



BETTER SOLUTIONS, INTELLIGENTLY ENGINEERED

TRANSPORT & INFRASTRUCTURE

Brackley Property Developments Ltd

Burnaston Cross

Willington, Derby

Foul Water & Utilities Assessment

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EXECUTIVE SUMMARY

This Utilities Assessment has been prepared by BWB Consulting Limited (BWB) on behalf of Brackley Property Developments Ltd. Its purpose is to describe the locations of existing utilities apparatus in the vicinity of the site and to provide an account of the viability of servicing the proposed development with suitable mains services infrastructure. The assessment also considers whether any services diversions are likely to be required as a consequence of the development proposals.

BWB carried out a comprehensive search to establish the approximate location of existing recorded services. The site and its surrounds are well served by high and low voltage electricity, gas, water and telecoms.

The response received from the relevant gas and clean water network operators indicates that sufficient residual capacity exists within the surrounding network to serve the proposed development.

A number of supply strategies have been discussed with the electricity operator in order to distribute electricity to the site. The response received has indicated the requirement for an onsite primary substation.

The offsite route for the electricity supplies will be required to cross Network Rail, Highways England and Canal & Rivers Trust land.

Following ongoing discussions with the incumbent electricity provider, it is anticipated that reinforcement works will be required to the surrounding networks in order to facilitate the proposed development site.

Following a review of the existing utility record plans, it is envisaged that diversionary/disconnection works to the existing electricity and telecommunication networks will be required in order to accommodate the proposed development.

It is recommended that further consultation with the relevant statutory undertakers is undertaken once the development proposals are reasonably fixed, in order to confirm the availability and cost of strategic services supplies and the extent of any diversionary works required to accommodate the proposed development.

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1. INTRODUCTION

Instruction

- 1.1 BWB Consulting (BWB) was instructed by Brackley Property Developments Ltd (the Client) to carry out a Utilities Assessment. Details of the project brief are included in BWB proposal dated December 2017.
- 1.2 It is proposed that a commercial development is to be constructed on the site, including access, above-ground drainage systems and other soft landscaping features.
- 1.3 The indicative masterplan for the site is included within **Appendix A**.

Objectives

- 1.4 The objectives of the report are: -
 - To describe the location of existing services on and immediately adjacent to the site.
 - To determine whether there is likely to be any difficulty in providing strategic utility services to serve the proposed development.
 - To consider the impact of the development itself on the existing services infrastructure and the likelihood of any necessary diversions.

Scope of Works

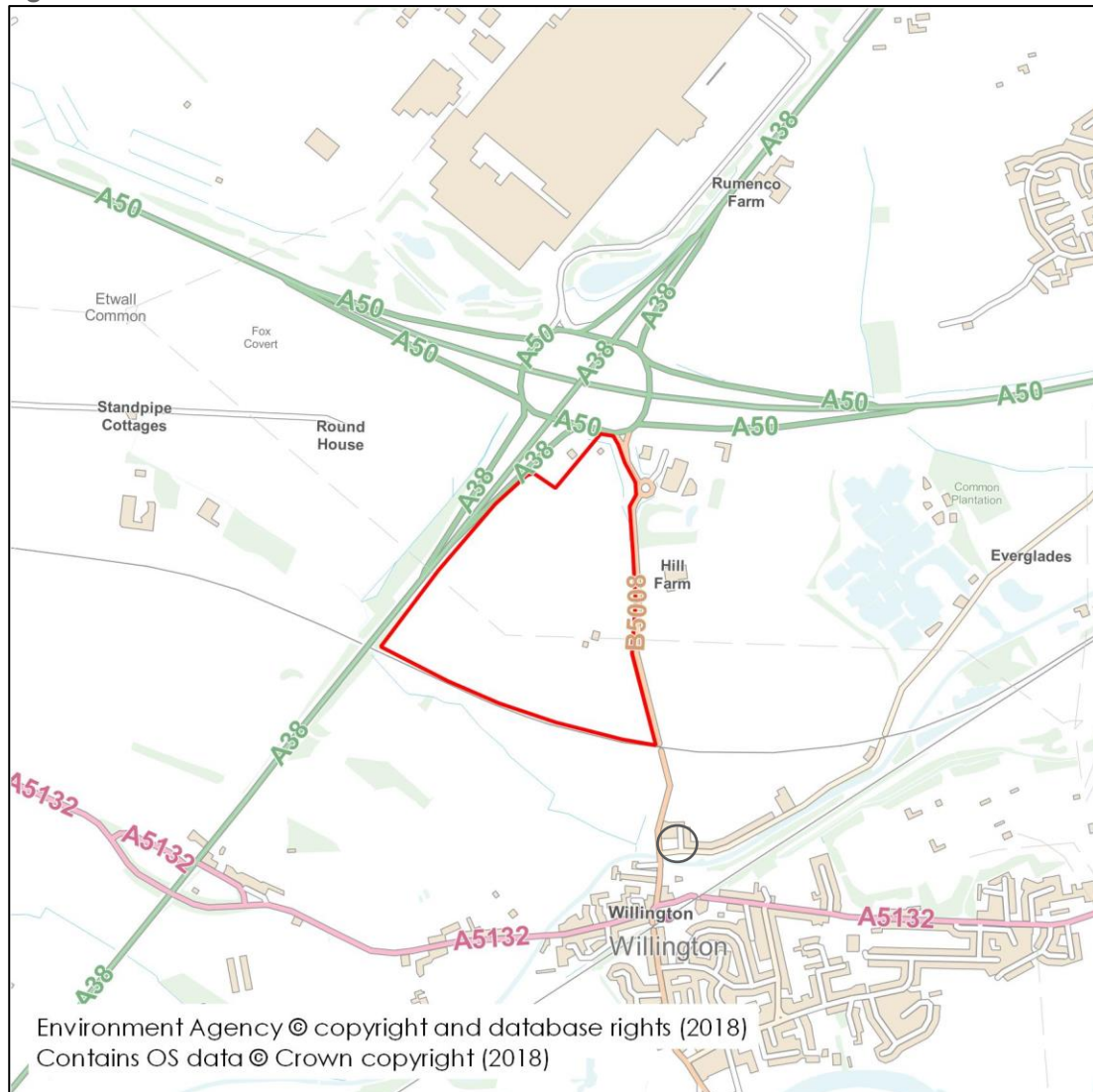
- 1.5 The Scope of work included:
 - Obtain up to date stats record plans.
 - Conduct a review of the existing record plans received.
 - Highlight key risks pertaining to the location of existing assets in relation to the development area.
 - Obtain quotations from the relevant statutory authorities regarding supply and diversion/disconnection works.

