



LAND AT
SCOTLAND FARM



Preliminary Utility Assessment

Prepared on behalf of:
Dry Drayton Estate Ltd & Hallam Land Management

By:
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10744 Scotland Farm, Cambridgeshire

Technical Note 3: Preliminary Utility Assessment

23rd November 2021

1 Introduction

- 1.1 Brookbanks is appointed by Dry Drayton Estate Limited and Hallam Land Management Ltd to complete a Preliminary Utility Assessment for a proposed new sustainable development at Land at Scotland Farm, Cambridgeshire.
- 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.

2 Background Information

Location and Details

- 2.1 The development site is located approximately 8km west Cambridge City centre.
- 2.2 The site is bound to the north and west with agricultural land. Scotland Road bisects the Site, with Madingley Road (A428) to the south of the Site. The development site lies on undeveloped agricultural land.
- 2.3 The site location is shown in **Figure 2-1**.

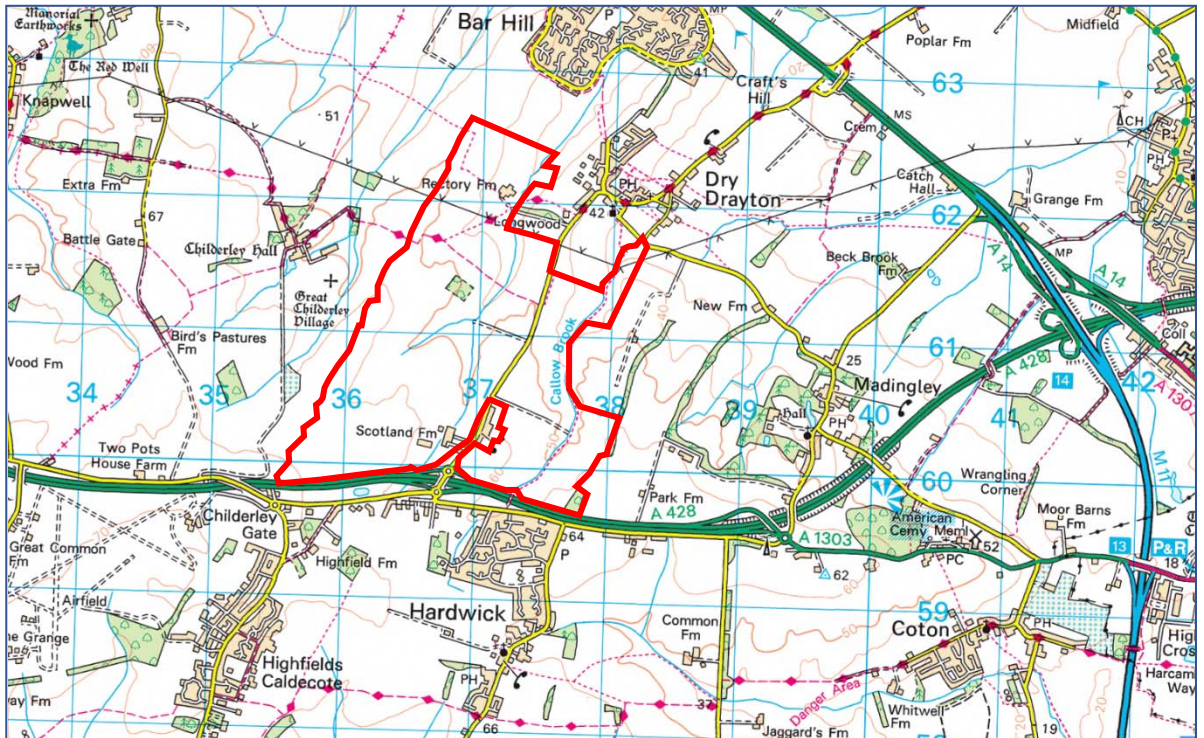


Figure 2-1: Site Location

Development Criteria

- 2.4 The site is in total 253ha, with both commercial and residential areas being proposed. The residential areas are to comprise of circa 6,250 new homes, along with a variety of commercial uses, District and Local Centres, Primary Schools and a Secondary School.

Supply Loading

- 2.5 The following loading assumptions shown in Table 2-1 have been made to determine the Supply loadings to provide to the incumbent potable water, foul water, electricity, and gas suppliers, based on a quantum of circa 6,250 Dwellings and additional commercial uses.

