

CATCHMENT R5  
Development area 4.00ha  
Impermeable area @ 65% = 2.60ha

CATCHMENT SECONDARY SCHOOL  
SPORTS PITCHES  
DEVELOPMENT AREA 1.83ha  
Impermeable area @ 50% = 0.92ha

CATCHMENT LC1 LOCAL CENTRE  
Development area 0.80ha  
Impermeable area @ 65% = 0.520ha

CATCHMENT R6  
Development area 4.66ha  
Impermeable area @ 65% = 3.03ha

CATCHMENT  
Area 2.0  
Impermeable

ATTENUATION BASIN DETAILS CATCHMENT 1  
BASE AREA = 9000m<sup>2</sup> WITH 1 IN 4 SIDE SLOPES  
CL = 128.30m  
IL = 126.30  
1 IN 100 YEAR + 30% CLIMATE CHANGE TWL = 127.65m  
TOTAL ATTENUATION VOLUME = 11705m<sup>3</sup>  
TOTAL CONTRIBUTING AREA = 21.02Ha  
BASIN AREA = 1.20Ha

CATCHMENT SPORTS PITCH A  
DEVELOPMENT AREA 1.65ha  
Impermeable area @ 65% = 0.728ha

HYDROBRAKE FLOW CONTROL  
DEVICE AT @ 39.6L/S

OUTFALL TO WATERCOURSE

- General Drainage Notes:
- The planning, design and construction of sewers shall be in accordance with Sewers for Adoption 8th Edition, a design and construction guide for developers, the Civil Engineering Specification for the Water Industry 7th Edition and Thames Water amendments to CESW.
  - All adoptable sewers within adoptable highway with less than 1.2m cover to have reinforced concrete slab protection. All adoptable sewers within grassed areas with cover less than 0.9m to have reinforced concrete slab protection. All areas with greater cover than the minimum required to have type S bed and surround.
  - Seales and lockable covers to be supplied where specified on manhole schedule.
  - Use of this drawing does not absolve the client from his responsibilities under the Health and Safety: The Construction Design and Management Regulations 2015. The Principal Designer is required to contact Hydrock Consultants prior to permitting this drawing to be used in connection with any construction works.
  - All sewers to be laid with a 1% fall unless otherwise shown.
  - It is the Contractor's responsibility to locate existing services on site accurately.
  - The Contractor should comply with hazard 47 "Avoiding Danger from Underground Services" when excavating around existing services.
  - The Contractor is to verify the line, level and diameter of existing sewers before commencing drainage works.
  - All levels are in OD unless stated.
  - Compliance with Health & Safety matters on any trenchmanhole is obligatory and a permit to enter a confined space is required when connecting site drainage to the existing public sewerage system. A permit to enter a confined space will be obtained from Thames Water Ltd prior to the works commencing on any public sewerage system.
  - Proposed adoptable sewers are only permitted to have other sewerage connections and other services laid at an angle of between 45° and 90° across the line with a vertical clearance in excess of 300mm.
  - Where sewers are to be constructed inside the restricted tree zone a suitable tree protection barrier is to be installed to Thames Water's specification.
  - Refer to Section 104 drawings for a full set of construction specification notes.
  - Contractor to refer to drainage layout drawings for highway gully connections.
  - Drawing to be read in conjunction with drainage strategy report WPF-19-03-XX-XX-RP-003

Rev	Date	Description	By	Chk
P4	23/11/20	Minor updates to swale profile. Note 14 and 15 added.	RAP	JD
P3	09/10/20	Updated levels on foot run through spine road and section 104 line.	RFS	SM
P2	14/09/20	Updated pipework diameters to account for 40% allowance for climate change.	RFS	SM
P1	15/03/18	First Issue	RFS	SM

Hydrock  
Over Court Barns, Over Lane, Almondsbury, Bristol, BS32 4DF.  
TEL: 01454 619 533 FAX: 01454 614 125 or visit www.hydrock.com

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Notes:  
All dimensions are to be checked on site before the commencement of works. Any discrepancies are to be reported to the Architect & Engineer for verification. Signed dimensions only are to be taken from this drawing. This drawing is to be read in conjunction with all relevant Engineering and Service Agreement drawings and specifications. This drawing is copyright.

Project: <b>WYCKHAM PARK FARM BANBURY</b>	Drawing Title: <b>DRAINAGE LAYOUT SHEET 3</b>
Client: <b>L&amp;Q ESTATES</b>	Project Number: <b>C-04841-C</b>
Drawn: RFS Checked: SM	Scale @ AD: 1:500 Drawn Date: 15/03/18 First Issue: 15/03/18
Drawing Status: SUITABLE FOR INFORMATION	Drawing No.: WPF-HYD-XX-DR-C-0603 Revision: P4

Open area 4.00ha  
 Impermable area @ 65% = 2.60ha



CATCHMENT SECONDARY SCHOOL  
 SPORTS PITCHES  
 DEVELOPMENT AREA 1.83ha  
 Impermeable area @ 50% = 0.92ha

CATCHMENT R7  
 Area 2.00ha  
 Impermeable area @ 65% = 1.30ha

0.66ha  
 @ 65% = 3.03ha

**ATTENUATION BASIN DETAILS CATCHMENT 1**

BASE AREA = 9000m<sup>2</sup> WITH 1 IN 4 SIDE SLOPES  
 CL = 128.30m  
 IL = 126.30  
 1 IN 100 YEAR + 30% CLIMATE CHANGE TWL = 127.65m  
 TOTAL ATTENUATION VOLUME = 11705m<sup>3</sup>

TOTAL CONTRIBUTING AREA = 21.02ha  
 BASIN AREA = 1.20ha

CATCHMENT SPORTS PITCH A  
 DEVELOPMENT AREA 1.65ha  
 Impermeable area @ 65% = 0.728ha

CATCHMENT SPORTS PITCH B  
 DEVELOPMENT AREA 1.36ha  
 Impermeable area @ 65% = 0.728ha

HYDROBRAKE FLOW CONTROL  
 DEVICE AT @ 39.6L/S

OUTFALL TO WATERCOURSE

7000 WATER MAIN

PROPOSED PUMPING STATION  
 LOCATION  
 PEAK DISCHARGE APPROXIMATELY  
 24.5l/s

**Key**

- Proposed adoptable Thames water section 104 foul sewer
- Proposed adoptable Thames water section 104 surface sewer
- Section 104 rising main
- 125MM DD PE110 SDR 11
- Oxfordshire county highway adoptable drain
- Oxfordshire county highway adoptable road gully
- Proposed Swale

