



HARNISS

C O N S U L T I N G

UTILITIES STATEMENT

FOR

PROPOSED CARE HOME, HOTEL FELIX, CAMBRIDGE

ON BEHALF OF



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1.0 Introduction

The purpose of this report is to provide an overview of the existing service connections and review of the new supplies required to meet the proposed development on the site of the existing Felix Hotel in Cambridge.

The development proposal consists of an 80-bed care home; associated works, including car parking, access landscaping and associated engineering.

The employer's agent has engaged with Subscan to complete an existing utilities survey of the site to ascertain location and type of services that will be affected by the proposed development works.

It should be noted that this survey information, along with existing record maps, provides an indication of services in and around the site but not always an accurate reflection of what is installed and as such the findings will need to be carefully validated prior to any demolition work commencing on site.

In all instances where proximity of services is identified as being 'present' the precise locations, i.e. dimensions, are not given as the general practice is, they identify 'approximate' positions only. Load assessments have been undertaken and supplied to the respective DNO for the sizing of the incoming services and the assessment of the load implications on their respective networks. A breakdown for each service loading can be found later in this report.



Image 1.0 – Proposed Site Plan (Courtesy of Careless+Adams)

2.0 Existing & Proposed Utility Services

The records of the existing services have been obtained from the subterranean services scan produced by Subscan, by others, which is appended to this report.

The key findings from the desktop feasibility study of the utility provisions in and around the proposed site is that mains fed electricity, gas, BT, wholesome water, and wastewater are present in the vicinity of the site. It can also be seen that that the services are located within the access road and footpaths to the site.

3.0 Summary of Disconnection / Diversions

The site currently has a 2no. 300mm² LV cable feeds with 125mm ducts from the substation across the road, which runs down the road and into the site at the right hand corner as you enter the site from the access road as identified on the UKPN asset map. As part of the new connection works and it can be seen that no LV or HV diversion is required.

The site is serviced by an existing gas supply entering a number of the existing building at differing locations. The existing gas supply is of insufficient size to serve the new building and as such will need to be disconnected in its entirety.

A PE water supply enters the site from Whitehouse Lane and runs through the main carpark entrance underground before entering the building. Similar to the gas supply, the water supply is not thought to be large enough to supply the requirements of the new site including the requirements for sprinklers and therefore the existing supply is proposed to be disconnected prior to demolition works on site.

It can be seen from the record plans that incoming telecoms runs above ground along the site boundary, within the tree line before then running underground to the building. Disconnection of the supply to the building is necessary prior to demolition however the existing cable route above ground can remain as it will not impact on site works.

The existing records show the site is currently free and clear of gas, wholesome water, wastewater and BT. As such disconnections from the site or diversion of the existing mains in the road are not foreseen.

3.1 New Supply Connections

Developers' applications have been submitted to provide new supplies to the site for gas, water and electric to the relevant district network operators (DNO's). These developers' enquiries have been made to determine the impact on the local DNO infrastructure and to identify the requirement for any infrastructure reinforcement works, such as a new substation. Due to the proximity of Gas, Water, LV and telecoms to the site, it is thought that network capacities will be sufficient without upgrade to existing main services however, it is often experienced that existing network capacities can change therefore firm quotations shall be procured as soon as reasonably practicable to ensure capacity is secured for the site.

Prior to sending out network capacity check enquiries, it was necessary to produce load assessments for Gas, Water and Electricity to calculate the peak and annual loads for the building, based on the services specification proposed for the building.

The table below outlines the loads for each service, as calculated. Load assessments can also be found in the below section.

Service	Authority	Detail of Service Required
Wholesome Water	Cambridge Water	A new water 63mm MDPE Barrier water supply to site providing a supply of a wholesome water supply at a rate of 2.03l/s for to service the buildings need and the sprinkler system Should the existing fire hydrant located along Whitehouse Lane be deemed inactive or over 100m from the proposed new entrance then a new private fire hydrant shall also be required.
Electric	UK Power Networks	Should the existing LV supplies to the building not be able to be disconnected, pot ended at the site boundary and extended to serve the new building the a new supply cable shall be required running based on the electrical load not exceeding 263kVA.
Gas	Cadent via Fulcrum	A new Gas U65-100 gas meter and kiosk is required to provide 68m ³ /hr of natural gas service to the building to serve the buildings space heating, CHP, hot water, kitchen and laundry requirements
BT	Openreach	High-speed network connection.

Table 2: Summary of New Connection Requirements – for details refer to Appendices.

