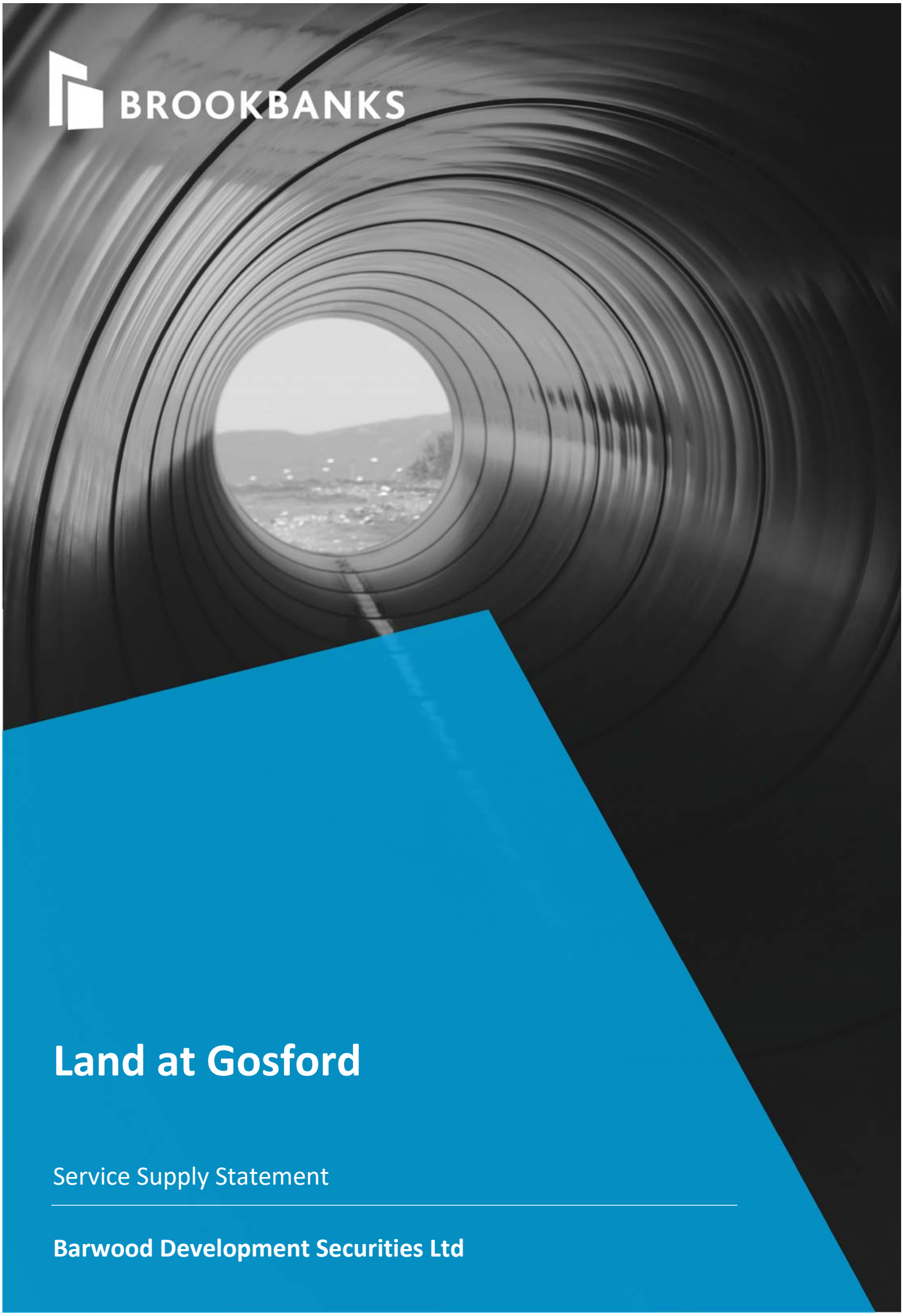

BROOKBANKS

Land at Gosford

Service Supply Statement

Barwood Development Securities Ltd

Document Control Sheet

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Appendix A – Combined Utility Plan

1 Introduction

1.1 Brookbanks is appointed by Barwood Development Securities Ltd to complete a Service Supply Statement for a proposed residential development at Land at Gosford.

1.2 The objective of the study is to demonstrate that the development proposals can adequately be provided with service supplies and to identify the outline requirement for any necessary reinforcements to existing networks.

