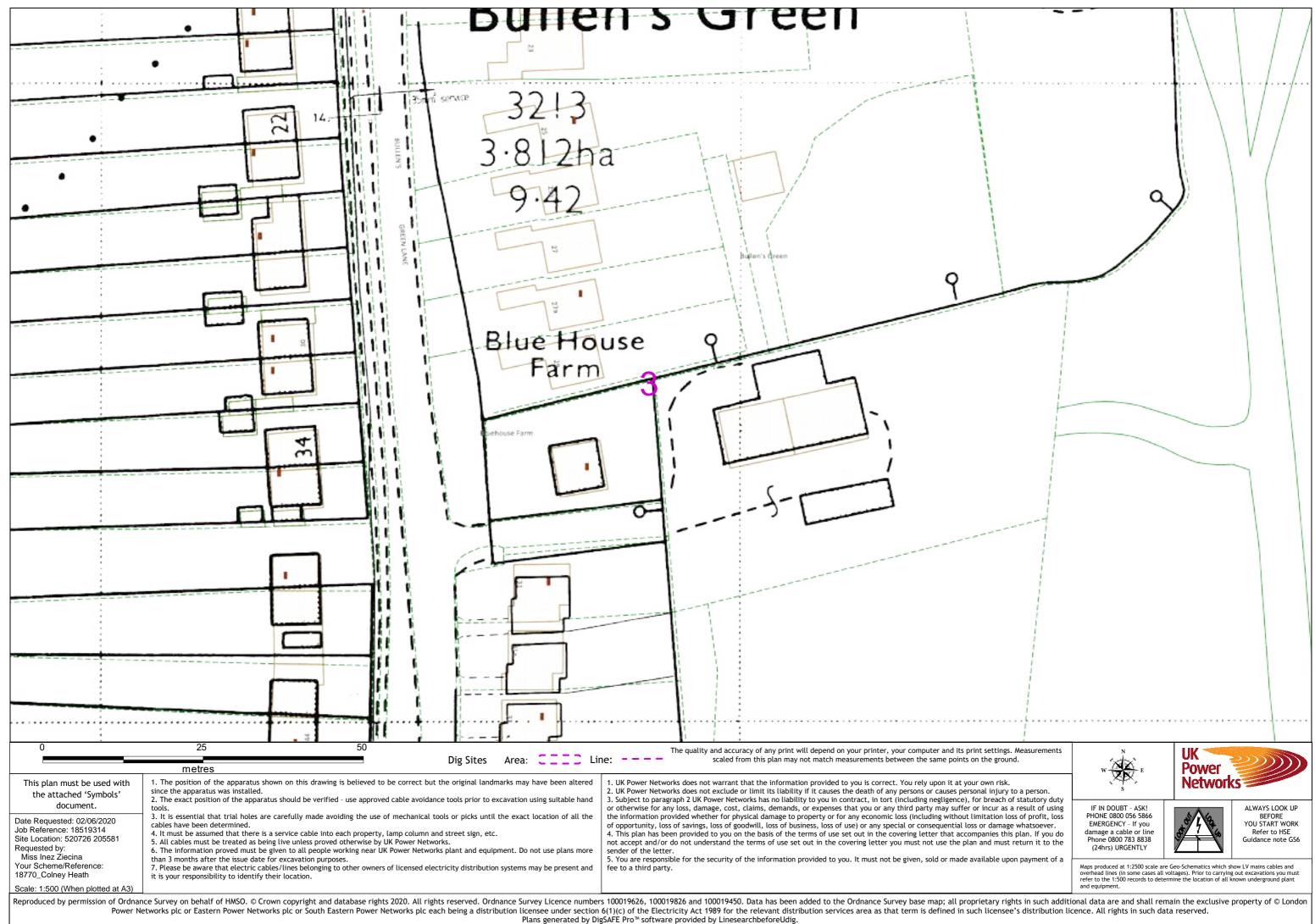
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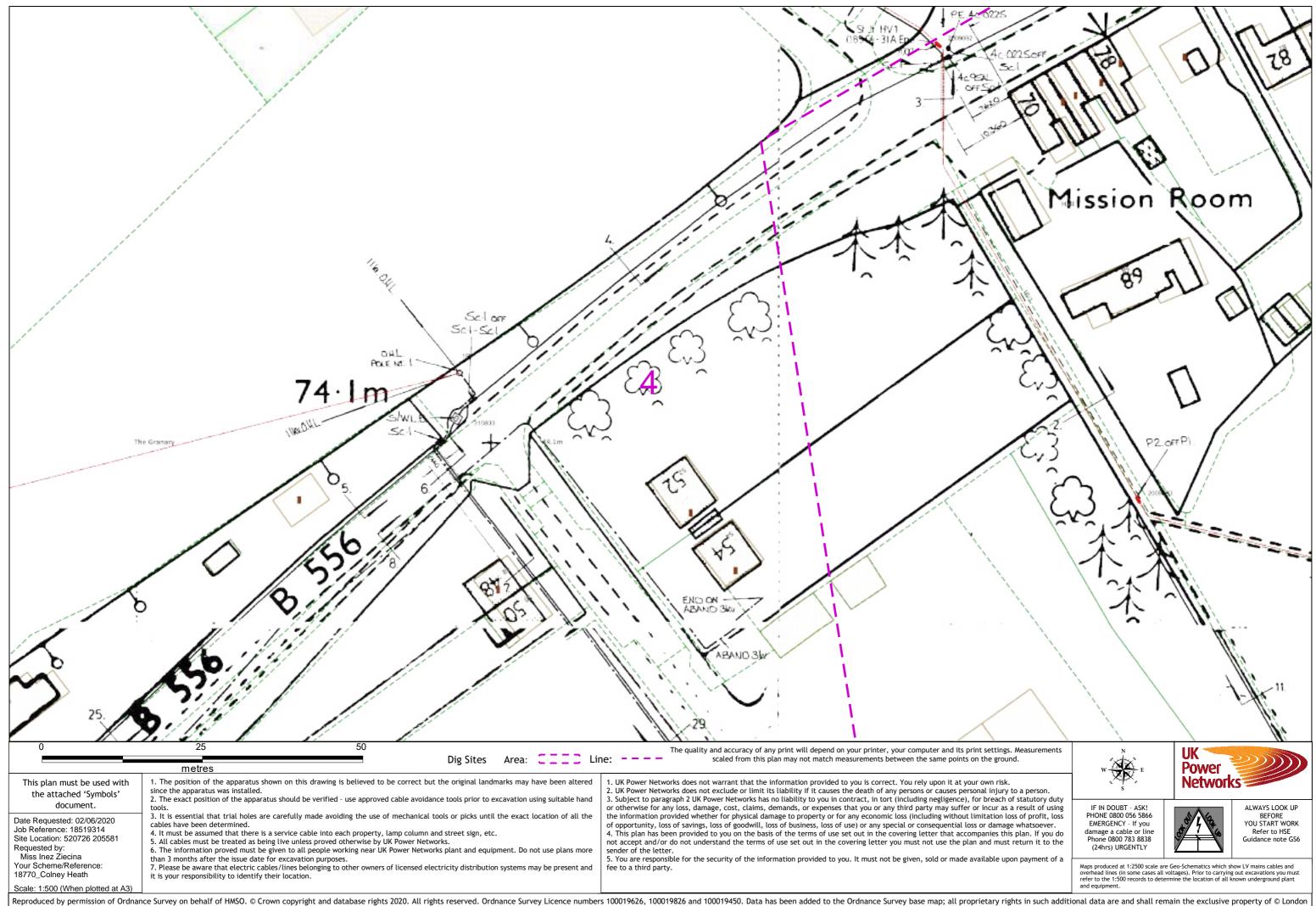


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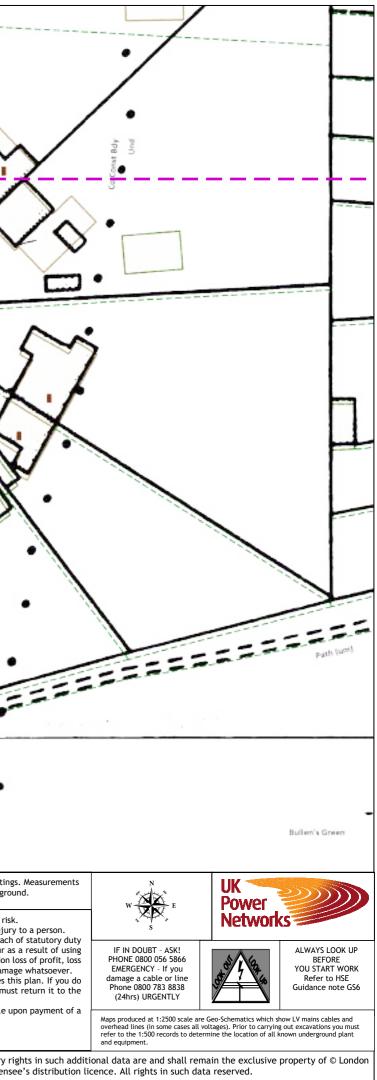


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		metres 1. The position of the apparatus show	m on this drawing in both the last	Dig Sites			scaled from this plan may not mat		
the attache	8519314 0726 205581 na ference:	<ol> <li>The position of the apparatus show since the apparatus was installed.</li> <li>The exact position of the apparatus tools.</li> <li>It is essential that trial holes are c cables have been determined.</li> <li>It must be assumed that there is a s</li> <li>All cables must be treated as being</li> <li>The information proved must be giv than 3 months after the issue date for</li> <li>Please be aware that electric cables it is your responsibility to identify their</li> </ol>	should be verified - use approved cab arefully made avoiding the use of me service cable into each property, lamp live unless proved otherwise by UK Pov ven to all people working near UK Pow excavation purposes. s/lines belonging to other owners of lic	e avoidance tools prior to ex chanical tools or picks until column and street sign, etc. wer Networks. er Networks plant and equip	xcavation using suitable hand the exact location of all the ment. Do not use plans more	<ol> <li>UK Power Networks does not</li> <li>Subject to paragraph 2 UK Po or otherwise for any loss, dama the information provided wheth of opportunity, loss of savings,</li> <li>This plan has been provided not accept and/or do not unde sender of the letter.</li> </ol>	t warrant that the information provi t exclude or limit its liability if it ca ower Networks has no liability to yo age, cost, claims, demands, or expe her for physical damage to property loss of goodwill, loss of business, lo to you on the basis of the terms of erstand the terms of use set out in security of the information provided	uses the death of any persor u in contract, in tort (includi enses that you or any third p or for any economic loss (in uses of use) or any special or or use set out in the covering the covering letter you must	ns or causes personal injury to ing negligence), for breach of s arty may suffer or incur as a r cluding without limitation loss consequential loss or damage v letter that accompanies this p t not use the plan and must re

