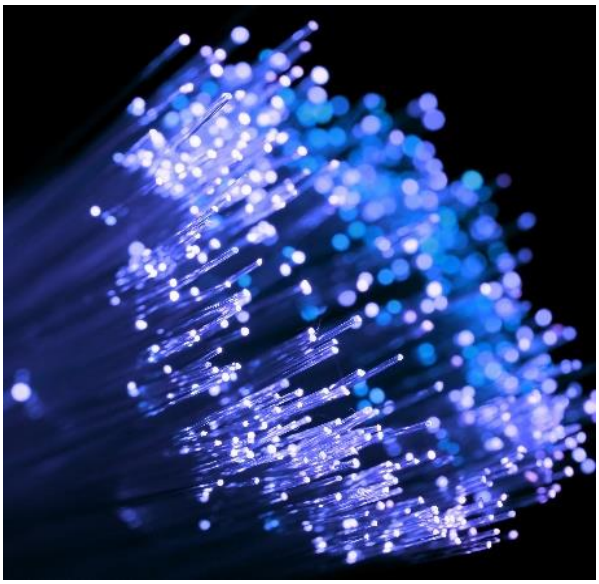


Sycamore House, Holt

# UCML Utility Study

## Level 2

**Document Ref: UCMLPR6503**

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**UCML Utility Study – Level 2**

Sycamore House,

Wrexham Road,

Holt

**Produced for:** Pridding Farming Partnership

| Study Type | Inclusions/Exclusions | | |
|---|---|---|---|
| | Electricity Point of Connection (POC) | Gas Capacity Check (GCC) | Water Pre-development Enquiry (PDE) |
| Level 2 | Yes | Yes | Yes |

| Issue/Revision | Comments | Date | Prepared By | Checked By |
|---|---|---|---|---|
| 1 | First Issue | 26/03/21 | Casey Watmore | Joanne Blackburn |
| 2 | | | | |
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## 1.0 Introduction

UCML has been instructed by Pridding Farming Partnership (hereafter referred to as 'Developer') to provide a desktop utility study to identify the outline constraints derived from the statutory utility infrastructure on a proposed residential development of up to 38 no. dwellings. The site is located to the rear of Sycamore House, Holt, and this study includes the land within the red line boundary as indicated within Figure 1.1 below.




**Figure 1.1 – Aerial view of existing site**

UCML has been commissioned to provide a desktop utility study defining potential cost and timescale risks that could impact on the overall delivery of the project. The principal aim of

this utility study is to identify the key constraints derived from statutory utility infrastructure on the proposed development. The information provided within this desktop study is based on review of the Site Layout drawing no. 100 83 Option 1 provided to UCML by Pridding Farming Partnership indicated in Figure 1.2 below.



**Figure 1.2 – Site Layout Plan**

The information provided within this desktop study is based on the development consisting of up to 38 no. residential dwellings. All utility load requirements have been estimated by UCML based on all dwellings being gas heated. UCML has also included an allowance for 1 no. 7.4 kW rated Electric Vehicle (EV) charging point per dwelling. Table 1.1 below summarises the estimated loads used for the study. Please note, these estimated loads are intended for use as a guide only for the production of this study, and it is recommended that a Mechanical and Electrical Consultant is employed to calculate the actual load required based on the final layout design and proposed heating method. Please note, the load estimations for the residential development does not include a figure for individual clean water load requirements. As residential clean water connections are standardised, no individual load assessment for residential dwellings is required.

| Utility | Total load |
|---|---|
| Electricity | 171 kVA |
| Gas (Annual Load) | 549,945 kWh |

**Table 1.1 – Load summary**

This desktop study has been produced using the statutory records received from each relevant body. The host statutory network operators which operate in the vicinity of the development site and covered within this study are listed in Table 1.2 below. UCML is not responsible for the accuracy or quality of the information provided on statutory utility infrastructure records, and has attempted to use reasonable skill and care in investigating the existing site services. Unless stated otherwise, UCML has not made any provision for out-of-area water mains, private networks, unrecorded networks, Liquid Petroleum Gas (LPG) networks, street lighting, CCTV, traffic signals/illuminated signage, data centre networks, electricity generation installations, interconnectors, or drainage/sewerage networks.

| Utility | Statutory Operator |
|---|---|
| Electricity | SP Energy Networks |
| Gas | Wales & West Utilities |
| Water | United Utilities |
| Telecoms | Openreach |

**Table 1.2 – Host Statutory Network Operators**

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

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

All works undertaken are to be in accordance and compliance with the Construction Design and Management 2015 Regulations, published Health & Safety Guidelines, and the agreed

working practices of the relevant utility companies. The following assumptions must be made in regards to any existing utility apparatus;

- All mains, services cables, and pipes should be assumed live until proven dead prior to any excavation, demolition or groundworks commencing.
- Any existing building is assumed to have live services until proven otherwise.
- Any site is assumed to have existing utility apparatus located within the boundary until proven otherwise.
- Service connections are not indicated on all utility infrastructure records. Where no service connections are indicated, their presence should be anticipated until proven otherwise.

## 2.0 Scope and Objectives

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

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

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

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

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

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

## 3.0 Assumptions and Exclusions

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

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

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

## 4.0 Terms and Definitions

**ADMD** After Diversity Maximum Demand. The development demand taking into account diversity of usage.

**CSEP** Controlled System Exit Point. Gas mains connection point.

**DNO** Distribution Network Operator. This is the licensed electricity distributor for the geographic region.

**EV** Electric Vehicle. Charging points for electric vehicles can significantly increase electricity demand of a development.

**FTTP** Fibre to the Premise telecommunications connection.

**GT** Gas Transporter. The GT is the licensed gas network operator for a specific geographical area.

**ICP** Independent Connection Providers. Undertake new electrical connections, however they do take ownership of the asset.

**IDNO** Independent Distribution Network Operator. Network owners and operators that are not constrained to a geographic area.

**IGT** Independent Gas Transporter. A GT that is not governed by its geographic location.

**POC** Point of Connection. This is a formal document submitted by the DNO identifying the location for a new electrical connection.

## 5.0 Executive Summary

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

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

- Wales & West Utilities has confirmed that network reinforcement works will be required to provide a gas point of connection to supply the development site. See the gas section of the study for further detail.

- Openreach has apparatus routed along the site side grass verge of Wrexham Road, which may be affected by the development proposals. UCML recommend that a site survey is undertaken to confirm if this apparatus can be retained in situ. See the Openreach section of the study for further detail.

## Cost Summary

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

| **Electricity** | **Budget Cost** |
|---|---|
| Non-Contestable Works – *HV POC* | £8,824.15 |
| Contestable Connection Works - *mains and service connections to 38 no. plots.* | £143,000.00 |
| Diversions | None currently anticipated. |
| Disconnections | None currently anticipated. |
| **Total Electricity Costs** | **£151,824.15** |
| **Gas** | **Budget Cost** |
| Connections - *mains and service connections to 38 no. plots.* | 83,000.00 |
| Diversions | None currently anticipated. |
| Disconnections | None currently anticipated. |
| **Total Gas Costs** | **£83,000.00** |
| **Water** | **Budget Cost** |
| Connections – *mains and service connections to 38 no. plots.* | £62,000.00 |
| Diversions | None currently anticipated. |
| Disconnections | None currently anticipated. |
| **Total Water Costs** | **£62,000.00** |
| **Openreach** | **Budget Cost** |
| Connections – FTTP connections at nil cost to the developer | £Nil cost |
| Diversions | £14,300.00 |
| Disconnections | None currently anticipated. |
| **Total Openreach Costs** | **£14,300.00** |
| **Budgetary sums exclude Value Added Tax, on-site civils and principal contractor preliminaries.** | |

**Table 5.1 – Cost Summary Table**

# 6.0 Electricity

## 6.1 Existing Electricity Network

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

The diagram below illustrates the location of existing SP Energy Networks infrastructure which has been extracted from its network records. The cables shown in in brown are operated at 415 Volts (LV). Please refer to the infrastructure record appended to this study for further detail.

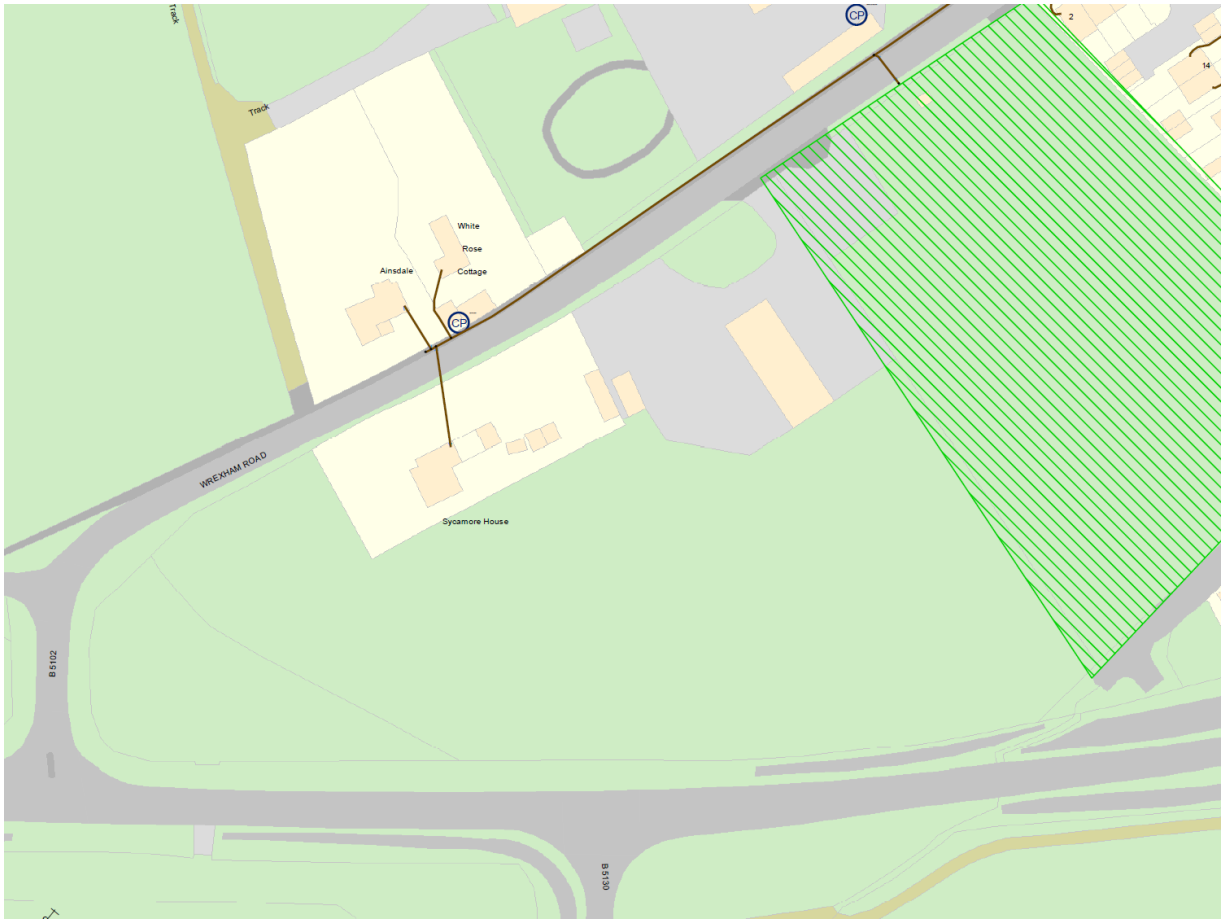
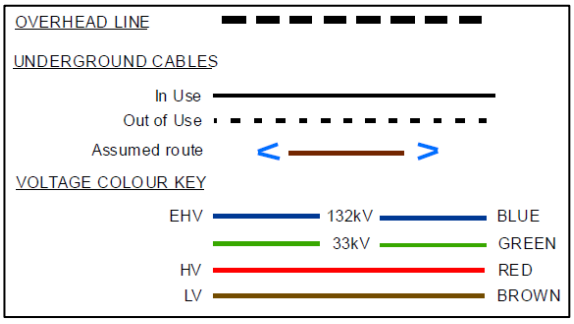



**Figure 6.1 – Existing Electricity Infrastructure Plan**



## 6.2 Connection Works

### 6.2.1 Non-Contestable Works (171 kVA)

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

Based on the development information as outlined within the introduction, UCML has estimated the electrical load requirement for the proposed residential development of 38 no. dwellings to be up to 171 kVA, based on the use of gas heating and an allowance of 1 no. 7.4 kW rated Electric Vehicle (EV) charging point per dwelling. Based on this estimated load, UCML requested a Point of Connection quotation for the non-contestable works from SP Energy Networks.

SP Energy Networks has provided a POC quotation for a load of up to 203 kVA, confirming the development can be connected to the High Voltage 11,000 Volts distribution network. SP Energy Networks has confirmed that a POC for 171kVA will be provided from the same High Voltage cable as the current POC included in this study. The POC will be taken from the High Voltage cable routed within the footpath of Dee Park, as indicated in Figure 6.2 below.

