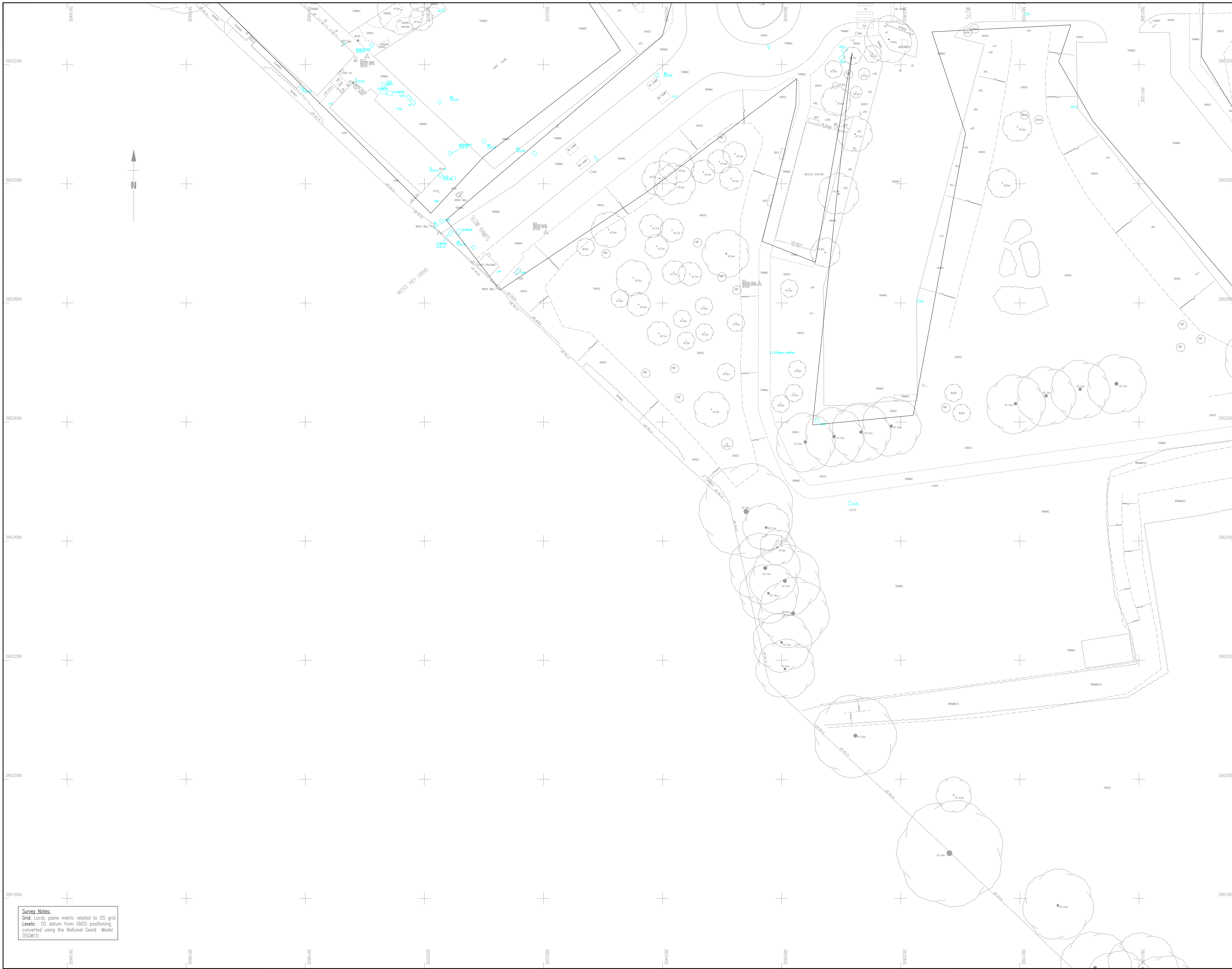
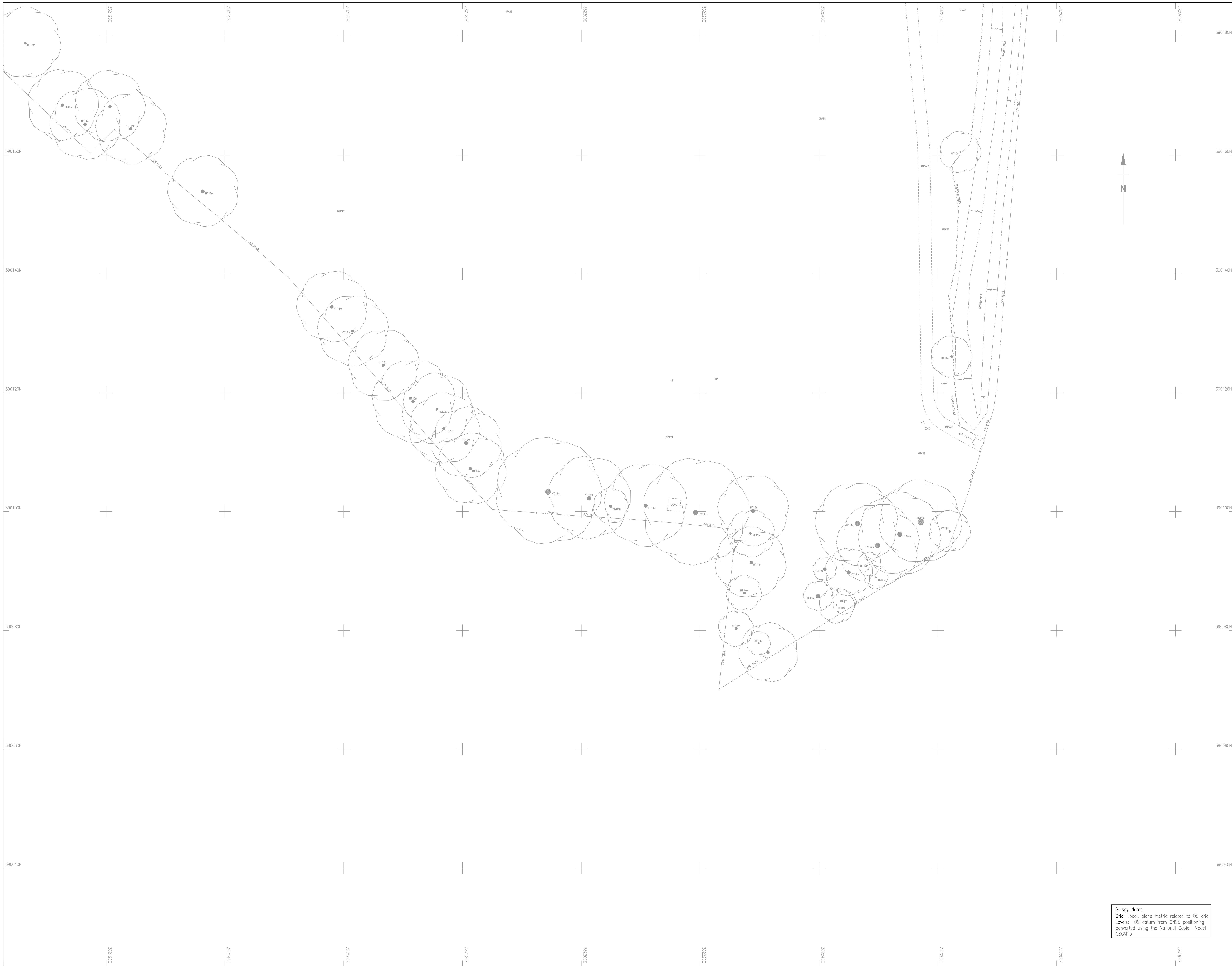


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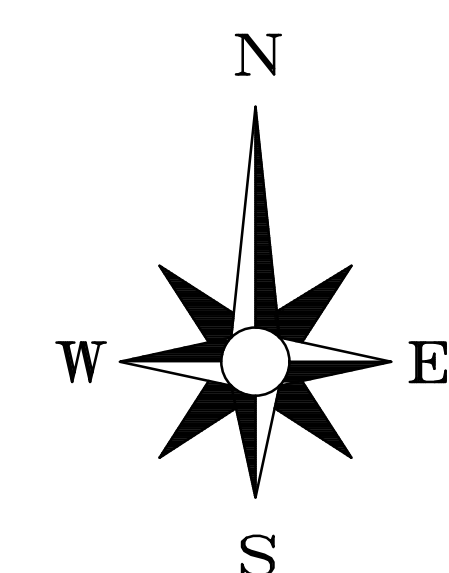
APPENDIX C

LATEST DEVELOPMENT PLAN

STEN
ARCHITECTURE

FREE SALE						
Housetype	Description	Sqft.	Number	Total Sq ft	% of Mix	Total
The Turing	3 Bed Semi	938	29	27202	15.9	28.0
The Pankhurst	3 Bed Semi	942	10	9420	5.5	
The Dalton	3 Bed Semi	1044	12	12528	6.6	
The Wilson	3 Bed Semi	1,042	24	25008	13.2	30.8
The Burnett	3 Bed Semi	1,166	25	29150	13.7	
The Burgess	3 Bed Semi	1,302	7	9114	3.8	
The McKellen	4 Bed Semi/ Mews	1,146	12	13752	6.6	17.6
The Joule	4 Bed Semi/ Mews	1,158	20	23160	11.0	
The Winterson	4 Bed Detached	1,190	19	22610	10.4	23.6
The Lowry	4 Bed Detached	1,269	24	30456	13.2	
Sub total			162	202400	100.0	100.0
AFFORDABLE						
Housetype	Description	Sqft.	Number	Total Sq ft	% of Mix	Total
The Gaskell	2 Bed Semi	764	23	17572	10.1	20.2
The Turing	3 Bed Semi	938	23	21574	10.1	
Sub total			46	39146	20.2	
Grand Total			228	241546		

-  - Denotes Development Boundary
-  - Boundary fences - please refer to boundary treatment plan for additional details
-  - Boundary wall - please refer to boundary treatment plan for additional details
-  - Boundary railings - please refer to boundary treatment plan for additional details
-  - Denotes 1.8m Garden Gates
-  - Denotes CAT A tree and RPA to be retained
-  - Denotes CAT B tree and RPA to be retained
-  - Denotes CAT B tree and RPA to be retained
-  - Denotes Speed hump
-  - Denotes ramp and raised table



Scaled @ 1:500

The diagram shows a horizontal beam of total length 50m. A uniformly distributed load (UDL) of 10 kN/m is applied downwards from the left end (0m) to a point 20m from the left. At this point (20m), there is a concentrated point load of 200 kN acting downwards. The beam continues to the right end (50m) without any further loads.

Plots 26-30 amended to show pump station, minor amend to boundary and path lines following boundary treatment plan	TS	02.06.21
Mix adjustment to reinstate the new tree corridor along primary route to POS	NB	01.06.21

miller homes
Miller Homes Limited - North West Region
103 Dalton Avenue
Birchwood Park
Warrington
WA3 6YF

Telephone 0870 336 4700
Fax 01925 228570
www.millerhomes.co.uk

Project Title
Former Manchester College
Moss Hey Drive
Northenden

Drawing Title

Drawn By	Checked By	Authorized By
STEN		
Date 28.05.21	Date	Date

Drawing No.	Revision
2131 / SL / 01	B



APPENDIX D

ENVIRONMENT AGENCY CORRESPONDENCE

Emma Walker

Subject: FW: GMMC205263AB Response attached from the Environment Agency
Attachments: Location Plan.docx; CCA - Area External Guidance v5.pdf; GMMC205263AB_table.pdf; GMMC205263AB_DFM.PDF

From: GMMC Info Requests <InfoRequests.GMMC@environment-agency.gov.uk>
Sent: 19 March 2021 09:45
To: Emma Walker <EWalker@rsk.co.uk>
Subject: GMMC205263AB Response attached from the Environment Agency

Dear Emma,

Thank you for your enquiry which was received on 11/2/21. Please accept my apologies for the delay.