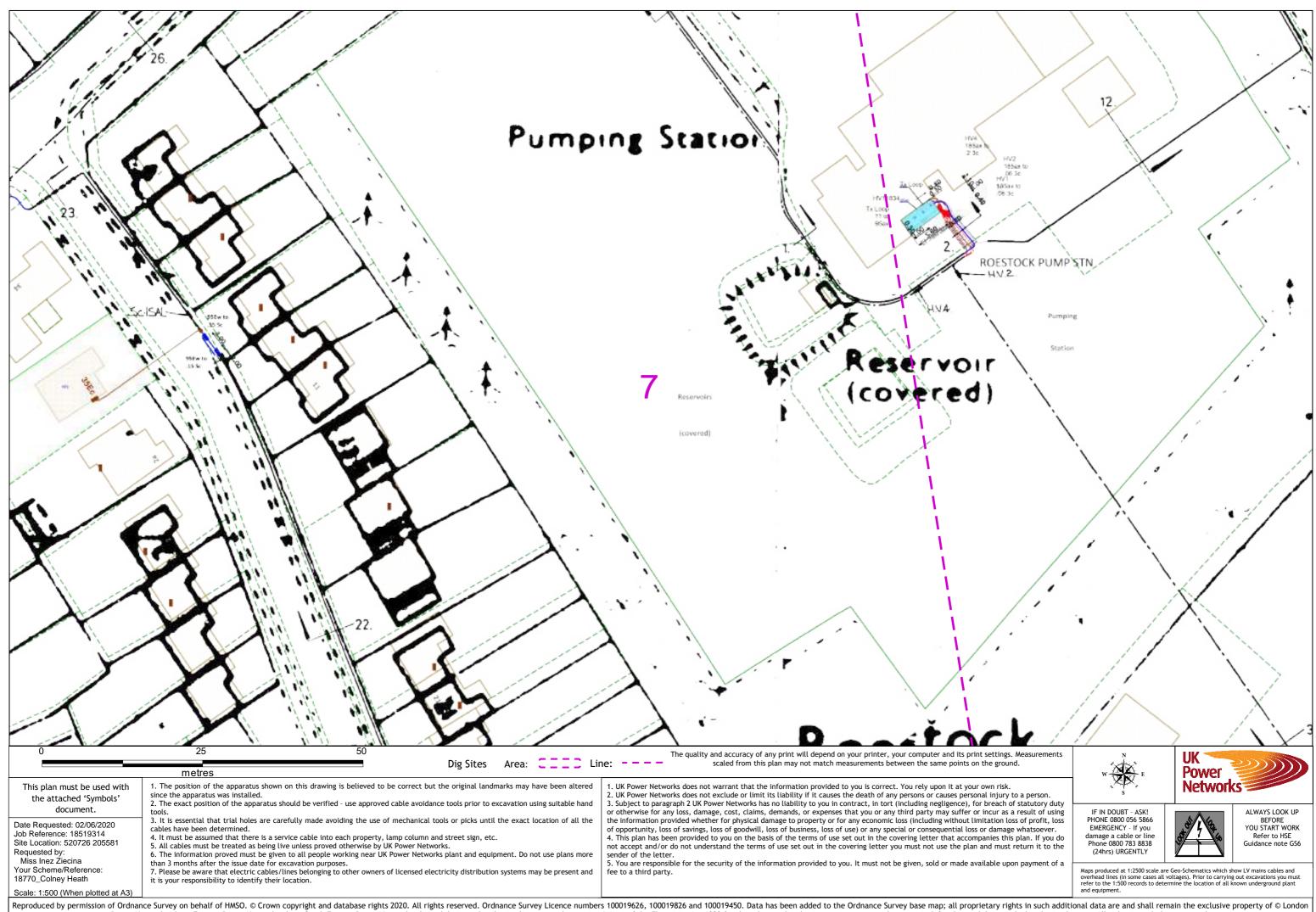
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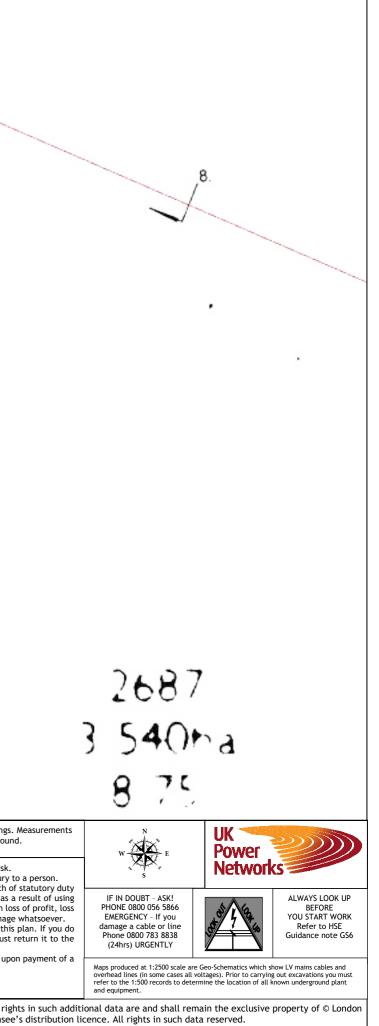


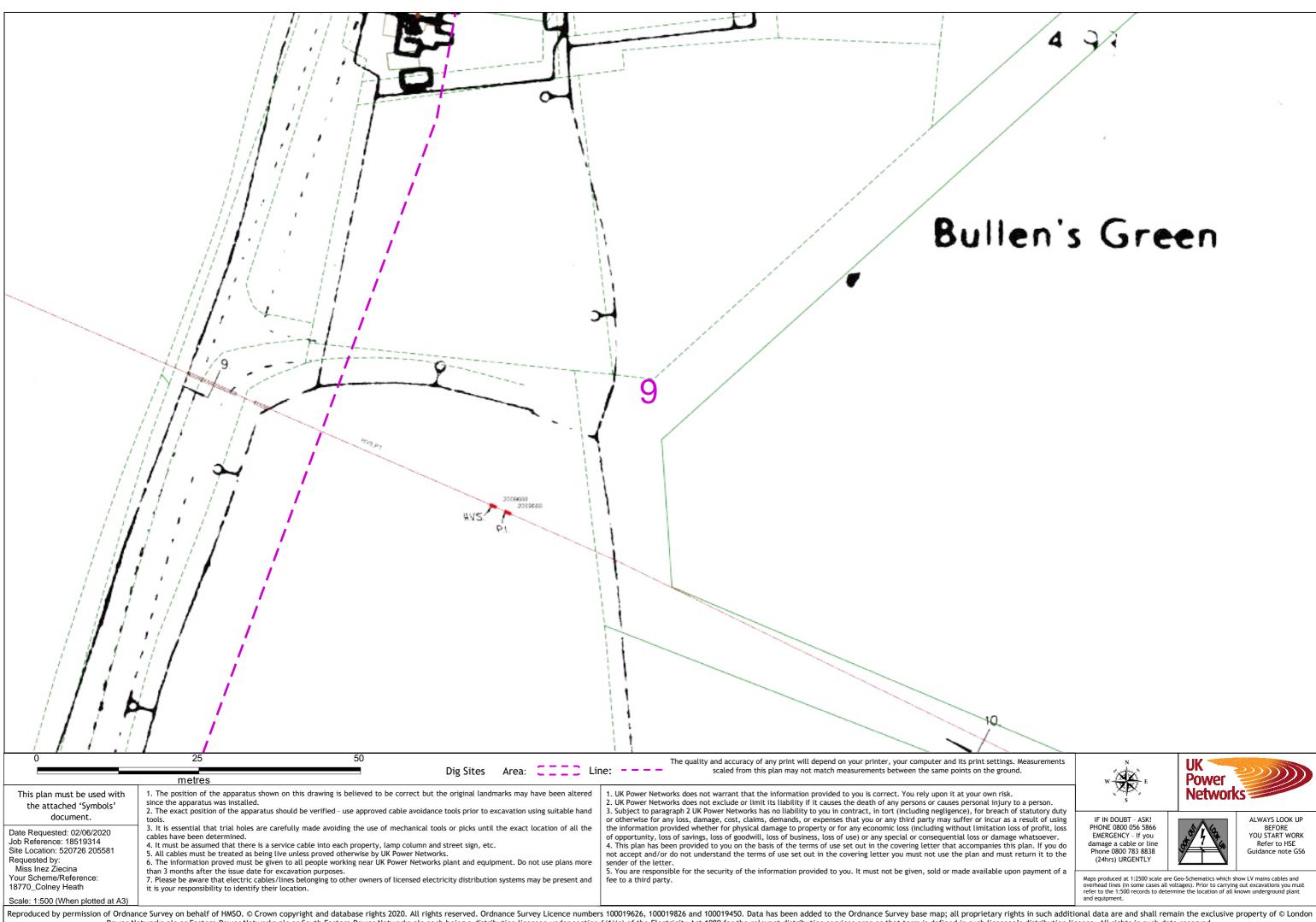
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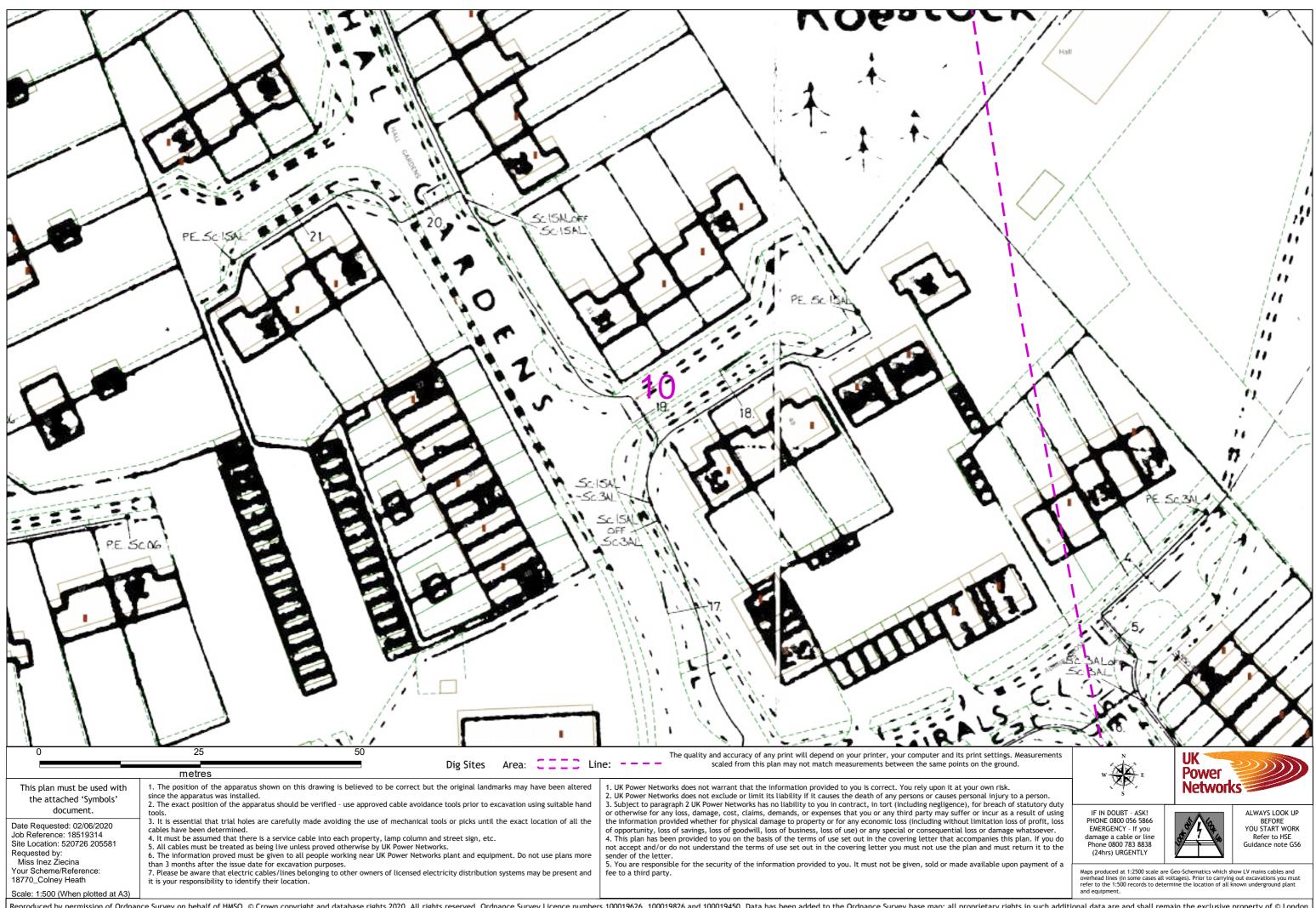
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	metres	T
This plan must be used with the attached 'Symbols' document. Date Requested: 02/06/2020 Job Reference: 18519314 Site Location: 520726 205581 Requested by: Miss Inez Ziecina	<ol> <li>The position of the apparatus shown on this drawing is believed to be correct but the original landmarks may have been altered since the apparatus was installed.</li> <li>The exact position of the apparatus should be verified - use approved cable avoidance tools prior to excavation using suitable hand tools.</li> <li>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.</li> <li>It must be assumed that there is a service cable into each property, lamp column and street sign, etc.</li> <li>All cables must be treated as being live unless proved otherwise by UK Power Networks.</li> <li>The information proved must be given to all people working near UK Power Networks plant and equipment. Do not use plans more the base of the provention of the service cable shows be the service cable shows be a service cable shows be and the service cable shows be and the service cable otherwise by UK Power Networks plant and equipment.</li> </ol>	<ol> <li>UK Power Networks does not warrant that the information provided to you is correct. You rely upon it at your own ris</li> <li>UK Power Networks does not exclude or limit its liability if it causes the death of any persons or causes personal injuu</li> <li>Subject to paragraph 2 UK Power Networks has no liability to you in contract, in tort (including negligence), for breach or otherwise for any loss, damage, cost, claims, demands, or expenses that you or any third party may suffer or incura the information provided whether for physical damage to property or for any economic loss (including without limitation of opportunity, loss of savings, loss of goodwill, loss of business, loss of use) or any special or consequential loss or damu.</li> <li>This plan has been provided to you on the basis of the terms of use set out in the covering letter that accompanies to not accept and/or do not understand the terms of use set out in the covering letter, you must not use the plan and mu sender of the letter.</li> </ol>
Your Scheme/Reference: 18770_Colney Heath	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	5. You are responsible for the security of the information provided to you. It must not be given, sold or made available of fee to a third party.
Scale: 1:500 (When plotted at A3)	it is your responsibility to identify their location.	
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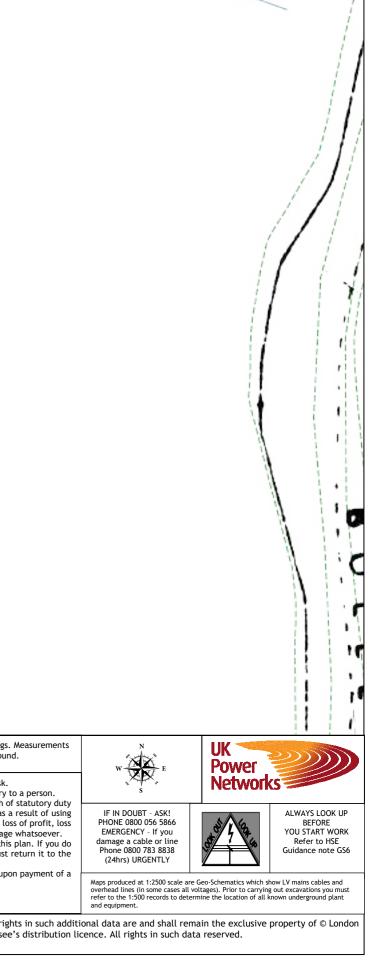


