

Addendum to BIA Submission

in connection with proposed redevelopment at

55 Fitzroy Park
Camden
N6 6JA

for

The Turner Stokes Family
and the Springer Family

LBH4480biaa Ver. 1.1

December 2018



LBH WEMBLEY

ENGINEERING

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Foreword-Guidance Notes

GENERAL

This report has been prepared for a specific client and to meet a specific brief. The preparation of this report may have been affected by limitations of scope, resources or time scale required by the client. Should any part of this report be relied on by a third party, that party does so wholly at its own risk and LBH Wembley Engineering disclaims any liability to such parties.

The observations and conclusions described in this report are based solely upon the agreed scope of work. LBH Wembley Engineering has not performed any observations, investigations, studies or testing not specifically set out in the agreed scope of work and cannot accept any liability for the existence of any condition, the discovery of which would require performance of services beyond the agreed scope of work.

VALIDITY

Should the purpose for which the report is used, or the proposed use of the site change, this report may no longer be valid and any further use of or reliance upon the report in those circumstances shall be at the client's sole and own risk. The passage of time may result in changes in site conditions, regulatory or other legal provisions, technology or economic conditions which could render the report inaccurate or unreliable. The information and conclusions contained in this report should therefore not be relied upon in the future and any such reliance on the report in the future shall again be at the client's own and sole risk.

THIRD PARTY INFORMATION

The report may present an opinion based upon information received from third parties. However, no liability can be accepted for any inaccuracies or omissions in that information.

1. Introduction

1.1 Background

It is proposed to redevelop this property through removal of the existing large house and replacement of this by five new smaller homes.

A Basement Impact Assessment has been prepared to support a full planning application to the London Borough of Camden and in this case has comprised a Geotechnical Assessment in conjunction with a separate Hydrological & Hydrogeological Impact Assessment Report (both dated July 2018).

Following an audit of the submission by Campbell Reith Hill (CRH), dated 23rd November 2018, this document has been prepared to address the issues raised and to provide the additional information requested.

The following comments were set out in the audit report.

1.2 CRH Audit Checklist

Item	Yes /No	CRH Comment	LBH Response
Are BIA Author(s) credentials satisfactory?	Yes	However, the qualifications of the individuals concerned with the production of the Structural and Civil Engineering Design Statement is not known.	See CPG Table Section 4.7. There is no requirement to provide qualifications other than for the BIA authors who have undertaken the assessments.
Is data required by Cl.233 of the GSD presented?	No	Groundwater monitoring data is required to accurately characterise the groundwater table level in the area. The design of the SUDS requires further justification. Outline design of all temporary and permanent sheet pile walls (or other retaining walls) which directly affect the neighbouring properties, public roads and the man-made pond is required.	Cl.233 of the Arup report concerns the information required for a BIA screening. These comments do not relate to screening and are hence not in order. None of this information is required by Cl.233

<p>Does the description of the proposed development include all aspects of temporary and permanent works which might impact upon geology, hydrogeology and hydrology?</p>	<p>No</p>	<p>The construction of an embankment next to the pond to facilitate the incorporation of access paths requires further description. Refer to section 4 of this audit report.</p> <p>The impact of the numerous changes proposed to the surface water drainage system on the existing pipe network needs further assessment.</p>	<p>The embankment construction is further described in this document. (section 2.4)</p> <p>The BIA is concerned with any potential impacts upon geology, hydrogeology and hydrology.</p> <p>An addendum surface water drainage statement accompanies this report.</p>
<p>Are suitable plan/maps included?</p>	<p>No</p>	<p>Relevant Arup GSD map extracts have not been included.</p>	<p>Map extracts are included in this document. (section 2.1)</p>
<p>Do the plans/maps show the whole of the relevant area of study and do they show it in sufficient detail?</p>	<p>No</p>	<p>Insufficient information supplied to allow changes to surface water treatment to be assessed.</p>	<p>An addendum surface water drainage statement accompanies this report.</p>
<p>Land Stability Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?</p>	<p>Yes</p>	<p>Refer Geotechnical Assessment prepared by LBH Wembley, dated July 2018.</p> <p>The stability of the embankment slopes under proposed surcharge loadings should also be assessed.</p>	<p>The embankment is to carry a footpath beside the pond. The structural stability of the embankment, while important to the integrity of the pond, is unrelated to the buildings and is not really a matter for basement impact assessment.</p>
<p>Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?</p>	<p>Yes</p>	<p>Refer to Hydrological & Hydrogeological Impact Assessment, dated July 2018. However more information is required to verify the statements. Refer section 4 of this audit report.</p>	<p>Further information on the groundwater is included in this document. (section 2.3)</p>
<p>Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?</p>	<p>Yes</p>	<p>Refer to pages 26-37 of Hydrological & Hydrogeological Impact Assessment, dated July 2018</p>	

Is a conceptual model present?	Yes	It is assumed that there is no groundwater; however this is contradicted by the provision of a groundwater contour plan and discussion of groundwater flow. A more conservative approach would be to assume the presence of perched groundwater.	No. There is no contradiction. The auditor has possibly confused the initial screening exercise with the subsequent site investigation findings?
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	Yes	Refer to pages 20-21 of the Geotechnical Assessment, dated July 2018.	
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	Yes	Refer to Hydrological & Hydrogeological Impact Assessment, dated July 2018 and Geotechnical Assessment prepared, dated July 2018.	
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	Yes	Refer to Hydrological & Hydrogeological Impact Assessment, dated July 2018 and Geotechnical Assessment prepared by LBH Wembley, dated July 2018.	
Is factual ground investigation data provided?	Yes	Refer to Site Investigation Report by Concept Site Investigations, dated September 2018.	
Is monitoring data presented?	No	Refer to section 4 of the audit report.	Yes. Groundwater monitoring was reported in section 5.3 of the hydrological report. Additional data is provided in this document. (section 2.3)
Is the ground investigation informed by a desk study?	Yes	Refer to Hydrological & Hydrogeological Impact Assessment, dated July 2018.	
Has a site walkover been undertaken?	Yes		

Is the presence/absence of adjacent or nearby basements confirmed?	Yes	Refer to page no. 22 of Geotechnical Assessment, dated July 2018	
Does the geotechnical interpretation include information on retaining wall design?	Yes	Refer to Geotechnical Assessment, dated July 2018	
Are reports on other investigations required by screening and scoping presented?	Yes	Arboricultural Impact Assessment, Heritage Assessment, Construction Management Plan etc are presented.	
Are the baseline conditions described, based on the GSD?	Yes	However groundwater level monitoring data is absent	Groundwater monitoring was reported in section 5.3 of the hydrological report. Additional data is provided in this document.(section 2.3)
Do the baseline conditions consider adjacent or nearby basements?	Yes		
Is an Impact Assessment provided?	Yes		
Are estimates of ground movement and structural impact presented?	No	<p>The outline design of the retaining walls (including temporary structures) is required with confirmation that ground movements will not adversely impact surrounding roads and the pond.</p> <p>A slope stability assessment is required for the embankment slopes, which include surcharges due to construction traffic, where relevant.</p>	<p>Confirmation regarding the relevant retaining structures is included in this document. An outline design of the retaining walls is appended to this document.</p> <p>The structural stability of the embankment, while important to the integrity of the pond, is unrelated to the buildings. The ability of the embankment to carry any construction traffic will be a matter for the temporary works engineer but is not relevant to the BIA and is probably not a material planning issue.</p>

<p>Is the Impact Assessment appropriate to the matters identified by screen and scoping?</p>	<p>No</p>	<p>The outline design of all retaining walls (including temporary structures) is required. Mitigation measures to prevent any adverse movements are required, if applicable.</p>	<p>An outline design of the retaining walls is appended to this document.</p>
<p>Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?</p>	<p>Yes</p>	<p>However, appropriate mitigation to be confirmed once further assessment completed as described in section 4 of this audit.</p>	
<p>Has the need for monitoring during construction been considered?</p>	<p>No</p>		<p>Structural monitoring is not deemed to be required given the lack of buildings at risk. The issue is addressed in this document. (section 2.6)</p>
<p>Have the residual (after mitigation) impacts been clearly identified?</p>	<p>No</p>	<p>Contradictory statements have been presented regarding the groundwater level in the site. Monitoring data is required to assess the potential impact. Further assessment is required to verify the impact of the development on surface water flows off-site, to ensure the network has sufficient capacity.</p>	<p>No. There is no contradiction. The auditor has possibly confused the initial screening exercise with the subsequent site investigation findings. Groundwater monitoring was reported in section 5.3 of the hydrological report. Additional data is provided in this document. The BIA is concerned with any potential impacts upon geology, hydrogeology and hydrology. The sewer network capacity is not usually a matter for Basement Impact Assessment. An addendum surface water drainage statement accompanies this report and includes further explanation of the off-site surface water flows. The surface water drainage design will be subject to the approval of the council's drainage officer/ SAB.</p>