1.3 This report presents the findings of the study and specifically addresses the following issues:

- Existing network apparatus
- Supply requirements for the Proposed Development
- Consultations with the incumbent supply network operators
- Development of outline proposals to supply the Proposed Development.

1.4 At the time of consultation with the utility companies the maximum development was set at 400 residential dwellings to allow an element of safety in the quantum of service capacity returned. The masterplan has derived that 370 residential dwellings is likely to be delivered. The following report outlines the capacity requirements for 400 residential dwellings; although it has been judged that the slight decrease of the quantum will remain deliverable and robust, in line with the supply data received.

1.5 This Report also considers the *Cherwell Local Plan 2011 – 2031 (part1) Partial Review* of Sept 2020 and the *PR7a Land South East of Kidlington Development Brief Draft for Consultation* documentation of October 2021.

2 Background Information

Location and Details

2.1 The proposed development lies to the south-east of the village of Kidlington and is approximately 27.75ha.

2.2 The Site is bound to the north by existing agricultural land/fields and to the east by agricultural fields, Water Eaton Lane and the A34. The south of the Site is bound by Oxford Road and the west to Bicester Road. A cemetery is situated adjacent to the north-west of the Site, off Bicester Road.

2.3 The site is currently undeveloped agricultural land and the land is not thought to have been historically subject to any significant built development. The Site location and boundary is shown indicatively on **Figure 2-1**, below:

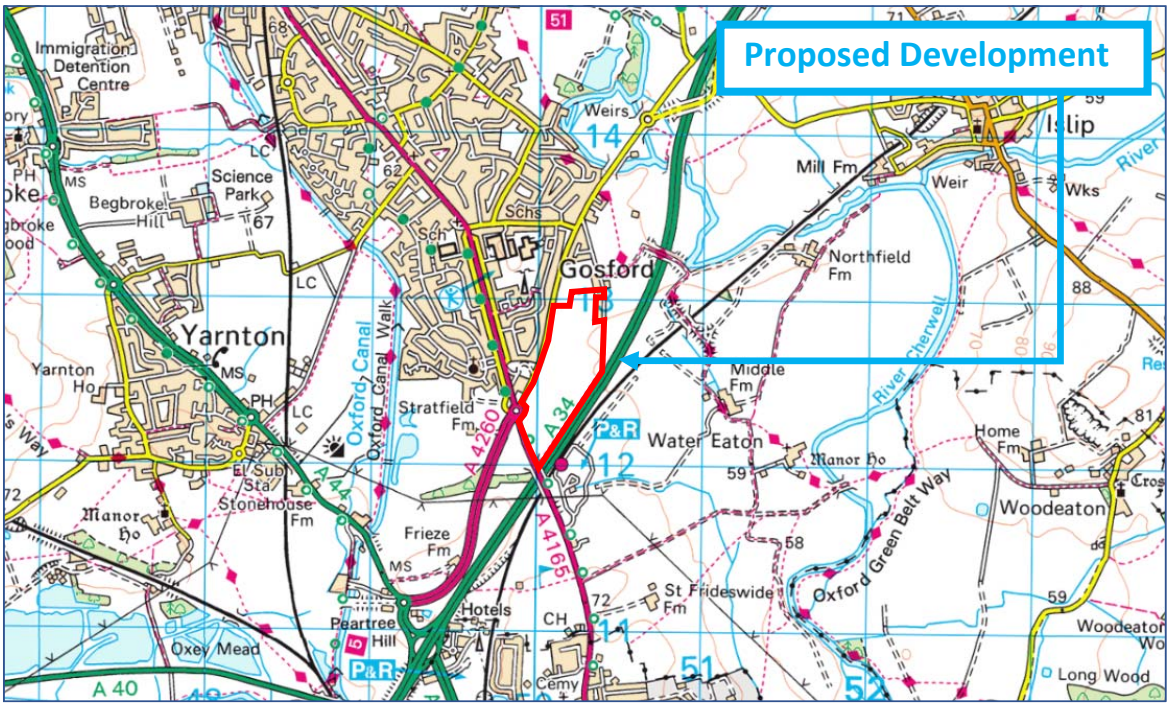


Figure 2-1: Site Location

Development Criteria

2.4 The following development is proposed at the site:

'Outline planning application for the development of up to 370 homes, public open space (including play areas and woodland planting), sports pitches and pavilion, drainage and engineering works, with all matters reserved (appearance, landscaping, layout and scale) except for vehicular and emergency accesses to Bicester Road'.

