



FORMER NESTLE FACTORY, HAYES

UTILITIES ASSESSMENTS

MAY 2017

BARRATT
— LONDON —

SEGRO



watkins payne
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BUILDING SERVICES DESIGN CONSULTANTS

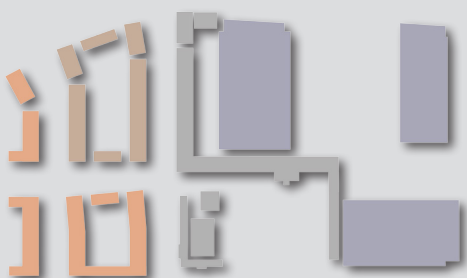
This covering report has been prepared for the joint Applicants, SEGRO plc and Barratt London Ltd, by Watkins Payne. It has been prepared to accompany a detailed planning application for the redevelopment of the former Nestlé factory site in Hayes in the London Borough of Hillingdon.

The proposals for the whole site comprise full planning permission for the part-demolition of existing factory buildings, associated structures and redevelopment to provide 1,381 dwellings (Use Class C3), office, retail, community and leisure uses (Use Classes A1/A3/A4/B1/B8/D1/D2) 22,663 sqm (GEA) of commercial floorspace (Use Classes B1c/B2/B8 and Data Centre (sui generis)), amenity and playspace, allotments, landscaping, access, service yards, associated car parking and other engineering works.

The joint applicants are leading developers in their respective fields, which are very different, and each employ Design Teams which are composed of architects and consultants who specialise in their development fields. So, while there will be a single planning application based on a single masterplan, there have been two contributing teams, and the Utilities Appraisal for the site necessarily comprises two parts. This brief covering report brings together the two sets of proposals.

Both of the separate commercial and residential Utilities Appraisal reports outline the new utility services gas, water, electricity and telecoms services to be provided to the development site known as the former Nestlé Factory, Hayes.

Reference should be made to the individual sections within the following.



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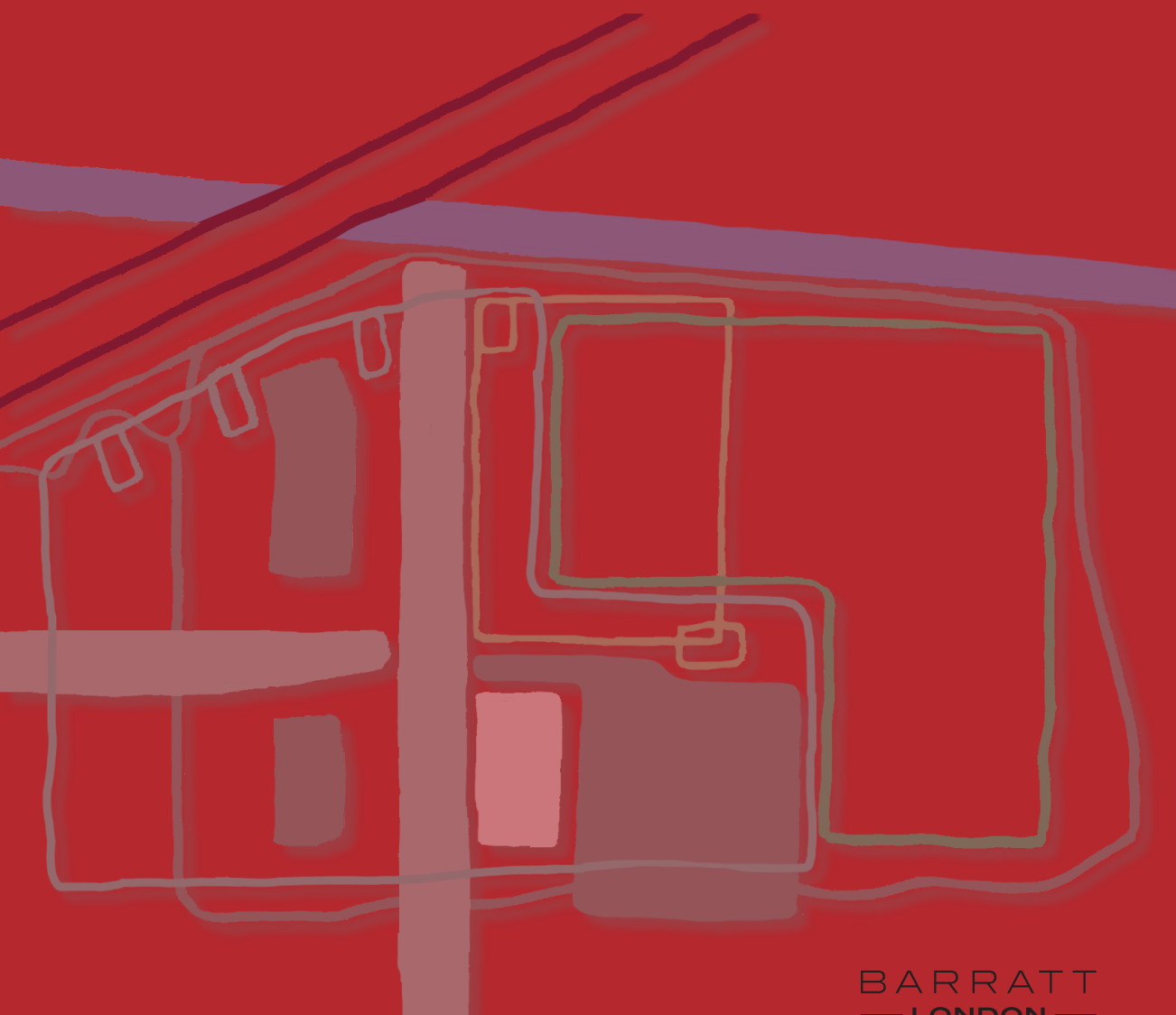
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FORMER NESTLE FACTORY, HAYES