<p>Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained?</p>	<p>No</p>	<p>The structural stability of the buildings and the retaining walls have to be demonstrated.</p>	<p>Yes. 1.The existing building is to be demolished. 2.The neighbouring properties have been assessed as being too remote to be affected. 3.The existing retaining wall supporting Fitzroy Park will remain so the stability of no infrastructure is in question.</p>
<p>Has the scheme avoided adversely affecting drainage and run-off or causing other damage to the water environment?</p>	<p>No</p>		<p>Yes. The Hydrological & Hydrogeological Assessment has concluded that the drainage and run-off will be improved by the development. An addendum surface water drainage statement accompanies this report.</p>
<p>Has the scheme avoided cumulative impacts upon structural stability or the water environment in the local area?</p>	<p>No</p>	<p>Surrounding properties sufficiently remote that no cumulative impacts to stability are anticipated, however, the cumulative impact of the various changes to surface water flow requires further detail.</p>	<p>An addendum surface water drainage statement accompanies this report.</p>
<p>Does the report state that damage to surrounding buildings will be no worse than Burland Category 1?</p>	<p>No</p>	<p>However, it is accepted that the surrounding structures are away from the zone of influence of the proposed excavation and foundations.</p>	<p>Yes. The assessment has demonstrated that the development does not pose any risk of damage to neighbouring properties. (section section 8 of the geotechnical assessment)</p>
<p>Are non-technical summaries provided?</p>	<p>Yes</p>	<p>Refer to Page 16 of the Geotechnical Assessment prepared by, dated July 2018.</p>	

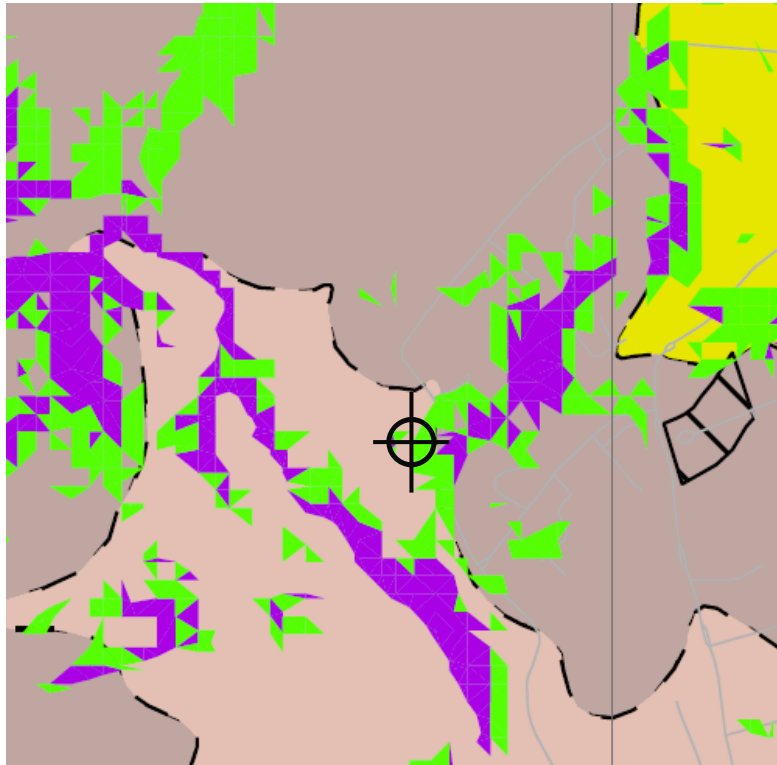
2. Additional Information

2.1 Arup Map Extracts

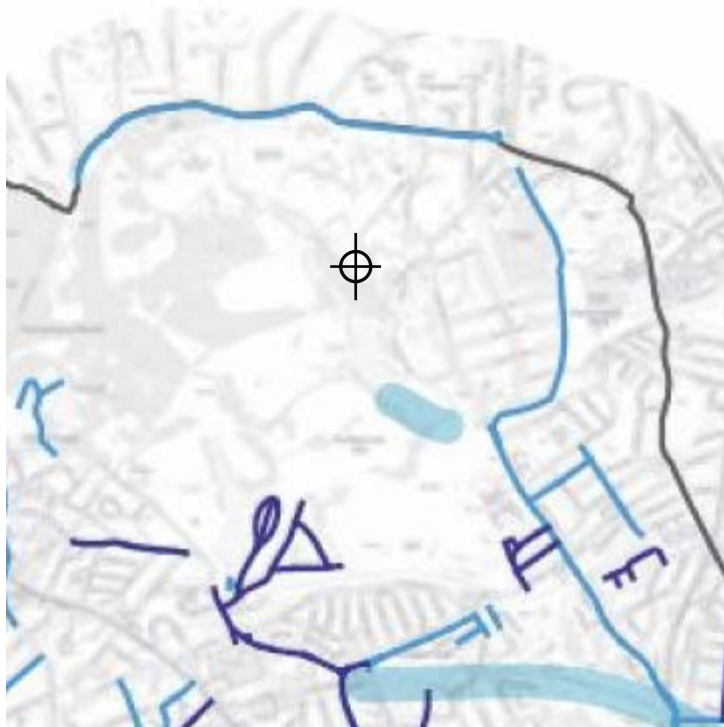
The relevant Map extracts from the Camden Geological, Hydrogeological and Hydrological Study are presented below.



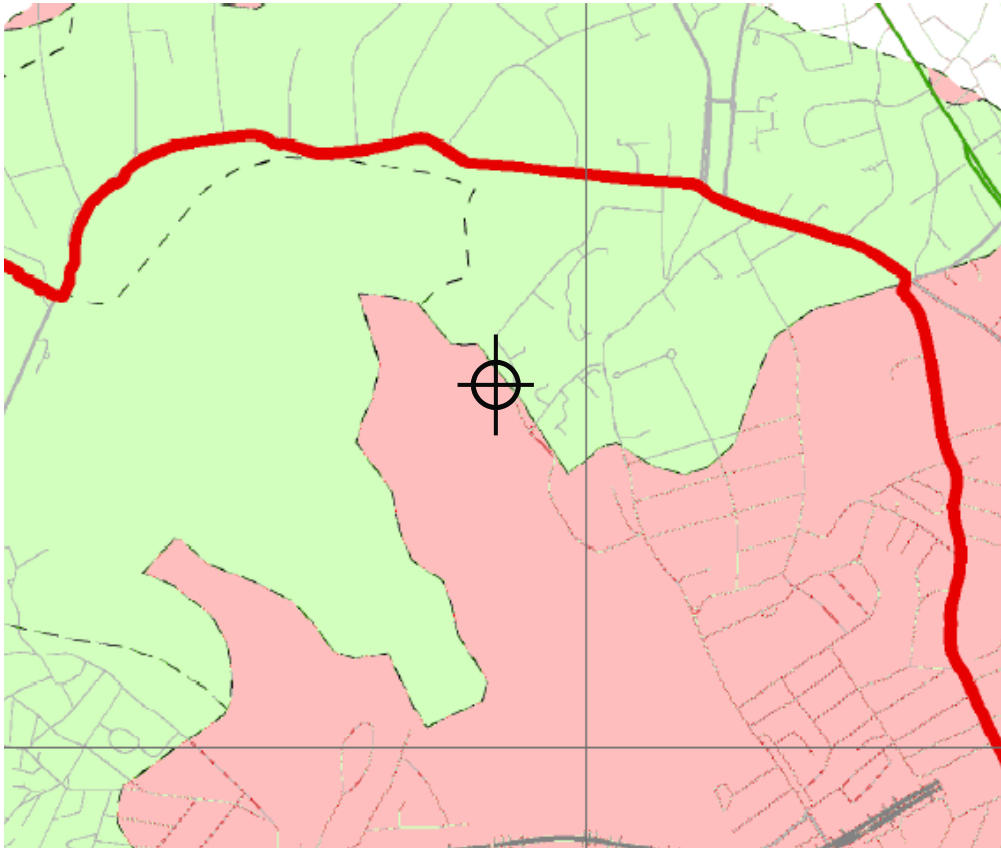
Camden 1920 Geological Map (Figure 2, CGHHS, 2010)
(London Clay is shown to underlie the site)



Slope Angle Map (Figure 16, CGHHS, 2010)



Camden Flood Map (Figure 15, CGHHS, 2010)
(No historical flooding recorded)



Camden Aquifer Designation Map (Figure 8, CGHHS, 2010)
(Site is located above Unproductive Strata, at the edge of a Secondary A Aquifer)