Supply Loading

2.5 The following loading assumptions shown in Table 2-1 have been made to determine the Supply loadings to for the provision of potable water, foul water and electricity with electric heating, based on quantum demand of 400 Dwellings.

Development Type	Potable Water	Electricity	Peak Gas	Annual Gas Demand
Residential Dwellings	Daily Water Demand of 125l/ person/ day over an 18 hour day*	2kVA/ Dwelling	23kW/Dwelling	17,000kW/Dwelling

Table 2-1: Supply Loading Assumptions
***Peaking factor of 3**

2.6 Following the assumptions made above, Table 2-3 below outlines the supply loadings which have been provided in order for them to confirm whether they have capacity in their existing network to supply the proposed development.

Development Type	Peak Potable Water Demand (l/s)	Electricity Demand (kVA)	Peak Gas (kWh)	Annual Gas (kWh)
Residential Dwellings	5.32	800	9,200	6,800,000

Table 2-2: Supply Loadings

Sources of Information

2.7 The following bodies have been consulted whilst completing this study:

- Thames Water - Potable Water
- SSE - Electricity
- SGN - Gas
- BT Openreach - Telecommunications
- SamKnows Website - Broadband Exchange
- Multi Utility Company - GTC - Electricity and Gas

3 Water Supply

Existing Conditions

3.1 **Thames Water (TW)** has been consulted regarding the location and capacity of their existing network within the vicinity of the Site. Location details of their existing water supply network has been provided and transferred to a composite existing services plan, which is contained in the Appendix

3.2 TW operate a 6" PVC main to the west of the Site along Bicester Road, and a 4" distribution main to the east of the Site along Water Eaton Lane.

3.3 Further assets are shown to the west of the Site, along individual roads supplying the adjacent residential development.

Supply Loading

3.4 To assist Thames Water in their capacity assessment of their existing network, a total Peak Clean Water Demand of 5.32 l/s was provided. Further details of the supply loadings and assumptions are outlined in **Table 2-1** and **2-2**.

Network Requirements

3.5 TW confirm that there will be sufficient capacity to serve up to 49 dwellings at the proposed development, a partial supply.

3.6 The nearest point of connection is a 6" main on Bicester Road. TW were unable to confirm the capacity for the whole development of up to 400 residential houses without further investigation through modelling

3.7 In reference to *The Cherwell Local Plan 2011-2031 (Part 1) Partial Review*, Appendix 4 indicates that water supply links and networks are to ensure that these grow at the same rate as the local communities and these costs are to be funded by Thames Water and private developers.

3.8 It should be noted that Ofwat has instigated significant changes into the charging regimes of the water companies. Whereas prior to April 2018, the water companies would charge developers for any reinforcement works to the existing network directly attributable to the new demand, under the new charging rules the developer has to only fund infrastructure works to the nearest practicable point of connection (defined as network of an equal or greater size to the infrastructure supplying the site). As such any reinforcement works are covered by the Infrastructure Charge, payable per plot for all new connections.

3.9 *The Cherwell Local Plan 2011-2031 (Part 1) Partial Review*, *Appendix 4* also promotes the use of water conservation measures, with quality maintenance and ensuring adequate resources promoted. Again, these costs are to be funded by Thames Water/private developers and this Site will look to ensure this is implemented.

Diversions

3.10 Thames Water operates a 6" PVC main to the west of the Site along Bicester Road, where the proposed Site access(es) are anticipated. Once at the detailed design stage, Thames Water can be consulted to determine whether any protective or diversionary works will be required to facilitate the Site.

Regulatory Background

3.11 The introduction of the Water Act 2003 has:

- Formalised the procedures for developers wishing to complete self-lay schemes through multi-utility businesses.
- Implemented revised financial procedures, being more developer focused by offsetting capital costs of infrastructure against supply revenue.

3.12 Under current regulations, the new off-site and on-site infrastructure can be implemented by multi-utility contractors, except for a small element of non-contestable works where the new supply is connected to the existing network.

3.13 The Water Act 2003 allows two principal options in terms of financial arrangement between the developer and water infrastructure business. Both take into account the revenue earned by the business as a result of the new supplies.