UTILITIES ASSESSMENT

(Residential Scheme)

MAY 2017

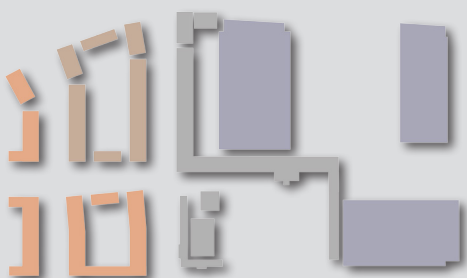


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The purpose of this document is to outline the new utility services that are going to be implemented on The Former Nestle Factory project. This report covers electricity, water, gas and BT services. The infrastructure installed to the new buildings will also be compliant with approved document Part R (Physical infrastructure for high-speed electronic communications networks).



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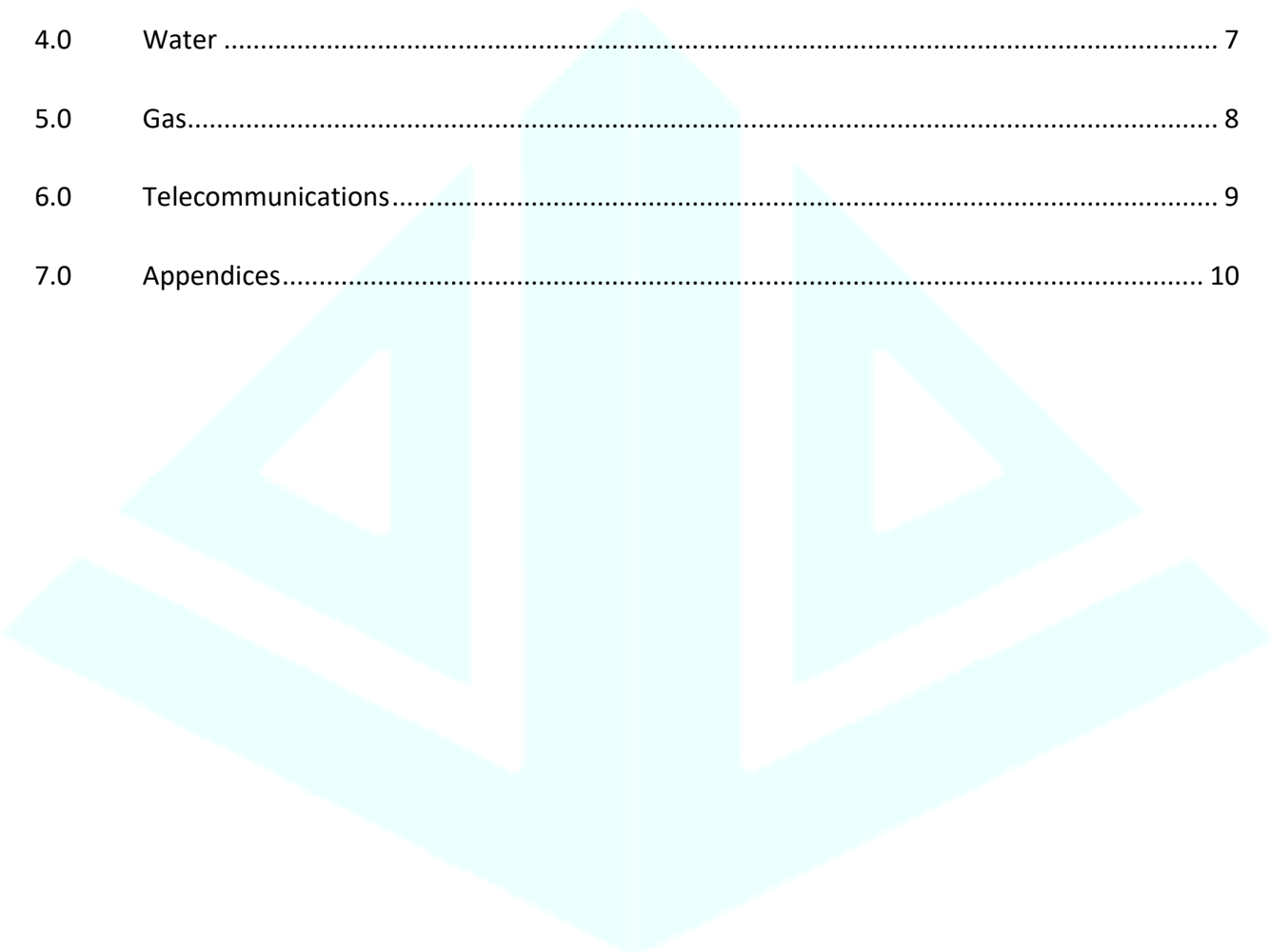


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1.0 Introduction

The purpose of this document is to outline the new utility services that are going to be implemented on The Former Nestle Factory project. This report covers electricity, water, gas and BT services. The infrastructure installed to the new buildings will also be compliant with approved document Part R (Physical infrastructure for high-speed electronic communications networks).

This document has been prepared on behalf of Barratt London in respect of its residential redevelopment of part of the former Nestlé factory, Hayes.

A separate report has been prepared on behalf of Segro for the commercial part of the scheme.

2.0 Description of development

Full planning permission for the part-Demolition of existing factory buildings, associated structures, and redevelopment to provide 1,381 dwellings (Use Class C3), office, retail, community and leisure uses (Use Classes A1/A3/A4/B1/B8/D1/D2), 22,663sqm (GEA) of commercial floorspace (Use Classes B1c/B2/B8 and Data Centre (sui generis)), amenity and play space, allotments, landscaping, access, service yards, associated car parking and other engineering works.



