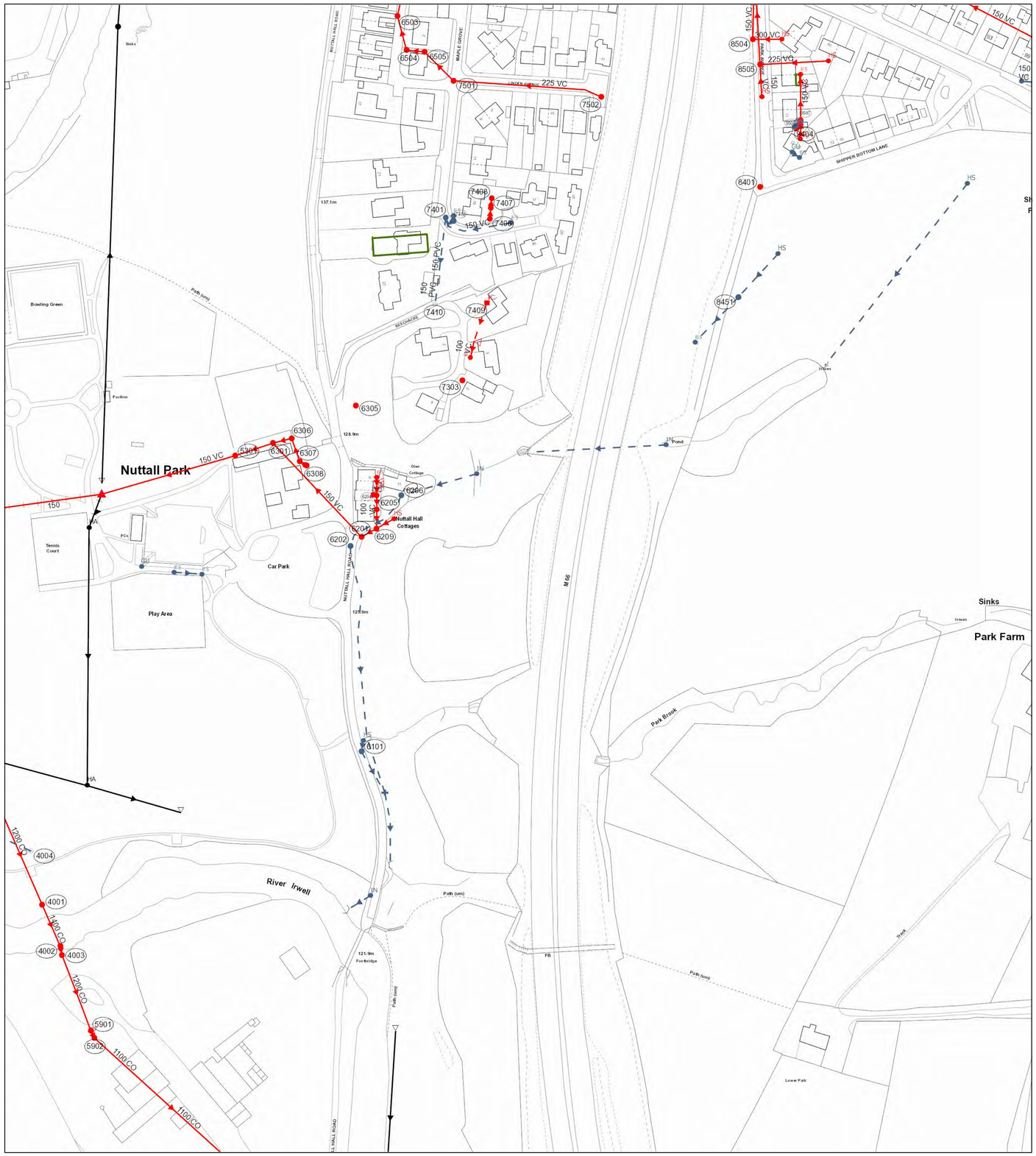

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Refno	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad
5902	121.32	CO	118.55	1100			CO	116.1034	1 in 464
5902	121.32	CO	118.55	1100			CO	116.1034	1 in 464
7501	146.76	CO	143.73	225			VC	22.62742	1 in 45
7501	146.76	CO	143.73	225			VC	22.62742	1 in 45
6504	145.19	CO	142.84	225			VC	19.64688	1 in 116
6504	145.19	CO	142.84	225			VC	19.64688	1 in 116
6505	145.64	CO	143.24	225			VC	10.04988	1 in 25
6505	145.64	CO	143.24	225			VC	10.04988	1 in 25
7502	152.35	CO	149.23	225			VC	83.01989	1 in 15
7502	152.35	CO	149.23	225			VC	83.01989	1 in 15
5301	123.41	CO	122.74	150			VC	77.06306	1 in 23
4002		CO	0	1200			CO	5.09902	
4002		CO	0	1200			CO	5.09902	
7407		CO		150			VC	5.344016	
7407		CO		150			VC	5.344016	
8451		SW		0				34.65545	
6503	145.3	CO	142.56	225			VC	18.43909	1 in 123
6503	145.3	CO	142.56	225			VC	18.43909	1 in 123
4003	121.12	CO	0	1200			CO	44.94478	
4003	121.12	CO	0	1200			CO	44.94478	
7406		CO		150			VC	5.988619	
7406		CO		150			VC	5.988619	
8504	160.31	CO	158.3	150			VC	41.01219	
8504	160.31	CO	158.3	150			VC	41.01219	
4001		CO	0	1400			CO	25.07987	
4001		CO	0	1400			CO	25.07987	
8505	160.3	CO	158.4	225			VC	55.08176	1 in 197
8505	160.3	CO	158.4	225			VC	55.08176	1 in 197
4101	120.87	CO	119.28	1200			CO	60.00833	
9506		CO		150			VC	2.3465	
9506		CO		150			VC	2.3465	
6101	123.53	SW	122.25	0				26.41969	
5901	120.85	CO	0	1200			CO	2.236068	
5901	120.85	CO	0	1200			CO	2.236068	
