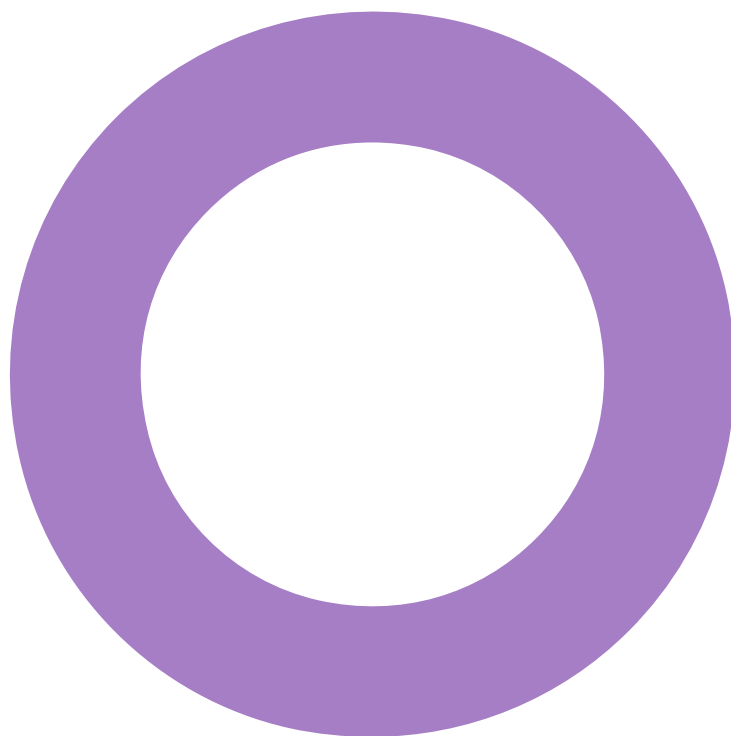


Beehive Centre Redevelopment. Cambridge.

Railway Pension Nominees Limited.

MEP ENGINEERING
PO-HRL-XX-XX-RP-J-230504
UTILITIES REPORT
REVISION P04 – 2024.08.19



Audit sheet.

Rev.	Date	Description of change / purpose of issue	Prepared	Reviewed	Authorised
P01	2023.05.19	Draft planning issued for comments	ASR/GO	JT	MC
P02	2023.06.08	Bidwells comments incorporated	ASR/GO	JT	MC
P03	2024.08.08	Draft planning issued for comments	ASR/GO	JT	MC
P04	2024.08.19	Bidwells comments incorporated	ASR/GO	JT	MC

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Project number: 3103570
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Executive summary.

This report summarises the incoming utility requirements for the Beehive Centre Redevelopment and the respective statutory authorities who have been contacted.

The Beehive Redevelopment is the subject of an Outline Planning Application (23/03204/OUT) for the demolition of the existing retail park buildings and a comprehensive redevelopment of the Site. The Proposed Development consists of a new local centre, office and laboratory space, landscaping and associated infrastructure. Consists of blocks 1-10 with:

- Basement cycle stores and facilities.
- Ground floors consist of office, lab, retail and food & beverage tenants.
- Blocks 1, 4, 7, 8, and 9 are offices.
- Blocks 2, 3, 5, and 6 consist of 50/50 lab/office tenants. Potential laboratory tenants include chemistry, biology, pharmaceutical, computational research etc.
- Block 10 is a multistorey car park with ground floor retail tenants.

Applications have been submitted for proposed water and electrical connections to all blocks. New gas connections are not proposed due to the site being all electric, however existing connections will be isolate, purged, disconnected and capped back to the main.

The site drainage is not included within this report, refer to the structural engineer’s drainage design information.

