



Figure 6
 First Edition Ordnance Survey, 1878
 1:2,000 at A4



Figure 7
 Second Edition Ordnance Survey, 1898
 1:2,000 at A4

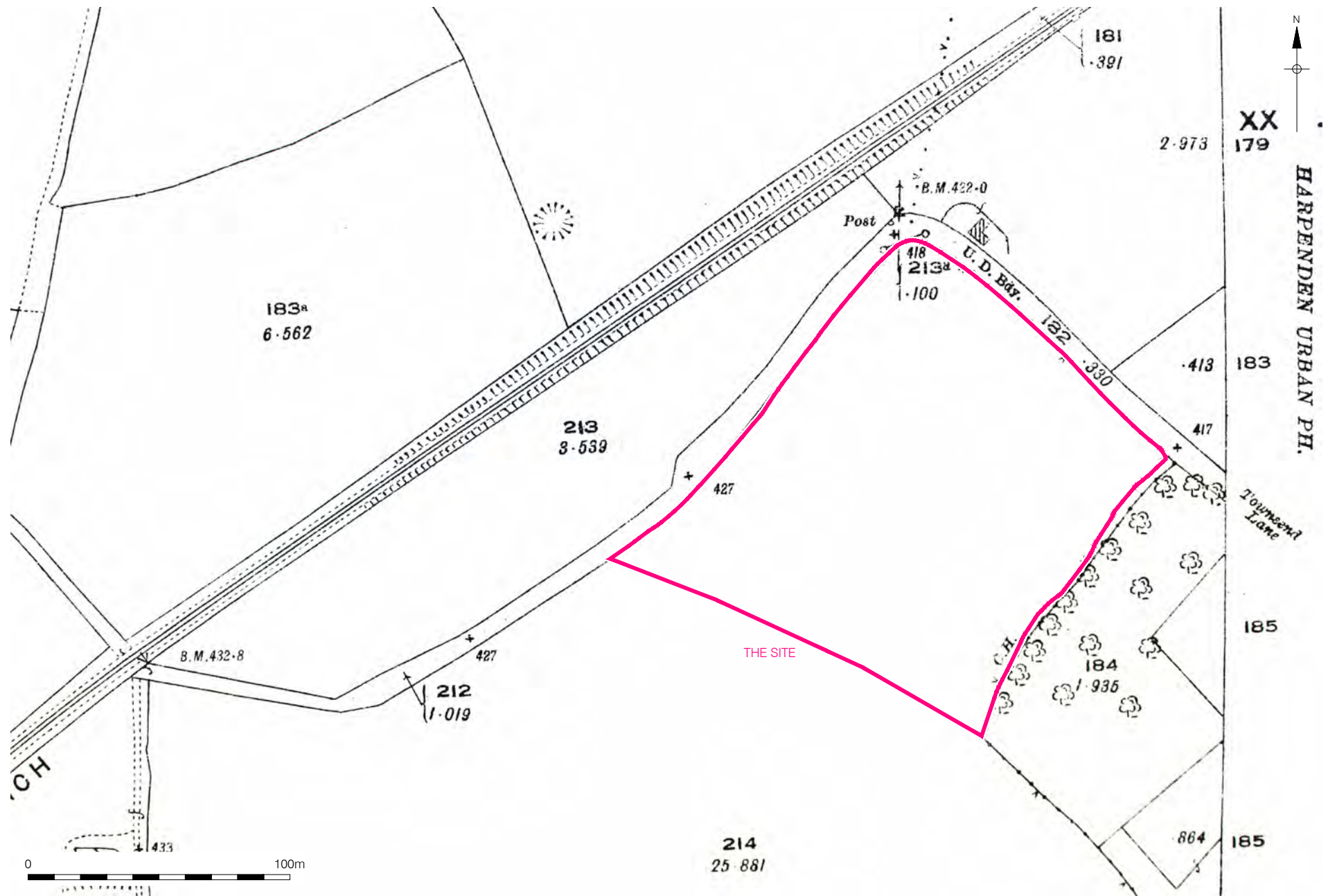


Figure 8
Ordnance Survey, 1924
1:2,000 at A4

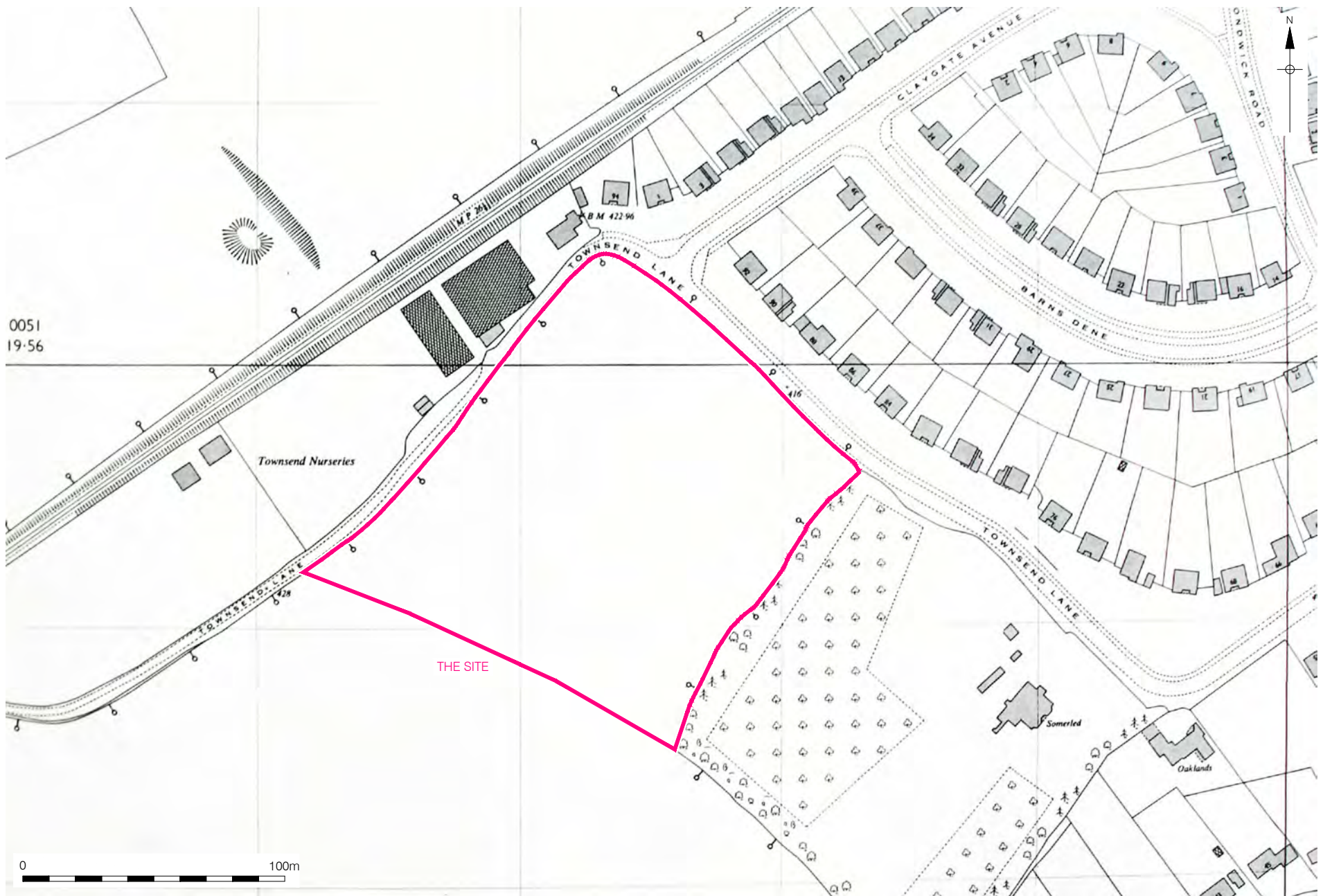
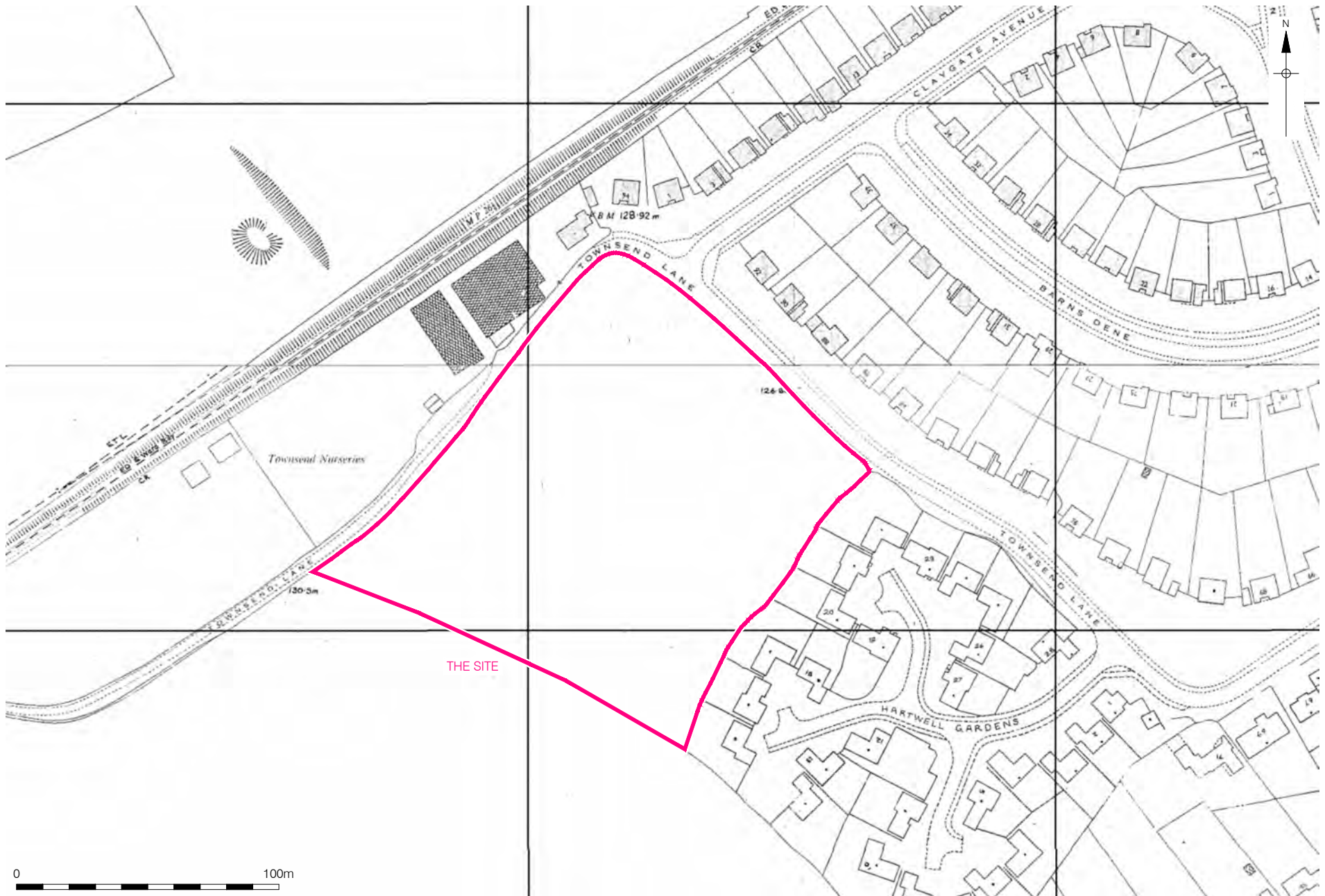


Figure 9
 Ordnance Survey, 1967
 1:2,000 at A4



0 100m

Figure 10
 Ordnance Survey, 1978-83
 1:2,000 at A4

PCA

PCA SOUTH

UNIT 54
BROCKLEY CROSS BUSINESS CENTRE
96 ENDWELL ROAD
BROCKLEY
LONDON SE4 2PD

TEL: [REDACTED]
FAX: [REDACTED]
EMAIL: [REDACTED]

PCA NORTH

UNIT 19A
TURSDALE BUSINESS PARK
DURHAM DH6 5PG

TEL: [REDACTED]
FAX: [REDACTED]
EMAIL: [REDACTED]

PCA CENTRAL

THE GRANARY, RECTORY FARM
BREWERY ROAD, PAMPISFORD
CAMBRIDGESHIRE CB22 3EN

TEL: [REDACTED]
FAX: [REDACTED]
EMAIL: [REDACTED]

PCA WEST

BLOCK 4
CHILCOMB HOUSE
CHILCOMB LANE
WINCHESTER
HAMPSHIRE SO23 8RB

TEL: [REDACTED]
EMAIL: [REDACTED]

PCA MIDLANDS

17-19 KETTERING RD
LITTLE BOWDEN
MARKET HARBOROUGH
LEICESTERSHIRE LE16 8AN

TEL: [REDACTED]
EMAIL: [REDACTED]



A report for
HILL RESIDENTIAL LIMITED

In respect of
**Land off Townsend Lane,
Harpenden**

Utilities and Services Report

October 2016



DOCUMENT SIGNATURE AND REVIEW SHEET

Project Details

Project Title:	Land off Townsend Lane, Harpenden		
Project No.:	1605-86	Report No.:	1605-86/TN/01
Client:	Hill Residential Limited		

	Prepared By:	Checked By:	Approved for issue
Name	Tim Hornby	John Hopkins	John Hopkins
Signature	TH	JH	JH
Date	14/10/16	14/10/16	14/10/16

Document Review

Revision	Date	Description	Checked By

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EXECUTIVE SUMMARY

Transport Planning Associates has been appointed to prepare a Utilities and Services Report for Hill Residential Limited in regard to their residential development on land south of Townsend Lane, Harpenden.

The proposal is to allocate the current Greenfield site as part of the local plan process currently being undertaken by St Albans City and District Council. The site seeks to be allocated to accommodate up to 60 residential units.

There is a range of existing utility and service infrastructure within the vicinity of the development site.

The presence of the existing power lines along Townsend Lane enables a potential connection for the allocation site to the local supply network.

The presence of a low pressure gas main along Townsend Lane means that there is an opportunity to provide dwellings within the proposed development with domestic gas connections.

Local clean water infrastructure within the vicinity of the site provides the ability for the site to be connected to the mains water network.

Thames Water has confirmed that foul drainage associated with the proposed development can be accommodated by its existing infrastructure with a connection along Townsend Lane.

The Flood Risk Assessment & Drainage Strategy for the proposed development identifies an appropriate strategy for surface water drainage.

Assets and opportunities have been identified to ensure that the site can be covered in terms of telecommunications connections.

The findings of this report conclude that the proposed development has the potential to connect to the required range of domestic utilities and services.

1 INTRODUCTION

- 1.1 Transport Planning Associates has been appointed to prepare a Utilities and Services Report for Hill Residential Limited in regard to their residential development on land south of Townsend Lane, Harpenden.
- 1.2 The site currently comprises of open fields to the southwest of the town of Harpenden. The site is bounded by Townsend Lane to the north, existing residential development to the east, agricultural fields to the south and by Townsend Lane and commercial units to the west.
- 1.3 The proposal is to allocate the current Greenfield site as part of the local plan process currently being undertaken by St Albans City and District Council. The site seeks to be allocated to accommodate up to 60 residential units.
- 1.4 The purpose of this utilities and services report is to provide an assessment of existing utility company assets and services infrastructure in relation to the proposals to establish potential development constraints and opportunities.
- 1.5 Details relating to existing infrastructure has been obtained from utility and service companies, with the information received presented and summarised in this report. The accuracy of the information provided is subject to the details provided by these third parties.
- 1.6 The precise location of infrastructure should also be confirmed through site surveys and investigation prior to any development related processes.

2 DEVELOPMENT PROPOSAL

- 2.1 The proposal is for the allocation of an area of Greenfield agricultural land to the southwest of the town of Harpenden for up to 60 residential units.

- 2.2 Vehicular access to the development site is proposed to be taken from Townsend Road, through the provision of two new priority junctions.

3 EXISTING UTILITIES AND SERVICES

- 3.1 An assessment of existing utilities and services within close proximity of the development site has been undertaken to identify the type and approximate location of existing infrastructure.
- 3.2 The basis of the assessment of existing utilities and services was a utilities record search provided by Hill Residential Limited.
- 3.3 Copies of the search responses and asset plans received for this search are contained within **Appendix A**.
- 3.4 A combined services plan has been produced for the development site and is presented in **Appendix B**.
- 3.5 The specific details for each utility or service are considered in turn.

Electricity

- 3.6 Record plans, from UK Power Networks show the location of existing, proposed and abandoned overhead and underground electrical plant and cabling. From these records there is evidence of a number of assets in the local area.
- 3.7 The asset record plans indicate that in close proximity to the site, along the northern side of Townsend Lane there are existing extra high voltage cables. To the north of the priority junction of Townsend Lane with Claygate Avenue, the cables run within the footway. To the south of the priority junction, the cables are identified to run along the front of the properties within the grassed verge.

Gas

- 3.8 The response from National Grid UK Gas shows that there is a 90mm low pressure polyethylene gas main which runs within the footway along the northern side of Townsend Lane.
- 3.9 The response also shows that there is a 63mm low pressure polyethylene gas mains serving dwellings along Hartwell Gardens to the east of the site, which connects into the 90mm gas main along Townsend Lane.

Clean Water

- 3.10 In terms of clean water supply the site lies within an area covered by Affinity Water. The Affinity Water asset plans indicate that there is 3 inch cast iron pipe running along the southern side of the carriageway of Townsend Lane, in the vicinity of the north eastern boundary of the site. To the north of the site, the asset map indicated that in the region of the priority junction of Townsend Lane with Claygate Avenue there is an existing Hydrant as well as two fittings. The fittings provide the connection between the four inch cast iron pipe along Claygate Avenue and the three inch cast iron pipe along Townsend Lane.

Foul and Surface Water

- 3.11 Adopted foul and surface water infrastructure within the local area is under the control of Thames Water. The Thames Water asset plans provided indicate that there is an existing foul water sewer pipe with runs along the northern side of Townsend Lane.
- 3.12 The closest manhole to the site is Manhole 2500 which is located within the proximity of the Townsend Lane junction with Claygate Avenue. This manhole is approximately 10 metres from the northern boundary of the site.
- 3.13 The Thames Water asset plans do not provide any indication of any combined or surface water specific sewer pipes within the vicinity of the site.
- 3.14 Further details of existing foul and surface water facilities are contained within the Flood Risk Assessment and Drainage Strategy document. This report includes the results of a pre-planning enquiry to Thames Water which outlines that the existing foul sewer network has capacity to accommodate the foul water flows from the development.

Telecommunications

- 3.15 The Openreach telecommunications record plans demonstrate that there is underground apparatus and junction boxes as well as overhead lines in the vicinity of the site. The underground services are shown to run along the northern side of Townsend Lane as well as the southern side of Claygate Avenue.
- 3.16 The underground services are interspaced with junction boxes with additional overground services which can be seen running along Townsend Lane as well as along parts of Claygate Avenue. Overground services are interspaced with poles and buried joints.

Virgin Media

- 3.17 A Virgin Media asset search revealed that along the northern side of Townsend Road there is existing Virgin Media duct trenches. In the vicinity of the site, the cables run along the northern side of Townsend Lane for the majority of the road. However, in the vicinity of 92

Townsend Lane, the duct terminates. For properties to the north of the junction of Townsend Lane with Claygate Avenue, the cables run along the northern side of Claygate Avenue, continuing westward to outside approximately 94 Townsend Lane.

Extent of Highway Boundary and Public Rights of Way

- 3.18 Hertfordshire County Council is the local Highway Authority for the roads within the Harpenden area. Information provided by Hertfordshire County Council indicates that Townsend Lane is public highway and that the extent of the boundary extends to the boundary of the application site.
- 3.19 A review of the definitive rights of way map for the local area, which was accessed online via Hertfordshire County Council's website has confirmed that there are public rights of way to the north, west and south of the site but none that are directly affected by the application site.

4 PROPOSED UTILITIES AND SERVICES

- 4.1 Through engagement with the operators of local utilities and service providers, a framework of potential utilities and services requirements can be developed.
- 4.2 Whilst no engagement has not been undertaken at this stage, as the site is brought forward, this can be undertaken to identify the specifics regarding connection points and/or capacity through the planning application process.

Electricity

- 4.3 The presence of the existing extra high voltage cables, running along Townsend Lane, allows for the basic assumption that a development at this location could benefit from a connection into the existing network.

Gas

- 4.4 It has been identified in the asset search, detailed within Chapter 3, that there is a low pressure gas mains in the vicinity of the site. Given that this asset is located approximately 10 metres from the north eastern boundary of the site, a connection is likely to be achievable to support the site.

Clean Water

- 4.5 The presence of the clean water assets along Townsend Road allows for the Basic assumption that a development at this location could be serviced by connecting into the existing infrastructure. As outlined earlier, during the planning process, a more detailed enquiry will need to be undertaken with Affinity Water to confirm a connection for the development and if any remedial infrastructure improvements would be required.

Foul Sewer Connections

- 4.6 The Thames Water pre-planning enquiry confirms that the local foul water sewer network has capacity to treat the waste water flows from the site.
- 4.7 The assessment indicated that the connection point for foul water can be made from the Manhole 2500 on Townsend Lane.
- 4.8 The Drainage Strategy that is included within the Flood Risk Assessment & Drainage Strategy Report, prepared by TPA and submitted in support of the local plan submission, provides a detailed review of the expected future surface water drainage requirements of the

proposed development without the reliance of local surface water sewers as a potential point of discharge.

Telecommunications

- 4.9 Existing underground apparatus and overhead lines within the vicinity of the site allows the basic assumption that the proposed development could benefit from telecommunications connections.

Easements and Wayleaves

- 4.10 The provision of new or diverted services and utilities will be subject to the minimum easement requirements stipulated by individual companies and organisations. Such easements will be dependent upon the size and depth of services and provided between buildings and other relevant structures.

5 SUMMARY

- 5.1 This report has identified the existing utility and service infrastructure within the vicinity of the development site and outlines the broad constraints and opportunities for future domestic connections.
- 5.2 Of the services identified to be within the local area, the majority of the assets are shown to be running along the northern side of Townsend Lane.
- 5.3 The presence of the existing power lines along Townsend Lane enables a potential connection for the allocation site to the local supply network.
- 5.4 The presence of a low pressure gas main along the north eastern site boundary means that there is an opportunity to provide dwellings within the proposed development with domestic gas connections.
- 5.5 Local clean water infrastructure within the vicinity of the site provides the ability for the site to be connected to the mains water network.
- 5.6 Thames Water has confirmed that foul drainage associated with the proposed development can be accommodated by its existing infrastructure with a connection along Townsend Lane.
- 5.7 The Flood Risk Assessment & Drainage Strategy for the application site identifies an appropriate strategy for surface water drainage.
- 5.8 Assets and opportunities have been identified to ensure that the site can be covered in terms of telecommunications connections.
- 5.9 The findings of this report conclude that the proposed development is capable of connecting to the required range of domestic utilities and services.

APPENDIX A

CHECKED



Ms. Sarah Generalski-Sparling
Atkins Telecoms
Stats Enquiries Team
The Hub
500 Park Avenue
Bristol
BS32 4RZ

Our Ref: 2015/2183289
Your Ref: 37006
30/03/2015

Dear Sir/Madam

TOWNSEND LAND, HARPENDEN, HERTFORDSHIRE AL5 2RH

Thank you for your letter of 27/03/2015 in which you asked if there are any electric lines and/or electrical plant belonging to UK Power Networks (EPN) plc ("UK Power Networks") within the land identified by your enquiry.