**General Drainage Notes:**

- The planning, design and construction of sewers shall be in accordance with Sewers for Adoption 6th Edition, a design and construction guide for developers, the Civil Engineering Specification for the Water Industry 7th Edition and Thames Water sewerage to the existing public sewerage system. A permit to enter a confined space will be obtained from Thames Water Ltd prior to the works commencing on any public sewerage system.
- All adoptable sewers with adoptable highway with less than 1.2m cover to have reinforced concrete side protection. All adoptable sewers within grassed areas with cover less than 0.8m to have reinforced concrete side protection. All areas with greater cover than the minimum required to have type S bed and surround.
- Sealed and lockable covers to be supplied where specified on manhole schedule.
- Use of this drawing does not absolve the client from his responsibilities under the Health and Safety. The Construction Design and Management Regulations 2015. The Principal Designer is required to contact Hydrock Consultants prior to permitting this drawing to be used in connection with any construction works.
- All sewers to be laid soffit to soffit unless otherwise shown.
- It is the Contractor's responsibility to locate existing services on site accurately.
- The Contractor should comply with 'high 47' Avoiding Danger from Underground Services' when excavating ground existing services.
- The Contractor is to verify the line, level and diameter of existing sewers before commencing drainage works.
- All levels are to OS datum.
- Compliance with Health & Safety matters on any trench/manhole is obligatory and a permit to enter a confined space is required when connecting site drainage to the existing public sewerage system. A permit to enter a confined space will be obtained from Thames Water Ltd prior to the works commencing on any public sewerage system.
- Proposed adoptable sewers are only permitted to have other sewer/gully connections and other services laid at an angle of between 45° and 90° across the line with a vertical clearance in excess of 300mm.
- Where sewers are to be installed to Thames Water's specification.
- Refer to Section 104 drawing for a full set of construction specification notes.
- Contractor to refer to drainage layout drawings for highway gully connections.
- Drawing to be read in conjunction with drainage strategy report WPF-HYD-XX-XX-RP-003
- Refer to drawing WPF-HYD-XX-XX-DR-C-2101 for attenuation basins and swale profiles

1. The planning, design and construction of sewers shall be in accordance with Sewers for Adoption 6th Edition, a design and construction guide for developers, the Civil Engineering Specification for the Water Industry 7th Edition and Thames Water sewerage to the existing public sewerage system. A permit to enter a confined space will be obtained from Thames Water Ltd prior to the works commencing on any public sewerage system.

2. All adoptable sewers with adoptable highway with less than 1.2m cover to have reinforced concrete side protection. All adoptable sewers within grassed areas with cover less than 0.8m to have reinforced concrete side protection. All areas with greater cover than the minimum required to have type S bed and surround.

3. Sealed and lockable covers to be supplied where specified on manhole schedule.

4. All sewers to be laid soffit to soffit unless otherwise shown.

5. It is the Contractor's responsibility to locate existing services on site accurately.

6. The Contractor should comply with 'high 47' Avoiding Danger from Underground Services' when excavating ground existing services.

7. The Contractor is to verify the line, level and diameter of existing sewers before commencing drainage works.

8. All levels are to OS datum.

9. Compliance with Health & Safety matters on any trench/manhole is obligatory and a permit to enter a confined space is required when connecting site drainage to the existing public sewerage system. A permit to enter a confined space will be obtained from Thames Water Ltd prior to the works commencing on any public sewerage system.

**Hydrock**  
 Over Court Barns, Over Lane, Almondsbury,  
 Bristol, BS32 4DF.  
 TEL: 01454 619 533 FAX: 01454 614 125 or visit  
 www.hydrock.com

**Project:**  
 WYKHAM PARK FARM  
 BANBURY

**Client:**  
 L&Q ESTATES

**Project Number:** C-04841-C

**Drawing Title:** DRAINAGE LAYOUT SHEET 4

**Drawn:** R/S  
**Checked:** SM  
**Scale @ AD:** 1:500  
**Drawn Date:** -  
**First Issue:** -

**Drawing Status:** SUITABLE FOR INFORMATION

**Drawing No.:** WPF-HYD-XX-XX-DR-C-0604  
**Revision:** P04

Rev	Date	Description	By	Chk
P4	23/11/20	Minor updates to swale profile. Note 14 and 15 added.	RAP	JD
P03	09/10/20	Pumping station location updated to sit at southern point of sports pitch B	RFS	SM
P02	14/09/20	Updated pipework diameters to account for 40% allowance for climate change. Pumping station location updated to sports pavilion	RFS	SM
P01	15/03/18	First Issue	RFS	SM

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**Notes:**  
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CATCHMENT SPORTS PITCH A  
DEVELOPMENT AREA 1.65ha  
Impermeable area @ 65% = 0.728ha

CATCHMENT SPORTS PITCH B  
DEVELOPMENT AREA 1.36ha  
Impermeable area @ 65% = 0.728ha

PROPOSED PUMPING STATION  
LOCATION  
PEAK DISCHARGE APPROXIMATELY  
24.5l/s

ATTENUATION BASIN DETAILS CATCHMENT 2  
BASE AREA = 300m<sup>2</sup> WITH 1 IN 5 SIDE SLOPES  
CL = 122.50  
IL = 120.10  
1 IN 100 YEAR + 30% CLIMATE CHANGE TWL = 122  
TOTAL ATTENUATION VOLUME = 1467m<sup>3</sup>  
TOTAL CONTRIBUTING AREA = 2.62Ha  
BASIN AREA = 0.366Ha

HYDRO-BRAKE FLOW  
CONTROL DEVICE 5L/S

OUTFALL TO WATERCOURSE

OUTFALL TO WATERCOURSE

Key	
	Proposed adoptable Thames water section 104 foul sewer
	Proposed adoptable Thames water section 104 surface sewer
	Section 104 rising main
	125MM ØD PE110 SDR 11
	Oxfordshire county highway adoptable drain
	Oxfordshire county highway adoptable road gully
	Proposed Swale

**General Drainage Notes:**  
1. The planning, design and construction of sewers shall be in accordance with Sewers for Adoption 6th Edition, a design and construction guide for developers, the Civil Engineering Specification for the Water Industry 7th Edition and Thames Water amendments to CE5WA.  
2. All adoptable sewers within adoptable highway with less than 1.2m cover to have reinforced concrete slab protection. All adoptable sewers within grassed areas with cover less than 0.8m to have reinforced concrete slab protection. All areas with greater cover than the minimum required to have type S bed and surround.  
3. Sealed and lockable covers to be supplied where specified on manhole schedule.  
4. Use of this drawing does not absolve the client from his responsibilities under the Health and Safety. The Construction Design and Management Regulations 2015. The Principal Designer is required to contact Hydrock Consultants prior to permitting this drawing to be used in connection with any construction works.  
5. All sewers to be laid soft to soft unless otherwise shown.  
6. It is the Contractor's responsibility to locate existing services on site accurately.  
7. The Contractor should comply with hsl(g) 47 'Avoiding Danger from Underground Services' when excavating around existing services.  
8. The Contractor is to verify the line, level and diameter of existing sewers before commencing drainage works.  
9. All levels are to OS datum.  
10. Compliance with Health & Safety matters on any trench/manhole is obligatory and a permit to enter a confined space is required when connecting site drainage to the existing public sewerage system. A permit to enter a confined space will be obtained from Thames Water Ltd prior to the works commencing on any public sewerage system.  
11. Proposed adoptable sewers are only permitted to have other sewer/gully connections and other services laid at an angle of between 45° and 90° across the line with a vertical clearance in excess of 300mm.  
12. Where sewers are to be constructed inside the restricted tree zone a suitable trees protection barrier is to be installed to Thames Water's specification.  
13. Refer to Section 104 drawings for a full set of construction specification notes.  
14. Contractor to refer to drainage layout drawings for highway gully connections.  
15. Drawing to be read in conjunction with drainage strategy report WPF-HYD-XX-XX-DR-C-0605-0003  
16. Refer to drawing WPF-HYD-XX-XX-DR-C-2121 for attenuation basins and swale profiles

**NOTES (CONTINUED)**  
17. Drawing to be read in conjunction with drainage strategy report WPF-HYD-XX-XX-DR-C-0605-0003  
18. Refer to drawing WPF-HYD-XX-XX-DR-C-2121 for attenuation basins and swale profiles