We respond to requests under the Freedom of Information Act 2000 and Environmental Information Regulations 2004.

I enclose the data requested.

We have no records of flooding affecting the site. However, this does not mean flooding has not occurred in the past or that it will not flood in future. We recommend that you also contact United Utilities and Manchester District Council who may hold additional information (the former especially in relation to sewer flooding).

There are no flood defences within the vicinity of the site.

There are no 2D data covering the site.

For further information on your property's flood risk, visit:
Long term flood risk website: <https://flood-warning-information.service.gov.uk/long-term-flood-risk/>
Flood Map for Planning: <https://flood-map-for-planning.service.gov.uk/>

For additional flood risk information, advice and support in your area, please visit: <https://thefloodhub.co.uk/>

The National Flood Forum also offers advice on obtaining insurance, particularly for those properties deemed at high risk. This is helped by the government-backed scheme 'Flood Re' which enables those at risk to shop around for affordable insurance. They also offer advice on property resilience, flood prevention and mitigation measures which we hope you will find useful. For this information please visit: <http://www.nationalfloodforum.org.uk/>

There are no culverts within or near the site. The nearest watercourse is over 700m from the site.

The Groundwater team do not hold records on groundwater flooding; groundwater flooding is the responsibility of the Lead Local Flood Authority

For further information please see below

Local authorities search
<https://www.gov.uk/find-your-local-council>

Local authorities – new roles and responsibilities
<http://www.defra.gov.uk/environment/flooding/legislation/la-roles/>

Please refer to the [Open Government Licence](#) which explains the permitted use of this information.

Please get in touch if you have any further queries or contact us within two months if you'd like us to review the information we have sent.

Kind regards,

Anne Ball
Customer and Engagement Officer
Greater Manchester, Merseyside and Cheshire
External: 020 302 51232
Mobile: 07769285094
Email: Inforequests.gmmc@environment-agency.gov.uk



From: Emma Walker [<mailto:EWalker@rsk.co.uk>]
Sent: 11 February 2021 11:10
To: Enquiries, Unit <enquiries@environment-agency.gov.uk>
Subject: Re: 210215/ND01 Flood Information Request - Northenden 882187

Dear Sir/Madam,

Please could I order information on flooding and drainage for the following site in order to inform a Flood Risk Assessment:

Northenden Campus,
Sale Road,
Northenden,
Manchester
M23 0DD

Grid reference – 382146 E, 390315 N

I would like all the flooding information you have including the following, if available:

- Confirmation of the site's Flood Zone designation, alternatively could you provide the flood flows and levels for a range of return periods including the 1 in 2, 10, 30, 100, 100+CC, 200, 1000,
- Information on the recently published climate change guidance for this area and how this may impact on the data available for the area,
- Information on surface water flood risk including flow pathways and depths,
- Information on historic flooding,
- Information on flood defences in the area, if any,
- Any data on existing surface water discharges to the surrounding watercourses,
- Any data on groundwater flooding,
- Any information on reservoir flooding; and,
- Any information on culverted watercourses or private sewers which you know of which do not show up on the public sewer records.

Finally, please could you provide any recommendation on how the surface water is to be managed; for example, restrictions in discharge rates the requirements for SuDS, possible discharge locations and attenuation requirements?

We have a relatively quick turn around on this project and would therefore appreciate a quick response.

If you have any queries please don't hesitate to contact me.

Kind regards,

Emma Walker

Graduate Hydrologist BSc (Hons)

RSK

Land & Development Engineering
14, Beecham Court, Pemberton Business Park, Wigan, UK, WN3 6PR

Switchboard: +44 (0) 1942 493255

Fax: +44 (0) 1942 493171

<http://www.rsk.co.uk>

RSK Land & Development Engineering Ltd is registered in England at Spring Lodge, 172 Chester Road, Helsby, Cheshire, WA6 0AR, UK

Registered number: 4723837

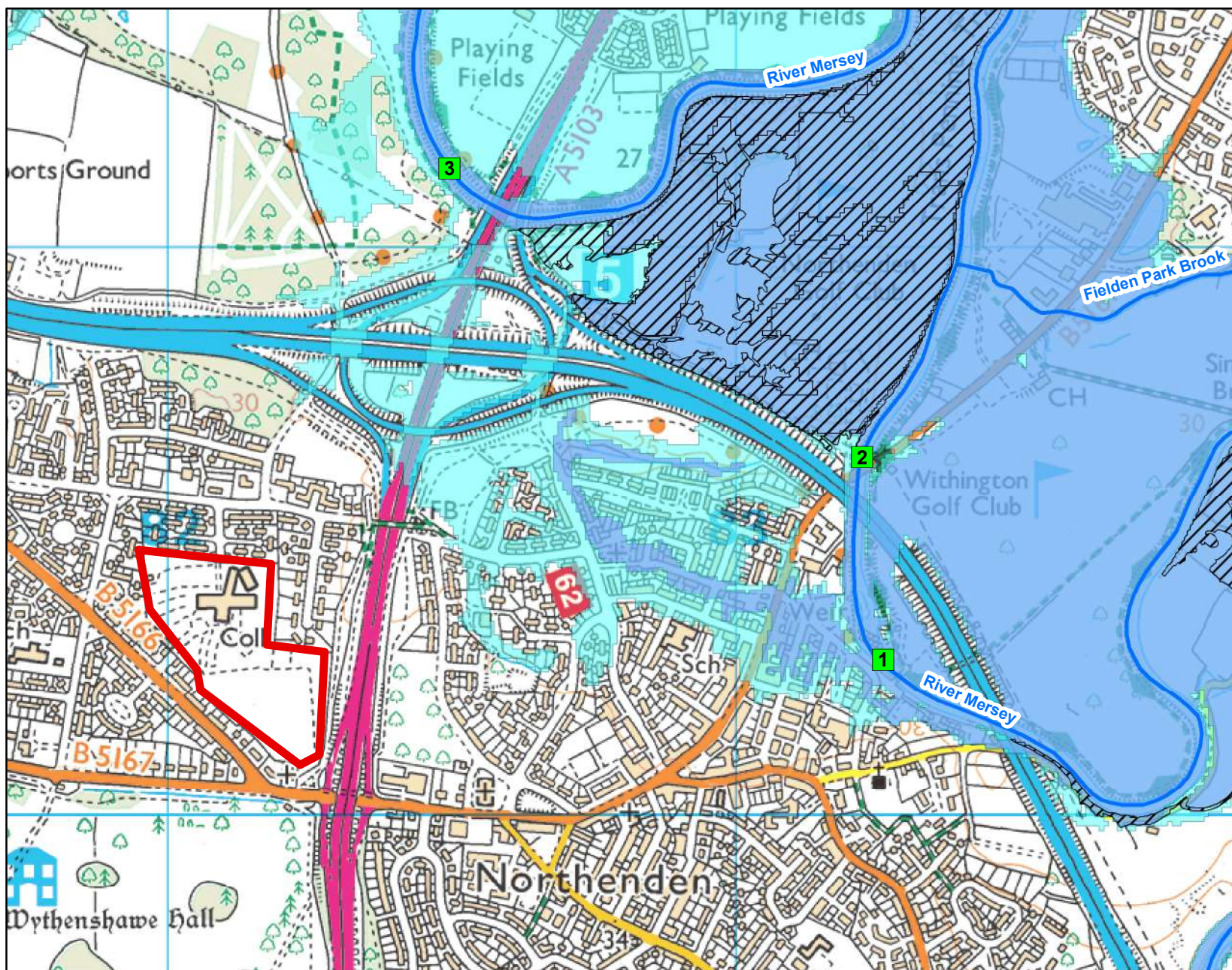
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Detailed Flood Map centred on Sale Road, Northenden, M23 0DD. Created on 18/03/2021 [GMMC205263AB]



1:10,001



Legend

-  Site Location
-  Model Measurements
-  Main River
-  Areas Benefiting
-  Flood Zone 3
-  Flood Zone 2

Map Reference	Model Node Reference	Existing	Nothing	Data	Undertended															Defended																
					20 % AEP (1 in 5 year)	10 % AEP (1 in 10 year)	5 % AEP (1 in 20 year)	4 % AEP (1 in 25 year)	3.33 % AEP (1 in 30 year)	2 % AEP (1 in 50 year)	1.33 % AEP (1 in 75 year)	1 % AEP (1 in 100 year)	1 % AEP (1 in 100 year) + 30% Increase Flow	1 % AEP (1 in 100 year) + 35% Increase Flow	0.5 % AEP (1 in 200 year)	0.1 % AEP (1 in 1000 year)	0.1 % AEP (1 in 1000 year) + 30% Increase Flow	20 % AEP (1 in 5 year)	10 % AEP (1 in 10 year)	5 % AEP (1 in 20 year)	4 % AEP (1 in 25 year)	3.33 % AEP (1 in 30 year)	2 % AEP (1 in 50 year)	1.33 % AEP (1 in 75 year)	1 % AEP (1 in 100 year)	1 % AEP (1 in 100 year) + 30% Increase Flow	1 % AEP (1 in 100 year) + 35% Increase Flow	1 % AEP (1 in 100 year) + 10% Increase Flow	0.5 % AEP (1 in 200 year)	0.1 % AEP (1 in 1000 year)	0.1 % AEP (1 in 1000 year) + 30% Increase Flow					
1	ea013_0243_MERS04_0003	383257	390274	Modelled Water Level (m aodN)	27.87	28.04	28.20	28.26	28.31	28.43	28.53	28.61	29.17	29.25	29.55	28.82	29.63	30.05	28.69	28.83	29.13	29.18	29.22	29.28	29.32	29.46	29.87	29.92	30.14	29.58	30.18	30.39				
				Modelled Flow (cumecs)	221.28	254.13	274.31	279.04	283.03	291.22	296.29	299.25	310.70	312.02	336.12	306.22	300.82	306.59	232.40	247.38	279.58	286.79	290.00	297.12	300.24	302.24	309.80	310.89	316.79	306.94	319.54	328.32				
2	ea013_0243_MERS03_345961	383226	390629	Modelled Water Level (m aodN)	27.02	27.05	27.24	27.32	27.29	27.59	27.76	27.89	28.71	28.82	29.26	28.21	29.35	29.83	28.33	28.46	28.76	28.80	28.84	28.90	28.96	29.12	28.57	29.62	29.81	29.23	29.84	29.95				
				Modelled Flow (cumecs)	220.03	253.54	273.88	278.63	282.54	290.86	295.86	299.09	314.51	316.06	330.07	306.32	302.94	309.64	233.49	247.32	279.59	285.58	289.68	297.11	300.42	302.44	311.77	313.47	318.25	306.92	321.20	329.48				
3	ea013_0243_MERS03_060901	382495	391139	Modelled Water Level (m aodN)	25.88	26.18	26.41	26.48	26.54	26.70	26.82	26.91	27.56	27.68	28.44	27.15	28.62	29.43	26.26	26.38	26.69	26.75	26.78	26.85	26.91	27.01	27.62	27.81	28.76	27.08	28.94	29.95				
				Modelled Flow (cumecs)	238.62	278.07	313.37	325.80	335.98	365.38	389.37	407.93	535.18	547.82	969.41	405.05	570.48	573.43	295.53	271.64	386.99	313.76	318.17	326.70	337.27	354.04	475.68	515.30	560.42	366.23	563.53	573.84				

Model data taken from Upper mersey 2017

AEP - Annual Exceedance Probability

m aodN - metres above ordnance datum Newlyn

cumecs - cubic metres per second

Notes:

*Climate Change Scenario - 30%, 35% and 70% increases in flow calculated for the 2080's (2070 - 2115). Please see <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances> for more information regarding the new climate change guidance. The location of the site and the type (vulnerability) of development determine the climate change allowances to consider in any flood risk assessment.