I enclose a copy of UK Power Networks record of its electric lines and/or electrical plant at the site identified by your enquiry. If the records provided do not relate to the land to which you had intended to refer please resubmit your enquiry.

This information is made available to you on the terms set out below.

- 1. UK Power Networks does not warrant that the information provided to you is correct. You rely upon it at your own risk.**
2. UK Power Networks does not exclude or limit its liability if it causes the death of any person or causes personal injury to a person where such death or personal injury is caused by its negligence.
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 how for any loss, damage, costs, claims, demands, or expenses that you or any third party may suffer or incur as a result of using the information provided whether for physical damage to property or for any economic loss (including without limitation loss of profit, loss of opportunity, loss of savings, loss of goodwill, loss of business, loss of use) or any special or consequential loss or damage whatsoever.**
4. The information about UK Power Networks electrical plant and/or electric lines provided to you belongs to and remains the property of UK Power Networks. You must not alter it in any respect.
5. **The information provided to you about the electrical plant and/or electric lines depicted on the plans may NOT be a complete record of such apparatus belonging to UK Power Networks. The information provided relates to electric lines and/or electrical plant belonging to UK Power Networks that it believes to be present but the plans are NOT definitive: other electric lines and/or electrical plant may be present and that may or may not belong to UK Power Networks.**
6. **Other apparatus not belonging to UK Power Networks is not shown on the plan. It is your responsibility to make your own enquiries elsewhere to discover whether apparatus**

belonging to others is present. It would be prudent to assume that other apparatus is present.

7. You are responsible for ensuring that the information made available to you is passed to those acting on your behalf and that all such persons are made aware of the contents of this letter.
8. Because the information provided to you may **NOT** be accurate, you are recommended to ascertain the presence of UK Power Networks electric lines and/or electrical plant by the digging of trial holes. **Trial holes should be dug by hand only.** Excavations must be carried out in line with the Health and Safety Executive guidance document HSG 47. We will not undertake this work. A copy of HSG 47 can be obtained from the Health and Safety Executives website.

All electric lines discovered must be considered LIVE and DANGEROUS at all times and must not be cut, resited, suspended, bent or interfered with unless specially authorised by UK Power Networks.

The electric line and electrical plant belonging to UK Power Networks remains so even when made dead and abandoned and any such electric line and/or electrical plant exposed shall be reported to UK Power Networks.

Where your works are likely to affect our electric lines and/or electrical plant an estimate of the price of any protective /diversionary works can be prepared by UK Power Networks Branch at Metropolitan House, Darkes Lane, Potters Bar, Herts. , EN6 1AG, telephone no.

- 9 **Any work near to any overhead electric lines must be carried out by you in accordance with the Health and Safety Executive guidance document GS6 and the Electricity at Work Regulations.**

The GS6 Recommendations may be purchased from HSE Books or downloaded from the Energy Networks Association's website.

If given a reasonable period of prior notice UK Power Networks will attend on site without charge to advise how and where "goal posts" should be erected. If you wish to avail yourself of this service, in the first instance please telephone: between 08:30 and 17:00 Monday to Friday, Public and bank holidays excepted.

10. You are responsible for the security of the information provided to you. It must not be given, sold or made available upon payment of a fee to a third party.
11. If in carrying out work on land in, on, under or over which is installed an electric line and/or electrical plant that belongs to UK Power Networks you and/or anyone working on your behalf damages (however slightly) that apparatus you must inform immediately UK Power Networks by telephone at the number below providing:
 - your name, address and telephone number; and
 - the date, time and place at which such damage was caused; and
 - a description of the electric line and/or electrical plant to which damage was caused; and
 - the name of the person whom it appears to you is responsible for that damage; and
 - the nature of the damage

In the East of England or London 0800 (24 Hours).

12. The expression "UK Power Networks" includes UK Power Networks (EPN) plc, UK Power Networks (LPN) plc, UK Power Networks (SEPN) plc, UK Power Networks and any of their successors and predecessors in title.

IF YOU DO **NOT** ACCEPT AND/OR **DO NOT** UNDERSTAND THE TERMS OF USE SET OUT IN PARAGRAPHS 1 TO 12 INCLUSIVE ABOVE YOU MUST NOT USE THE PLANS AND RETURN THEM TO ME.

I would remind you that work adjacent to electric lines and/or electrical plant represents a serious risk to health and safety and as such should feature amongst the items you have assessed in your workplace risk assessment and method statement.

The enclosed plans normally only show the mains electricity cables. Service cables are not usually shown in the East of England. A service cable is the cable that takes the electricity from the mains cable to your property and ends at the main fuse close to the meter.

I shall be pleased to supply you with further assistance if you require it.

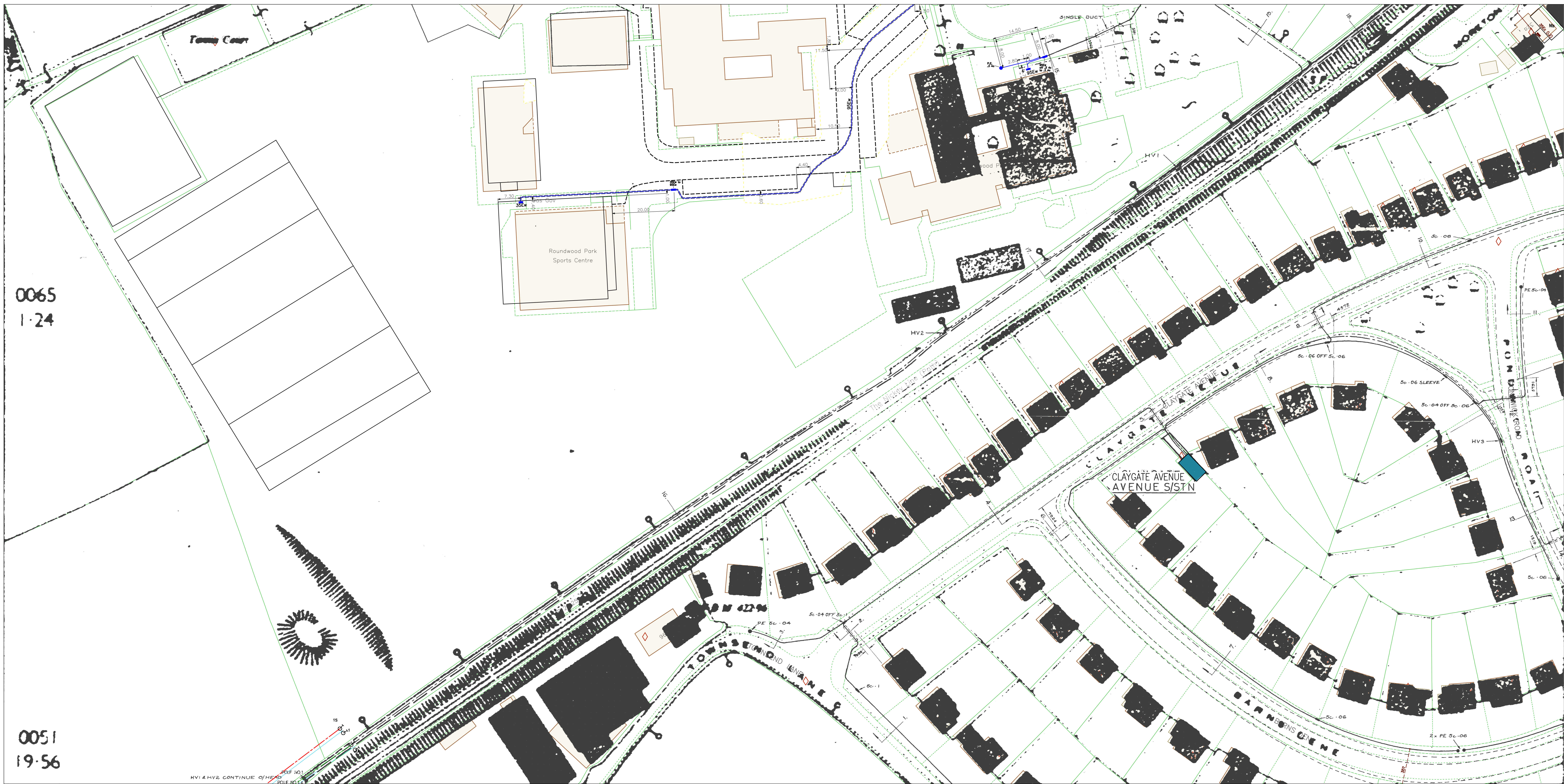
Yours sincerely

Martin Johnson - Telephone: 0800 0565 866
Plan Provision

**UK Power Networks, Plan Provision, Fore Hamlet, Ipswich, IP3 8AA. Tel:
1963782.**

Fax: 0870

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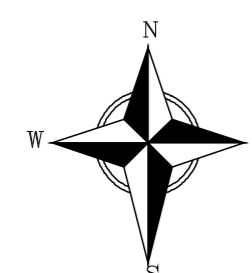
Plotted By : Martin Johnson

Plot Description:

Map Centre : TL1214NW



UK Power Networks
Plan Provision
Fore Hamlet
IPSWICH
Suffolk
IP3 8AA
Tel 0800 0565 866
Fax 08701 963782



For details of the symbology please refer to
<http://www.ukpowernetworks.co.uk/safety-emergencies/in-the-workplace/understanding-safety-symbols.shtml>

PRIMARY CABLES
EXTRA HIGH VOLTAGE CABLES (EHV) 22,000 TO 132,000 Volts

Depth normally 750mm cover in carriageway & 600mm cover in footway.
Before digging within one metre of these cable routes
Telephone 0800 056 5866 in order that the Company's apparatus may be located on site and any necessary protection works agreed.

N.B. THRUST BORERS OR MOLES MUST NOT BE USED WITHIN THE VICINITY OF ANY CABLES BELONGING TO UK POWER NETWORKS WITHOUT FIRST CONTACTING THIS COMPANY.

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

1. UK Power Networks Ltd does not warrant that the information provided to you is correct. You rely upon it at your own risk.
2. UK Power Networks Ltd does not exclude or limit its liability if it causes the death of a person or causes personal injury to a person where such death or personal injury is caused by its negligence.
3. Subject to paragraph 2, UK Power Networks Ltd has no liability to you in contract, in tort (including negligence), for breach of statutory duty or otherwise howsoever for any loss, damage, costs, claims, demands or expenses that you or any third party may suffer or incur as a result of using the information provided whether for physical damage to property or for any economic loss (including without limitation loss of profit, loss of opportunity, loss of savings, loss of goodwill, loss of business, loss of use) or any special or consequential loss or damage whatsoever.

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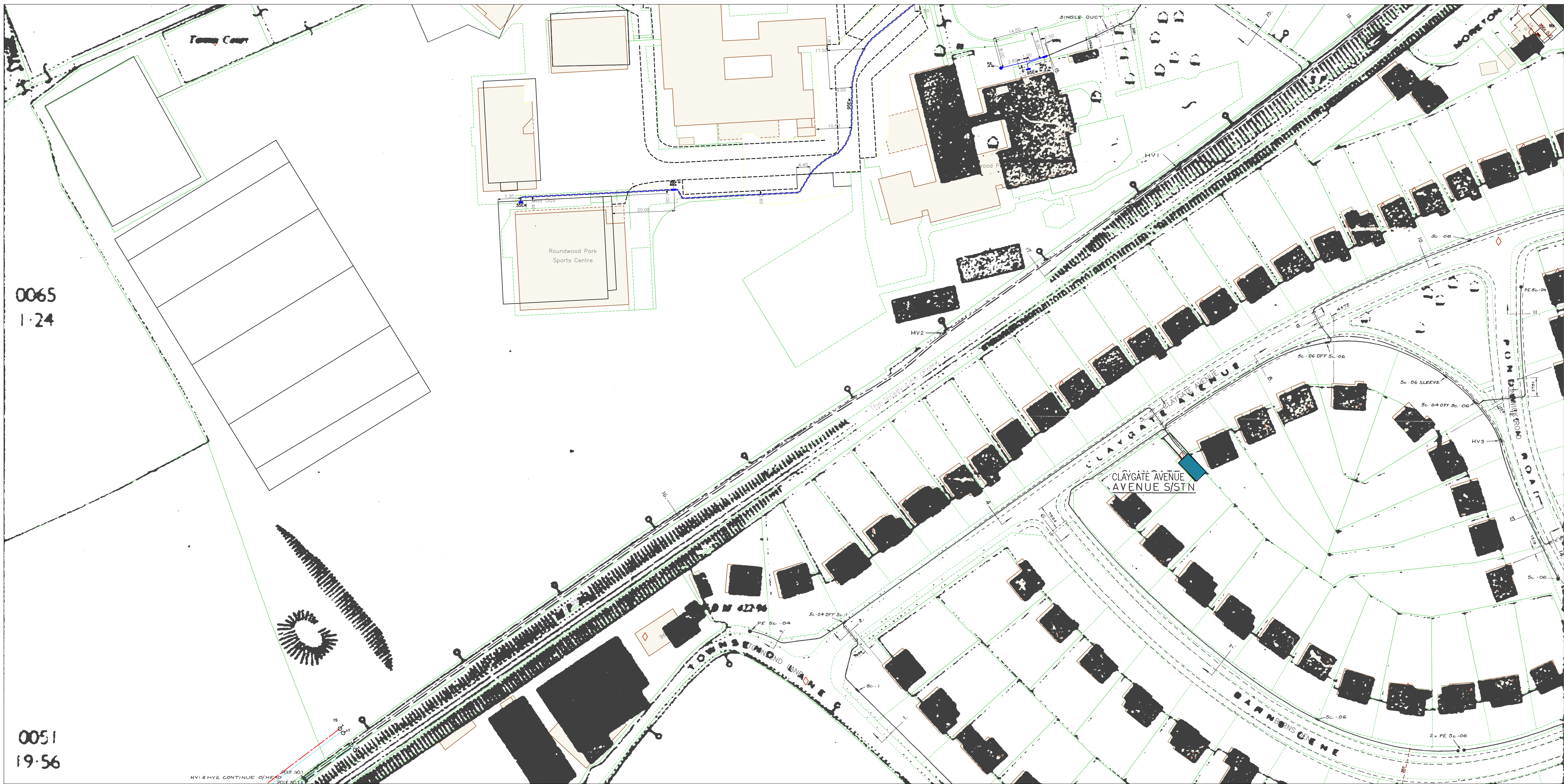
ADVICE TO CONTRACTORS ON AVOIDING DANGER FROM BURIED ELECTRICITY CABLES.

- 1) Do have cable drawings with you on site and check them before you start the excavation.
- 2) Do have a cable locator tool on site and use it to help you.
- 3) Mark out the location of electricity cables.
- 4) Do not use a mechanical excavator within 0.5m of electricity cables.
- 5) Use spades and shovels in preference to other tools.
- 6) Never disturb electricity cables and joints or their protective covers.

IF IN DOUBT – ASK! PHONE 0800 056 5866
EMERGENCY – If you damage a cable or line
Phone 0800 780 0780 (24hrs) URGENTLY

These basic safety precautions are explained in detail in the HSE booklet, HS(G)47 – Avoiding Danger from Underground Services, a copy of which may be obtained from your supervisor or HMSO.

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



Plotted On : 30/03/2015

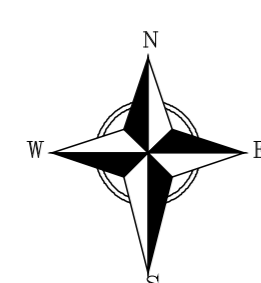
Plotted By : Martin Johnson

Plot Description:

Map Centre : TL1214NW



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For details of the symbology please refer to
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3. Subject to paragraph 2, UK Power Networks Ltd has no liability to you in contract, in tort (including negligence), for breach of statutory duty or otherwise howsoever for any loss, damage, costs, claims, demands or expenses that you or any third party may suffer or incur as a result of using the information provided whether for physical damage to property or for any economic loss (including without limitation loss of profit, loss of opportunity, loss of savings, loss of goodwill, loss of business, loss of use) or any special or consequential loss or damage whatsoever.

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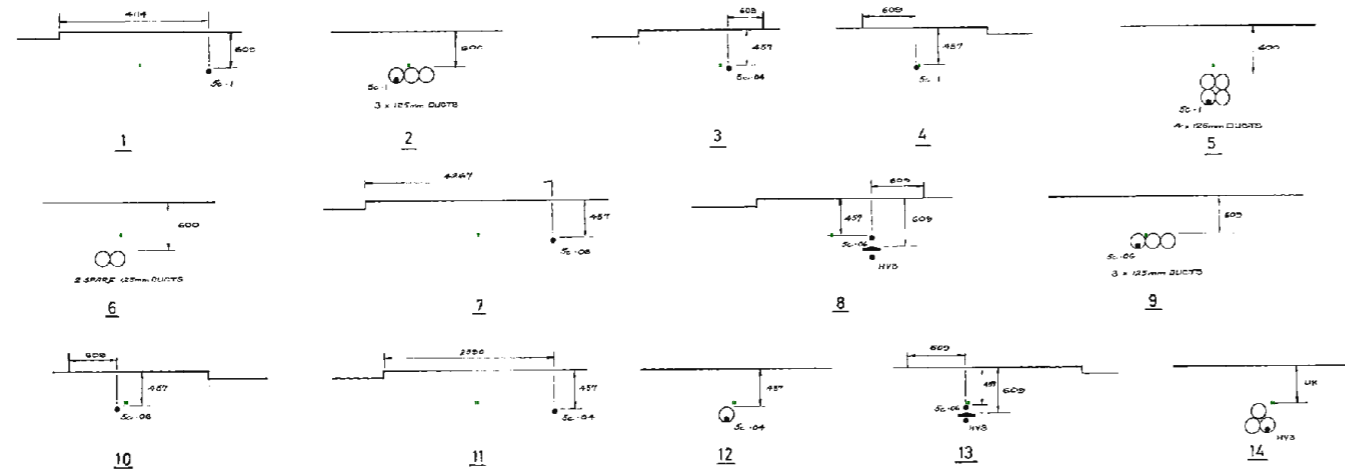
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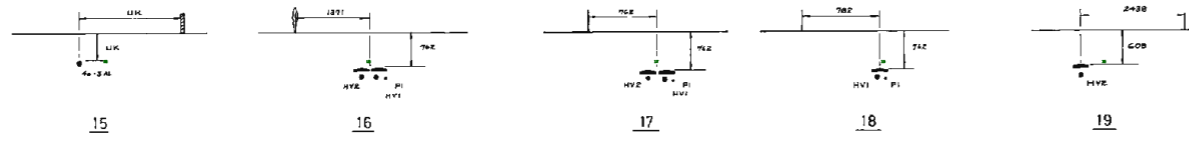
TL1214-NWB

TL1214-NWB




PILOT CABLES AND HIGH VOLTAGE CABLES											
Serial numbers refer to this sheet only and lengths are to sheet edge											
No	kV	Size	Cores	Designation	Lengths				Designation	Length	Notes
					MM	M	KM	M			
H1	66	200	PVC	EAST HARPENDEN - REDBRIEN PRIMARY							

NOTES (1) FOR FULL DETAILS OF 33 kV CABLES REFERENCE SHOULD BE MADE TO THE PLANS ENCLOSED			eastern electricity
(2) 8 DENOTES CNE CABLE 1 DENOTES ALPHEX TYPE			
DIMENSIONS IN MILLIMETRES REPRODUCED FROM OR BASED UPON THE DISTANCE SURVEY MAP WITH THE SANCTION OF THE CONTROLLER OF H.M. STATIONERY OFFICE COPYRIGHT RESERVED			
SERVICES FOR DETAILS OF SERVICE CABLES REFERENCE SHOULD BE MADE TO THE SERVICE CABLES IN THE DISTRICT OFFICE			SHEET NO TL1214NWB.s0
SUPPLEMENTARY SHEET NO			
LOCATION HARPENDEN			
			DATE 17-01-03



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SERVICES FOR US ARMS OR NAVY CASE REFERENCE SHOULD BE MADE TO THE SERVICE CARD IN THE DISTRICT OFFICE.

eastern electricity 	
SCALE	HARPENDEN
LOCATION	TL 1214 NWB 1
SHEET NO	ISSUE DATE
SUPPLEMENTARY SHEET NO	

TL 1214 NWB 1



Plotted On : 30/03/2015

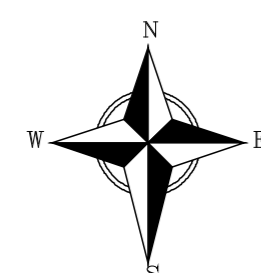
Plotted By : Martin Johnson

Plot Description:

Map Centre : TL1214SW



UK Power Networks
Plan Provision
Fore Hamlet
IPSWICH
Suffolk
IP3 8AA
Tel 0800 0565 866
Fax 08701 963782



For details of the symbology please refer to
<http://www.ukpowernetworks.co.uk/safety-emergencies/in-the-workplace/understanding-safety-symbols.shtml>

PRIMARY CABLES
EXTRA HIGH VOLTAGE CABLES (EHV) 22,000 TO 132,000 Volts

Depth normally 750mm cover in carriageway & 600mm cover in footway.
Before digging within one metre of these cable routes
Telephone 0800 056 5866 in order that the Company's apparatus may be located on site and any necessary protection works agreed.

N.B. THRUST BORERS OR MOLES MUST NOT BE USED WITHIN THE VICINITY OF ANY CABLES BELONGING TO UK POWER NETWORKS WITHOUT FIRST CONTACTING THIS COMPANY.

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ADVICE TO CONTRACTORS ON AVOIDING DANGER FROM BURIED ELECTRICITY CABLES.