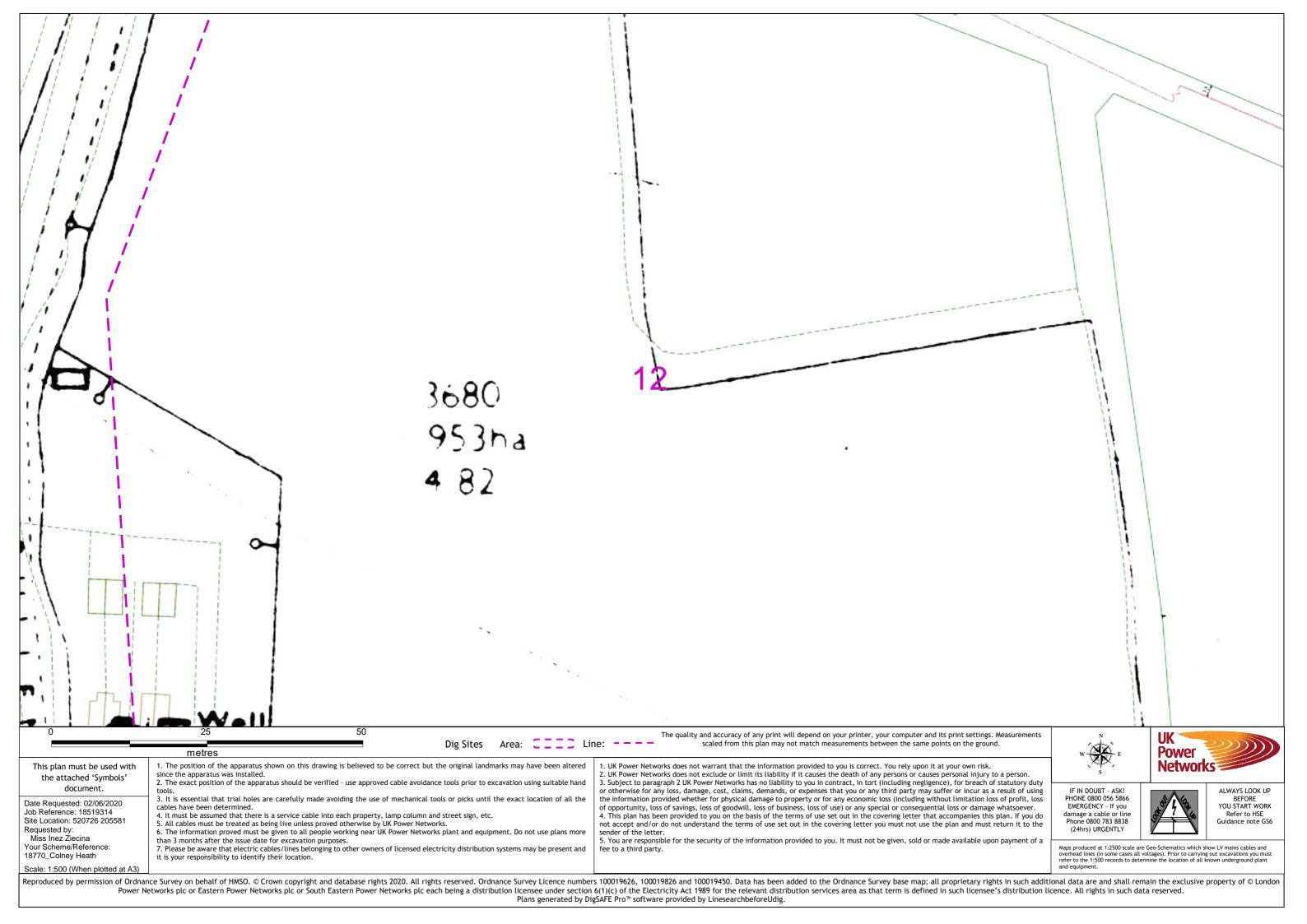
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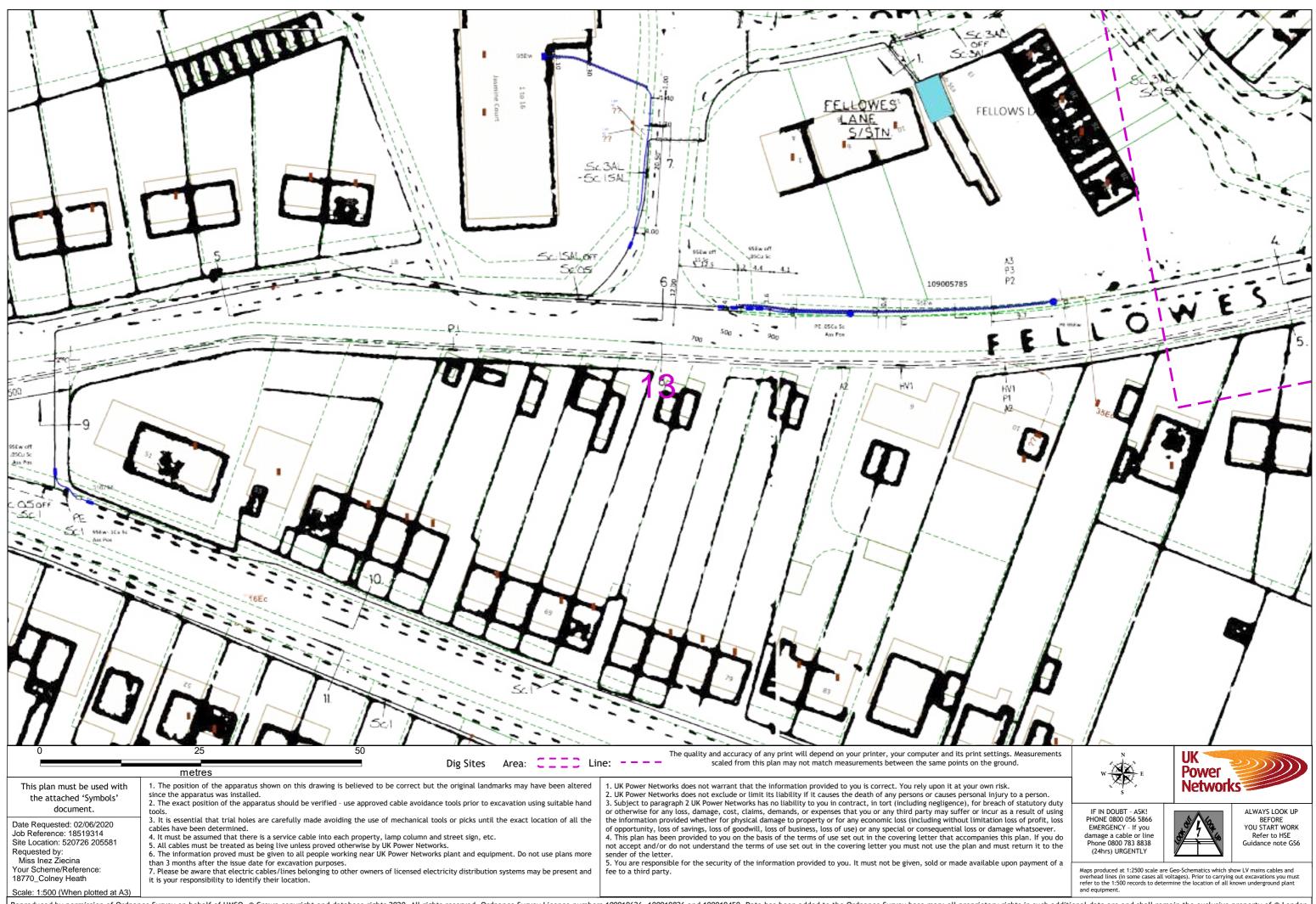