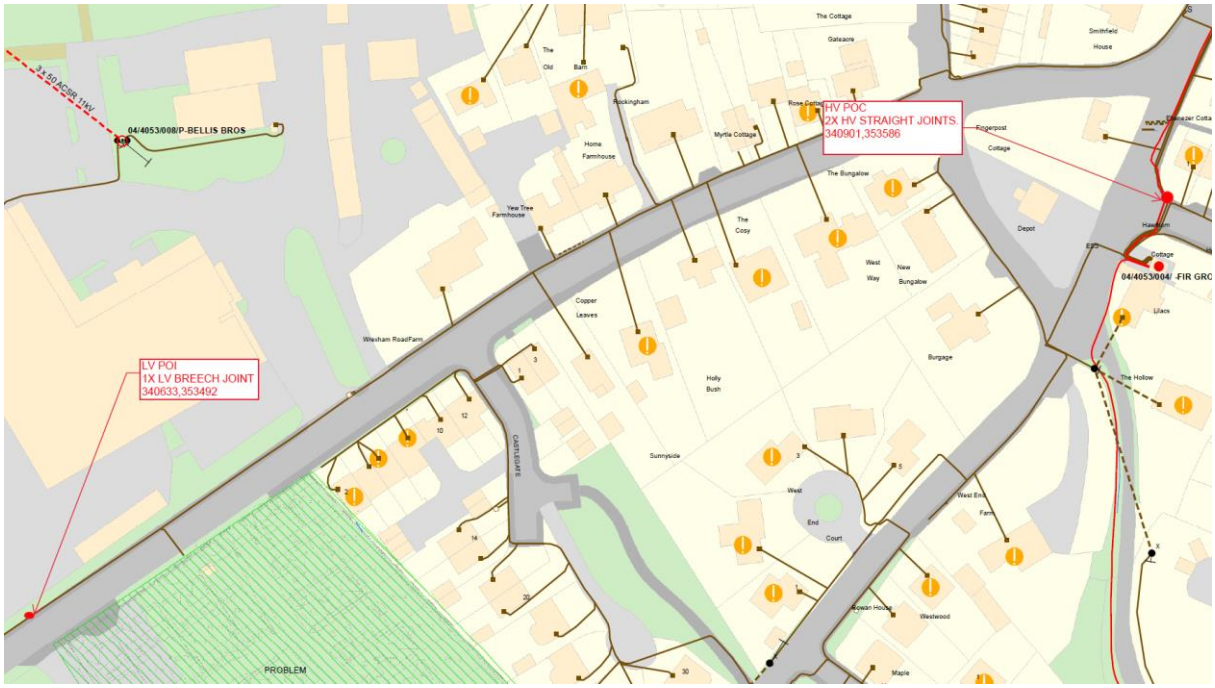



**Figure 6.2 – Plan showing electricity HV Point of Connection**

SP Energy Networks has also confirmed that to maintain interconnection to the existing network, a Low Voltage cable will need to installed by the developer from the required on-site Secondary Substation to the Low Voltage Point of Interconnection (POI) as indicated in Figure 6.2 above.

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

The total cost and breakdown of the SP Energy Networks non-contestable POC is detailed below;

| Description | Cost |
|---|---|
| Assessment Charges | £1,250.00 |
| Design Charges | £1,000.00 |
| Operational Work | £4,264.15 |
| Connection to the Network | £2,557.14 |
| Inspection Costs | 750.00 |
| Legal Costs | £1,560.00 |
| **Total Non-Contestable Charges** | **£8,824.15** |

**Table 6.1 – Point of Connection cost breakdown**

SP Energy Networks has advised that, based on current network availability, reinforcement works associated with the 11,000 Volts network are not currently required to accommodate the proposed development of number of dwellings. Currently there is sufficient electric capacity available within the existing electricity infrastructure to serve the proposed development. However, no capacity can be reserved until payment is made for a valid SP Energy Networks non-contestable POC offer.

### 6.2.2 Contestable Works (171 kVA)

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

- Lay HV cabling from Point of Connection to proposed substation position.
- Excavate, backfill and permanently reinstate public highway/footpath to Local Authority standards.
- Supply, install and commission the following within the substation housing;
  - High Voltage Ring Main Units
  - 1 no. 500kVA 11kV/433v distribution transformer
  - Low Voltage distribution board
- Lay LV mains infrastructure on-site.
- Install LV service connections to each dwelling, and connect to LV mains infrastructure.

Allow a **budget cost of £143,000.00** for the contestable works. This is based on the confirmed Point of Connection being located within approximately 400 metres of the proposed site entrance. The cost provided is based on the developer undertaking all on-site excavation, reinstatement and civils works; including the construction of the substation concrete plinth and housing to the DNO, or appointed Independent Network Operator (IDNO), standard.

As discussed above, the use of a HV POC will trigger the requirement for a secondary substation to be constructed on-site. In order to accommodate the construction of a secondary substation, a parcel of land of approximately 5m x 5m, along with suitable access and egress, will need to be allowed within the development boundary to accommodate the substation compound.

As the above works are contestable, they can be undertaken by the DNO, or an Independent Connection Provider (ICP) can be appointed to complete the works. The use

of an ICP to undertake the contestable connection works provides the opportunity to open the contestable element of the works to competitive tender, which may provide significant cost savings in comparison to the DNO undertaking the works.

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

### 6.3 Diversions & Disconnections

SP Energy Networks infrastructure record indicates Low Voltage underground cable routed within the adjacent side footpath of Wrexham Road. Provided no alterations will be made to the line and level of the adjacent side footpath during construction and following completion of the development proposals, diversion of this apparatus is not currently anticipated.

SP Energy Networks infrastructure record indicates a Low Voltage cable routed across the carriageway which is providing supply to the existing 'Sycamore House' which is being retained. As this apparatus is routed outside of the site boundary, it is assumed to be unaffected by the development proposals.

SP Energy Networks infrastructure record does not indicate any apparatus routed within the site boundary. Therefore, it can be assumed that no disconnections are currently anticipated. However, a site survey may be required to confirm that there is no electricity service to the existing agricultural building within the site boundary.

### 6.4 Conclusion – Cost & Risk Analysis

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

| Detail | Cost |
|---|---|
| Non-Contestable Works | £8,824.15 |
| Contestable Connection Works | £143,000.00 |
| Diversions | None currently anticipated |
| Disconnections | None currently anticipated |
| **Total** | **£151,824.15** |

**Table 6.2 – Electricity costs**

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

- Some figures have been applied based on previous projects of similar size and UCML's experience, others have been provided for budgetary purposes by SP Energy Networks.

- The Point of Connection is valid for only 3 months from submission. The network capacity can only be reserved upon submission of signed acceptance and a suitable design from either an Independent Connection Provider or Independent Distribution Network Operator.

- Legal agreements corresponding with the proposed substation installation may cause time delays. In order to mitigate any potential negative impact on the project programme, it may be prudent to ensure solicitors representing all relevant parties start communication at the earliest opportunity.

# 7.0 Gas

## 7.1 Existing Gas Network

The local Gas Distribution Network in the vicinity of the development site is owned and operated by Wales and West Utilities under its Gas Transportation License issued by Ofgem. The gas network in the immediate vicinity of the site comprises of gas mains and apparatus operating at Low Pressure.

The following diagram is an extract from Wales and West Utilities statutory records and details the currently indicated position of existing infrastructure, however it may be prudent to undertake a below ground survey to ensure there are no services present which are not recorded on statutory records. Please refer to the infrastructure record appended to this study for further detail.

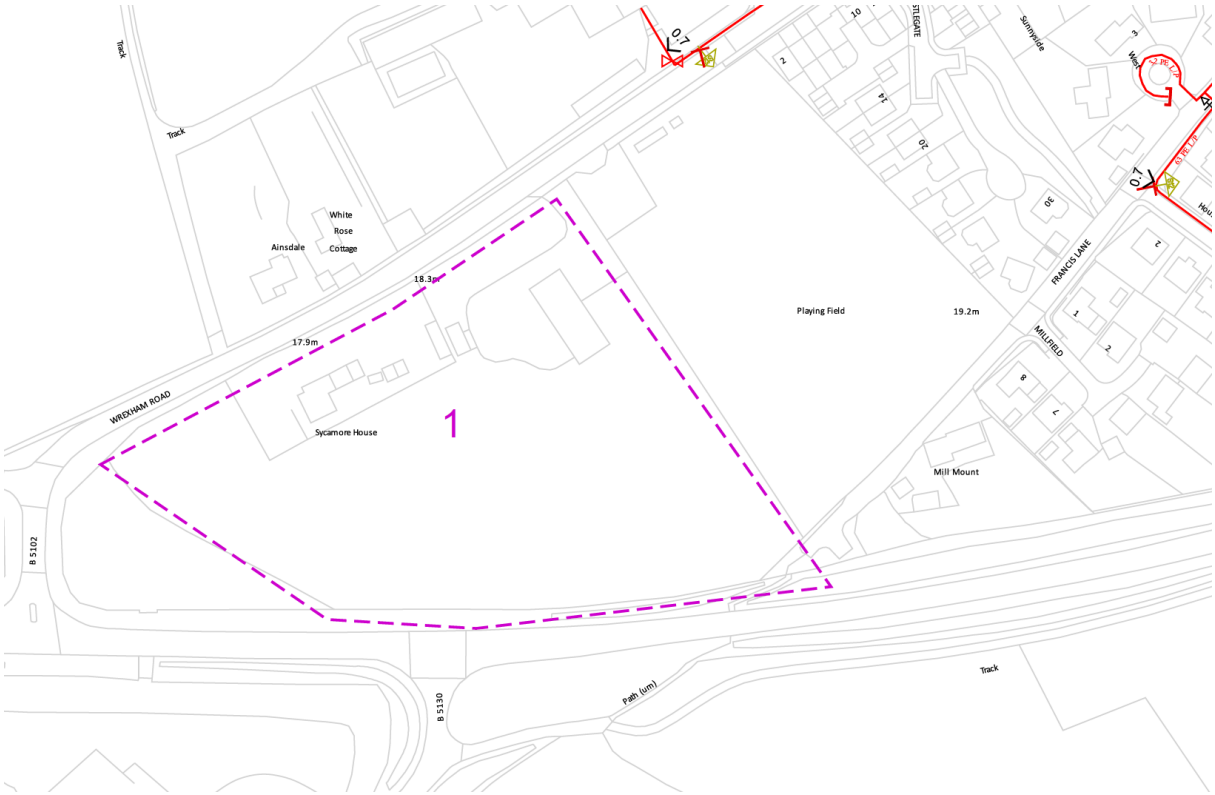
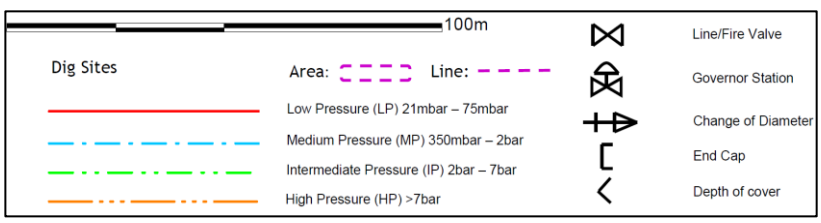



**Figure 7.1 – Existing Gas infrastructure plan**



### 7.2 Proposed Gas Service

Based on the development information as outlined within the introduction, UCML has estimated the gas load requirement for the proposed residential development of 38 no. dwellings to be 540 kW hourly (549,945 kWh annually), based on the use of gas heating.

Wales and West Utilities has undertaken a capacity check on behalf of UCML to confirm the availability of capacity within the existing distribution network. Wales and West Utilities has advised that the development could be connected to the existing Low Pressure (LP) network from the 63mm Polyethylene LP main located approximately 500 metres from the development boundary within the carriageway of Dee Meadows. Please see Figures 7.2 and 7.3 below and overleaf for further detail.