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- 3) Mark out the location of electricity cables.
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IF IN DOUBT – ASK! PHONE 0800 056 5866
EMERGENCY – If you damage a cable or line
Phone 0800 780 0780 (24hrs) URGENTLY

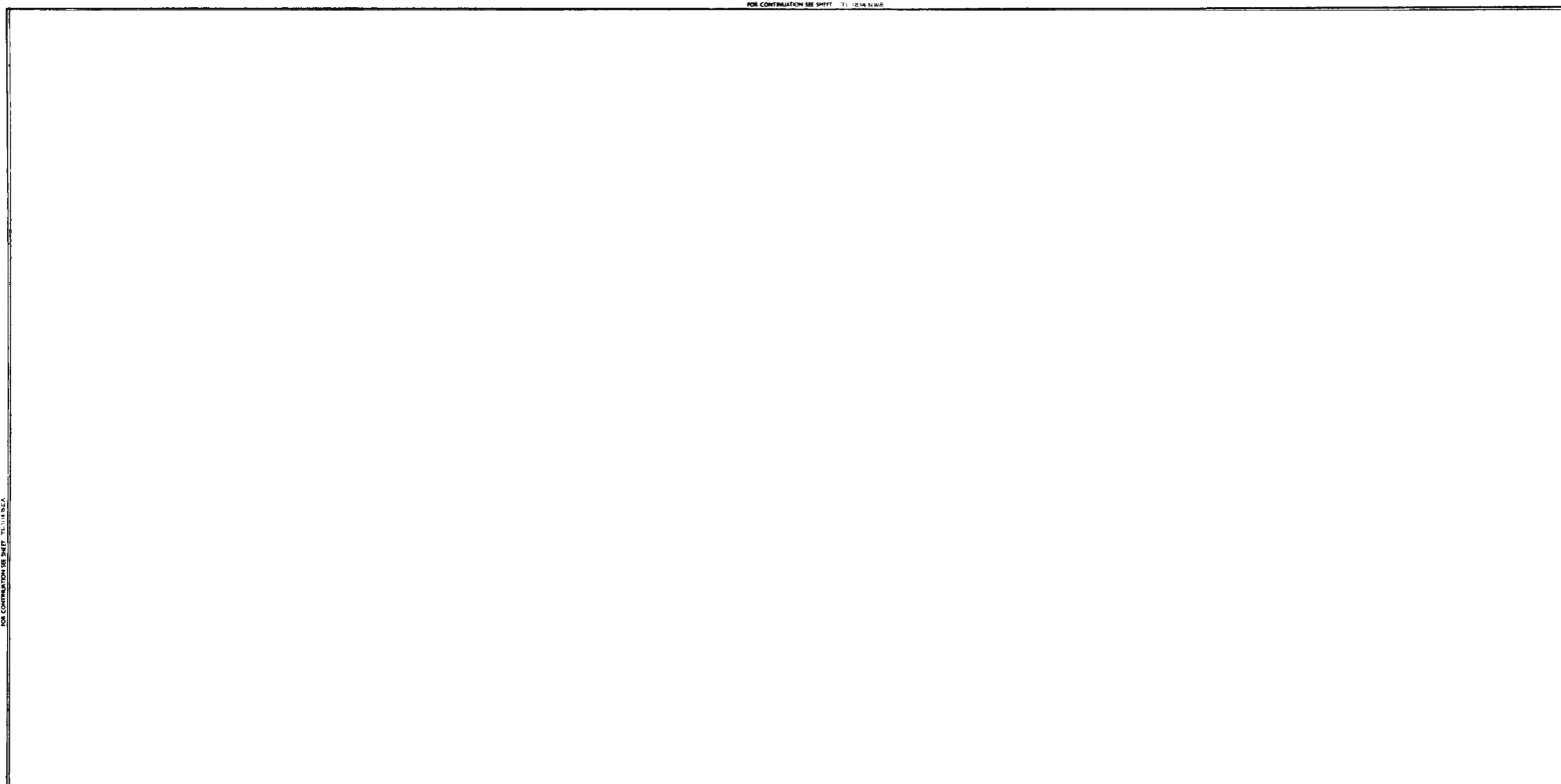
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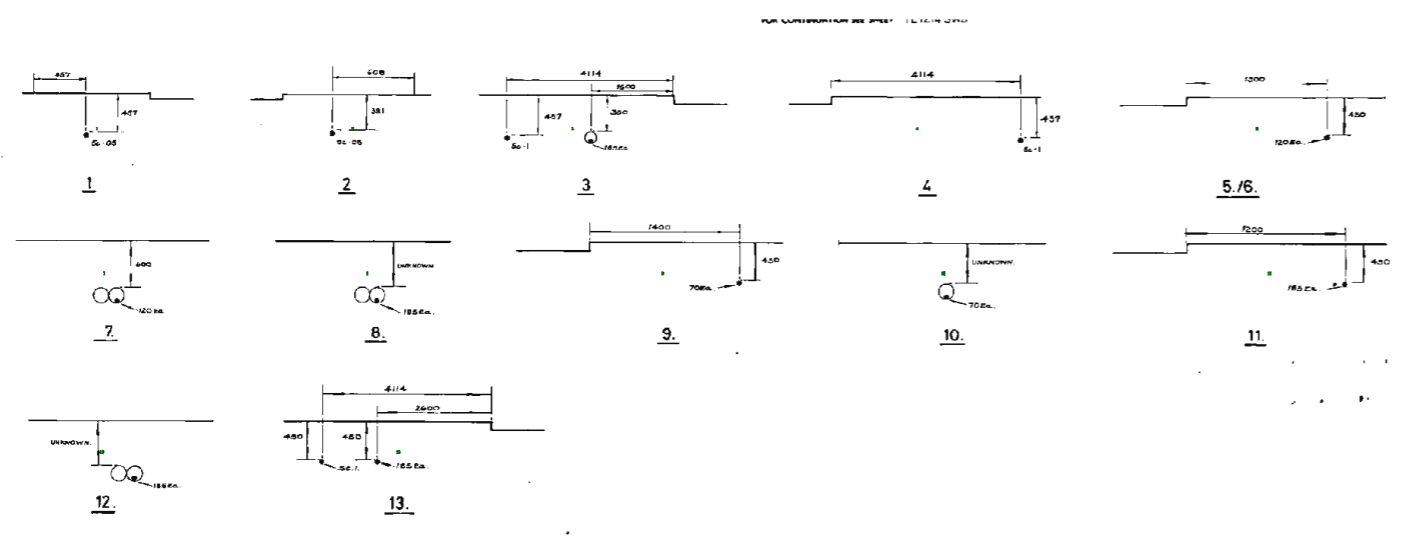
FOR CONTINUATION SEE SHEET TL 1214 SWA

1214

FOR CONTINUATION SEE SHEET TL 1214 SWA



FOR CONTINUATION SEE SHEET TL 1214 SWA



PILOT CABLES AND HIGH VOLTAGE CABLES													
Serial numbers refer to this sheet only and lengths are to sheet edge													
No.	kV	Size	Cores	Designation	Lengths		No.	kV	Size	Cores	Designation	Lengths	
					metres	yards						metres	yards
Total length						Total length							

NOTES (1) FOR FULL DETAILS OF 33 kV CABLES REFERENCE SHOULD BE MADE TO THE DRAWING RECORDS
 (2) E DENOTES CMC CABLE, A DENOTES ALPLEX TYPE

eastern electricity

1 : 500 SCALE U/G MAINS

LOCATION **HARPENDEN**

DIMENSIONS IN MILLIMETRES	REPRODUCED FROM OR BASED UPON THE ORDINANCE SURVEY MAP WITH THE SANCTIONS OF THE CONTROLLER OF HM STATIONERY OFFICE CROWN COPYRIGHT RESERVED	SERVICES FOR DETAILS OF SERVICE CABLE REFERENCE SHOULD BE MADE TO THE SERVICE CARDS IN THE DISTRICT OFFICE	SHEET NO. TL 1214 SWA	ISSUE 15 21	DATE 15 11 1972
SUPPLEMENTARY SHEET NO.					

CHECKED



Ms. Sarah Generalski-Sparling
Atkins Telecoms
Stats Enquiries Team
The Hub
500 Park Avenue
Bristol
BS32 4RZ

Our Ref: 2015/2183289
Your Ref: 37006
30/03/2015

Dear Sir/Madam

TOWNSEND LAND, HARPENDEN, HERTFORDSHIRE AL5 2RH

Thank you for your letter of 27/03/2015 in which you asked if there are any electric lines and/or electrical plant belonging to UK Power Networks (EPN) plc ("UK Power Networks") within the land identified by your enquiry.

I enclose a copy of UK Power Networks record of its electric lines and/or electrical plant at the site identified by your enquiry. If the records provided do not relate to the land to which you had intended to refer please resubmit your enquiry.

This information is made available to you on the terms set out below.

- 1. UK Power Networks does not warrant that the information provided to you is correct. You rely upon it at your own risk.**
2. UK Power Networks does not exclude or limit its liability if it causes the death of any person or causes personal injury to a person where such death or personal injury is caused by its negligence.
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 how for any loss, damage, costs, claims, demands, or expenses that you or any third party may suffer or incur as a result of using the information provided whether for physical damage to property or for any economic loss (including without limitation loss of profit, loss of opportunity, loss of savings, loss of goodwill, loss of business, loss of use) or any special or consequential loss or damage whatsoever.**
4. The information about UK Power Networks electrical plant and/or electric lines provided to you belongs to and remains the property of UK Power Networks. You must not alter it in any respect.
5. **The information provided to you about the electrical plant and/or electric lines depicted on the plans may NOT be a complete record of such apparatus belonging to UK Power Networks. The information provided relates to electric lines and/or electrical plant belonging to UK Power Networks that it believes to be present but the plans are NOT definitive: other electric lines and/or electrical plant may be present and that may or may not belong to UK Power Networks.**
6. **Other apparatus not belonging to UK Power Networks is not shown on the plan. It is your responsibility to make your own enquiries elsewhere to discover whether apparatus**

belonging to others is present. It would be prudent to assume that other apparatus is present.

7. You are responsible for ensuring that the information made available to you is passed to those acting on your behalf and that all such persons are made aware of the contents of this letter.
8. Because the information provided to you may **NOT** be accurate, you are recommended to ascertain the presence of UK Power Networks electric lines and/or electrical plant by the digging of trial holes. **Trial holes should be dug by hand only.** Excavations must be carried out in line with the Health and Safety Executive guidance document HSG 47. We will not undertake this work. A copy of HSG 47 can be obtained from the Health and Safety Executives website.

All electric lines discovered must be considered LIVE and DANGEROUS at all times and must not be cut, resited, suspended, bent or interfered with unless specially authorised by UK Power Networks.

The electric line and electrical plant belonging to UK Power Networks remains so even when made dead and abandoned and any such electric line and/or electrical plant exposed shall be reported to UK Power Networks.

Where your works are likely to affect our electric lines and/or electrical plant an estimate of the price of any protective /diversionary works can be prepared by UK Power Networks Branch at Metropolitan House, Darkes Lane, Potters Bar, Herts. , EN6 1AG, telephone no.

- 9 **Any work near to any overhead electric lines must be carried out by you in accordance with the Health and Safety Executive guidance document GS6 and the Electricity at Work Regulations.**

The GS6 Recommendations may be purchased from HSE Books or downloaded from the Energy Networks Association's website.

If given a reasonable period of prior notice UK Power Networks will attend on site without charge to advise how and where "goal posts" should be erected. If you wish to avail yourself of this service, in the first instance please telephone: between 08:30 and 17:00 Monday to Friday, Public and bank holidays excepted.

10. You are responsible for the security of the information provided to you. It must not be given, sold or made available upon payment of a fee to a third party.
11. If in carrying out work on land in, on, under or over which is installed an electric line and/or electrical plant that belongs to UK Power Networks you and/or anyone working on your behalf damages (however slightly) that apparatus you must inform immediately UK Power Networks by telephone at the number below providing:
 - your name, address and telephone number; and
 - the date, time and place at which such damage was caused; and
 - a description of the electric line and/or electrical plant to which damage was caused; and
 - the name of the person whom it appears to you is responsible for that damage; and
 - the nature of the damage

In the East of England or London 0800 (24 Hours).

12. The expression "UK Power Networks" includes UK Power Networks (EPN) plc, UK Power Networks (LPN) plc, UK Power Networks (SEPN) plc, UK Power Networks and any of their successors and predecessors in title.

IF YOU DO **NOT** ACCEPT AND/OR **DO NOT** UNDERSTAND THE TERMS OF USE SET OUT IN PARAGRAPHS 1 TO 12 INCLUSIVE ABOVE YOU MUST NOT USE THE PLANS AND RETURN THEM TO ME.

I would remind you that work adjacent to electric lines and/or electrical plant represents a serious risk to health and safety and as such should feature amongst the items you have assessed in your workplace risk assessment and method statement.

The enclosed plans normally only show the mains electricity cables. Service cables are not usually shown in the East of England. A service cable is the cable that takes the electricity from the mains cable to your property and ends at the main fuse close to the meter.

I shall be pleased to supply you with further assistance if you require it.

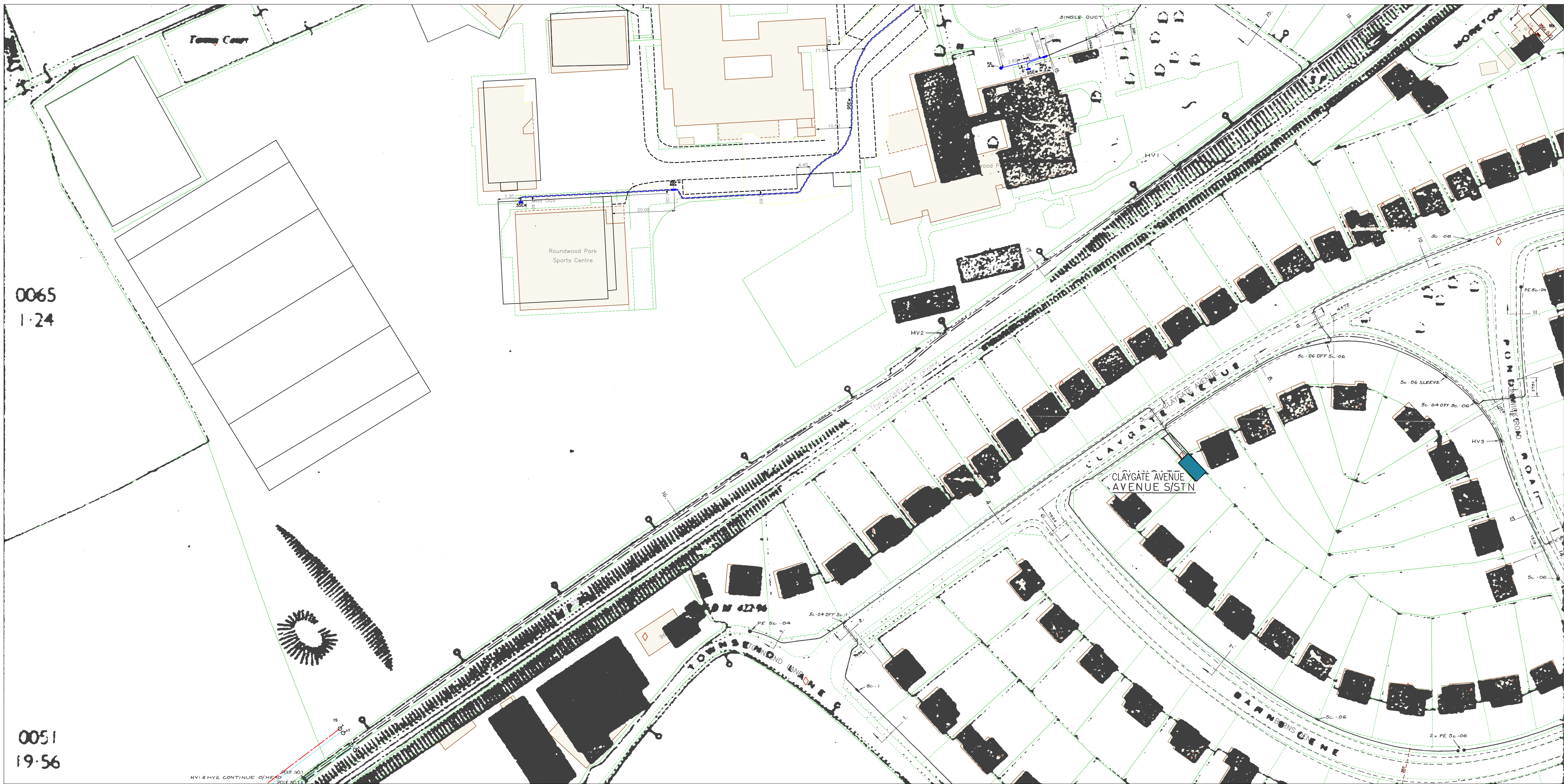
Yours sincerely

Martin Johnson - Telephone: 866
Plan Provision

UK Power Networks, Plan Provision, Fore Hamlet, Ipswich, IP3 8AA. Tel:

Fax:

UK Power Networks Registered in England and Wales Registered No 7290590.
Registered office: Newington House, 237 Southwark Bridge Road London, SE1 6NP.



Plotted On : 30/03/2015

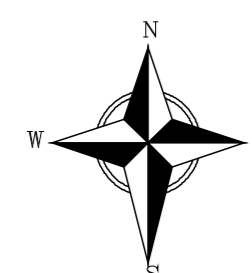
Plotted By : Martin Johnson

Plot Description:

Map Centre : TL1214NW



UK Power Networks
Plan Provision
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IPSWICH
Suffolk
IP3 8AA
Tel 0800 0565 866
Fax 08701 963782



For details of the symbology please refer to
<http://www.ukpowernetworks.co.uk/safety-emergencies/in-the-workplace/understanding-safety-symbols.shtml>

PRIMARY CABLES
EXTRA HIGH VOLTAGE CABLES (EHV) 22,000 TO 132,000 Volts

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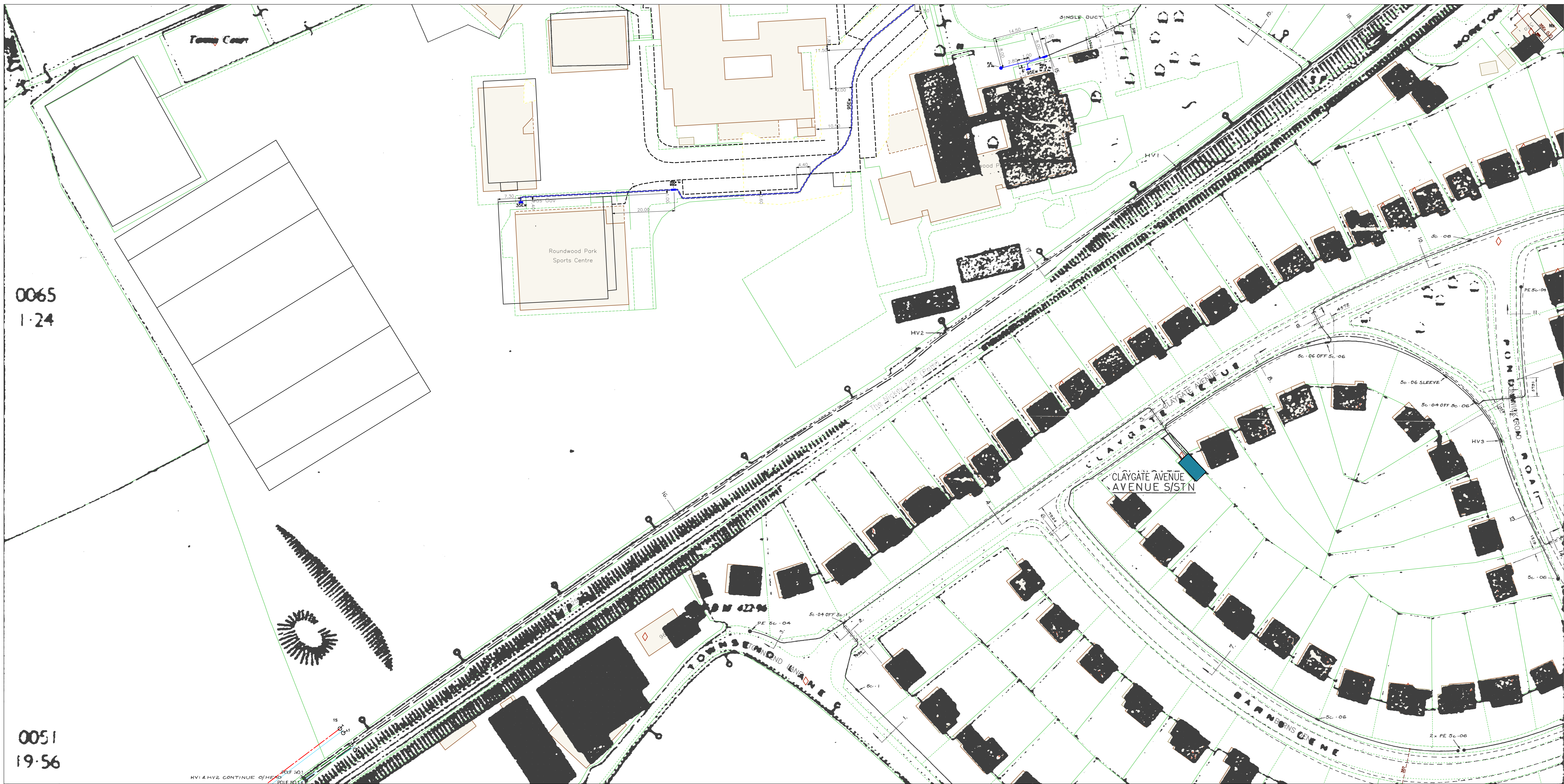
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EMERGENCY – If you damage a cable or line
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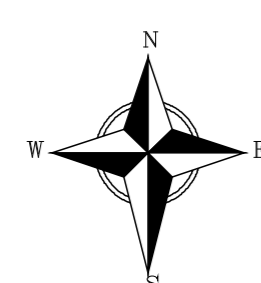
Plotted By : Martin Johnson

Plot Description:

Map Centre : TL1214NW



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Plan Provision
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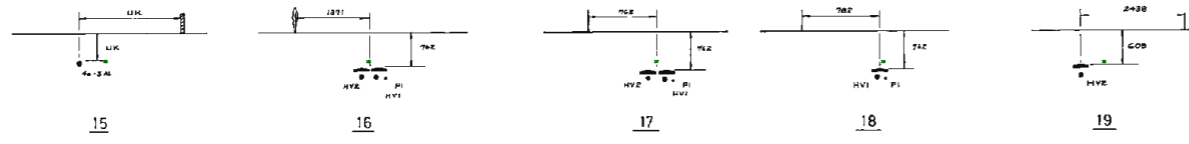
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SERVICES FOR 03/08/05 OF KERRYV CASTLE REFERENCE SHOULD BE MADE TO THE SERVICE CARD IN THE DISTRICT OFFICE.

eastern electricity 	
SCALE	HARPENDEN
LOCATION	TL 1214 NWB 1
SHEET NO	ISSUE DATE
SUPPLEMENTARY SHEET NO	

TL 1214 NWB 1



Plotted On : 30/03/2015

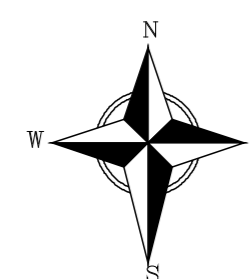
Plotted By : Martin Johnson

Plot Description:

Map Centre : TL1214SW



UK Power Networks
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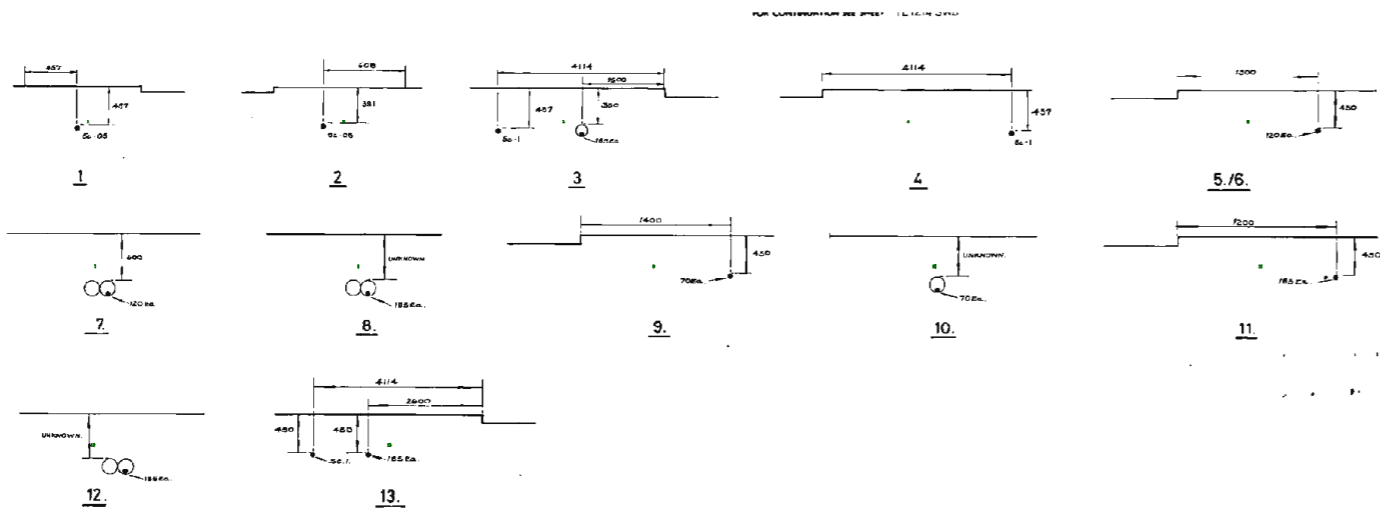
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FOR CONTINUATION SEE SHEET TL 1214 SWA