6205		CO		100			VC	10.53236	
7401		SW		150			PVC	48.35646	
7401		SW		150			PVC	48.35646	
6202	126.96	SW		0				139.7645	
6209		CO	0	150			VC	9.620207	
6306		CO		150			VC	10.67357	
7402		SW		100			VC	3.610298	
7402		SW		100			VC	3.610298	
6307		CO		150			VC	13.53013	
6206		SW		0				41.57977	
6201	127.26	CO	125.87	150			VC	71.44928	1 in 21
6301	123.57	CO	122.48	150			VC	22.13594	1 in 85
6308		CO		150			VC	4.429853	

Refno	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad

LEGEND

Abandoned | Foul | Surface Water | Combined

- Public Sewer
- Private Sewer
- Section 104
- Rising Main
- Sludge Main
- Overflow
- Water Course
- Highway Drain

All point assets follow the standard colour convention:
red - combined, blue - surface water, brown - foul, purple - overflow

- Manhole
- Head of System
- Extent of Survey
- Rodding 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
- Ww Treatment Works
- Ww Pumping Station
- Septic Tank
- Control Kiosk
- Change of Characteristic

MANHOLE FUNCTION

- FO Foul
- SW Surface Water
- CO Combined
- OV Overflow

SEWER SHAPE

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

SEWER MATERIAL

- AC Asbestos Cement
- BR Brick
- PE Polyethylene
- RP Reinforced Plastic Matrix
- CO Concrete
- CSB Concrete Segment Bolted
- CSU Concrete Segment Unbolted
- CC Concrete Box Culverted
- PSC Plastic / Steel Composite
- GRC Glass Reinforecd 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

Address or Site Reference:

Holcombe Mill,

OS sheet Number: SD7916SE

Scale: 1:1250 **Date:** 24/05/2019

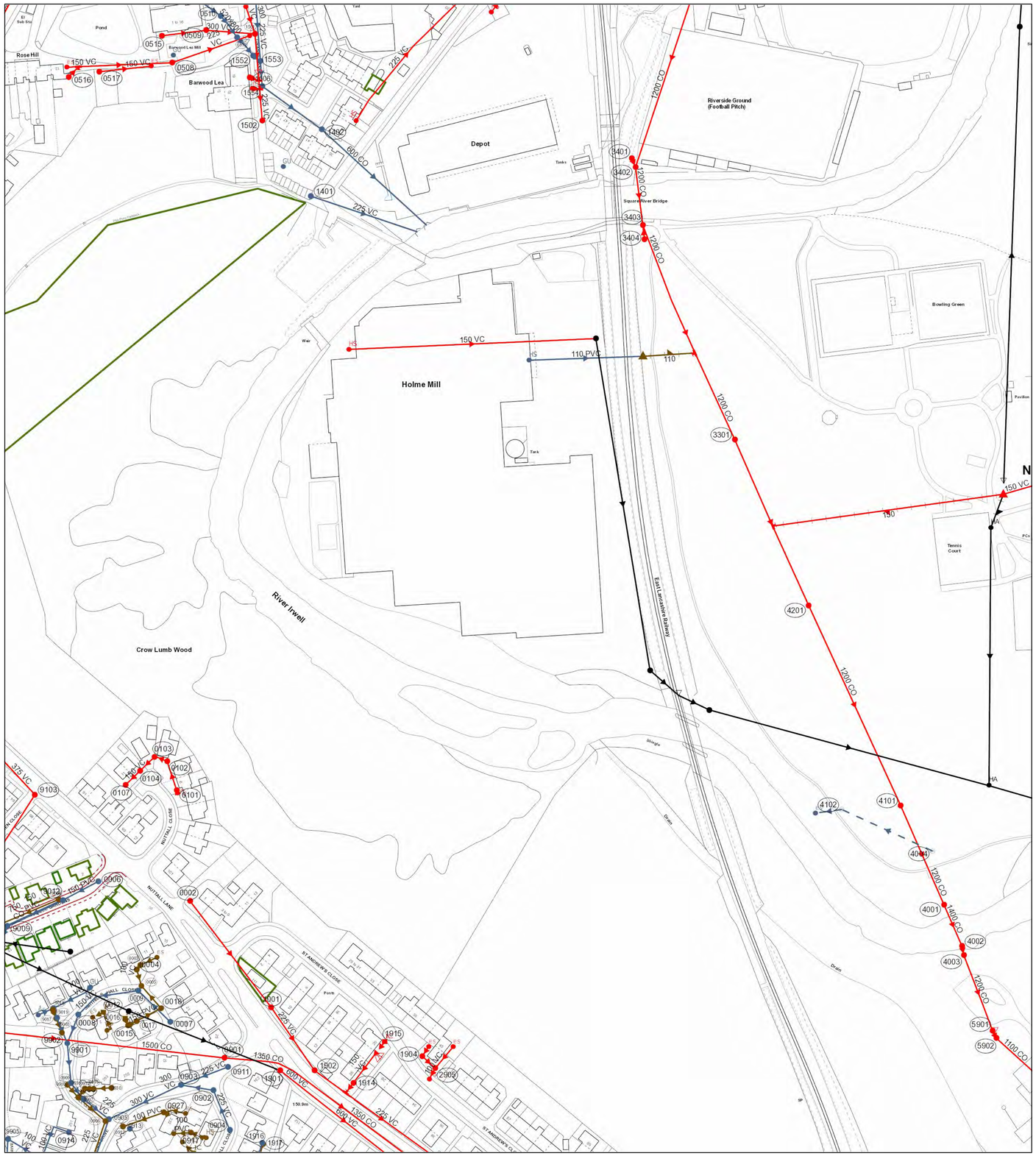
Nodes: 47

Sheet: 1 of 4

Printed by: Property Searches

SEWER RECORDS

United Utilities — helping life flow smoothly



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Refno	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad
0018		FO		150			VC	16.50521	
9103	156.61	CO	153.55	375			VC	92.27214	
0903	153.45	SW	151.7	300			VC	44.28318	1 in 193
0906	153.78	FO	151.95	225			VC	62.29767	1 in 135
1554	132.71	SW	129.86	600			CO	40.80441	1 in 23
1554	132.71	SW	129.86	600			CO	40.80441	1 in 23
2905		CO		100			VC	6.792109	
9012	155.38	FO	153.75	150			PVC	36.75269	1 in 25
4001		CO	0	1400			CO	25.07987	
4001		CO	0	1400			CO	25.07987	
0509	135.32	CO	0	300			VC	27.07397	
0509	135.32	CO	0	300			VC	27.07397	
9009	154.27	SW	151.2	750			CO	9.099101	1 in 57
0015		FO		150			PVC	5.225512	
1914		CO		150			VC	7.015839	
0516		CO		150			VC	8.000196	
0516		CO		150			VC	8.000196	
1551	133.5	SW	130.65	225			VC	39.11557	1 in 87
9901		SW		150			VC	22.19627	
5902	121.32	CO	118.55	1100			CO	116.1034	1 in 464
5902	121.32	CO	118.55	1100			CO	116.1034	1 in 464
9019		SW		100			PVC	5.605523	
5301	123.41	CO	122.74	150			VC	77.06306	1 in 23
0101		CO		150			VC	16.93866	
9008	155.44	SW	151.47	750			CO	34.0066	1 in 126
3501	123.92	CO	120.86	1200			CO	127.4402	1 in 1593
0004		FO		100			VC	9.399326	
0508		CO	0	225			VC	45.67829	
0508		CO	0	225			VC	45.67829	
0506	135.42	SW	133.37	750			RPM	8.602325	1 in 19
0902	153.19	SW	151.94	225			VC	18.24629	1 in 261
0009		SW		150			VC	37.60827	
0517		CO		150			VC	28.8585	
0517		CO		150			VC	28.8585	
0904	153.35	SW	152.14	225			VC	23.76973	1 in 132
1553	133.05	SW	130.2	600			CO	14.03567	1 in 47
1553	133.05	SW	130.2	600			CO	14.03567	1 in 47
0510	134.38	SW	132.47	520			RPM	7.81025	1 in 0
0510	134.38	SW	132.47	520			RPM	7.81025	1 in 0
5901	120.85	CO	0	1200			CO	2.236068	
5901	120.85	CO	0	1200			CO	2.236068	
0908	153.62	FO	152.21	150			VC	19.84943	1 in 110
1902	151.72	CO	148.42	225			VC	92.41753	1 in 20
0104		CO		150			VC	11.24031	
0515		CO	0	300			VC	24.72511	
0515		CO	0	300			VC	24.72511	