2.2 Retaining Walls

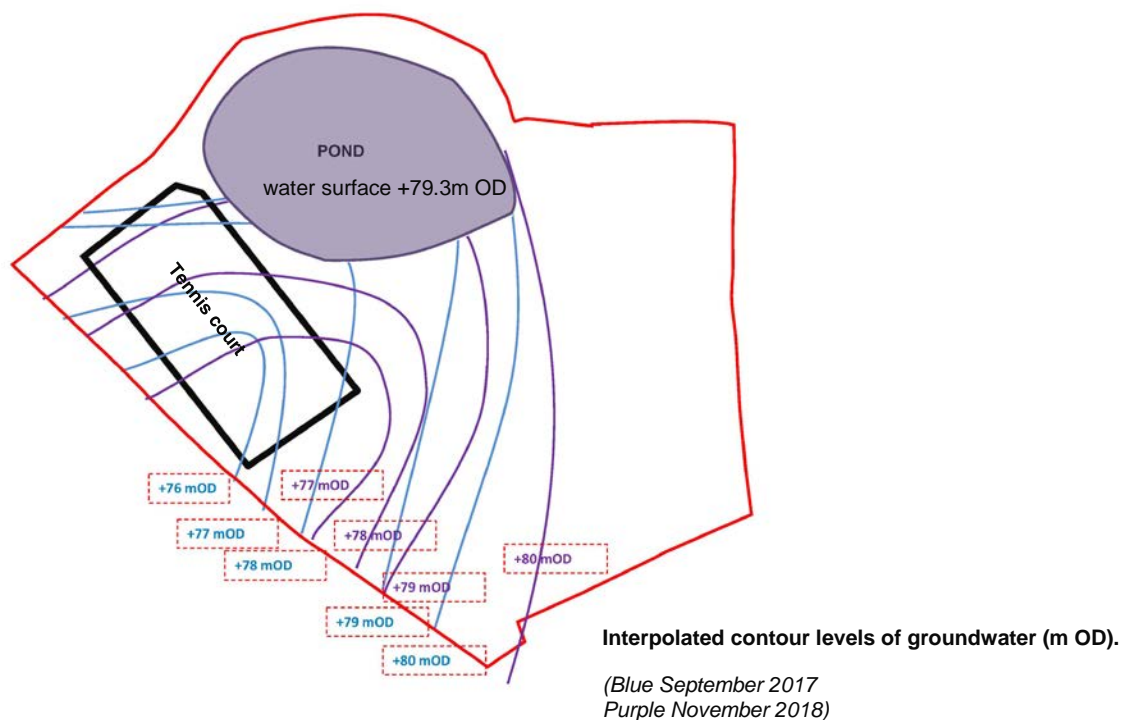
An outline retaining wall design has been supplied by the structural engineer and is appended to this document.

2.3 Groundwater Monitoring

The results of the groundwater monitoring are presented below:

Borehole ID	Recorded Level of top of London Clay (m OD)	22 nd September 2017		29 th November 2018	
		Recorded depth to Groundwater	Groundwater Level (m OD)	Recorded depth to Groundwater	Groundwater Level (m OD)
BH1	75.80	1.98	77.82	1.05	78.75
BH2	75.7	4.12	75.58	3.42	76.28
BH6	74.60	0.48	79.12	0.56	79.04
BH7	80.60	1.92	80.18	1.12	80.98
BH8	<78.80	0.66	80.14	0.75	80.05
BH12	78.6	2.11	78.09	1.42	78.78
BH13	77.2	2.87	76.83	2.36	77.34
BH18	77.9	1.51	78.49	3.00	77.00
BH20	80.5	2.80	78.10	1.25	79.65
BH21	79.2	1.15	79.25	1.24	79.16

The monitoring data suggests the configuration of the water table is consistent with the assertion that groundwater is flowing across the impermeable surface of the London Clay, as shown on the plan below.



2.4 Proposed Retaining Structure facing the pond

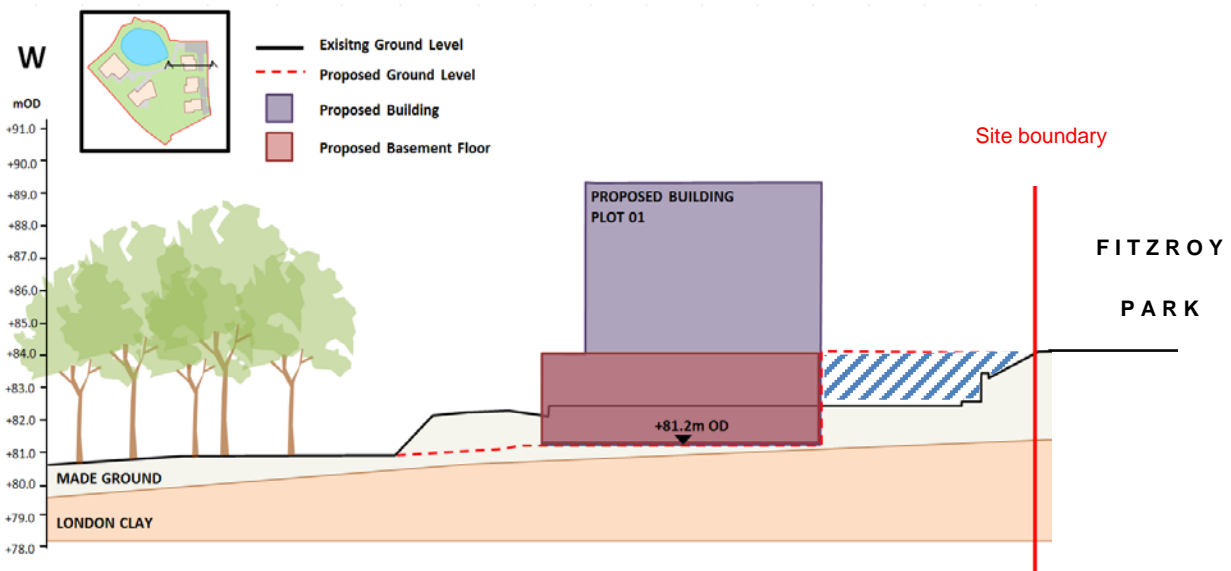
Any construction work undertaken near the pond will be undertaken using non-polluting methods, using no wet concrete, paints or chemicals. Although the embankment carrying the footpath will present a grassed slope it is proposed to provide internal reinforcement to this structure by means of either geotextiles or stone-filled gabions.

2.5 Utilities

The drainage pipe underneath Millfield Lane referred to in the audit report is not believed to exist, It is something that was suggested by the corporation of London at a site inspection on 1st May 2018. A series of utilities plans are appended.

2.6 Structural monitoring

The existing building is to be demolished. The neighbouring properties have been assessed as being too remote to be affected by the proposed basement works. The existing retaining wall supporting Fitzroy Park will remain (see diagrammatic section below) so the stability of no infrastructure is in question. Structural monitoring is hence no required.



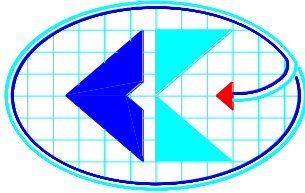
3. Audit Query Tracker

Audit Query No.	CRH Query	LBH Response / Action	Status
1	Groundwater monitoring data has to be provided.	Groundwater monitoring data is now provided. (section 2.3)	Addressed
2	Require outline design of temporary and permanent retaining walls to assess their suitability.	Outline design of the retaining walls are now provided. (appended)	Addressed
3	Assessment or calculations showing the overall difference in the inflow and outflow with respect to the site, before and after construction has to be presented.	An addendum surface water drainage statement accompanies this report.	Addressed
4	A detailed utility survey for the area is required, along with details regarding the existing drainage pipe running underneath Millfield Lane.	See attached. No drainage pipe is believed to be present underneath Millfield Lane.	Addressed
5	The slope stability analysis of the design of the MSE wall is required to confirm the stability of the embankments constructed south of the man-made pond.	The embankment construction is further described in this document. (section 2.4)	Addressed

APPENDIX

OUTLINE RETAINING WALL DESIGN

UTILITIES



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Date	03/12/2018	Project No.	Sheet No.
Eng	TK	16-254	1
Checked			

CONTRACT

Fitzroy Park

Retaining wall design - Plots 1 2 and 3.

Retaining wall design at the front of the above properties

Soil Parameters

Filled material - $\Phi = 25^\circ$

Use k_0 - soil at rest = $1 - \sin \phi = 0.57$

Water

Accidental limit state

- take water at full height

Ultimate limit state

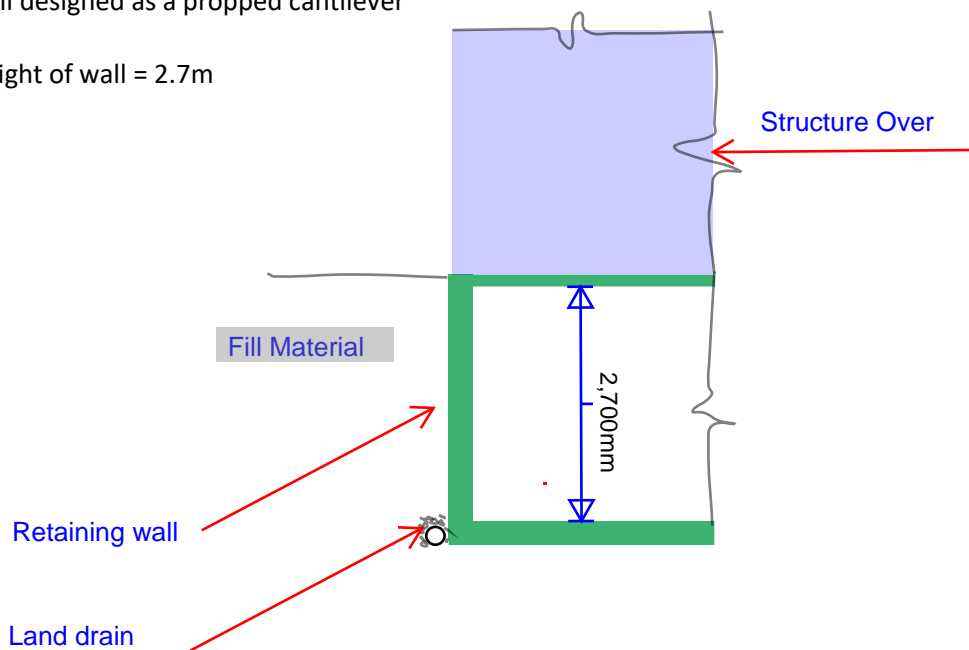
- take water at 2/3 height (conservative)

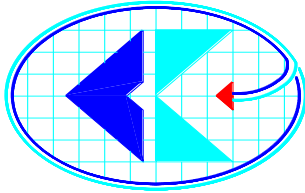
Surcharge Loads

20 kN/m^2

wall designed as a propped cantilever

Height of wall = 2.7m





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CONTRACT

Fitzroy Park

Retaining wall design - Plots 1 2 and 3.