**REVISIONS (CONTINUED)**

**REVISIONS**

**REVISIONS**

**REVISIONS**

**REVISIONS**

**REVISIONS**

**REVISIONS**

**REVISIONS**

**REVISIONS**

**REVISIONS**

**REVISIONS**

**REVISIONS**

**REVISIONS**

**Hydrock**  
OVER COURT BARN  
ONE LINE  
ALMONDSBURY  
BRISTOL  
BS12 4EP  
T: +44 (0) 1454 619333  
e: bristol@hydrock.com

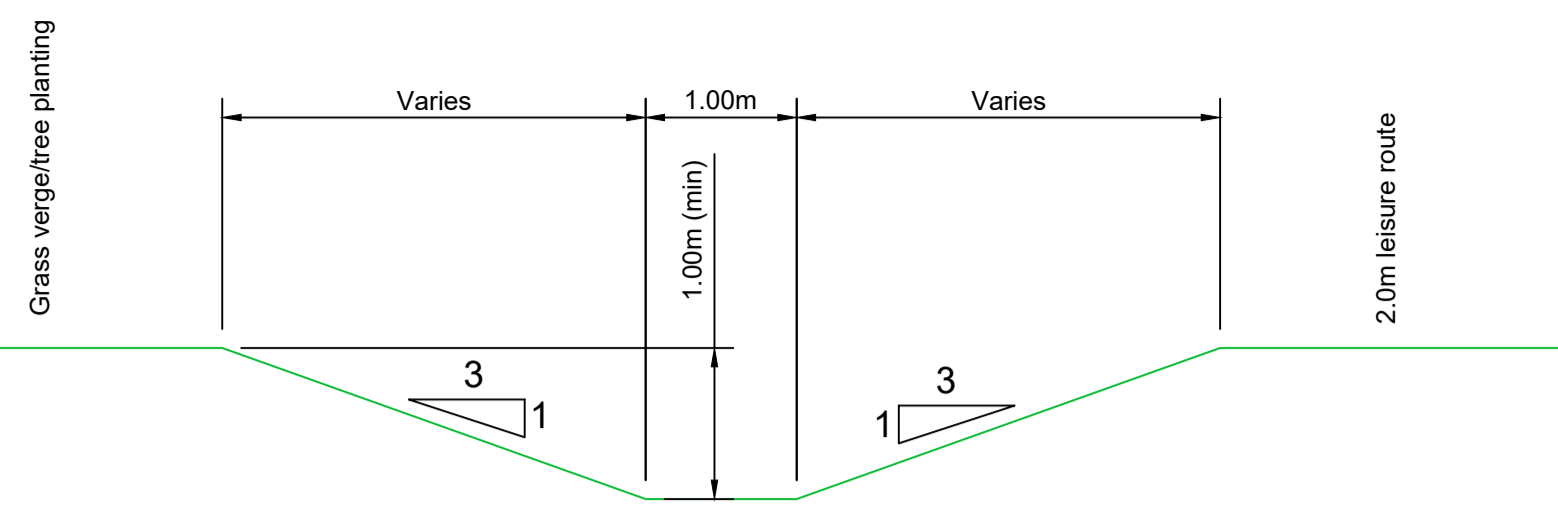
**L&Q ESTATES**

**WYKHAM PARK FARM  
BANBURY**

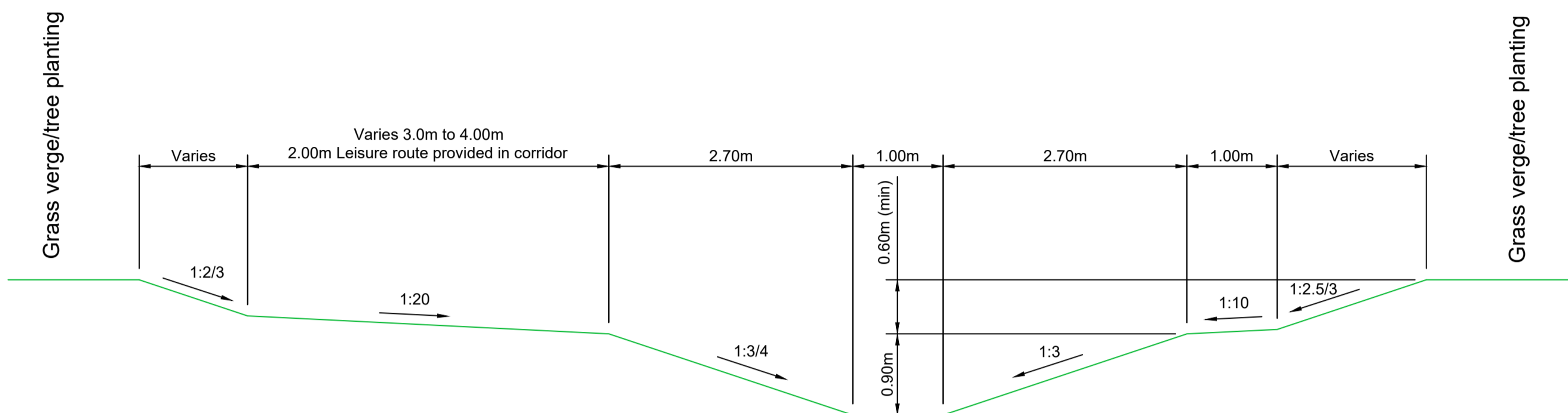
TITLE		SCALE @ A1		STATUS	
DRAINAGE LAYOUT SHEET 5		1 : 500		S2	
HYDROCK PROJECT NO <b>C-04841-C</b>		DRAWING NO. (PROJECT CODE ORIGINATOR, ZONE, LEVEL, TYPE, ROLE NUMBER)		REVISION	
WYKHAM PARK FARM BANBURY		WPF-HYD-XX-XX-DR-C-0605		P07	

Rev	Date	Description	By	Ckd	App
P07	23/11/20	Minor updates to swale profile. Note 14 and 15 added.	RAP	JD	RAP
P06	09/10/2020	Updated position of proposed pumping station to sit at southern point of sports pitch B.	RFS	SM	SM
P05	14/09/20	Updated pipework diameters to account for 40% allowance for climate change.	RFS	SM	SM
P04	04/06/20	Updated cover level to 552.	MF	SM	SM
P03	14/01/19	Updated sewer route and depth and updated foul sewer details.	MF	SM	SM
P02	15/03/18	Masterplan updated to Rev Y.	MF	SM	SM
P01	02/08/17	First Issue.	MF	SM	SM