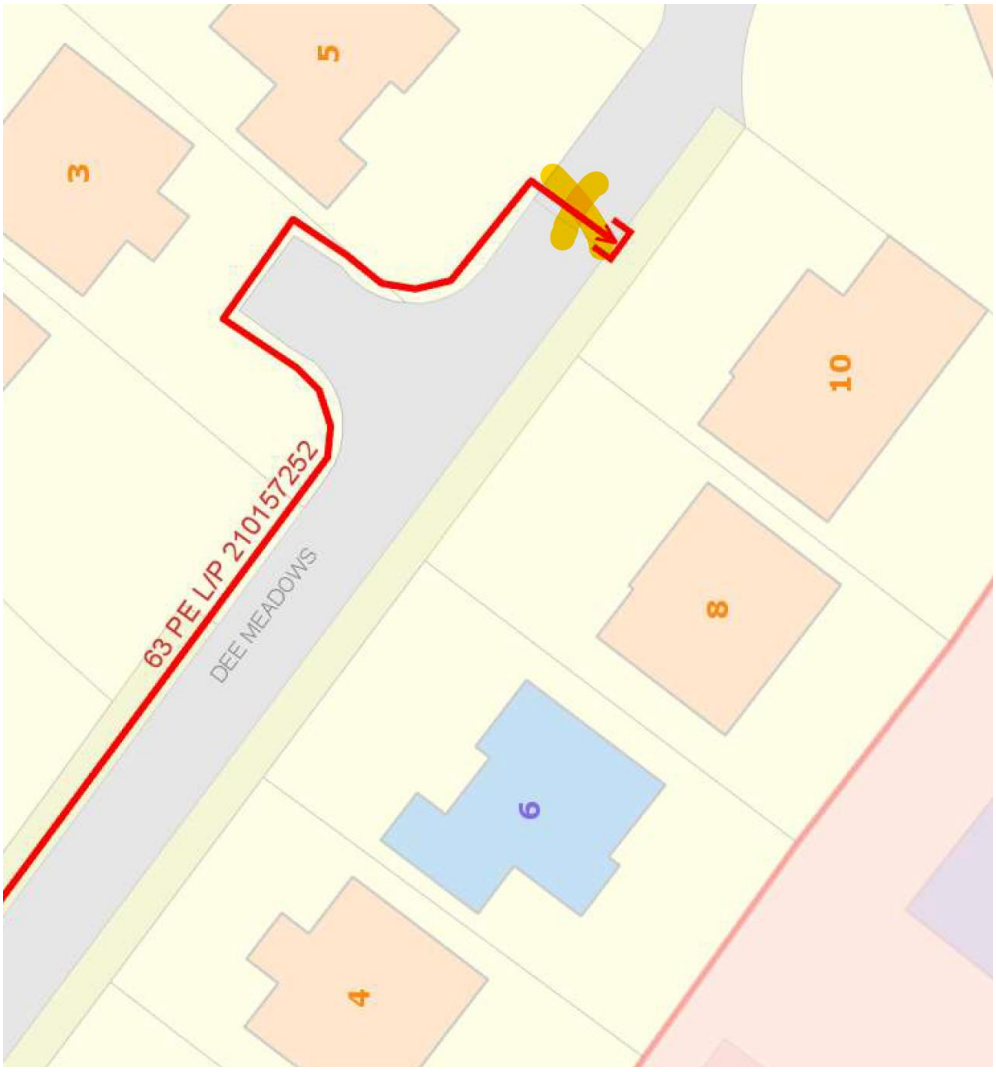



**Figure 7.2 – Gas connection point**




**Figure 7.3 – Aerial image showing POC location in relation to the development site**

Wales and West Utilities has advised that network reinforcement works may be required to provide adequate capacity to support the development, and additional costs associated with the installation of the new Low Pressure gas network to serve the proposed development will be applicable. The cost of any reinforcement works is to be confirmed by Wales and West Utilities once a formal quotation has been requested, when the reinforcement costs will be subject to the economic test to determine the amount of Network Operator and / or customer contribution, if required.

Typically, the successful Utility Connection Provider will be required to undertake all excavation, backfill and permanent reinstatement from the CSEP on the existing network to the development boundary. The developer being responsible for all excavation on-site to the point of supply which will be classed as the meter position for each dwelling, unless otherwise requested. Allow a **budget cost of £83,000.00** for connections, excluding any applicable

reinforcement costs. This cost also includes approximately 500 metres of off-site mains lay to bring capacity to the development site.

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

### 7.3 Diversions & Disconnections

Wales and West Utilities infrastructure records do not indicate any apparatus in the immediate vicinity of the development site. Therefore, no gas diversions are currently anticipated.

Wales and West Utilities infrastructure records do not typically indicate individual service connections however, their presence should be anticipated until proven otherwise. In this instance, it can be assumed that the agricultural buildings within the site boundary will not have any gas services present therefore, disconnections are not currently anticipated.

### 7.4 Conclusion – Cost & Risk Analysis

Costs relating to the reconfiguration of the existing Wales and West Utilities network are identified in the following table;

| Detail | Cost |
|---|---|
| Connections | £83,000.00 (excludes metering and potential asset value) |
| Diversions | None currently anticipated |
| Disconnections | None currently anticipated |
| **Total** | **£83,000.00** |

**Table 7.1 – Gas costs**

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

- Wales and West Utilities may provide a revised CSEP position due to changes in capacity on the existing network. It should be noted that the availability of capacity can only be confirmed following completion of formal design approval for a connection design.

- Formal offers are yet to be received, therefore there is a possibility that costs may fluctuate substantially due to material costs, contractor rates, asset value etc. It is anticipated that significant savings may be made through competitive tender.

- The gas connection costs provided are based on anticipated construction costs. The actual cost of connections may be significantly reduced through an asset value subsidy which would be available from an Independent Gas Transporter for the adoption of the proposed new gas network.

- As some reinforcement works can have a lead in time of up to 270 days from instruction, a requirement for reinforcement works may cause significant delays to the project programme.

- The utility contractor is required to include for all off-site excavation, backfill and permanent reinstatement within the tender documentation.

# 8.0 Water

## 8.1 Existing Water Network

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

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

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

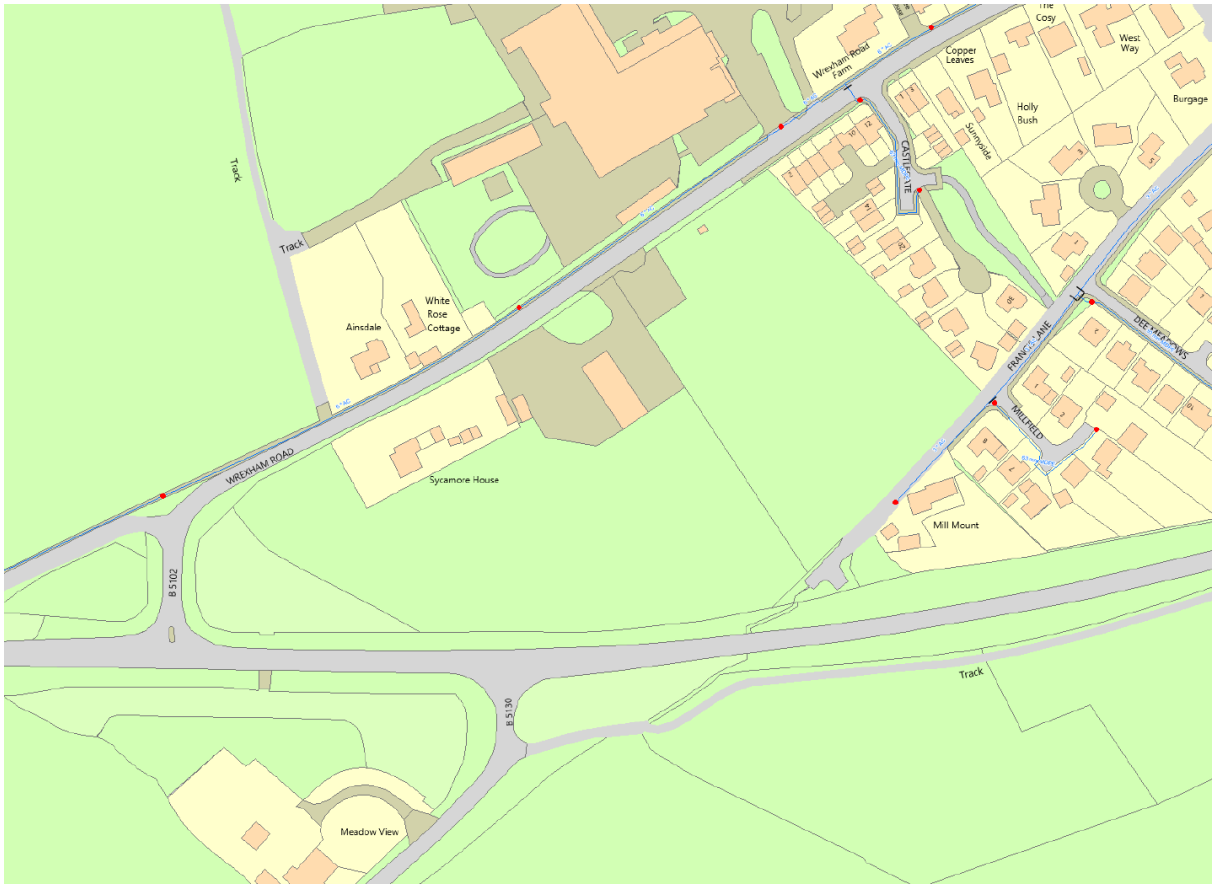



**Figure 8.1 – Existing water infrastructure plan**

| | | | | | |
|---|---|---|---|---|---|
| Hydrant | | Valve | | Aqueduct | |
| Meter | | Water Main | | Duct | |
| AirValve | | Abandoned Pipe | | Service Pipe | |

## 8.2 Proposed Water Service

UCML has sourced a pre-development response from Hafren Dyfrdwy to establish the availability of capacity within the local distribution network, and confirm the likely connection point for the development. Hafren Dyfrdwy has advised that a connection point for the development can be provided from the 6" Asbestos Cement main, routed within the adjacent side footpath of Wrexham Road. Please see Figure 8.2 below for further detail on the location of the provided point of connection.

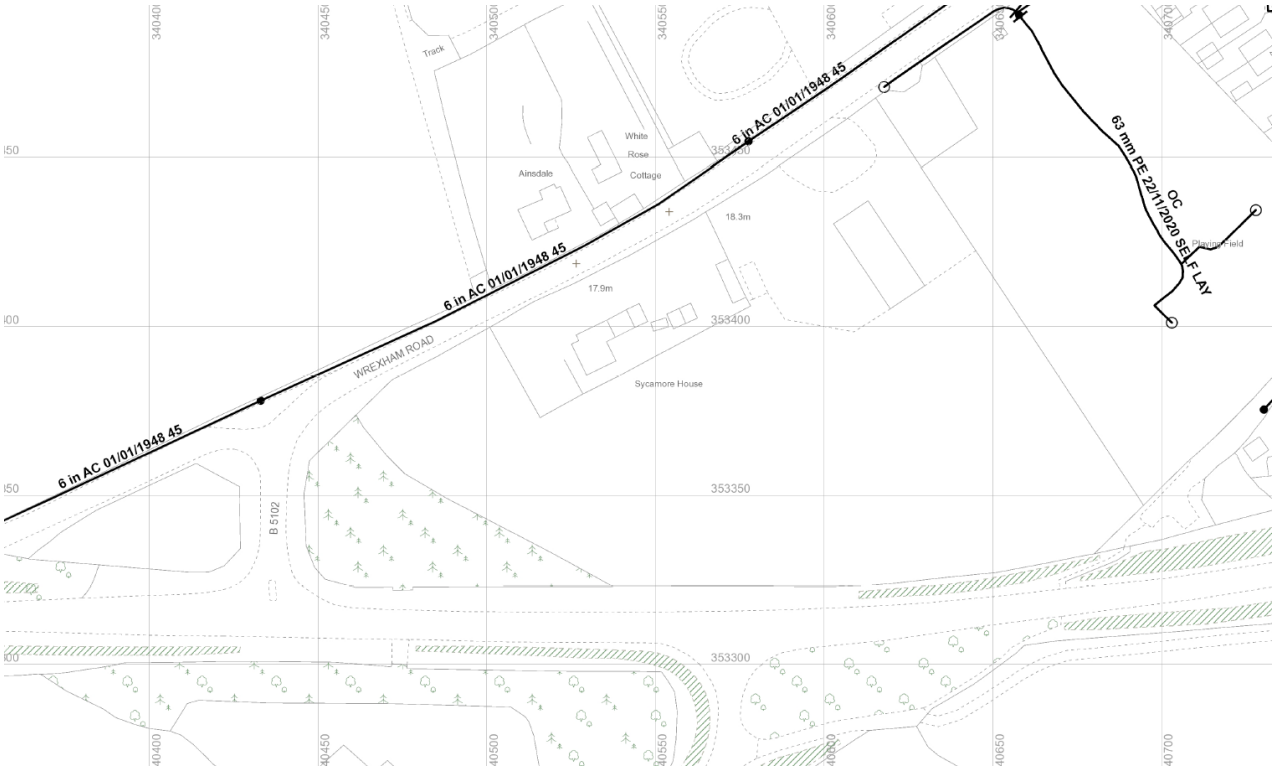



**Figure 8.2 – Proposed water connection plan**

Hafren Dyfrdwy has also confirmed that this main has sufficient capacity to supply the development without the requirement for associated off-site reinforcement works. The infrastructure charges applicable to developments within Hafren Dyfrdwy's region for the current scheme of charges (2020-2021) are £401.22 per plot for clean water. Based on these infrastructure charges, allow a **budget cost of £62,000.00** for mains and service connections to 38 no. dwellings.

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

The provision of new water mains could be carried out under Section 41 of the Water Act 1991 whereby the developer may elect to pay a commuted sum amount based on projected occupancy of the units. This cost would be provided by Hafren Dyfrdwy once they have prepared a mains design for the site.

The Domestic Fire Safety (Wales) Measure, which was passed by the National Assembly Government in February 2011, requires the installation of domestic fire sprinkler systems within all new build residential dwellings constructed from January 2016. The responsibility for the design of the sprinkler system will rest with the developer, installer or domestic fire sprinkler system designer, and the system should be in accordance with all current regulatory and nationally recognized standards or guidelines, including BS 9251:2014 (Fire Sprinkler Systems for Domestic and Residential Occupancies – Code of Practice). Hafren Dyfrdwy will be required to assess the proposed fire sprinkler system design and installation as part of their obligation to comply with Water Regulations to ensure they meet the national requirements for design, composition and maintenance. Hafren Dyfrdwy will not charge for any water used for firefighting or testing purposes.