- The Discounted Aggregate Deficit (DAD) / Commuted Sum method calculates the cost of implementing and funding the required infrastructure over a ten-year period. The year on year income from new supplies is then offset against the funding, which when brought forward to an equivalent present-day cost, identifies the contribution attributed to the developer. The mains are then installed by the water infrastructure company.
- The Asset Value method, whereby the mains may be laid by a multi-utility contractor, calculates the year on year income generated from the water supply, which is then paid back to the developer on the adoption of the mains. As a multi-utility contractor generally completes the work at a lower cost than the water supplying company, the Asset Payment method can often be the most cost effective.

3.14 The procedures outlined in the Water Act 2003 should result in all water businesses (including the incumbent operator) giving similar rebates through either the Asset Value or Commuted Sum procedures. The Asset Value method generally offers a cheaper scheme for site developers wishing to procure services through a multi-utility contract.

3.15 Ofwat has recently instigated significant changes into the charging regimes of the water companies. Whereas prior to April 2018, the water companies would charge developers for any reinforcement works to the existing network directly attributable to the new demand, under the new charging rules the developer has to only fund infrastructure works to the nearest practicable point of connection (defined as network of an equal or greater size to the infrastructure supplying the site). As such any reinforcement works are covered by the Infrastructure Charge, payable per plot for all new connections.

4 Electricity Supply

Existing Conditions

4.1 **SSE** have been consulted regarding their existing network locations. Existing details of the electricity supply network are contained in the Appendix.

4.2 SSE operate an 11kV overhead line shown to cross the north of the Site in a south-west to north-east direction. Two 33kV overhead line are shown within the south of Site

4.3 A Low Voltage cable is shown to the east of the Site along Water Eaton Lane, and within Bicester Road to the south-west of the Site.

4.4 SSE also operate Low Voltage and High Voltage cables to the west of the Site within the adjacent residential development, along individual roads.

Supply Loadings

4.5 To assist SSE in their capacity assessment of their existing network, a total Electricity Demand of 800kVA was provided. Further details of the supply loadings and assumptions are outlined in **Table 2-1** and **2-2**.

Network Requirements

4.6 SSE has provided a budget estimate to supply the proposed development for a proposed load up to 800kVA.

4.7 The budget estimate provided by SSE has assumed the following:

- A plot of land 4.5m x 4.5m is located for the substation as no cost to SSE and will have 24 hour vehicular access.
- All highway/third party works will be carried out by SSE (subject to consent).
- All onsite excavation and reinstatement will be completed by the developer.
- No reinforcement charges have been included at this stage.

Diversions

4.8 SSE operate 11kV and 33kV overhead networks, which are shown to cross the Site. It is anticipated that these will be undergrounded to facilitate the Site. In reference to, *PR7a Land South East of Kidlington Development Brief Draft for consultation* (October 2021), these will be re-routed and undergrounded through the liaison with SSE.

4.9 In addition, Appendix 4 of *The Cherwell Local Plan 2011-2031 (Part 1) Partial Review* states that there will be a requirement for agreements with SSE on any modification to overhead lines and/or development under any overhead network at a Site. Discussions with SSE, the incumbent electricity company will be undertaken to ensure an appropriate diversionary route and safe working distances are implemented for this Site.

4.10 SSE also operate Low Voltage cables along Bicester Road, where the proposed Site access(es) are anticipated. Once at the detailed design stage, SSE may be contacted to confirm whether any necessary diversions of their existing asset are required

Regulatory Background

4.11 Competition in the electrical market is now reasonably mature and a developer is free to procure third party Distribution Network Operators (DNOs) to provide an embedded network, or indeed multi-utility / third party installations. The likes of Metropolitan and GTC take a holistic view in putting together infrastructure reinforcements, site distribution and supply packages and off-set the costs with anticipated future revenue through the transmission and supply of service to give a better financial arrangement and single point of responsibility for the developer.

5 Gas Supply

Existing Conditions

5.1 **SGN** have been consulted regarding the location of their existing network in the vicinity of the Site. Existing details of the gas supply network are contained in the Appendix.

5.2 SGN do not operate any assets which are shown to cross the proposed development.

5.3 SGN do not operate a 125mm PE Medium Pressure (MP) gas main to the west of the Site along Bicester Road.

5.4 In addition, Low Pressure (LP) and MP gas mains are shown to the west of the Site, along individual roads, supplying the adjacent residential development.