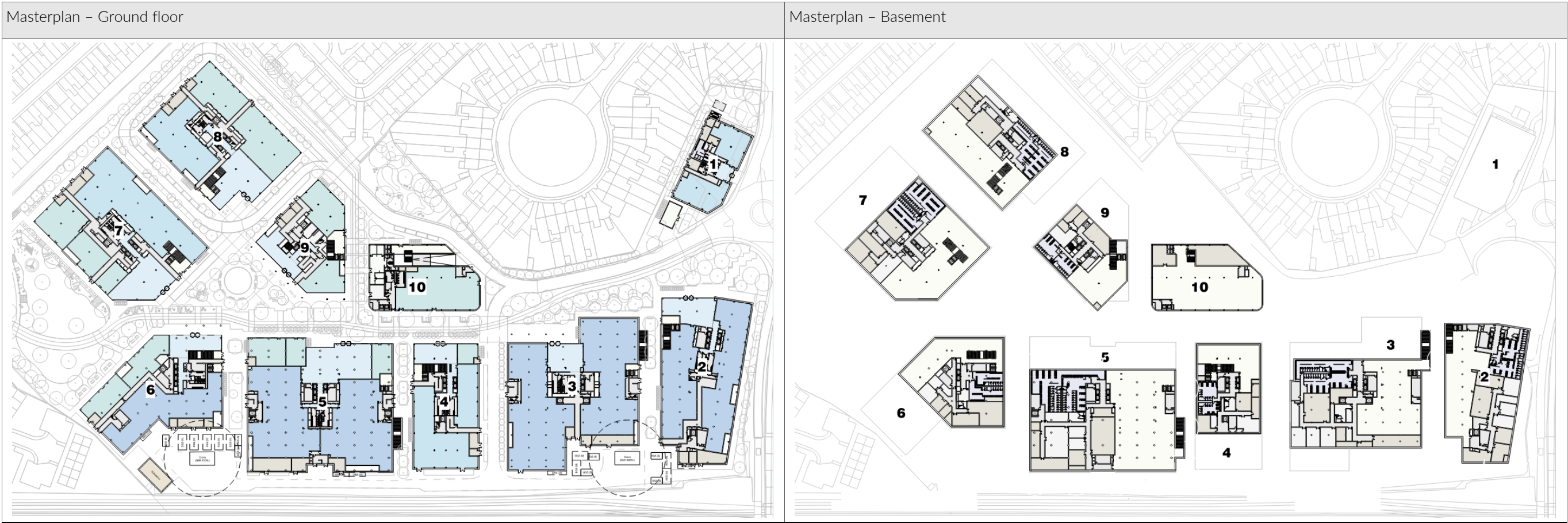


Table 1 provides a summary of the applications to date, including the relevant utilities supplier, enquiry type and scope.

Table 1 Summary of utilities applications

Utility	Provider	Enquiry type	Scope
Water	Cambridge Water	Existing disconnections. Predevelopment capacity check.	Disconnect all existing connections. New metered connections from Coldhams Ln & York St.

Utility	Provider	Enquiry type	Scope
Gas	Cadent Gas	Existing disconnection	Disconnect all existing connections
Electricity	UKPN/IDNO	Existing disconnections, and new connections	Phased disconnection of all existing (HV/LV) electrical infrastructure. New primary 33kV/11kV substation. New 11kV/400V dedicated substation to each building New 11kV/400V retail substation
Telecoms	BT/Others	Existing disconnections, and new connections	Disconnect all existing connections. New telecoms chambers and cable routed to each demise

1. Water.

Figure 1 details Cambridge Waters existing asset layout. Existing water connections to the site highlighted yellow will be isolated, drained, disconnected, and capped at the main.