Hafren Dyfrdwy service connections, communication pipes and supply pipes for all new domestic dwellings are 32mm in diameter, and the developer should ensure the correct sized service pipe is installed. When the service pipe enters the property, the supply will split after the indoor stop tap. The supply for domestic use will be internally metered, and the remaining supply will be for the fire sprinkler (non-domestic use). The diameter of service connections

for commercial developments and multi occupancy dwellings will be scheme specific and confirmed following application.

### 8.3 Diversions & Disconnections

Hafren Dyfrdwy infrastructure records indicate a 6" Asbestos Cement distribution main routed within the adjacent side footpath of Wrexham Road. Provided no alterations will be made to the line and level of the adjacent side footpath during construction and following completion of the development proposals, diversion of this apparatus is not currently anticipated.

Hafren Dyfrdwy infrastructure records do not typically indicate individual service connections however, their presence should be anticipated until proven otherwise. In this instance it can be assumed that the existing agricultural building currently occupying the development site does not have a water service. Therefore, disconnections are not currently anticipated. A site survey is required to confirm this.

### 8.4 Conclusion – Cost & Risk Analysis

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

| Detail | Cost |
|---|---|
| Mains and Connections | £62,000.00 |
| Diversions | None currently anticipated |
| Disconnections | None currently anticipated |
| **Total** | **£62,000.00** |

**Table 8.1 – Water costs**

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

- Some figures have been applied based on previous projects of similar size and UCML's experience, others have been provided for budgetary purposes by Hafren Dyfrdwy.

- The pre-development response is valid for only 6 months from submission. The available network capacity can vary continually, due to proposed developments taking capacity from the water distribution network within the vicinity of this specific scheme.

- The developer cannot reserve any water capacity and pressure until a formal order has been placed with the relevant water Network Operator.

- Please be aware that the position of any required fire hydrants will be determined and implemented upon the advice and requirements of the Local Fire Authority.

# 9.0 Communications

## 9.1 Openreach

Openreach own and operate telecommunications apparatus in the vicinity of the development site within the terms of its statutory license issued by Ofcom. The Openreach network in the immediate vicinity of the site comprises of underground and overhead cables/lines and associated apparatus. Please refer to the infrastructure record appended to this study for further detail.

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

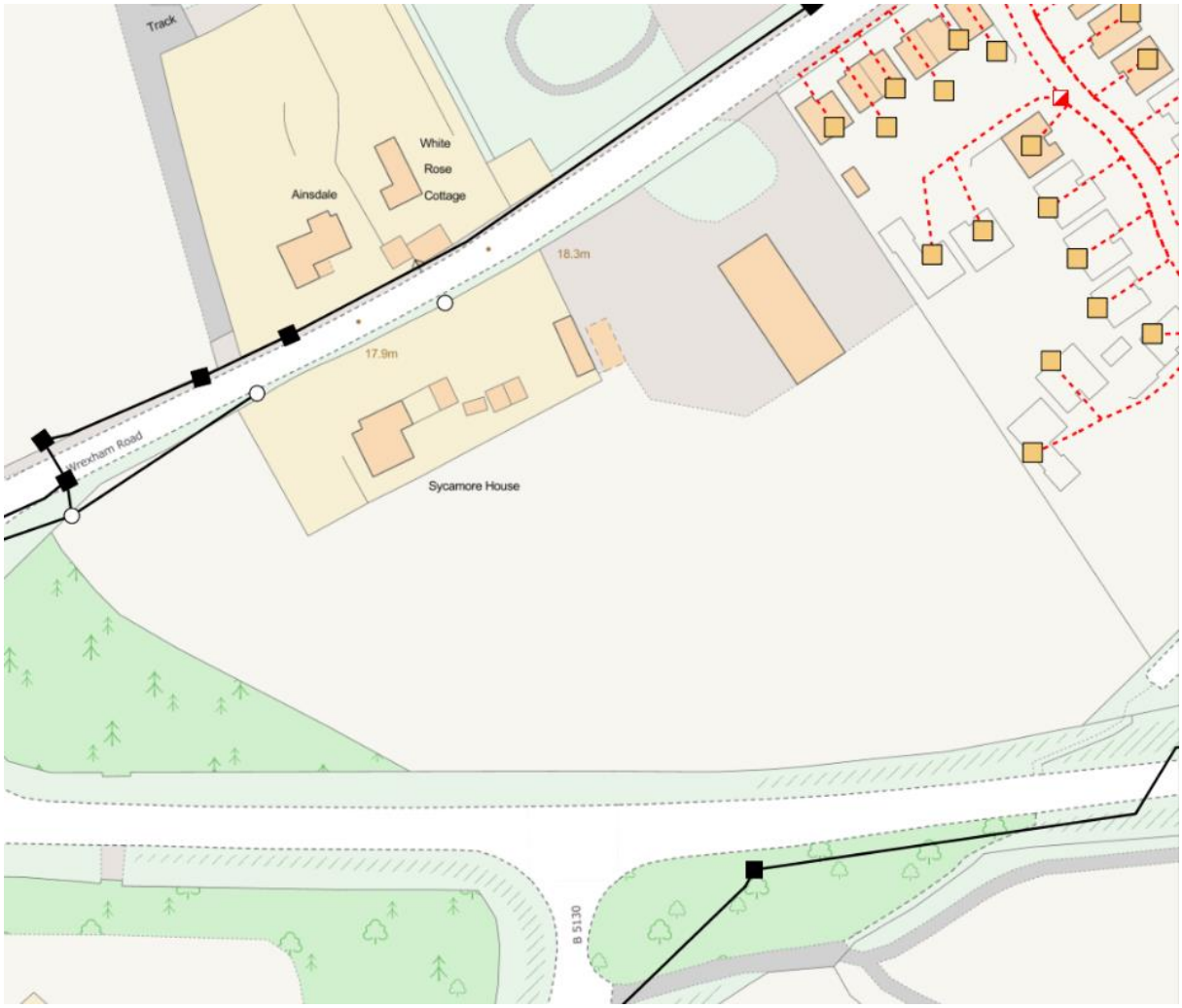
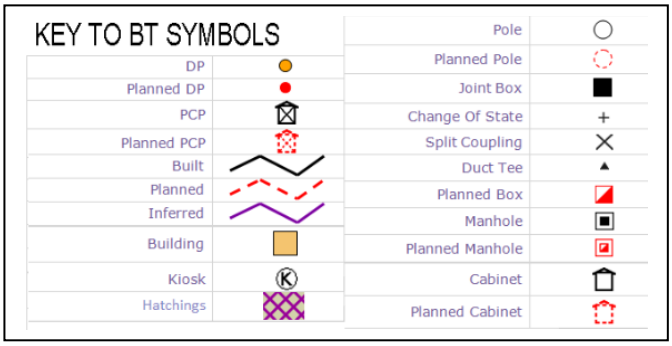



**Figure 9.1 – Existing Openreach infrastructure**



### 9.1.1 Openreach Connections

Openreach has provided a response to a Land Enquiry undertaken by UCML, and their response confirms that the development can receive a Fibre To The Premises (FTTP) connection design. As the development consists of over 20 no. residential dwellings, Openreach will provide FTTP connections free of charge. FTTP connections will provide ultrafast broadband speeds to each dwelling and deliver a level of future proofing for broadband as the demand for speed increases.

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

Typically, the work undertaken by the developer as part of an Openreach FTTP network installation will consist of laying on-site duct and tubing, building all joint boxes, and providing a cable from a designated joint box to each dwelling (with cappings and covers over external entry points). Openreach will carry out all excess construction works outside of the site boundary and in the public highway. Openreach will provide an allowance of up to £3,400.00 per plot to undertake all off-site works required, however any costs incurred above this allowance will be chargeable to the developer.

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

As part of the contract for the installation of Openreach connections, the developer may receive a rebate of up to £140.00 per house and £50 per flat for carrying out on-site works as detailed within the contract provided with their connection proposal. The rebate is in line with the Home Builders Federation (HBF) rates and are payable by BT Plc through its Openreach division. If the developer chooses to self-install the internal FTTP apparatus through Developer Self Install (DSI), an additional rebate payment of £20 per house or apartment will be available.

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

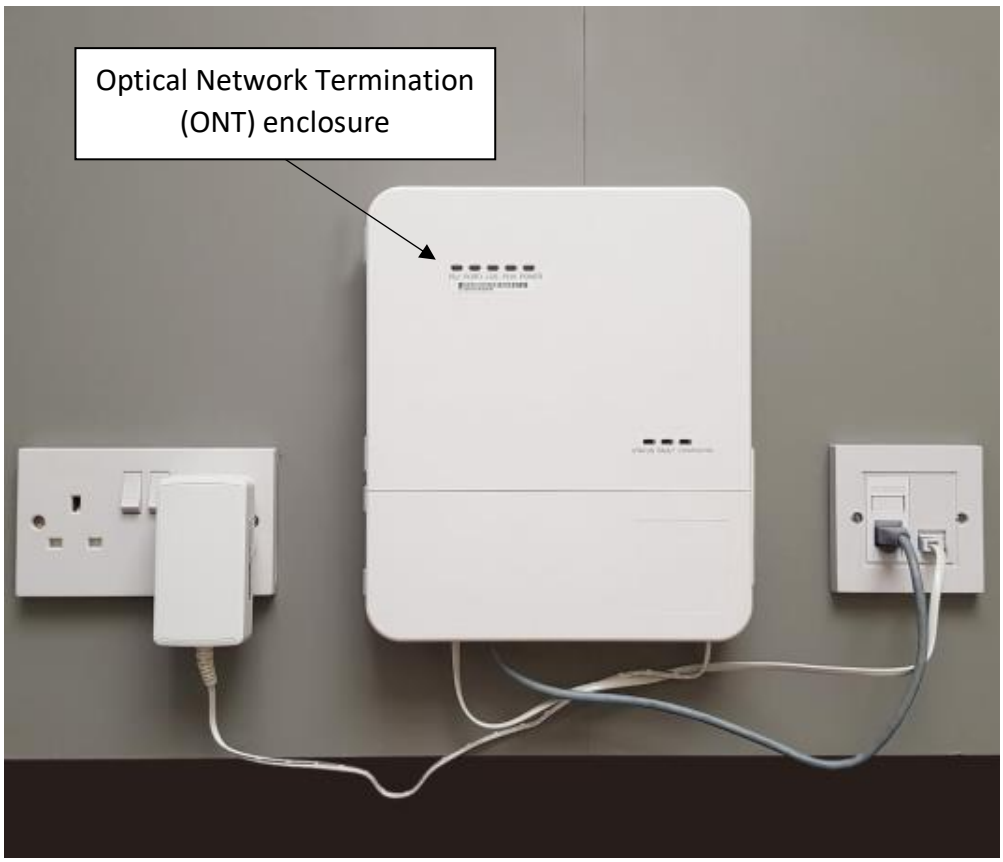



**Figure 9.2 – Openreach FTTP Internal Equipment**

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

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

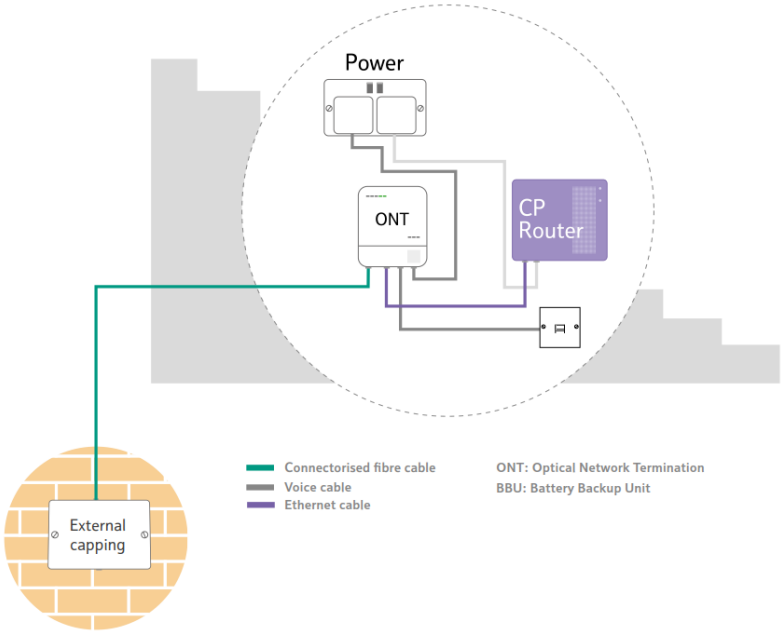



**Figure 9.3 – Simple FTTP installation**

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

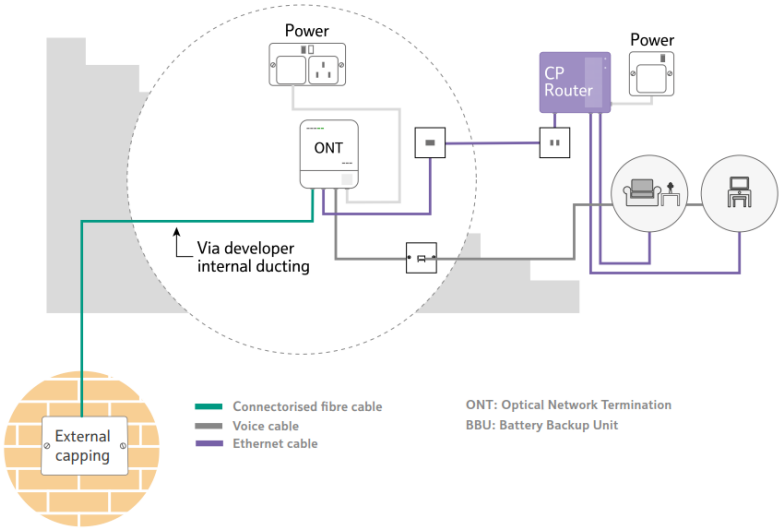



**Figure 9.4 – Alternative Option for FTTP installation (DSI)**

### 9.1.2 Diversions & Disconnections

Openreach infrastructure record indicates a distribution pole and associated overhead lines located within the site boundary, which is assumed to be providing supply to the existing Sycamore House. However, after consulting Google street view, it appears that this apparatus is located on the site side grass verge of Wrexham Road and may be able to be retained in situ, assuming its located as shown on the street view image and the retention of the apparatus is feasible. However, if the client wishes to divert the overhead network for aesthetic appearance at the frontage of the site, it is assumed it will be diverted underground into the site side footpath. It is recommended that Openreach are contacted at the earliest opportunity to attend a site survey in order to provide a detailed estimate for the works. Allow a minimum cost of £1,800.00 for Openreach to undertake a site survey. If the survey determines that the apparatus needs to be relocated, **allow a budget cost of £12,500.00** in addition to the survey fee.