FOR CONTINUATION SEE SHEET TL 1214 SWA

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PILOT CABLES AND HIGH VOLTAGE CABLES

Serial numbers refer to this sheet only and lengths are to sheet edge

No.	KV	Size	Cores	Designation	Lengths		No.	KV	Size	Cores	Designation	Lengths	
					metres	yards						metres	yards
Total length												Total length	

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(2) E DENOTES CMC CABLE, S DENOTES ALPHEX TYPE

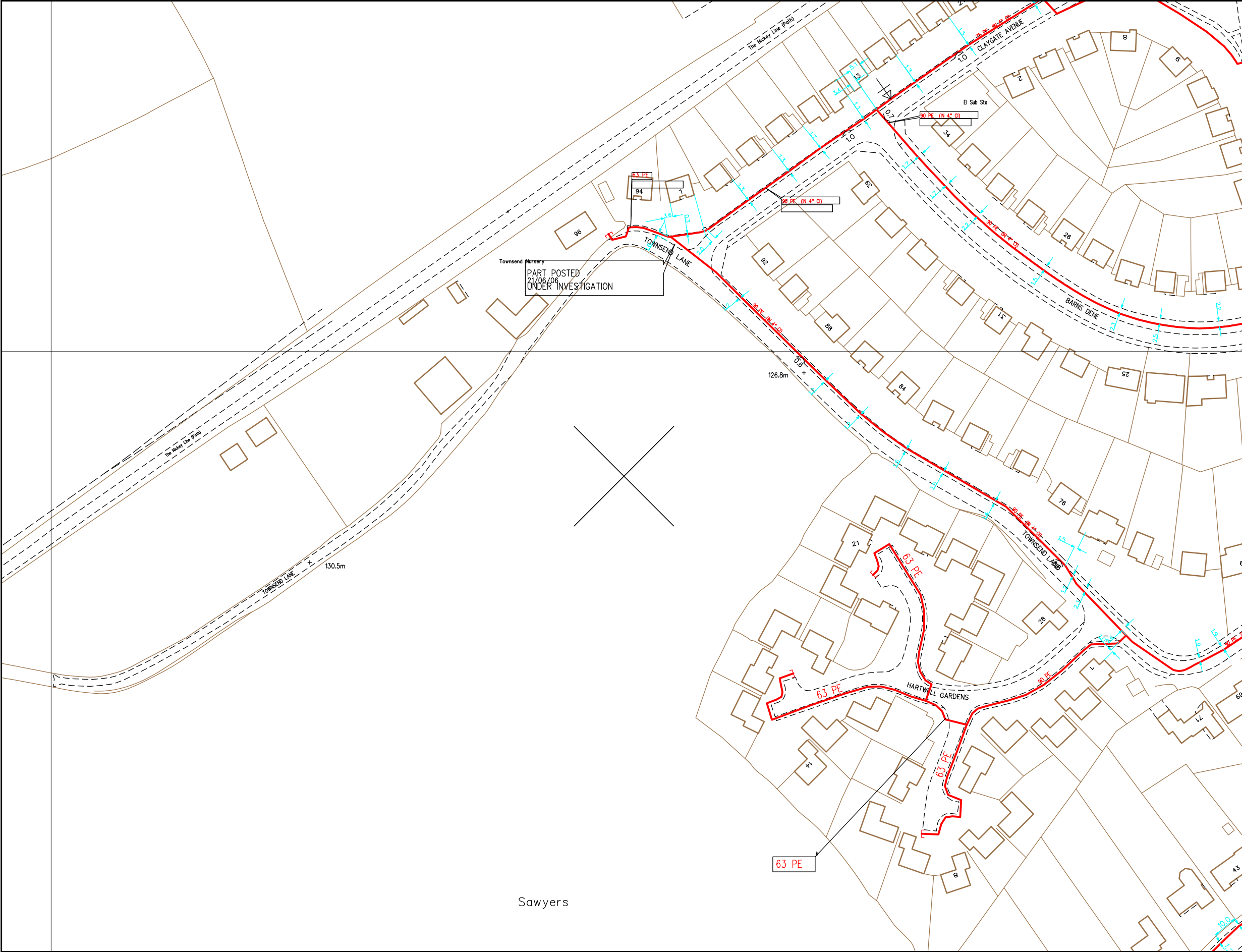
eastern electricity

1 : 500 SCALE U/G MAINS

LOCATION HARPENDEN

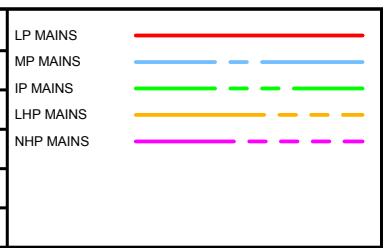
DIMENSIONS IN MILLIMETRES	REPRODUCED FROM OR BASED UPON THE ORDINANCE SURVEY MAP WITH THE SANCTION OF THE CONTROLLER OF H.M. STATIONERY OFFICE. CROWN COPYRIGHT RESERVED	SERVICES FOR DETAILS OF SERVICE CABLE REFERENCE SHOULD BE MADE TO THE SERVICE CARDS IN THE DISTRICT OFFICE	SHEET NO. TL 1214 SWA SUPPLEMENTARY SHEET NO.
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ISSUE DATE 15.11.64
P. 1214
S.A.T. 1214 SWA



CHECKED

SCALE: Not to scale
 USER ID: taji7290
 DATE: 26/03/2015
 EXTRACT DATE: 12/12/2014
 MAP REF: TL1214
 CENTRE: 512230, 214450

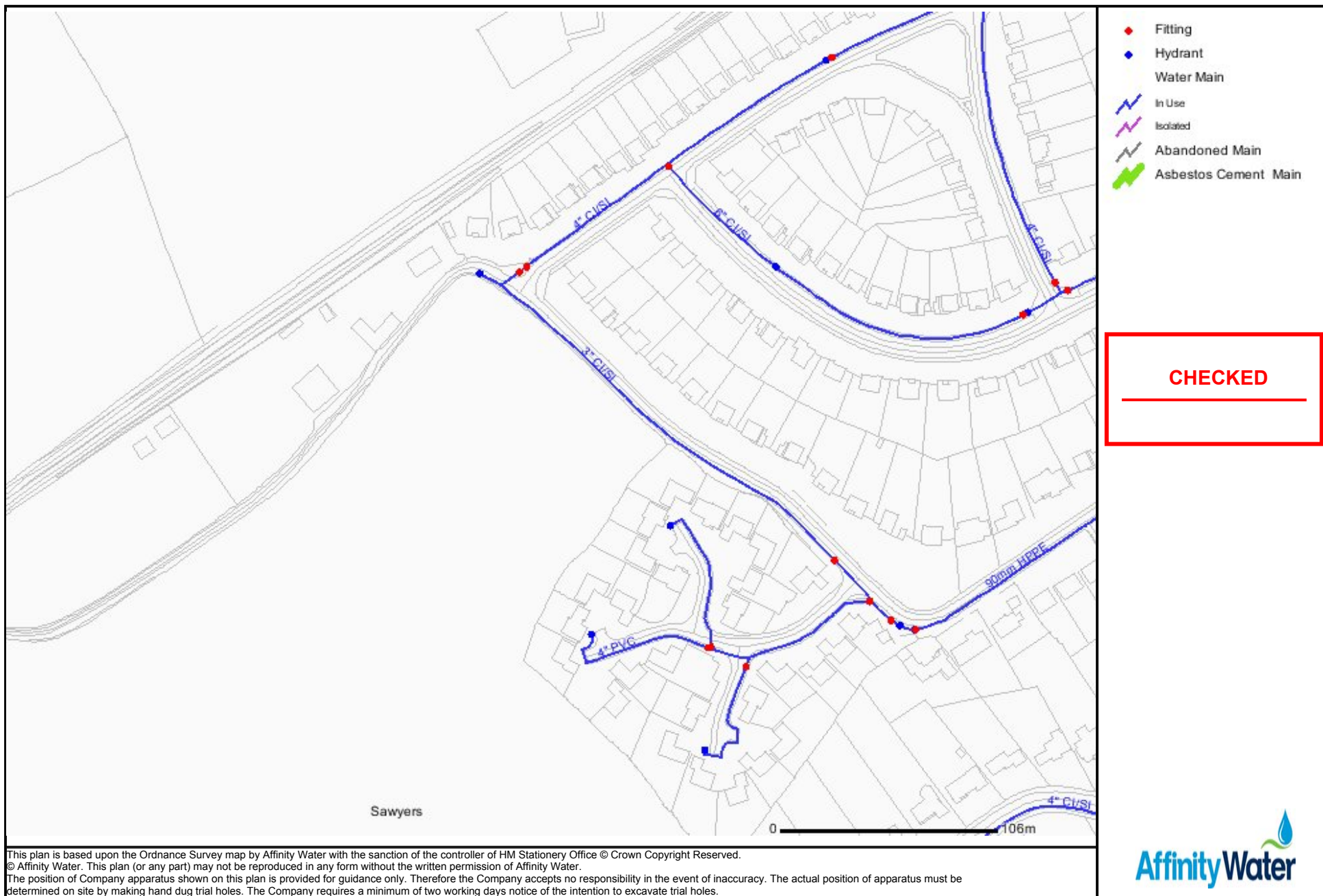


This plan shows those pipes owned by National Grid Gas plc in their role as a Licensed Gas Transporter (GT). Gas pipes owned by other GTs, or otherwise privately owned, may be present in this area. Information with regard to such pipes should be obtained from the relevant owners. The information shown on this 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 National Grid Gas plc or their agents, servants or contractors for any error or omission. Safe digging practices, in accordance with HS(G)47, must be used to verify and establish the actual position of mains, pipes, services and other apparatus on site before any mechanical plant is used. It is your responsibility to ensure that this information is provided to all persons (either direct labour or contractors) working for you on or near gas apparatus. The information included on this plan should not be referred to beyond a period of 28 days from the date of issue. Further information on all DR4s can be determined by calling the DR4 hotline on (9am-5pm) A DR4 is where a potential error has been identified within the asset record and a process is currently underway to investigate and resolve the error as appropriate.

MAPS Viewer Version 5.6.7.0

Local Machine

This plan is reproduced from or based on the OS map by National Grid Gas plc, with the sanction of the controller of HM Stationery Office. Crown Copyright Reserved.



Asset Location Search



CHECKED

Atkins Telecoms
Stats Enquiries Team, The Hub, 5 Aztec West, Almonds,

BRISTOL
BS32 4RZ

Search address supplied TOWNSEND LAND , HARPENDEN, HERTFORDSHIRE
AL5 2RH

Your reference LM 37006

Our reference ALS/ALS Standard/2015_3003897

Search date 26 March 2015

You are now able to order your Asset Location Search requests online by visiting
www.thameswater-propertysearches.co.uk



Asset Location Search



Search address supplied: TOWNSEND LAND , HARPENDEN, HERTFORDSHIRE, AL5 2RH

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 search provides 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 _____ or use the address below:

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

Email:

Web: www.thameswater-propertysearches.co.uk

Asset Location Search



Waste Water Services

Please provide a copy extract from the public sewer map.

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.

With regard to the fresh water supply, this site falls within the boundary of another water company. For more information, please redirect your enquiry to the following address:

Affinity Water Ltd
Tamblin Way

Asset Location Search



Hatfield
AL10 9EZ
Tel:

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.

Asset Location Search



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: 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:
Email:

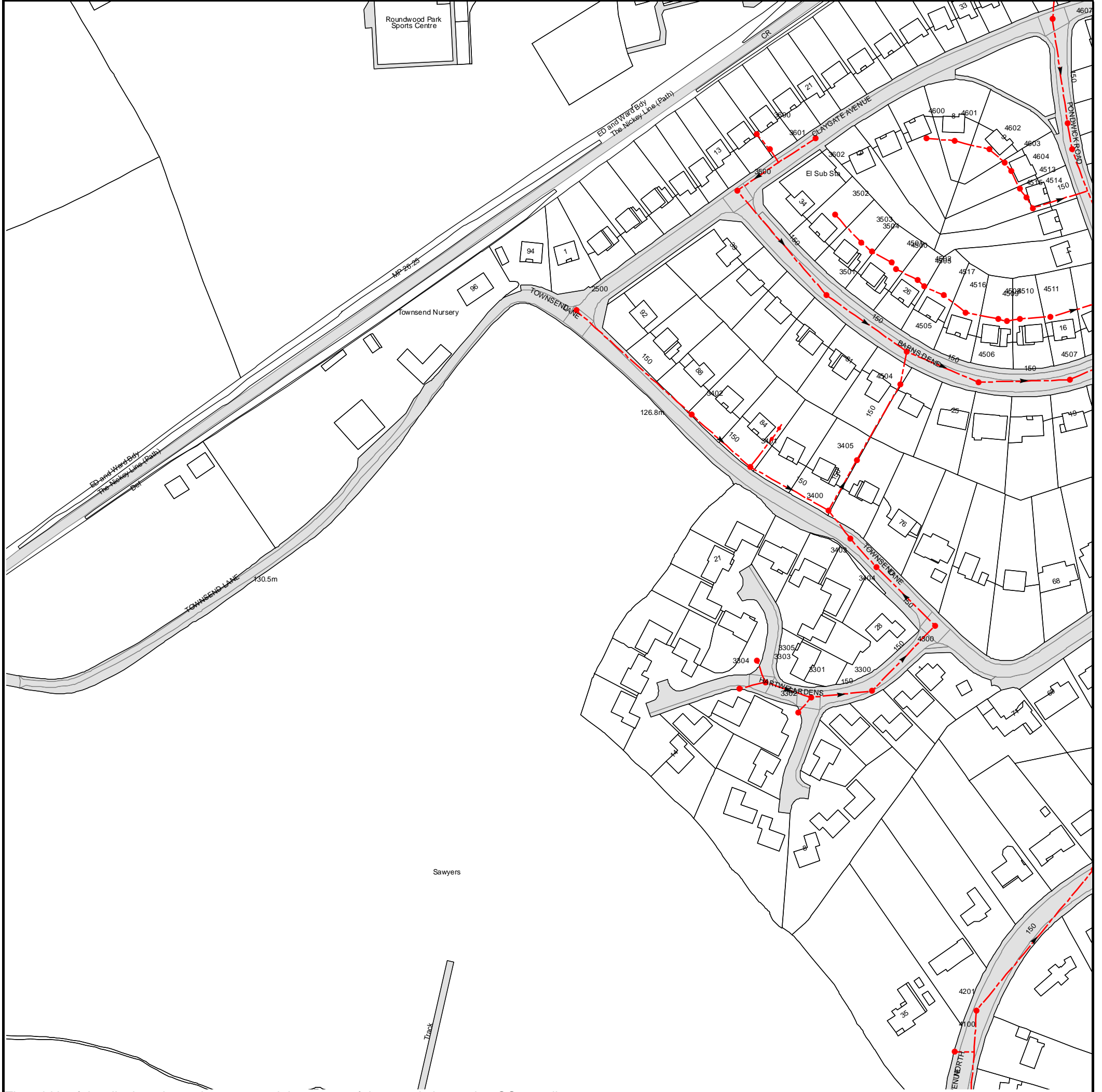
Clean Water queries

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:
Email:

Asset Location Search Sewer Map - ALS/ALS Standard/2015 3003897



The width of the displayed area is 500 m and the centre of the map is located at OS coordinates 512245,214431

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.

Based on the Ordnance Survey Map with the Sanction of the controller of H.M. Stationery Office, License no. 100019345 Crown Copyright Reserved.

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
3500	129.31	127.95
3600	130.34	128.72
3601	130.34	128.57
3602	n/a	n/a
3502	n/a	n/a
4600	129.62	128.13
4601	n/a	n/a
4602	128.86	127.26
4603	n/a	n/a
4604	128.12	126.93
4513	n/a	n/a
4514	n/a	n/a
4515	n/a	n/a
4607	130.58	129.33
4606	128.53	126.91
4605	128.2	126.52
341B	n/a	n/a
341A	n/a	n/a
3402	127.4	125.25
4504	124.77	123.61
4506	124.08	122.6
4507	123.1	121.64
4505	124.98	123.39
4509	124.81	123.99
4508	124.83	124.09
4510	n/a	n/a
4511	124.38	123.61
4516	125.25	124.46
2500	127.47	125.91
3501	126.7	125.18
4517	125.28	124.51
4503	n/a	n/a
4502	126.55	125.74
4501	127.14	126.18
4500	127.31	126.35
3504	128.01	126.83
3503	128.13	127.03
4100	130.08	128.7
4201	129.59	128.31
4200	128.86	127.85
3302	127.88	126.46
3301	127.55	126.1
3300	127.1	125.65
3304	128.31	126.88
3303	127.99	126.57
3305	128.23	126.83
4300	126.18	124.86
3404	126.38	124.72
3403	126.58	124.58
3400	126.9	124.22
3401	127.43	124.62
3405	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.








ALS Sewer Map Key

Public Sewer Types (Operated & Maintained by Thames Water)

-  **Foul:** A sewer designed to convey waste water from domestic and industrial sources to a treatment works.
-  **Surface Water:** A sewer designed to convey surface water (e.g. rain water from roofs, yards and car parks) to rivers or watercourses.
-  **Combined:** A sewer designed to convey both waste water and surface water from domestic and industrial sources to a treatment works.
-  **Trunk Surface Water**
-  **Trunk Foul**
-  **Storm Relief**
-  **Trunk Combined**
-  **Vent Pipe**
-  **Bio-solids (Sludge)**
-  **Proposed Thames Surface Water Sewer**
-  **Proposed Thames Water Foul Sewer**
-  **Gallery**
-  **Foul Rising Main**
-  **Surface Water Rising Main**
-  **Combined Rising Main**
-  **Sludge Rising Main**
-  **Proposed Thames Water Rising Main**
-  **Vacuum**





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
-  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.

-  Control Valve
-  Drop Pipe
-  Ancillary
-  Weir





End Items

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.

-  Outfall
-  Undefined End
-  Inlet






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.)
-  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)

-  Foul Sewer
-  Surface Water Sewer
-  Combined Sewer
-  Gully
-  Culverted Watercourse
-  Proposed
-  Abandoned Sewer

Notes:

- 1) All levels associated with the plans are to Ordnance Datum Newlyn.
- 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 millimetres. 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.

Terms and Conditions

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 (

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

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 him 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 or write to them at Consumer Council for Water, 1st Floor, Victoria Square House, Victoria Square, Birmingham, B2 4AJ.

Ways to pay your bill

Credit Card	BACS Payment	Telephone Banking	Cheque
Call quoting your invoice number starting CBA or ADS.	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 co.uk	By calling your bank and quoting: Account number 90478703 Sort code 60-00-01 and your invoice number	Made payable to ' Thames Water Utilities Ltd ' Write your Thames Water account number on the back. Send to: Thames Water Utilities Ltd., PO Box 3189, Slough SL1 4WW or by DX to 151280 Slough 13

Thames Water Utilities Ltd Registered in England & Wales No. 2366661 Registered Office Clearwater Court, Vastern Rd, Reading, Berks, RG1 8DB.



Search Code

IMPORTANT CONSUMER PROTECTION INFORMATION

This search has been produced by Thames Water Property Searches, Clearwater Court, Vastern Road, Reading RG1 8DB, which is registered with the Property Codes Compliance Board (PCCB) as a subscriber to the Search Code. The PCCB independently monitors how registered search firms maintain compliance with the Code.

The Search Code:

- provides protection for homebuyers, sellers, estate agents, conveyancers and mortgage lenders who rely on the information included in property search reports undertaken by subscribers on residential and commercial property within the United Kingdom
- sets out minimum standards which firms compiling and selling search reports have to meet
- promotes the best practise and quality standards within the industry for the benefit of consumers and property professionals
- enables consumers and property professionals to have confidence in firms which subscribe to the code, their products and services.

By giving you this information, the search firm is confirming that they keep to the principles of the Code. This provides important protection for you.

The Code's core principles

Firms which subscribe to the Search Code will:

- display the Search Code logo prominently on their search reports
- act with integrity and carry out work with due skill, care and diligence
- at all times maintain adequate and appropriate insurance to protect consumers
- conduct business in an honest, fair and professional manner
- handle complaints speedily and fairly
- ensure that products and services comply with industry registration rules and standards and relevant laws
- monitor their compliance with the Code

Complaints

If you have a query or complaint about your search, you should raise it directly with the search firm, and if appropriate ask for any complaint to be considered under their formal internal complaints procedure. If you remain dissatisfied with the firm's final response, after your complaint has been formally considered, or if the firm has exceeded the response timescales, you may refer your complaint for consideration under The Property Ombudsman scheme (TPOs). The Ombudsman can award compensation of up to £5,000 to you if he finds that you have suffered actual loss as a result of your search provider failing to keep to the Code.

Please note that all queries or complaints regarding your search should be directed to your search provider in the first instance, not to TPOs or to the PCCB.

TPOs Contact Details

The Property Ombudsman scheme
Milford House
43-55 Milford Street
Salisbury
Wiltshire SP1 2BP
Tel:
Fax:
Email:

You can get more information about the PCCB from www.propertycodes.org.uk

PLEASE ASK YOUR SEARCH PROVIDER IF YOU WOULD LIKE A COPY OF THE SEARCH CODE



Openreach Plant Maps Requested

NewSite Office (addresses can be located from [here](#))
National Freephone: 0800 616 866

Dear Sir/Madam,

Thank you for your request to: www.openreach.co.uk/networkinfo/

You have downloaded copies of our drawings marked up to show the approximate location of Openreach apparatus, which is present in the immediate vicinity of your works. It is intended for general guidance only. No guarantee is given of its accuracy. It should not be relied upon in the event of excavations or other works made near to Openreach apparatus, which may, exist at various depths and may deviate, from the marked route.

To avoid damage it is recommended that mechanical excavators or borers are not used within 600mm of Openreach plant. Please ensure that our equipment is not enclosed, blocked, covered or otherwise obstructed by your plant. In the event of clearance not being adequate we anticipate that your plant is either resited, or an order is placed with Openreach for rearrangements of its plant. If there are any difficulties with the Map please ring 0800

Please contact our Network Protection Service if required by dialling _____ or by Email on _____ giving seven days notice of your commencement date. This will provide you with on-site advice and a check of location for any Openreach apparatus.

Further to this, I hope the following points will assist you at the new development: -

Openreach has a licence obligation to provide service to any end customer requiring a connection. A Developer would not normally be charged for provision of service, our standard connection charges would apply to the end user when orders are placed with the communication provider of choice. However, should a Developer insist on an underground service in an area where Openreach plant is provided overhead, charges may be incurred.

When the Developer has obtained contract and planning permission Openreach would request a 'Clean', scaled Site Layout, Location Map and a covering letter be sent to the relevant newSite Office. We would particularly request that you give details of your programmed site start date and likely first occupancy date where possible. To obtain contact details of the newSite office covering the development area click on the URL below.

<http://www.openreach.co.uk/orgp/networkinfo/developnetwork/regionalcontacts.do>

Where a development affects existing Openreach apparatus in the public highway, the cost of any necessary protection or diversionary works must be borne by the Developer. In this case where a budget estimate is required a Site Plan, Location Map and a covering letter should be forwarded to the Repayments Project Office. Please visit <http://www.openreach.co.uk/orgp/networkinfo/alternetwork/alterationcontacts.do> for contact details of the Repayments Office covering the development area.