Loads

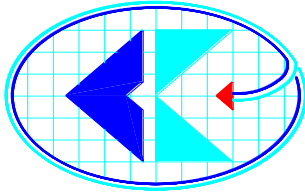
$$\text{soil load on wall} = 20 \times 2.7 \times 0.57 = 30.8\text{kN/m}^2$$

water Load

$$\text{ALS} = 10 \times 2.7 = 27\text{kN/m}^2$$

$$\text{ULS} = 10 \times 1.8 = 18\text{kN/m}^2$$

$$\text{Surcharge Load} = 20 \times 0.57 = 11.4\text{kN/m}^2$$



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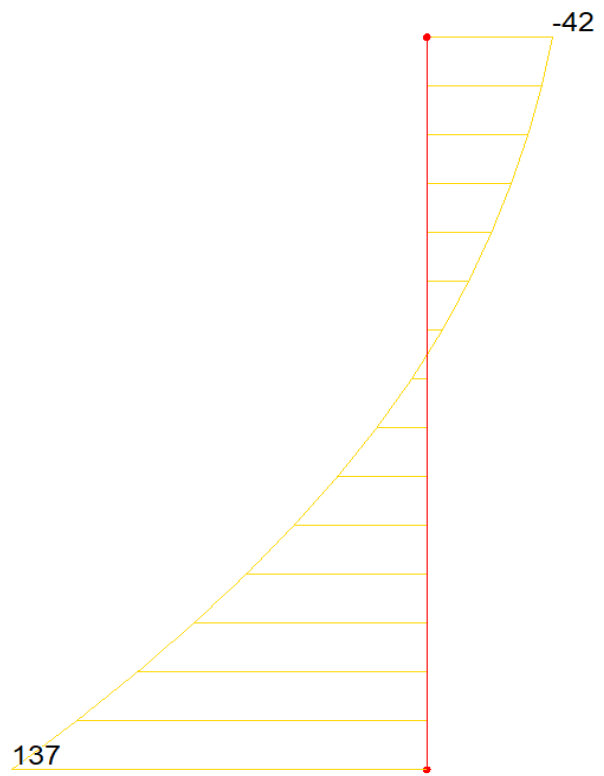
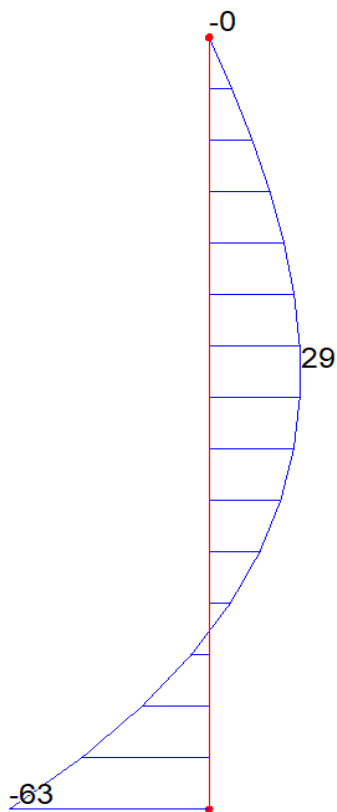
CONTRACT
Fitzroy Park

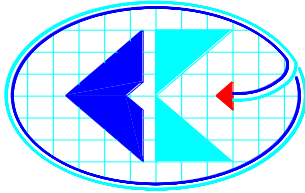
Retaining wall design - Plots 1 2 and 3.

ULS

BMD kNm

SFD kN





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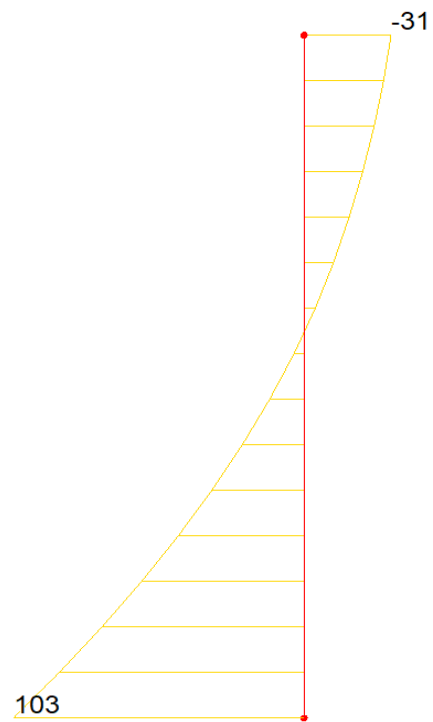
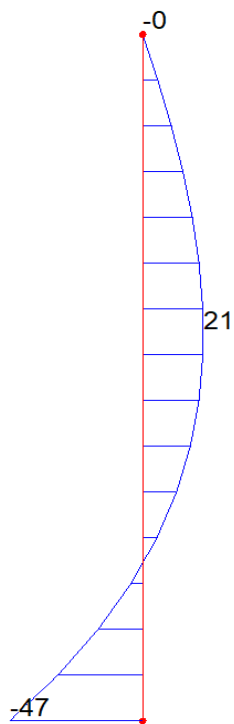
CONTRACT
Fitzroy Park

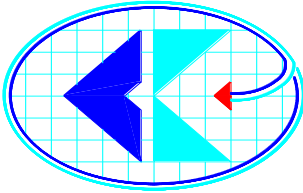
Retaining wall design - Plots 1 2 and 3.

ALS

BMD kNm

SFD kN





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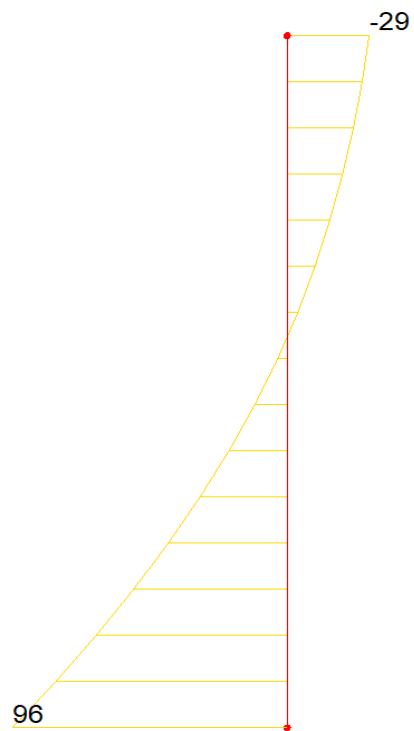
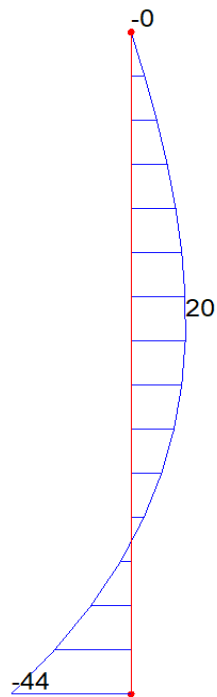
CONTRACT
Fitzroy Park

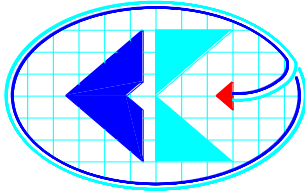
Retaining wall design - Plots 1 2 and 3.

SLS

BMD kNm

SFD kN





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Fitzroy Park

Retaining wall design - Plots 1 2 and 3.