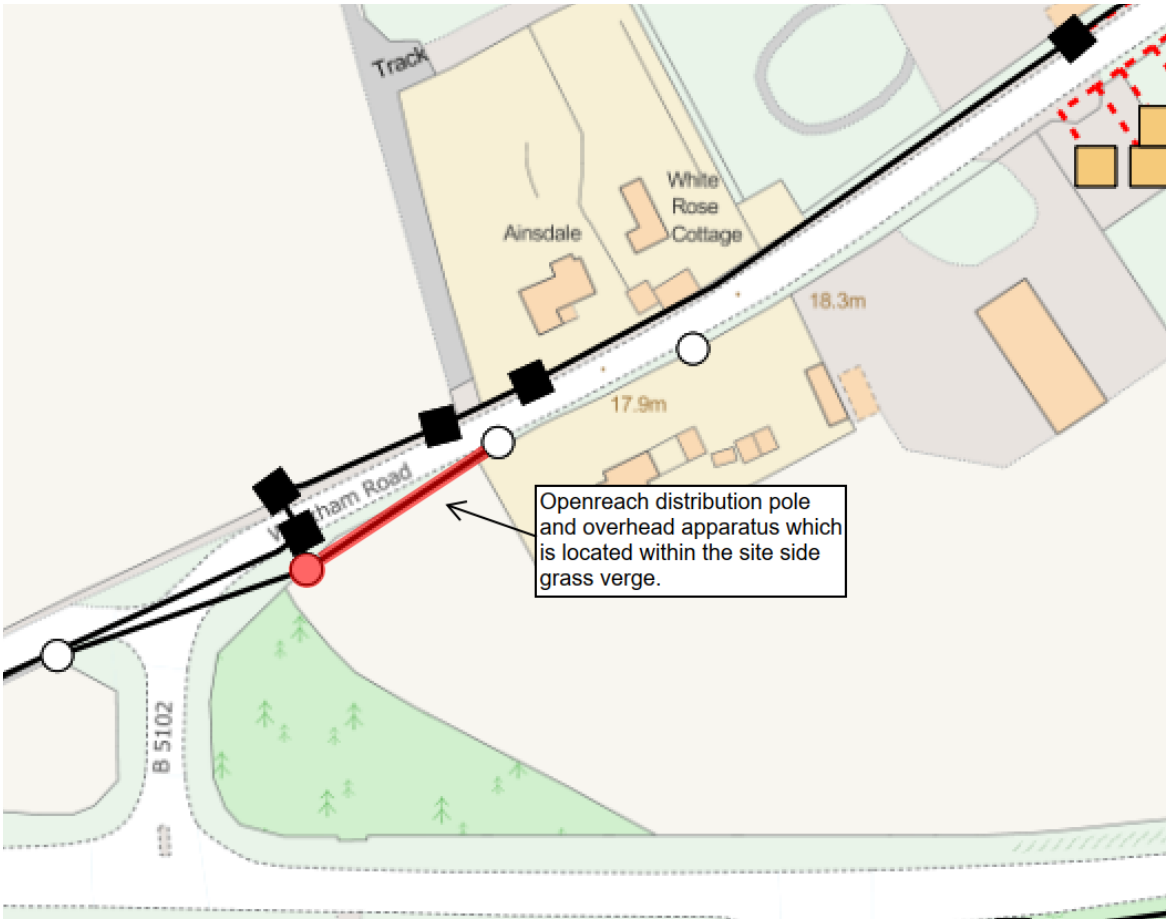



**Figure 9.5 – Existing Openreach infrastructure routed which encroaches the site boundary**




**Figure 9.6 – Google image which indicates the distribution pole located on the grass verge of Wrexham Road**

Openreach infrastructure record indicates underground duct routed within the adjacent side footpath of Wrexham Road. Provided no alterations will be made to the line and level of the adjacent side footpath during construction and following completion of the development proposals, diversion of this apparatus is not currently anticipated.

Openreach infrastructure records do not typically indicate individual service connections however, their presence should be anticipated until proven otherwise. In this instance it can be assumed that the existing agricultural building currently occupying the development site does not have a service present. Therefore, disconnections are not currently anticipated. A site survey may be required to confirm this.

### 9.1.3 Conclusion – Cost & Risk Analysis

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

| Detail | Cost |
|---|---|
| Connections | £Nil |
| Diversions | £12,500.00 |
| Disconnections | None currently anticipated |
| Survey Fees | £1,800.00 |
| **Total** | **£14,300.00** |

**Table 9.1 – Openreach Costs**

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

- Provisional sums have been applied based on previous projects of similar size and UCML's experience.

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

## 10.0 Other

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

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

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

**Table 10.1 – Plant Enquiry Response Key**

| Utility | Company | Desk Research | Affected (date issued) | Not Affected (date issued) | No Response |
|---|---|---|---|---|---|
| IDNO | Engie | | | | 26/03/21 |
| IDNO | Last Mile (Energetics) | | | 27/01/21 | |
| IDNO | Utility Assets | | | | 26/03/21 |
| IDNO | Eclipse Power Networks Ltd | | | 28/01/21 | |
| IDNO | G2 Energy | | | | 26/03/21 |
| IGT | BBL Company | | | | 26/03/21 |
| IGT | GTC* | | | 30/11/20 | |
| IGT | Indigo Pipelines | | | | 26/03/21 |
| IGT | Interconnector UK LTD | | | | 26/03/21 |
| Comms | Arqiva | | | | 26/03/21 |
| Comms | Cityfibre | | | 22/03/21 | |
| Comms | Colt (Catelecom) | | | 01/02/21 | |
| Comms | Instalcom** | | | 01/02/21 | |
| Comms | Interoute (Plancast) | | | | 26/03/21 |
| Comms | KPN | | | | 26/03/21 |
| Comms | McNicholas (TATA) | | | | 26/03/21 |
| Comms | Mobile Broadband Network LTD | | | 28/01/21 | |
| Comms | Sky UK LTD | | | 28/01/21 | |
| Comms | SOTA | | | 02/02/21 | |
| Comms | Spectrum Communications | | | | 26/03/21 |
| Comms | Telent | | | 28/01/21 | |
| Comms | Verizon | | | 28/01/21 | |
| Comms | Virgin Media | | | 27/01/21 | |
| Comms | Vodafone | | | 06/02/21 | |
| Transport | Network Rail | | | 27/01/21 | |
| Transport | NTRS | | | | 26/03/21 |
| Transport | Traffic Master | | | 01/02/21 | |
| Other | Mastdata.com (Mobile Phone Masts) | | | 22/03/21 | |

**Table 10.2 – Plant Enquiry Responses**

*Note GTC includes: GTC Pipelines Ltd, Independent Pipelines Ltd, Quadrant Pipelines Ltd, Electricity Network Company Ltd, Independent Power Networks Ltd, Independent Water Networks Ltd, Independent Fibre Networks Ltd, and Independent Community Heating Ltd.
** Instalcom includes: CenturyLink Communications UK Ltd (formerly Level 3), Global Crossing (UK) Ltd, Global Crossing Pec and Fibernet UK Ltd and Fibrespan Ltd

## Optional Searches

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

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

**Table 10.3 – Optional Searches**

## LinesearchbeforeUDig

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

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

| List of affected LSBUD members | | | |
|---|---|---|---|
| **Asset Owner** | **Phone/Email** | **Emergency Only** | **Status** |
| Wales and West Utilities | 02920278912 | 0800111999 | Await response |

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

| List of not affected LSBUD members | | |
|---|---|---|
| AWE Pipeline | Balfour Beatty Investments Limited | BOC Limited (A Member of the Linde Group) |
| Box Broadband | BP Exploration Operating Company Limited | BPA |
| Carrington Gas Pipeline | CATS Pipeline c/o Wood Group PSN | Cemex |
| Centrica Storage Ltd | Chrysaor Production (UK) Limited | CLH Pipeline System Ltd |
| CNG Services Ltd | Concept Solutions People Ltd | ConocoPhillips (UK) Teesside Operator Ltd |
| Diamond Transmission Corporation | DIO (MOD Abandoned Pipelines) | DIO (MOD Live Pipelines) |
| Drax Group | E.ON UK CHP Limited | EirGrid |
| Electricity North West Limited | ENI & Himor c/o Penspen Ltd | EnQuest NNS Limited |
| EP Langage Limited | ESP Utilities Group | ESSAR |
| Esso Petroleum Company Limited | Fulcrum Pipelines Limited | Gamma |
| Gas Networks Ireland (UK) | Gateshead Energy Company | Gigaclear Ltd |
| Gtt | Heathrow Airport LTD | Humbly Grove Energy |
| IGas Energy | INEOS FPS Pipelines | INEOS Manufacturing (Scotland and TSEP) |
| INOVYN ChlorVinyls Limited | INOVYN Enterprises Limited | Intergen (Coryton Energy or Spalding Energy) |
| Jurassic Fibre Ltd | Mainline Pipelines Limited | Manchester Jetline Limited |
| Manx Cable Company | Marchwood Power Ltd (Gas Pipeline) | Melbourn Solar Limited |
| Murphy Utility Assets | National Grid Gas (Above 7 bar), National Grid Gas Distribution Limited (Above 2 bar) and National Grid Electricity Transmission | Northumbrian Water Group |
| NPower CHP Pipelines | NYnet Ltd | Oikos Storage Limited |
| Ørsted | Perenco UK Limited (Purbeck Southampton Pipeline) | Petroineos |
| Phillips 66 | Portsmouth Water | Premier Transmission Ltd (SNIP) |
| Redundant Pipelines - LPDA | RWE - Great Yarmouth Pipeline (Bacton to Great Yarmouth Power Station) | RWEnpower (Little Barford and South Haven) |
| SABIC UK Petrochemicals | Scottish and Southern Electricity Networks | Scottish Power Generation |
| Seabank Power Ltd | SES Water | SGN |
| Shell | Shell NOP | SSE Enterprise Telecoms |
| SSE Generation Ltd | SSE Utility Solutions Limited | Tata Communications (c/o JSM Construction Ltd) |
| Total (Colnbrook & Colwick Pipelines) | Total Finaline Pipelines | Transmission Capital |
| UK Power Networks | Uniper UK Ltd | University of Cambridge Granta Backbone |

**Figure 10.1 – LSBUD search result**

## 11.0 Conclusion

Based on the information currently available for review, the existing utility infrastructure within the vicinity of the development site appears to be capable of supporting the additional demand required to provide connections for the proposed development of 38 no. residential dwellings. As discussed within the study, UCML has undertaken capacity checks with the relevant statutory network operators who have provided confirmation that the existing electricity, water and telecoms services in the wider vicinity of the development site currently have sufficient capacity to serve the development.

As discussed within the study, Cadent Gas has provided confirmation that the existing gas services within the vicinity of the development are not currently able to support the additional demand required to provide connections for the proposed development of 38 no. of residential dwellings. As discussed within the body of the utility study, it is anticipated that network reinforcement works will be required to provide the required capacity to service the development site. It is recommended that a formal application is made to Cadent Gas to identify the extent and costs associated with any required network reinforcement works.