Yours faithfully,

Openreach newSites

Maps by email Plant Information Reply



IMPORTANT WARNING

Information regarding the location of BT apparatus is given for your assistance and is intended for general guidance only. No guarantee is given of its accuracy. It should not be relied upon in the event of excavations or other works being made near to BT apparatus which may exist at various depths and may deviate from the marked route.

DIAL BEFORE YOU DIG

FOR PROFESSIONAL ON SITE ASSISTANCE PRIOR TO COMMENCEMENT OF EXCAVATION WORKS

ADVANCE NOTICE REQUIRED
(Office hours: Monday-Friday 08.00 to 17.00)

Tel: 0800 9173993
E-mail: dbyd@openreach.co.uk
Website: www.dialbeforeyoudig.com

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KEY TO BT SYMBOLS

	UNDERGROUND PLANT		POLE
	OVERHEAD PLANT		CABINET
	JOINT BOX		BURIED JOINT
	DISTRIBUTION POINT		JOINTING POST
	MANHOLE		PROPOSED U/G
	DP BOUNDARY		PROPOSED O/H
	OTHER BT BOUNDARY		PROPOSED BOX

Other proposed plant is shown using dashed lines. BT symbols not listed above may be disregarded. Existing BT plant may not be recorded. Information valid at the time of preparation.



BT Ref : EFN09123Z

Map Reference : (centre) TL1223014450

Easting/Northing : (centre) 512230,214450

Issued : 31/03/2015 09:12:31

FOOTNOTE: WARNING IT IS ESSENTIAL THAT YOU CONTACT NATIONAL NETWORK HANDLING CENTRE BY EMAIL nnhc@openreach.co.uk BEFORE PROCEEDING WITH ANY WORK IN THE HATCHED AREA

CHECKED



ATKINS

The Hub, 500 Park Avenue,
Aztec West,
Almondsbury,
Bristol,
BS32 4RZ

Virgin Media
Field Services
Units 1-12
Broad Lane
Mayfair Business Park
Bradford
Yorkshire
BD4 8PW

Tel: Opt 2

Plant Enquiry Ref: VM.115997
Letter Date 07/04/2015
Your Ref: [LM 37006/TT](#)
Date: 16/04/2015

Dear Sir/Madam,

Enquiry Location: [TOWNSEND LAND , HARPENDEN, HERTFORDSHIRE - 512230,214450 - AL5 2RH](#)

Thank you for your enquiry regarding work at the above location.

I enclose a copy of our above referenced drawing, marked to show the approximate position of plant owned and operated by Virgin Media.

You will be aware that you have a duty to ensure that no damage results to this equipment as a result of your proposed works. Please note that this apparatus may contain Fibre Optic, Coaxial and/or 240v Power Cables and as such, special care must be taken when excavating this area.

Should you require Virgin Media apparatus to be diverted to accommodate your works and require a detailed estimate, please send a cheque to the value of £720.00 (Bus) / £240.00 (Res) Inc VAT to:

Diversionary Works, Virgin Media, 1 Dove Wynd, Strathclyde Business Park Bellshill ML4 3AL

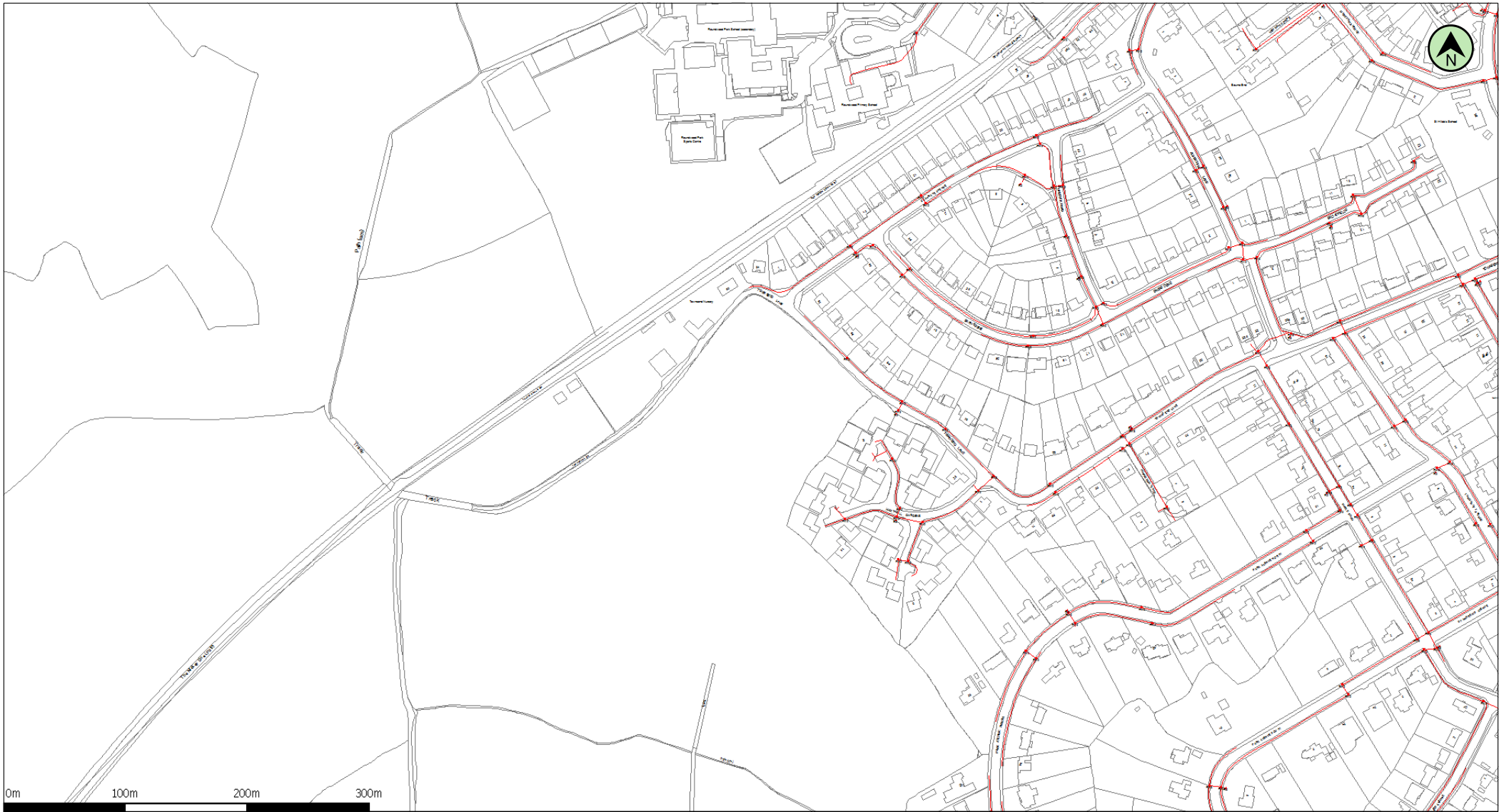
Or Call the Diversionary Team on: Option 1

Should your request be in relation to a new development and you require an estimate to be prepared for Virgin Media to service your proposed development, please submit this request for costs along with site drawings (scale 1:500) to the New Build Team also at the above address.

Yours faithfully

National Plant Enquiries Team, email:

Please note: National Plant Enquiries are now able to accept all major cards with the exception of American Express for credit/debit card payments. If you wish to use this facility please contact us at the above telephone number. [Please note: National Plant Enquiries Team \(Bradford\) cover and respond to plant enquiries for all ex ntl:Telewest franchise areas.](#)



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Date: 16/04/15

Scale: 1:4427

Map Centre: 512230,214450

Data updated: 22/02/15

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 from Ordnance Survey © Crown Copyright 100019209

Duct, Trench



Chamber



Cabinet



VM.115997



1

2

3

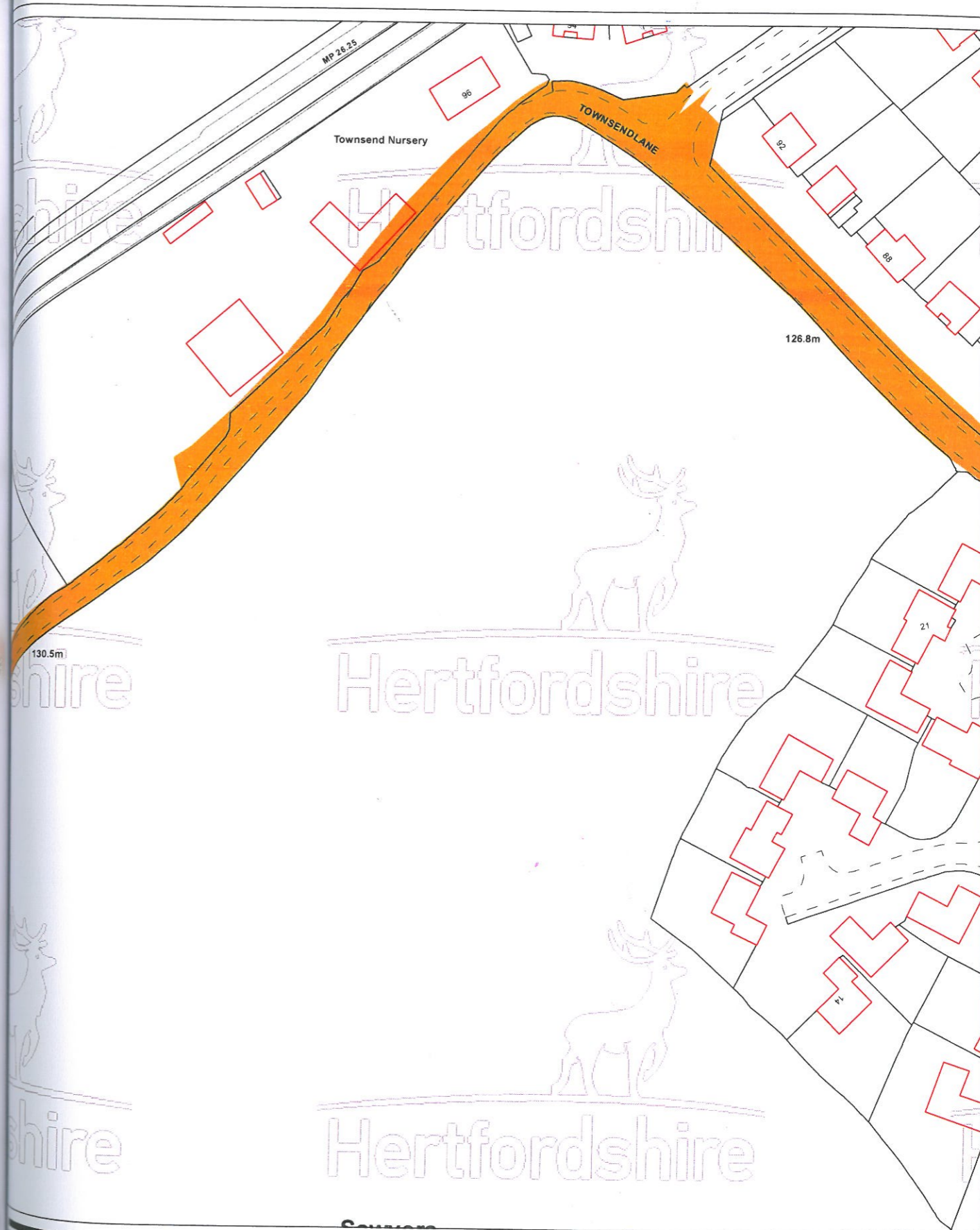
4

5

6

7

8

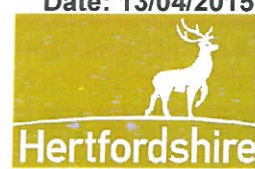


Land off Townsend Lane, Harpenden

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No further copies may be made.
Produced by Highway
Boundaries & Land Charges
Hertfordshire County Council
Date: 13/04/2015**

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permitted to copy, sub-licence, distribute or
sell any of this data to third parties in any form.
This restriction may not apply to HCC and its
approved contractors, agents & partners.) Use
of this data is subject to terms and conditions.

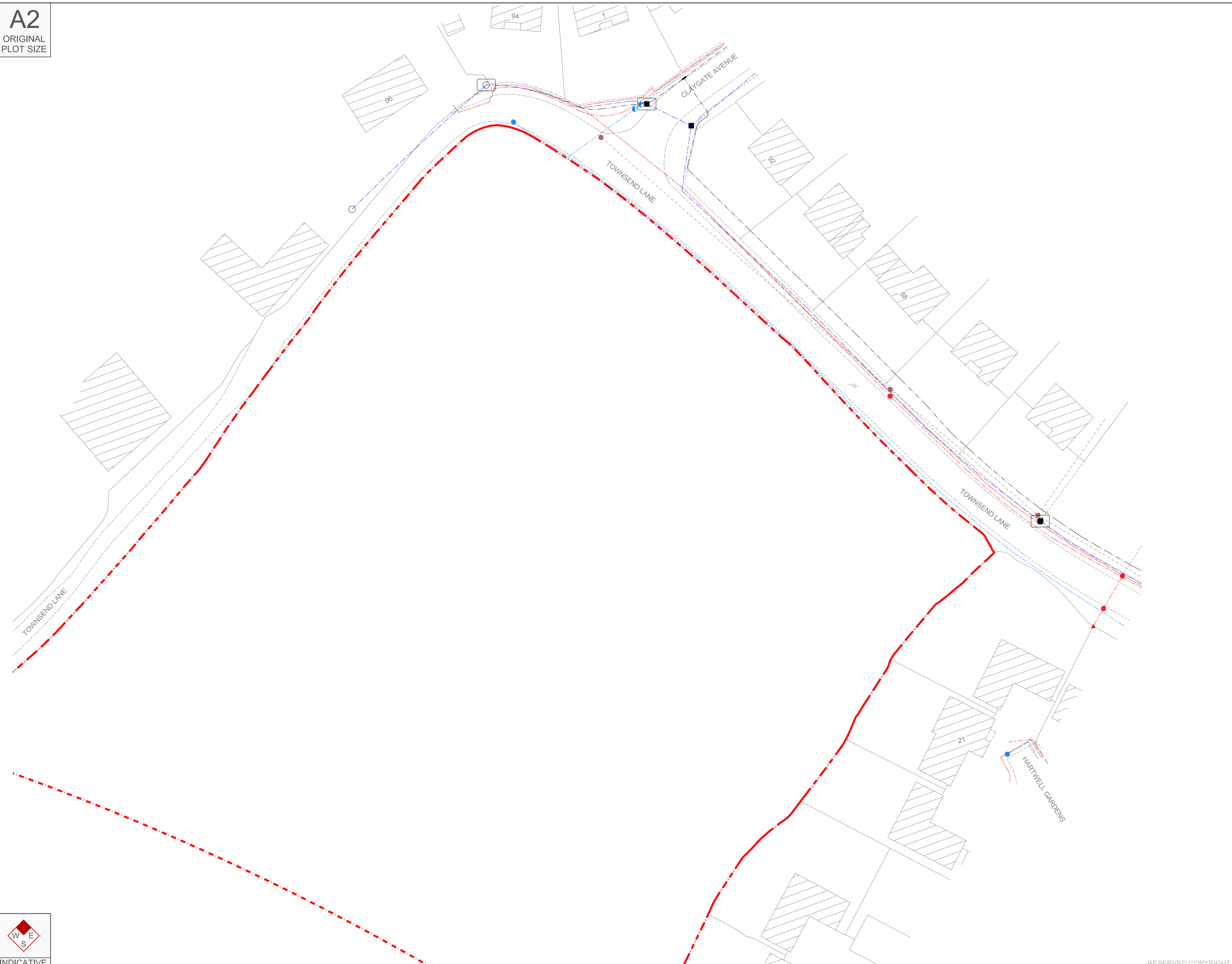
Scale at A4
1:1,250



APPENDIX B

A2
ORIGINAL
PLOT SIZE

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- NOTES:
1. Precise location of infrastructure should be confirmed on site by surveys and investigations.
 2. Water utilities interpreted from information supplied by Affinity Water and Thames Water.
 3. BT Services interpreted from information supplied by BT Open Reach.
 4. Gas utilities interpreted from information supplied by National Grid Gas Plc.
 5. Electrical utilities interpreted from information supplied by UK Power Networks.
 6. Virgin Media utilities interpreted from information supplied Virgin Media.

KEY

- - - - - Indicative Site Boundary.

Affinity Water	Thames Water
Water Main	Foul Water Sewer
Fitting	
Hydrant	
Virgin Media	National Grid Gas
Duct, Trench	LP Mains
Chamber	
Cabinet	
BT Open Reach	UK Power Networks
Distribution Point	LV Underground Cable
Joint Box	Straight Joint
Pole	
Underground Plant	

Rev	Date	Details	Drawn by	Checked by	Approved by
-	-	-	-	-	-

Bristol
Cambridge
Cardiff
London
Oxford
Welwyn Garden City

Sheraton House
Castle Park
Cambridge
CB3 0AX
01223 370135
www.tpa.uk.com

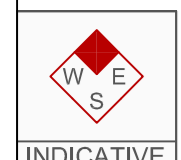
CLIENT:
Hill Residential Limited

PROJECT:
**Townsend Lane,
Harpenden**

TITLE:
Combined Services Plan

STATUS:
FOR INFORMATION

SCALE: 1:500	DATE: 12.10.16	DRAWN: JA	CHECKED: TH	APPROVED: TH
JOB NO: 1605-86	DRAWING NO: EL02	REVISION: -		



RESERVED COPYRIGHT



Combined Report



Contaminated Land

PASSED

Professional Opinion

No significant contaminant linkage has been identified. Accordingly soil and groundwater liabilities are unlikely to occur. No further action with respect to contaminated land Liability is required.



Flooding

PASSED

Professional Opinion

Low - The Site is not considered to be at a significant risk of flooding. A prudent purchaser should ask the vendor whether there has been any historical flooding and confirm the availability of building and contents insurance.



Other Environmental Hazards

The following have been identified in the immediate vicinity of the site:

- Ground Instability Hazard
- Non-Coal Mining

This report is issued for the property described as:

Land At Townsend Land
Harpenden
Hertfordshire

Report Reference:

65802702_1 739372071#140184590

National Grid Reference:

512227E, 214446N

Client Reference:

82835.25.1/JCS_SAF

Report Date:

25th March 2015

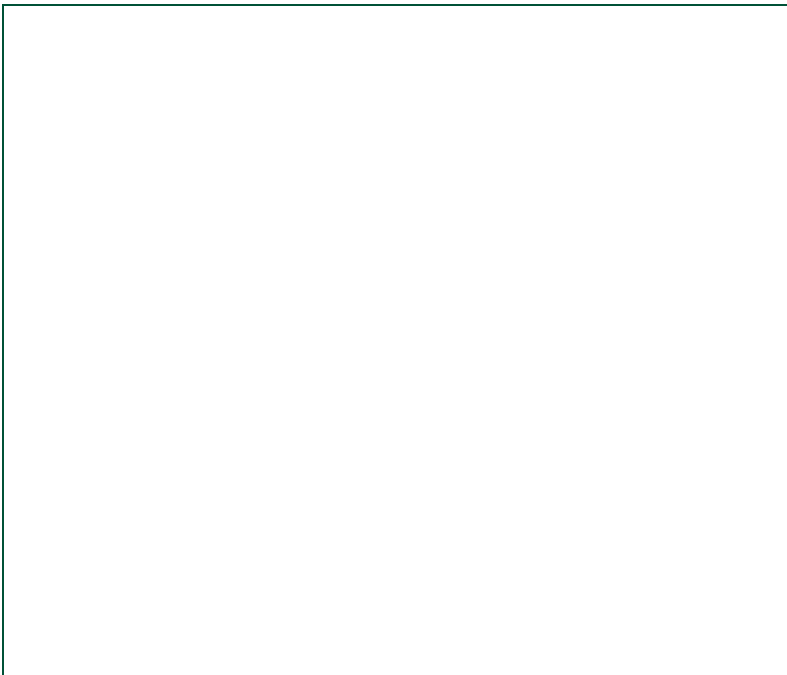
Contact Details

If you require any assistance please contact our customer services team on
or email

Site Location

Aerial Photograph

250m Search Band



Location Plan

Land At Townsend Land, Harpenden, Hertfordshire

Grid Reference 512227, 214446

Executive Summary

Risk	Evaluation
Contaminated Land	Passed

Liability Assessment

Within the scope of this assessment no Liabilities have been identified. No further action is required.

Recommendations

None required.

Risk	Evaluation
Flooding	Passed

Consultant's Comment

The Site is not considered to be at a significant risk of flooding. Insurance is likely to be available at standard terms.

- | | | |
|---|--|----------------|
| 1 | Is the site likely to be insurable at standard terms? | Yes |
| 2 | If development is proposed would a detailed Flood Risk Assessment be required? | Yes (Drainage) |
| 3 | What is the overall risk of flooding, assuming defences fail or are absent or over-topped? | Negligible |
| 4 | Are there existing flood defences that might benefit the site? | No |

Recommendations

1. It would be prudent to ask the vendor to confirm whether or not they are aware of any previous flooding at the Site.
2. You may wish to obtain insurance terms prior to completion of this transaction.

Contaminated Land Risk Analysis

Investigation	Commentary
On-site sources	A review of historical maps dating from 1879 indicates the site has been in agricultural use since the first map edition.
Off-site sources	<p>The following potentially contaminative features were identified in proximity to site from historical maps dating from 1879: railways 35m north west, and quarrying of sand & clay, operation of sand & gravel pits 98m north west.</p> <p>According to trade directories, current or recent operations in proximity to the site include lawnmowers and garden machinery - sales and service (6m north east), and fireplaces and mantelpieces (18m north).</p>
Pathways and receptors	With reference to Environment Agency data, the superficial hydrogeology underlying the site is classified as an Unproductive Stratum (deposits of negligible permeability) and the bedrock hydrogeology is classified as a Principal Aquifer (highly permeable formations). In terms of the overlying soils, these are given a I1 (class I1) vulnerability classification. According to the Environment Agency the site lies within a Zone II Source Protection Zone (SPZ). An SPZ is a protection zone placed around a well or borehole that supplies groundwater of potable quality. There are no abstraction licences located within 500m. The nearest water feature is located 248m south east. Residential properties are located within 25m. No designated eco-receptors were identified within a 500m radius of the site.
Additional Sources of Information	No additional materials have been used in this assessment.

Consultant's Conclusion

Considering the information reviewed during this assessment, no significant contaminant linkages have been identified. Accordingly soil and groundwater liabilities are unlikely to occur. Please refer to risk analysis methodology section for further guidance and definition of terms.

Flood Risk Screening

	Risk	Issue	Evaluation
1.	Insurability	Is the site likely to be insurable at standard terms?	Yes
2.	Development	If development is proposed would a detailed Flood Risk Assessment be required?	Yes (Drainage)
3.	Flooding	What is the overall risk of flooding, assuming defences fail or are absent or over-topped?	Negligible
4.	Flood Defences	Are there existing flood defences that might benefit the site?	No

	River	Coastal	Ground Water	Surface Pluvial	Other ¹
High					
Moderate to High					
Moderate					
Low to Moderate					
Low					
Negligible					

Recommendations

1. It would be prudent to ask the vendor to confirm whether or not they are aware of any previous flooding at the Site.
2. You may wish to obtain insurance terms prior to completion of this transaction.

¹Other factors influencing flood risk include historic flood events, geological indicators of flooding, proximate surface water features and elevation above sea level.

Current Flood Risk

Flood Risk Management Options

Flooding can often be managed by the installation of flood protection measures either on/within the building(s) or across the site. Flood protection measures can be divided into two categories; flood resistance and flood resilience.

Both flood resistance and flood resilience solutions can be integrated with design proposals for new build properties or retro-fitted to existing properties. Specific flood protection packages can often include both resistance and resilience measures. What is suitable will depend on a number of factors including flood source, likely flood depths, property design and age.