Development Type	Potable Water	Foul Water	Electricity	Peak Gas	Annual Gas
Residential Dwellings	Daily Water Demand of 125l/person/day over an 18 hour day*	Assuming 95% of Potable Water Demand	2kW/Dwelling	23 kW/Dwelling	17,000 kW/Dwelling
Employment	Daily Water Demand of 45l/person/day over an 8 hour day*	Assuming 95% of Potable Water Demand	Split between B8 = 17kVA/m ² B2= 80kVA/m ² B1 = 87kVA/m ²	Split between B1 = 70W/m ² B2/B8 = 80W/m ²	Split between B1 = 120kWh/m ² B8 = 160kWh/m ² B2= 180kWh/m ²
Local Centre and District Centre	Daily Water Demand Split between A1 = 45l/person/day over a 12 hour day* A1 = 45l/person/day over a 16 hour day* A2 = 45l/person/day over a 16 hour day* A3 = 7l/person/day over a 10 hour day* A4 = 4l/person/day over a 12 hour day* A5 = 7l/person/day over a 12 hour day* D2 = 20l/person/day over an 8 hour day*	Assuming 95% of Potable Water Demand	Split between A1 = 160kVA/m ² A1 = 185kVA/m ² A2 = 100kVA/m ² A3 /A4 = 225kVA/m ² A5 = 500kVA/m ² D2 = 80kVA/m ²	Split between A1 = 100Wh/m ² A2 = 70Wh/m ² A3 = 250W/m ² A4 = 200W/m ² A5 = 120W/m ² D2 = 100W/m ²	Split between A1 = 105kWh/m ² A2 = 105kWh/m ² A3 = 370kWh/m ² A4 = 350kWh/m ² A5 = 120kWh/m ² D2 = 330kWh/m ²
2 F.E. Primary School (x4)	Daily Water Demand of 15l/person/day over an 8 hour day (per School)*	Assuming 95% of Potable Water Demand (per School)	50W/m ² (per School)	87W/hr/m ² (per School)	150kWh/m ² (per School)
Secondary School	Daily Water Demand of 15l/person/day over an 8 hour day* (per School)	Assuming 95% of Potable Water Demand (per School)	50W/m ²	87W/hr/m ²	150kWh/m ²

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

2.6 Following the assumptions made above, Table 2-2 below outlines the supply loadings which have been provided to each incumbent utility company (Cambridge Water, Anglian Water, UKPN and Cadent Gas) 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)	Peak Foul Water Demand (l/s)	Electricity Demand (kVA)	Peak Gas Demand (kWh)	Annual Gas Demand (kWh)
Residential Dwellings	83.04	78.89	12,478	143,497	106,063,000
Employment	13.34	12.66	4,174	5,218	10,436,020
Local Centres	14.64	14.58	1,261	799	1,239,700
District Centre			4,892	3,102	4,813,965
2 F.E. Primary School (x4)	22.2	21.09	550	957	1,650,000
Secondary School	22.2	21.09	550	957	1,650,000

Table 2-2: Supply Loadings

2.7 In addition to the loads provided above, the multi-utility companies GTC and UK Power Solutions have been requested to provide a quotation for electricity, with electric heating, to provide a holistic assessment, to future proof the Site. **Table 2-3** provides a summary of the loading assumptions and loadings for the Site:

Development Type	Electricity with Electric Heating Assumption	Electricity with Electric Heating Load (kVA)
Residential Dwellings	2kW/ Dwelling	23,413
Employment	Split between: B8 = 17kVA/m ² ; B2= 80kVA/m ² ; B1 = 87kVA/m ² (33% of the Peak Gas Demand for Electric Heating Demand).	5,896
Local Centre and District Centre	Split between: A1 = 160kVA/m ² ; A1 = 185kVA/m ² ; A2 = 100kVA/m ² ; A3/A4 = 225kVA/m ² ; A5 = 500kVA/m ² ; D2 = 80kVA/m ² (33% of the Peak Gas Demand for Electric Heating Demand).	7,441
2 F.E. Primary School (x4)	50W/m ² (per School) (33% of the Peak Gas Demand for Electric Heating Demand)	866
Secondary School	50W/m ² (33% of the Peak Gas Demand for Electric Heating Demand)	866