0003		FO		100			VC	3.272722	
0007		SW		150			VC	24.80543	
0907	153.62	SW	151.81	225			VC	17.80449	1 in 81
0905	153.77	SW	151.39	375			CO	62.62587	1 in 133
0917		FO		100			PVC	9.69412	
0911	153	SW	151.91	225			VC	27.85678	1 in 348
0017		FO		150			PVC	15.35069	
0512		SW	0	390			RPM	7.071068	
0512		SW	0	390			RPM	7.071068	
0103		CO		150			VC	10.99224	
0927		FO		100			PVC	23.97465	
1506		CO		0			VC	5.433882	
1506		CO		0			VC	5.433882	
4003	121.12	CO	0	1200			CO	44.94478	
4003	121.12	CO	0	1200			CO	44.94478	
0919	153.53	SW	151.88	300			VC	11.40175	1 in 228
0901	153.29	CO	142.76	1350			CO	146.311	1 in 697
0917		SW		100			PVC	15.30615	
0914		SW		100			VC	27.98328	
3301	122.57	CO	120.12	1200			CO	100.7249	1 in 305
1904		CO		100			VC	9.774369	
1901		CO	0	600			VC	90.42677	
1552	133.06	SW	131.46	600			CO	5	1 in 9
1552	133.06	SW	131.46	600			CO	5	1 in 9
9003		FO		100			PVC	8.44977	
4002		CO	0	1200			CO	5.09902	
4002		CO	0	1200			CO	5.09902	
1001	153.3	CO	151.31	225			VC	42.43819	1 in 30
0006	155.8	SW	154.16	150			PVC	22.23611	1 in 8
3402	123.3	CO	120.55	1200			CO	32.24903	1 in 461
3402	123.3	CO	120.55	1200			CO	32.24903	1 in 461
1501	133.26	CO	131.01	300			VC	24.08319	1 in 30
1501	133.26	CO	131.01	300			VC	24.08319	1 in 30
0008		SW		150			VC	17.03442	
0102		CO		150			VC	7.684664	
9018		FO		100			PVC	5.35411	
3404	124.22	CO	123.02	1200			CO	8.062258	
3404	124.22	CO	123.02	1200			CO	8.062258	
3401	123.24	CO	0	1200			CO	5.385165	
3401	123.24	CO	0	1200			CO	5.385165	
4101	120.87	CO	119.28	1200			CO	60.00833	
9905	152.66	SW	151.1	225			VC	36.05551	1 in 113
0002	154.9	CO	152.7	225			VC	74.20242	1 in 53
4201	122.22	CO	119.77	1200			CO	122.1556	1 in 509
0909	153.52	FO	152.29	150			VC	9.219544	1 in 154
1402	130.58	SW	127.99	600			CO	78.78506	1 in 14
1402	130.58	SW	127.99	600			CO	78.78506	1 in 14
0932		FO		150			VC	2.35681	
0931		FO		150			VC	6.080112	
3403	124.23	CO	120.45	1200			CO	129.5264	1 in 463
3403	124.23	CO	120.45	1200			CO	129.5264	1 in 463
0915		FO		150			VC	2.589786	
0930		FO		150			VC	9.895969	
1401	130.19	SW	128.31	225			VC	62.32987	1 in 12
1401	130.19	SW	128.31	225			VC	62.32987	1 in 12