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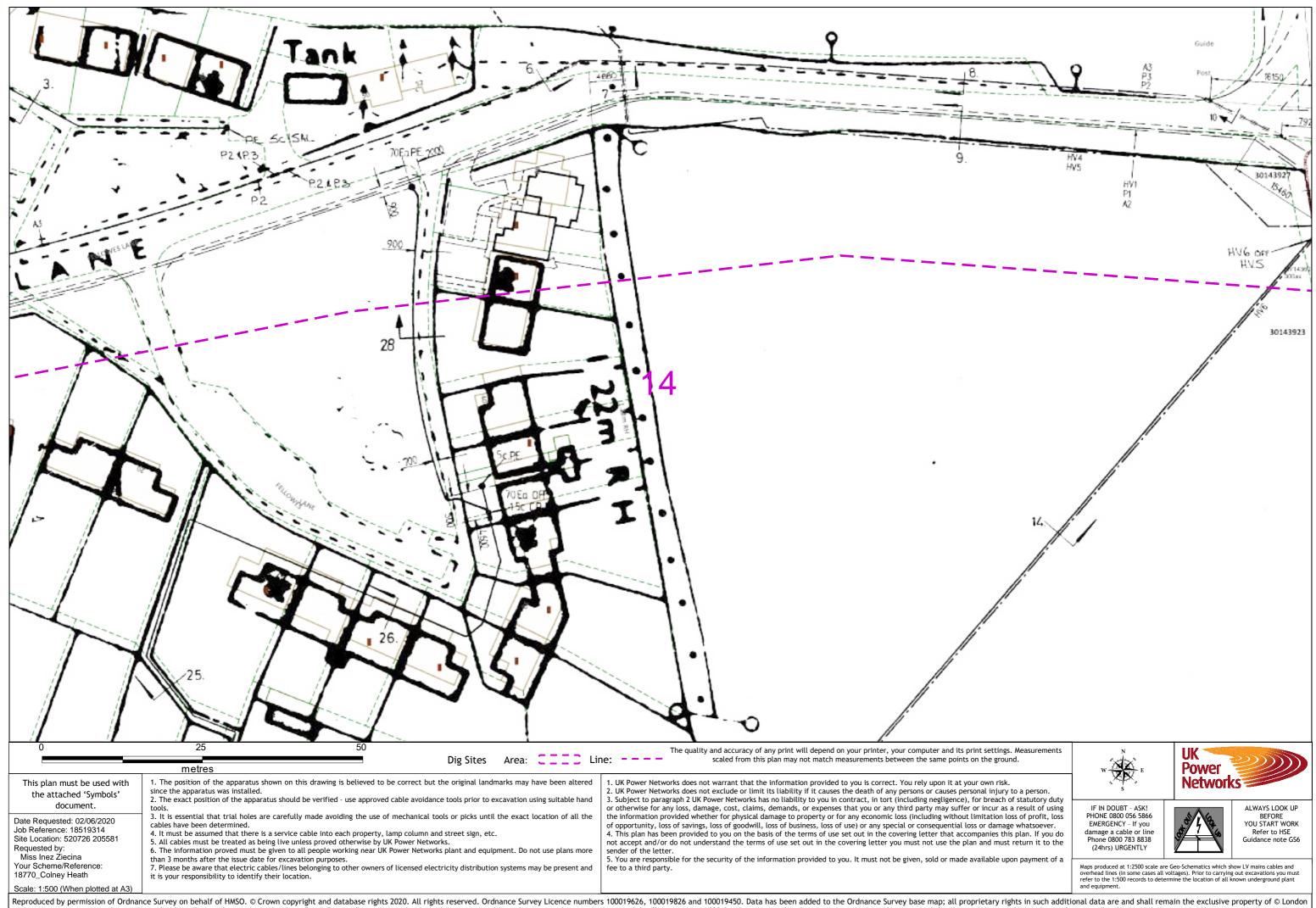
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This plan must be used with the attached 'Symbols' document. Date Requested: 02/06/2020 Job Reference: 18519314	since the apparatus was installed. 2. The exact position of the apparatus shou tools. 3. It is essential that trial holes are carefu cables have been determined.	this drawing is believed to be correct but the original landmarks may ald be verified - use approved cable avoidance tools prior to excavation u ally made avoiding the use of mechanical tools or picks until the exact the cable into each property, lamp column and street sign, etc.	2. UK Power Networks does not exclude or lim 3. Subject to paragraph 2 UK Power Networks or otherwise for any loss, damage, cost, clain the information provided whether for physical of opportunity, loss of savings, loss of goodwil	he information provided to you is correct. You rely upon it at your own risk. it its liability if it causes the death of any persons or causes personal injury to has no liability to you in contract, in tort (including negligence), for breach of is, demands, or expenses that you or any third party may suffer or incur as a damage to property or for any economic loss (including without limitation loss l, loss of business, loss of use) or any special or consequential loss or damage to parts of the terms of use set out in the covering letter that accompanies this r
Site Location: 520726 205581 Requested by: Miss Inez Ziecina Your Scheme/Reference: 18770_Colney Heath Scale: 1:500 (When plotted at A3)	<ol> <li>All cables must be treated as being live</li> <li>The information proved must be given to than 3 months after the issue date for exca</li> <li>Please be aware that electric cables/line it is your responsibility to identify their loc</li> </ol>	unless proved otherwise by UK Power Networks. o all people working near UK Power Networks plant and equipment. Do r wation purposes. es belonging to other owners of licensed electricity distribution systems n ation.	not use plans more nay be present and not accept and/or do not understand the terr sender of the letter. 5. You are responsible for the security of the fee to a third party.	basis of the terms of use set out in the covering letter that accompanies this p ns of use set out in the covering letter you must not use the plan and must re information provided to you. It must not be given, sold or made available upon
Keproduced by permission of Ordna Power	ance survey on behalt of HMSO. © Crown cop Networks plc or Eastern Power Networks plc	or South Eastern Power Networks plc each being a distribution lice	vey Licence numbers 100019626, 100019826 and 100019450. Dat nsee under section 6(1)(c) of the Electricity Act 1989 for the re ns generated by DigSAFE Pro™ software provided by Linesearch	a has been added to the Ordnance Survey base map; all proprietary right levant distribution services area as that term is defined in such licensee's beforeUdig.



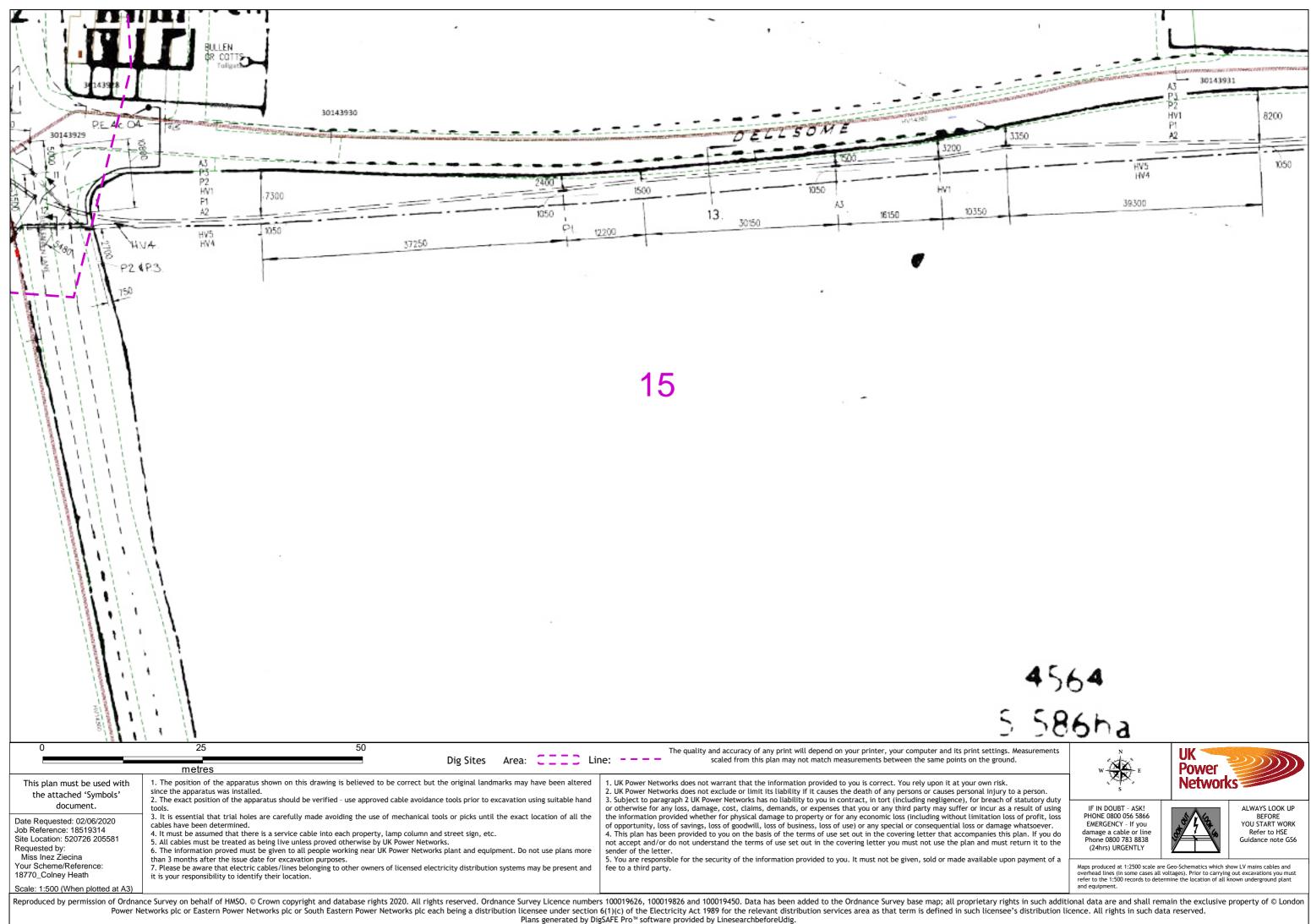


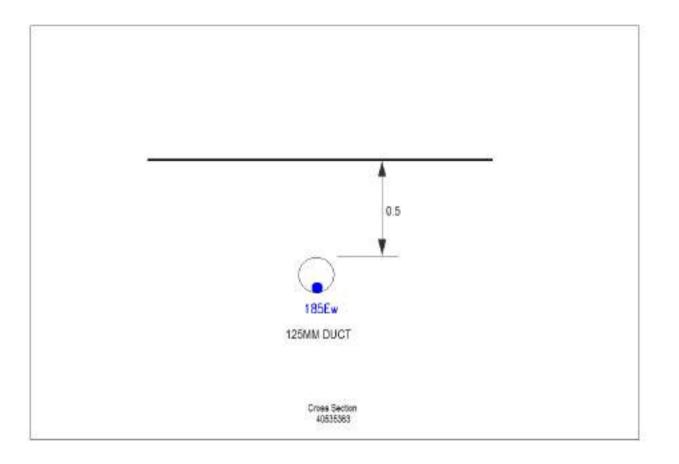


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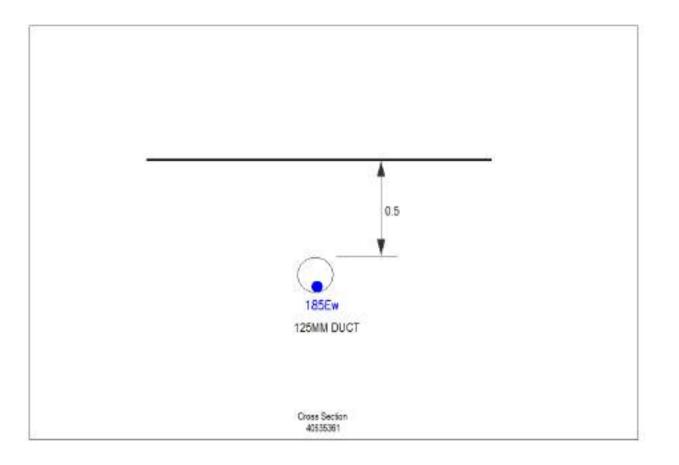
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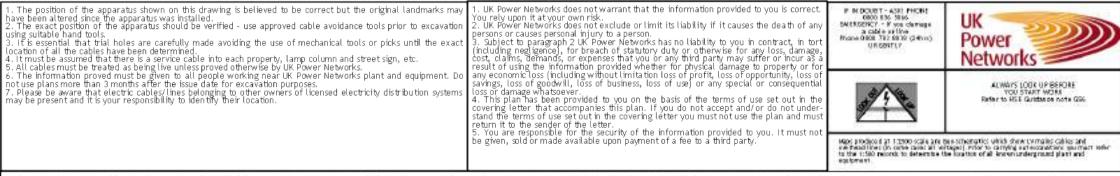




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	be given, sold or made available upon payment of a fee to a third party.	Maps produced at 1.2500 scale are two-schematics which share to make calles and we find that the right same base all soltages), where to carrying antecompletions guarant when in the right to record, to determine the location of all incremending must glast and equipment.	