Flood risk assessments: Climate change allowances

Application of the allowances and local considerations

Greater Manchester, Merseyside & Cheshire

1) The climate change allowances

The [National Planning Practice Guidance](#) refers planners, developers and advisors to the Environment Agency guidance on considering climate change in Flood Risk Assessments (FRAs). This guidance was updated in February 2016 and is available on [Gov.uk](#) and should be read in conjunction with this document. The guidance can be used for planning applications, local plans, neighbourhood plans and other projects. It provides climate change allowances for peak river flow, peak rainfall, sea level rise, wind speed and wave height. The guidance provides a range of allowances to assess fluvial flooding, rather than a single national allowance. It advises on what allowances to use for assessment based on vulnerability classification, flood zone and development lifetime.

2) Assessment of climate change impacts on fluvial flooding

Table A below indicates the level of technical assessment of climate change impacts on fluvial flooding appropriate for new developments depending on their scale and location. This should be used as **a guide only**. Ultimately, the agreed approach should be based on expert local knowledge of flood risk conditions, local sensitivities and other influences. **For these reasons we recommend that applicants and / or their consultants should contact the Environment Agency at the pre-planning application stage to confirm the assessment approach, on a case by case basis.** **Table A** defines three possible approaches to account for flood risk impacts due to climate change, in new development proposals:

- **Basic:** Developer can add an allowance to the 'design flood' (i.e. 1% annual probability) peak levels to account for potential climate change impacts. The allowance should be derived and agreed locally by Environment Agency teams.
- **Intermediate:** Developer can use existing modelled flood and flow data to construct a stage-discharge rating curve, which can be used to interpolate a flood level based on the required peak flow allowance to apply to the 'design flood' flow.
- **Detailed:** Perform detailed hydraulic modelling, through either re-running Environment Agency hydraulic models (if available) or construction of a new model by the developer.

Table A – Indicative guide to assessment approach

<u>VULNERABILITY CLASSIFICATION</u>	<u>FLOOD ZONE</u>	<u>DEVELOPMENT TYPE</u>		
		<u>MINOR</u>	<u>SMALL-MAJOR</u>	<u>LARGE-MAJOR</u>
ESSENTIAL INFRASTRUCTURE	Zone 2	Detailed		
	Zone 3a	Detailed		
	Zone 3b	Detailed		
HIGHLY VULNERABLE	Zone 2	Intermediate/ Basic	Intermediate/ Basic	Detailed
	Zone 3a	Not appropriate development		
	Zone 3b	Not appropriate development		
MORE VULNERABLE	Zone 2	Basic	Basic	Intermediate/ Basic
	Zone 3a	Basic	Detailed	Detailed
	Zone 3b	Not appropriate development		
LESS VULNERABLE	Zone 2	Basic	Basic	Intermediate/ Basic
	Zone 3a	Basic	Basic	Detailed
	Zone 3b	Not appropriate development		
WATER COMPATIBLE	Zone 2	None		
	Zone 3a	Intermediate/ Basic		
	Zone 3b	Detailed		

NOTES:

- Minor: 1-9 dwellings/ less than 0.5 ha | Office / light industrial under 1ha | General industrial under 1 ha | Retail under 1 ha | Gypsy/traveller site between 0 and 9 pitches
- Small-Major: 10 to 30 dwellings | Office / light industrial 1ha to 5ha | General industrial 1ha to 5ha | Retail over 1ha to 5ha | Gypsy/traveller site over 10 to 30 pitches
- Large-Major: 30+ dwellings | Office / light industrial 5ha+ | General industrial 5ha+ | Retail 5ha+ | Gypsy/traveller site over 30+ pitches | any other development that creates a non residential building or development over 1000 sq m.

The assessment approach should be agreed with the Environment Agency as part of pre-planning application discussions to avoid abortive work.

3) Specific local considerations

Where the Environment Agency and the applicant and / or their consultant has agreed that a 'basic' level of assessment is appropriate the figures in Table B below can be used as a precautionary allowance for potential climate change impacts on peak 'design' (i.e. 1% annual probability) fluvial flood level rather than undertaking detailed modelling.

Table B – Local precautionary allowances for potential climate change impacts

Watercourse	Central	Higher Central	Upper
All	0.15m	0.24m	0.48m

Use of these allowances will only be accepted after discussion with the Environment Agency.

4) Fluvial food risk mitigation

Read the guidance on [Gov.uk](https://www.gov.uk) to find out which allowances to use to **assess** the impact of climate change on flood risk.

For planning consultations where we are a statutory consultee and our [Flood risk standing advice](#) **does not** apply we use the following benchmarks to inform flood risk **mitigation** for different vulnerability classifications. **These are a guide only. We strongly recommend you contact us at the pre-planning application stage to confirm this on a case by case basis. Please note you may be charged for this advice.** For planning consultations where we are not a statutory consultee or our [Flood risk Standing advice](#) applies we recommend local planning authorities and developers use these benchmarks but we do not expect to be consulted.

- For development classed as '[Essential Infrastructure](#)' our benchmark for flood risk mitigation is for it to be designed to the '**upper end**' climate change allowance for the epoch that most closely represents the lifetime of the development, including decommissioning.
- For [highly vulnerable](#) in flood zone 2, the '**higher central**' climate change allowance is our minimum benchmark for flood risk mitigation. In sensitive locations it may be necessary to use the **upper end** allowance.
- For [more vulnerable developments](#) in flood zone 2, the '**central**' climate change allowance is our minimum benchmark for flood risk mitigation, and in flood zone 3 the '**higher central**' climate change allowance is our minimum benchmark for flood risk

mitigation. In sensitive locations it may be necessary to use the **higher central** (in flood zone 2) and the **upper end** allowance (in flood zone 3).

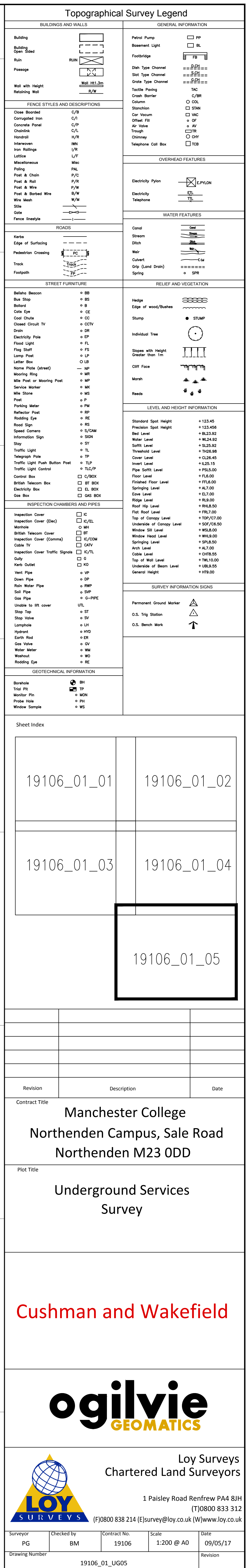
- For [water compatible](#) or [less vulnerable](#) development (e.g. commercial), the 'central' climate change allowance for the epoch that most closely represents the lifetime of the development is our minimum benchmark for flood risk mitigation. In sensitive locations it may be necessary to use the **higher central** (particularly in flood zone 3) to inform built in resilience.

There may be circumstances where local evidence supports the use of other data or allowances. Where you think this is the case we may want to check this data and how you propose to use it.

END.



APPENDIX E UTILITY PLANS



Loy Surveys

Chartered Land Surveyors



1 Paisley Road Renfrew PA4 8JH
 (T)0800 833 311
 (F)0800 838 214 (E)survey@loy.co.uk (W)www.loy.co.uk

Surveyor	Checked by	Contract No.	Scale	Date
PG	BM	19106	1:200 @ A0	09/05/17
Drawing Number				Revision
19106_01_UG05				



APPENDIX F

SEWER RECORDS

RSK LDE

**14 Beecham Court
Smithy Brook Road,
Wigan,
WN3 6PR**

FAO:

How to contact us:

**United Utilities Water Limited
Property Searches
Haweswater House
Lingley Mere Business Park
Great Sankey
Warrington
WA5 3LP**

Telephone: 0370 7510101

E-mail: propertysearches@uuplc.co.uk

**Your Ref: 882187
Our Ref: UUPS-ORD-184203
Date: 18/08/2020**

Dear Sirs

Location: 84 WYTHENSHAW ROAD, MANCHESTER, M23 0DJ

I acknowledge with thanks your request dated 10/08/2020 for information on the location of our services.

Please find enclosed plans showing the approximate position of United Utilities' apparatus known to be in the vicinity of this site.

The enclosed plans are being provided to you subject to the United Utilities terms and conditions for both the wastewater and water distribution plans which are shown attached.

If you are planning works anywhere in the North West, please read United Utilities' access statement before you start work to check how it will affect our network. <http://www.unitedutilities.com/work-near-asset.aspx>.

I trust the above meets with your requirements and look forward to hearing from you should you need anything further.

If you have any queries regarding this matter please [contact us](#).

Yours Faithfully,



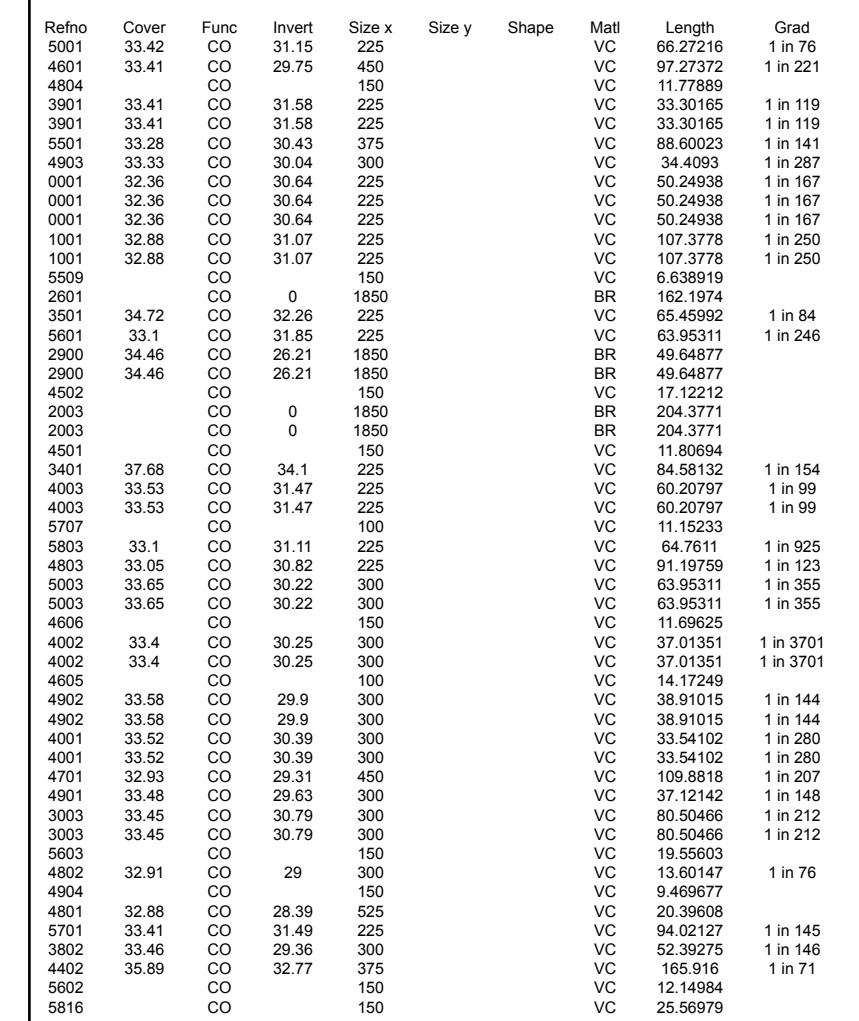
Karen McCormack
Property Searches Manager

TERMS AND CONDITIONS - WASTEWATER AND WATER DISTRIBUTION PLANS

These provisions apply to the public sewerage, water distribution and telemetry systems (including sewers which are the subject of an agreement under Section 104 of the Water Industry Act 1991 and mains installed in accordance with the agreement for the self construction of water mains) (UUWL apparatus) of United Utilities Water Limited "(UUWL)".