2. THE SITE

Site Location

- 2.1 The existing site is located in Derbyshire, at National Grid ref: 436780, 330014, as shown in **Figure 1**.

Figure 1: Site Location Plan



Site Description

The site is bounded to the north by two isolated dwellings and their grounds; beyond these is a major road junction, where the A50 and A38 trunk roads intersect. To the north of the junction is a large Toyota manufacturing plant. To the east of the site is the B5008 Etwall Road, beyond which are a large service station (public house, hotel and petrol station), isolated dwellings and open farmland. To the south the site is bound by the Crewe-Derby railway line, beyond which is open farmland. To the west of the site is the A38 dual carriageway, beyond which lies further open farmland.

3. EXISTING SERVICES APPARATUS

- 3.1 BWB requested copies of existing services records from the utility companies operating within the vicinity of the site. The following provides a summary of the responses received. BWB has produced a composite utilities plan showing the location of the existing services in the vicinity of the site, of which a copy is enclosed at **Appendix B**.

Electricity Apparatus

- 3.2 The Western Power Distribution (WPD) electricity record plan shows an existing network of low voltage (LV), high voltage (HV) and extra high voltage (EHV) apparatus within and surrounding the proposed development site.
- 3.3 The WPD record plan show 2no. 11kV HV cables, located within A38 Burton Road, beyond the western boundary of the site. The 2no. HV cables are shown to run vertically in a north to southerly direction.
- 3.4 Of note, the WPD record plans show an 11kV HV cable that is shown to enter the site from southern boundary and continues in a northerly direction within the extents of the western boundary of the proposed development site. The 11kV HV cable is shown to terminate at the Pole Mounted Transformer (PMT) within the north west of the site.
- 3.5 Furthermore, there is an 11kV HV cable that is shown to enter the site from the north-eastern boundary and terminates within the PMT within the north-west of the site.
- 3.6 The electricity record plans show the presence of 2no. 11kV cables within the north-eastern boundary of the site. The 11kV cables are shown to enter the site from Etwall Rd where the first 11kV HV cable is shown to terminate at a PMT, from where overhead (OH) LV line emanates and is shown to head in a southerly direction. It is assumed that the OH LV line provides supplies to the dwellings within the south east of the site. The second 11kV HV cable is shown to run in westerly direction before terminating within the north-east of the site.
- 3.7 Most notably, there is a 132kV OH line that crosses within the development footprint. The 132kV OH line is shown to enter the site from the eastern boundary, where it continues in a westerly direction before exiting the site from the western boundary.