3.0 Electricity

The site was the former Nestle's factory and hence it was provided with a significant electrical supply. The previous supply to the site was at high voltage (HV), 11 kV, from the adjacent SSE North Hyde primary substation and had a maximum availability of 10.2 MVA. This HV supply availability has been maintained and is currently available to be reconfigured and used to serve the new development. The current 10.2 MVA supply availability is intended to be split between the elements of the development as set out in the table below.

Residential Scheme

1.5 MVA

Industrial Scheme

8.7 MVA

Total

10.2 MVA

The intent for the new development and the reconfiguration of the HV supply are currently being worked through with SSE but the principles for the electrical infrastructure for the residential development are:

The site will be served by 6 new electrical substations, that they will be provided in a phased manner to suit the development programme and will be spread out evenly across the site.

The initial phase of the works will reconfigure 1.5 MVA residential element of the existing electrical supply into a single substation located adjacent to the energy centre.

For details of the electrical supply infrastructure to the industrial development see the separate industrial development utilities assessment.

For the locations of the 6 substations see the masterplan drawing in the Appendices section.

The substations will feed the apartment blocks and commercial units as well as external lighting, car parks and vehicle charging points.

There will also be an element of onsite electrical generation from CHP and photovoltaics, the amount of electrical energy will be metered and fed into landlords' electrical supplies, reducing the site's overall reliance on grid supplied electricity.