Table 2-3: Electric Heating Supply Assumptions and Loadings

Sources of Information

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

- | | | |
|--|---|----------------------------|
| • Cambridge Water | - | Potable Water |
| • Anglian Water | - | Foul Water |
| • UK Power Networks | - | Electricity |
| • Cadent Gas | - | Gas |
| • BT Openreach | - | Telecommunications |
| • Sam Knows Website | - | Broadband Availability |
| • Multi Utility Company - GTC | - | Electricity, Gas and Fibre |
| • Multi Utility Company – UK Power Solutions | - | Electricity and Gas |

3 Water Supply

Existing Conditions

- 3.1 **Cambridge Water (CW)** has been consulted regarding the location and capacity of their existing network within the vicinity of the Site.
- 3.2 Cambridge Water operate a 15" main along Scotland Farm and 450mm mains adjacent to the A428, which is shown to cross the Site. In addition, CW operate potable water mains to the south of the Site, which are shown along individual roads, supplying the adjacent residential dwellings.

Network Requirements

- 3.3 CW have been approached to provide a Pre-Development enquiry for the proposed development Site. CW has confirmed a Point of Connection to the Site can be made from the 15" potable water main along Scotland Road, outside the Site access. The estimated non-contestable works for this connection is estimated at £25,000.00.
- 3.4 In order to ensure, the service for the existing customers is not detrimentally affected, extensive reinforcement works, including but not limited to, laying several kilometres of mains, and upgrading one or more booster stations. This work will be funded by infrastructure charges, and CW anticipate that it will take 24 months to complete.
- 3.5 It is anticipated that up to 200 properties could be supplied from the existing network, prior to the requirement of upgrades.
- 3.6 CW will also require resilience due to the size of the development, and therefore anticipate additional connections to the 450mm main adjacent to the A428 to the south-west and south-east of the Site and an additional connection to the 15" main along Scotland Road.
- 3.7 Therefore, from the response provided by Cambridge Water, the Site has a feasible connection solution, to the network along Scotland Road. To ensure capacity is available for the Site, and to not cause detriment in the network, reinforcement works will be required, which are funded via infrastructure charges. These reinforcement works are not deemed to be restrictive, and will allow for more capacity within the network, once upgrades have been completed in the 24 month period timescale provided.
- 3.8 It has been noted that the local council has undertaken initial conversations regarding growth level options within the Greater Cambridge area. The Site at Scotland Farm will either fall into a "High Growth" or "Medium Growth" development. Although the "High Growth" has its challenges, the "Medium Growth" area is considered to be plausible for achieving water supply, which will overcome any uncertainties.
- 3.9 Therefore, the response from Cambridge Water confirmed that a solution is viable regardless of which growth scenario is recommended.

Regulatory Background

3.10 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.

3.11 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.

3.12 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.

3.13 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.

3.14 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 Foul Water Drainage

Existing Conditions

- 4.1 **Anglian Water (AW)** been consulted regarding the location and capacity of their existing sewerage network within the vicinity of the Site.
- 4.2 Existing details of their Foul Water supply network has yet to be provided, however in advance it is anticipated that foul water and surface water sewers will be within the vicinity of the Site, which deal with the adjacent residential developments foul sewage.

Network Requirements

- 4.3 Anglian Water has confirmed that the Site currently has no viable connection for the size of the Site currently and will require an alternative foul water drainage strategy to be considered. In order to assist AW, they will require a drainage design to provide an overall examination of the Site. In addition, a meeting has been suggested, once ready to progress with the Site, to establish and examine an effective drainage strategy.
- 4.4 It should be noted Anglian Water has confirmed the development is within the catchment of Uttons Drove Water Recycling Centre (WRC), which currently does not have capacity to treat the foul water flows from the proposed development. It is understood that the WRC has restricted outflows. It has not been confirmed whether this insufficient capacity is from the flow or the treatment at the Water Recycling Centre. However, Anglian Water has confirmed they are obligated to accept the foul water flows from the proposed development. Therefore, once planning consent is approved, Anglian Water would ensure they take the necessary steps to ensure there is sufficient treatment capacity for the Site.
- 4.5 The connection point to Uttons Drove WRC correlates with the previous scoping undertaken by Stantec in their "*Strategic Spatial Options Review: Greater Cambridge Integrated Water Management Study*" in November 2020. It was identified during the scoping, that there is a technical and economic feasible option, of a new pipeline to Papworth WRC, where there is current capacity available in the network. This therefore reiterates Anglian Water's position in paragraph 4.4.
- 4.6 Therefore, there is scope and feasible options for the Site's foul water to be discharged.
- 4.7 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.