Gas Apparatus

- 3.8 The Cadent Gas (CG) record plan shows a network of medium pressure (MP) gas mains in close proximity to the site.
- 3.9 Of note, there is a 400mm MP gas main situated within the A50 Burton beyond the western boundary of the site.
- 3.10 Furthermore, there is a 12" MP gas main situated within Etwall Road, beyond the eastern boundary of the site.
- 3.11 The CG gas record plan confirms that there is no apparatus present within the site itself.

Water Apparatus

- 3.12 The South Staffs Water (SSW) clean water record plans show an existing network of clean water mains supplying the existing residential dwellings to the east of the site.
- 3.13 Of note, the record plans received show a 3" clean water main running along the western boundary of the site, within the A38 Burton Road. The 3" main continues in a southerly direction where it increases in diameter to 12" along the A38 Burton Road.
- 3.14 Most notably, there is a 160mm clean water main within the unnamed road, beyond the north-eastern boundary of the site.
- 3.15 The SSW clean water record plans confirm that there is no apparatus present within the site itself.

Telecommunication Apparatus

BT/Openreach

- 3.16 The BT/Openreach (BT) record plan BWB obtained, shows a network of overhead and underground infrastructure within and surrounding the site.
- 3.17 Of note, there is a cable that enters the site from Etwall Road, within the north-eastern extents of the site. Furthermore, there is a cable and joint box present within the northern extents of the site.
- 3.18 Most notably, there are 4no. overhead poles and associated cables that are present within the south-eastern corner of the proposed development site.

Other Telecommunication Companies

- 3.19 BWB contacted several other communications companies including Instalcom, Interoute, Virgin Media, KCOM, Verizon, Vodafone, Telent and Colt, none of whom have any apparatus in the vicinity of the site.

Linesearch apparatus

- 3.20 BWB contacted several other utility companies through Linesearch. The response received confirms the site does not lie within the zone of interest of a number of companies, most notably:

Mainline Pipelines Ltd

Government Pipeline Storage Systems (GPSS)

Shell Pipelines

Croyton Energy Con Ltd (Gas Pipeline)

4. PROPOSED SUPPLY STRATEGY

- 4.1 BWB made enquiries to the relevant incumbent utility companies regarding the provision of services to supply the promoted site. Strategic services load demands have been estimated by BWB for a mixed-use commercial development for the area as shown on the Proposed Site Masterplan, a copy of which is enclosed at **Appendix A**. The following provides a summary of the responses received.

Electricity

Overall Supply Strategy

- 4.2 The WPD supply response confirms that there will be a requirement to install a new 33kV/11kV Primary Substation within the site boundary.
- 4.3 There would be a requirement for WPD to decommission the existing single 33kV transformer known as Trent Alloys and to install a new dual 33kV transformer within the site. It should be noted that there will be a requirement for a 60m x 60m plot of land within the site to house the new 33kV primary transformer.
- 4.4 The new 33kV/11kV primary substation will be connected into the Burton Grid primary substation, approximately 6km south of the proposed development site. WPD will decommission the existing Trent Alloys primary substation once the new 33/11kV primary substation has been energised.
- 4.5 The offsite route for the 33kV connections will be a mixture of overhead lines and underground cabling.
- 4.6 WPD envisage installing up to 9no. high voltage (HV) metered substations onsite, from which suitably sized electricity infrastructure will be laid, to distribute supplies to each of the commercial units.
- 4.7 Furthermore, WPD have agreed to apportion the cost for the installation of the 33kV transformer as they will be utilising it for distributing supplies to the wider area. The developer contribution will be apportioned based on the amount of load required to supply the proposed development site.
- 4.8 It is envisaged that the proposed offsite route for the 11kV HV cables will cross Network Rail, Highways England and Canal & River Trust owned land. It is therefore advised that discussions are undertaken with the relevant stakeholders to obtain the necessary approvals to cross their land.

Initial phase of development

- 4.9 WPD confirmed that the local electricity network contains surplus capacity to the amount of 500kVA, which is the maximum amount available before network reinforcements/upgrade works will be necessary. A summary of the 500kVA supply response is detailed below.

- 4.10 WPD have provided a formal point of connection (POC) from the newly installed 11kV HV cable located within the north of the proposed development site.
- 4.11 There would be a requirement to divert a section of OH 11kV within the north-east of the site, in order to facilitate the 500kVA solution.

Gas

- 4.12 The Cadent Gas (CG) supply response received confirms that a connection can be made to the existing 315mm medium pressure (MP) gas main, located within the unnamed road, to the north of the site.
- 4.13 The CG response received confirms that the surrounding network has sufficient residual capacity to accommodate the proposed development and therefore, will not require reinforcement works.

Clean Water

- 4.14 The South Staffs Water (SSW) clean water supply response received, confirms that a connection can be made to the existing 160mm water main, located within Etwall Road, beyond the northern boundary of the site.
- 4.15 SSW have also confirmed that currently, the existing local network has sufficient capacity and will not require reinforcement works in order to accommodate the proposed development.