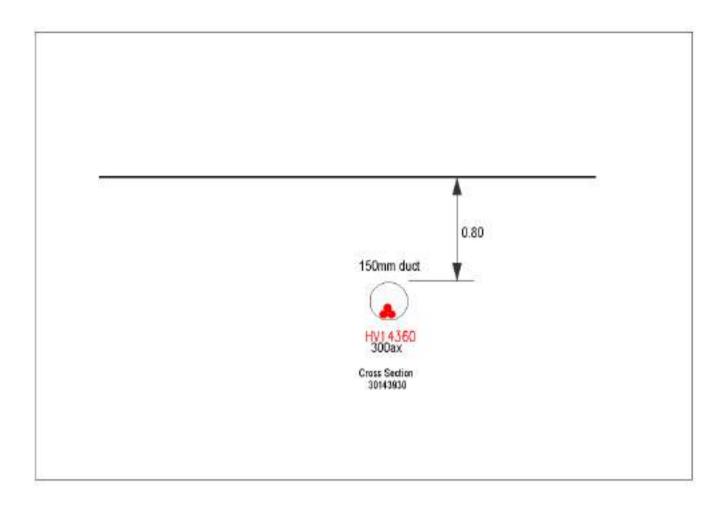
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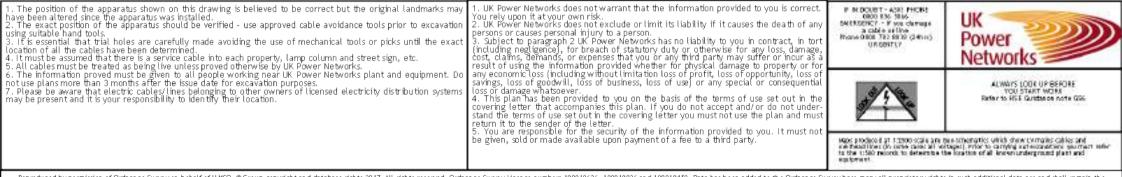




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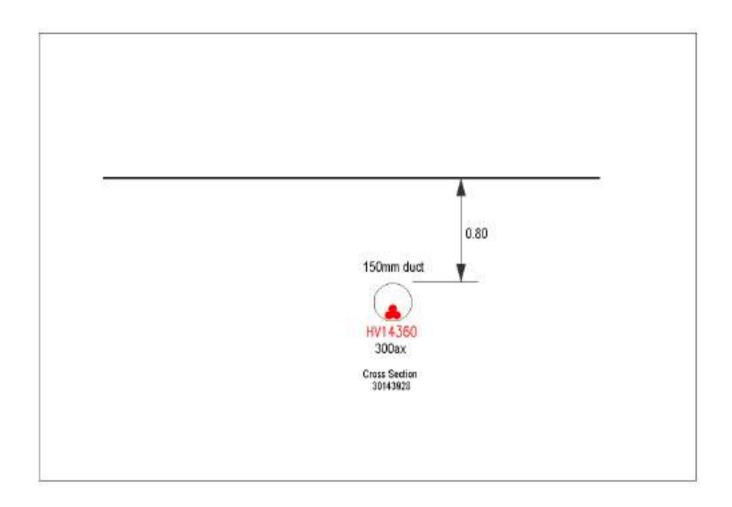


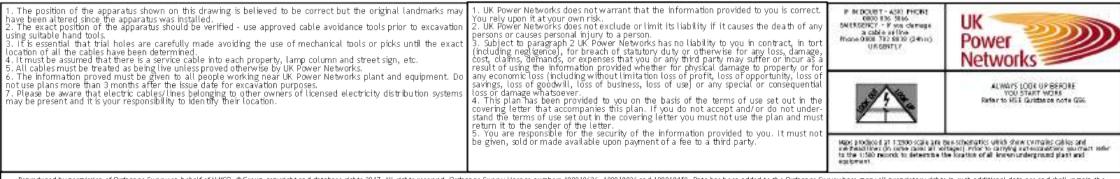


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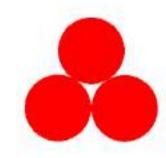
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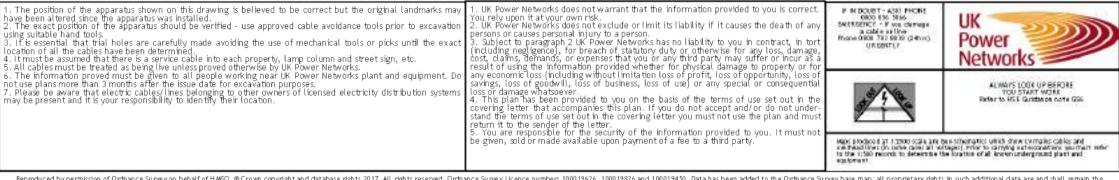




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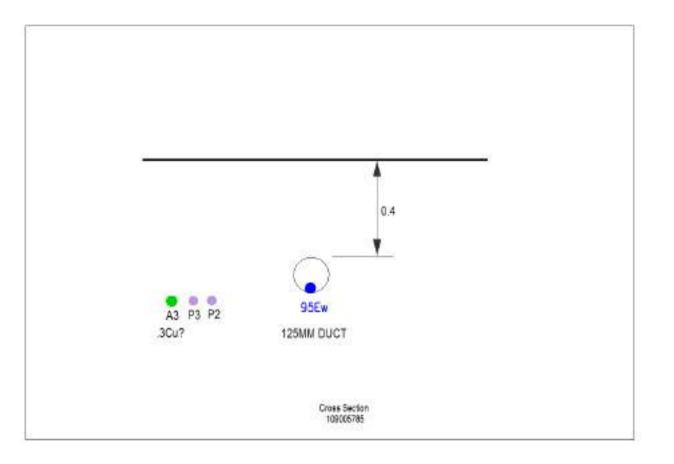


# Cross Section 30143929



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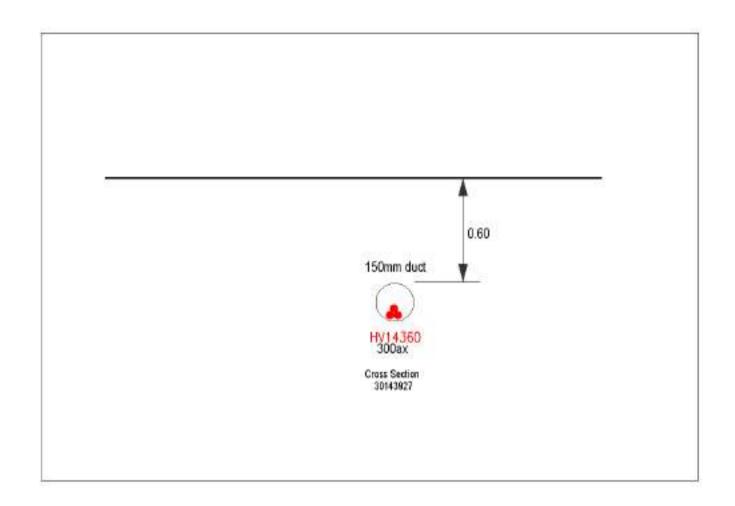
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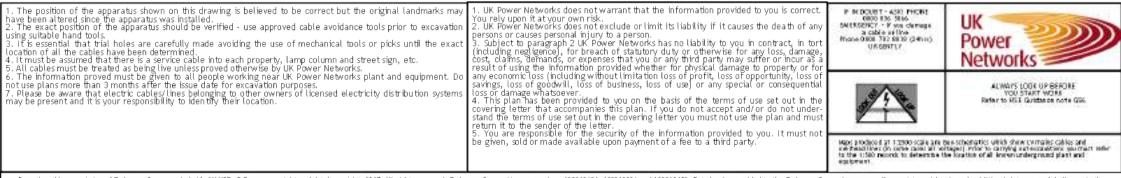


<ol> <li>The position of the apparatus shown on this drawing is believed to be correct but the original landmarks may have been altered since the apparatus was installed.</li> <li>The exact position of the apparatus was installed.</li> <li>The exact position of the apparatus should be verified - use approved cable avoidance tools prior to excavation using suitable hand tools.</li> <li>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.</li> <li>It must be assumed that there is a service cable into each property, lamp column and street sign, etc.</li> <li>All cables must be treated as being live unless proved otherwise by UK Power Networks.</li> <li>The information proved 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>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.</li> </ol>	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 use) or any special or consequential	Mone OIOL 712 6102 (24hm) UKOBIT(7	UK Power Networks
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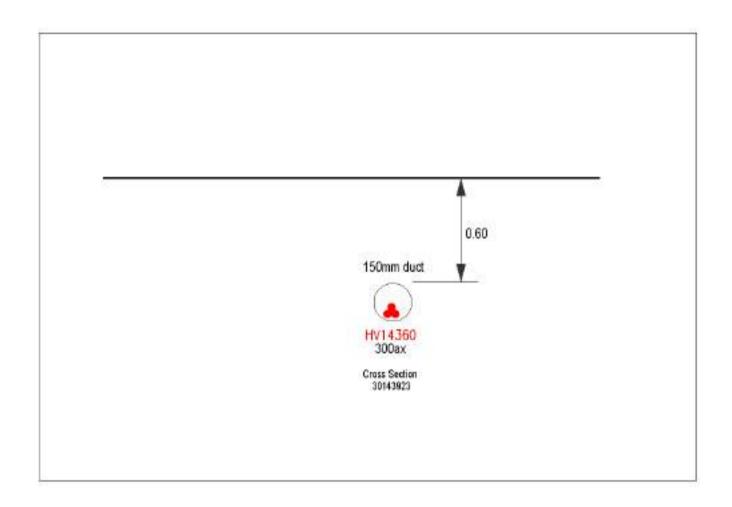


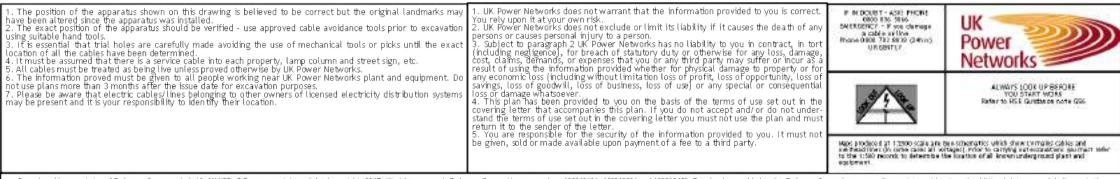


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# Appendix G Cadent Record Plans





Jasmine Katsoulis Woods Hardwick 15-17 Goldington Road Bedford Bedford Bedfordshire MK40 3NH Plant Protection Cadent Block 1; Floor 1 Brick Kiln Street Hinckley LE10 0NA E-mail: <u>plantprotection@cadentgas.com</u> Telephone: +44 (0)800 688588

National Gas Emergency Number: 0800 111 999\*

National Grid Electricity Emergency Number: 0800 40 40 90\* \* Available 24 hours, 7 days/week. Calls may be recorded and monitored.

www.cadentgas.com

Date: 03/06/2020 Our Ref: EA\_GE4A\_3SWX\_681371 Your Ref: 18770\_ColneyHeath RE: Proposed Works, Roundhouse Farm, Colney Heath

Thank you for your enquiry which was received on 03/06/2020. Please note this response and any attached map(s) are valid for 28 days.

An assessment has been carried out with respect to Cadent Gas Limited, National Grid Electricity Transmission plc's and National Grid Gas Transmission plc's apparatus. Please note it does not cover the items listed in the section "Your Responsibilities and Obligations", including gas service pipes and related apparatus. For details of Network areas please see the Cadent website (<u>http://cadentgas.com/Digging-safely/Dial-before-you-dig</u>) or the enclosed documentation.

As your works are at a "proposed" stage, any maps and guidance provided are for information purposes only. This is not approval to commence work. You must submit a "Scheduled Works" enquiry at the earliest opportunity and failure to do this may lead to disruption to your plans and works. Plant Protection will endeavour to provide an <u>initial</u> assessment within 14 days of receipt of a Scheduled Works enquiry and dependent on the outcome of this, further consultation may be required.

In any event, for safety and legal reasons, works must not be carried out until a Scheduled Works enquiry has been completed and final response received.

National Grid is a trading name for: National Grid Electricity Transmission plc Registered Office: 1-3 Strand, London WC2N 5EH Registered in England and Wales, No 2366977

# Your Responsibilities and Obligations

The "Assessment" Section below outlines the detailed requirements that must be followed when planning or undertaking your scheduled activities at this location.

It is your responsibility to ensure that the information you have submitted is accurate and that all relevant documents including links are provided to all persons (either direct labour or contractors) working for you near Cadent and/or National Grid's apparatus, e.g. as contained within the Construction (Design and Management) Regulations.

This assessment solely relates to Cadent Gas Limited, National Grid Electricity Transmission plc (NGET) and National Grid Gas Transmission plc (NGGT) and apparatus. This assessment does **NOT** include:

- Cadent and/or National Grid's legal interest (easements or wayleaves) in the land which restricts activity in proximity to Cadent and/or National Grid's assets in private land. You must obtain details of any such restrictions from the landowner in the first instance and if in doubt contact Plant Protection.
- Gas service pipes and related apparatus
- Recently installed apparatus
- Apparatus owned by other organisations, e.g. other gas distribution operators, local electricity companies, other utilities, etc.