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

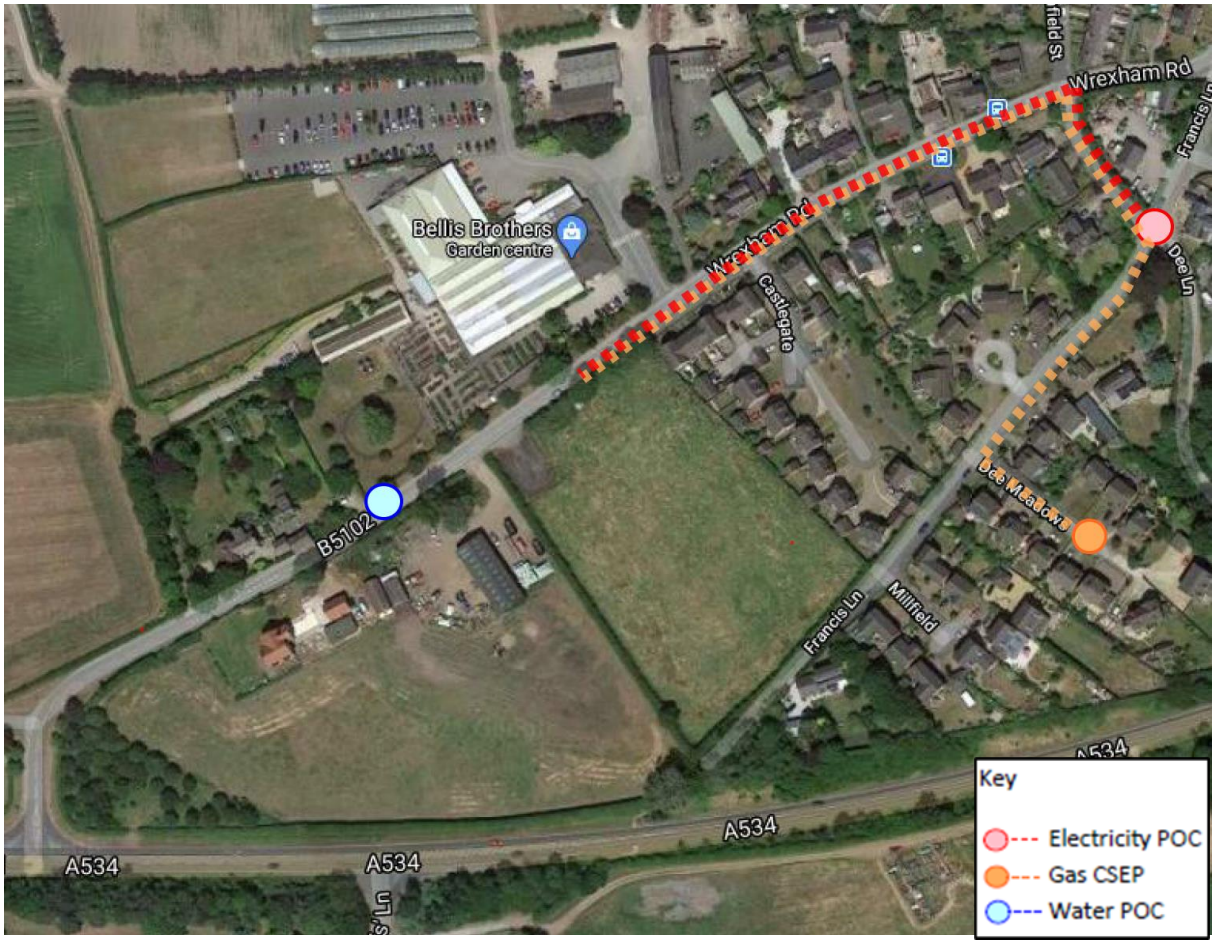



**Figure 11.1 – Location Plan indicating position of points of connection**

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

Based on the information provided by the statutory network operators, no abnormal legal requirements are currently anticipated to utilise the proposed electricity, gas and water connection points as it is located within publicly adopted land. Figure 11.2 below is an extract from the One Network adopted road mapping service confirming the above.

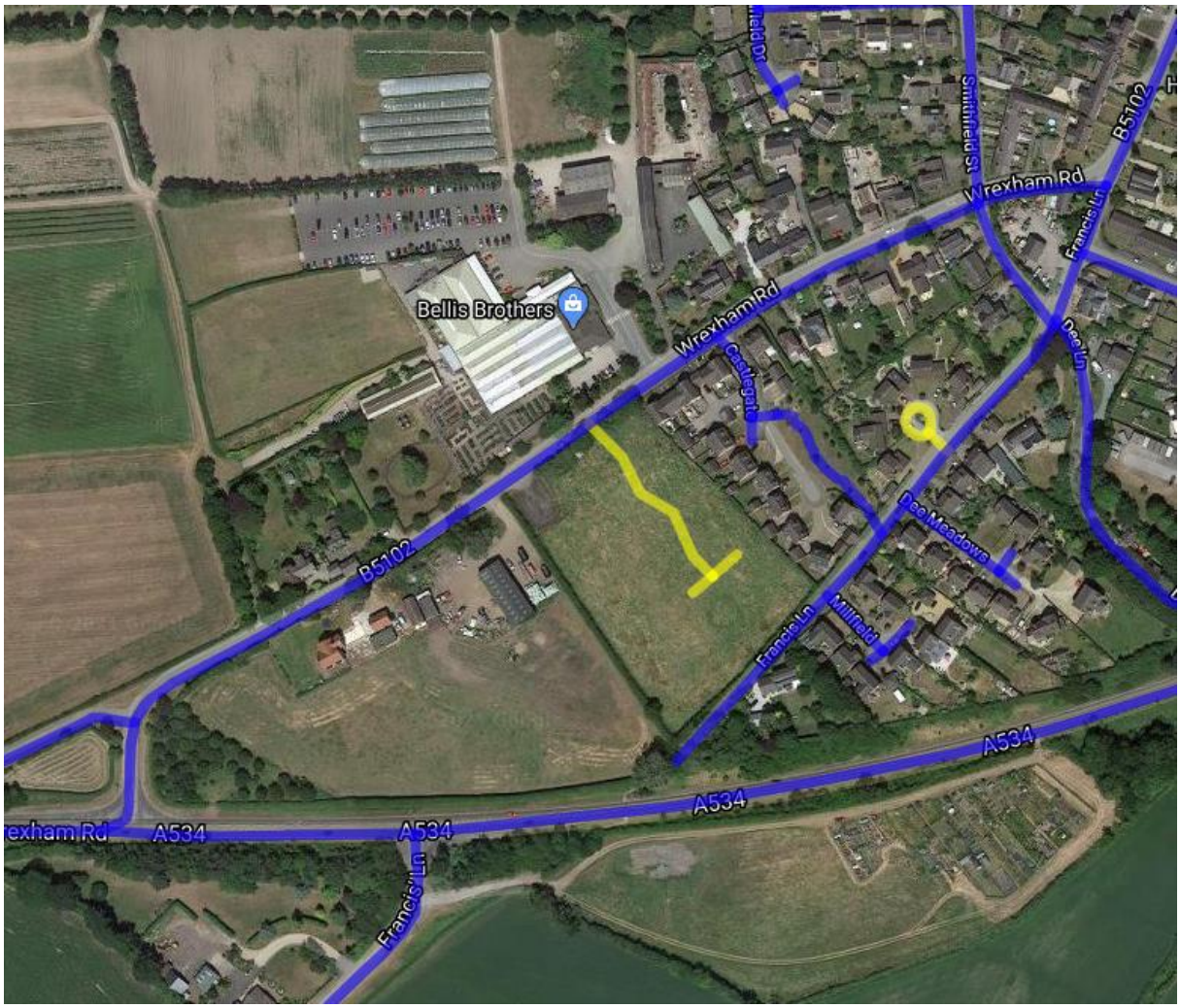
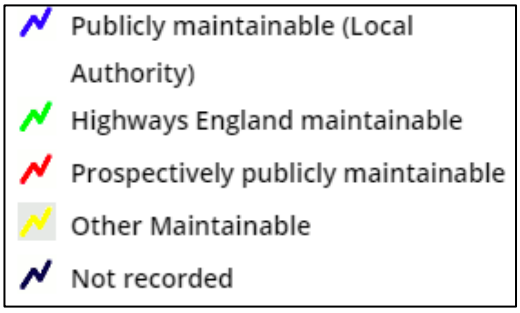



**Figure 11.2 – Adopted Road Enquiry**



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

## 12.0 Risk Matrix

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

| Matrix Key | |
|---|---|
| | Do not envisage any major issues. |
| | Could cause delay that can be measured in weeks, and can also be prevented. |
| | Could cause delay that can be measured in months, and may be prevented. |
| | Could cause major delay, that may not be mitigated. |

| Utility | Risk |
|---|---|
| **Electricity** | |
| Non-Contestable Works – £8,824.15<br>Contestable Works – £143,000.00<br>Disconnection Works – None currently anticipated.<br>Diversionary Works – None currently anticipated. | |
| **Gas** | |
| Connection Works – £83,000.00<br>Disconnection Works – None currently anticipated.<br>Diversionary Works – None currently anticipated. | |
| **Water** | |
| Connection Works – £62,000.00<br>Disconnection Works – None currently anticipated.<br>Diversionary Works – None currently anticipated. | |
| **Telecoms – Openreach** | |
| Connection Works – FTTP connections will be provided at no cost to the developer.<br>Disconnection Works – None currently anticipated.<br>Diversionary Works – £14,300.00, if required. | |

**Table 12.1 – UCML Risk Matrix**

## 13.0 Street Works UK

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

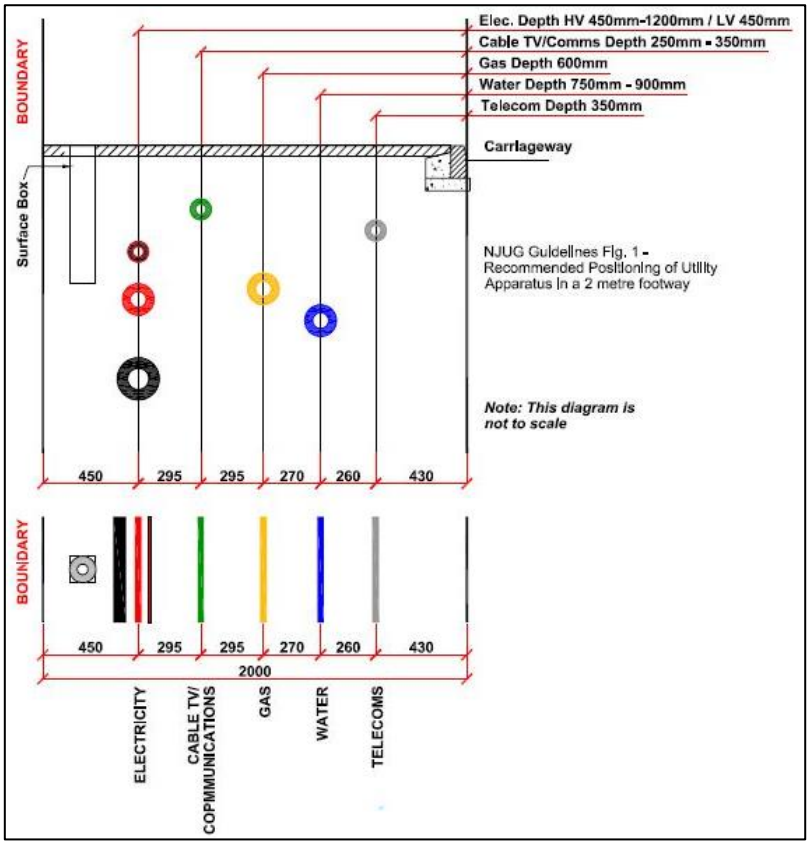
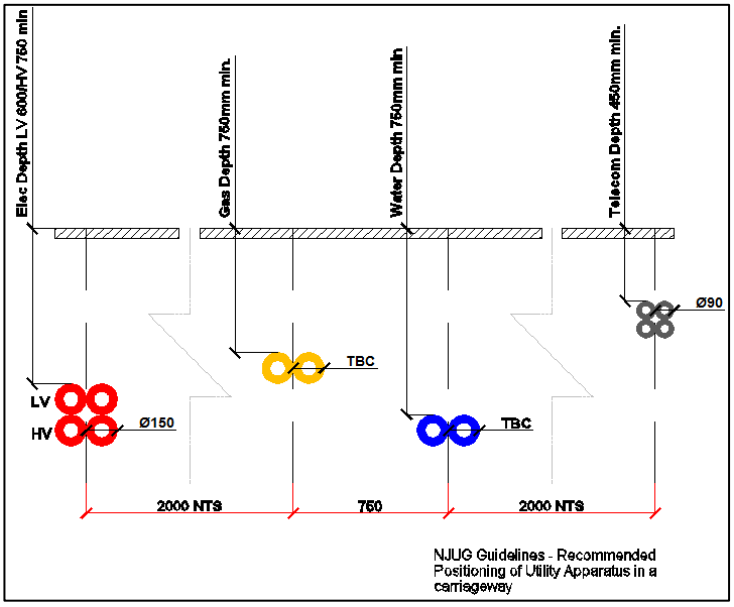



**Figure 13.1- Recommended positioning of utility apparatus in a footpath**

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




| Utility | Recommended Minimum Depths | |
|---|---|---|
| | Footway/Verge | Carriageway |
| Electricity EHV (High Voltage) | 450 - 1200mm | 750 - 1200mm |
| Electricity LV (Low Voltage) | 450mm | 600mm |
| Gas | 600mm footway 750mm verge | 750mm |
| Water | 750mm | 750mm min. |
| Telecoms | 250 - 350mm | 450 - 650mm |

**Source - Table 1, NJUG Guidelines on the Positioning of Underground Apparatus for New Development Sites**

**Figure 13.2 – Recommended positioning of utility apparatus in carriageway**

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

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

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

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

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

**Produced;**
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This document has been prepared solely as a Desktop Utility Study for Pridding Farming Partnership. Utilities Connections Management Ltd accepts no responsibility or liability for any use that is made of this document other than by Pridding Farming Partnership for the purposes for which it was originally commissioned and prepared.