Research conducted by CLG Sustainable Buildings Division and the Environment Agency revealed that installing flood resistance measures may be inappropriate where likely flooding will be deep. Certain types of building construction are unable to resist the pressure load placed on the exterior skin of the building by retained flood waters. Generally a flood depth between 0.6m and 1.0m above ground level is used as a benchmark to decide whether to consider flood resilience measures rather than rely on flood resistance measures. This is dependent on the age and construction of the property.

Guideline Costs for Resistance Measures

Building Feature	Cost Estimate for Baffles (+ VAT)
Standard (900mm) single door	£725 - £875
Standard (1800mm) double entrance door	£850 - £1,000
Large roller shutter door (up to 2,745mm span)	£1600 - £1750
Standard garage door	£1400 - £1575
Standard window (up to 1,240mm span)	£350 - £500
Large window (1,240mm to 2,150mm span)	£550 - £700
Single air brick	£70 - £220
Double air brick	£80 - £230
Building Feature	Cost Estimate for Tanking (+ VAT)
Tanking (of basement, walls or floors)	£25 - £50 per metre ²
System Component	Cost Estimate for Plumbing (+ VAT)
Simple non-return valve	£50
Sophisticated non-return valve	£660 - £800

The costs above are for indicative budget purposes only. They are based on installing components of a standard design and colour. If the site requires bespoke products, these are likely to cost more (for example, if the site is in a conservation area, different colours may be required).

If you require a property specific assessment of which measures are suitable, and a more accurate cost appraisal, Argyll will need to complete a FLOODSOLUTIONS Consult Report. This report normally costs from £500 to £1,000 (plus VAT) and provides more detailed information on the likelihood and, in particular, the depth of all potential types of flooding. Argyll can also arrange for one of a panel of specialist contractors to provide a tailored estimate for flood protection measures.

Additional Flooding Considerations

Riparian Ownership	<p>A riparian owner describes anyone who owns a property where there is a watercourse within or adjacent to the boundaries of their property.</p> <p>Under common law, a riparian owner has rights and responsibilities relating to the stretch of watercourse that falls within or beside the boundaries of their land. Their primary responsibility is to keep the watercourse free of any obstructions that could hinder normal water flow. If the riparian owner fails to carry out their responsibilities, this could result in civil action.</p> <p>A riparian owner should also check before carrying out any works near to the edge of a river, as such works may be subject to byelaws. If infringed, this could lead to enforcement action by the Environment Agency.</p> <p>There is a presumption that the boundary between properties abutting a watercourse is the centre line of that watercourse. To confirm whether this is the case, a solicitor should check the deeds or the Index Map.</p> <p>The Environment Agency has published useful guidance "Living on the edge" for owners of land or property alongside a watercourse. Sometimes, the Environment Agency or other organisations managing flood risk, may have statutory rights of access to properties which adjoin a watercourse. This may be for maintenance, repair or rebuilding of any part of the watercourse or for access to or repair of monitoring equipment.</p>
Development Control	<p>Sites which lie close to (but do not adjoin) a watercourse, may be subject to planning controls should redevelopment be considered. The Environment Agency are normally consulted regarding any development within 20m of a Main River and Internal Drainage Boards should be similarly contacted regarding developments close to drainage channels. Navigation authorities are normally consulted regarding any development within 250m of a canal, although this varies on a site by site basis.</p> <p>The Environment Agency should also be contacted with regards to development (other than minor development) in Flood Zones 2 and 3.</p>
Sewer Flooding	<p>In times of extreme rainfall events sewers can overflow and cause local flooding. Ofwat's 'DG5 - At Risk Registers' record properties that have flooded from sewers and are at risk of flooding again, with separate registers for internal and external flooding. The At Risk Registers are maintained by each of the ten water and sewerage companies in England and Wales and details of properties subject to sewer flooding are normally kept for between two and five years. These registers are not necessarily complete as not all episodes of past flooding may be recorded.</p>
Consultant's Comment	<p>Whilst this assessment is primarily a flood risk screening report, you may wish to consider the above potential liability considerations that fall outside the scope of the Flood Risk Screening Methodology.</p> <p>Argyll can provide additional information on riparian ownership, development control and sewer flooding. The cost of this additional information is from £50 + VAT and any disbursements.</p>

Other Environmental Hazards

Risk	Recommendation
Ground Instability Hazard	As a potential ground instability hazard was identified, you may wish to consult a local RICS accredited surveyor and/or review any available geotechnical surveys.
Non-Coal Mining	As there is a risk of non-coal related mining in the area, you may wish to consult a local RICS accredited surveyor and/or review any available geotechnical surveys. Further information may be available from the minerals and waste officer at the County Council and the local Building Regulations Officer. British Geological Survey GeoHazard reports (www.bgs.ac.uk/georeports) may also provide more detailed information.
Telecommunication Base Stations	No telecommunication base stations are located within 100m of the site.
COMAH	No Control of Major Accident Hazards (COMAH) sites are located within 500m.
Consultant's Comment	This report is primarily a desktop assessment of potential soil and groundwater liabilities. We also comment whether the above Environmental Hazards are relevant. Contact details are provided at the end of this report.

Contents of the Data Section

Section	Description
Tabular Summary	This section presents a tabular summary of information found for the site and surrounding area. The data is presented in three buffer zones for ease of reference: data found at the site, from 1-250m and from 251-500m. If a database has been searched the number of records found will be displayed under the relevant search band. If a database is not available or has not been searched, this will be represented by the abbreviation N/A under the relevant search band.
Current Land Use Mapping	This section provides information on current land uses and is divided into three sections, statutory information, waste and current industrial uses. It is preceded by two maps.
Statutory Information	This section presents detailed statutory information for the site and surrounding area (up to 500m depending upon dataset). The Map ID of each feature is indicated (where applicable) followed by specific information on each feature and its distance and direction from the site. If no data is identified then the section will be omitted.
Waste	This section presents detailed information on waste and landfill sites for the site and surrounding area (up to 500m depending upon dataset). The Map ID of each feature is indicated (where applicable) followed by specific information on each feature and its distance and direction from the site. If no data is identified then the section will be omitted.
Current Industrial Land Use	This section presents detailed information on current land use for the site and surrounding area (0-250m). The Map ID of each feature is indicated (where applicable) followed by specific information on each feature and its distance and direction from the site. If no data is identified then the section will be omitted.
Historical Land Use Mapping	The Historical Land Use Map presents 1:10,000 scale and selected 1:2,500 scale (tanks and energy facilities) historical land use information within 250m of the site boundary.
Historical Land Use	This section presents selected information on historical land use for the site and surrounding area (0-250m). The Map ID of each feature is indicated (where applicable) followed by specific information on each feature and its distance and direction from the site. If no data is identified then the section will be omitted.
Aquifer Designations and Geology	This section is preceded by two maps that present information relating to the aquifer designations beneath the site. The first of these maps indicates the designation of the Superficial geology. The second map presents the aquifer designation of the solid geology. These maps are followed by detailed information in relation to aquifer designations/groundwater vulnerability and geology at the site and surrounding area (0-500m). If no data is identified then the section will be omitted.
Environmental Sensitivity	This section presents detailed information on the environmental sensitivity of the site and surrounding area (up to 500m depending upon dataset) and is preceded by two maps. The first shows areas with statutory designations, the second shows source protection zones. The Map ID of each feature is indicated (where applicable) followed by specific information on each feature and its distance and direction from the site. If no data is identified then the section will be omitted.
Natural and Mining Related Hazards	This section contains information on natural and mining related hazards which may affect the site. These include subsidence, radon and mining.

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Tabular Summary

Statutory Information

Authorisations	On-site	1-250m	251-500m
Local Authority Pollution Prevention and Controls	0	0	N/A
Local Authority Integrated Pollution Prevention and Controls	0	0	N/A
Integrated Pollution Controls	0	0	N/A
Integrated Pollution Prevention And Control	0	0	N/A
Registered Radioactive Substances	0	0	N/A
Discharges	On-site	1-250m	251-500m
Discharge Consents	0	0	N/A
Water Industry Act Referrals	0	0	N/A
Hazardous Sites	On-site	1-250m	251-500m
Control of Major Accident Hazards Sites	0	0	0
Explosive Sites	0	0	0
Notification of Installations Handling Hazardous Substances	0	0	0
Planning Hazardous Substance Consents	0	0	0
Contraventions	On-site	1-250m	251-500m
Contaminated Land Register Entries and Notices	0	0	N/A
Local Authority Pollution Prevention and Control Enforcements	0	0	N/A
Enforcement and Prohibition Notices	0	0	N/A
Planning Hazardous Substance Enforcements	0	0	0
Substantiated Pollution Incident Register	0	0	0
Prosecutions Relating to Authorised Processes	0	0	N/A
Prosecutions Relating to Controlled Waters	0	0	N/A

Waste

Waste/Landfill Sites	On-site	1-250m	251-500m
BGS Recorded Landfill Sites	0	0	0
Integrated Pollution Control Registered Waste Sites	0	0	N/A
Licensed Waste Management Facilities (Landfill Boundaries)	0	0	N/A
Licensed Waste Management Facilities (Locations)	0	0	0
Local Authority Recorded Landfill Sites	0	0	0
Registered Landfill Sites	0	0	0
Registered Waste Transfer Sites	0	0	N/A
Registered Waste Treatment or Disposal Sites	0	0	N/A
Historical Landfill Sites	0	0	0

Current Land Use

Current Potentially Contaminative Uses	On-site	1-250m	251-500m
Contemporary Trade Directory Entries	0	3	N/A
Fuel Station Entries	0	0	N/A
Other Features	On-site	1-250m	251-500m
Telecommunication Base Stations	0	0 ²	N/A

Historical Land Use

Historical Potentially Contaminative Uses	On-site	1-250m	251-500m
Historical Tanks And Energy Facilities	0	0	N/A
Potentially Infilled Land	On-site	1-250m	251-500m
Former Marshes	0	0	N/A
Potentially Infilled Land (Non-Water)	0	1	N/A
Potentially Infilled Land (Water)	0	0	N/A

²Telecommunication base stations are only searched to a radius of 100m from the site boundary.

Groundwater Vulnerability

Hydrogeology	On-site	1-250m	251-500m
Superficial Aquifer Designations	1	0	0
Bedrock Aquifer Designations	1	0	0
Groundwater Vulnerability	1	1	N/A
Geology	On-site	1-250m	251-500m
Low Permeability Drift Deposits	1	N/A	N/A
BGS 1:625,000 Solid Geology	1	N/A	N/A

Environmental Sensitivity

Environmental Sensitivity	On-site	1-250m	251-500m
Areas of Outstanding Natural Beauty	0	0	N/A
Environmentally Sensitive Areas	0	0	N/A
Forest Parks	0	0	N/A
Local Nature Reserves	0	0	0
Marine Nature Reserves	0	0	0
National Nature Reserves	0	0	0
National Parks	0	0	N/A
National Scenic Areas	0	0	N/A
Nitrate Sensitive Areas	0	N/A	N/A
Nitrate Vulnerable Zones	1	N/A	N/A
Ramsar Sites	0	0	0
River Quality Biology Sampling Points	0	0	N/A
River Quality Chemistry Sampling Points	0	0	N/A
Nearest Surface Water Feature	0	1	N/A
Sites of Special Scientific Interest	0	0	0
Special Areas of Conservation	0	0	0
Special Protection Areas	0	0	0
Water Abstractions	0	0	0
Source Protection Zones	2	0	N/A

Natural and Mining Related Hazards

Subsidence	On-site	1-250m	251-500m
Collapsible Ground Stability Hazards	1	0 ³	N/A
Compressible Ground Stability Hazards	1	0	N/A
Ground Dissolution Stability Hazards	1	0	N/A
Landslide Ground Stability Hazards	1	0	N/A
Running Sand Ground Stability Hazards	1	0	N/A
Shrinking or Swelling Clay Subsidence Hazards	1	0	N/A
Non-Coal Mining Hazards	1	1	N/A
Radon	On-site	1-250m	251-500m
Radon Potential	1	N/A	N/A
Radon Protection Measures	1	N/A	N/A
Mining	On-site	1-250m	251-500m
Brine Compensation Areas	0	N/A	N/A
Coal Mining Affected Areas	0	N/A	N/A
Natural and Mining Cavities	0	1	N/A
Mining Instability	0	0	N/A
BGS Recorded Mineral Sites	0	1	N/A

Flooding

Current Flood Risk	On-site	1-250m	251-500m
Flooding From Rivers or Sea	0	0	0
Flooding From Rivers or Sea (in an Extreme Flood)	0	0	0
Areas Benefiting from Flood Defences	0	0	0

³Ground stability hazards are only searched to a radius of 50m from the site boundary.

Flooding			
Flood Storage Areas	0	0	0
Flood Defences	0	0	0
Risk of Flooding from Rivers and Sea	0	0	0
Groundwater Flood Risk	0	0	0
Surface Water Flooding (1:75 year rainfall event)	0	2	0
Surface Water Flooding (1:200 year rainfall event)	0	3	0
Surface Water Flooding (1:1,000 year rainfall event)	0	3	0
Historical Flooding	On-site	1-250m	251-500m
Historical Flood Events	0	0	0
Geological Indicators of Flooding	0	0	0

Tabular Summary Explanation

Landmark has carefully selected a range of datasets which are considered appropriate for the intended use of this report. Each dataset is searched to a set radius from the site boundary and the tabular summary is divided into different search bands accordingly. If a database is searched and information is found, then the number of records available are detailed in the table above. If the database was searched and no data was found, then a zero will be present. If a database was not searched then the abbreviation N/A will be found, indicating this information was not available at the radius searched.

Landfill Site Information

Registered landfill site boundaries (where available), are shown on the map as a red diagonal hatched polygon and referred to in the map legend as Registered Landfill Sites. At present no complete national dataset exists for landfill site boundaries, therefore a point grid reference provided by the data supplier is used for some landfill sites. The point grid references supplied provide only an approximate position, and can vary from the site entrance to the centre of the site. A point cannot properly define landfill boundaries therefore Landmark constructs a 250 metre or 100 metre "buffer" zone around the point to warn of the possible presence of landfill. The "buffer" zone is shown on the map as an orange crosshatched area and is referred to in the map legend as Potential Landfill Buffer.

Local Authority landfill data is sourced from individual local authorities that were able to provide information on sites operating prior to the introduction of the Control of Pollution Act (COPA) in 1974. Appropriate authorities are listed under Local Authority Landfill Coverage with an indication of whether or not they were able to make landfill data available. Details of any records identified are disclosed. You should be aware that if the local authority had landfill data but passed it to the relevant Environment Agency office, it does not necessarily mean that local authority landfill data is now included in our other Landfill datasets. In addition if no data has been made available for all or part of the search area, you should be aware that a negative response under 'Local Authority Recorded Landfill Sites' does not necessarily confirm that no local authority landfills exist.

Subsidence Hazards

Information on subsidence hazards is provided by the British Geological Survey (BGS). Information present within 250m of the site is reported under Natural and Mining Related Hazards. Due to the level of detail of this data and the complexities of the real world, the BGS recommends a precautionary approach when using this information and advises taking the worst reading noted for each dataset within the vicinity of a property. Therefore, Landmark reports the presence of a ground stability or non-coal related mining hazard in the Risk Analysis section based on the highest reading found within 50m of the site boundary.

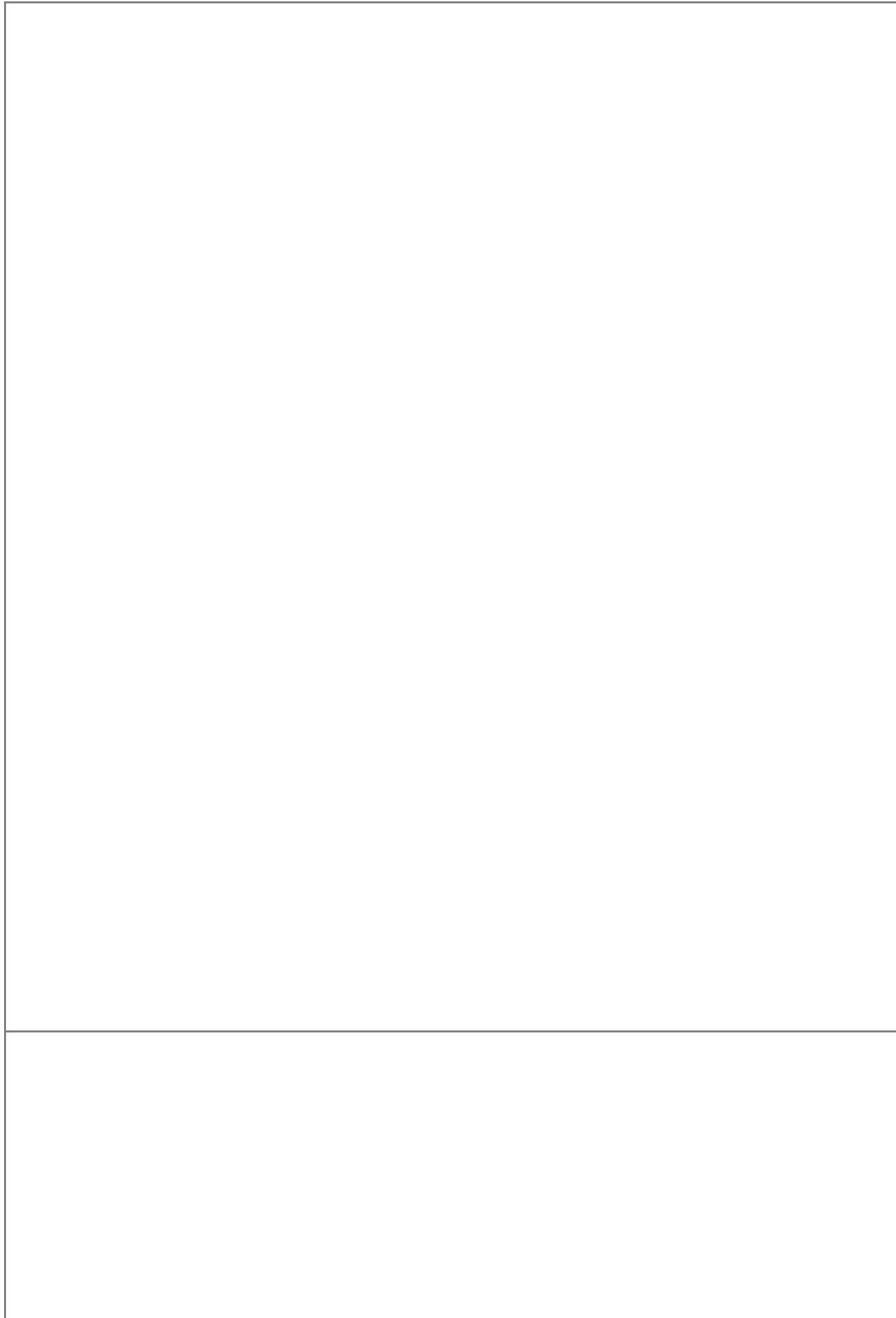


Current Land Use

Current Potentially Contaminative Uses

Contemporary Trade Directory Entries

Map ID	Details	Distance	Direction
2	Lawnmowers & Garden Machinery - Sales & Service, Name: P & B Garden Machinery, Status: Inactive, Location: Townsend La, Harpenden, Hertfordshire, AL5 2RH, Positional Accuracy: Manually positioned to the road within the address or location.	6m	NE
3	Fireplaces & Mantelpieces, Name: M W Forsyth Fireplaces Ltd, Status: Inactive, Location: 96, Townsend Lane, Harpenden, Hertfordshire, AL5 2RH, Positional Accuracy: Automatically positioned to the address.	18m	N
4	Laboratories, Name: Cipac, Status: Active, Location: 17, Claygate Avenue, Harpenden, Hertfordshire, AL5 2HE, Positional Accuracy: Automatically positioned to the address.	130m	NE



Historical Land Use

Historical Potentially Contaminative Uses

Potentially Contaminative Industrial Uses (Past Land Use)

Map ID	Details	Distance	Direction
1	Railways, Date of Mapping: 1884-1960.	35m	NW
2	Quarrying of sand & clay, operation of sand & gravel pits, Date of Mapping: 1901.	98m	NW

Potentially Infilled Land

Potentially Infilled Land (Non-Water)

Map ID	Details	Distance	Direction
3	Unknown Filled Ground (Pit, quarry etc), Date of Mapping: 1993.	98m	NW

Historical Maps

The following maps have been manually reviewed by a consultant and presented in the Risk Analysis section at the front of this report:

Scale	Map Sheet	Published Date
1:2,500	Hertfordshire 027_06	1879
1:2,500	Hertfordshire 027_07	1879
1:2,500	Hertfordshire 027_06	1898
1:2,500	Hertfordshire 027_07	1898
1:2,500	Hertfordshire 027_06	1924
1:2,500	Hertfordshire 027_07	1924
1:2,500	National Grid TL1214	1967
1:2,500	National Grid TL1114	1975
1:2,500	National Grid TL1114	1992
1:10,560	Hertfordshire 027_00	1884
1:10,560	Bedfordshire 035_NE	1890
1:10,560	Bedfordshire 035_NW	1892
1:10,560	Bedfordshire 035_NE	1901
1:10,560	Bedfordshire 035_NW	1901
1:10,560	Hertfordshire 027_NE	1901
1:10,560	Hertfordshire 027_NW	1901
1:10,560	Bedfordshire 035_NE	1925
1:10,560	Bedfordshire 035_NW	1925
1:10,560	Bedfordshire 035_NE	1938
1:10,560	Bedfordshire 035_NW	1938
1:10,560	Hertfordshire 027_NE	1938
1:10,560	Hertfordshire 027_NW	1938
1:10,560	National Grid TL11NW	1960
1:10,560	National Grid TL11SW	1960
1:10,560	National Grid TL11SW	1976
1:10,000	National Grid TL11NW	1974
1:10,000	National Grid TL11SW	1981
1:10,000	National Grid TL11NW	1974
1:10,000	National Grid TL11SW	1993
1:10,000	National Grid TL11NW	2014
1:10,000	National Grid TL11SW	2014
1:1,250	National Grid TL1214NE	1965
1:1,250	National Grid TL1214NW	1965
1:1,250	National Grid TL1214SE	1965
1:1,250	National Grid TL1214SW	1965

Scale	Map Sheet	Published Date
1:1,250	National Grid TL1214NE	1992
1:1,250	National Grid TL1214SW	1992
1:1,250	National Grid TL1214NW	1978
1:1,250	National Grid TL1214NE	1979
1:1,250	National Grid TL1214SW	1983

Groundwater Vulnerability

Hydrogeology

Superficial Aquifer Designations

Map ID	Details	Distance	Direction
	Unproductive Strata The rock layers or drift deposits have a low permeability that have negligible significance for water supply or river base flow.	On Site	-

Bedrock Aquifer Designations

Map ID	Details	Distance	Direction
	Principal Aquifer These aquifers are typically formed of layers of rock or drift deposits that have a high permeability and provide a high level of water storage. They may support water supply and/or base river flow on a strategic scale.	On Site	-

Groundwater Vulnerability

Map ID	Details	Distance	Direction
	Soil Classification: Soils of Intermediate Leaching Potential (I1) - Soils which can possibly transmit a wide range of pollutants, Map Scale: 1:100,000, Map Name: Sheet 39 West London.	On Site	-
	Soil Classification: Soils of High Leaching Potential (U) - Soil information for restored mineral workings and urban areas is based on fewer observations than elsewhere. A worst case vulnerability classification (H) assumed, until proved otherwise, Map Scale: 1:100,000, Map Name: Sheet 39 West London.	38m	NE