It is **YOUR** responsibility to take into account whether the items listed above may be present and if they could be affected by your proposed activities. Further "Essential Guidance" in respect of these items can be found on either the <u>National Grid</u> or <u>Cadent</u> website.

This communication does not constitute any formal agreement or consent for any proposed development work; either generally or with regard to Cadent and/or National Grid's easements or wayleaves nor any planning or building regulations applications.

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

If you require further assistance please contact the Plant Protection team via e-mail (<u>click here</u>) or via the contact details at the top of this response.

Yours faithfully

Plant Protection Team

# ASSESSMENT

# Affected Apparatus

The apparatus that has been identified as being in the vicinity of your proposed works is:

Low or Medium pressure (below 2 bar) gas pipes and associated equipment. (As a result it is highly likely that there are gas services and associated apparatus in the vicinity)

# Requirements

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

- Carefully read these requirements including the attached guidance documents and maps showing the location of apparatus.
- Contact the landowner and ensure any proposed works in private land do not infringe Cadent and/or National Grid's legal rights (i.e. easements or wayleaves). If the works are in the road or footpath the relevant local authority should be contacted.
- Ensure that all persons, including direct labour and contractors, working for you on or near Cadent and/or National Grid's apparatus follow the requirements of the HSE Guidance Notes HSG47 -'Avoiding Danger from Underground Services' and GS6 – 'Avoidance of danger from overhead electric power lines'. This guidance can be downloaded free of charge at <u>http://www.hse.gov.uk</u>
- In line with the above guidance, verify and establish the actual position of mains, pipes, cables, services and other apparatus on site before any activities are undertaken.

# GUIDANCE

Excavating Safely - Avoiding injury when working near gas pipes: http://www.nationalgrid.com/NR/rdonlyres/2D2EEA97-B213-459C-9A26-18361C6E0B0D/25249/Digsafe\_leaflet3e2finalamends061207.pdf

# **Standard Guidance**

Essential Guidance document: http://www2.nationalgrid.com/WorkArea/DownloadAsset.aspx?id=8589934982

General Guidance document: http://www2.nationalgrid.com/WorkArea/DownloadAsset.aspx?id=35103

Excavating Safely in the vicinity of gas pipes guidance (Credit card): http://www.nationalgrid.com/NR/rdonlyres/A3D37677-6641-476C-9DDA-E89949052829/44257/ExcavatingSafelyCreditCard.pdf

Excavating Safely in the vicinity of electricity cables guidance (Credit card): http://www.nationalgrid.com/NR/rdonlyres/35DDEC6D-D754-4BA5-AF3C-D607D05A25C2/44858/ExcavatingSafelyCreditCardelectricitycables.pdf

Copies of all the Guidance Documents can also be downloaded from the National Grid and Cadent websites.

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ID: EA_GE4A_3SWX_681371	View extent: 723m, 918m	Map not to be used for construction	Map 1 of 1 (GAS)
USER: j.katsoulis	LP MAINS	This plan shows those pipes owned by Cadent Gas Limited 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	MAPS Plot Server Version 1.11.0
DATE: 03/06/2020	IP MAINS	with regard to such pipes should be obtained from the relevant owners. The information shown on this plan is given without warranty, the accuracy thereof cannot be guaranteed. Service pipes, valves, syphons, stub connections, etc., are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Cadent Gas Limited or their agents, servants or contractors for any error or 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 other apparatus on site before any mechanical plant is used. It is your responsibility to ensure	Cadent
DATA DATE: 02/06/2020	LPP MAINS		Cadent
REF: 18770_ColneyHeath	NHP MAINS		Your Gas Network
MAP REF: TL2105			Requested by: Woods Hardwick
CENTRE: 521191, 205922 on A3 Colour Portrait		apparatus. The information included on this plan should not be referred to beyond a period of 28 days from the date of issue.	This plan is reproduced from or based on the OS map by Cadent Gas Limited, with the sanction
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# **ENQUIRY SUMMARY**

Received Date 03/06/2020

Your Reference 18770\_ColneyHeath

Location Centre Point: 521191, 205922 X Extent: 324 Y Extent: 372 Postcode: AL4 0QT Location Description: Roundhouse Farm, Colney Heath

<u>Map Options</u> Paper Size: A3 Orientation: PORTRAIT Requested Scale: 1250 Actual Scale: 1:2500 (GAS) Real World Extents: 723m x 918m (GAS)

<u>Recipients</u> j.katsoulis@woodshardwick.com

Enquirer Details Organisation Name: Woods Hardwick Contact Name: Jasmine Katsoulis Email Address: j.katsoulis@woodshardwick.com Telephone: 01234268862 (01234268862) Address: 15-17, Goldington Road, Bedford, Bedford, Bedfordshire, MK40 3NH

<u>Description of Works</u> proposed residential development

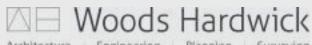
Enquiry Type Proposed Works

Activity Type Development Project

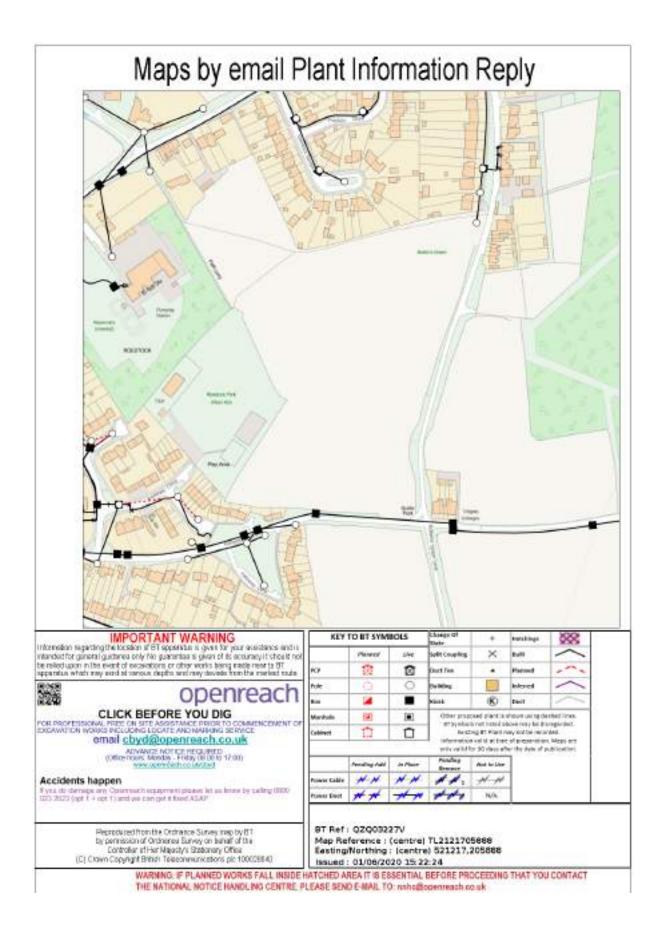
<u>Work Types</u> Work Type: Deep Excavation (greater than or equal to 0.3m) Work Type: Shallow Excavation (less than 0.3m) Work Type: Surface Works Work Type: Permanent Structures Work Type: Piling (Vibration)



# Appendix H **BT Openreach Record Plans**

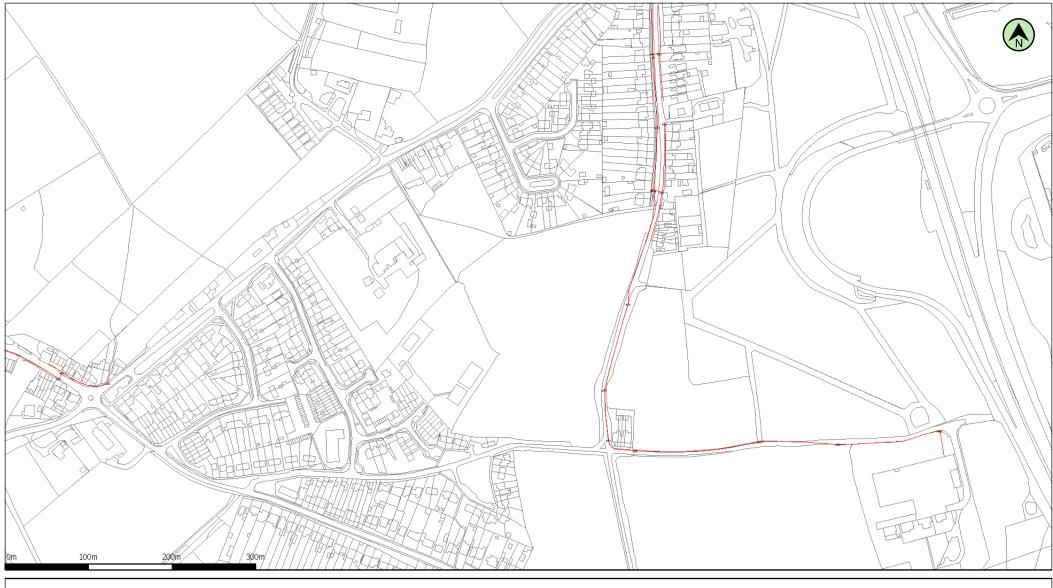


Architecture Engineering Planning Surveying



Appendix I Virgin Media Record Plans





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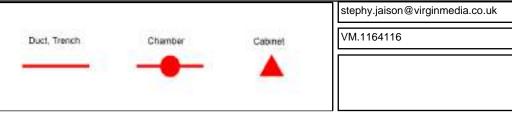
Date: 08/06/20 Scale: 1:4523

Map Centre: 521192,205931

Data updated: 01/05/20

#### Telecoms Plan A4

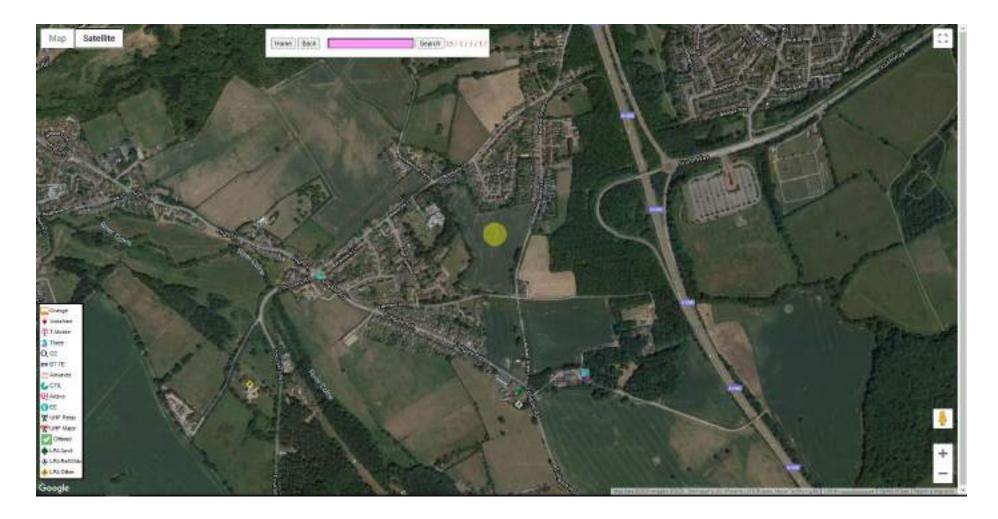
Important Information - please read The purpose of this plan is to identify Virgin Media apparatus. We have tried to make it as accurate as possible but we cannot warrant its accuracy. In addition, we caution that within Virgin Media apparatus there may be instances where mains voltage power cables have been placed inside green, rather than black ducting. Further details can be found using the "Affected Postcodes.pdf", which can be downloaded from this website. Therefore, you must not rely solely on this plan if you are carrying out any excavation or other works in the vicinity of Virgin Media apparatus. The actual position of any underground service must be verified by cable detection equipment, etc. and established on site before any mechanical plant is used. Accordingly, unless it is due to the negligence of Virgin Media, its employees or agents, Virgin Media will not have any liability for any omissions or inaccuracies in the plan or for any loss or damage caused or arising from the use of and/or any reliance on this plan. This plan is produced by Virgin Media Limited (c) Crown copyright and database rights 2020 Ordnance Survey 100019209.