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

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

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

## 14.0 Further UCML Services

### Technical Procurement

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

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

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

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

## Project Management

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

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

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

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

## Appendices

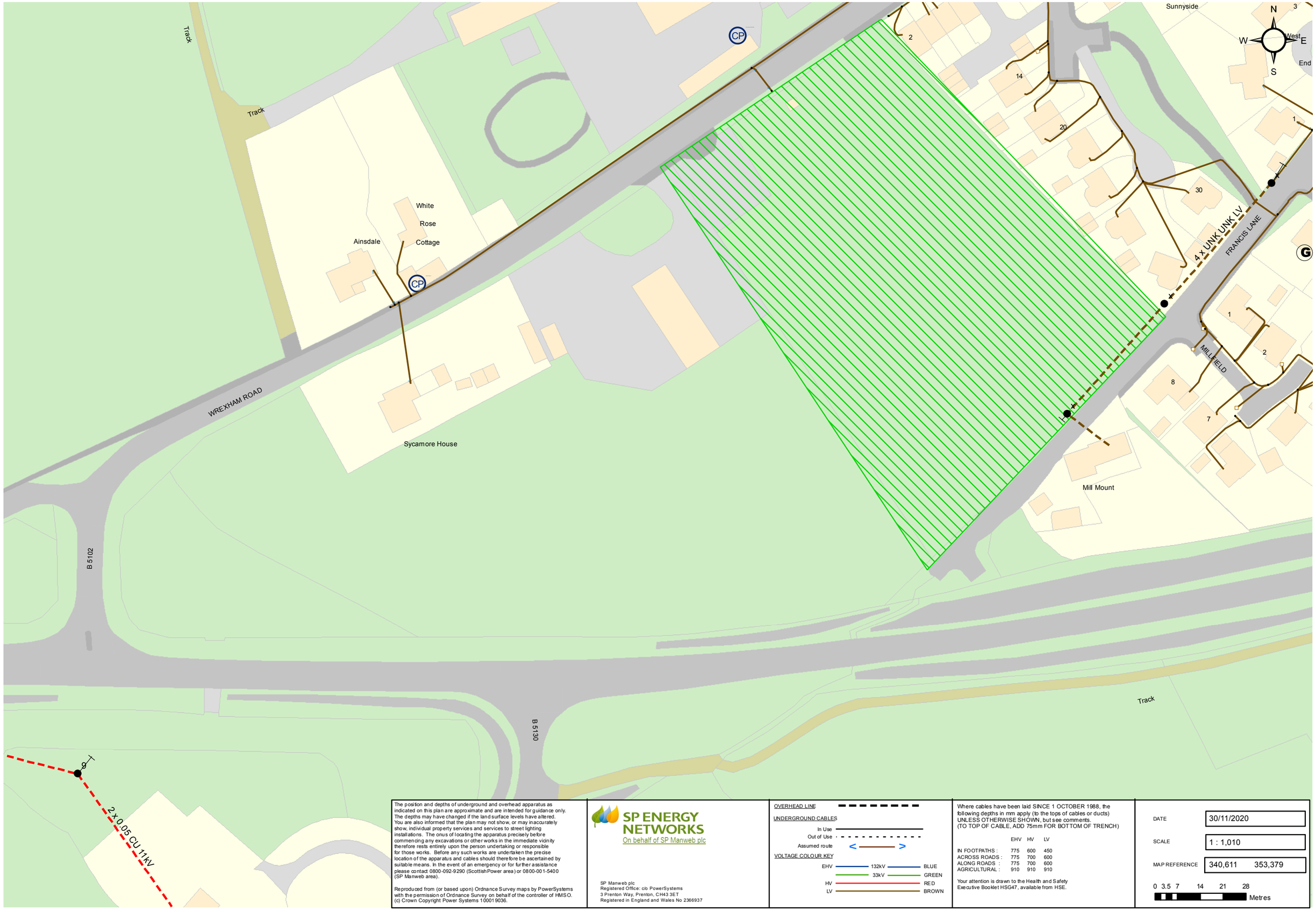
**Appendix 1 –** SP Energy Networks Infrastructure Plan

**Appendix 2 –** Wales & West Utilities Infrastructure Plan

**Appendix 3 –** Hafren Dyfrdwy Infrastructure Plan

**Appendix 4 –** Openreach Infrastructure Plan

**Appendix 5 –** Points of Connection Location Plan




The position and depths of underground and overhead apparatus as indicated on this plan are approximate and are intended for guidance only. The depths may have changed if the land surface levels have altered. You are also informed that the plan may not show, or may inaccurately show, individual property services and services to street lighting installations. The onus of locating the apparatus precisely before commencing any excavations or other works in the immediate vicinity therefore rests entirely upon the person undertaking or responsible for those works. Before any such works are undertaken the precise location of the apparatus and cables should therefore be ascertained by suitable means. In the event of an emergency or for further assistance please contact 0800-092-9290 (ScottishPower area) or 0800-001-5400 (SP Manweb area).

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SP ENERGY NETWORKS
On behalf of SP Manweb plc

SP Manweb plc
Registered Office: c/o PowerSystems
3 Prenton Way, Prenton, CH43 3ET
Registered in England and Wales No 2366937

OVERHEAD LINE

UNDERGROUND CABLES

In Use

Out of Use

Assumed route

VOLTAGE COLOUR KEY

| | | |
|---|---|---|
| EHV | 132kV | BLUE |
| | 33kV | GREEN |
| HV | | RED |
| LV | | BROWN |

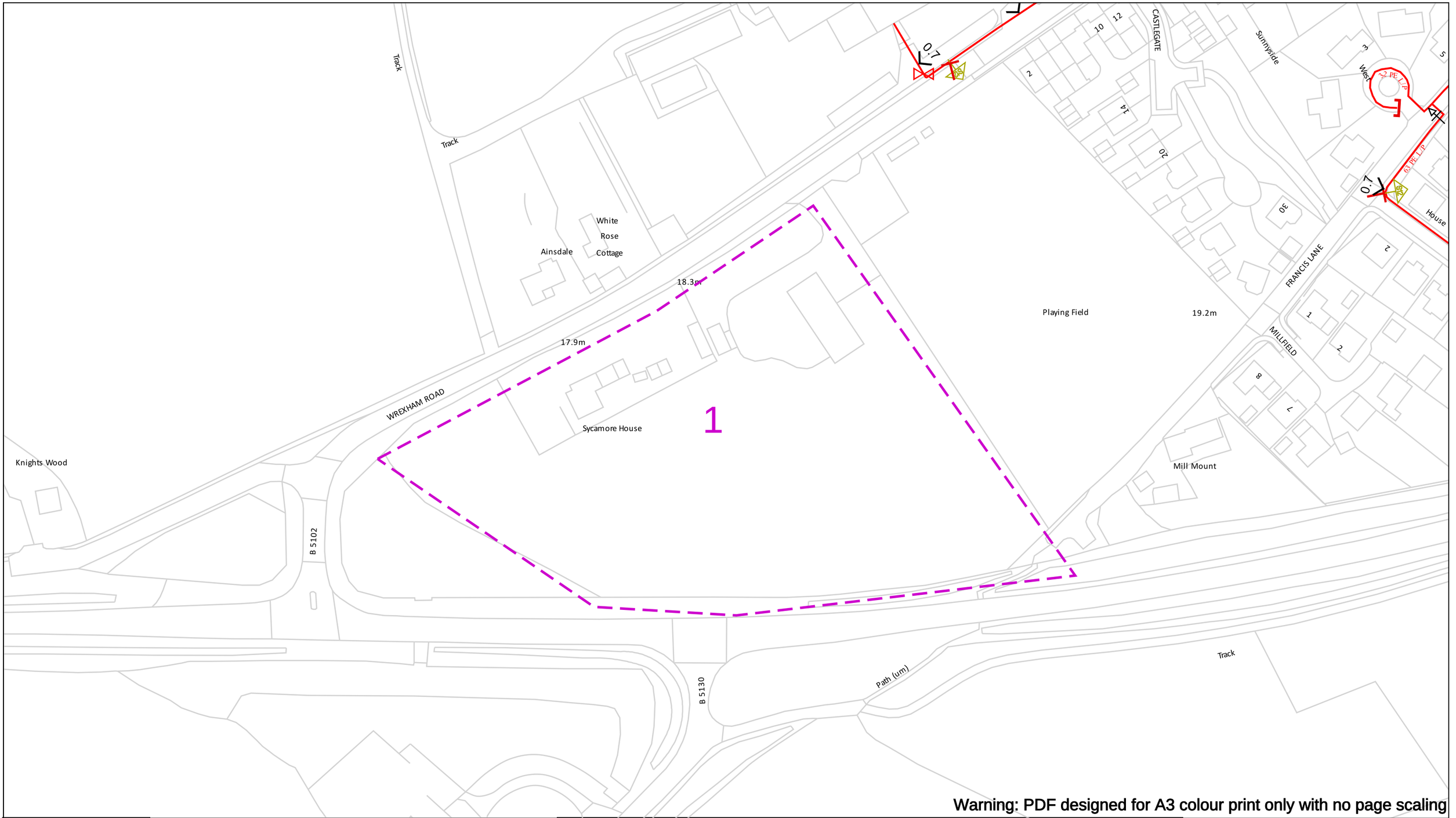
Where cables have been laid SINCE 1 OCTOBER 1988, the following depths in mm apply (to the tops of cables or ducts) UNLESS OTHERWISE SHOWN, but see comments. (TO TOP OF CABLE, ADD 75mm FOR BOTTOM OF TRENCH)

| | EHV | HV | LV |
|---|---|---|---|
| IN FOOTPATHS : | 775 | 600 | 450 |
| ACROSS ROADS : | 775 | 700 | 600 |
| ALONG ROADS : | 775 | 700 | 600 |
| AGRICULTURAL : | 910 | 910 | 910 |

Your attention is drawn to the Health and Safety Executive Booklet HSG47, available from HSE.

| | |
|---|---|
| DATE | 30/11/2020 |
| SCALE | 1 : 1,010 |
| MAP REFERENCE | 340,611 353,379 |

0 3.5 7 14 21 28 Metres




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


Contact Us
Mapping Enquiries: 02920 278 912
General Enquiries: 0800 912 2999


Date Requested: 15/03/2021
Job Reference: 21569664
Site Location: 340583 353397
Requested by:
Miss Casey Watmore
Your Scheme/Reference: Sycamore House

Scale: 1:1250 (When plotted at A3)

IMPORTANT NOTICES

- This information is given as a guide only and its accuracy cannot be guaranteed
- The plan only shows those pipes owned by Wales & West Utilities (WWU) as its role as a licensed Gas Transporter
- Service pipes, valves, syphons, stub connections etc. may not be shown but their presence should be anticipated
- You must use safe digging practices in accordance with HS(G)47 to establish the actual position of mains, services and other apparatus before any mechanical excavation is used
- It is your responsibility to ensure this information is provided to all persons working near our plant
- If in doubt call the WWU dig team on 02920 278912

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

100m

Dig Sites

Area: Line:

Low Pressure (LP) 21mbar – 75mbar
Medium Pressure (MP) 350mbar – 2bar
Intermediate Pressure (IP) 2bar – 7bar
High Pressure (HP) >7bar

Line/Fire Valve
Governor Station
Change of Diameter
End Cap
Depth of cover

WALES&WEST UTILITIES

Smell gas?
Call the Gas Emergency Service on 0800 111 999.