Design parameters

	BM (kNm)	SF (kN)
ULS	63	137
ALS	47	103
SLS	44	96

Therefore design for the following

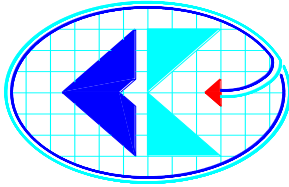
BM	63 kNm
SF	137kN

See calcs in the following sheets

Reinforcement summary

vertical reinforcement B 15 @ 150mm crs

Horizontal distribution steel (25% of vertical) = 335mm^2 per m - B10 @ 200mm crs



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Fitzroy Park
Retaining wall Bending

R.C. Beam Design - BS EN 1992-1-1

Location

Strength of Reinforcement

Hot rolled Mild Steel= **250** N/mm²
High Yield Steel= **500** N/mm²

Type of steel reinforcement

Beam
Compression Reinf. H **16**
Tension Reinf. H **16**
Link size **H 0**
Spacer **20**

DIMENSIONS

Beam size = Breadth **1000** Depth **300** Length **2700** fck (Cylinder) **40** N/mm²
Cover = **50mm** Cover used in Design = 50 mm
Max. Moment along Subframe **63.00** kNm Elastic 1
Min. Percentage of Reinforcement = 0.18 %
Max Percentage of Reinforcement = 4 %

Bar Arrangement

	No. Bars	Type	
A1	0	0	0
A2	0	0	0
A3	6.66	16	1339
Total			1339 mm ²

Cal d = 222mm

Effective depth to Tension Reinf. used in the Design

222.0mm

Redistribution:

35mm
0%

Design formula for rectangular beams

$K_{bal} = 0.208$
 $K = 0.0320$
K < K' then no compression is required
 $z = d\{0.5 + (0.25 - K/1.134)\} = 215.6mm$
0.95d = 211mm

% Red	15%	20%	25%	30%
K_{bal}	0.167	0.152	0.137	0.12
	$K_{bal} = 0.208$			

z is greater than 0.95d then choose z=0.95d

z = 211mm

x = 28mm

$M/0.87fy z = 687 \text{ mm}^2$ 0.23 %

#VALUE!

Percentage of Reinforcement =

Provide 4 T16 for Tension Reinf. As provided =

0.45 %

804.2 mm²

The area of compression reinf. required

0 mm²

7.4.2 Check for deflection

Additional Tension reinf. if req.

2.66 H16

534.8 mm²

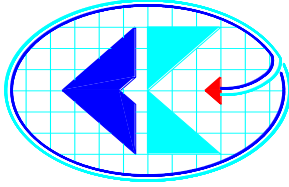
$\rho = 0.362$
 $\rho_0 = 0.632$
Tb. NA. 5 K = **0.4**
Actual l/d = 12.16
l/d ratio = 16.24 **Equation 7.16a Applies**
l/d ratio = 16.00
 σ_s Modification = 1.5 MPa

Allowable l/d ratio = 24.00

Allowable l/d ratio = 16

Allowable l/d ratio is > the actual then o.k in deflection

Structural system	K
Simply supported beam, one- or two-way spanning simply supported slab	1.0
End span of continuous beam or one-way continuous slab or two-way spanning slab continuous over one long side	1.3
Interior span of beam or one-way or two-way spanning slab	1.5
Slab supported on columns without beams (flat slab) (based on longer span)	1.2
Cantilever	0.4



COYLE KENNEDY Consulting Engineers

3rd Floor Great West House,
Brentford. TW8 9DF

Tel: +44(0)203 393 1174

Fax: +44(0)203 004 1234

website: www.coylekennedy.com

email: mail@coylekennedy.com

Date	04/12/2018	Project No.	Sheet No.
Eng	TK	16-254	8
Checked			

CONTRACT
Fitzroy Park

Retaining wall

Shear

Location

Strength of Reinforcement

Hot rolled Mild Steel=

250 N/mm²

High Yield Steel=

500 N/mm²

Strength of concrete

f_{ck} =

40 N/mm²

DIMENSIONS

Beam	Links	Breadth	H	0
Beam size	=	1000mm		Depth 300
Cover	=	50mm		
Spacer		0mm		
Max Shear along Subframe				137 kN
Area of Tension Reinf.				$\frac{1339.1}{1339} \text{ mm}^2$
No of Layers		I. No.		
Depth to centroid of Tension Steel, d =				222mm

Shear stress in beams

Shear Enhancement =

1

V_{Ed} =

137

6.2.2

(6.2 a)

$$V_{Rd,c} = \left[C_{Rd,c} k (100 \rho f_{ck})^{\frac{1}{3}} \right] b_w d$$

=

150.04 kN

(6.2 b)

$$V_{Rd,c} = \left(0.035 k^{\frac{3}{2}} f_{ck}^{\frac{1}{2}} \right) b_w d$$

=

133.73 kN

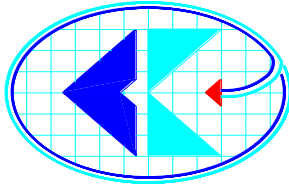
k = 1.949

V_{Rd,c} =

150.04 kN

ρ = 0.006

No Shear Reinforcement Required



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Date	04/12/2018	Project No.	Sheet No.
Eng	TK	16-254	9
Checked			

CONTRACT
Fitzroy Park

Retaining wall

Crack Width

Crack Widths BS EN 1992-1-1 § 7.3.4

Maximum allowable crack width = **0.3** mm

Quasi-permanent Moment = **44** kNm

Tb 3.1 fck = **40** MPa

Es = **200000** GPa

Tb 3.1 fctm = 3.51 MPa

Ecm = 35220 GPa

NCCI
IStructE EC2
Tb. 7.11

Creep coefficient = **1.2**

Ec,eff = 16009 MPa

7.3.4(2) kt = **0.4**

7.3.4(3) k1 = **0.8**

7.3.4(3) k2 = **0.5**

Tb. NA 1 k3 = 3.4

Tb. NA 1 k4 = 0.425

dc (x) = 71.06 mm

σ_s = 166 MPa

α_e = 5.68

d = 222.0mm

As = 1339 mm²

7.3.2(3) A_{c,eff} = 76312.33 mm²

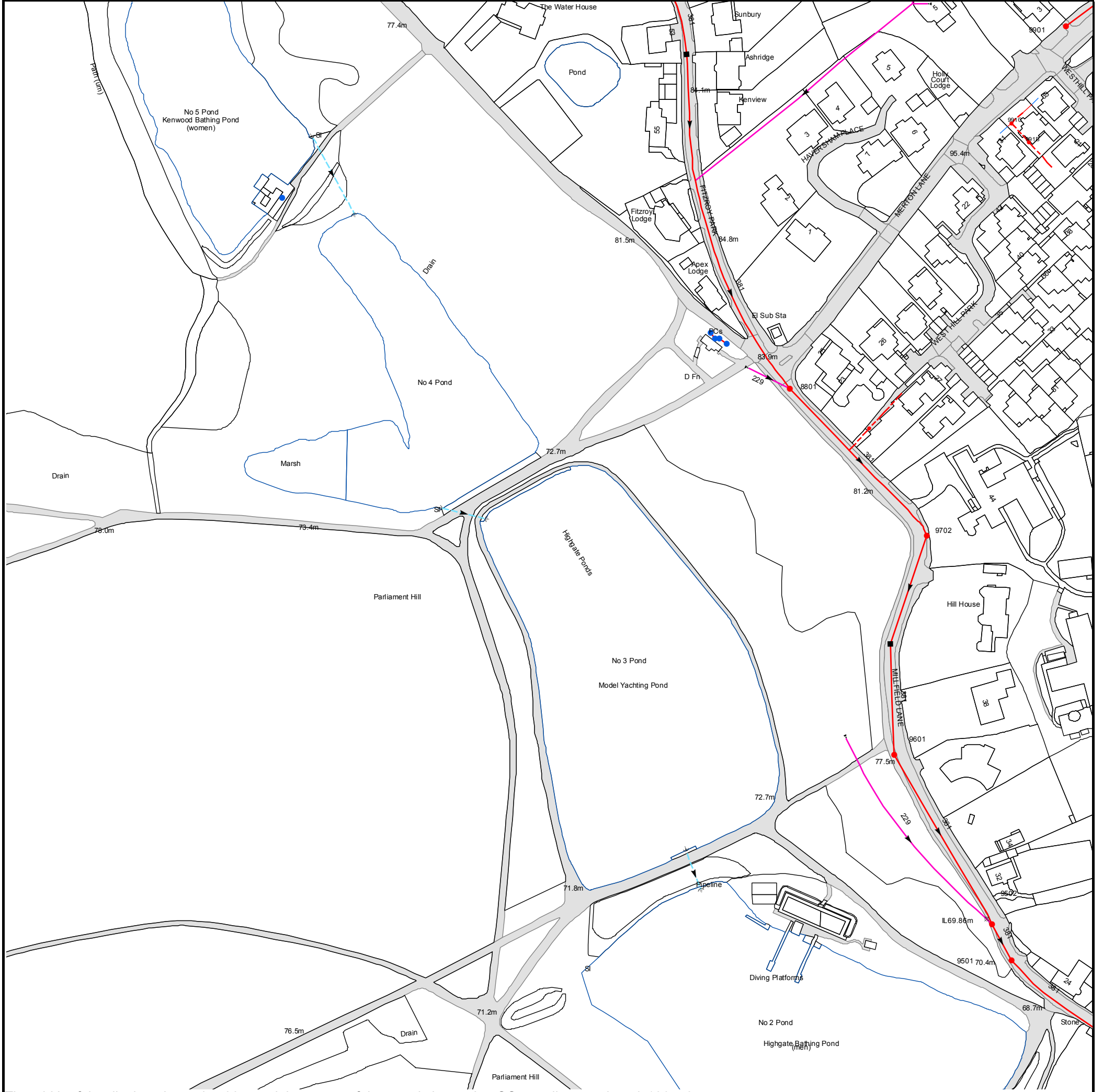
Eqn. 7.10 $\rho_{p,eff}$ = 0.02

Eqn. 7.11 $S_{r,max}$ = 325 mm

Eqn. 7.9 $\epsilon_{sm} - \epsilon_{cm}$ = 0.00050

Eqn. 7.8 w_k = 0.16 mm

Section Ok



The width of the displayed area is 500m and the centre of the map is located at OS coordinates 527750,186750