It is anticipated that offsite reinforcements to be HV networks will be required in order to supply the new electrical load. The details of this will be developed by SSE.

A more detailed table is provided below to show the estimated electrical demand for all the proposed apartment blocks.

Apartments					
Block	Studio	1 Bed	2 Bed	3 Bed	Total Load
Elemental Load	1.2	1.2	1.2	1.5	
B1	0	12	27	5	54.3
B2	0	28	20	3	62.1
B3	0	35	23	4	75.6

B4	4	4	10	3	26.1
B5	0	34	26	8	84
B6	5	32	21	4	75.6
B7	23	18	38	4	100.8
B8	1	7	11	8	34.8
B9	1	20	42	9	89.1
C1	0	23	9	0	38.4
C2	6	22	22	7	70.5
C3	0	3	6	3	15.3
C4	6	22	22	7	70.5
C5	5	12	15	4	44.4
C6	4	0	8	6	23.4
D1	0	39	33	1	87.9
D2	7	25	12	0	52.8
D3	2	0	5	2	11.4
D4	0	5	0	1	7.5
E1	18	39	39	8	127.2
E2	0	36	30	1	80.7
E3	0	0	8	0	9.6
F1	8	68	40	10	154.2
F2	5	15	36	4	73.2
F3	14	41	8	23	110.1
F4	0	15	8	0	27.6
G	2	3	50	0	66
H	0	8	0	10	24.6
I	0	0	0	0	0
Total	111	566	569	135	1698
Total No. of Apartments					1381

Landlord's (Communal Areas, Car Parks and External Lighting)									
Block	Power and Lighting		Lifts		Smoke Ventilation		Boosted Water		Total (kVA)
	Qty	Load	Qty	Load	Qty	Load	Qty	Load	
B1	9	1	2	10	1	10	1	30	69
B2	9	1	2	10	1	10	0	0	39
B3	10	1	2	10	1	10	0	0	40
B4	6	1	2	10	0	10	0	0	26
B5	9	1	2	10	1	10	1	30	69
B6	9	1	2	10	1	10	0	0	39
B7	11	1	2	10	1	10	0	0	41
B8	7	1	2	10	0	10	0	0	27
B9	11	1	2	10	1	10	0	0	41
C1	6	1	2	10	1	10	1	30	66
C2	8	1	2	10	1	10	0	0	38
C3	5	1	2	10	0	10	0	0	25

C4	8	1	2	10	1	10	1	30	68
C5	6	1	2	10	1	10	0	0	36
C6	3	1	2	10	0	10	0	0	23
D1	9	1	2	10	1	10	1	30	69
D2	8	1	2	10	1	10	0	0	38
D3	3	1	2	10	0	10	0	0	23
D4	3	1	2	10	0	10	0	0	23
E1	11	1	2	10	1	10	1	30	71
E2	9	1	2	10	1	10	0	0	39
E3	4	1	2	10	0	10	0	0	24
F1	5	1	2	10	1	10	1	30	65
F2	6	1	2	10	1	10	0	0	36
F3	11	1	2	10	1	10	0	0	41
F4	5	1	2	10	1	10	0	0	35
G	6	1	2	10	1	10	1	30	66
H	6	1	2	10	1	10	0	0	36
I	0	0	0	0	1	50	0	0	50
Block B Car Park	3	10	0	0	1	50	0	0	80
Block C Car Park	3	10	0	0	1	10	0	0	40
Block D4 Car Park	3	10	0	0	1	10	0	0	40
External Lighting 1	1	10	0	0	0	0	0	0	10
External Lighting 2	1	10	0	0	0	0	0	0	10
External Lighting 3	1	10	0	0	0	0	0	0	10
External Lighting 4	1	10	0	0	0	0	0	0	10
Electric Vehicle Charging	288	7.3	0	0	0	0	0	0	2102
Total Landlords									3565

Commercial Areas			
Unit Name	Area (m ²)	Power Density (W/m ²)	Load (kVA)
Block F1 Business Suite	334	120	36
Block F4 Canoe Storage Area	54	120	6
Block H Commercial Units	174	120	19
Block I Canteen Building	2592	120	280
Total Commercial			341

District Heating Plant			
Item	Quantity	Load	Total (kVA)
Energy Centre	1	200	200
Total plant load			200

Total Site Diversified Load	5804
Add 5% spare capacity for point of connection if required	6094



4.0 Water

The new water supply would be taken from the existing water main from Nestle Avenue. Then it will be distributed to the blocks via newly installed below ground pipework.