# Appendix J Mobile Phone Mast Location Plan





# Appendix K

Thames Water Pre-Planning Enquiry Response





Miss Jasmine Katsoulis Woods Hardwick 15-17 Goldington Road Bedford MK40 3NH Wastewater pre-planning Our ref DS6075257

20 Aug. 20

# Pre-planning enquiry: Confirmation of sufficient capacity

Dear Miss Katsoulis

Thank you for providing information on your development: **Roundhouse Farm, Colney Heath, Bullen's Green Lane, North Mymms, Welwyn Hatfield, Hertfordshire, AL4 0QT.** 

# Residential development comprising 100 units. Foul water to be pumped into MH3011 at 2.31I/s. Surface water to be attenuated to the greenfield rate 9.3I/s and discharged into MH1150.

We're pleased to confirm that there will be sufficient foul and surface water capacity in our sewerage network to serve your development, so long as your phasing follows the timescale you've suggested.

This confirmation is valid for 12 months or for the life of any planning approval that this information is used to support, to a maximum of three years.

# **Source Protection Zone**

The development site boundary falls within a Source Protection Zone for groundwater abstraction. These zones may be at particular risk from polluting activities on or below the land surface. To prevent pollution, the Environment Agency and Thames Water (or other local water undertaker) will use a tiered, risk-based approach to regulate activities that may impact groundwater resources, this may potentially affect your drainage or surface water strategies where infiltration systems are proposed. The applicant is encouraged to read the Environment Agency's approach to groundwater protection (available at https://www.gov.uk/government/publications/

groundwater-protection-position-statements) and may wish to discuss the full implications for their development with a suitably qualified environmental consultant.

You'll need to keep us informed of any changes to your design – for example, an increase in the number or density of homes. Such changes could mean there is no longer sufficient capacity.

#### What happens next?

Please make sure you submit your connection application, giving us at least 21 days' notice of the date you wish to make your new connection/s.

If you've any further questions, please contact me on 0203 577 8082.

Yours sincerely

Artur Jaroma

**Thames Water** 



# Appendix L Affinity Water Pre-Planning Assessment Report





Developer Services Tamblin Way Hatfield Hertfordshire AL10 9EZ

Telephone: 0345 357 2428

11/08/2020

# DS0036606 - Roundhouse Farm, Colney Heath

Dear Miss Inez Ziecina,

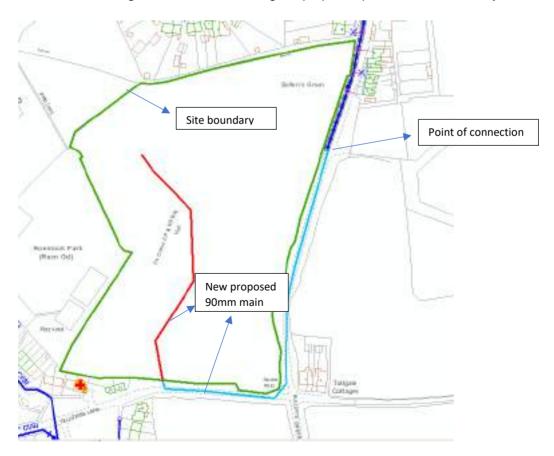
Re: Pre-planning budget enquiry for Roundhouse Farm, Colney Heath.

Further to your recent request, I am pleased to enclose a budget estimate for a new water supply to your development. This is an indicative budget that has been produced based upon the information you have provided to us, at this point. Where information is vague, assumptions have been made.

#### **Estimated Scope of Work**

Pre-planning Enquiry for 100 plots at Roundhouse Farm, Colney Heath, Fellowes Lane, Roehyde, Welwyn, Hatfield, Hertfordshire AL4 0PZ

Please see the diagram attached illustrating the proposed point of connection to your site.



# Your Budget cost

All costs below are outlined in our *'New Connections Charging Arrangements 2020/21'* document, published <u>here</u> on our website. Please refer to this document for information regarding these costs.

Description		Charges 2020-21 (£)	
Mains Application Fees			
Application Fee for Mains (with an existing pre-development report)		£393.00	
Mains Design Fees			
Design Fee for Mains		£1,132.00	
Mains Administration Fees			
Mains Administration Fee (per application)	1	£577.00	
Mains Administration Fee (per linear meter of main laid)	970	£14,550.00	
Laying of Water Mains			
90mm main with Excavation by AW	320	£98,240.00	
90mm main without Excavation by AW	650	£44,850.00	
Installation of Accessories			
Fire Hydrant/Wash Out (End Type, 90mm pipe)	14	£8,890.00	
Fire Hydrant/Wash Out (In-Line, 90mm pipe)	10	£7,450.00	
Connecting Water Mains into Supply System			
Under Pressure/Branch Connection (50-190mm diameter parent	1	£1,190.00	
main)			
New Connections Application Fees		•	
Application Fee (first property connected)	1	£157.00	
Application Fee (each subsequent property connected)	99	£3,069.00	
New Connections Administration Fees		•	
Administration Fee (first property connected)		£110.00	
Administration Fee (each subsequent property connected)		£10,890.00	
Installation of Connections	·		
Onsite Single Supply(s)	100	£50,000.00	
Total (£) Excludi		£241,498.00	

#### Assumptions made

- Need for Barrier Pipe this is to be confirmed once full application is submitted and soil report received for analysis. If a soil report isn't received, we will default to a barrier pipe system. Details of cost differences can be found in our NCCA (table 6.5 & table 7.4).
- No Directional Drilling is assumed for all Mains
- Road Layout Distances are estimated, and will be confirmed upon full application & detailed designed
- Services services have been built up using a cost for parent main connection and 5m of service pipe. Actual quantities will be provided during detailed design/ cost.
- "No Excavation" is assumed for all accessories the costs are based upon you completing all the onsite excavation and backfill. Should you wish Affinity Water to complete this work, please let us know.

# **Other important information**

#### WIRS accredited Self-Lay Provider (SLP)

One option you have is to appoint a WIRS accredited Self-Lay Provider (SLP) to complete some of the works described above, which is known as Self-Lay. You may prefer to use a Self-Lay Provider for a number of reasons, such as:

- Self-Lay Providers may be able to provide a multi-utility option;
- Self-Lay Providers may offer a more cost-effective solution when constructing your project;
- Self-Lay Providers may provide greater flexibility in meeting construction programmes.

If you'd like to explore this option, and would like to find a WIRS accredited self-lay provider, you can do so at the Lloyd's Register website at the following address: <u>https://www.lr.org/en/utilities/water-industry-registration-scheme-wirs-wirsae/search/.</u>

#### Infrastructure Charges

The purpose of an infrastructure charge is to enable a charge to be levied to reflect broadly the expected additional load placed on our network by the connection of premises not previously connected to it. The infrastructure charge per domestic property for the 2020-21 charging year is £375.00\*. Where a site is redeveloped or a building is converted, and still has a metered supply a credit will be given for each of these properties. These will be calculated based upon the number of properties and size of the incoming, metered supply.

\* Where a property is considered to have an abnormally large load, the relevant multiplier calculation will be used. More details of this can be found in section of 15.5 our 'New Connection charging arrangements 2020/21' document.

NB. Infrastructure charges are also applicable for wastewater services. If you are developing within the Anglian Water area, we will collect this on their behalf however if you are within the Thames Water or Southern Water area, they will collect this from you directly.

#### Income Offset

An income offset payment under our charging arrangements for all new connections where an infrastructure charge is applicable. The income offset is against the infrastructure charge not the mains requisition cost following the policy change in Ofwat's Charging Rules. We will apply an income offset for each new connection for a supply of water to the premises connected to a water main where an infrastructure charge is applicable. This is £435.88 per property for the 2020-21 charging year. For more information on the value of these payments, when they are due and who they are paid to please refer to section 15.7 of our *'New Connection charging arrangements 2020/21'* document.

#### Water Efficient Development

As part of our commitment to reduce per capita consumption (PCC) across our supply area we have introduced a credit scheme for water efficient developments. This is linked to part G of the Building Regulations, where dwellings are built to use less than 110 litres of water per person per day. For more information on this please speak to your local planning office.

#### Other Costs

VAT – will be charged at the applicable rate, however, please note that application and design fees attract the standard rate (20%).

# Next steps

Once you are happy to proceed, and have chosen whether you would like Affinity Water, or an WIRS accredited self-lay provider to complete the work for you, you will need to proceed with the application by logging onto the portal and choosing the option you prefer.

In order to complete a detailed design for you we will need some additional information. This includes;

- a CAD site plan that shows your site boundary, road layout, plot information and has some OS background on so our designers can plot the exact location on our system.
- load information (per plot) for the development,
- Soil report (as mentioned above, if this is not provided, we will default to the use of a barrier pipe system).
- Plumbing Schematic Drawing (only applicable for bulk services see description above)

If you need any further advice, please do not hesitate to contact us.

Yours sincerely

Luca Smaldone For, and on behalf of Developer Services Affinity Water Ltd

www.affinitywater.co.uk/developing



# **Appendix M** UK Power Networks Quotation





Registered Office Newington House 237 Southwark Bridge Road London SE1 6NP Company: UK Power Networks (Operations) Limited

Registered in England and Wales No: 3870728

Ms. Jasmine Katsoulis Woods Hardwick 15-17, Goldington Road Bedford MK40 3NH Date: 08 July 2020

Our Ref: 8500150562 / QID 3000028384

Dear Ms. Katsoulis

## Site Address: 100 Dwellings, Fellowes Lane, Colney Heath, ST. ALBANS AL4 0PZ

Thank you for your recent enquiry regarding the above premises. I am writing to you on behalf of Eastern Power Networks plc the licensed distributor of electricity for the above address trading as UK Power Networks.

I am pleased to be able to provide you with a budget estimate for the work.

It is important to note that this budget estimate is intended as a guide only. It may have been prepared without carrying out a site visit or system studies. No enquiry has been made as to the availability of consents or the existence of any ground conditions that may affect the ground works. It is not an offer to provide the connection and nor does it reserve any capacity on UK Power Networks electricity distribution system.

#### Budget estimate:

The budget estimation for this work is:

#### Description

Install new 315kVA substation on site within a GRP enclosure and provide connection to 100 dwellings.

Please note that this budget estimate covers the cost of the connections for either 107kVA (gas heated development) or 301kVA (electrically heated development).

#### High Voltage Point Of Connection

£190,000.00 (exclusive of VAT) if the Point Of Connection (POC) is to our High Voltage network on site

There appears to be 3 HV cables and 1 pilot cable that exist on site. It is envisaged that these will need to be diverted to accommodate the development and site entrance.

An additional sum of £120,000.00 may be chargeable if 11kV diversionary works are necessary.

Please also note that there is an existing 33kV cable at the site entrance, this budget estimate excludes any cost for any works associated with the 33kV cable and associated pilot cables.

#### Assumptions

This budget estimate is based on the following assumptions:

- The most appropriate Point of Connection (POC) is as described above.
- A viable cable or overhead line route exists along the route we have assumed between the Point of Connection (POC) and your site.
- In cases where the Point of Connection (POC) is to be at High Voltage, that a substation can be located on your premises at or close to the position we have assumed.
- Where electric lines are to be installed in private land UK Power Networks will require an easement in
  perpetuity for its electric lines and in the case of electrical plant the freehold interest in the substation site, on
  UK Power Networks terms, without charge and before any work commences.
- You will carry out, at no charge to UK Power Networks, all the civil works within the site boundary, including substation bases, substation buildings where applicable and the excavation/reinstatement of cable trenches.
- Unless stated in your application, all loads are assumed to be of a resistive nature. Should you intend to install equipment that may cause disturbances on UK Power Networks' electricity distribution system (e.g. motors; welders; etc.) this may affect the estimate considerably.
- All UK Power Networks' work is to be carried out as a continuous programme of work that can be completed substantially within 12 months from the acceptance of the formal offer.

Please note that if any of the assumptions prove to be incorrect, this may have a significant impact on the price in any subsequent quotation. You should note also that UK Power Networks' formal connection offer may vary considerably from the budget estimate. If you place reliance upon the budget estimate for budgeting or other planning purposes, you do so at your own risk.