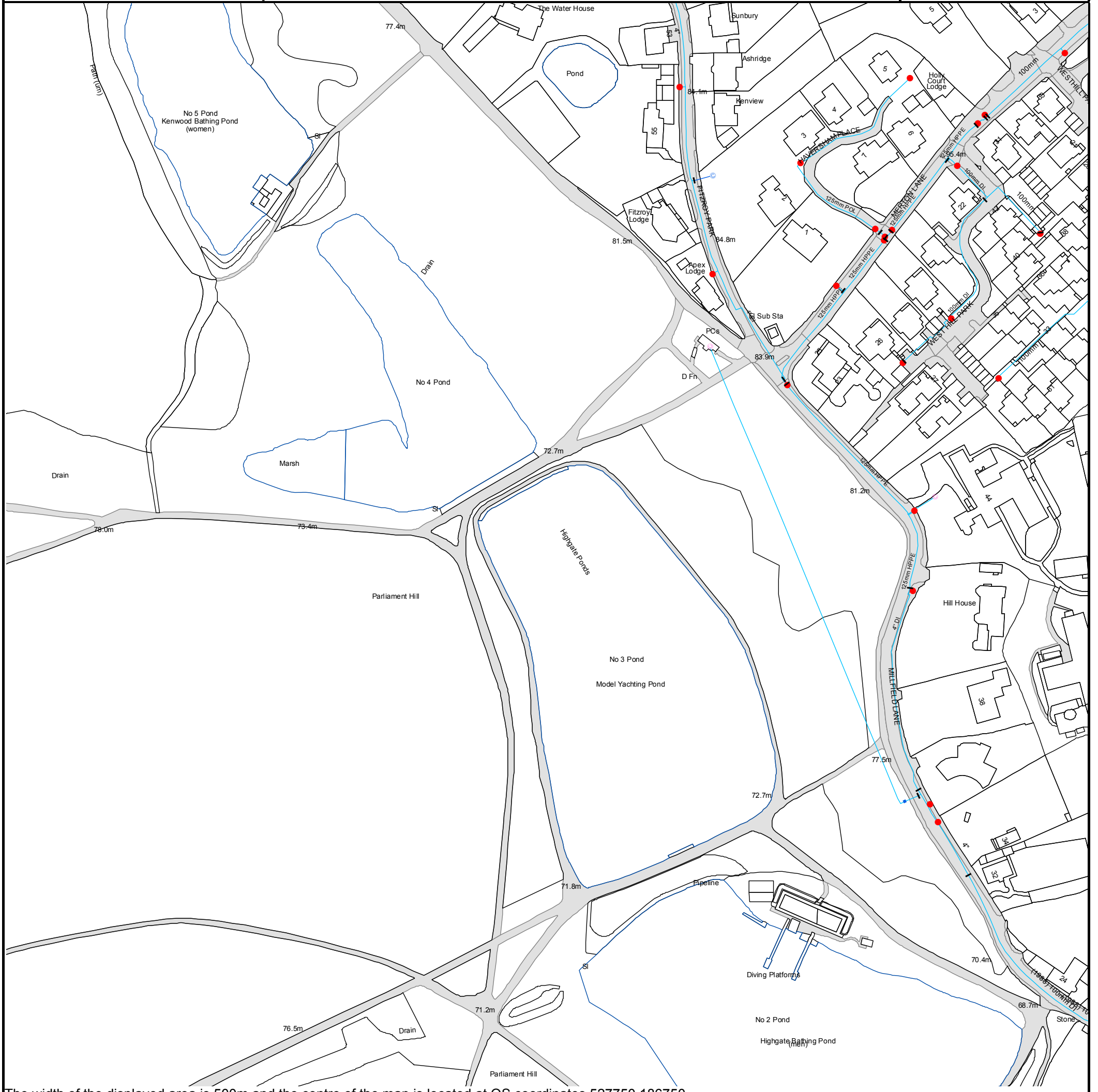
The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

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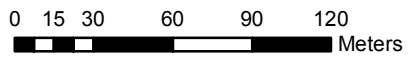
NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates that no survey information is available

Manhole Reference	Manhole Cover Level	Manhole Invert Level
9502	71.82	69.55
9501	69.87	68.07
9601	77.66	74.13
9702	80.8	76.56
881A	n/a	n/a
8801	83.85	78.6
88AJ	n/a	n/a
88AI	n/a	n/a
88AH	n/a	n/a
88AG	n/a	n/a
69AF	n/a	n/a
991C	n/a	n/a
991B	n/a	n/a
9901	102.02	100.37

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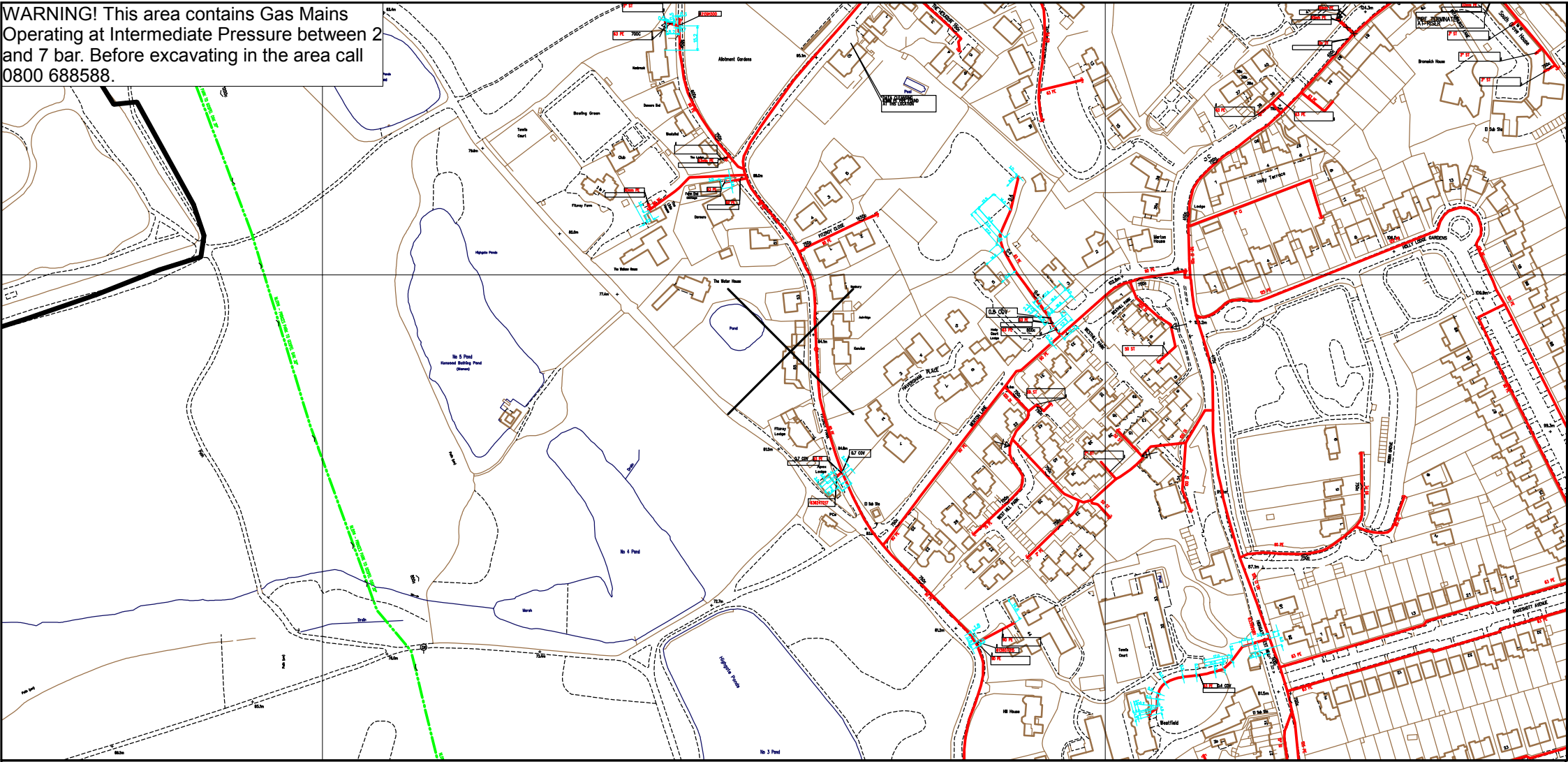


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Scale: 1:2863
Width: 800m
Printed By: Vkumar1
Print Date: 13/10/2016
Map Centre: 527787,186962
Grid Reference: TQ2786NE

Comments:

WARNING! This area contains Gas Mains Operating at Intermediate Pressure between 2 and 7 bar. Before excavating in the area call 0800 688588.