Every residential block will have its own water tank room where the mains water supply will terminate. The water will then be pumped to the apartments from the storage tank via the risers. Blocks B and C will be served from a centralised water tank room at block B5 and C3 respectively. Water meters will be located in the risers.

The estimated water loadings can be seen on the tables below.

Residential Blocks	Loading Units
B	7040
C	3034
D1	1014
D2	582
D3	140
D4	78
E1	1452
E2	930
E3	128
F1 & G	2592
F2	888
F3	1202
F4	308
H	276
Total	19664

The commercial units will be served directly from the mains. As their uses have not been fixed at this stage, the load cannot be accurately calculated. However, since the ratio of commercial space against residential space is relatively small, final total load will not be significantly affected.

5.0 Gas

The new gas supply would be taken from the existing intermediate pressure gas main that served the Nestle factory. A new gas governor and meter will be installed and a new gas main will be routed to the energy centre to serve the 5 boilers and the 2 CHP engines. No gas services will be run to apartments. The diversified heat load is 6979 kW for 1381 dwellings.

The estimated gas loadings can be seen on the table below.

	No.	Make/Model	Gas consumption per boiler (m ³ /h)	Gas consumption per boiler (kW)
Gas Boilers	5	Hoval Ultragas 2000	188.6	1965
CHP	2	Ener-G 230 kWe	62.3	649
Total			1067.6	11123

The A3 usage commercial units in F, H and I may require mains gas supply, provision will be made for this.

6.0 Telecommunications

The development will be provided by Openreach/BT services and will provide high speed fibre broadband to all dwellings.



7.0 Appendices



FORMER NESTLE FACTORY, HAYES

UTILITIES ASSESSMENT

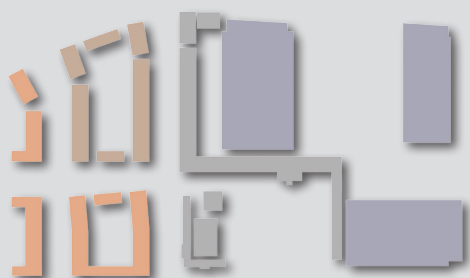
(Industrial Scheme)

MAY 2017



This covering report has been prepared for the joint Applicants, SEGRO plc and Barratt London Ltd, by Watkins Payne. It has been prepared to accompany a detailed planning application for the redevelopment of the former Nestlé factory site in Hayes in the London Borough of Hillingdon.

Both of the separate residential and industrial Utilities Appraisal reports outline the new utility services gas, water, electricity and telecoms services to be provided to the development site known as the former Nestlé Factory, Hayes.



SEGRO



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SEGRO Plc

Planning Application
for Development
at
the former Nestlé Factory
Nestles Avenue
Hayes
UB3 4RF

Utilities Appraisal
(Industrial Scheme)

Planning Submission

Issue 5



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1.00 INTRODUCTION

The purpose of this document is to summarise the intended new utility services to be provided to the commercial element of the development site known as the Former Nestlé Factory, Hayes on behalf of SEGRO Plc and Barratt London.

This utility appraisal supports the commercial part of the redevelopment which is shown on the architect's site layout contained in the appendix.

This report should be read in conjunction with the utilities assessment prepared by White Code for the residential part of the proposed redevelopment. Combined, the two reports set out the proposed utilities assessment for the redevelopment of the factory site in its entirety.

2.00 DESCRIPTION OF DEVELOPMENT

Full planning permission for the part-demolition of existing factory buildings, associated structures, and redevelopment to provide 1,381 dwellings (Use Class C3), office, retail, community and leisure uses (Use Classes A1/A3/A4/B1/B8/D1/D2), 22,663 m² (GEA) of commercial floor space (Use Classes B1c/B2/B8 and Data Centre (sui-generis)), amenity and play space, allotments, landscaping, access, service yards, associated car parking and other engineering works.

The four industrial units that make-up the commercial element of the overall development are to be built as a shell warehouse with the associated office space being fitted out to a category A standard. By their speculative nature the final use of the industrial units cannot be defined at this early stage therefore the incoming utility services capacities include industry norm allowances for the range of uses being applied for.