5 Electricity Supply

Existing Conditions

- 5.1 **UK Power Network (UKPN)** has been consulted regarding the location and capacity of their existing network within the vicinity of the Site.
- 5.2 UKPN asset plans have confirmed that High Voltage (11kV) networks are shown to cross the proposed development Site within the west of the Site and the east of the Site, along with local overhead feeds supplying Scotland Farm and Rectory Farm.
- 5.3 In addition to the 11kV networks, a 132kV overhead network is shown to cross the Site in the western and eastern Sites.
- 5.4 High Voltage cables are shown crossing the east of the Site, adjacent to the A428 along with High Voltage cables along the A428 and Scotland Road to the south of the Site.
- 5.5 UKPN also operate High Voltage and Low Voltage cables along Scotland Road (north of the A428), which are supplying the Dry Drayton village.

Network Requirements

- 5.6 UKPN has provided a budget estimate to supply the proposed development. The estimate has assumed a connection to the 132kV network. It has been assumed that 132kV/11kV substation will need to be established close to the connection point. There is a requirement for six 11kV metered supplies.
- 5.7 UKPN has confirmed upstream reinforcement works will be required, via a dual 132kV cabling between Horningsea Tee and Arbury Grid.
- 5.8 UKPN has provided a high level budget estimate of £18,100,000.00, which consist of £12,500,000.00 of non-contestable works (of which £8,300,000.00 is for upstream reinforcements and £5,600,000.00 are contestable costs.
- 5.9 The budget estimate provided by UKPN has assumed the following:
 - The most appropriate Point of Connection (POC) is as described above.
 - A viable cable route exists along the route we have assumed between the Point of Connection (POC) and your site.
 - In cases where the Point of Connection (POC) is to be at Extra High Voltage, that a Primary substation can be located on your premises at or close to the site boundary.
 - Where electric lines are to be installed in private land UK Power Networks will require an easement in perpetuity for its electric lines and in the case of electrical plant the freehold interest in the substation site, on UK Power Networks terms, without charge and before any work commences.
 - You will carry out, at no charge to UK Power Networks, all the civil works within the site boundary, including substation bases, substation buildings where applicable and the excavation/reinstatement of cable trenches.

- Unless stated in your application, all loads are assumed to be of a resistive nature. Should you intend to install equipment that may cause disturbances on UK Power Networks' electricity distribution system (e.g. motors; welders; etc.) this may affect the estimate considerably.
- All UK Power Networks' work is to be carried out as a continuous programme of work that can be completed substantially within 12 months from the acceptance of the formal offer.

- 5.10** The Stantec “*Greater Cambridge Local Pan Spatial Options Assessment: Infrastructure Delivery Plan*” confirmed there will be a requirement for 132kV grid reinforcement, which has been confirmed through our enquiries with UK Power Network. The Stantec Note confirmed that Arbury Grid Substation, confirmed as the reinforcement requirement for this Site, has limited capacity for smaller developments. Therefore, there may be some local capacity within the network to supply initial development of the Site, with the load available needing to be confirmed. If there is capacity for an initial quantum, this would potentially allow for some early development on the Site, in advance of the reinforcement and upgrade works required.
- 5.11** UK Power Networks have confirmed the reinforcement works required for the Site, and as with the Stantec Report, these do not provide a constraint technically for the Site, but timing and financial burdens, which will need to be liaised with UK Power Networks.

Regulatory Background

- 5.12** 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.

6 Gas Supply

Existing Conditions

- 6.1** **Cadent Gas** has been consulted regarding the location of their existing network in the vicinity of the Site.
- 6.2** Cadent Gas operate Medium Pressure gas main (unknown size) along Scotland Road, and this continues along St. Neots Road to the south of the Site.
- 6.3** In addition, Low Pressure gas mains are shown to the north and south of the site, along individual roads, supplying the adjacent residential dwellings.

Network Requirements

- 6.4** Cadent Gas has been approached to provide confirmation of their requirements to supply the Site. There is a High Pressure gas main within the vicinity of the Site, which Cadent Gas has suggested to be the most suitable Point of Connection. However, this main has insufficient capacity for the requested demand and will require reinforcement.

- 6.5 At this stage, Cadent Gas do not provide any details of the likely reinforcement works required, or costing for this. Further details of the required reinforcements will likely to be provided by multi-utility companies who have been approached for the Site, as an alternative option. These details will be provided in Section 8.

Regulatory Background

- 6.6 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.