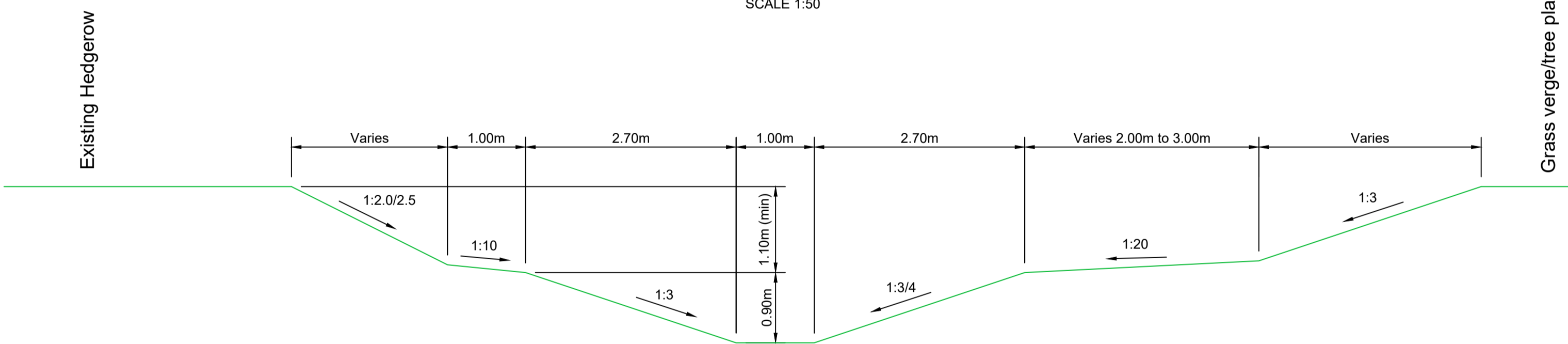
## Appendix C Swale Profile Sections



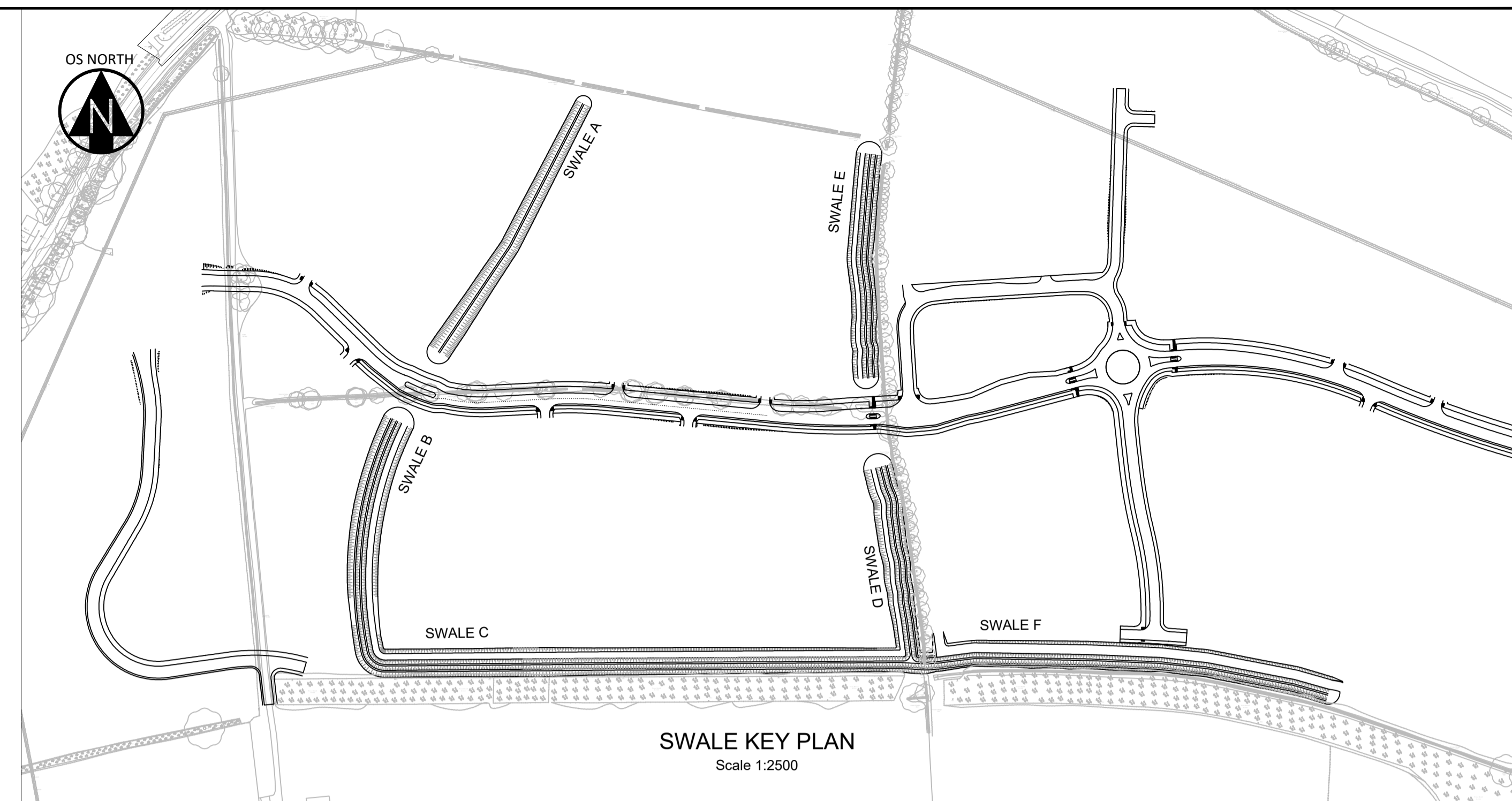
TYPICAL SECTION SECTION  
SWALE A  
SCALE 1:50



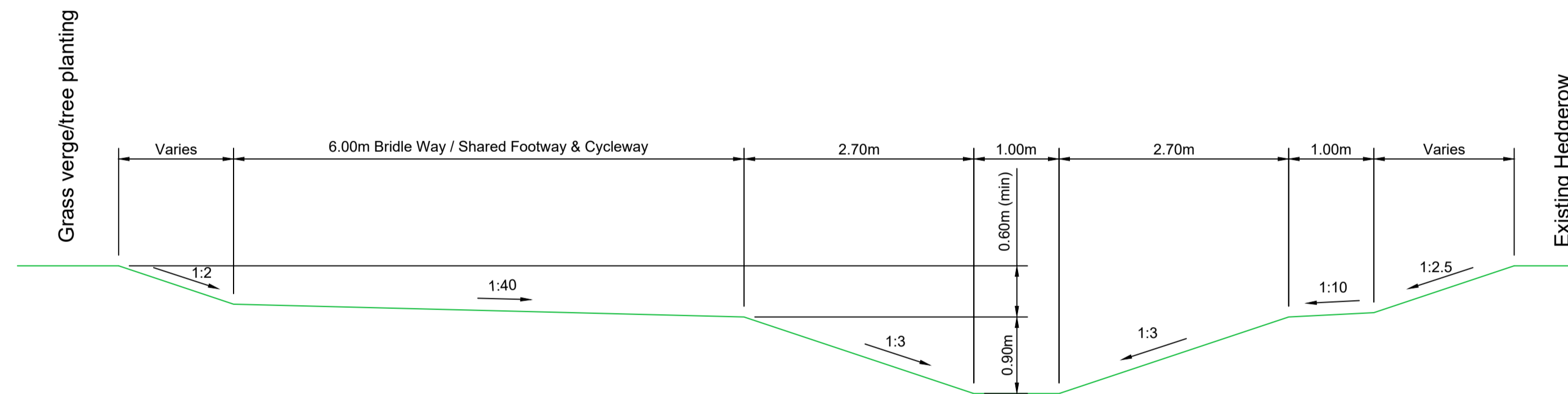
TYPICAL SECTION SECTION  
SWALE B / C  
SCALE 1:50



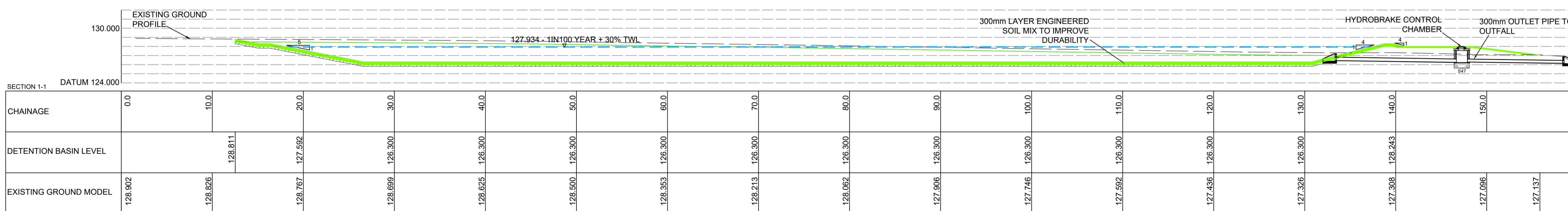
TYPICAL SECTION SECTION  
SWALE D & E  
SCALE 1:50