TERMS AND CONDITIONS:

- This Map and any information supplied with it is issued subject to the provisions contained below, to the exclusion of all others and no party relies upon any representation, warranty, collateral contract or other assurance of any person (whether party to this agreement or not) that is not set out in this agreement or the documents referred to in it.
- This Map and any information supplied with it is provided for general guidance only and no representation, undertaking or warranty as to its accuracy, completeness or being up to date is given or implied.
- In particular, the position and depth of any UUWL apparatus shown on the Map are approximate only. UUWL strongly recommends that a comprehensive survey is undertaken in addition to reviewing this Map to determine and ensure the precise location of any UUWL apparatus. The exact location, positions and depths should be obtained by excavation trial holes.
- The location and position of private drains, private sewers and service pipes to properties are not normally shown on this Map but their presence must be anticipated and accounted for and you are strongly advised to carry out your own further enquiries and investigations in order to locate the same.
- The position and depth of UUWL apparatus is subject to change and therefore this Map is issued subject to any removal or change in location of the same. The onus is entirely upon you to confirm whether any changes to the Map have been made subsequent to issue and prior to any works being carried out.
- This Map and any information shown on it or provided with it must not be relied upon in the event of any development, construction or other works (including but not limited to any excavations) in the vicinity of UUWL apparatus or for the purpose of determining the suitability of a point of connection to the sewerage or other distribution systems.
- No person or legal entity, including any company shall be relieved from any liability howsoever and whensoever arising for any damage caused to UUWL apparatus by reason of the actual position and/or depths of UUWL apparatus being different from those shown on the Map and any information supplied with it.
- If any provision contained herein is or becomes legally invalid or unenforceable, it will be taken to be severed from the remaining provisions which shall be unaffected and continue in full force and affect.
- This agreement shall be governed by English law and all parties submit to the exclusive jurisdiction of the English courts, save that nothing will prevent UUWL from bringing proceedings in any other competent jurisdiction, whether concurrently or otherwise.



Refno	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Gra
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All point assets follow the standard colour convention:

red	- combined	blue	- surface water
brown	- foul	purple	- overflow

- Manhole
- Head of System
- Extent of Survey
- Reducing Eye
- Inlet
- Discharge Point
- Vortex
- Penstock
- Washout Chamber
- Valve
- Air Valve
- Non Return Valve
- Soakaway
- Gully
- Cascade
- Flow Meter
- Hatch Box
- Oil Interceptor
- Summit
- Drop Shaft
- Orifice Plate
- Side Entry Manhole
- Outfall
- Screen Chamber
- Inspection Chamber
- Bifurcation Chamber
- Lamp Hole
- T Junction / Saddle
- Catchpit
- Valve Chamber
- Vent Column
- Vortex Chamber
- Penstock Chamber
- Network Storage Tank
- Sewer Overflow
- Wt Treatment Works
- W Pumping Station
- Septic Tank
- Control Kiosk
- Change of Characteristic

FO	Foul
SW	Surface Water
CO	Combined
OY	Overflow

CI	Circular	TR	Trapezoidal
EG	Egg	AR	Arch
OV	Oval	BA	Barrel
FT	Flat Top	HO	HorseShoe
RE	Rectangular	UN	Unspecified
SQ	Square		

AC	Asbestos Cement
BR	Brick
PE	Polyethylene
RP	Reinforced Plastic Matrix
CO	Concrete
CSB	Concrete Segment Bolter
CSU	Concrete Segment Unbolter
CC	Concrete Box Culverted
PSC	Plastic / Steel Composite
GRC	Glass Reinforced Plastic
DI	Ductile Iron
PVC	Polyvinyl Chloride
CI	Cast Iron
SI	Spun Iron
ST	Steel
VC	Vitrified Clay
PP	Polypropylene
PF	Pitch Fibre
MAC	Masonry, Coursed
MAR	Masonry, Random
U	Unspecified

84 WYTHENSHAW ROAD,
MANCHESTER,
M23 0DJ

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United Utilities
helping life flow smoothly

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Reho	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad
0102	32.1	CO	28.52	225			BR	24.30005	1 in 171
4205	32.54	CO	28.84	1500			BR	24.30005	
0401	32.1	CO	28.79	225			VC	57.05058	1 in 98
0401	32.1	CO	28.79	225			VC	57.05058	1 in 98
5001	33.42	CO	31.15	225			VC	66.27216	1 in 76
2405	650			150			VC	11.21199	
2405	650			150			VC	11.21199	
0402	31.93	CO	28.71	225			VC	88.68484	1 in 97
0402	31.93	CO	28.71	225			VC	88.68484	1 in 97
0402	31.93	CO	28.71	225			VC	88.68484	1 in 97
0507	32.2	CO	28.2	300			VC	88.68484	1 in 97
0507	32.2	CO	28.2	300			VC	88.68484	1 in 97
3901	33.41	CO	31.58	225			VC	33.30165	1 in 119
3901	33.41	CO	31.58	225			VC	33.30165	1 in 119
4903	33.33	CO	30.04	300			VC	34.4093	1 in 287
0001	32.36	CO	30.64	225			VC	50.24938	1 in 167
0001	32.36	CO	30.64	225			VC	50.24938	1 in 167
2401	32.34	CO	30.1	225			VC	40.31129	1 in 84
2401	32.34	CO	30.1	225			VC	40.31129	1 in 84
1001	32.88	CO	31.07	225			VC	107.3778	1 in 250
1001	32.88	CO	31.07	225			VC	107.3778	1 in 250
0506	32.16	CO	28.53	2250			BR	15	
0506	32.16	CO	28.53	2250			BR	15	
0506	32.16	CO	28.53	2250			BR	15	
4202	31.9	CO	28.22	225			VC	12.52996	
2500	34.46	CO	28.21	1850			BR	49.64877	
2900	34.46	CO	28.21	1850			BR	49.64877	
4401	29.66	CO	0	300			VC	33.52611	
4401	29.66	CO	0	300			VC	33.52611	
4401	29.66	CO	0	300			VC	33.52611	
5104		CO	0	150			VC	9.875884	
0208		CO	0	150			VC	14.47385	
2404		CO	0	150			VC	6.836923	
2404		CO	0	150			VC	6.836923	
2003		CO	0	1850			BR	204.3771	
2003		CO	0	1850			BR	204.3771	
1503		CO	0	2250			BR	89.73851	
1503		CO	0	2250			BR	89.73851	
1601	32.33	CO	29.91	225			VC	81.7435	1 in 178
5103		CO	0	150			VC	11.32844	
2403	31.42	CO	28.11	225			VC	32.24903	1 in 70
2403	31.42	CO	28.11	225			VC	32.24903	1 in 70
1401	32.08	CO	30.25	225			VC	66.1211	1 in 331
1401	32.08	CO	30.25	225			VC	66.1211	1 in 331
4203	32.23	CO	27.81	300			VC	18	
4208		CO	0	150			BR	132.0863	
4003	33.53	CO	31.47	225			VC	60.20797	1 in 99
4101	32.58	CO	30.3	225			VC	49.0498	1 in 99
2501	31.31	CO	27.05	450			VC	6	1 in 21
2501	31.31	CO	27.05	450			VC	6	
4301	30.08	CO	27.62	225			VC	89.20202	
4303	30.85	CO	28.91	225			VC	74.02734	1 in 118
4201	31.69	CO	28.9	225			VC	19.0283	
0103		CO	0	150			VC	14.3906	
4402	29.42	CO	28.84	300			VC	77.39925	1 in 276
4402	29.42	CO	28.84	300			VC	77.39925	1 in 276
2402	31.87	CO	28.43	450			VC	58.54913	1 in 43
2402	31.87	CO	28.43	450			VC	58.54913	1 in 43
5003	33.65	CO	30.22	300			VC	63.95311	1 in 355
5003	33.65	CO	30.22	300			VC	63.95311	1 in 355
4002	33.4	CO	30.25	300			VC	37.01351	1 in 3701
4002	33.4	CO	30.25	300			VC	37.01351	1 in 3701
1502	31.97	CO	27.68	300			VC	80.80842	1 in 168
1502	31.97	CO	27.68	300			VC	80.80842	1 in 168
4303	30.55	CO	27.96	225			VC	42.42641	1 in 133
2415		CO	0	150			VC	8.858622	
2415		CO	0	150			VC	8.858622	
4902	33.88	CO	29.9	300			VC	38.91015	1 in 144
4902	33.88	CO	29.9	300			VC	38.91015	1 in 144
4001	33.52	CO	30.39	300			VC	33.54102	1 in 280
4001	33.52	CO	30.39	300			VC	33.54102	1 in 280
2301	32.35	CO	28.59	450			VC	91.7878	1 in 656
3003	33.45	CO	30.79	300			VC	80.50466	1 in 212
3003	33.45	CO	30.79	300			VC	80.50466	1 in 212
2302		CO	0	375			VC	35.35534	
0117		CO	0	150			VC	10.94423	
0117	32.92	CO	30.45	150			VC	10.94423	1 in 92
1101		CO	0	225			VC	82.74581	
0403		CO	0	225			VC	37.01351	
0403		CO	0	225			VC	37.01351	
0505		CO	0	2250			BR	154.7883	
0505		CO	0	2250			BR	154.7883	
0505		CO	0	2250			BR	154.7883	
0505		CO	0	2250			BR	154.7883	
1501	32.35	CO	27.77	225			VC	11.04536	
1501	32.35	CO	27.77	225			VC	11.04536	
0508		CO	0	300			VC	81.3941	
0508		CO	0	300			VC	81.3941	
0508		CO	0	300			VC	81.3941	
0508		CO	0	300			VC	81.3941	
9502		CO	0	2250			BR	103.9643	
5101	33.18	CO	30.96	225			VC	92.60087	1 in 145
0101		CO	0	150			VC	12.9808	
3501	30.62	CO	0	2650			BR	83.98025	
3501	30.62	CO	0	2650			BR	83.98025	
0201	32.1	CO	28.43	225			VC	3.605551	1 in 13
0201	32.1	CO	28.43	225			VC	3.605551	1 in 13
8201	32.41	CO	28.95	225			VC	23.34524	1 in 594
8201	32.41	CO	28.95	225			VC	23.34524	1 in 594
9203	32.51	CO	28.98	225			VC	16.77882	1 in 181
0204		CO	0	100			VC	8.676955	
0204		CO	0	100			VC	8.676955	
0202	32.2	CO	28.14	225			VC	9.675805	1 in 171
0202	32.2	CO	28.14	225			VC	9.675805	1 in 171
3201		CO	0	2050			BR	290.8447	
9202	32.7	CO	28.83	300			VC	79.20859	1 in 2640
9202	32.7	CO	28.83	300			VC	79.20859	1 in 2640
2502		CO	0	2250			BR	104.8572	
2502		CO	0	2250			BR	104.8572	