SCALE: Not to scale
USER ID: rmunns
DATE: 12/10/2016
EXTRACT DATE: 10/06/2016
MAP REF: TQ2786
CENTRE: 527795, 186932

LP MAINS	
MP MAINS	
IP MAINS	
LHP MAINS	
NHP MAINS	

This plan shows those pipes owned by National Grid Gas plc in their role as a Licensed Gas Transporter (GT). Gas pipes owned by other GTs, or otherwise privately owned, may be present in this area. Information with regard to such pipes should be obtained from the relevant owners. The information shown on this plan is given without warranty, the accuracy thereof cannot be guaranteed. Service pipes, valves, syphons, stub connections, etc. are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by National Grid Gas plc or their agents, servants or contractors for any error or omission. Safe digging practices, in accordance with HS(G)47, must be used to verify and establish the actual position of mains, pipes, services and other apparatus on site before any mechanical plant is used. It is your responsibility to ensure that this information is provided to all persons (either direct labour or contractors) working for you on or near gas apparatus. The information included on this plan should not be referred to beyond a period of 28 days from the date of issue. Further information on all DR4s can be determined by calling the DR4 hotline on 01455 892426 (9am-5pm) A DR4 is where a potential error has been identified within the asset record and a process is currently underway to investigate and resolve the error as appropriate.

MAPS Viewer Version 5.7.0.0

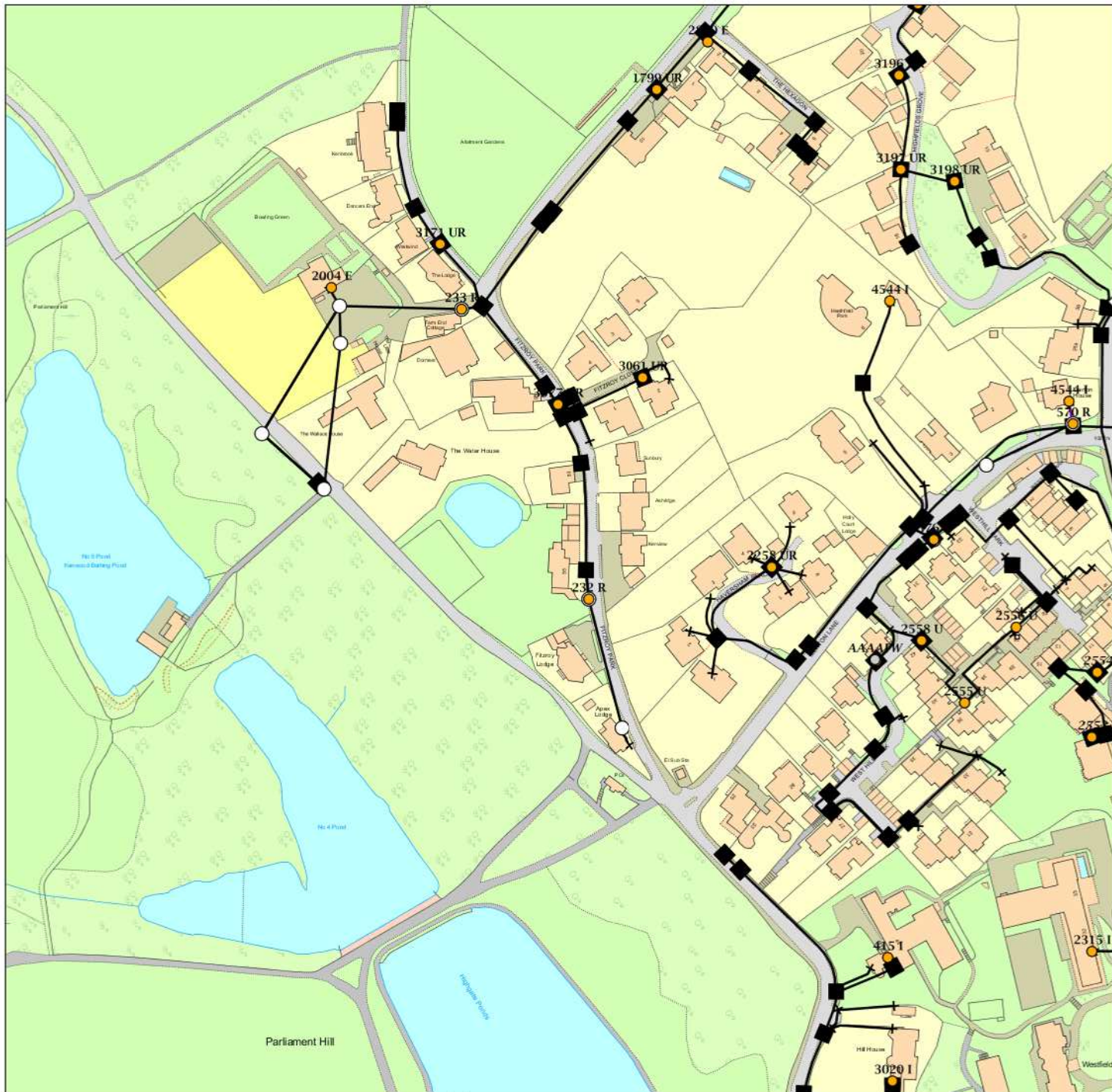
Local Machine

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Some examples of Plant Items:

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Maps by email Plant Information Reply



IMPORTANT WARNING

Information regarding the location of BT apparatus is given for your assistance and is intended for general guidance only. No guarantee is given of its accuracy. It should not be relied upon in the event of excavations or other works being made near to BT apparatus which may exist at various depths and may deviate from the marked route.



openreach
BT

CLICK BEFORE YOU DIG

FOR PROFESSIONAL FREE ON SITE ASSISTANCE PRIOR TO COMMENCEMENT OF EXCAVATION WORKS INCLUDING LOCATE AND MARKING SERVICE

email cbyd@openreach.co.uk

ADVANCE NOTICE REQUIRED
(Office hours: Monday - Friday 08.00 to 17.00)
www.openreach.co.uk/cbyd

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KEY TO BT SYMBOLS

DP	
Planned DP	
PCP	
Planned PCP	
Built	
Planned	
Inferred	
Building	
Kiosk	
Hatchings	

Pole	
Planned Pole	
Joint Box	
Change Of State	
Split Coupling	
Duct Tee	
Planned Box	
Manhole	
Planned Manhole	
Cabinet	
Planned Cabinet	

Other proposed plant is shown using dashed lines.
BT Symbols not listed above may be disregarded.
Existing BT Plant may not be recorded.
Information valid at time of preparation