3.00 NEW CONNECTION PROPOSALS

3.01 Gas

It is envisaged that the new gas supplies would be taken from the existing low pressure gas main in the adjacent Nestle Avenue.

The estimated gas supply loads for the development are as tabulated below:

Building Type	Area : GEA (m ²)	Proposed Gas Supply (kW)
Industrial Unit 1	7820	925
Industrial Unit 2	2336	275
Industrial Unit 3	3274	385
Industrial Unit 4	9233	1090
	Total	2675

3.02 Electricity

The site was the former Nestles factory and hence it was provided with a significant electrical supply. The previous supply to the site was at high voltage (HV), 11 kV, from the adjacent SSE North Hyde primary substation and had a maximum availability of 10.2 MVA.



This HV supply availability has been maintained and is currently available to be reconfigured and used to serve the new development.

The current 10.2 MVA supply availability is intended to be split between the elements of the development as set out in the table below.

Building Type	Area : GEA (m ²)	Proposed Building Supply (kVA)
Residential Scheme	-	1500
Industrial Unit 1	7820	7000
Industrial Unit 2	2336	300
Industrial Unit 3	3274	400
Industrial Unit 4	9233	1000
Total		10200

As the proposed industrial development has the potential for use as a data centre the proposed Unit 1 electrical supply will be at HV with the remaining units being supplied at LV via estate located SSE substations.

The size of service loadings to Units 1 and 4 mean that a series of supply authority substations are required. The intent for the new development and the reconfiguration of the HV supply are currently being worked through with SSE but the principles for the electrical infrastructure are:

- The residential element of the supply will be via a dedicated substation located within the residential development site.
- Unit 1 will be provided with an HV substation.
- Unit 4 will be provided with a dedicated substation.
- Unit 2 and 3 will be provided with a common substation with LV supplies from the substation taken to each unit.

These principles are shown on the site layout plan.

The intent is that the existing high voltage (HV) cables that serve the existing live substation on the site shall be utilised to serve the new substations. The existing HV cables enter the site from Nestles Avenue and the junction of Nestles Avenue and North Hyde Gardens. These will be cut back and extended to serve the new substation locations. This is currently being agreed with SSE. Within the site the associated cabling will be located in soft dig landscape areas or it will be fully ducted where located in roadways. From the new substations individual low voltage supplies will be taken to each unit.

For details of the electrical supply infrastructure to the residential development see the separate residential utilities assessment.

3.03 Water

A new incoming water main shall be provided to each of the industrial units.



The supply authority meters will be provided with a suitable pulsed output for external monitoring to obtain the applicable BREEAM points for leak detection monitoring:

The estimated incoming water diameter to each demise is as tabulated below:

Building Type	Area : GEA (m²)	Proposed Water Main Diameter (mm)
Industrial Unit 1	7820	42
Industrial Unit 2	2336	42
Industrial Unit 3	3274	42
Industrial Unit 4	9233	42

The intent is to provide a new Affinity Water main to the development from their existing main in Nestles Avenue. The new main will serve the metered supplies noted above and shall supply hydrants located within the development.

A separate private fire main may also be required to serve perspective warehouse tenants future sprinkler water storage and associated fire pumps facility. Additionally, this fire main may be required to serve fire hydrants within the site. The water supplies would be connected to the existing Affinity Water main in Nestles Avenue.