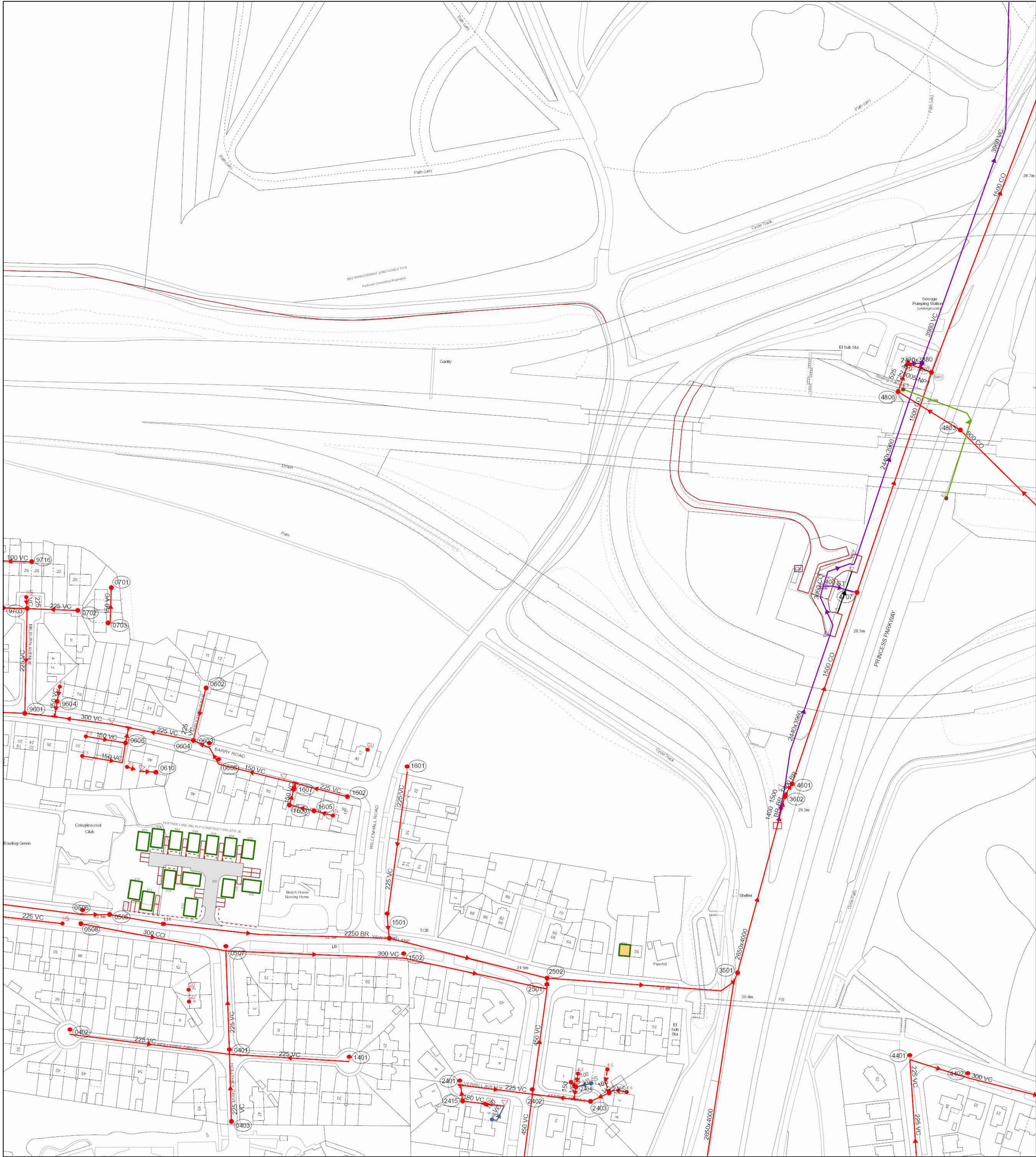
Reho	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad
0102	32.1	CO	28.52	225			BR	24.30005	1 in 171
4205	32.54	CO	28.84	1500			BR	24.30005	
0401	32.1	CO	28.79	225			VC	57.05058	1 in 98
0401	32.1	CO	28.79	225			VC	57.05058	1 in 98
5001	33.42	CO	31.15	225			VC	66.27216	1 in 76
2405	650			150			VC	11.21199	
2405	650			150			VC	11.21199	
0402	31.93	CO	28.71	225			VC	88.68484	1 in 97
0402	31.93	CO	28.71	225			VC	88.68484	1 in 97
0402	31.93	CO	28.71	225			VC	88.68484	1 in 97
0507	32.2	CO	28.2	300			VC	88.68484	1 in 97
0507	32.2	CO	28.2	300			VC	88.68484	1 in 97
3901	33.41	CO	31.58	225			VC	33.30165	1 in 119
3901	33.41	CO	31.58	225			VC	33.30165	1 in 119
4903	33.33	CO	30.04	300			VC	34.4093	1 in 287
0001	32.36	CO	30.64	225			VC	50.24938	1 in 167
0001	32.36	CO	30.64	225			VC	50.24938	1 in 167
2401	32.34	CO	30.1	225			VC	40.31129	1 in 84
2401	32.34	CO	30.1	225			VC	40.31129	1 in 84
1001	32.88	CO	31.07	225			VC	107.3778	1 in 250
1001	32.88	CO	31.07	225			VC	107.3778	1 in 250
0506	32.16	CO	28.53	2250			BR	15	
0506	32.16	CO	28.53	2250			BR	15	
0506	32.16	CO	28.53	2250			BR	15	
4202	31.9	CO	28.22	225			VC	12.52996	
2500	34.46	CO	28.21	1850			BR	49.64877	
2900	34.46	CO	28.21	1850			BR	49.64877	
4401	29.66	CO	0	300			VC	33.52611	
4401	29.66	CO	0	300			VC	33.52611	
4401	29.66	CO	0	300			VC	33.52611	
5104		CO	0	150			VC	9.875884	
0208		CO	0	150			VC	14.47385	
2404		CO	0	150			VC	6.836923	
2404		CO	0	150			VC	6.836923	
2003		CO	0	1850			BR	204.3771	
2003		CO	0	1850			BR	204.3771	
1503		CO	0	2250			BR	89.73851	
1503		CO	0	2250			BR	89.73851	
1601	32.33	CO	29.91	225			VC	81.7435	1 in 178
5103		CO	0	150			VC	11.32844	
2403	31.42	CO	28.11	225			VC	32.24903	1 in 70
2403	31.42	CO	28.11	225			VC	32.24903	1 in 70
1401	32.08	CO	30.25	225			VC	66.1211	1 in 331
1401	32.08	CO	30.25	225			VC	66.1211	1 in 331
4203	32.23	CO	27.81	300			VC	18	
4208		CO	0	150			BR	132.0863	
4003	33.53	CO	31.47	225			VC	60.20797	1 in 99
4101	32.58								



Reho	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad
8401	31.85	CO	27.73	525		VC	61.47429	1 in 236	
8401	31.85	CO	27.73	525		VC	61.47429	1 in 236	
8407		CO	0	150		VC	7.12962		
8505		CO	0	150		VC	24.27493		
8505		CO	0	150		VC	24.27493		
8402	31.93	CO	29.71	225		VC	88.88484	1 in 97	
8402	31.93	CO	29.71	225		VC	88.88484	1 in 97	
8402	31.93	CO	29.71	225		VC	88.88484	1 in 97	
8402	31.93	CO	29.71	225		VC	88.88484	1 in 97	
8202	32.14	CO	28.84	375		VC	27.27872	1 in 258	
8203		CO	0	150		VC	2.270476		
8102		CO	0	300		VC	7.515901		
7302	32.1	CO	29.88	225		VC	45.34314	1 in 130	
7302		CO	0	225		VC	24.30502		
8508		CO	0	225		VC	24.35552		
1001	32.88	CO	31.07	225		VC	107.3778	1 in 250	
1001	32.88	CO	31.07	225		VC	107.3778	1 in 250	
4102	32.56	CO	30.49	225		VC	75.1349	1 in 117	
0506	32.16	CO	28.53	2250		BR	15		
0506	32.16	CO	28.53	2250		BR	15		
0506	32.16	CO	28.53	2250		BR	15		
0506	32.16	CO	28.53	2250		BR	15		
7405	32.09	CO	30.53	225		VC	18.02776	1 in 75	
7405	32.09	CO	30.53	225		VC	18.02776	1 in 75	
7203		CO	0	150		VC	7.314623		
6102	31.92	CO	30.96	225		VC	27.50685	1 in 100	
7308		CO	0	150		VC	5.869599		
7404	32.36	CO	29.49	300		VC	43.86343	1 in 74	
8103	32.19	CO	30.88	225		VC	25.45903	1 in 134	
8505	31.65	CO	29.19	225		VC	72.78049	1 in 55	
8505	31.65	CO	29.19	225		VC	72.78049	1 in 55	
8201	32.08	CO	28.32	375		CO	73.34848	1 in 229	
7412		CO	0	100		VC	6.361515		
8402	31.97	CO	30.01	300		VC	54.91812	1 in 28	
7002	33.01	CO	29.7	100		VC	8.246658	1 in 41	
5502	31.58	CO	28.54	300		VC	68.03796	1 in 194	
5502	31.58	CO	28.54	300		VC	68.03796	1 in 194	
7103		CO	0	225		VC	20.23007		
6403	31.93	CO	29.78	225		VC	18.02776	1 in 106	
8403	31.93	CO	29.78	225		VC	18.02776	1 in 106	
8301	32.45	CO	28.18	525		CO	34.9285	1 in 318	
7310		CO	0	150		VC	9.530569		
7408		CO	0	150		VC	6.37302		
7408		CO	0	150		VC	6.37302		
7402	32.11	CO	29.77	225		VC	53.85165	1 in 51	
7402	32.11	CO	29.77	225		VC	53.85165	1 in 51	
4501	31.29	CO	28.94	225		VC	23.1076		
4501	31.29	CO	28.94	225		VC	41.88078	1 in 123	
5102		CO	0	100		VC	41.88078	1 in 123	
5202		CO	0	100		VC	8.876908		
9101	32.04	CO	30.46	225		VC	9.832824		
9101	32.4	CO	29.71	225		VC	111.611	1 in 174	
8401	31.85	CO	29.21	225		VC	65.79514	1 in 94	
8401	31.85	CO	29.21	225		VC	29.52965	1 in 72	
8401	31.85	CO	29.21	225		VC	29.52965	1 in 72	
6406		CO	0	150		VC	7.300443		
8406		CO	0	150		VC	15.82316		
5209		CO	0	150		VC	6.659444		
6405	31.93	CO	28.89	375		VC	45.89117	1 in 242	
6405	31.93	CO	28.89	375		VC	45.89117	1 in 242	
0505		CO	0	150		VC	154.7883		
0505		CO	0	150		VC	154.7883		
0505		CO	0	150		VC	154.7883		
0505		CO	0	150		VC	154.7883		
7202		CO	0	150		VC	13.71058		
8403		CO	0	150		VC	103.8643		
8403		CO	0	150		VC	133.3642		
8403		CO	0	150		VC	11.81423	1 in 310	
8403		CO	0	150		VC	11.81423		
8403		CO	0	150		VC	4.732329		
8403		CO	0	150		VC	4.732329		
7511		CO	0	150		VC	6.441053		
7511		CO	0	150		VC	6.441053		
8509		CO	0	150		VC	22.84829		
8509		CO	0	150		VC	22.84829		
5104		CO	0	150		VC	9.526296		
8402	31.91	CO	27.94	525		VC	66.70532	1 in 351	
7406		CO	0	150		VC	24.79762		
7406		CO	0	150		VC	24.79762		
8103		CO	0	150		VC	6.158212		
0305		CO	0	150		VC	6.885883		
0001	32.36	CO	30.64	225		VC	50.24938	1 in 167	
0001	32.36	CO	30.64	225		VC	50.24938	1 in 167	
0001	32.36	CO	30.64	225		VC	50.24938	1 in 167	
0001	32.36	CO	30.64	225		VC	50.24938	1 in 167	
5105		CO	0	300		VC	11.17343		
8303	32.45	CO	28.78	300		VC	39.89887	1 in 137	
8301	31.88	CO	29.3	225		VC	32.91634	1 in 135	
0208		CO	0	150		VC	14.47385		
4503		CO	0	150		VC	13.18889		
4503		CO	0	150		VC	13.18889		
7409		CO	0	150		VC	19.05189		
7409		CO	0	150		VC	19.05189		
7001	32.87	CO	29.85	300		VC	29.02369	1 in 193	
7309		CO	0	150		VC	7.30122		
7507		CO	0	225		VC	30.19777		
7507		CO	0	225		VC	30.19777		
5405	32.79	CO	29.46	300		VC	36.39614		
5405		CO	0	150		VC	7.725183		
8302		CO	0	150		VC	7.725183		
8302		CO	0	150		VC	14.24206		
7101		CO	0	225		VC	13.74929		
4103		CO	0	150		VC	28.54523		
8504		CO	0	150		VC	11.48904		
8504		CO	0	150		VC	11.48904		
6404	31.91	CO	29.59	225		VC	36.13862	1 in 60	
6404	31.91	CO	29.59	225		VC	36.13862	1 in 60	
7409		CO	0	150		VC	10.97835		
8401	31.9	CO	29.91	225		VC	10.97835		
8401	31.9	CO	29.91	225		VC	32.91934	1 in 16	
5404		CO	0	150		VC	8.717422		
5404		CO	0	150		VC	8.717422		
4507		CO	0	150		VC	7.966683		
4507		CO	0	150		VC	7.966683		
0117	31.74	CO	29.81	225		VC	7.996683	1 in 153	
0117		CO	0	150		VC	24.41311	1 in 225	
0117		CO	0	150		VC	10.84423		
0117		CO	0	150		VC	10.84423		
6104		CO	0	150		VC	6.762616		
7513		CO	0	225		VC	10.11702		
7513		CO	0	225		VC	10.11702		
5103		CO	0	150		VC	30.26548		
7404	32.36	CO	30.53	225		VC	78.87331	1 in 107	
0508		CO	0	300		CO	81.3941		
0508		CO	0	300		CO	81.3941		
0508		CO	0	300		CO	81.3941		
0508		CO	0	300		CO	81.3941		
7301	31.9	CO	30.12	225		VC	28.46025	1 in 129	
6203	31.73	CO	30.29	225		VC	85.58621		
5403		CO	0	150		VC	6.302542		
5403		CO	0	150		VC	6.302542		
6407	32.11	CO	30.27	225		VC	24.73963	1 in 18	
6407	32.11	CO	30.27	225		VC	24.73963	1 in 18	
5503		CO	0	150		VC	7.681593		
5503		CO	0	150		VC	7.681593		
8301	31.86	CO	29.16	375		VC	83.54639	1 in 334	
8510		CO	0	150		VC	16.1016		
8510		CO	0	150		VC	7.194697		
7317		CO	0	150		VC	9.638996		
0201	32.1	CO	29.43	225		VC	3.605551	1 in 13	
0201	32.1	CO	29.43	225		VC	3.605551	1 in 13	
5201	31.63	CO	29.11	225		VC	57.56867	1 in 198	
6406	31.58	CO	29.88	225		VC	39.81206	1 in 147	
6204		CO	0	225		VC	87.57283		
5407		CO	0	150		VC	3.50077		
5407		CO	0	150		VC	3.50077		
9001	32.89	CO	30.03	225		VC	60.13319	1 in 223	
5303	31.6	CO	29.9	225		VC	59.9902	1 in 170	
9202	32.7	CO	28.83	300		VC	79.20859	1 in 2640	
9202	32.7	CO	28.83	300		VC	79.20859	1 in 2640	
5301	31.42	CO	29.88	225		VC	42.75512	1 in 158	
7201		CO	0	225		VC	83.30066		
6309		CO	0	150		VC	9.880141		
5411		CO	0	150		VC	13.00116		
5401	31.72	CO	29.8	225		VC	58.83027	1 in 143	
5401	31.72	CO	29.8	225		VC	58.83027	1 in 143	
6402	32.12	CO	28.86	450		VC	153.6815	1 in 274	
6402	32.12	CO	28.86	450		VC	153.6815	1 in 274	
5510		CO	0	150		VC	11.80633		
5510		CO	0	150		VC	11.80633		
7210		CO	0	100		VC	8.657715		
5203	32.51	CO	28.98	225		VC	16.27882	1 in 181	
0204		CO							