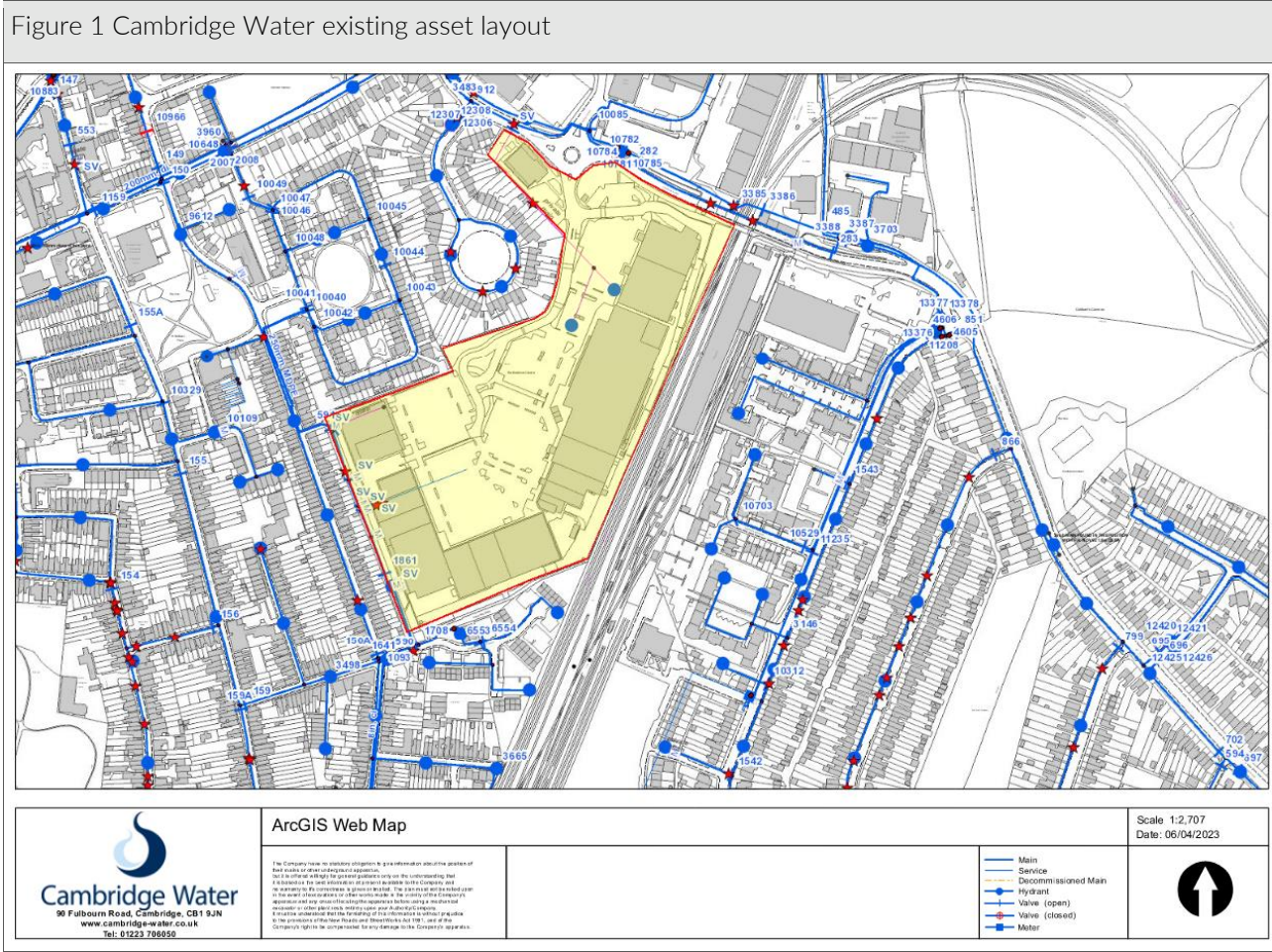


Table 2 details the proposed water connections, total storage volume, daily demand, connection size, and peak flow rate. Details of dedicated supplies to firefighting hydrants and the centralised site sprinkler tank are also included although will be for emergency use and testing only.

Cambridge Water has confirmed “that the proposed development can be served either from the 8” Water main in Coldhams Lane and the 8” Water main in York Street both have sufficient spare capacity to serve the proposed development.”

As per Cambridge water’s advice a full water application will be submitted after the project receives planning consent.