Refno	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad

LEGEND

Abandoned | Foul | Surface Water | Combined

- Public Sewer
- Private Sewer
- Section 104
- Rising Main
- Sludge Main
- Overflow
- Water Course
- Highway Drain

All point assets follow the standard colour convention:
red - combined, blue - surface water, brown - foul, purple - overflow

- Manhole
- Head of System
- Extent of Survey
- Rodding 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
- Ww Treatment Works
- Ww Pumping Station
- Septic Tank
- Control Kiosk
- Change of Characteristic

MANHOLE FUNCTION

- FO Foul
- SW Surface Water
- CO Combined
- OV Overflow

SEWER SHAPE

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

SEWER MATERIAL

- AC Asbestos Cement
- BR Brick
- PE Polyethylene
- RP Reinforced Plastic Matrix
- CO Concrete
- CSB Concrete Segment Bolted
- CSU Concrete Segment Unbolted
- CC Concrete Box Culverted
- PSC Plastic / Steel Composite
- GRC Glass Reinforecd 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

Address or Site Reference:

Holcombe Mill,

OS sheet Number: SD7916SW
Scale: 1:1250 **Date:** 24/05/2019
Nodes: 101
Sheet: 2 of 4

Printed by: Property Searches

SEWER RECORDS

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Refno	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad
9701	166.22	CO	164.29	300			VC	16.27582	1 in 10
9811		CO		100			VC	5.312928	
7504		CO		100			VC	15.80236	
9801		SW		100				38.0526	
7502	152.35	CO	149.23	225			VC	83.01989	1 in 15
7502	152.35	CO	149.23	225			VC	83.01989	1 in 15
6701	150.1	CO	148.3	225			VC	26	1 in 8
7002		CO		0			VC	6.912111	
6503	145.3	CO	142.56	225			VC	18.43909	1 in 123
6503	145.3	CO	142.56	225			VC	18.43909	1 in 123
7604	149.89	CO	148.31	225			VC	30.36445	
4602	124.64	CO	121.75	1000			CO	124.6796	1 in 277
4602	124.64	CO	121.75	1000			CO	124.6796	1 in 277
9903	172.18	CO	169.43	300			VC	13.0384	1 in 130
4601		CO	0	1000			CO	8	
4601		CO	0	1000			CO	8	
7702	152.27	CO	151.45	300			VC	30.59395	
8504	160.31	CO	158.3	150			VC	41.01219	
8504	160.31	CO	158.3	150			VC	41.01219	
6607		CO		150			VC	6.381382	
4702	124.99	CO	122.25	900			CO	30.08322	1 in 0
4702	124.99	CO	122.25	900			CO	30.08322	1 in 0
5704		CO		225			VC	5.833005	
6703	144.1	CO	141.52	300			VC	33.24154	
7004		CO		150			VC	5.893934	
8605	155.13	SW	153.49	225			VC	41.15298	
9513		CO		150			VC	11.15201	
9902	172.24	CO	169.66	300			VC	8.062258	1 in 35
6813		CO		100			VC	8.232013	
5804	133.24	CO	130.96	300			VC	41.01219	1 in 16
6603	145.92	CO	143.44	300			VC	2	1 in 2
7803	154.21	CO	150.89	450			VC	65.06919	1 in 16
6801	149.42	CO	147.92	225			VC	31.01612	1 in 38
6504	145.19	CO	142.84	225			VC	19.64688	1 in 116