SWALE KEY PLAN  
Scale 1:2500



TYPICAL SECTION SECTION  
SWALE F  
SCALE 1:50



ATTENUATION BASIN A SECTION  
SCALE 1:250



ATTENUATION BASIN B SECTION  
SCALE 1:200

P4	SWALE PROFILES UPDATED	RAP	19.11.20	JD	19.11.20	RAP	19.11.20
P3	SWALE PROFILES UPDATED TO PROVIDE VARIETY IN SIDE SLOPE GRADIENT	MF	15.07.20	SM	15.07.20	DB	15.07.20
P2	FIRST ISSUE	MF	15.07.20	SM	15.07.20	DB	15.07.20
P1	FIRST ISSUE	MF	03.08.17	SM	03.08.17	DB	03.08.17
REV.	REVISION NOTES/COMMENTS	DRAWN BY	DATE	CHECKED BY	DATE	APPROVED BY	DATE

**Hydrock**  
 Over Court Barns  
 Over Lane  
 Almondsbury, Bristol BS32 4DF  
 TEL: 01454 614 533  
 FAX: 01454 614 325  
 E-Mail: bristol@hydrock.com  
 or visit www.hydrock.com

CLIENT	L&Q ESTATES
PROJECT	WYKHAM PARK FARM, BANBURY
TITLE	PROPOSED SWALES TYPICAL SECTIONS
HYDROCK PROJECT NO.	C-04841-C
SCALE @ A1	AS SHOWN
PURPOSE OF ISSUE	SUITABLE FOR INFORMATION
STATUS	S2
DRAWING NO. (PROJECT CODE-ORIGINATOR-ZONE-LEVEL-TYPE-ROLE-NUMBER)	WPF-HYD-XX-XX-DR-C-2101
REVISION	P4

## Appendix D Thames Water Sewer Records



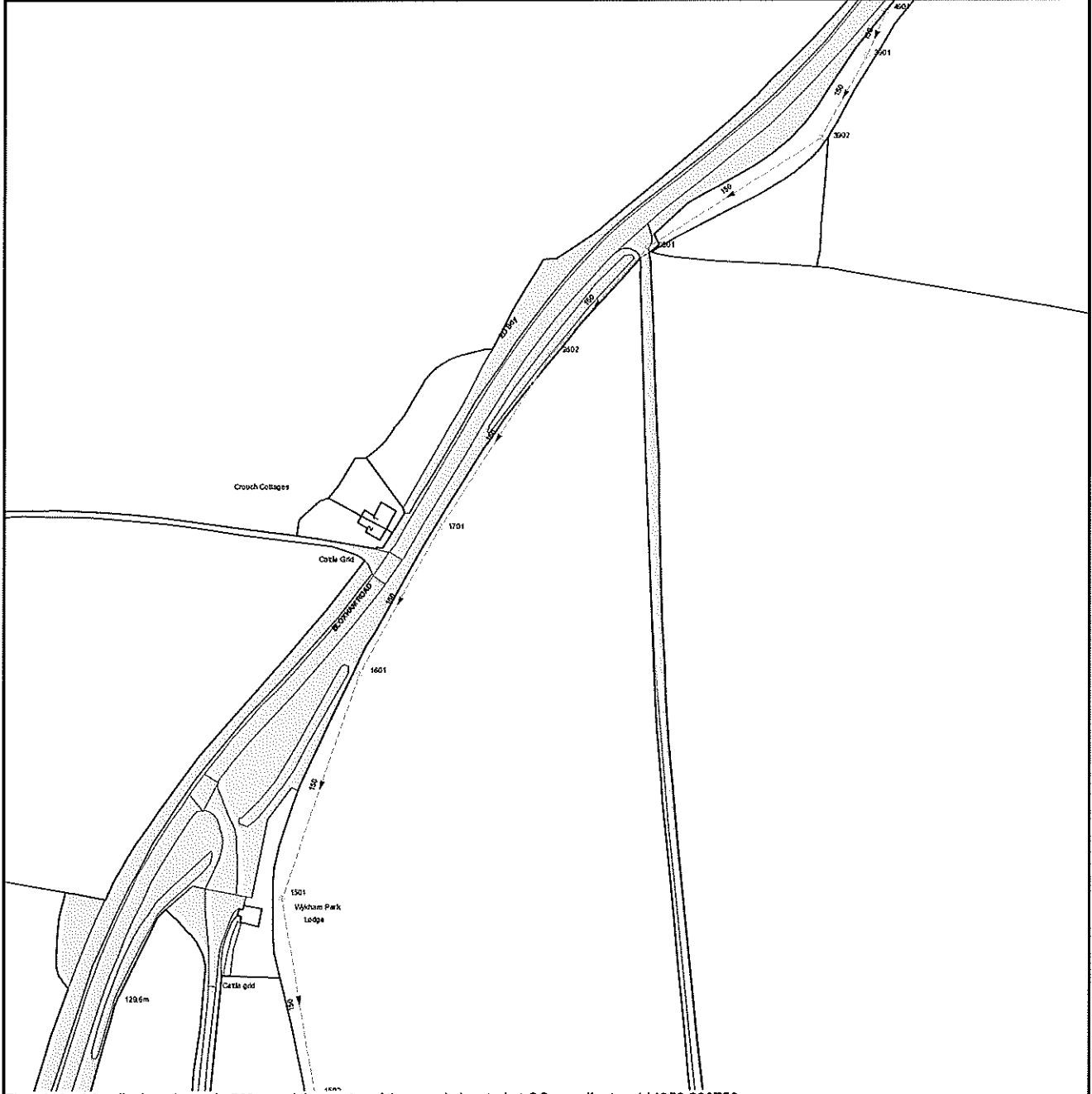
The width of the displayed area is 500m and the centre of the map is located at OS coordinates 444250,238250  
The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. 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
2001	109.41	107.63
1101	113.68	112.13
2101	112.86	110.72
1502	123.18	121.2
1403	121.02	119.26
1301	118.66	117.12
-	-	-
1201	115.67	114.13

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.