Table 2 Proposed mains water connections

Block	Connection name	Total storage volume, L [1][2][3][4][5]	Daily demand, L/day [6][7]	Connection size, Ømm [8]	Flow rate, l/s [9][10]
1	Tank	3,363	3,363	32	0.5
2	Tank	60,463	60,463	110	8.4
3	Tank	59,560	59,560	110	8.3
4	Tank	20,120	20,120	63	2.8
4	Retail 1	N/A	N/A	32	1.5
4	Retail 2	N/A	N/A	32	1.5
5	Tank	101,017	101,017	125	14.0
5	Retail 1	N/A	N/A	32	1.5
5	Retail 2	N/A	N/A	32	1.5
5	Retail 3	N/A	N/A	32	1.5
6	Tank	49,081	49,081	90	6.8
6	Retail 1	N/A	N/A	32	1.5
6	Retail 2	N/A	N/A	32	1.5
7	Tank	28,848	28,848	75	4.0
7	Retail 1	N/A	N/A	32	1.5
7	Retail 2	N/A	N/A	32	1.5
7	Retail 3	N/A	N/A	32	1.5
8	Tank	23,250	23,250	63	3.2
8	Retail 1	N/A	N/A	32	1.5
8	Retail 2	N/A	N/A	32	1.5
9	Tank	17,923	17,923	63	2.5
9	Retail 1	N/A	N/A	32	1.5

Block	Connection name	Total storage volume, L [1][2][3][4][5]	Daily demand, L/day [6][7]	Connection size, Ømm [8]	Flow rate, l/s [9][10]
9	Retail 2	N/A	N/A	32	1.5
10	Retail 1	N/A	N/A	32	1.5
Site	Hydrant 1	N/A	N/A	TBC	75.0
Site	Hydrant 2	N/A	N/A	TBC	75.0
Site	Hydrant 3	N/A	N/A	TBC	75.0
Site	Hydrant 4	N/A	N/A	TBC	75.0
Site	Hydrant 5	N/A	N/A	TBC	75.0
Site	Hydrant 6	N/A	N/A	TBC	75.0
Site	Hydrant 7	N/A	N/A	TBC	75.0
Site	Sprinkler	400,000	N/A	TBC	4.6

- [1] Domestic storage based on BCO 2023, 20 L/person for total building occupancy.
[2] Lab Cat 5 storage based on, Lab (Cat 5) storage based IOP, Factory 45 L/person.
[3] RO Water storage based on 6hrs of peak humidification load.
[4] RO Water demand based on 24hrs of peak humidification load.
[5] 50/50 laboratory office split in lab blocks.
[6] Office daily water demand 20 L/person based on BREEAM WAT 01 Table 8.3 Water efficient consumption levels by component type, column 5 and average outlet usage rates.
[7] Lab Cat 5 storage based on, Lab (Cat 5) use based IOP, Factory 45 L/person
[8] Retail connection based on below typical specs, assume 1.5l/s, 32Ø pipe.
[9] Tank pipe size based on 2hr tank refill.
[10] Sprinkler water supply based on EN 12845:2015 “refilling the tank in no more than 36h”

2. Gas.

Figure 2 details Cadent Gas existing asset layout. Existing connections will be isolate, purged, disconnected and capped back to the main. Cadant gas have completed an initial survey and provided a disconnection quote for the gas connections detailed in Table 3.

No new gas connections are proposed, due to the site being all electric.