Refno	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad
7606	CO	28.38	2250	BR	2	155888	VC	3.50077	1 in 236
8401	31.85	CO	27.73	525	VC	61.47429	1 in 236	VC	61.47429
8401	31.85	CO	27.73	525	VC	61.47429	1 in 236	VC	61.47429
7602	CO	0	100	VC	13.14602	VC	13.14602	VC	13.14602
9505	CO	0	150	VC	24.27463	VC	24.27463	VC	24.27463
9505	CO	0	150	VC	24.27463	VC	24.27463	VC	24.27463
0402	31.93	CO	28.71	225	VC	88.88484	1 in 97	VC	88.88484
0402	31.93	CO	28.71	225	VC	88.88484	1 in 97	VC	88.88484
0402	31.93	CO	28.71	225	VC	88.88484	1 in 97	VC	88.88484
0402	31.93	CO	28.71	225	VC	88.88484	1 in 97	VC	88.88484
7615	31.93	CO	28.71	100	VC	10.91007	1 in 97	VC	10.91007
5803	30.81	CO	28.92	225	VC	41.28381	1 in 153	VC	41.28381
5802	31.01	CO	28.39	225	VC	54.51921	1 in 188	VC	54.51921
8607	31.34	SW	28.85	225	VC	59	1 in 128	VC	59
8902	27.87	SW	28.07	525	VC	60.00389	1 in 218	VC	60.00389
7602	31.16	SW	28.07	375	VC	43.88066	1 in 218	VC	43.88066
9714	CO	0	100	VC	9.588161	VC	9.588161	VC	9.588161
7610	CO	0	100	VC	6.927491	VC	6.927491	VC	6.927491
7604	32.04	CO	30.31	150	VC	12.10553	1 in 26	VC	12.10553
8706	30.81	SW	27.71	375	VC	19	1 in 238	VC	19
8508	CO	0	225	VC	24.35552	VC	24.35552	VC	24.35552
8508	CO	0	225	VC	24.35552	VC	24.35552	VC	24.35552
9501	32.04	CO	27.45	525	VC	7.554975	1 in 148	VC	7.554975
7601	31.38	CO	28.96	225	VC	35.4983	1 in 148	VC	35.4983
8604	CO	0	150	VC	8.463631	VC	8.463631	VC	8.463631
9504	32.16	CO	28.53	2250	BR	15	1 in 75	BR	15
0506	32.16	CO	28.53	2250	BR	15	1 in 75	BR	15
0506	32.16	CO	28.53	2250	BR	15	1 in 75	BR	15
0506	32.16	CO	28.53	2250	BR	15	1 in 75	BR	15
7405	32.09	CO	30.53	225	VC	18.02776	1 in 75	VC	18.02776
7405	32.09	CO	30.53	225	VC	18.02776	1 in 75	VC	18.02776
4603	31.62	CO	28.09	300	VC	51.49797	1 in 115	VC	51.49797
8505	31.65	CO	28.19	225	VC	33.42404	1 in 115	VC	33.42404
8505	31.65	CO	28.19	225	VC	33.42404	1 in 115	VC	33.42404
8505	31.65	CO	28.19	225	VC	33.42404	1 in 115	VC	33.42404
9802	SW	0	300	VC	72.78049	1 in 55	VC	72.78049	
7611	CO	0	100	VC	61.12909	1 in 55	VC	61.12909	
7623	CO	0	100	VC	4.705795	VC	4.705795	VC	4.705795
5502	31.58	CO	28.54	300	VC	6.99447	1 in 194	VC	6.99447
7509	CO	0	225	VC	66.03786	1 in 194	VC	66.03786	
7509	CO	0	225	VC	66.03786	1 in 194	VC	66.03786	
9601	31.56	CO	28.66	300	VC	28.0374	1 in 270	VC	28.0374
9601	31.56	CO	28.66	300	VC	28.0374	1 in 270	VC	28.0374
8502	32.01	CO	27.53	300	VC	89.25173	1 in 270	VC	89.25173
8403	31.93	CO	28.78	225	VC	89.25173	1 in 270	VC	89.25173
8403	31.93	CO	28.78	225	VC	7.232166	1 in 106	VC	7.232166
7408	CO	0	150	VC	18.02776	1 in 106	VC	18.02776	
7408	CO	0	150	VC	18.02776	1 in 106	VC	18.02776	
7620	SW	0	100	VC	6.37302	VC	6.37302	VC	6.37302
7609	CO	0	150	VC	0.520364	VC	0.520364	VC	0.520364
7402	32.11	CO	28.77	225	VC	8.435912	1 in 51	VC	8.435912
6702	31.35	CO	30.17	225	VC	53.85165	1 in 51	VC	53.85165
8603	31.83	CO	28.47	225	VC	53.85165	1 in 51	VC	53.85165
4602	31.59	CO	28.47	2250	BR	31.90811	1 in 110	BR	31.90811
6602	31.83	CO	28.47	225	VC	114.2523	1 in 208	VC	114.2523
4501	31.29	CO	28.94	225	VC	72.67327	1 in 123	VC	72.67327
4501	31.29	CO	28.94	225	VC	72.67327	1 in 123	VC	72.67327
4501	31.29	CO	28.94	225	VC	72.67327	1 in 123	VC	72.67327
4501	31.29	CO	28.94	225	VC	72.67327	1 in 123	VC	72.67327
4705	30.82	CO	28.42	225	VC	15.08786	1 in 123	VC	15.08786
7605	31.8	CO	28.35	225	VC	41.88078	1 in 123	VC	41.88078
6401	31.93	CO	30.21	225	VC	41.88078	1 in 123	VC	41.88078
6401	31.93	CO	30.21	225	VC	41.88078	1 in 123	VC	41.88078
7605	31.8	CO	28.35	225	VC	20.65144	1 in 98	VC	20.65144
6701	31.16	CO	28.82	225	VC	41.34377	1 in 211	VC	41.34377
6405	31.83	CO	28.89	375	VC	48.50773	1 in 211	VC	48.50773
8405	31.83	CO	28.89	375	VC	41.34377	1 in 211	VC	41.34377
8702	29.93	SW	27.4	225	VC	29.52965	1 in 72	VC	29.52965
0505	CO	0	26.74	2250	BR	29.52965	1 in 72	BR	29.52965
0505	CO	0	26.74	2250	BR	29.52965	1 in 72	BR	29.52965
0505	CO	0	26.74	2250	BR	29.52965	1 in 72	BR	29.52965
0505	CO	0	26.74	2250	BR	29.52965	1 in 72	BR	29.52965
8606	CO	0	26.74	2250	BR	154.7883	1 in 182	BR	154.7883
9502	31.32	CO	28.14	225	VC	18.24829	1 in 116	VC	18.24829
7607	CO	0	2250	BR	55.10885	1 in 116	BR	55.10885	
8705	31.99	CO	28.46	225	VC	24.38831	1 in 116	VC	24.38831
9502	CO	0	2250	BR	95.32076	1 in 116	BR	95.32076	
8802	28.59	SW	28.56	900	CO	51.23745	1 in 351	CO	51.23745
8403	CO	0	150	VC	11.61423	VC	11.61423	VC	11.61423
8403	CO	0	150	VC	11.61423	VC	11.61423	VC	11.61423
4611	CO	0	100	VC	5.35846	VC	5.35846	VC	5.35846
8405	CO	0	150	VC	4.732329	VC	4.732329	VC	4.732329
8405	CO	0	150	VC	4.732329	VC	4.732329	VC	4.732329
8504	31.91	CO	28.71	2250	BR	47.26119	1 in 213	BR	47.26119
7702	31.78	CO	28.93	300	VC	11.0045	1 in 213	VC	11.0045
8702	31.88	CO	28.77	225	VC	47.29994	1 in 101	VC	47.29994
8503	32.09	CO	28.75	225	VC	107.7178	1 in 207	VC	107.7178
8601	30.69	SW	28.33	300	VC	15.21355	1 in 138	VC	15.21355
7511	CO	0	150	VC	6.441053	VC	6.441053	VC	6.441053
7511	CO	0	150	VC	6.441053	VC	6.441053	VC	6.441053
8611	CO	0	150	VC	5.843836	VC	5.843836	VC	5.843836
9902	SW	0	525	VC	37.77607	VC	37.77607	VC	37.77607
8509	CO	0	150	VC	22.84829	VC	22.84829	VC	22.84829
8509	CO	0	150	VC	22.84829	VC	22.84829	VC	22.84829
8501	32.08	CO	28.66	225	VC	6.587182	1 in 351	VC	6.587182
8402	31.81	CO	27.94	525	VC	66.70832	1 in 351	VC	66.70832
7406	CO	0	150	VC	24.79762	VC	24.79762	VC	24.79762
7406	CO	0	150	VC	24.79762	VC	24.79762	VC	24.79762
7616	CO	0	100	VC	1.838096	VC	1.838096	VC	1.838096
4908	30.86	CO	28.76	225	VC	31.07262	1 in 91	VC	31.07262
7503	31.47	CO	28.99	225	VC	22.0186	1 in 97	VC	22.0186
4803	31.17	CO	28.01	375	VC	19.84852	1 in 491	VC	19.84852
5705	30.87	CO	27.61	450	CO	29.18249	1 in 730	CO	29.18249
4607	CO	0	2250	BR	5.204762	BR	5.204762	BR	5.204762
8603	31.43	CO	28.33	300	VC	90.2999	1 in 116	VC	90.2999
9708	CO	0	225	VC	7.960259	VC	7.960259	VC	7.960259
8703	30.56	CO	27.61	150	VC	22.84655	1 in 127	VC	22.84655
8614	CO	0	150	VC	16.23533	VC	16.23533	VC	16.23533
9709	CO	0	100	VC	14.2214	VC	14.2214	VC	14.2214
8601	31.04	CO	28.51	225	VC	30.76317	1 in 342	VC	3