Supply Loadings

5.5 To assist SGN in their capacity assessment of their existing network, a total Peak Gas Demand of 9,200kWh and an Annual Gas Demand of 6,800,000kWh. Further details of the supply loadings and assumptions are outlined in **Table 2-1** and **2-2**.

Network Requirements

5.6 SGN confirm that there is sufficient capacity in its Medium Pressure network to accommodate the proposed development, based on current network model data.

5.7 SGN has provided a budget estimate to supply the proposed development. The estimate includes for the installation of an appropriately sized gas infrastructure to a suitable location for the residential domestic properties.

5.8 SGN's estimate will provide all excavation and reinstatement of the trenches up to the Site boundary. No meter/meter work is included within the estimate.

Diversions

5.9 SGN operate a 125mm PE Medium Pressure Gas Main along Bicester Road, where the proposed Site access(es) is to be located. Once at the detailed design stage, SSE may be contacted to confirm whether any necessary diversions of their existing asset are required

Regulatory Background

5.10 Early deregulation in the gas infrastructure market has led to a competitive environment. Third party shippers are permitted to offset the capital cost of infrastructure against the income generated from conveying the gas which may reduce future development costs.

6 Telecommunications

Existing Conditions

6.1 The main incumbent telecommunications provider is **BT Openreach**. An extract from their asset plans is shown within the Appendix, which shows existing networks to the south and west of the proposed development.

6.2 BT Openreach assets are shown to the west of the Site along Bicester Road and to the east of the Site along Water Eaton Lane. Additional assets are shown to the south-west of the Site along the A4615 and the associated roundabout.

6.3 Further BT Openreach assets are shown to the west of the Site along individual roads, supplying the adjacent residential development.

6.4 Further to BT Openreach, **Virgin Media** also operate assets within the vicinity of the Site. On review of the Virgin Media asset plans, which are also provided within the Appendix, cables are shown to the west of the Site along individual roads, supplying the adjacent residential development. No Virgin Media assets are shown to cross the proposed development.

Supply Requirements

6.5 A development of this nature will require a suite of communication services, typically being:

Fibre to the Premises (FTTP)

FTTP technology, where the fibre runs all the way to the home or business, from the local exchange is being deployed in certain areas. FTTP will offer the top current download speed of 330Mbp for residential properties and 1Gbps for commercial properties. This is labelled 'Ultrafast Broadband' by BT Openreach.

Cable Television

Cable television services provide an option for the proposed domestic dwellings to replace the need for satellite dishes. Cable Television is provided by Virgin Media, BT (BT Vision) and GTC.

Fibre to the Cabinet (FTTC)

FTTC relies on the existing copper network between the telephone cabinets but is then fed by fibre optic cables to the local exchange. This reduces the loss experienced over the copper network. Download speeds offered can be up to 80Mbps.

Local Loop Unbundling (LLU)

LLU is the process of opening up a telephone exchange so that it can be used by a number of different broadband providers. These broadband providers are then able to use connections from the telephone exchange through to the customer's homes to deliver home broadband.

Internet Service Providers (ISP)

ISP supplies the end user with internet access services over the telecom network. The speeds offered by the ISP are restricted by the physical network. The available ISPs delivering services over FTTP are currently limited but will increase as it is rolled out to more customers to increase the market.

Network Requirements

6.6 A Connectivity Assessment can be applied for through BT Openreach to confirm supply requirements for the proposed development. BT Openreach advise the ideal time for this request is at land purchase stage. The proposed development is covered by the Kidlington Exchange. In addition to BT Openreach, ADSL, and Virgin Media, an initial review has identified the following LLU operators are present in the Kidlington Exchange: Sky, Talk Talk (CPW) and Vodafone.

6.7 The Kidlington Exchange can offer FTTC in some areas, but not FTTP.

Diversions

6.8 BT Openreach operate cables shown to potentially cross the proposed development off the roundabout to the south-west of the Site. Once at the detailed design stage, BT Openreach can be contacted to confirm their protective measures/diversions required for the Site, if these assets are affected.

6.9 BT Openreach also operate assets shown along Bicester Road, where the proposed Site access(es) is anticipated. Once at the detailed design stage, BT Openreach can be contacted to confirm whether any necessary diversions of their existing assets are required.

Regulatory Background

6.10 BT Openreach is the incumbent national communications business throughout most of the country, with the exception of K-Com in the Hull area. They own and operate the majority of fibre and copper telecoms network in the country.