The width of the displayed area is 500m and the centre of the map is located at OS coordinates 444250,238750

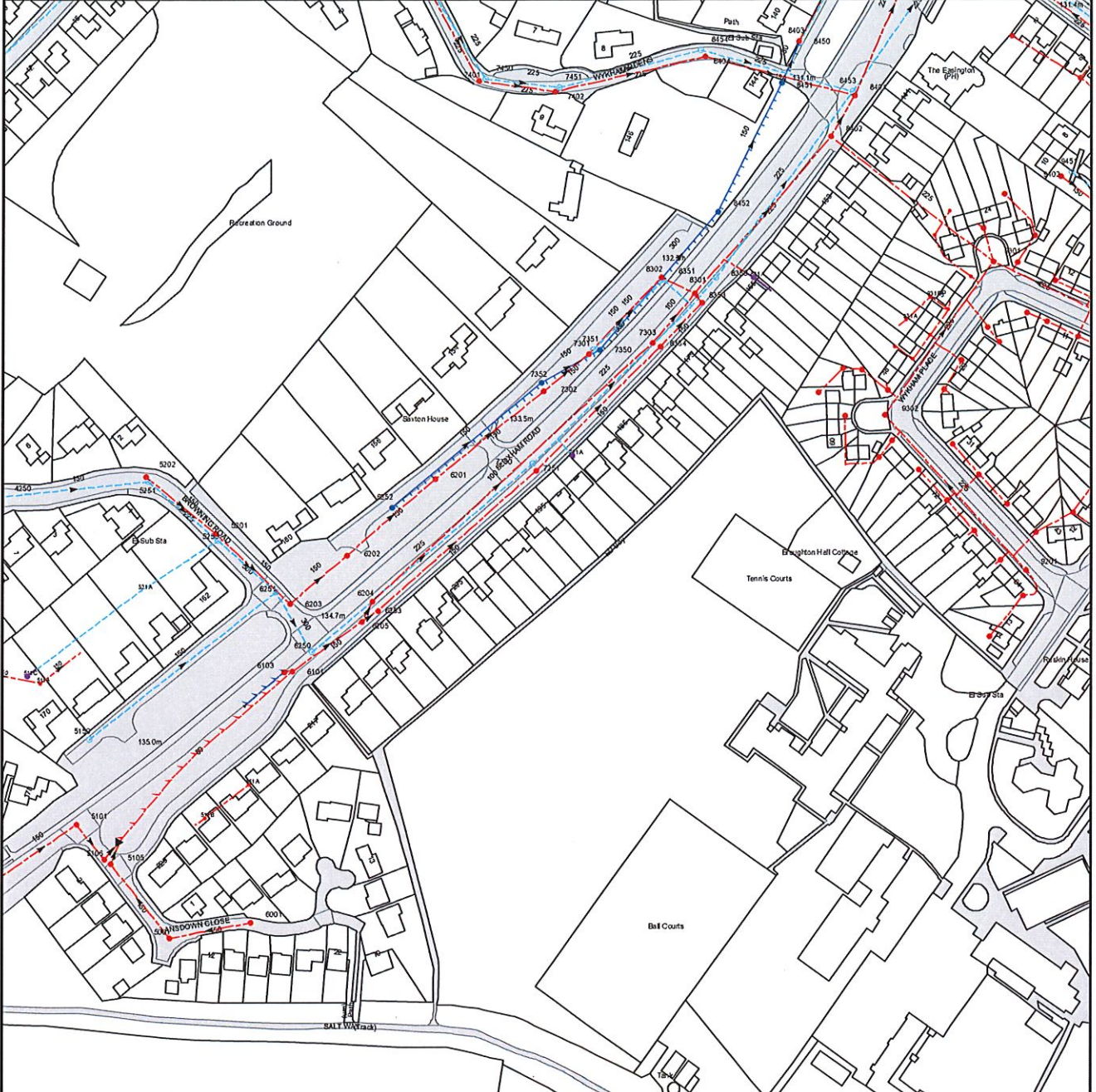
The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual 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
3902	132.96	132.96
3901	133.05	130.49
4901	n/a	n/a
2802	132.34	129.21
2801	132.48	129.62
1701	130.55	128.72
1501	124.84	122.97
-	-	-
1601	128.11	126.52

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.



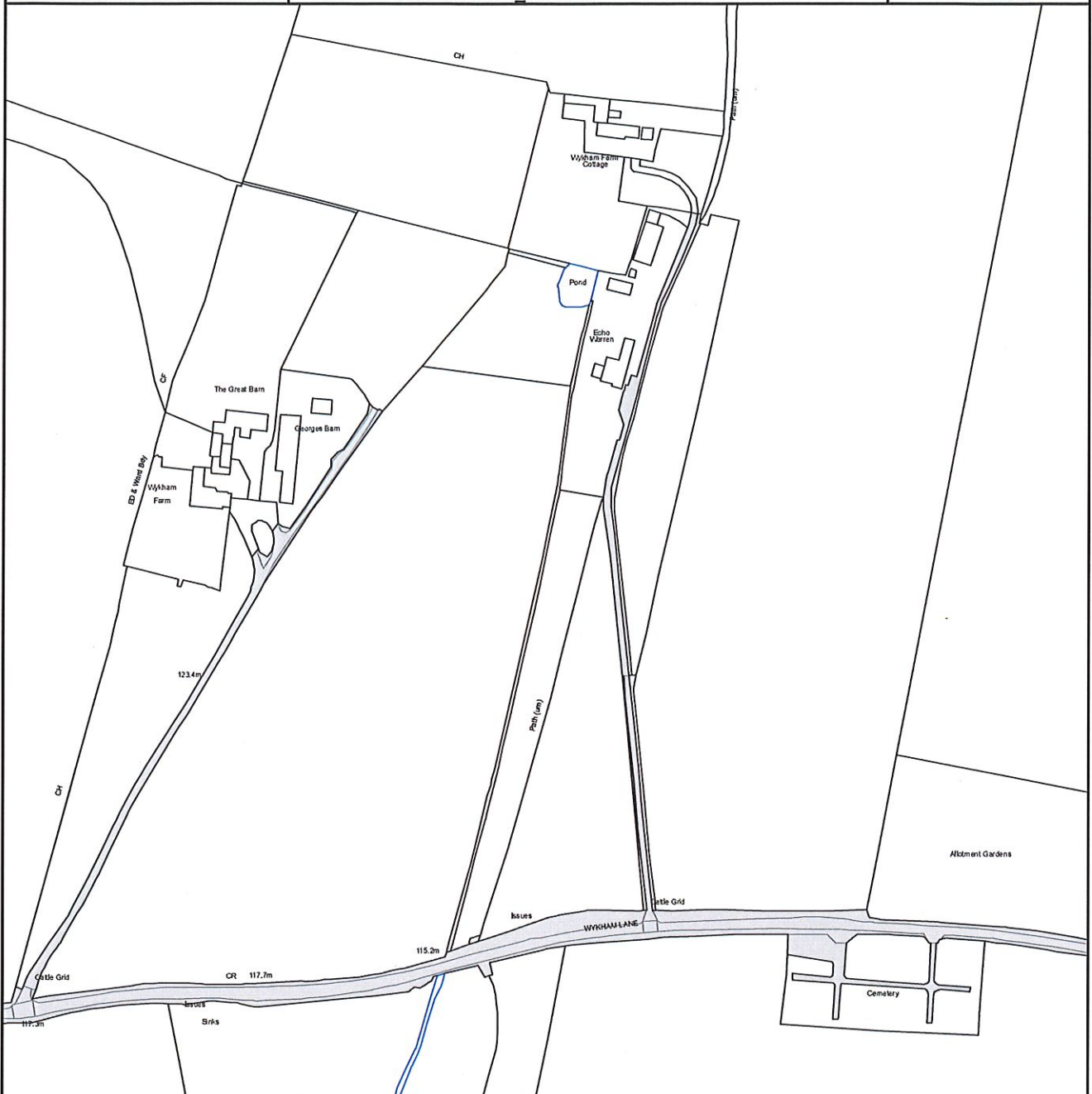
The width of the displayed area is 500m and the centre of the map is located at OS coordinates 444750,239250  
The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. 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
9455	n/a	n/a
9307	n/a	n/a
9452	n/a	n/a
9208	n/a	n/a
9318	n/a	n/a
9312	n/a	n/a
9207	n/a	n/a
9309	n/a	n/a
9320	n/a	n/a
9301	131.43	128.75
9319	n/a	n/a
9453	n/a	n/a
9206	n/a	n/a
9311	n/a	n/a
9314	n/a	n/a
9310	n/a	n/a
9315	n/a	n/a
9313	n/a	n/a
9402	133.76	132.55
9451	133.64	132.79
9204	n/a	n/a
9316	n/a	n/a
9454	n/a	n/a
9210	n/a	n/a
9209	n/a	n/a
9317	n/a	n/a
9305	n/a	n/a
9306	n/a	n/a
931A	n/a	n/a
931B	n/a	n/a
9308	n/a	n/a
9214	n/a	n/a
9213	n/a	n/a
9201	130.88	129.41
9212	n/a	n/a
9205	n/a	n/a
9211	n/a	n/a
8451	131.33	130.66
8353	132.4	130.64
8301	132.49	128.82
8350	132.13	130.25
831A	n/a	n/a
8452	132.09	131.37
8404	131.02	128.84
8454	131.01	129.66
8450	130.84	130.22
8403	130.84	130.06
8357	n/a	n/a
8402	131.55	128.31
8356	n/a	n/a
8358	n/a	n/a
8453	131.6	129.09
8401	131.53	128.06
8355	n/a	n/a
9202	n/a	n/a
9302	131.59	129.07
9303	n/a	n/a
9203	n/a	n/a
9304	n/a	n/a
7251	133.73	131.81
7250	134.09	131.45
721A	n/a	n/a
7302	134.25	131.29
7352	134.11	132.38
7301	133.72	130.92
7350	133.61	132.99
7351	133.64	131.22
8354	132.89	131.02
7303	132.99	131.11
8351	132.79	130.66
8302	132.82	130.18
7402	132.31	129.57
7451	132.29	129.9
7401	133.23	130.36
7450	133.23	130.58
6205	134.91	133.31
6253	134.85	132.98
6204	135.1	133.04
6252	135.01	133.79
6201	134.78	131.77
6103	n/a	n/a
6101	135.07	133.62
6250	135.15	132.77
6203	135.62	132.8
6251	135.8	133.02
6202	135.19	132.53
5105	134.13	130.21
5106	134.17	130.14
5101	134.5	130.32
5150	135.35	133.69
511A	n/a	n/a