#### If you would like to proceed

If you would like to proceed to a formal offer of connection then you should apply for a quotation. Please refer to our website <u>click here</u> for `The connection process' which details our application process.

To help us progress any future enquiry as quickly as possible please quote the UK Power Networks Reference Number from this letter on all correspondence.

If you have any questions about your budget estimate or need more information, please do not hesitate to contact me. The best time to call is between the hours of 9am and 4pm, Monday to Friday. If the person you need to speak to is unavailable or engaged on another call when you ring, you may like to leave a message or call back later.

Yours sincerely

Graham Adcock

Mr. Graham Adcock METROPOLITAN HOUSE 3 Darkes Lane Potters Bar 07875114818 graham.adcock@ukpowernetworks.co.uk



# Appendix N GTC Quotation



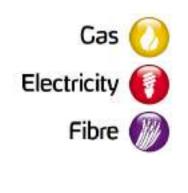
#### GTC Ref: East/34123426/428414

Budget Quotation for: Roundhouse Farm, Fellowes Lane, Colney Heath, ST ALBANS, Hertfordshire, AL4 0PZ

Prepared for: Coleman Properties (c/o Woods Hardwick)

GTC Contact: John Blowers Mob: 07747 567918 Tel: 01359 240154 Date of Quotation: 29 June 2020







## **1.0 INTRODUCTION**

#### **Summary of Offer**

Following your recent enquiry regarding the project at Roundhouse Farm, Fellowes Lane, Colney Heath, ST ALBANS, Hertfordshire, AL4 0PZ, we have used the information you provided GTC to produce a budget costing to meet your requirements. GTC's price to provide gas, electricity & fibre infrastructure (based on the terms of offer set out in this quotation) is a contribution from Coleman Properties to GTC of £42,855.74.

#### **Breakdown of Offer**

#### **Onsite Costs**

This is the cost to provide mains and services to the development within the site boundary:

On-site works	
You pay GTC	£29,144.45

#### **Offsite Costs**

These costs include any off-site costs that are required, including the costs of Upstream Network Operators (NWO), to complete the work to supply your site:

Off-Site Works				
Off-site works (GTC) – Gas:	£5,505.78			
Network Operator Costs – Gas:	£120.00			
Off-site works (GTC) – Electricity:	£5,085.51			
Network Operator Costs – Electricity:	£3,000.00			
TOTAL OFFSITE – You pay GTC	£13,711.30			

## **Fibre Rebate Information**

GTC's offer above is inclusive of a fibre rebate of **£300.00 per plot** (£100 of which is conditional upon you pre-wiring the plot to enable the resident to receive Sky Q television services, via satellite dish or communal Fibre Integrated Reception System (FIRS), in accordance with the Sky Approved Developer Terms). This rebate has been deducted upfront from the on-site total giving the advantage of no administration burden for you to claim the individual plot rebates as they are connected.

Fibre Rebate Included in This Offer Already Deducted From the On-site Total			
100 plots with a £300.00 per plot rebate:	£30,000.00		

### Additional Fibre Network Value to Help with Comparison to Other Providers Quotes

In addition to the rebate above, this offer is based on GTC's innovative fibre installation method which means Coleman Properties will no longer have the cost or hassle of laying a duct and chamber network. GTC estimates that this gives a further construction cost to Coleman Properties of £130.00 per plot which you may need to take in to account when comparing to other quotes.

Estimated Value to Coleman Properties of Construction Costs Saved		
100 plots with £130.00 per plot saving	£13,000.00	

## 2.0 SITE DETAILS

### Schedule of Domestic Plots

Property Type	2BF	2BS	3BD	3BS	3BT	4BD	Total
Gas	10	20	5	35	5	25	100
Electricity	10	20	5	35	5	25	100
Fibre	10	20	5	35	5	25	100

## 3.0 TERMS OF OFFER

## **Gas Terms**

GTC has assumed a Low Pressure (LP) connection to feed this site.

This quotation includes the excavation and reinstatement costs in the public highway which will be carried out by GTC from the point of connection to the site. GTC has assumed a connection off the GDN/iGT 6" Metallic LP main adjacent to the site entrance and have allowed for 14 metres off-site work (12m road, 2m verge) from the connection point to the site entrance.

The Developer shall be responsible for all on-site excavation and reinstatement.

GTC has assumed that any existing mains on-site will be abandoned. It is the responsibility of the Developer to arrange works with the gas transporter.

GTC has assumed there are no environmental issues that may impact on the materials or methods of installation of its proposed networks.

GTC has assumed all mains and services feeding 100 Plots will be in trenches pre-excavated by the Developer.

GTC's mains will typically be laid down one side of the estate roads to minimise on road crossings, service lengths and mains lengths.

This quotation is based on smart meters in cavity meter boxes. Meter boxes shall be located on the front elevation or no more than 2m along a side elevation of each Plot.

This quotation is based on all smart meters at the Plots being installed by GTC (or its subcontractor) and owned by GTC Pipelines Limited. If the Developer wishes to appoint a third party to install and/or own any gas meters at any of the Plots, it shall obtain GTC's prior written consent to do so and, in such circumstances, GTC reserves the right to amend the amounts payable under this quotation accordingly.

GTC's Technical Guidelines for Gas can be found here: http://www.gtc-uk.co.uk/technical-guidelines

## **Electricity Terms**

This quotation includes indicative electric point of connection (PoC) and off-site costs. Costs associated with the PoC are therefore subject to change.

However, the PoC and non contestable charges will be the same regardless of who is to own the network. GTC has assumed a Low Voltage connection due to the size of the site. This quotation includes the excavation and reinstatement costs in the public highway which will be carried out by GTC from the point of connection to the site. GTC has assumed a connection adjacent to the site entrance and GTC has allowed for 14 metres of off-site work (12m road, 2m verge).

Diversionary or abandonment works may be required and are excluded from GTC's quote. The details can be obtained by contacting the upstream DNO.

The Developer shall be responsible for all on-site excavation and reinstatement.

GTC has assumed all mains and services feeding 100 Plots will be in trenches pre-excavated by the Developer.

GTC's mains will typically be laid down one side of the estate roads to minimise on road crossings, service lengths and mains lengths. This quote does not include ducting as this is the responsibility of the Developer to install suitable ducts and jointing pits at the Developers cost to GTC specifications.

GTC's quote is based on 100 Plots having gas heating.

GTC has calculated the total load for the site to be 166kVA.

GTC's quote is based on meter positions for the houses to be external on the front elevation of each property. Where internal meters are to be fitted, the Developer will be responsible for establishing a metering location in accordance with GTC standards GE-TGI-IG-0015, details of which will need to be confirmed by the Developer.

GTC's quotation excludes meter boxes and hockey sticks. GTC can supply these at an additional charge of  $\pounds$ 22.10 each for standard meter boxes.

Based on the information you have provided GTC has not included for any lift motors, pumping stations or other disturbing electric loads (such as welders, motors, heat pumps or air conditioning equipment) in this quotation.

GTC's quotation excludes the cost of Temporary Builders Supply (TBS). The indicative cost to connect this is  $\pounds$ 1,600.00, this cost assumes the Developer shall be responsible for all excavation and reinstatement; the Developer will provide a weatherproof lockable box/kiosk with suitable internal space to accommodate the meter board the meter location less than 25m from GTC's installed and energised mains. This price includes for the disconnection of the temporary supply upon request.

GTC's quotation excludes the cost to connect adoptable street lighting columns. GTC can connect these for an additional charge, the current price for this work is £302.50 per column. This cost includes the supply and lay of 9m of service cable between GTC's existing Low Voltage (LV) mains and the street lights, in this cost GTC has assumed you will provide ducting and excavation to GTC specifications. Prior to the energisation of the street lights you will need to have appointed an electricity supplier for the supply of the street lights. Following the first energisation the terms of connection will be as set out in the National Terms of Connection or in a separate agreement between GTC and yourself.

GTC's Technical Guidelines for Electricity can be found here: http://www.gtc-uk.co.uk/technical-guidelines

#### **Fibre Terms**

This quotation includes any off-site excavation and reinstatement works required to be completed for a connection from the on-site fibre duct network on the development at the site entrance to the appointed Backhaul Provider. These works will be carried out by GTC.

This quotation is based on GTC installing the fibre infrastructure using Direct Lay methodology as detailed in GTC document GF-TGI-IG-0393 - Direct Lay Fibre to the Home Networks. All the Developer will need to install is the 50mm fibre service duct and complete installation of the chambers.

The Developer shall be responsible for all on-site excavation and reinstatement associated with the installation of the fibre network, including the mains, services and On-Site Convergence Point (OSCP).

The Developer shall be responsible for preparation within the Plots to ensure a Plot is ready to receive a fibre service. GTC will liaise with you on the specific requirements during the design stages and brief out final requirements at a fibre construction pre-start meeting.

All works should be completed in line with the appropriate Fibre Technical Guidelines (Direct Lay Fibre to the Home Networks GF-TGI-IG-0393 or Fibre to the Home GF-TGI-IG-0016).

To ensure that the homeowners moving into their new property can enjoy the maximum benefit from GTC's Ultra-Fast Fibre Optic Distribution Network, GTC strongly recommend the Developer follows the minimum inhome technical requirements as specified within the appropriate Fibre Technical Guidelines.

The Developer shall be responsible for ensuring that each Plot is pre-wired to enable the resident to receive Sky Q television services (via satellite dish or communal FIRS) in accordance with the enclosed Sky Approved

Developer Terms and will highlight to purchasers of its Plots Sky Triple Play (being a phone, broadband and TV service offering provided by or on behalf of Sky) as well as the fact that Sky are the Developer's preferred solution for TV, broadband and phone services. The Developer will be required, in addition to (and separately from) GTC's Standard Terms and Conditions, to enter into (and to comply with) the Sky Approved Developer Terms. Sky pre-wiring specification documents can be found on GTC's website and via the link below.

This offer includes the option of FIRS. If selected, a FIRS signal survey will be performed following acceptance of the proposal to finalise the positioning of the aerials and dish. The FIRS aerials and dish will require a solid mounting within visibility of the terrestrial transmitters and satellite. This mounting would typically be on the wall of a substation, roof top of an apartment block or similar solid object. The mounting must be within approximately 20 metres of the OSCP or cabinet housing the FIRS equipment. If no such object is available an additional charge may be necessary to provide a mast or similar. Should a mast be required you will need to seek the appropriate planning permission for its deployment. Where FIRS equipment is deployed within an apartment block riser it must be fed using a landlord supply and accessible to Open Fibre Networks Ltd (OFNL) to inspect, maintain, adjust and repair.

The Developer will need to ensure each Plot is correctly wired to ensure a Plot is ready to receive a FIRS service. Details on all in home requirements and all associated on-site build requirements can be found in the GTC FIRS Technical Standards GF-CIC-ES-0059.

Additional Developer contribution for FIRS	
Coleman Properties pays GTC	£39,371.51

GTC's Technical Guidelines for Fibre and FIRS and Sky Q Pre-wiring Technical Specifications can be found here: <u>http://www.gtc-uk.co.uk/technical-guidelines</u>

## 4.0 CONFIDENTIALITY

This quotation and associated documentation is confidential between GTC, Coleman Properties and their associated parties for this project. It contains commercially sensitive information and should not be divulged to any other party without written permission from GTC.

Should you be successful in obtaining and developing this site, GTC will be pleased to supply a firm quotation. Please return a detailed site plan and a completed quotation request form. GTC trust that this budget costing will be acceptable and look forward to receiving your instructions.

## **5.0 CONTACT DETAILS**

Should you require further details please do not hesitate to contact your GTC Sales Contact, John Blowers (07747 567918) or the Sales Support Team (01359 240154) to discuss further.





BEDFORD : HEAD OFFICE

15-17 Goldington Road

T : +44 (0) 1234 268862

Bedford MK40 3NH

#### BIRMINGHAM

Fort Dunlop, Fort Parkway Birmingham B24 9FE T : +44 (0) 0121 6297784

ONLINE mail@woodshardwick.com woodshardwick.com