3.04 Telecoms

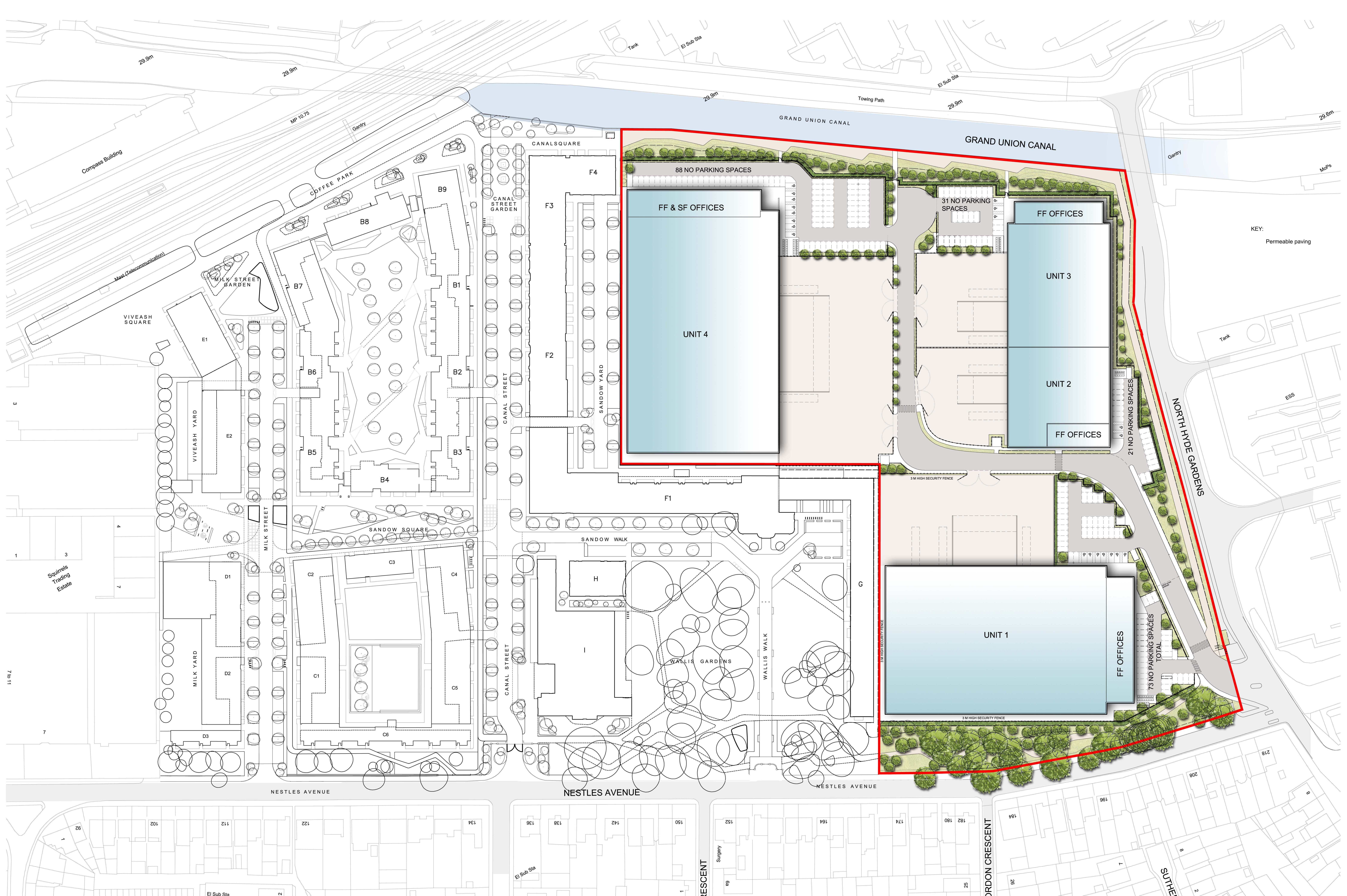
Provision for Openreach/BT services plus a separate private telecoms service will take the form of underground 90 mm ducts with draw wires from connection chambers adjacent to each of the buildings. The BT ducts will connect to existing BT chambers along the Nestles Avenue.

The private telecoms ducts will terminate in a chamber immediately adjacent to the footpath of Nestles Avenue.

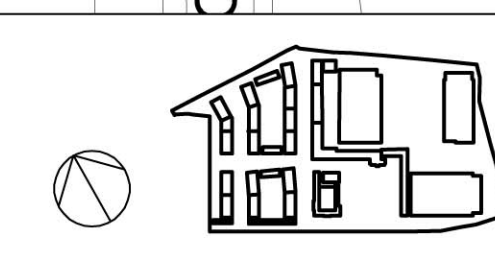


APPENDIX

Site Layout Plan



KEY:
Permeable paving



DATE	REV. DESCRIPTION	CHK.

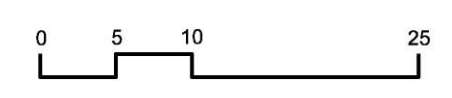
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FORMER NESTLE FACTORY, HAYES
ILLUSTRATIVE SITE LAYOUT PLAN

MS 100

SCALE: 1:500 @ A0



ISSUE: D6