Telecommunications

BT/Openreach

- 4.16 The site and its surrounds appear to be well served by BT/Openreach (BT) infrastructure. Proposed new supplies should not therefore be difficult to procure and new BT infrastructure is usually 'free issue'. The provision of new services to suit the development should not be problematical.
- 4.17 In advance of this, it is anticipated that a connection can be made to the existing underground BT network, within vicinity of the site.
- 4.18 Following a review of the areas fibre broadband availability, BWB have established that the Repton exchange is fibre enabled and currently accepting orders.

5. DIVERSIONS/DISCONNECTIONS

- 5.1 BWB made enquiries to the relevant incumbent utility companies regarding the diversion/disconnection of existing services affected by the proposed development. The following provides a summary of the responses received.

Electricity Apparatus

132kV diversion

- 5.2 The Western Power Distribution (WPD) electricity record plans indicate that there is a network of 132kV overhead (OH) lines, including pylons that cross within the development footprint.
- 5.3 WPD recommend that where possible, the site masterplan accommodates the existing overhead 132kV lines within the site layout, with reference to the Health and Safety Executive's (HSE) GS6 Guidance.
- 5.4 Discussions with WPD have established that the following stand-offs would need to be adhered to when in close proximity to the 132kV OH apparatus:
- 3.2m from line conductor to construction, construction traffic, other mobile plant
 - 7m from line conductors to road surface (not a high load route or Motorway)
 - 6.7m from line conductors to ground, other than a road
 - 6.6m from line conductor to building or other structure
 - 10m from excavations and buildings to tower foundations
 - Any building to be sited at least 10m from tower structure
- 5.5 The WPD response for the 132kV apparatus is enclosed at **Appendix F**.

11kV diversion

- 5.6 The WPD record plan show a network of 11kV OH lines that are present within the proposed development site. As part of the strategy to facilitate an initial phase of development, WPD have propose undergrounding a section of OH lines to the north-west of the site.
- 5.7 Furthermore, WPD propose undergrounding a section of OH lines that cross within the eastern boundary of the site.
- 5.8 The diverted 11kV cables are proposed to follow the route of the of the development layout and would be subject to obtaining the necessary wayleaves and consents, prior to any WPD apparatus being energised.

Gas Apparatus

- 5.9 The Cadent Gas (CG) gas record plans indicate that there is no apparatus present within the site itself. As such, diversionary works will not be required to facilitate the proposed development.

Clean Water Apparatus

- 5.10 The Severn Trent Water (STW) clean water record plans indicate that there is no apparatus present within the site itself. As such, diversionary works will not be required to facilitate the proposed development.

Telecommunication Apparatus

BT/Openreach

- 5.11 The BT/Openreach record plans received confirm the location of a number of assets within the development footprint.
- 5.12 BT/Openreach have provided a detailed diversion survey and estimate quotation. Once instructed, BT/Openreach will undertake a survey of the affected assets within the site and produce a diversionary works estimate outlining the proposed works and associated costs.

6. CONCLUSION AND RECOMMENDATIONS

- 6.1 The main conclusions and recommendations that can be drawn from this utilities investigation are as follows;

Conclusions

- 6.2 The existing site surrounds appear to be well served by the main utility services.
- 6.3 Having made initial enquiries with the relevant statutory undertakers, it appears as though the site can be served by the existing gas network surrounding the site, without the need for reinforcement works.
- 6.4 Initial discussions with the incumbent electricity undertaker has highlighted the requirement for reinforcement works to facilitate the proposed development.
- 6.5 Western Power Distribution envisage upgrading the primary substation in order to facilitate the demand from the proposed development site.
- 6.6 The incumbent clean water provider has stated the requirement for the reinforcement of the existing network in order to facilitate the proposed development.
- 6.7 Following a review of the existing gas, clean water, and telecommunication record plans, it is envisaged that diversionary works will not be required to accommodate the proposed development.
- 6.8 The incumbent electricity provider has stated the requirement to divert the overhead high voltage line within the development footprint underground, where it would follow the proposed development layout.

Recommendations

- 6.9 It is recommended that a below ground survey is undertaken in order to ascertain the location of existing and unknown privately-owned assets within the proposed development site.
- 6.10 It is recommended that further consultation with the relevant companies is undertaken closer to the time of development in order to confirm the availability of strategic services supplies.
- 6.11 It is recommended that further consultation is undertaken once the site masterplan is reasonably fixed, in order to ascertain the extent of any required diversionary works.

APPENDICES

APPENDIX A
Proposed Site Masterplan

APPENDIX B
Composite Services Plan



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