Dial before you dig

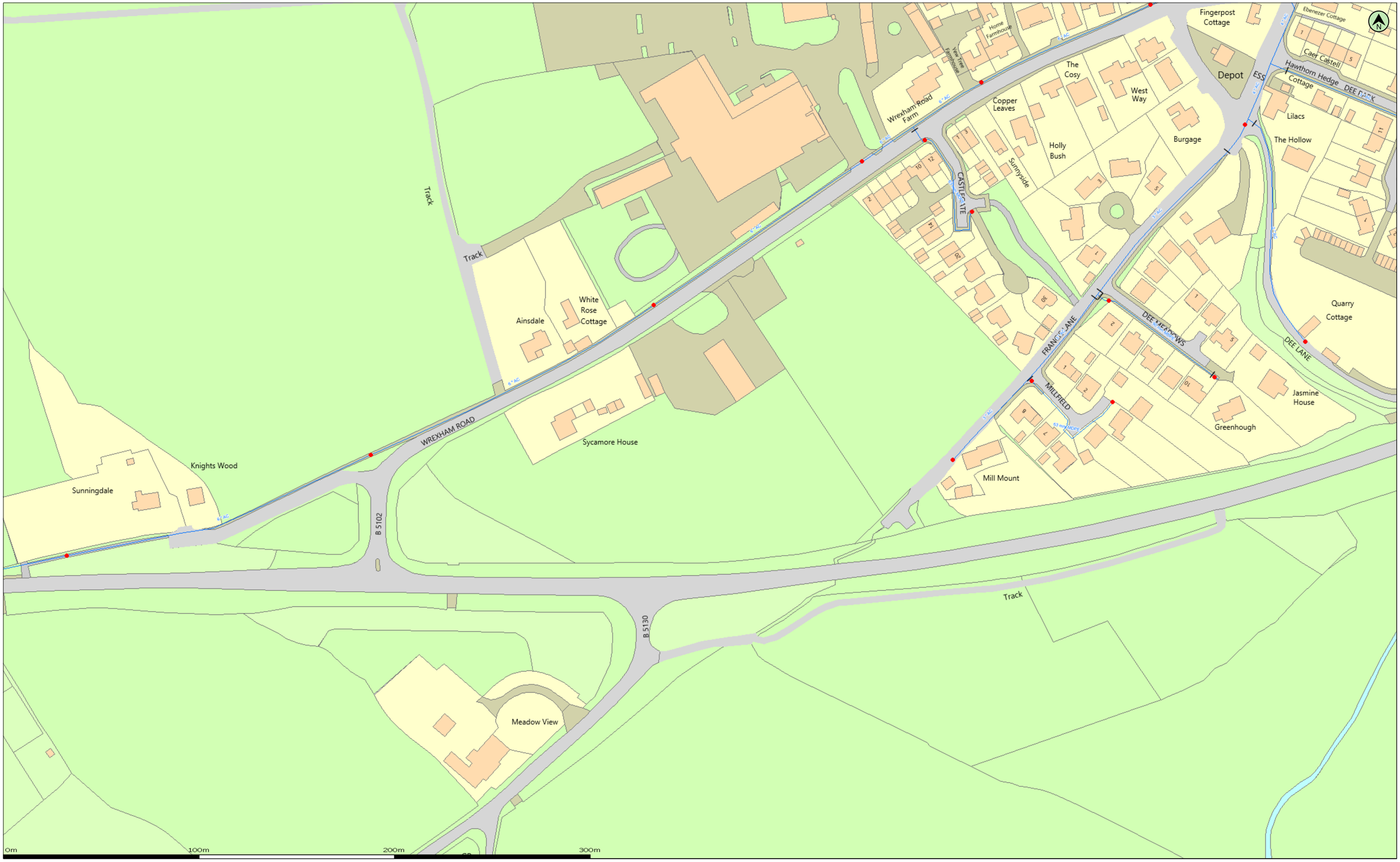
Dial
Call 029 2027 8912 before you start work.

Investigate
Before you dig, make sure you know what's below.

Go ahead
Done your research? Now you can dig safely.

We need 10 days' notice


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(c) Crown copyright and database rights 2021 Ordnance Survey 100031673 | Date: 29/01/21 | Scale: 1:1250 | Map Centre: 340601,353390 | Data updated: 14/12/20 | Our Ref: 489374 - 1 | Clean Water Plan A2

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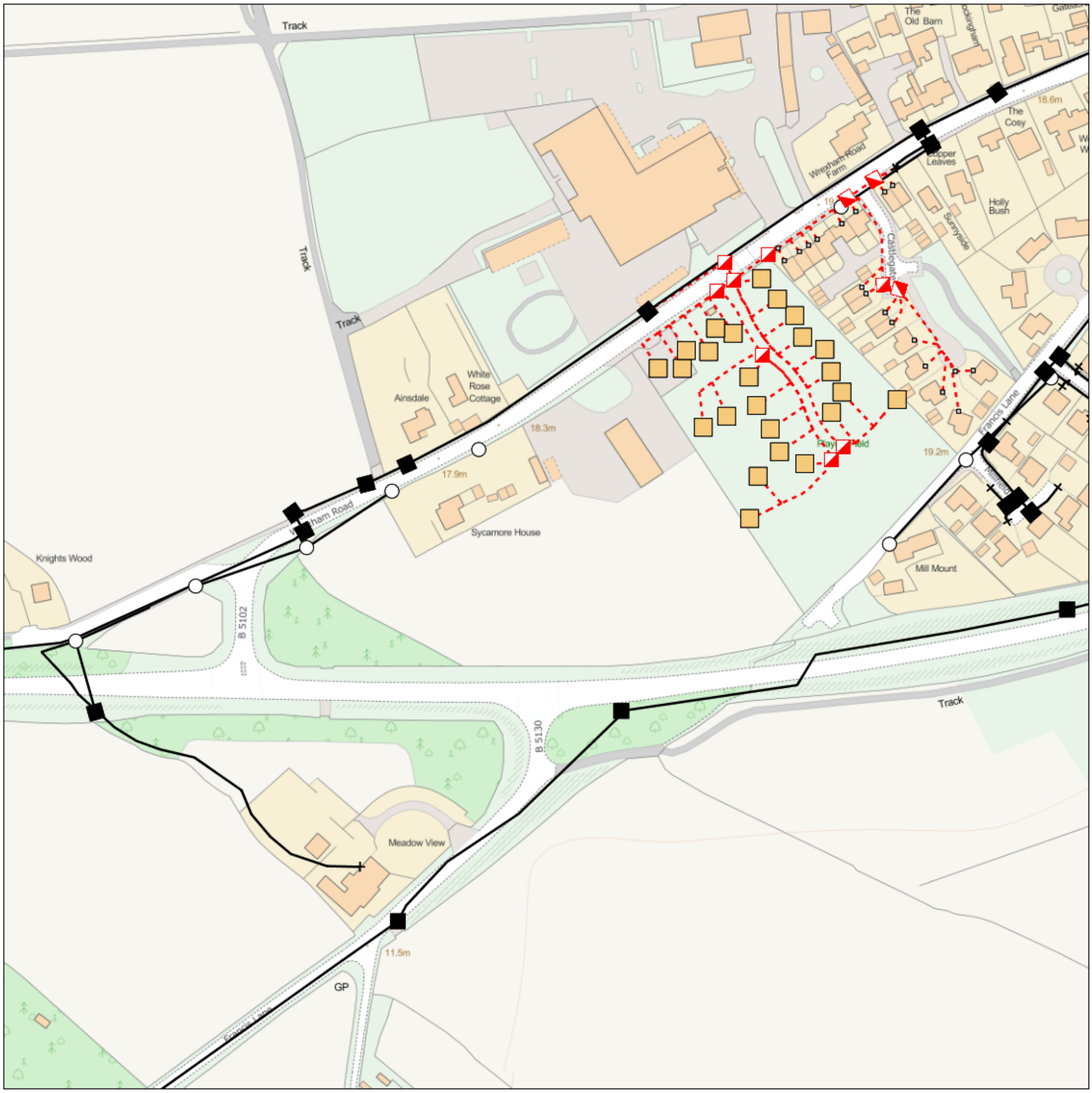
| | | | | | |
|---|---|---|---|---|---|
| Hydrant | | Valve | | Aqueduct | |
| Meter | | Water Main | | Duct | |
| AirValve | | Abandoned Pipe | | Service Pipe | |

megan.wright@ucml.co.uk

Sycamore House

HAFREN DYFRDWY severn dee

# Maps by email Plant Information Reply




## IMPORTANT WARNING

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

openreach

## CLICK BEFORE YOU DIG

FOR PROFESSIONAL FREE ON SITE ASSISTANCE PRIOR TO COMMENCEMENT OF EXCAVATION WORKS INCLUDING LOCATE AND MARKING SERVICE

email cbyd@openreach.co.uk

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

### Accidents happen

If you do damage any Openreach equipment please let us know by calling 0800 023 2023 (opt 1 + opt 1) and we can get it fixed ASAP


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### KEY TO BT SYMBOLS

| | *Planned* | *Live* |
|---|---|---|
| PCP | | |
| Pole | | |
| Box | | |
| Manhole | | |
| Cabinet | | |

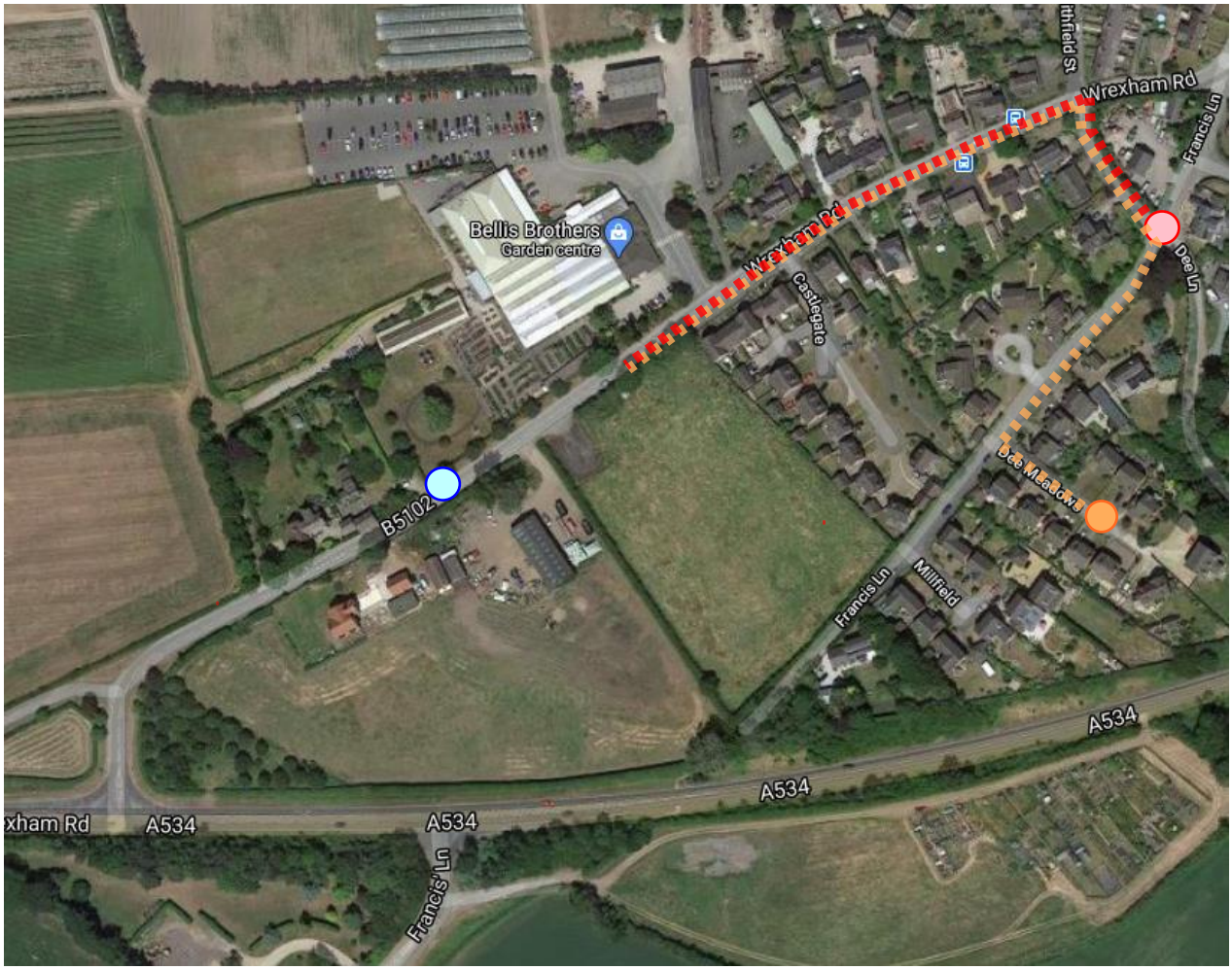
| | | | |
|---|---|---|---|
| Change Of State | + | Hatchings | |
| Split Coupling | × | Built | |
| Duct Tee | ▲ | Planned | |
| Building | | Inferred | |
| Kiosk | K | Duct | |

Other proposed plant is shown using dashed lines.
BT Symbols not listed above may be disregarded.
Existing BT Plant may not be recorded.
Information valid at time of preparation. Maps are only valid for 90 days after the date of publication.

| | *Pending Add* | *In Place* | *Pending Remove* | *Not In Use* |
|---|---|---|---|---|
| Power Cable | | | | |
| Power Duct | | | | N/A |

BT Ref : HIM03593C
Map Reference : (centre) SJ4057653378
Easting/Northing : (centre) 340576,353378
Issued : 30/11/2020 15:59:58

WARNING: IF PLANNED WORKS FALL INSIDE HATCHED AREA IT IS ESSENTIAL BEFORE PROCEEDING THAT YOU CONTACT THE NATIONAL NOTICE HANDLING CENTRE. PLEASE SEND E-MAIL TO: nnhc@openreach.co.uk


Wrexham Rd
Francis Ln
Bellis Brothers
Garden centre
Castlegate
Dee Ln
B5102
Dee Meadow
Millfield
A534
A534
A534
Francis Ln