6.11 With BT Openreach controlling the existing cables feeding residential development, and the exchange (know as the ‘local loop’ or ‘last mile’, they have maintained a dominant position in controlling the communications sector.

6.12 The industry regulator, Ofcom, has completed much work in unbundling the local loop and bringing competition into the residential market. Following this deregulation, Virgin Media, TalkTalk and Vodafone are undertaking major investment to place switch equipment into BT’s existing exchanges and hence allow direct access to their network. This system, known as Carrier Pre-Selection is becoming increasingly popular, although wholesale line provision down at local loop level, within the residential market, has yet to develop. Accordingly, BT or local cable franchise cable operators are the prime source of network connections on residential Sites.

6.13 Virgin Media and GTC offer rival options to supply telecoms to residential developments, although the choice of alternative ISPs is more restricted than via the BT Openreach network.

7 Multi Utility Companies

7.1 The Multi Utility Company **GTC** has been consulted to provide a budget estimate for supplying the proposed development with electricity and gas.

Supply Loading

7.2 The electrical loading assumptions and gas loading assumptions outlined in **Table 2-1** and **Table 2-2** have been provided to GTC in order for them to provide their connection budget estimate costs.

Network Requirements

GTC

7.3 GTC have been approached to provide a budget estimate to provide electricity and gas for the proposed development, as an alternative option to the incumbent electricity and gas companies.

Gas

7.4 GTC has identified a point of connection off the 125mm PE Medium Pressure gas main adjacent to the entrance on Bicester Road, which has been assumed to have capacity to feed the proposed development and excludes any reinforcement works which may be necessary. GTC has allowed for 5 metres of offsite work (5m verge).

7.5 All other excavation has been assumed to be the responsibility of the developer. The supply of a gas governor has been included within the quotation, along with the installation costs for this.

Electricity

7.6 GTC has been offered a High Voltage network connection, with 1 substation required and included within the quotation. GTC has assumed the Point of Connection to be on site. GTC has assumed that the Developer will carry out all civil works associated with the substation at their own cost.

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

8 Service Supply Competition

8.1 The traditional procurement route, up until recently, had been to provide service supplies to a new development through a local network operator. With the incumbent companies having somewhat of a monopoly, competition in the market was poor.

8.2 However, following deregulation of the service supply networks, through the likes of Ofgem, Ofcom and Ofwat, independent network operators have been able to enter the market and provide new service supplies to developments.

8.3 Companies such as GTC and Connect take a holistic view in putting together infrastructure reinforcements, site distribution and supply packages and off-set the costs with anticipated future revenue through the transmission and supply of service to give a better financial arrangement and single point of responsibility for the developer.

8.4 These businesses use a multi-utility approach to implement the infrastructure. The independent companies are still regulated by the relevant office of regulation and subsequently asset owners must:

- Ensure that the installed network meets regulated standards
- Design to an operating lifetime of 40+ years
- Manage a return on their investment
- Ensure that the existing network performance is not compromised

8.5 Throughout this document a review has been completed for the provision of service supply infrastructure at the site through the local network operators. This approach provides a good indication as to the likely upgrading requirements for the local infrastructure, but at this stage, does not demonstrate a competitive cost for services procurement.

8.6 Multi-utility companies provide significant investment to the provision of services at a development based on a whole life financial model, considering revenue from supply conveyance. Due to these investments, large reductions can be achieved to the capital cost for the provision of services at a site.

8.7 A development of this size has the potential to benefit a great deal from the financial investment of companies such as Connect and GTC. As such independent companies may be utilised to provide final network supplies for the Site.

8.8 This report summarises the details relating to the current network conditions outlining the requirements for reinforcements and provision of supply through the existing network.

9 Summary

9.1 This Services Statement has indicated that the proposed development on the Site has the potential to be supplied with normal network service supplies, potentially without prohibitive reinforcements to the existing networks.

9.2 However, some localised, non-prohibitive reinforcements may be necessary together with protections or diversions where existing plant is affected by the proposals. This will be confirmed once all enquiries have been completed by each respective utility company and once at the detailed design stage.