Figure 2 Cadent Gas existing asset layout

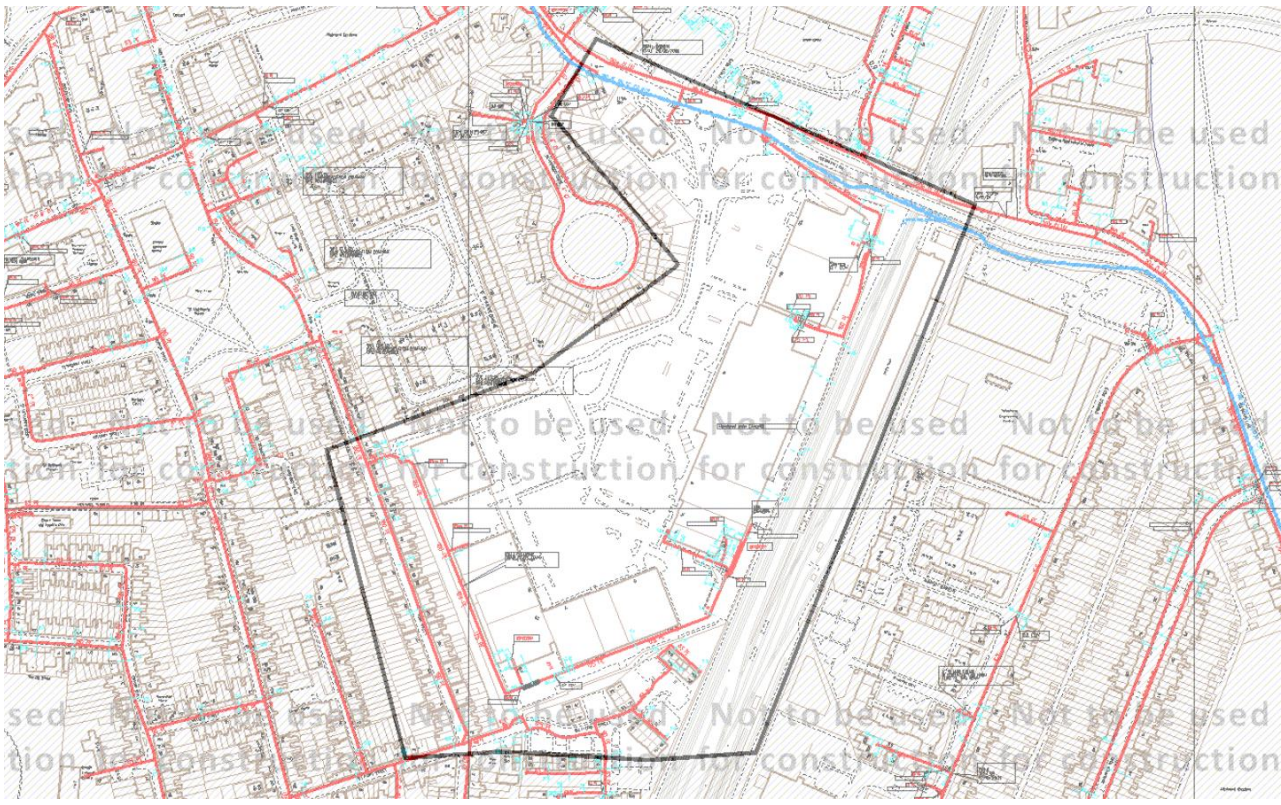


Table 3 Proposed gas disconnections

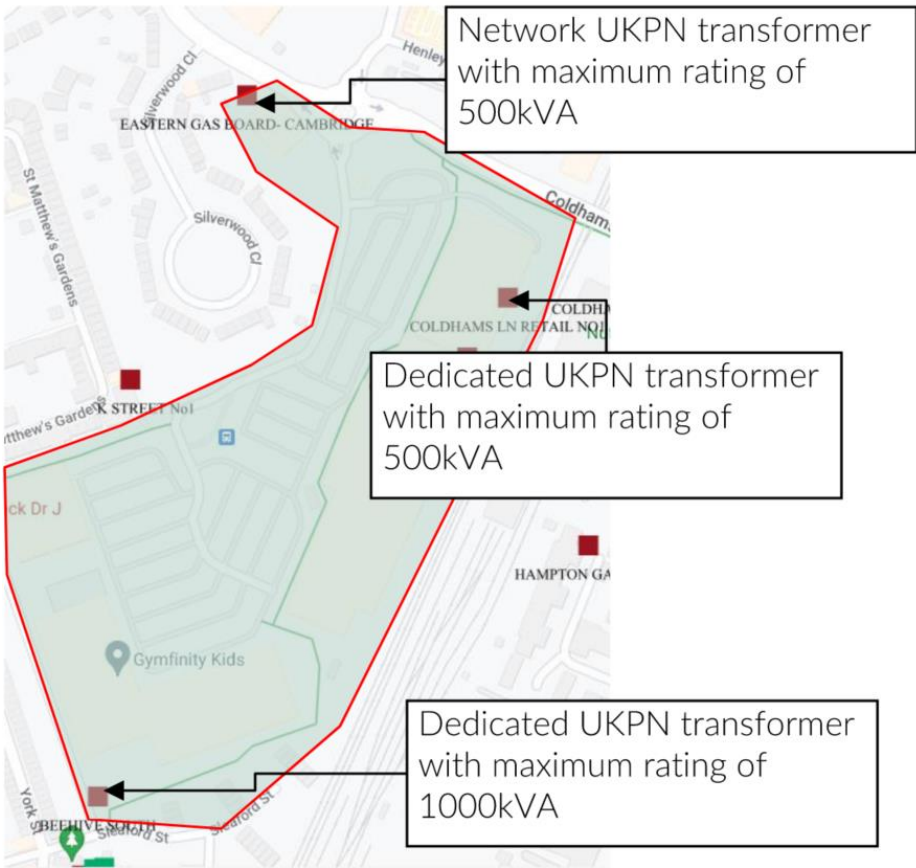
Connection name	Pipe Ømm
Unit 8, BEEHIVE CENTRE, Cambridge, CB1 3ET	90mm Plastic or 3" Metal
Everlast Gym, COLDHAMS LANE, Cambridge,	90mm Plastic or 3" Metal
Commercial Unit, COLDHAMS LANE, Cambridge,	90mm Plastic or 3" Metal
Unit 10a, BEEHIVE CENTRE, Cambridge, CB1	90mm Plastic or 3" Metal
Nandos Chicken, COLDHAMS LANE, Cambridge,	<= 63mm Plastic or 2" Metal
Turkish Restaurant, COLDHAMS LANE,	<= 63mm Plastic or 2" Metal
Homebase, COLDHAMS LANE, Cambridge, CB1	<= 63mm Plastic or 2" Metal
Unit 1, BEEHIVE CENTRE, Cambridge, CB1 3ET	<= 63mm Plastic or 2" Metal
Unit 10b, BEEHIVE CENTRE, Cambridge, CB1	<= 63mm Plastic or 2" Metal
Cotswold Shop, COLDHAMS LANE, Cambridge,	<= 63mm Plastic or 2" Metal
Unit 1a, BEEHIVE CENTRE, Cambridge, CB1 3ET	<= 63mm Plastic or 2" Metal
Argos, COLDHAMS LANE, Cambridge, CB1 3ET	<= 63mm Plastic or 2" Metal
Unit 2a, BEEHIVE CENTRE, Cambridge, CB1 3ET	<= 63mm Plastic or 2" Metal
Unit 4, BEEHIVE CENTRE, Cambridge, CB1 3ET	<= 63mm Plastic or 2" Metal

Connection name	Pipe Ømm
The Dream Shop, COLDHAMS LANE, Cambridge,	<= 63mm Plastic or 2" Metal
Unit 5, BEEHIVE CENTRE, Cambridge, CB1 3ET	<= 63mm Plastic or 2" Metal