openreach
a BT Group business



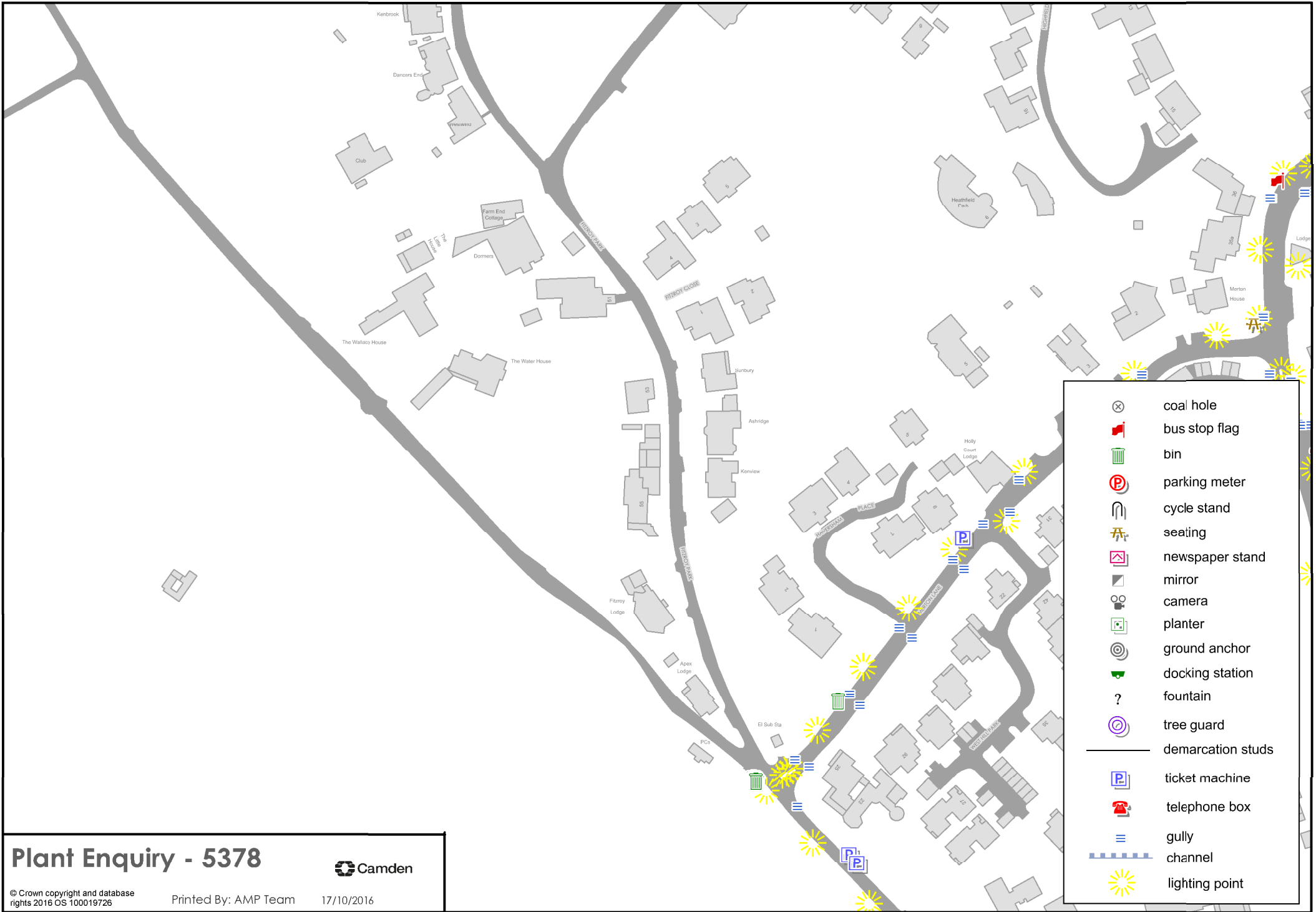
BT Ref : CPD09596A




















Map Reference : (centre) TQ2779986951

Easting/Northing : (centre) 527799,1869

Issued : 12/10/2016 09:59:21

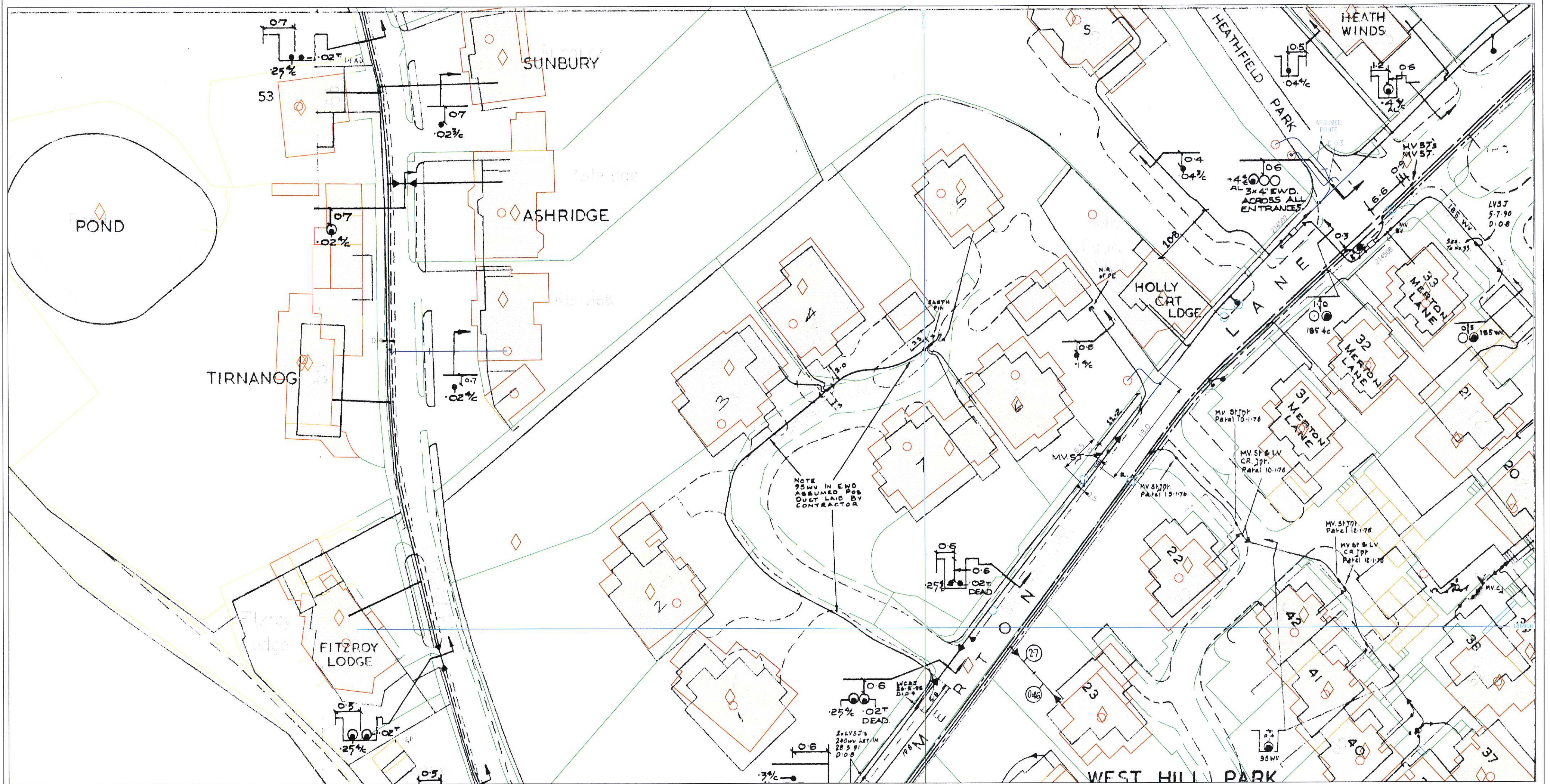
WARNING: IF PLANNED WORKS FALL INSIDE HATCHED AREA IT IS ESSENTIAL BEFORE PROCEEDING THAT YOU CONTACT THE NATIONAL NOTICE HANDLING CENTRE. PLEASE SEND E-MAIL TO: nnhc@openreach.co.uk



-  coal hole
-  bus stop flag
-  bin
-  parking meter
-  cycle stand
-  seating
-  newspaper stand
-  mirror
-  camera
-  planter
-  ground anchor
-  docking station
-  fountain
-  tree guard
-  demarcation studs
-  ticket machine
-  telephone box
-  gully channel
-  lighting point

Plant Enquiry - 5378





Plotted On : 18/10/2016

Plotted By : Kav Singh

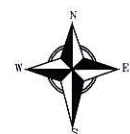
Plot Description: FITZROY PARK, LONDON, N6 6JA

2016/2235491/comp

Map Centre : TQ2786NE



UK Power Networks
Plan Provision
Fore Hamlet
IPSWICH
Suffolk
IP3 8AA
Tel 0800 0565 866
Fax 08701 963782



For details of the symbology please refer to
<http://www.ukpowernetworks.co.uk/safety-emergencies/in-the-workplace/understanding-safety-symbols.html>

PRIMARY CABLES
EXTRA HIGH VOLTAGE CABLES (EHV) 22,000 TO 132,000 Volts

Depth normally 750mm cover in carriageway & 600mm cover in footway.
Before digging within one metre of these cable routes
Telephone 0800 056 5866 in order that the Company's apparatus may be located
on site and any necessary protection works agreed.

N.B. THRUST BORERS OR MOLES MUST NOT BE USED WITHIN THE VICINITY OF ANY
CABLES BELONGING TO UK POWER NETWORKS WITHOUT FIRST CONTACTING THIS
COMPANY.

1. The position of the apparatus shown on this drawing is believed to be correct but the original landmarks may have been altered since the apparatus was installed.
2. The exact position of the apparatus should be verified - use approved cable avoidance tools prior to excavation using suitable hand tools.
3. It is essential that trial holes are carefully made avoiding the use of mechanical tools or picks until the exact location of all cables have been determined.
4. It must be assumed that each property and item of street furniture has an electricity supply. A separate record is kept for each service cable but its route is not necessarily shown on this record.
5. All cables must be treated as being live unless proved otherwise by UK Power Networks.
6. The information provided must be given to all people working near UK Power Networks' plant & equipment. Do not use plans more than 3 months after the issue date for excavation purposes.
7. Please be aware that electric cables/lines belonging to other owners of licensed electricity distribution systems may be present and it is your responsibility to identify their location.

1. UK Power Networks Ltd does not warrant that the information provided to you is correct. You rely upon it at your own risk.
2. UK Power Networks Ltd does not exclude or limit its liability if it causes the death of a person or causes personal injury to a person where such death or personal injury is caused by its negligence.
3. Subject to paragraph 2, UK Power Networks Ltd has no liability to you in contract, in tort (including negligence), for breach of statutory duty or otherwise howsoever for any loss, damage, costs, claims, demands or expenses that you or any third party may suffer or incur as a result of using the information provided whether for physical damage to property or for any economic loss (including without limitation loss of profit, loss of opportunity, loss of savings, loss of goodwill, loss of business, loss of use) or any special or consequential loss or damage whatsoever.

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ADVICE TO CONTRACTORS ON AVOIDING DANGER FROM BURIED ELECTRICITY CABLES.

- 1) Do have cable drawings with you on site and check them before you start the excavation.
- 2) Do have a cable locator tool on site and use it to help you.
- 3) Mark out the location of electricity cables.
- 4) Do not use a mechanical excavator within 0.5m of electricity cables.
- 5) Use spades and shovels in preference to other tools.
- 6) Never disturb electricity cables and joints or their protective covers.

IF IN DOUBT - ASK! PHONE 0800 056 5866
EMERGENCY - If you damage a cable or line Phone
0800 780 0780 (24hrs) URGENTLY

These basic safety precautions are explained in detail in the HSE booklet, HS(G)47 - Avoiding Danger from Underground Services, a copy of which may be obtained from your supervisor or HMSO.

Please be aware that electric lines belonging to other owners of licensed electricity distribution systems may be present and it is your responsibility to identify their location.