7 Telecommunications

Existing Conditions

- 7.1 The main incumbent telecommunications provider is **BT Openreach**. Their asset plans identify existing networks to the south and north of the proposed development.
- 7.2 BT Openreach operate overhead lines and underground cables to the south of the Site along the A428, where the potential Site access is to be located, along within the northern and southern areas of Scotland Road.

Supply Requirements

- 7.3 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 330Mbps 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

- 7.4 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 Madingley Exchange. In addition to BT Openreach and ADSL, an initial review has identified the following LLU operators are present in the Madingley Exchange: Sky and TalkTalk (CPW).
- 7.5 The Madingley Exchange (approximately 1.4km south-east of the proposed development) can offer FTTC and FTTP.

Regulatory Background

- 7.6 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.
- 7.7 With BT Openreach controlling the existing cables feeding residential development, and the exchange (known as the 'local loop' or 'last mile'), they have maintained a dominant position in controlling the communications sector.
- 7.8 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.
- 7.9 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.

8 Multi Utility Companies

- 8.1** The Multi Utility Companies **GTC** and **UK Power Solutions (UKPS)** have been consulted to provide a budget estimate for supplying the proposed development with gas and electricity.

Supply Loading

- 8.2** The same electrical loading assumptions that were provided to UK Power Networks and the gas loading assumptions that were provided to Cadent Gas have been provided to GTC and UKPS in order for them to provide their connection budget estimate costs.

Network Requirements

GTC

Electricity (with Electric Heating), Potable Water and Fibre

- 8.3** GTC have been approached to provide a budget estimate to provide electricity, (with electric heating) as for the proposed development, as an alternative option to the incumbent electricity company. GTC have provided an estimate of £37,892,766.11, with onsite costs of £7,904,616.32 and offsite costs of £15,683,149.79 and upstream electricity and water costs of £14,305,000.00.

Electricity (with Electric Heating)

- 8.4** GTC has been offer an EHV connection and will therefore require a Primary Substation onsite. GTC has provided provisional onsite 33kV and supply/build of the Primary Substation costs of £3,353,690.00 and these are included within the estimate provided. The connection provided to GTC is from Histon Grid.
- 8.5** Due to the Size of the Site, 27 substations onsite will be required, with these costs included within the estimate. In addition, reinforcement works are required, and included within the estimate, which include for excavation/reinstatement costs in the public highway (7.81km). These works are indicatively costed at £15,682,649.79.
- 8.6** It should also be noted that there are potential engineering difficulties along New Road, Cambridge Road and Dry Drayton Road, due to bridge crossings over streams. Direction drilling may be required, but not included within the estimate. Provisional sums of £200,000.00 per bridge should be allowed for. In addition, further difficulties along the A1307 are anticipated where the bridge crosses over the highway. Again, direction drilling may be required and excluded from the estimate, but provisional costs of £130,000.00 should be allowed for.

Potable Water

- 8.7** The estimate provided is based on budgetary Point of Connection to the 15" main located on Scotland Road. The potable water company in the area have advised that extensive reinforcement works will be required for

the total Site demand and therefore a timescale of 24 months for this work.

Fibre

- 8.8** The quotation provided includes for off-site excavation and reinstatement works required for the onsite fibre duct network at the Site entrance to the appointed Backhaul Provider. These works will be carried out by GTC. The estimate is based on GTC installing the duct and chamber infrastructure and fibre network.
- 8.9** The quotation offers a rebate of £300.00 per plot, which has already been deducted from the estimate provided. The total rebate therefore for 6,329 plots is £1,898,700.00.
- 8.10** There is the potential for GTC to offer their innovative fibre installation methods. GTC will offer £130.00 per plot saving on this, with total estimate saving, if required, at £822,770.00.
- 8.11** If FIRS is required, a payment of £1,451,892.56 will be required.

UK Power Solutions

- 8.12** UK Power Solutions have been approached to provide a budget estimate for dual lay of gas and electricity and a separate quotation for the Site to be electrically heated.

Electricity and Gas

- 8.13** UK Power Solutions has provided an estimate of £13,868,230.00 to supply the Site with electricity and gas. This includes for non-contestable costs of £9,000,000.00 and includes for upstream reinforcement works via dual 132kV cabling between Horingsea Tee and Arbury Grid.
- 8.14** The Point of Connection is therefore to be made to the 132kV network. The estimate includes for:
- 2 x 132kV 20MVA cables from the Extra High Voltage Point of Connection to the onsite primary substation.
 - 1 x 132kV switchboard
 - 2 x 12/24MVA 132kV/11kV transformers
 - 1 x 11kV switchboard.
 - 2 x Auxiliary Transformers
 - 9 x 1000kVA distribution IDNO Substation
- 8.15** A Medium Pressure gas CSEP will be made available directly adjacent to the Site and reinforcement works are required to supply the Site, and a design will therefore be required.