Manhole Reference	Manhole Cover Level	Manhole Invert Level
511C	n/a	n/a
5001	133.51	130.79
6001	133.15	131.18
511B	n/a	n/a
611A	n/a	n/a
521A	n/a	n/a
5250	136.28	133.52
5201	136.34	133.24
5251	136.86	134.44
5202	136.88	134.12

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.



The width of the displayed area is 500m and the centre of the map is located at OS coordinates 445250,238250

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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The width of the displayed area is 500m and the centre of the map is located at OS coordinates 445250,238750

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
4852	n/a	n/a
3801	n/a	n/a
3803	n/a	n/a
4802	128.63	127.91
4850	128.62	127.97
4801	128.51	127.82
4902	128.52	127.75
4951	128.56	127.8
4950	128.5	127.4
4901	128.48	127.53
3705	n/a	n/a
3712	n/a	n/a
3711	n/a	n/a
3704	n/a	n/a
3710	n/a	n/a
4704	n/a	n/a
3703	n/a	n/a
3709	n/a	n/a
3702	n/a	n/a
3708	n/a	n/a
3701	n/a	n/a
4853	n/a	n/a
4854	n/a	n/a
3802	n/a	n/a
3804	n/a	n/a
4855	n/a	n/a
4652	n/a	n/a
3603	n/a	n/a
3602	n/a	n/a
4604	126.86	126.16
4651	126.81	125.5
4602	126.61	125.96
4603	126.56	126.11
4601	126.56	125.54
3601	n/a	n/a
4650	126.56	124.25
4703	n/a	n/a
3714	n/a	n/a
3707	n/a	n/a
3713	n/a	n/a
3706	n/a	n/a
4701	126.74	125.71
471G	n/a	n/a
471H	n/a	n/a
471I	n/a	n/a
471J	n/a	n/a
471K	n/a	n/a
471L	n/a	n/a

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 Thomas 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.





# ALS Sewer Map Key

## Public Sewer Types (Operated & Maintained by Thames Water)

- Foul:** A sewer designed to convey waste water from domestic and industrial sources to a treatment works.
- Surface Water:** A sewer designed to convey surface water (e.g. rain water from roofs, yards and car parks) to rivers or watercourses.
- Combined:** A sewer designed to convey both waste water and surface water from domestic and industrial sources to a treatment works.
- Trunk Surface Water**      **Trunk Foul**
- Storm Relief**      **Trunk Combined**
- Vent Pipe**      **Bio-solids (Sludge)**
- Proposed Thames Surface Water Sewer**      **Proposed Thames Water Foul Sewer**
- Gallery**      **Foul Rising Main**
- Surface Water Rising Main**      **Combined Rising Main**
- Sludge Rising Main**      **Proposed Thames Water Rising Main**
- Vacuum**

## Sewer Fittings

A feature in a sewer that does not affect the flow in the pipe. Example: a vent is a fitting as the function of a vent is to release excess gas.

- Air Valve
- Dam Chase
- Fitting
- Meter
- Vent Column

## Operational Controls

A feature in a sewer that changes or diverts the flow in the sewer. Example: A hydrobrake limits the flow passing downstream.

- Control Valve
- Drop Pipe
- Ancillary
- Weir

## End Items

End symbols appear at the start or end of a sewer pipe. Examples: an Undefined End at the start of a sewer indicates that Thames Water has no knowledge of the position of the sewer upstream of that symbol. Outfall on a surface water sewer indicates that the pipe discharges into a stream or river.

- Outfall
- Undefined End
- Inlet

## Other Symbols

Symbols used on maps which do not fall under other general categories

- Public/Private Pumping Station
- Change of characteristic indicator (C.O.C.I.)
- Invert Level
- Summit

### Areas

Lines denoting areas of underground surveys, etc.

- Agreement
- Operational Site
- Chamber
- Tunnel
- Conduit Bridge

## Other Sewer Types (Not Operated or Maintained by Thames Water)


- Foul Sewer
- Surface Water Sewer
- Combined Sewer
- Gully
- Culverted Watercourse
- Proposed
- Abandoned Sewer

### Notes:

- 1) All levels associated with the plans are to Ordnance Datum Newlyn.
- 2) All measurements on the plans are metric.
- 3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate direction of flow.
- 4) Most private pipes are not shown on our plans, as in the past, this information has not been recorded.
- 5) 'na' or '0' on a manhole level indicates that data is unavailable.

- 6) The text appearing alongside a sewer line indicates the internal diameter of the pipe in millimetres. Text next to a manhole indicates the manhole reference number and should not be taken as a measurement. If you are unsure about any text or symbology present on the plan, please contact a member of Property Insight on 0118 925 1504.