Geology

Low Permeability Drift Deposits

Map ID	Details	Distance	Direction
	Low permeability drift deposits occurring at the surface and overlying Major and Minor Aquifers are head, clay-with-flints, brickearth, peat, river terrace deposits and marine and estuarine alluvium, Map Sheet: Sheet 39 West London, Scale: 1:100,000.	On Site	-

BGS 1:50,000 Bedrock Geology

Map ID	Details	Distance	Direction
	LEX Code: LESE, Rock Name: Lewes Nodular Chalk Formation and Seaford Chalk Formation (Undifferentiated), Rock Type: Chalk, Min Age: Santonian, Max Age: Turonian.	On Site	-

BGS 1:50,000 Superficial Deposits

Map ID	Details	Distance	Direction
	LEX Code: CWF, Rock Name: Clay-with-flints Formation, Rock Type: Clay, Silt, Sand and Gravel, Min Age: Quaternary, Max Age: Pliocene.	On Site	-
	LEX Code: CWF, Rock Name: Clay-with-flints Formation, Rock Type: Clay, Silt, Sand and Gravel, Min Age: Quaternary, Max Age: Pliocene.	73m	N
	LEX Code: CWF, Rock Name: Clay-with-flints Formation, Rock Type: Clay, Silt, Sand and Gravel, Min Age: Quaternary, Max Age: Pliocene.	300m	E

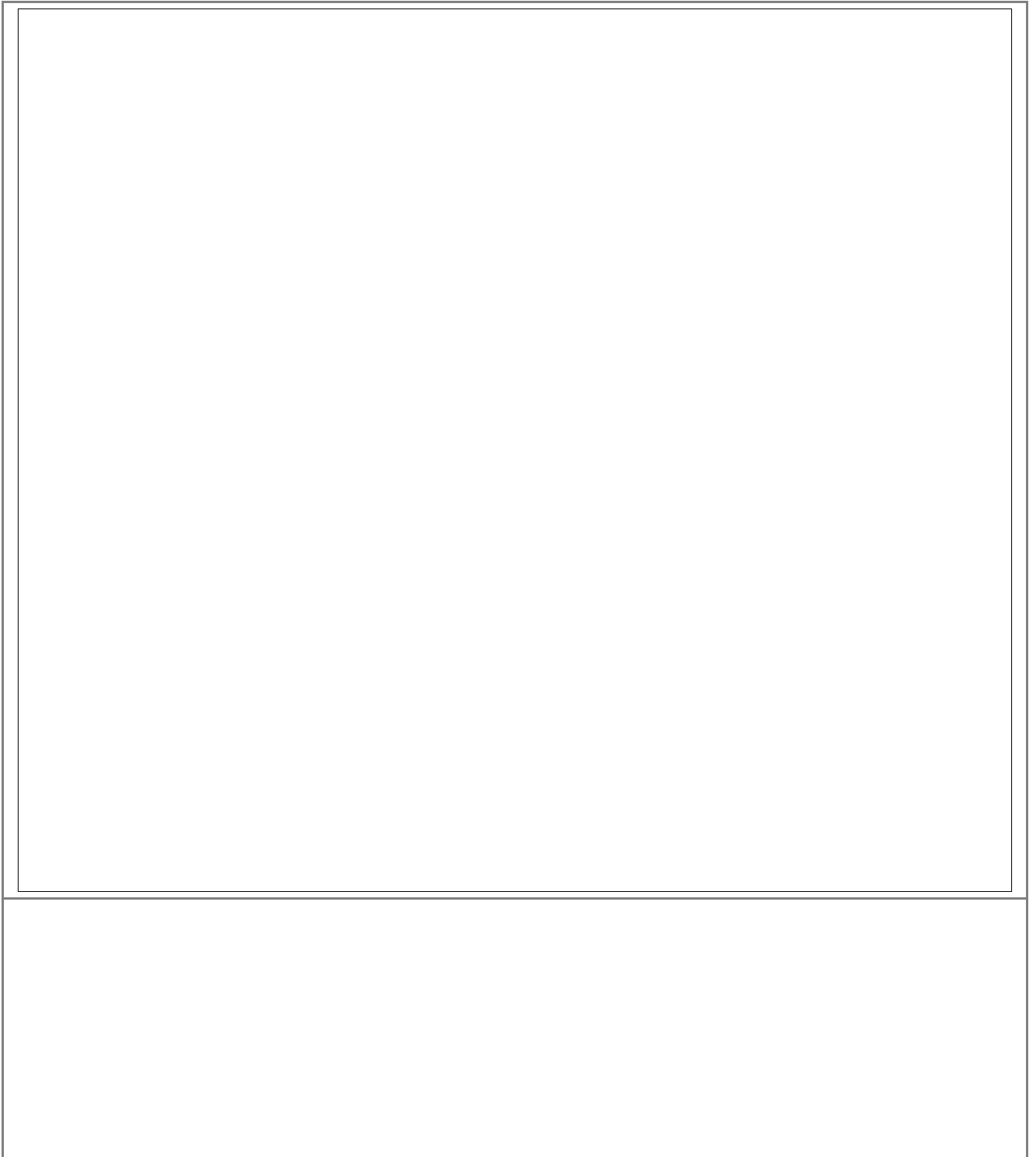
BGS 1:50,000 Geological Mapping Coverage

Map ID	Details	Distance	Direction
	Map Sheet No: 239, Map Name: Hertford, Map Date: 1978, Bedrock Geology: Available, Superficial Geology: Available, Artificial Geology: Not Available, Faults: Not Supplied, Landslip: Not Available, Rock Segments: Not Supplied.	On Site	-

BGS 1:625,000 Solid Geology

Map ID	Details	Distance	Direction
	Chalk including Red Chalk.	On Site	-

Environmentally Sensitive Features



Environmentally Sensitive Features

Nitrate Vulnerable Zones

Map ID	Details	Distance	Direction
1	Name: , Description: Surface Water, Source: Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA).	On Site	-

Nearest Surface Water Feature

Map ID	Details	Distance	Direction
2	Surface water feature identified in proximity.	248m	SE

Source Protection Zones

Map ID	Details	Distance	Direction
	Name: Various, Source: Environment Agency, Head Office, Reference: Not Supplied, Type: Zone III (Total Catchment): The total area needed to support the discharge from the protected groundwater source.	On Site	-
	Name: Shakespeare Road, Source: Environment Agency, Head Office, Reference: Th008, Type: Zone II (Outer Protection Zone): Either 25% of the source area or a 400 day travel time whichever is greater.	On Site	S

Natural and Mining Related Hazards

Subsidence

Collapsible Ground Stability Hazards

Map ID	Details	Distance	Direction
	Risk: Very Low, Source: British Geological Survey, National Geoscience Information Service.	On Site	-

Compressible Ground Stability Hazards

Map ID	Details	Distance	Direction
	Risk: No Hazard, Source: British Geological Survey, National Geoscience Information Service.	On Site	-

Ground Dissolution Stability Hazards

Map ID	Details	Distance	Direction
	Risk: Moderate, Source: British Geological Survey, National Geoscience Information Service.	On Site	-

Landslide Ground Stability Hazards

Map ID	Details	Distance	Direction
	Risk: Very Low, Source: British Geological Survey, National Geoscience Information Service.	On Site	-

Running Sand Ground Stability Hazards

Map ID	Details	Distance	Direction
	Risk: No Hazard, Source: British Geological Survey, National Geoscience Information Service.	On Site	-

Shrinking or Swelling Clay Subsidence Hazards

Map ID	Details	Distance	Direction
	Risk: Low, Source: British Geological Survey, National Geoscience Information Service.	On Site	-

Non-Coal Mining Hazards

Map ID	Details	Distance	Direction
	Risk: Unlikely, Source: British Geological Survey, National Geoscience Information Service.	On Site	-
	Risk: Highly Unlikely, Source: British Geological Survey, National Geoscience Information Service.	15m	N

Radon

Radon Potential

Map ID	Details	Distance	Direction
	The property is in a lower probability radon area, as less than 1% of homes are above the action level, Source: British Geological Survey, National Geoscience Information Service.	On Site	-

Radon Protective Measures

Map ID	Details	Distance	Direction
	None, Source: British Geological Survey, National Geoscience Information Service.	On Site	-

Mining

Natural and Mining Cavities

Map ID	Details	Distance	Direction
	Cavity Type: Sinkhole x 1, Solution Pipe x 1, Origin: , Cavity Number: , Commodity: , Positional Accuracy: .	66m	N

BGS Recorded Mineral Sites

Map ID	Details	Distance	Direction
1	Site Name: Fatcornersend Farm Gravel Pit, Site Location: Harpenden, Hertfordshire, Source: British Geological Survey, National Geoscience Information Service, Reference: 168845, Type: Opencast, Status: Ceased, Operator: Unknown Operator, Operator Location: Unknown Operator, Periodic Type: Pliocene - Pleistocene - Quaternary, Geology: Clay-With-Flints Formation, Commodity: Sand and Gravel, Positional Accuracy: Located by supplier to within 10m.	105m	NW

Current Flood Risk

Flooding from River or Sea (Flood Zone 3)

Details	Distance	Reply or Direction
Are there any flood plains within 500m?	<501m	NO

Flooding from River or Sea in an Extreme Flood (Flood Zone 2)

Details	Distance	Reply or Direction
Are there any flood plains (extreme floods) within 500m?	<501m	NO

The Site is at a low risk of flooding from rivers or the sea, as defined by the regulatory body's Flood Map. If the Site area is greater than one hectare, any planning application for development would need to be accompanied by a Flood Risk Assessment in accordance with NPPF. There should be no difficulty in obtaining flood insurance for properties on the Site. Most insurers will cover risk of less than 1.33% annual probability.

Flood Defences

Details	Distance	Reply or Direction
Are there any flood defences within 500m?	<501m	NO

There are no flood defences within 500m of the Site. There may be a small residual risk of flooding from overtopping or failure of defences more distant from the Site. Reference should be made to the assessment of 'Areas Benefiting from Flood Defences' to ascertain whether the Site could potentially be at risk.

Areas Benefiting from Flood Defences

Details	Distance	Reply or Direction
Does the site or any areas within 500m benefit from flood defences?	<501m	NO

The Site is over 500m from an Area Benefiting from a Flood Defence, as defined by the regulatory body. The residual risk that the Site may flood if the protection standard of any flood defences is exceeded, or if the defences fail, is insignificant.

Flood Storage Areas

Details	Distance	Reply or Direction
Are there any flood storage areas within 500m?	<501m	NO

The Site is over 500m from a Flood Storage Area (FSA) as defined by the regulatory body. These areas store flood water during flood events. It is unlikely that any FSA presents any associated flood risk to the Site.

Details	Distance	Reply or Direction
What is the flood likelihood category for the site?	On site	-

Some areas may be classified as having no result. This occurs where there is no output data from the regulatory body's risk assessment, but the area falls within the extreme flood outline (with a 0.1% or 1 in 1000 chance of flooding in any year).

Environment Agency Data

The data in the Risk of Flooding from Rivers and Sea Property Flood Likelihood Database is sourced from the The Environment Agency's National Receptor Dataset (NRD). The information provided includes the flood likelihood category low, moderate, or significant according to the flood likelihood analysis. Some areas may be classified as having no result. This occurs where there is no output data from the analysis, but the area falls within the extreme flood outline (with a 0.1% or 1 in 1000 chance of flooding in any year).

Groundwater Flooding Risk

Details	Distance	Reply or Direction
What is the risk of groundwater flooding at the site?	On site	-

Information from ESI indicates that there is a negligible risk of groundwater flooding in this area and any groundwater flooding incidence will be less frequent than 1 in 200 years return period. No further investigation of risk is deemed necessary unless the proposed site use is unusually sensitive. However, data may be lacking in some areas, so assessment as 'negligible risk' on the basis of the map does not rule out local flooding due to features not currently represented in the national datasets used to generate this version of the map.

ESI Data

ESI provides data to Argyll in relation to groundwater flooding. Through research and development, building on their expertise in addressing groundwater flooding issues for the Environment Agency and other clients in the UK, ESI has developed algorithms and calibrated predictions of the risk of groundwater flooding occurring in England and Wales. This differs from other suppliers of data regarding groundwater flooding which only report on the susceptibility of groundwater flooding. Susceptibility merely has to be identified, whereas risk must be quantified. The resulting map is a 50x50m classification of groundwater flooding risk into four categories (Negligible, Low, Moderate and High). ESI's classifications are based on the level of risk, combining severity and uncertainty that a site will suffer groundwater flooding within a return period of about 200 years.

The map is a general purpose indicative screening tool, and is intended to provide a useful initial view for a wide variety of applications. However, it does not provide an alternative to a site specific assessment, and a detailed risk assessment should be used for any site where the impact of groundwater flooding would have significant adverse consequences.

Surface Water Flooding

Details	Distance	Reply or Direction
What is the risk of surface water flooding at the site following a 1 in 75 year rainfall event?	On site	negligible
What is the risk of surface water flooding at the site following a 1 in 200 year rainfall event?	On site	negligible
What is the risk of surface water flooding at the site following a 1 in 1,000 year rainfall event?	On site	negligible

JBA Consulting Data

Surface Water Flooding - Information regarding the risk of natural surface water or pluvial flooding. The risk is classified by JBA into four categories, negligible, low (more than 0.1m), medium (more than 0.3m) and high (more than 1m) which reflect varying depths of potential surface water flooding during a range of rainfall events including 1:75 year, 1:200 year and 1:1,000 year events.

Historical Flooding

Historical Flood Events

Details	Distance	Reply or Direction
Have any historic flood events occurred at the site or within 500m?	<501m	NO

The regulatory body's records have no indication of past flooding within 500m of the Site. As these records are not comprehensive, it may still be prudent to ask the relevant authorities and the Site owner whether they are aware of any previous flooding at the Site or in the surrounding area.

Environment Agency Data

Historical Flood Outlines - The EA has collated extensive records (including outlines) of flooding from rivers, the sea or groundwater which have occurred in England and Wales since c. 1950. This information comes from various sources including maps, aerial photographs and private records. It is not necessarily comprehensive.

Geological Indicators of Flooding

Details	Distance	Reply or Direction
Are there any geological deposits which indicate the site may have been flooded in the past?	<26m	NO

Data from the British Geological Survey (BGS) indicates that the type of deposits in the locality of the Site are not of the type normally associated with floodplains. However, this data should only be considered as complementary to the regulatory body's Flood Map. This BGS data does not indicate the likelihood of flooding, since such deposits may be due to flood events which occurred thousands of years ago. Refer to the other assessments in this report for an overall assessment of flood risk.

British Geological Survey Data

Geological Indicators of Flooding – The BGS Geological Indicators of Flooding (GIF) data set is a digital map based on the BGS Digital Geological Map of Great Britain at the 1:50,000 scale (DiGMapGB-50). It was produced by characterising Superficial (Drift) Deposits on DiGMapGB-50 in terms of their likely vulnerability to flooding, either from coastal or inland water flow and reflects areas which may have flooded in the recent geological past. This normally relates to flooding which happened many thousands of years ago.

Useful Contacts

Name and Address	Telephone/Fax/Email
Landmark Information Group Limited Imperium Imperial Way Reading RG2 0TD www.landmark.co.uk	Telephone Fax 0844 844 9980
Hertfordshire County Council County Development Unit County Hall www.hertsdirect.org	Telephone Fax:
St Albans City & District Council Environmental Health Department Civic Centre www.stalbans.gov.uk	Telephone Fax:
British Geological Survey Enquiry Service British Geological Survey www.bgs.ac.uk	Telephone Fax:
Environment Agency National Customer Contact Centre (NCCC) PO Box 544	Telephone 506 506
Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA) Government Buildings	Telephone Fax:
Peter Brett Associates Caversham Bridge House www.pba.co.uk	Telephone Fax:
Environment Agency National Customer Contact Centre (NCCC) PO Box 544 Templeborough Rotherham S60 1BY www.environment-agency.gov.uk	General enquiries 506 506 Floodline gov.uk
British Geological Survey Enquiry Service British Geological Survey Kingsley Dunham Centre Keyworth Nottingham NG12 5GG www.bgs.ac.uk	General enquiries Fax
(For advice on flood insurance) British Insurance Brokers' Association 8th Floor John Stow House 8 Bevis Marks London EC3A 7JB	Consumer helpline
JBA Risk Management - Head Office South Barn Broughton Hall Skipton North Yorkshire BD23 3AE	General enquiries 799 919 Fax 799 449
Please note that the Environment Agency / SEPA have a charging policy in place for enquiries. When contacting these agencies please mention that this data has been received from the Landmark database, alternatively Argyll Environmental Limited would be pleased to assist with consultation to the above bodies. Please contact us for a quotation.	

Contamination Land Risk Analysis Methodology

This report has been designed to assist in making informed decisions during property transactions. This section of the Report is a desktop assessment of direct liabilities (Liabilities) which could affect the owner /occupier of the site and arise under Part 2A of the Environmental Protection Act 1990 (Relevant Legislation). If a risk is identified, then a number of options for finding out more about the risk, managing it or transferring it are proposed.

The assessment of environmental liability under the Relevant Legislation is based upon the principle of determining the presence of a plausible contaminant-pathway-receptor relationship (a contaminant linkage). A 'contaminant' is a source of contamination, a 'pathway' is a medium through which the contamination can mobilise and 'a receptor' is a person or entity that could be detrimentally affected by the contamination. If all three are identified, then a 'plausible contaminant-pathway-receptor relationship' may be present. By definition, this is one which Argyll believes could result in significant harm, a significant possibility of significant harm or significant pollution or the possibility of significant pollution to Controlled Waters.

In our assessment we use the following test to decide if there is a potential liability affecting the site. For the purpose of this assessment a site where a potential Liability has been identified is defined as follows:

A site which, from the information assessed by Landmark, is considered to have the potential of being affected by contaminative substances present in or under the site (but excluding potential sources of contamination on or above the land) such that, on the basis of its current or proposed use, there is a reasonable likelihood of a UK regulatory authority, acting in accordance with Relevant Legislation, requiring that remedial measures are taken in order to remedy or mitigate the contaminative substances that are present in or under the land that forms all or part of the site.

The term Liabilities is defined within the scope of this assessment to mean, remedial works under Part 2A of the Environmental Protection Act 1990 which may result in direct liability for the site owner/occupier.

The assessment within this section of the Report has been produced and quality checked by a team of qualified environmental professionals. The assessment is based upon a manual review of the data contained within the Data Section of this Report and of 1:2500 and 1:1250 (where available) scale historical mapping.

Liability Assessment

In this section Landmark will report on any potential soil and groundwater liabilities which it considers are associated with the site. Our assessment of Liability is based upon the proposed and current use of the site (as supplied by the client) in line with current Government guidance. There will be one of the following three responses:

Assessment	Liability Statement & explanation	Defra Category*
PASSED	Within the scope of this assessment no Liabilities have been identified. No further action is required. This statement indicates that within the scope of this assessment, no issues have been identified that are likely to result in significant cost liabilities under Relevant Legislation.	3 or 4
PASSED	Within the scope of this assessment no Liabilities have been identified. However, your attention is drawn to the prudent enquiries suggested below. This statement indicates that within the scope of this assessment, no issues have been identified that are likely to result in significant cost liabilities under Relevant Legislation. However, a client may wish to obtain further information about other issues disclosed in the Report, which could be material.	3 or 4
FURTHER ACTION	Potential Liabilities have been identified under Part 2A of the Environmental Protection Act 1990 (or where appropriate, equivalent requirements under the planning regime) and/or the Water Resources Act 1991⁴. To quantify these you may decide to undertake a more detailed assessment through the recommendation(s) set out below. This statement indicates that within the scope of this assessment, an issue or a number of issues have been identified that are likely to result in significant cost liabilities under Relevant Legislation. In this event, recommendations are made, in order that additional information is collected so that the liabilities may be more accurately assessed.	Potentially 1 or 2

* According to Defra's updated Statutory Guidance on Contaminated Land, Regulators have a four-stage test to decide when land is and is not contaminated. Category 1 and Category 2 sites would encompass land which is capable of being

⁴Water Environment (Controlled Activities)(Scotland) Regulations 2005 where appropriate.

determined as contaminated land, whereas Category 3 and Category 4 sites would encompass land which is not capable of being determined as contaminated land.

Limitations of the Report

This report been designed to satisfy standard environmental due-diligence enquiries, as recommended by the Law Society's contaminated land warning card. It is a 'remote' investigation and reviews only information provided by the client and from the databases of publicly available information that have been chosen to enable a desk based environmental assessment of the site. The Report does not include a site investigation, nor does Argyll make specific information requests of the regulatory authorities for any relevant information they may hold. Therefore, Argyll cannot guarantee that all land uses or factors of concern will have been identified by the Report.

The information in the Data Section of the Report is derived from a number of statutory and non-statutory sources. While every effort is made to ensure accuracy, Landmark cannot guarantee the accuracy or completeness of such information or data. Landmark will not accept responsibility for inaccurate data provided by external data providers.

Further information regarding our risk assessment methodology is provided in the Sitecheck Combined User Guide which is available free of charge from the website www.sitecheck.co.uk. For further information regarding the datasets reviewed within our assessment, please contact one of the Landmark Customer Helpdesk team on




Flood Risk Screening Methodology

This section of the report is a desktop flood risk screening report, designed to enable property professionals to assess the risk of flooding at commercial sites. It examines three areas; how flood risk affects the availability of insurance for a site; how flood risk affects the potential to redevelop a site; and the overall risk of flooding at a site (taking into account any flood defences present). The report considers current Government guidance including the National Planning Policy Framework (NPPF) and the agreement between insurance companies and central Government. The report has been produced and quality-checked by qualified flood risk specialists using the data contained in this report.

Executive Summary and Consultants Comment

This section summarises in a statement whether any significant flood risks have been identified and whether insurance is likely to be available at Standard Terms.

There will be one of the following three responses:

Assessment	Risk Statement
PASSED 	The site is not considered to be at a significant risk of flooding. Insurance is likely to be available at standard terms.
PASSED 	The site is located within an area which is at risk of flooding. In most cases insurance should be available at standard terms. However, this will be dependent on site specific factors and we recommend contacting your insurance broker before proceeding with any transaction.
FURTHER ACTION 	The site is located within an area which is at risk of flooding and as a result insurance may not be available at standard terms. However, this will be dependent on site specific factors and we recommend contacting your insurance broker before proceeding with any transaction.

Insurance Availability

The report provides an indication of whether the site is likely to be insurable for flood risk at standard terms. The answer to Question 1 (on page 3) is based on consideration of Risk of Flooding from Rivers and Sea data supplied by the The Environment Agency and surface water flooding data supplied by JBA Consulting. This data is used by a significant proportion of the insurance industry to help determine the suitability of a site for insurance, although they may access additional information which could affect their assessment.

Under the Association of British Insurers' Revised Statement of Principles on the Provision of Flooding Insurance (July 2008), the general policy of member companies is that flood insurance for domestic properties and small businesses should continue to be available for as many customers as possible until 1st July 2013, by which time a longer term solution should be implemented. The premiums charged and other terms will reflect the risk of flooding but insurance will be available:

1. for properties where the flood risk is not significant (generally defined as no worse than 1.33% or 1-in-75 years annual probability of flooding); and
2. to existing domestic property and small business customers at significant risk, providing the Environment Agency has announced plans to reduce that risk within five years, such as improving flood defences. (The commitment to offer cover will extend to the new owner of any applicable property subject to satisfactory information about the new owner).

However, for significant risk areas where no improvements in flood defences are planned, and in all cases other than domestic properties and small businesses, insurers cannot guarantee to provide cover, but will examine the risks on a case-by-case basis. The implementation of the revised Statement of Principles depends on action from the Government and is continually reviewed by insurers. In addition, the revised Statement of Principles does not apply to properties built after 1st January 2009. Different guidance applies to these (see Climate Change – Guidance on Insurance Issues for New Developments from www.abi.org.uk).