3. Electrical.

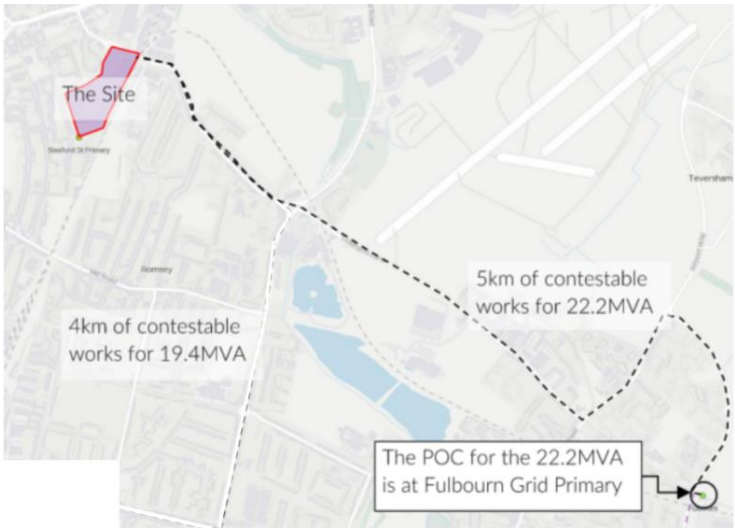
On site, there are 3No transformers serving the existing units within the development area as well as those in the surrounding areas. These transformers will need to be capped and disconnected, with temporary supplies provided to supply existing units during the various phase of construction.

UKPN will need to confirm what supplies can be retained during these periods and confirm how far through the delivery of the masterplan this capacity can be utilised, prior to requiring the full load.



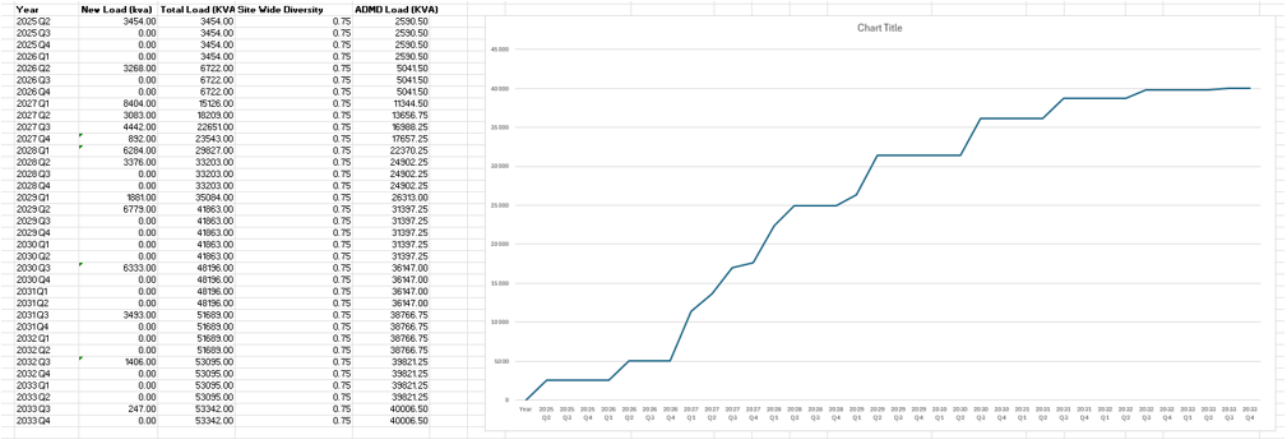
UKPN advised that reinforcement works at the 132KV/33kV Fulbourn grid will be required. These works will include the installation of a new 132KV/33kV transformer and a 132kV switching arrangement at Fulbourn grid.

From the primary substation a HV ring loop will serve all dedicated building and retail transformer across the site. Each building will be served by a dedicated 11kV transformer which will either be an IDNO/DNO, or a landlord operated transformer managed with a provision of a separate IDNO/DNO HV intake room adjacent to the substation.



An Initial Budget estimate applications for importing a capacity of 22.7MVA was lodged with UKPN. It has been advised that this will require the establishment of a new 33kV/11kV primary substation located within the Otter site footprint.

A formal application for power has now been submitted to UKPN under reference 8600031442. This is for a 40MVA which will accommodate both Project Otter and CRP development under one application. UKPN have been provided with the latest programme details for Project otter showing when the power is required year on year in the form of a ramping profile.



Hoare Lea's utility team are currently awaiting a written confirmation from UKPN that this be met, and a formal quote is expected to be received for October 2024.