## Appendix E Micro Drainage Calculations

.	C-04841-C	
.	Wykham Park Farm	
.	Catchment 1	
Date 14/09/2020	Designed by SM	
File WPF-HYD-XX-XX-CA-C-0001 FEH.pdf...	Checked by Sean Mitchinson	
Innovyze	Network 2018.1.1	

STORM SEWER DESIGN by the Modified Rational MethodDesign Criteria for STORM NETWORK 4

Pipe Sizes NETWORK-1-2013.03.20 Manhole Sizes NETWORK-1-2013.03.20

## FEH Rainfall Model

Return Period (years)	1
FEH Rainfall Version	1999
Site Location GB 445250 237800 SP 45250 37800	
C (1km)	-0.023
D1 (1km)	0.318
D2 (1km)	0.317
D3 (1km)	0.243
E (1km)	0.298
F (1km)	2.479
Maximum Rainfall (mm/hr)	50
Maximum Time of Concentration (mins)	30
Foul Sewage (l/s/ha)	0.000
Volumetric Runoff Coeff.	0.900
PIMP (%)	100
Add Flow / Climate Change (%)	0
Minimum Backdrop Height (m)	0.200
Maximum Backdrop Height (m)	1.500
Min Design Depth for Optimisation (m)	1.200
Min Vel for Auto Design only (m/s)	1.00
Min Slope for Optimisation (1:X)	500

Designed with Level Soffits




Time Area Diagram for STORM NETWORK 4

Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	1.005	4-8	5.705	8-12	6.566	12-16	5.769	16-20	1.820	20-24	0.096

Total Area Contributing (ha) = 20.961


Total Pipe Volume (m<sup>3</sup>) = 18714.315Network Design Table for STORM NETWORK 4

« - Indicates pipe capacity &lt; flow





















PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	110.003	0.224	491.1	0.000	5.00	0.0	0.600		o	600	Pipe/Conduit	
1.001	31.287	0.068	460.1	0.262	0.00	0.0	0.600		o	600	Pipe/Conduit	
1.002	59.691	0.194	307.7	0.262	0.00	0.0		0.032	\/	-1	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	50.00	6.68	130.406	0.000	0.0	0.0	0.0	1.09	308.8	0.0
1.001	50.00	7.14	130.182	0.262	0.0	0.0	0.0	1.13	319.1	42.6
1.002	47.23	7.98	130.114	0.524	0.0	0.0	0.0	1.19	4851.3	80.4

.	C-04841-C	
.	Wykham Park Farm	
.	Catchment 1	
Date 14/09/2020	Designed by SM	
File WPF-HYD-XX-XX-CA-C-0001 FEH.pdf...	Checked by Sean Mitchinson	
Innovyze	Network 2018.1.1	

Network Design Table for STORM NETWORK 4

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
2.000	59.604	0.143	416.8	0.257	5.00	0.0	0.600		o	600	Pipe/Conduit	
2.001	57.049	0.177	322.3	0.257	0.00	0.0	0.600		o	600	Pipe/Conduit	
2.002	51.493	0.103	499.9	0.257	0.00	0.0	0.600		o	600	Pipe/Conduit	
1.003	87.623	0.097	903.3	0.000	0.00	0.0		0.032	\/	-1	Pipe/Conduit	
1.004	5.239	0.032	163.7	0.000	0.00	0.0		0.032	o	300	Pipe/Conduit	
3.000	19.414	0.184	105.5	0.000	5.00	0.0	0.600		o	600	Pipe/Conduit	
3.001	66.751	0.146	457.2	0.108	0.00	0.0	0.600		o	600	Pipe/Conduit	
3.002	79.319	0.155	511.7	0.108	0.00	0.0	0.600		o	600	Pipe/Conduit	
3.003	35.335	0.047	751.8	0.108	0.00	0.0	0.600		o	600	Pipe/Conduit	
1.005	27.169	0.162	167.7	0.027	0.00	0.0	0.600		o	300	Pipe/Conduit	
4.000	29.882	0.178	167.9	0.062	5.00	0.0	0.600		o	225	Pipe/Conduit	
4.001	51.509	0.217	237.4	0.075	0.00	0.0	0.600		o	300	Pipe/Conduit	
4.002	31.731	0.134	236.8	0.047	0.00	0.0	0.600		o	300	Pipe/Conduit	
5.000	42.300	0.169	250.3	0.108	5.00	0.0	0.600		o	300	Pipe/Conduit	
5.001	70.131	0.280	250.5	0.108	0.00	0.0	0.600		o	300	Pipe/Conduit	
5.002	26.227	0.110	238.4	0.000	0.00	0.0	0.600		o	300	Pipe/Conduit	
4.003	15.841	0.685	23.1	0.000	0.00	0.0	0.600		o	450	Pipe/Conduit	
1.006	5.808	0.020	290.4	0.088	0.00	0.0	0.600		o	450	Pipe/Conduit	
1.007	51.460	0.103	499.6	0.000	0.00	0.0		0.032		-5	Pipe/Conduit	
6.000	66.224	0.130	509.4	0.000	5.00	0.0	0.600		o	600	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
2.000	50.00	5.84	130.343	0.257	0.0	0.0	0.0	1.19	335.5	41.8
2.001	50.00	6.54	130.200	0.514	0.0	0.0	0.0	1.35	382.0	83.5
2.002	50.00	7.33	130.023	0.771	0.0	0.0	0.0	1.08	306.0	125.3
1.003	40.27	10.08	129.920	1.295	0.0	0.0	0.0	0.69	2831.3	169.5
1.004	39.73	10.28	129.823	1.295	0.0	0.0	0.0	0.43	30.7«	169.5
3.000	50.00	5.14	130.258	0.000	0.0	0.0	0.0	2.37	670.3	0.0
3.001	50.00	6.12	130.074	0.108	0.0	0.0	0.0	1.13	320.1	17.5
3.002	49.92	7.36	129.928	0.216	0.0	0.0	0.0	1.07	302.4	35.0
3.003	47.05	8.02	129.773	0.324	0.0	0.0	0.0	0.88	248.9	49.5
1.005	38.77	10.66	129.791	1.646	0.0	0.0	0.0	1.21	85.6«	207.4
4.000	50.00	5.49	131.020	0.062	0.0	0.0	0.0	1.01	40.0	10.1
4.001	50.00	6.34	130.767	0.137	0.0	0.0	0.0	1.02	71.8	22.3
4.002	50.00	6.86	130.550	0.184	0.0	0.0	0.0	1.02	71.9	29.9
5.000	50.00	5.71	130.975	0.108	0.0	0.0	0.0	0.99	69.9	17.5
5.001	50.00	6.89	130.806	0.216	0.0	0.0	0.0	0.99	69.9	35.1
5.002	50.00	7.33	130.526	0.216	0.0	0.0	0.0	1.01	71.7	35.1
4.003	49.77	7.39	130.266	0.400	0.0	0.0	0.0	4.24	674.6	64.7
1.006	38.57	10.74	129.581	2.134	0.0	0.0	0.0	1.19	188.9«	267.5
1.007	36.80	11.50	129.129	2.134	0.0	0.0	0.0	1.12	16472.0	267.5
6.000	50.00	6.03	129.710	0.000	0.0	0.0	0.0	1.07	303.1	0.0