9.3 **Table 9-1** outlines the supply requirements for Site:

Utility Company	Service	Scope of Works
Thames Water	Potable Water	Thames Water has confirmed that there will be sufficient capacity to serve up the first 49 dwellings at the proposed development without further investigation, a partial supply. The nearest point of connection is a 6" main on Bicester Road. Thames Water have confirmed that to supply the whole site at 400, further modelling would be required to establish the nature of the reinforcement required on the local network. Ofwat has instigated significant changes into the charging regimes of the water companies. Whereas prior to April 2018, the water companies would charge developers for any reinforcement works to the existing network directly attributable to the new demand, under the new charging rules the developer has to only fund infrastructure works to the nearest practicable point of connection (defined as network of an equal or greater size to the infrastructure supplying the site). As such any reinforcement works are covered by the Infrastructure Charge, payable per plot for all new connections.
SSE	Electricity	Budget estimate has been provided to supply the proposed development for a proposed load up to 800kVA.
SGN	Gas	Budget estimate has been provided to supply the proposed development, which includes for the installation of an appropriately sized gas infrastructure to a suitable location for the residential domestic properties.
GTC (Multi Utility)	Electricity and Gas	Gas point of connection is off the 125mm PE Medium Pressure gas main adjacent to the entrance on Bicester Road, with an onsite High Voltage electricity connection assumed.

Table 9-1: Summary of Supply Enquiries

10 Limitations

10.1 The conclusions and recommendations contained herein are limited to those given the general availability of background information and the planned usage of the Site.

10.2 Third Party information has been used in the preparation this report, which Brookbanks, by necessity assumes is correct at the time of writing. While all reasonable checks have been made on data sources and the accuracy of data, Brookbanks accepts no liability for the same.

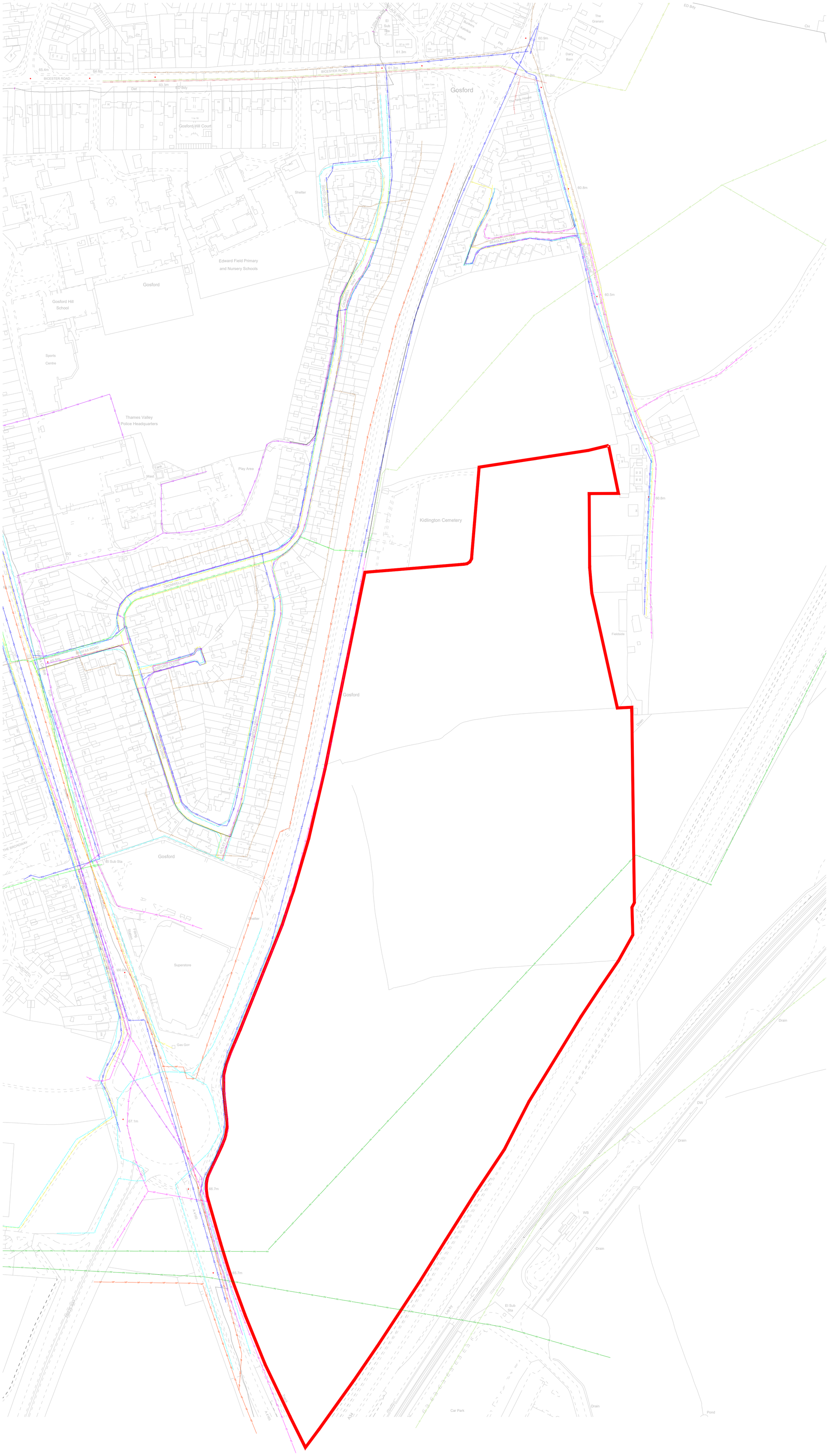
10.3 Existing network appraisals and proposed reinforcements are based on current infrastructure. Ongoing load growth will occur that may feasibly affect network availability. It is therefore necessary to monitor and review the existing networks capacity regularly.