Reho	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad
0401	32.1	CO	28.79	225			VC	57.53508	1 in 98
0401	32.1	VC	28.79	225			VC	57.53508	1 in 98
3602		CO	0	1500			BR	4.472136	
2405	650	CO		150			VC	11.21199	
2405	650	CO		150			VC	11.21199	
0402	31.93	CO	29.71	225			VC	88.89484	1 in 97
0402	31.93	CO	29.71	225			VC	88.89484	1 in 97
0402	31.93	CO	29.71	225			VC	88.89484	1 in 97
0507	32.2	CO	28.2	300			VC	98.0816	1 in 196
0507	32.2	CO	28.2	300			VC	98.0816	1 in 196
4707		CO	0	1500			CO	128.102	
2401	32.34	CO	30.1	225			VC	40.31129	1 in 94
2401	32.34	CO	30.1	225			VC	40.31129	1 in 94
9604		CO		150			VC	8.463631	
9604		CO		150			VC	8.463631	
0506	32.16	BR	26.53	2250			BR	15	
0506	32.16	CO	26.53	2250			BR	15	
0506	32.16	CO	26.53	2250			BR	15	
4401	29.68	CO	0	300			VC	33.52611	
4401	29.68	CO	0	300			VC	33.52611	
2404		CO		150			VC	6.936923	
2404		CO		150			VC	6.936923	
1503		CO	0	2250			BR	89.73851	
1503		CO	0	2250			BR	89.73851	
1601	32.33	CO	29.91	225			VC	81.74325	1 in 178
0702	32.19	CO	30.12	225			VC	27.94426	1 in 90
0702	32.19	CO	30.12	225			VC	27.94426	1 in 90
4601		CO	0	1500			CO	212.1226	
2403	31.42	CO	29.11	225			VC	32.24903	1 in 70
2403	31.42	CO	29.11	225			VC	32.24903	1 in 70
1401	32.08	CO	30.25	225			VC	66.1211	1 in 331
1401	32.08	CO	30.25	225			VC	66.1211	1 in 331
4601		CO	0	1500			CO	111.4738	
2501	31.31	CO	27.05	450			VC	6	
2501	31.31	CO	27.05	450			VC	6	
9601	31.56	CO	28.66	300			VC	89.25173	1 in 270
9601	31.56	CO	28.66	300			VC	89.25173	1 in 270
4301	30.08	CO	27.62	225			VC	89.20202	
0605	31.76	CO	29.51	225			VC	10.25953	1 in 206
4402	29.42	CO	28.84	300			VC	77.36925	1 in 276
4402	29.42	CO	28.84	300			VC	77.36925	1 in 276
2402	31.87	CO	28.43	450			VC	58.54913	1 in 43
2402	31.87	CO	28.43	450			VC	58.54913	1 in 43
1502	31.97	CO	27.68	300			VC	80.80642	1 in 168
1502	31.97	CO	27.68	300			VC	80.80642	1 in 168
2415		CO		150			VC	8.858622	
2415		CO		150			VC	8.858622	
1501	32.35	CO	28.59	150			VC	91.7879	1 in 656
0703	31.99	CO	29.24	225			VC	57.7093	1 in 111
0703	31.99	CO	29.24	225			VC	57.7093	1 in 111
0403		CO	0	225			VC	37.91351	
0403		CO	0	225			VC	37.91351	
0505		CO	26.74	2250			BR	154.7883	
0505		CO	26.74	2250			BR	154.7883	
0505		CO	26.74	2250			BR	154.7883	
1501	32.35	CO	27.77	225			VC	11.04536	
1501	32.35	CO	27.77	225			VC	11.04536	
4903	24.46	CO	21.04	900			CO	40.46965	1 in 101
0508		CO	0	300			CO	81.3941	
0508		CO	0	300			CO	81.3941	
0508		CO	0	300			CO	81.3941	
0502		CO	0	2250			BR	103.9643	
0705	31.99	CO	29.46	225			VC	24.39931	1 in 116
1606		CO		150			VC	231.9998	
0604		CO		225			VC	8.986497	
1607	31.54	CO	29.27	225			VC	45.89117	1 in 184
9716		CO		100			VC	3.518729	
9716		CO		100			VC	24.12662	
3501	30.62	CO	0	2650			BR	83.96025	
3501	30.62	CO	0	2650			BR	83.96025	
0603	31.49	CO	29.44	225			VC	9.848858	1 in 62
4806		CO	0	925			CI	16.40573	
1605		CO		150			VC	13.80906	
3201		BR	29.647	2650			BR	299.6447	
0602	31.63	CO	29.63	225			VC	29.83287	1 in 90
1602		CO	0	225			VC	36.14106	
0606		CO		150			VC	8.601558	
0606		CO		150			VC	8.601558	
2502		CO	0	2250			BR	104.8572	
2502		CO	0	2250			BR	104.8572	

Reho	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad
0401	32.1	CO	28.79	225			VC	57.53508	1 in 98
0401	32.1	VC	28.79	225			VC	57.53508	1 in 98
3602		CO	0	1500			BR	4.472136	
2405	650	CO		150			VC	11.21199	
2405	650	CO		150			VC	11.21199	
0402	31.93	CO	29.71	225			VC	88.89484	1 in 97
0402	31.93	CO	29.71	225			VC	88.89484	1 in 97
0402	31.93	CO	29.71	225			VC	88.89484	1 in 97
0507	32.2	CO	28.2	300			VC	98.0816	1 in 196
0507	32.2	CO	28.2	300			VC	98.0816	1 in 196
4707		CO	0	1500			CO	128.102	
2401	32.34	CO	30.1	225			VC	40.31129	1 in 94
2401	32.34	CO	30.1	225			VC	40.31129	1 in 94
9604		CO		150			VC	8.463631	
9604		CO		150			VC	8.463631	
0506	32.16	BR	26.53	2250			BR	15	
0506	32.16	CO	26.53	2250			BR	15	
0506	32.16	CO	26.53	2250			BR	15	
4401	29.68	CO	0	300			VC	33.52611	
4401	29.68	CO	0	300			VC	33.52611	
2404		CO		150			VC	6.936923	
2404		CO		150			VC	6.936923	
1503		CO	0	2250			BR	89.73851	
1503		CO	0	2250			BR	89.73851	
1601	32.33	CO	29.91	225			VC	81.74325	1 in 178
0702	32.19	CO	30.12	225			VC	27.94426	1 in 90
0702	32.19	CO	30.12	225			VC	27.94426	1 in 90
4601		CO	0	1500			CO	212.1226	
2403	31.42	CO	29.11	225			VC	32.24903	1 in 70
2403	31.42	CO	29.11	225			VC	32.24903	1 in 70
1401	32.08	CO	30.25	225			VC	66.1211	1 in 331
1401	32.08	CO	30.25	225			VC	66.1211	1 in 331
4601		CO	0	1500			CO	111.4738	
2501	31.31	CO	27.05	450			VC	6	
2501	31.31	CO	27.05	450			VC	6	
9601	31.56	CO	28.66	300			VC	89.25173	1 in 270
9601	31.56	CO	28.66	300			VC	89.25173	1 in 270
4301	30.08	CO	27.62	225			VC	89.20202	
0605	31.76	CO	29.51	225			VC	10.25953	1 in 206
4402	29.42	CO	28.84	300			VC	77.36925	1 in 276
4402	29.42	CO	28.84	300			VC	77.36925	1 in 276
2402	31.87	CO	28.43	450			VC	58.54913	1 in 43
2402	31.87	CO	28.43	450			VC	58.54913	1 in 43
1502	31.97	CO	27.68	300			VC	80.80642	1 in 168
1502	31.97	CO	27.68	300			VC	80.80642	1 in 168
2415		CO		150			VC	8.858622	
2415		CO		150			VC	8.858622	
1501	32.35	CO	28.59	150			VC	91.7879	1 in 656
0703	31.99	CO	29.24	225			VC	57.7093	1 in 111
0703	31.99	CO	29.24	225			VC	57.7093	1 in 111
0403		CO	0	225			VC	37.91351	
0403		CO	0	225			VC	37.91351	
0505		CO	26.74	2250			BR	154.7883	
0505		CO	26.74	2250			BR	154.7883	
0505		CO	26.74	2250			BR	154.7883	
1501	32.35	CO	27.77	225			VC	11.04536	
1501	32.35	CO	27.77	225			VC	11.04536	
4903	24.46	CO	21.04	900			CO	40.46965	1 in 101
0508		CO	0	300			CO	81.3941	
0508		CO	0	300			CO	81.3941	
0508		CO	0	300			CO	81.3941	
0502		CO	0	2250			BR	103.9643	
0705	31.99	CO	29.46	225			VC	24.39931	1 in 116
1606		CO		150			VC	231.9998	
0604		CO		225			VC	8.986497	
1607	31.54	CO	29.27	225			VC	45.89117	1 in 184
9716		CO		100			VC	3.518729	
9716		CO		100			VC	24.12662	
3501	30.62	CO	0	2650			BR	83.96025	
3501	30.62	CO	0	2650			BR	83.96025	
0603	31.49	CO	29.44	225			VC	9.848858	1 in 62
4806		CO	0	925			CI	16.40573	
1605		CO		150			VC	13.80906	
3201		BR	29.647	2650			BR	299.6447	
0602	31.63	CO	29.63	225			VC	29.83287	1 in 90
1602		CO	0	225			VC	36.14106	
0606		CO		150			VC	8.601558	
0606		CO		150			VC	8.601558	
2502		CO	0	2250			BR	104.8572	
2502		CO	0	2250			BR	104.8572	



APPENDIX G

UNITED UTILITIES CORRESPONDENCE

Emma Walker

Subject: FW: Pre Development Enquiry for : Moss Hey Drive M23 0DH UU reference
Number : 4200039614

From: Perry, Graham <Graham.Perry@uuplc.co.uk>

Sent: 10 June 2021 11:33

To: Mark Rayner <MRayner@rsk.co.uk>

Subject: FW: Pre Development Enquiry for : Moss Hey Drive M23 0DH UU reference Number : 4200039614

Hello Mark

Further to our discussions an alternative to the Princess Parkway connection would be to the 2250mm combined sewer on Yew Tree Lane which flows into the Princess Parkway system. You would be allowed to drain at 45 l/s into this sewer

Thanks

Graham Perry



Graham Perry
Development Engineer
Developer Services
M: 07557 577548
T: 01925 679405
unitedutilities.com

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From: Perry, Graham

Sent: 09 June 2021 17:44

To: MRayner@rsk.co.uk

Cc: Wastewater Developer Services (WastewaterDeveloperServices@uuplc.co.uk)

[<WastewaterDeveloperServices@uuplc.co.uk>](mailto:WastewaterDeveloperServices@uuplc.co.uk)

Subject: FW: Pre Development Enquiry for : Moss Hey Drive M23 ODH UU reference Number : 4200039614

Hello Mark

I assume you are referring to surface water disposal and yes there is a dedicated 225mm sw sewer on Lindwall Close that would be suitable however I could only offer a maximum discharge rate of 20 l/s if the modelling team confirm that this is viable because we do not have any modelling data for the surface water sewer available on the general model.