The latest Stage 2 electrical assessed maximum demand has been calculated using the frozen GA and GIA breakdown produced by LDA June 2024 resulting to be 22.7 MVA based on Blocks 1-10 (including Multi-storey car park at Block 10) for the Beehive site See table below for breakdown. Ownership and demarcation line are currently being investigated by Hoare Lea's utility team.

Table 4 Electrical load breakdown

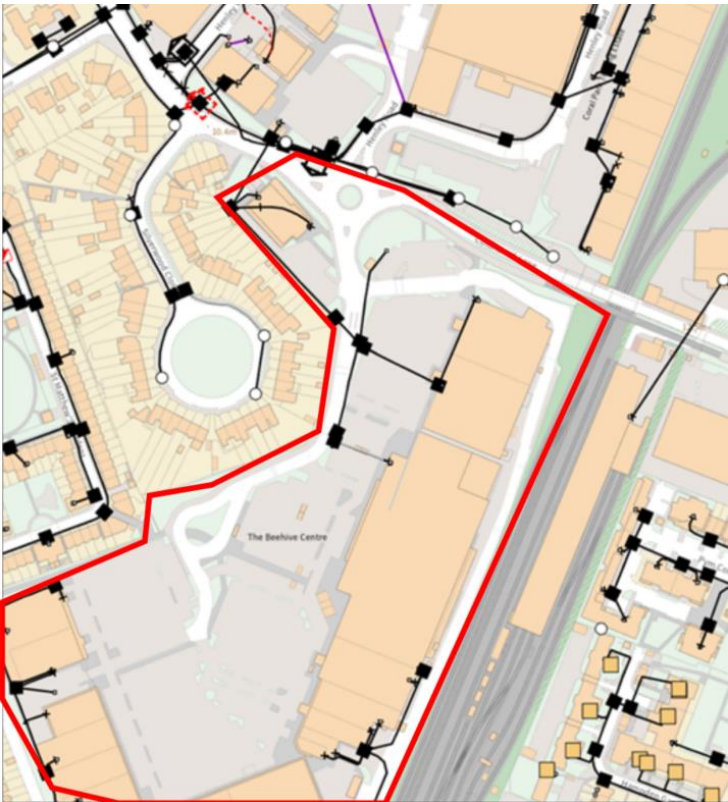
Electrical Plant summary	Total Building load (kVA)	Transformer Capacity Requirement + Spare (kVA)	IDNO/DNO/Landlord transformers
1	247	309	1No 500kVA
2	3735	4669	4No 1250kVA
3	3493	4366	4No 1250kVA
4	1295	1618	2No 1000kVA
5	6459	8074	6No 1500kVA
6	3376	4221	4No 1250kVA
7	1954	2443	2No 1250kVA
8	1834	2293	2No 1250kVA
9	1442	1802	2No 1000kVA
Retail 4	111	139	1No 315kVA
Retail 5	320	320	1No 500kVA
Retail 6	333	333	1No 500kVA
Retail 7	621	621	1No 800kVA
Retail 8	764	764	1No 800kVA
Retail 9	439	439	1No 500kVA
Car Park	3667	4583	3No 2000kVA
External**	163		

The retail units shall have capped off LV Supplies from their dedicated substation to allow tenants to choose their own utility provider, where the landlord will not have to be responsible for sub-billing electricity.

Provision will be made for one rapid EVCs per 20 car parking spaces in the multistorey car park and future allowance for fast charging EVC installation for all other remaining spaces with a 60% diversity applied across all charging stations. Provision for electric bike charge for 10% of all cycle spaces across the site at 50% diversity to the load.

4. ICT

There is currently known BT Openreach telecommunication across the site with universal chambers as shown in the image below. The existing cables are to be pulled back to the edge of the redline boundary.



As part of the ICT strategy for the site, two sets of telecoms ducts will be required to serve each building each building on the site. It is proposed that the development will be provided with a new BT open Reach Fibre connection and another Telecommunication provider (Virgin Media, Vodafone) served from new strategically placed universal meet chambers. Comms duct will be required to be routed from these chambers to serve each demise.



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