10.4 The benefits of this report are provided solely to Barwood Development Securities Ltd for the proposed development on the Site only.

10.5 Brookbanks excludes third party rights for the information contained in the report.

Appendix A – Combined Utility Plan

Original Drawing Size A1



Construction Design and Management (CDM)
Key Residual Risks

Contractors entering the site should gain permission from the relevant land owners and/or principle contractor working on site at the time of entry. Contractors shall be responsible for carrying out their own risk assessments and for liaising with the relevant services companies and authorities. Listed below are Site Specific key risks associated with the project.

1) Overhead and underground services
2) Street Lighting Cables
3) Working adjacent to water courses and flood plain
4) Soft ground conditions
5) Working adjacent to live highways and railway line
6) Unchartered services
7) Existing buildings with potential asbestos hazards

NOTES:

1. Do not scale from this drawing.
2. All dimensions are in metres unless otherwise stated.
3. Brookbanks Consulting Ltd has prepared this drawing for the sole use of the client. The drawing may not be relied upon by any other party without the express agreement of the client and Brookbanks Consulting Ltd. Where any data supplied by the client or from other sources has been used, it has been assumed that the information is correct. No responsibility can be accepted by Brookbanks Consulting Ltd for inaccuracies in the data supplied by any other party. The drawing has been produced based on the assumption that all relevant information has been supplied by those bodies from whom it was requested.
4. No part of this drawing may be copied or duplicated without the express permission of Brookbanks Consulting Ltd.

KEY:

- Red Line Boundary
- Potable Water Main (Thames Water)
- Foul Water Main (Thames Water)
- Surface Water Main (Thames Water)
- Surface Water Rising Main (Thames Water)
- 33kV Overhead Line (SSE)
- 11kV Overhead Line (SSE)
- High Voltage Cable (SSE)
- Low Voltage Cable (SSE)
- Medium Pressure Gas Main (SGN)
- Low Pressure Gas Main (SGN)
- BT Openreach Asset
- Virgin Media Asset

N

A	Client Amendment and Site Name Amendment	AM	DS	DS	15.02.22
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BROOKBANKS

6150 Knights Court, Solihull Parkway, Birmingham, B37 7WY
T +44 (0)121 329 4330 E mail@brookbanks.com
W brookbanks.com

Barwood Development Securities Ltd

Land at Gosford

Existing Utility Assets Location Plan

Status		Status Date
Draft		JAN 2022
Drawn	**Checked**	**Date**
AM	DS	02.02.2022
Scale	**Number**	**Rev**
1:2000	10669-SU-02	A

UNTIL TECHNICAL APPROVAL HAS BEEN OBTAINED FROM THE RELEVANT LOCAL AUTHORITIES, IT SHOULD BE UNDERSTOOD THAT ALL DRAWINGS ARE ISSUED AS PRELIMINARY AND NOT FOR CONSTRUCTION. SHOULD THE CONTRACTOR COMMENCE SITE WORK PRIOR TO APPROVAL BEING GIVEN, IT IS ENTIRELY AT HIS OWN RISK.

Head Office Address

6150 Knights Court,

Solihull Parkway,

Birmingham Business Park,

Birmingham.

B37 7WY

T +44(0)121 329 4330

mail@brookbanks.com

brookbanks.com