The responses to the question 'Is the site likely to be insurable at standard terms?' assume the site is an existing domestic property or small business and makes no allowance for previous claims arising from any type of flooding, nor for non-flood related risks such as subsidence.

Response	Meaning
Yes	The site is likely to be considered acceptable by insurance companies at standard terms and flood insurance should not be difficult to obtain. No further action required.
No	The site is not likely to be considered acceptable by insurance companies at standard terms, on the basis of current information. Further work may be required in order to obtain acceptable insurance terms for the flood risk. This could include a more detailed risk assessment or the use of accredited products, flood resilient materials and temporary defences to defend the property.

Development Risk

The report comments on whether a full or partial Flood Risk Assessment (FRA) would be required in accordance with National Planning Policy Framework (NPPF). The answer to Question 2 (on page 3 or 4) is indicative only and is based on the size of the site (as supplied by the client) and the information in the data section of this report.

NPPF sets out Government policy on development and flood risk. Its aims are to ensure that flood risk is taken into account at all stages in the planning process to avoid inappropriate development in areas at risk of flooding, and to direct development away from areas of highest risk. Where new development is exceptionally necessary, NPPF aims to make it safe, without increasing flood risk elsewhere, and, where possible, reducing flood risk overall.

A separate Drainage Impact Assessment may be required in addition to an FRA to demonstrate that development of the site will not adversely affect flood risk elsewhere.

Response	Meaning
Yes (Full)	If the site was redeveloped, a full Flood Risk Assessment is likely to be required which should include a Drainage Impact Assessment.
Yes (Drainage)	If the site was redeveloped, a full Flood Risk Assessment may not be required however, given the size of the site, a Drainage Impact Assessment may be necessary.
No	If the site was to be redeveloped, no further flood assessment is likely to be required.

Flood Risk Rating

The report provides an overall flood risk rating based on an assessment of the data provided within this report. It does so by asking two questions:

3. What is the overall risk of flooding, assuming flood defence fail or are absent or overtopped?

The answer to Question 3 (page 3 or 4) provides a worst case scenario assuming there are either no defences in the area, that any defences in the area could fail, primarily as a result of river or coastal flooding, or are overtopped by excessive flood volumes.

4. Are there existing flood defences which might benefit the site?

The answer to Question 4 (page 3 or 4) is based on the presence of any flood defences in the dataset provided by the Environment Agency within 500m of the site. It should be noted that a residual risk of flooding may be present if such defences failed. Flood defences do not generally protect the site against groundwater and surface water flooding.

If defences are present within 250m, a further question is asked:

5. What is the risk of flooding when these defences are operational?

This assesses the risk from flooding, assuming these defences work as intended and neither fail nor are overtopped.

Questions 3 and 5 are answered by one of six standard responses:

Response	Meaning
Negligible	The overall flood risk rating for the site is assessed to be 'Negligible'. Existing datasets do not indicate any risk at the site itself, or any feature within the locality of the site, which would be expected to pose a threat of flooding. It is not considered that any further investigations are necessary in regard to flood risk.
Low	The overall flood risk rating for the site is assessed to be 'Low'. Although large sites (over 1 ha) would require a Drainage Impact Assessment to accompany any planning application, it is not considered necessary to undertake any other further investigations into the flood risk to the site.
Low to Moderate	The overall flood risk rating for the site is assessed to be 'Low to Moderate'. The presence of such features as flood defences, flood storage areas and watercourses within the locality of the site suggests that there may be a risk of flooding to the site itself. Further investigations could be undertaken to further assess this risk.
Moderate	The overall flood risk rating for the site is assessed to be 'Moderate'. Information from existing datasets suggests that there are certain features which may present a risk to the site and its occupants. Further assessment would normally be suggested as a prudent measure to clarify the risk of flooding at the site.
Moderate to High	The overall flood risk rating for site is assessed to be 'Moderate to High'. Information from existing datasets suggests that there are certain features which may present a significant risk to the site and its occupants. Further assessment is usually recommended in order to clarify the risk of flooding at the site.
High	The overall flood risk rating for site is assessed to be 'High', with a consequent risk to life and property. This means that existing datasets reveal significant flood risk issues which need to be addressed. Further assessment is usually recommended in order to clarify the risk of flooding at the site.

Flood Analysis

The flood risk gauges provide a more detailed analysis of the risk from each of the four main types of flooding – river, coastal, groundwater and surface water. In addition, a fifth gauge provides an analysis of other factors (i.e. historic flood events, geological deposits which are indicative of past flooding, proximity to surface water features and elevation above sea level) that may affect the overall flood risk. For surface water flooding, only the risk rating generated from the 1:200 year rainfall event data is included in the overall risk assessment. The data on 1:75 year and 1:1,000 year rainfall events is provided for information only. For further information on each of these types of flooding, please refer to the Sitecheck Combined User Guide.

This analysis takes into account any existing flood defences that are intended to protect the site and assumes that these work as designed. The analysis also takes into account the other information contained in those data sections of the report which are relevant to that particular type of flooding. The assessment of the risk as shown in the flood gauge should therefore take priority over the information in the individual data sections of the report.

Limitations of the Report

The FloodSolutions Brief report has been designed to satisfy basic flood-related environmental due-diligence enquiries for commercial properties. It is a desktop review of information provided by the client and from selected private and public databases. It does not include a site investigation, nor are specific information requests made of the regulatory authorities for any relevant information (other than local water and sewerage providers). Therefore, Argyll cannot guarantee that all issues of concern will be identified by this report, or that the data and information supplied to it by third parties is accurate and complete.

This report includes an assessment of surface water flooding which examines the risk of the general drainage network overflowing during periods of extreme rainfall. This report does not make a detailed site-specific assessment of the suitability of the existing drainage on the site. If this is required, then a site survey should be considered. The assessment of pluvial flooding does not take into account particular local or temporary factors that may cause surface water flooding such as the blockage or failure of structures on or within watercourses, drains, foul sewers, water mains, canals and other water infrastructure; and any history of drains flooding at the site or in the locality. Surface water flooding can occur before surface water reaches the general drainage network, for example on hills and inclines.

The Risk of Flooding from Rivers and Sea dataset provided by the The Environment Agency does take account of failure of flood defences but does not take into account particular local or temporary factors such as blockage. The Environment Agency data does not include flood risk from very small catchments as models of such small scale catchments are not considered to be reliable for UK-wide flood risk assessments. The potential impact of climate change on flood risk to the site would require further study.

When answering any questions within this report, current applicable legislation is taken into account.

The data used in this report may have inherent limitations and qualifications. Further details are set out in the Sitecheck Combined User Guide which is available free of charge from our website www.sitecheck.co.uk , or by calling the Landmark Customer Helpdesk on

Flood Glossary

Business Continuity Plan

A business continuity plan is a strategic plan of action for a business to implement in an emergency (i.e. flood event). This plan ensures a business can continue to operate during emergency situations and reduces the risk of suffering avoidable losses. For example, it may cover such items as emergency accommodation and computer back up off site.

Flood Evacuation Plan

A flood evacuation plan sets out clear steps to ensure the safe evacuation of staff during a flood. It will form part of the Business Continuity Plan.

Coastal Flooding

Coastal flooding is the inundation of land areas along the coast caused by sea water rising above normal tidal conditions. Coastal flooding can arise from a combination of high tides, wind induced tidal surge, storm surge created by low pressure and wave action.

Flood Resistance Measures

These measures are designed to prevent flood water from entering the buildings on site.

Flood Resilience Measures

These measures are intended to make buildings more resilient to flood damage so that they recover more quickly from flooding. They are not designed to prevent flood water entering the property.

Flood Risk Assessment

A full Flood Risk Assessment (FRA) Report is a bespoke report required under NPPF for any development site within Environment Agency Flood Zones 2 or 3 and/or any development site larger than 1 hectare. These reports are generally prepared following liaison with the Local Planning Authority and the application of the sequential test.

Flood Zone 1

The area where flooding from rivers or sea is very unlikely as defined by the Environment Agency. There is less than 0.1% (1 in 1,000) chance of flooding occurring each year.

Flood Zone 2

The area of medium probability of flooding as defined by the Environment Agency – a flood with an annual chance of occurring of between 1% (1 in 100) to 0.1% (1 in 1,000) for river flooding and 0.5% (1 in 200) to 1% (1 in 1,000) for coastal flooding.

Flood Zone 3a

The area of high probability of flooding as defined by the Environment Agency – a flood with an annual chance of occurring of 1% (1 in 100) or greater for river flooding and 0.5% (1 in 200) or greater for coastal flooding.

Flood Zone 3b

The boundary between 3a and 3b is a planning decision made by the Local Authority. This information is usually in the strategic flood risk assessment. This area is a functional floodplain as defined by the Environment Agency. It is an area which is designed to flood – a flood return period of 1 in 20 or less.

Groundwater Flooding

Groundwater flooding occurs when ground water levels increase sufficiently for the water table to intersect the ground surface. Groundwater flooding can occur in a variety of geological settings including valleys and in areas underlain by chalk, and in river valleys with thick deposits of alluvium and river gravels.

NPPF

This relates to the National Planning Policy Framework and the associated Technical Guidance.

Pluvial (Surface Water) Flooding

Pluvial flooding results from rainfall running over ground before entering a watercourse or sewer. It is usually associated with high intensity rainfall events (typically greater than 30mm per hour) but can also occur with lower intensity rainfall or melting snow where the ground is already saturated, frozen, developed (for example in an urban setting) or otherwise has low permeability.

Return Period

Return periods are a measure of how likely flooding is to occur. They are commonly expressed as a ratio (for example 1 in 75 or 1:75). This means that this level of flooding is expected once in every 75 years.

River Flooding

River flooding mainly happens when the river catchment (that is the area of land that feeds water into the river and the streams that flow into the main river) receives greater than usual amounts of water (for example through rainfall or melting of snow). The amount of runoff depends on the soil type, catchment steepness, drainage characteristics, agriculture and urbanisation as well as the saturation of the catchment. The extra water causes the level of the water in the river to rise above its banks or retaining structures.

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Full Terms and Conditions can be found on the following link:

<http://www.landmarkinfo.co.uk/Terms/Show/515>



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TPOs Contact Details:

The Property Ombudsman scheme
Milford House
43-55 Milford Street
Salisbury
Wiltshire SP1 2BP
Tel:
Fax:
Email:

You can get more information about the PCCB from www.propertycodes.org.uk.

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If you want to make a complaint, we will:

- Acknowledge it within 5 working days of receipt.
- Normally deal with it fully and provide a final response, in writing, within 20 working days of receipt.
- Keep you informed by letter, telephone or e-mail, as you prefer, if we need more time.
- Provide a final response, in writing, at the latest within 40 working days of receipt.
- Liaise, at your request, with anyone acting formally on your behalf.

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Landmark UK Property
Imperium
Imperial Way
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RG2 0TYD

Telephone:

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If you are not satisfied with our final response, or if we exceed the response timescales, you may refer the complaint to The Property Ombudsman scheme (TPOs): Tel: E-mail:

We will co-operate fully with the Ombudsman during an investigation and comply with his final decision.

A report for
HILL RESIDENTIAL LIMITED

In respect of
**Land off Townsend Lane,
Harpenden**

**Site Specific Flood Risk Assessment & Foul & Surface Water
Management Strategy**

October 2016



DOCUMENT SIGNATURE AND REVIEW SHEET

Project Details

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Project No.:	1605-86	Report No.:	1605-86/FRA/01
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C Environment Agency Flood Mapping Data
D Drainage Estimates and Storage Requirement Calculations

EXECUTIVE SUMMARY

Transport Planning Associates has been appointed to provide a combined Site Specific Flood Risk Assessment and Surface Water Management Strategy for Hill Residential Limited, in relation to their residential development on land south of Townsend Lane, Harpenden.

Through consulting the Environment Agency Flood Map data the site is identified as being within Flood Zone 1, which is defined as having a less than a 0.1% annual probability of flooding from Rivers and Sea levels.

The site is predominately underlain with Lewes Nodular Chalk Formation and Seaford Chalk Formation (undifferentiated) with superficial deposits of Clay-with-Flints formation.

The surface water drainage strategy assumes a combination of storage and infiltration. The surface water drainage strategy provides a robust network of attenuating forms of SuDS.

Surface water from the proposed development can be managed through a combination of soakaways, rainwater harvesting, permeable paving with attenuation and infiltration properties, swales and an attenuation basin.

The strategy has been developed with reference to relevant national and local guidance documents, including making adequate allowances for climate change.

The foul discharge from the proposed development has been calculated as 2.78 L/s.

Foul Water from the site will be discharged into an existing public foul sewer under agreement with the adopting water authority, Thames Water. A pre-development enquiry search has revealed that there is sufficient capacity within the existing public foul sewers to be able to accommodate the proposed development flows.

1 INTRODUCTION

- 1.1 Transport Planning Associates has been appointed to provide a combined Site Specific Flood Risk Assessment ('FRA') and Surface Water Management Strategy ('SWMS') for Hill Residential Limited in relation to their residential development on land south of Townsend Lane, Harpenden.
- 1.2 The purpose of this FRA and SWMS is to identify the historical, current and future flood risks of the development as well as to identify the developer's strategy to reduce the impact of the development upon the neighbouring surface watercourses.
- 1.3 The proposal is to allocate the current Greenfield site as part of the local plan process currently being undertaken by St Albans City and District Council. The site seeks to be allocated to accommodate up to 60 residential units.
- 1.4 This Flood Risk Assessment has been carried out in accordance with the National Planning Policy Framework ('NPPF'), March 2012 as well as local guidance on flood risk.
- 1.5 Ultimately the approving authority for surface water management, which in this case is Hertfordshire County Council ('HCC') as the Lead Local Flood Authority, will need to be satisfied the proposed development will not increase the existing surface water run-off discharge rate or volume. The Surface Water Management Plan has been carried out in accordance with The Construction Industry Research and Information Association (Ciria) document C753, 'the updated SuDS Manual'.

Method Statement

Flood Risk Assessment

- 1.6 The FRA is a desktop study to ascertain the potential flood risks to the development site by gathering information from the British Geological Survey 'Bedrock' and 'Hydrogeology' maps, the Environment Agency 'Flood Maps' and historical and current regional information from the Preliminary Flood Risk Assessment produced by HCC, dated June 2011. Information found within these resources has then been used to ascertain the development site's risk of flooding through following the guidance provided within the NPPF, Tables 1-3. The annexes provide categorisation methods to ascertain the risk of flooding to the development site, its potential to increase flooding to the immediate and broader areas, the proposed land use's appropriateness to the flood zone and the mitigating requirements of the flood risk assessment to prove its appropriateness as a development.

Foul and Surface Water Management Strategy

- 1.7 The management of foul water will be undertaken in accordance with the 7th Edition of Sewers for Adoption (A Design and Construction Guide for Developers) to ensure that an appropriate system is developed for dealing with foul water generated by the proposed development.
- 1.8 Engagement with the body responsible for dealing with foul water, in this instance Thames Water, has been evidenced where necessary.
- 1.9 The Environment Agency and HCC will be consulted at the planning stage of the development and as such will require proof that the proposed development will not increase the existing surface water run-off discharge rate or volume. Where discharging to a watercourse, the Interim Code of Practice for Sustainable Drainage Systems ('ICPSuDS') (for developments less than 50ha) method of calculating Qbar was used to calculate the Greenfield run-off rate. The Greenfield runoff rate will also need to be agreed with the authority who maintains the watercourses proposed to outfall from the development. FEH rainfall data must be used within the calculations to estimate the proposed attenuation provisions.
- 1.10 The SWMS acknowledges any sources of flooding discovered in the FRA, provides guidance to the developer on how to manage surface water run-off and provides evidence that proves that the developed site's surface water run-off will be managed on-site; using appropriate SuDS to at least mimic existing Greenfield run-off flows.
- 1.11 Asset location plans, provided by Thames Water, aid in identifying whether there are public Foul and Surface Water sewers in the immediate vicinity to the site. An assessment of the proposed peak Foul Water flows will be estimated using industry standard calculations.

2 EXISTING SITE CONDITIONS

Existing Site

- 2.1 The prospective site is located to the southwest of Harpenden and fronts the southern side of Townsend Lane, the approximate grid reference for the site is X_512231, Y_214462. The indicative location of the site is presented in **Appendix A**.
- 2.2 The site is bounded by Townsend Lane to the north, existing residential development to the east, agricultural fields to the south and by Townsend Lane and commercial units to the west. It is a Greenfield site with boundaries formed by mature hedgerows and occasional mature trees on all its sides.

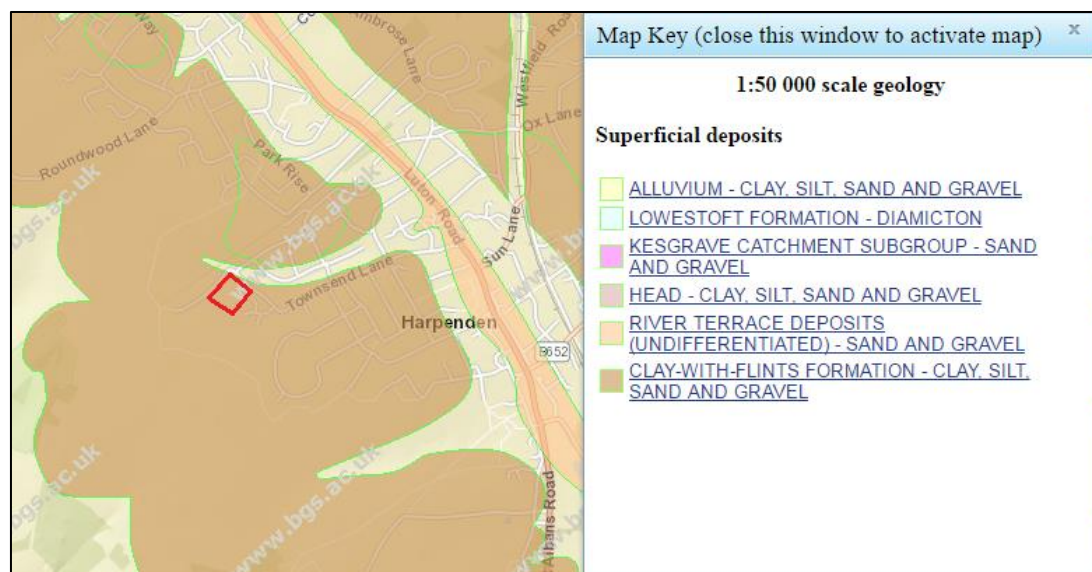
Site Description

- 2.3 The overall site area is approximately 1.65 hectares of Farmland with no visual evidence of any areas of hard standing within the site.
- 2.4 There are no main rivers immediately adjacent to the site, the nearest main watercourse is the River Ver, located approximately 1.35 kilometres to the southwest of the site.

Ground Conditions

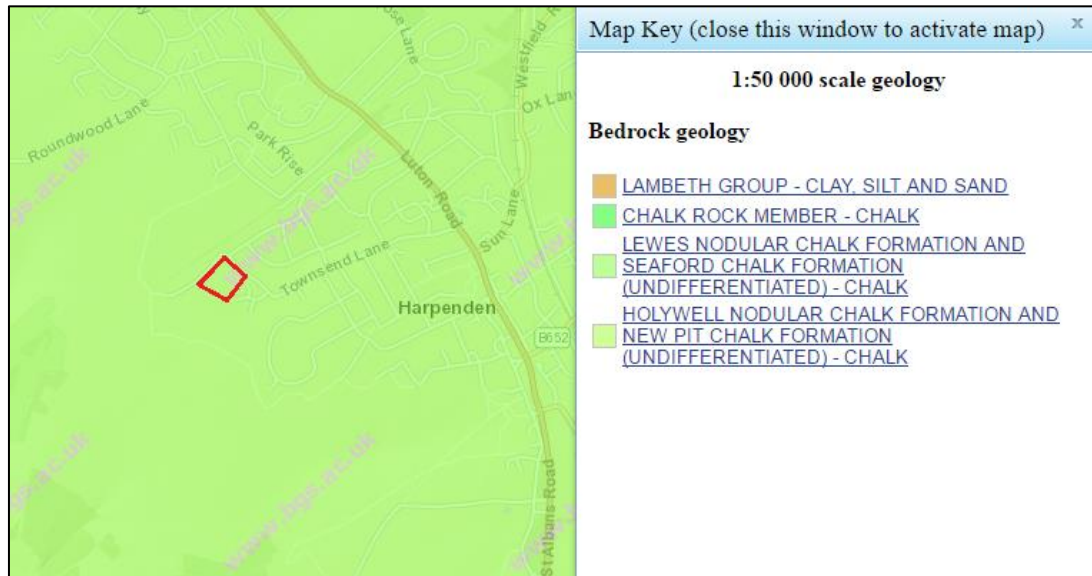
- 2.5 The British Geological Survey and Environment Agency Maps have been studied to identify the site's geological and hydrogeological properties. The following figures show the information shown within them.

Figure 2.1 British Geological Survey Data – Superficial Deposits Map



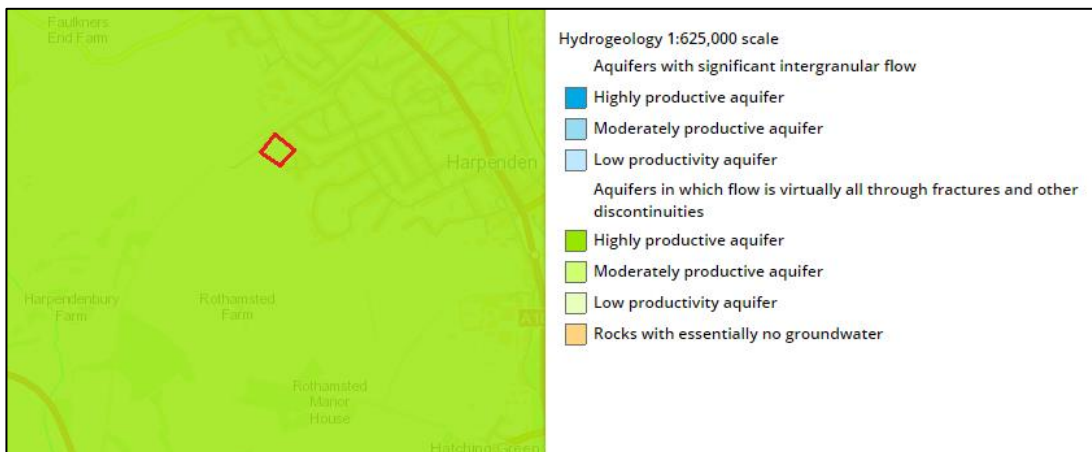
2.6 As can be seen from Figure 2.1, the site is underlain by Clay-with-Flints formation, a combination of clay, silt, and gravel. Superficial Deposits of this type typically formed up to 5 million years ago in the Quaternary and Neogene Periods.

Figure 2.2 British Geological Survey Data – Bedrock Map



2.7 As can be seen from Figure 2.2, the site is underlain by Lewes Nodular Chalk Formation and Seaford Chalk Formation (undifferentiated). A sedimentary bedrock formed approximately 84 to 94 million years ago in the Cretaceous Period.

Figure 2.3 British Geological Survey Data – Hydrogeology Map



2.8 Figure 2.3 shows that the British Geological Survey Data 'UK Hydrogeology Map' shows that the site is currently underlain by a highly productive aquifer.

2.9 A Site Investigation Report was undertaken on behalf of Hill Residential Limited by Geo-Environmental Investigations Ltd in October 2015.