3.2 Water Load Assessment

Room Description	Bedroom Ensuite	WC	Staff Room	Kitchen	Hair Salon	Assisted Bathroom	Sluice	Drugs	Cleaners Cup.	Laundry	Staff Change	Bar	Garden Room	Servery	Totals	Demand Units	Total Loading Units
WHB	80	15	1	1	1	4	4	4	0	1	4	0	0	0	115	2	230
WC	80	15	0	0	0	4	0	0	0	0	4	0	0	0	103	1	103
Shower	80	0	0	0	0	4	0	0	0	0	3	0	0	0	87	2	174
Bath	0	0	0	0	0	4	0	0	0	0	0	0	0	0	4	8	32
Sink	0	0	1	1	2	0	4	4	0	1	0	2	0	10	25	5	125
Bucket Sink	0	0	0	1	0	0	0	0	4	0	0	1	1	0	7	1	7
Washing Machine	0	0	0	0	0	0	0	0	0	3	0	0	0	0	3	10	30
Dishwasher	0	0	1	1	0	0	0	0	0	0	0	1	0	0	3	10	30
Total Number of Fittings															347	39	731

Peak Flow Rate **5.31 l/s**
 Water Storage / Person / Day 20 litres
 Number of Beds 80
 Total Water Storage @ 25% 1600 litres
 Sprinkler Storage Reqd (60% of 280l/m for 30 mins) 5040 litres
Total Water Storage **6640 litres**
 Infill based on 1 hour recovery 1.84 l/s
 Sprinkler infill reqd (40% of 220l/m) - From BS 9251 1.47 l/s

Water Main Flow Rate Req'd (incl. 5% margin) **2.03 l/s**

3.3 Natural Gas Load Assessment

Description	Area (m ²)	Space Heating @ 35W/m ² (kW)	Occupancy	Domestic Hot Water Allowance (l/Day)	Domestic Water Storage (litres/per person)	Domestic Hot Water Est. Storage	Total Hot Water Storage @ 1 hour Recovery	General Ventilation @ 6ac/hr (m ³ /s) (Assumed typical 2.5m Floor to Ceiling)	Process Ventilation (m ³ /s)	Ventilation Heat Load @ 15°C at	Ancillary Loads (kW)	Comments
Total Internal Floor Area (taken from Architects plans)	4655	163										
Bedroom			80	90	35	2800	90					
Kitchen	96			Inc. above					2.88	53	51	40ac/hr assumed for vent.
Laundry	54								0.41	7	51	10ac/hr assumed for vent. Ancillary loads = tumble dryers
General Ventilation - Estimated area served via ventilation (lounges, corridors)	2745							11.44		212		
CHP		60										
Sub Totals		223					90			273	102	

Notes	
Total Boiler Load (kW)	687
Total Boiler Input (kW)	723
Calorific Value (kJ/m ³)	38400
Gas Flow Rate (m ³ /s)	0.019
Gas Flow Rate (m ³ /hr)	68
Preliminary Annual Gas Consumption (kWh)	1149785
Based on BRE benchmark figures, overall fossil fuel demand is anticipated as approximately 247kWh/m ² .	

Notes:-

1. The above loads are based on floor areas taken from Preliminary Architects Plans (m²) and should be used for initial network capacity checks and budget quotations only. The loads are subject to change following both conceptual details being provided and then subsequent to the detailed design stage when loads for specific systems, components, devices and auxiliary equipment are established.

3.4 Incoming LV Load Assessment

Description	Item	Area (m ²) or No. of rooms	W/m ² or W/room	Connected Electrical Load (kW)	Diversity	Diversified Maximum Demand (kW)	Maximum Demand Total (kW)	Notes
Total Communal Areas (excluding kitchen)	Lighting	2649	6.00	15.89	0.70	11.13	11.13	
	Power	2649	8.00	21.19	0.60	12.72	12.72	
	Ancillaries	2649	2.00	5.30	0.60	3.18	3.18	
	Laundry	1	51,000.00	51.00	0.60	30.60	30.60	
Kitchen	Lighting	94	8.50	0.80	0.60	0.48	0.48	
	Power	1	50,000.00	50.00	0.70	35.00	35.00	
	Other	1	20,000.00	20.00	0.60	12.00	12.00	
Mechanical Services	Mechanical	1	90,000.00	90.00	0.40	36.00	36.00	
Lift (Each)	Power	2	5,000.00	10.00	0.40	4.00	4.00	
External Lighting	Lighting	1	1,800.00	1.80	0.80	1.44	1.44	
Bedrooms (Per Room)	Lighting	80	150.00	12.00	0.70	8.40	8.40	
	Power	80	350.00	28.00	0.60	16.80	16.80	
	Power for AC	80	500.00	40.00	0.50	20.00	20.00	
Electric Car Charging Points	Power	3	3,600.00	10.80	0.50	5.40	5.40	
	Sub-totals			356.78		197.14	197.14	

p.f. = 0.9
Spare Capacity 1.2

Diversified Max Demand	
Total (kW) =	197.14
Total (kVA) =	219.04
+ Spare Capacity (kVA) =	262.85

4.0 **Appendix A – Underground Services Plan (Subscan)**

