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University of Exeter
Student Accommodation Redevelopment

Estate Services Centre
Rennes Drive

Utilities Infrastructure Assessment Report

Pre-Planning Issue

Rev B

April 2020

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REV	DESCRIPTION	PREPARED BY	DATE
Initial Issue	Pre-Planning Issue	S.Veitch / D.Crooks	Apr 2020
A	Comments Incorporated	S.Veitch / D.Crooks	Apr 2020
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1.0 INTRODUCTION

The University of Exeter (UoE) is submitting a pre-planning application to Exeter City Council for the proposed new Estate Services Centre at Rennes Drive, on the University of Exeter Campus.

The new development is to principally comprise administration areas and workshops, supported by staff welfare facilities and plant spaces, served by underground water, fire main, electricity and data/telecommunications infrastructure networks.

Using the proposed occupancy levels, typical building usage profiles and historical data, the expected peak loads for the development have been estimated, permitting each of the networks to be sized.

The total estimated load of each network, has been determined, which, combined with a ground penetrating radar survey, desktop investigations and discussions with UoE's engineers and utility shippers/suppliers, enabled various supply strategies for each network to be considered.

The desktop investigations included (where relevant) assessments of UoE's record information / drawings detailing UoE's infrastructure networks and details of the utility shipper's/supplier's infrastructure networks.

This utilities report is a summary of the concept stage supply strategy proposals for the infrastructure networks, which have resulted from these activities.

At the time of this report South West Water (SWW) and Western Power Distribution (WPD) had not confirmed their proposals, although expected proposals have been included.

Once confirmed, this report will be reviewed and developed, in line with their responses and the project development, as it progresses through the future stages.

This report is not issued as a Services Specification. Technical details and further information can be found in the M&E Performance Specification, Strategy Document and associated drawings, which shall be issued at the appropriate stages.

The materials, components and completed installations shall conform to the National Joint Utilities Group Guidelines (including the positioning and colour coding of underground apparatus), appropriate Regulations, Codes of Practice and British/European Standards.

The details within the National Joint Utilities Group Guidelines outline the minimum standards required. In addition to this, where appropriate, the high voltage (HV) electricity works are to meet the requirements of UoE's standards.

2.0 SUMMARY

Principal items of this report;

Natural Gas:

A natural gas supply / network is not proposed for this development

Potable Cold Water:

It is anticipated that SWW's local networks are of adequate capacity for the proposed new development

Fire Hydrants:

New ground installed fire hydrants are to be provided in accordance with the new site layout, served by a fire main, extended from SWW's local mains

Electricity:

WPD or UoE (to be confirmed) are to extend their high voltage infrastructure network, serving a new sub-station / with step down transformer, supplying this development.

Data and Telecommunications:

UoE's existing duct network is to be extended to supply the new development with data and telecommunications services

Off-site Connections:

- SWW's mains run along three boundaries of the site, principally on UoE's Campus, therefore it is anticipated that potable water and fire main services will be provided via on-site (UoE Campus) connections/works
- Regardless of the HV network supplier/owner (WPD or UoE), it is expected that the HV supply will be extended from the existing HV infrastructure network on UoE's Campus
- UoE's existing (on Campus) ducted infrastructure networks are to be extended to serve the development with data and telecommunication services
- Considering the above, off-site connections are not anticipated at this stage (although this will need to be confirmed by SWW and WPD)

Further details of each proposed infrastructure service are provided in section 3 of this report.

3.0 SUPPLY STRATEGIES

3.1 General

The following is an overview of the situation/proposals to date, which will be progressed and confirmed as the project develops, including further discussions with UoE and the relevant utility provider(s).

3.2 Natural Gas

To satisfy UoE's Environment and Climate Emergency Working Group White Paper (issued in November 2019), i.e. not to use carbon based fuels, and to achieve the low energy consumption levels required by the Passivhaus Standards, a natural gas supply / network is not proposed for this development.

3.3 Potable Water

Record drawings indicate that SWW have trunk and distribution mains running adjacent to the north, west and east boundaries of the site, generally within UoE's campus.

SWW will be requested to provide a new connection and meter to serve this building/development with a potable water supply (actual main/connection point to be agreed).

3.4 Fire Main

Similarly SWW will be requested to extend a fire main onto the site (again actual main/connection point to be agreed), serving a ground installed fire hydrant(s), in accordance with the new site layout and to the requirements of the Approved Inspector/ Fire Officer.

3.5 Electricity

Further investigations / calculations are necessary, but it is anticipated that a new HV sub-station will be required to serve this development.

This sub-station will be served by extending either WPD's or UoE's HV infrastructure network. Connections/work involved for either option is expected to be achievable from within UoE's campus.

The sub-station will contain HV protection/isolation/switching equipment and a stepdown HV to Low Voltage (LV) transformer.

The development will be served by a LV service(s) from the new sub-station.

In addition to an installation of electricity generating photovoltaic (pv) panels proposed for the car park at Holland Hall, pv panels for the roof of the Estate Services building are under consideration.

These roof panels should improve the centre's Passivhaus Standards and will reduce the electricity demand on the network / grid.

Further discussions will be necessary, with WPD, UoE, etc. permitting the actual strategy proposals to be confirmed.

3.6 Data and Telecommunications

The new development will be served by extending UoE's local underground data and telecommunications duct network.

These proposals will be developed closely with UoE's ICTD Department, with the intention of utilising UoE's internet provider, permitting the scheme to be linked to their wider network.

It is likely the site shall be serve via geographically and physically diverse blown fibre 7-core tubing, containing 2 x OS-2 12-core single mode fibre feeds, to the site from UoE's main fibre infrastructure.

Works interfaces with UoE and responsibilities regarding the supply and installation of active/passive equipment, and systems compatible with the UoE's campus wide systems, will be discussed and agreed as the project develops.