You would also have to discuss this approach with the LLFA and seek their approval

Have you carried out any investigations into the viability of making a connection at this point ?

Thanks

Graham Perry



Graham Perry
Development Engineer
Developer Services
M: 07557 577548
T: 01925 679405
unitedutilities.com

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From: Wastewater Developer Services

Sent: 27 May 2021 13:17

To: Perry, Graham <Graham.Perry@uuplc.co.uk>

Subject: Pre Development Enquiry for : Moss Hey Drive M23 0DH UU reference Number : 4200039614

Hi Graham,

Please see repeat below.

This has been saved to sharepoint:

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Louise Dack
Customer Advisor Advanced
Developer Services & Metering
Customer Services
T: 01925 233063 (33063 internal)
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<https://www.unitedutilities.com/builders-developers/> or you can email us at WastewaterDeveloperServices@uuplc.co.uk

From: Mark Rayner [<mailto:MRayner@rsk.co.uk>]

Sent: 27 May 2021 11:33

To: Perry, Graham <Graham.Perry@uuplc.co.uk>

Cc: Wastewater Developer Services <WastewaterDeveloperServices@uuplc.co.uk>; Nichola Burns <Nichola.Burns@miller.co.uk>; David Brackley <David.Brackley@miller.co.uk>

Subject: FW: Pre Development Enquiry for : Moss Hey Drive M23 0DH UU reference Number : 4200039614

EXTERNAL EMAIL This email originated outside of the organisation. Do not click links or open attachments unless you recognise the sender and know the content is safe.

Morning Graham,

Further to your email below, please see below from our client – please can you advise

There seems to be a closer POC in Lindwall close which should be able to cope with limited discharge, it's also better for UU as they won't have a assets within Princess Parkway

Regards

Mark

From: Perry, Graham <Graham.Perry@uuplc.co.uk>

Sent: 17 May 2021 21:19

To: Ellis Phythian <EPhythian@rsk.co.uk>

Cc: Wastewater Developer Services <WastewaterDeveloperServices@uuplc.co.uk>

Subject: Pre Development Enquiry for : Moss Hey Drive M23 ODH UU reference Number : 4200039614

Pre Development Enquiry for: Moss Hey Drive M23 ODH UU reference Number : 4200039614

We have carried out an assessment of your application which is based on the information provided. This pre-development advice on your drainage strategy will be valid for 12 months. Your drainage strategy will need to be reviewed by other competent authorities as part of the planning process, and we advise that you carry out the necessary site investigations to confirm the viability of your proposals.

If your investigations require access to our public sewer network, we ask that you contact our network engineers with a request for an access certificate via our main contact telephone number 0345 3723223 or refer to the link below:

<https://www.unitedutilities.com/builders-developers/working-near-our-assets/>

Foul Water

Foul flow from this site will be allowed to drain into the public foul water/combined sewer system.

Our preferred point of discharge would be to the 225mm diameter public combined sewer within Moss Hey Drive located to the south west of your proposed development at an unrestricted rate.

If you are able to identify an alternative, more suitable point of discharge, we request that you contact us at your earliest convenience so that we can assess suitability.

(Delete if appropriate) In accordance with our infrastructure plans we may ask you to change your point of connection. Therefore please contact us when you are ready to formalise your drainage proposals, we would suggest before you submit for Full Planning.

Surface Water

All surface water flow from the proposed development should drain in-line with the drainage hierarchy, as outlined in Paragraph 80, (Reference ID: 7-080-20150323), of the National Planning Practice Guidance. We also recommend you prioritise the use of multi-functional sustainable drainage systems for the management of surface water in accordance with national planning policy.

Generally, the aim should be to discharge surface run off as high up the following hierarchy of drainage options as reasonably practicable.

This is outlined as follows, in order of priority:

- 1. into the ground (infiltration);**
- 2. to a surface waterbody;**
- 3. to a surface water sewer or highway drain;**
- 4. to a combined sewer.**

For guidance, The North West SuDS Pro-Forma provides information on the appropriate evidence required at each stage of the hierarchy, to demonstrate how each level has been discounted.

The Lead Local Flood Authority has responsibility for all surface water drainage concerns and their input to your proposal is critical. You should also consider whether it is necessary to discuss your proposal with the Environment Agency, or Internal Drainage Board (if operating in your area).

The Local Planning Authority are the determining authority for any application for planning permission and the appropriate authority for determining cost viability of a proposed drainage scheme, such assessments are outside of the jurisdiction of United Utilities.

Infiltration

Surface water runoff generated from this development should discharge to the ground via infiltration system where feasible.

A detailed evidence based feasibility assessment must be carried out in line with Chapter 25 of the CIRIA SuDS Manual 2015 to determine whether infiltration is a suitable method of surface water disposal.

Particular attention must be paid to Ground Water Source Protection Zones to ensure that the risk of pollution to these valuable resources is not compromised. Details can be obtained from the government website:

<https://www.gov.uk/guidance/groundwater-source-protection-zones-spzs#find-groundwater-spzs>

If your site is in a Groundwater Source Protection Zone, you should have regard to the Environment Agency's approach to Groundwater Protection. Information on this is available via the link below:

<https://www.gov.uk/government/publications/groundwater-protection-position-statements>

Please note that such a location could have implications for the principle of your development and the need for additional mitigating measures to protect the groundwater environment and public water supply in the detailed design of your site.

We have reviewed the Ground Investigation Report that confirms that infiltration is a viable option therefore we would fully expect the site to drain via infiltration with incorporated adoptable SuDS features in line with CIRIA guidance

Waterbody

If an evidence based assessment has been carried out and confirms that infiltration is not feasible, we recommend that you contact the Lead Local Flood Authority and/or Environment Agency to discuss a point of discharge to watercourse.

Evidence would suggest that there may be an uncharted culverted watercourse running through Wythenshawe Park. We would encourage you to investigate this further

We would encourage you to identify and engage with any third party landowner and riparian owner to agree access and discharge rights to the water body if this is not in your ownership.

Public Sewer

In accordance with the hierarchy of drainage options within the National Planning Practice Guidance, both discharge to ground via infiltration and discharge to a waterbody should be discounted prior to consideration of discharging surface water to the public sewer system. Evidence should be provided to demonstrate how these have been discounted, as outlined in the North West SuDS pro-forma.

Once evidence is provided as outlined above, United Utilities will consider a connection to the 2650mm x4000mm diameter public combined sewer within Princess Parkway located east of the proposed site at a pass forward flow to be agreed by the Lead Local Flood Authority. United Utilities request that any agreed rate does not exceed 45l/s.

Please be aware that modelling data suggests that the 255mm combined sewer on Holly Hey Drive is susceptible to flooding so would not be capable of draining part of the site that your investigations have suggested. Therefore if you are reliant on the single 225mm combined sewer outfall on Moss Hey Drive we would expect flows to be restricted to a maximum pass forward flow of 22.5 l/s. You may also have to consider draining all highway drainage by other means if the capacity of the receiving sewer is compromised. I am looking to have the scheme modelled to understand the impact from the site to the sewers in the vicinity of the site.

As a Water Company, we have no obligation to accept highway drainage into our public sewer network. However, should your proposals include runoff from highways, we would request that consideration is given to SuDS components that deliver source control are incorporated within the design of the scheme to reduce the volume and frequency of discharges of these flows to the public sewer.

Levels

For low-lying sites, (where the ground level of the site or the level of a basement is below the ground level at the point where the drainage connects to the public sewer), care should be taken to ensure that the property is not at increased risk of flooding. If these circumstances exist, we recommend that you contact us to discuss further. It could affect the detailed design of your site and result in the need to incorporate appropriate mitigating measures in your drainage scheme.

Land drainage / Overland flows / track drainage

United Utilities have no obligation, and furthermore we do not accept land drainage, overland flows or track drainage into the public sewerage network under any circumstances

Sewer Adoptions

You have indicated on your application form that you intend to put the sewers forward for adoption (including any SuDS components that can come within the meaning of a sewer).

United Utilities assess adoption applications based on the current Design & Construction Guidance and local practices which have now replaced 'Sewers For Adoption 6th Edition'.

We recommend that you submit a pre design assessment to the sewer adoption mailbox (SewerAdoptions@uuplc.co.uk) stating pre design assessment in the title

Please refer to links below to obtain further guidance:

<https://www.unitedutilities.com/builders-developers/larger-developments/wastewater/sewer-adoptions/>

Site drainage must be designed in accordance with Building Regulations, National Planning Policy, and local flood authority guidelines, we would recommend that you speak and make suitable agreements with the relevant statutory bodies.

If you intend to put forward your wastewater assets for adoption by United Utilities, the proposed detail design will be subject to a technical appraisal by an Adoption Engineer as we need to be sure that the proposals meets the requirements set out in the Design & Construction Guidance. The proposed design should give consideration to long term operability and give United Utilities a safe and cost effective proposal for the lifetime of the assets. In these cases, we strongly recommend that no construction commences until the detailed drainage design, submitted as part of the Section 104 application, has been assessed and accepted in writing by United Utilities. Any work carried out prior to the technical assessment being approved is done entirely at the developer's own risk and could be subject to change.

Codes For Adoption

The new Codes for Adoption are outlined on the Water UK Website. The link below takes you to their webpage:

<https://www.water.org.uk/technical-guidance/developers-services/codes-for-adoption/>

A free copy of the new Design & Construction Guidance can be downloaded via the link below:

<https://www.water.org.uk/wp-content/uploads/2020/03/SSG-App-C-Des-Con-Guide-v-2-100320-C.pdf>

Existing Water Assets Crossing the Site

It is the developer responsibility to identify utilities on-site. Where clean water assets are shown on our records, we recommend that you contact our Water Pre-Development Team, via the following email address:

DeveloperServicesWater@uuplc.co.uk. Further information for this service can be found on our website via the link below:

<https://www.unitedutilities.com/builders-developers/larger-developments/pre-development/water-pre-dev/>

Connection Application

Although we may discuss and agree discharge points and rates in principle, please be aware that you will have to apply for a formal sewer connection. This is so that we can assess the method of construction, Health & Safety requirements and to ultimately inspect the connection when it is made. Details of the application process and the form itself can be obtained from our website by following the link below:

<https://www.unitedutilities.com/builders-developers/larger-developments/wastewater/sewer-connections/>

We recommend that the detailed design should confirm the locations of all utilities in the area and ensure that any proposed drainage solution considers routing and clash checks where required.

If we can be of any further assistance please don't hesitate to contact us further.

Kind regards,

Graham Perry



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APPENDIX H

PROPOSED DRAINAGE STRATEGY