Electrically Heated

- 8.16** UK Power Solutions has provided an estimate of £21,599,346.00, with non-contestable costs of £15,600,000.00 and includes for upstream reinforcement works via dual 132kV cabling between Horingsea Tee and Arbury Grid.
- 8.17** The Point of Connection is therefore to be made to the 132kV network. The estimate includes for:
- 2 x 132kV 34MVA cables from the Extra High Voltage Point of Connection to the onsite primary substation.
 - 1 x 132kV switchboard
 - 2 x 20/40MVA 132kV/11.5kV transformers
 - 1 x 11kV switchboard.
 - 2 x Auxiliary Transformers
 - 19 x 1000kVA distribution IDNO Substation
- 8.18** It is anticipated that it will take 18-20 months for the energisation of the 132kV Primary Substation.

9 Service Supply Competition

- 9.1** 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.
- 9.2** 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.
- 9.3** 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.
- 9.4** 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
- 9.5** 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.

- 9.6 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.
- 9.7 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.
- 9.8 This report summarises the details relating to the current network conditions outlining the requirements for reinforcements and provision of supply through the existing network.

10 Summary

- 10.1 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.
- 10.2 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.
- 10.3 **Table 10-1** outlines the supply requirements for the Site.

Utility Company	Service	Scope of Works
Cambridge Water	Potable Water	<p>The estimated non-contestable works for this connection is estimated at £25,000.00. Extensive reinforcement works, including but not limited to, laying several kilometres of mains and upgrading one or more booster stations. This work will be funded by infrastructure charges, and CW anticipate that it will take 24 months to complete.</p> <p>It is anticipated that up to 200 properties could be supplied from the existing network, prior to the requirement of upgrades.</p> <p>CW will also require additional connections to the 450mm main adjacent to the A428 to the south-west and south-east of the Site and an additional connection to the 15" main along Scotland Road.</p>
Anglian Water	Foul Water	<p>AW confirm no viable connection for the size of the Site currently and will require an alternative foul water drainage strategy to be considered. In order to assist AW, they will require a drainage design to provide an overall examination of the Site. In addition, a meeting has been suggested, once ready to progress with the Site, to establish and examine an effective drainage strategy.</p>
UKPN	Electricity	<p>Budget Estimate has been provided, which assumes that 132kV/11kV substation will need to be established close to the tee point.</p>
Cadent	Gas	<p>Confirmed there is insufficient capacity within the High Pressure Gas network to supply the proposed development, and reinforcement works will be required.</p>
GTC (Multi Utility)	Electricity (with Electric Heating), Potable Water and Fibre	<p>GTC has provided an estimate of £37,892,766.11.</p> <p>GTC has been offer an EHV connection (Histon Grid) and will therefore require a Primary Substation onsite. GTC has provided provisional onsite 33kV and supply/build of the Primary Substation costs of £3,353,690.00 and these are included within the estimate provided.</p> <p>In addition, reinforcement works are required, and included within the estimate, which include for excavation/reinstatement costs in the public highway (7.81km).</p>
UK Power Solutions (Multi Utility)	Electricity and Gas	<p>UK Power Solutions has provided an estimate of £13,868,230.00 for the supply of gas and electricity.</p> <p>Estimate includes for 132kV Extra High Voltage network (including upstream reinforcements) and a Medium Pressure Gas Main connection outside the Site, and reinforcements are required (but not included)</p>
UK Power Solutions (Multi Utility)	Electricity and Electrically Heated	<p>UK Power Solutions has provided an estimate of £21,599,346.00 for the supply of electricity, with electric heating.</p> <p>Estimate includes for 132kV Extra High Voltage network (including upstream reinforcements).</p>

Table 10-1: Summary of Supply Budget Estimates

11 Limitations

- 11.1** The conclusions and recommendations contained herein are limited to those given the general availability of background information and the planned usage of the Site.
- 11.2** 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.
- 11.3** 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.
- 11.4** The benefits of this report are provided solely to Hallam Land Management for the proposed development on the Site only.
- 11.5** Brookbanks excludes third party rights for the information contained in the report.



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