6504	145.19	CO	142.84	225			VC	19.64688	1 in 116
6705	150.63	CO	146.92	750			CO	26.01922	
6505	145.64	CO	143.24	225			VC	10.04988	1 in 25
6505	145.64	CO	143.24	225			VC	10.04988	1 in 25
8702	160.81	CO	157.54	500			CO	34.0147	1 in 56
6010		CO		150			VC	45.54116	
9904		SW		150				35.01428	
9804	171.45	CO	168.25	450			VC	78.85429	1 in 12
8902	165.28	CO	163.93	300			VC	40.04997	1 in 87
7407		CO		150			VC	5.344016	
7407		CO		150			VC	5.344016	
6905		CO		100			VC	23.03594	
6807	149.06	CO	146.24	450			VC	58.13777	
8705	159.95	CO	156.93	500			CO	97.32934	
7701	154.41	CO	152.51	300			VC	65.06919	1 in 15
8001	161.62	SW	160.58	150			VC	111.4495	1 in 248
6803	144.36	CO	142.22	400			VC	27.16615	
8801	165.13	CO	163.46	300			VC	40.11234	1 in 41
6014		CO		150			VC	21.75007	
8602	160.06	CO	157.74	300			VC	20.39608	1 in 136
9802	170.93	CO	168.93	300			VC	49.36598	1 in 85
6601	140.51	CO	138.32	300			VC	121.2023	1 in 16
9506		CO		150			VC	2.3465	
9506		CO		150			VC	2.3465	
5705		CO		225			VC	12.87769	
0902		CO	0	150			CO	51.93959	
6702	146.87	CO	144.88	225			VC	28	1 in 18
5706		CO		225			VC	10.93215	
6002		CO		150			VC	17.67035	
7802	157.8	CO	154.45	300			VC	57.03508	1 in 19
6701	150.1	CO	148.3	300			VC	14.14214	1 in 13
5802	139.12	CO	135.27	225			VC	15.13275	1 in 41
7003		CO		150			VC	19.35801	
8804	158.06	CO	154.94	450			VC	66.06815	1 in 19
9803	176.07	CO	0	225			VC	26.4764	
6911		CO		225			VC	4.444551	
9907		CO		225			VC	49.64421	
9901		CO	0	300			VC	45.81722	
5803	130.96	CO	128.41	600			CO	68	1 in 16
5803	130.96	CO	128.41	600			CO	68	1 in 16
8501	160.48	CO	158.12	225			VC	18.24829	1 in 70
0701		CO	0	150			VC	26.07681	
6502	145.86	CO	142.37	225			VC	34.0147	1 in 32
6802	143.05	CO	141.55	225			VC	33.13608	1 in 8
8505	160.3	CO	158.4	225			VC	55.08176	1 in 197
8505	160.3	CO	158.4	225			VC	55.08176	1 in 197
9001		CO	0	300			VC	78.29053	
7602	151.41	CO	147.81	750			CO	47.29694	1 in 86
6804	147.49	CO	143.79	300			VC	31.06445	1 in 19
8901	165.32	CO	164.12	225			VC	5.09902	1 in 57
8802	165.08	CO	162.47	300			VC	31.01612	1 in 48
6805	149.28	CO	147.14	375			VC	29.01724	1 in 38
7710		CO		100			VC	5.21034	
4701	124.87	CO	121.9	1000			CO	12.72792	
8601	160.48	CO	157.58	300			CO	18.02776	1 in 90
7501	146.76	CO	143.73	225			VC	22.62742	1 in 45
7501	146.76	CO	143.73	225			VC	22.62742	1 in 45
0906		CO		150			VC	2.966682	
6722		CO		150			VC	4.662682	
0802		CO	0	225			VC	23.02173	
9905	172.13	CO	169.29	300			VC	32.38827	1 in 90
8701	163.38	CO	161.12	500			CO	48	1 in 13
6704	146.86	CO	144.68	300			VC	47.80167	1 in 17
7906		CO		100			VC	8.353653	
7903		CO	0				VC	6.013857	
6910		CO		150			VC	10.74578	
7703	152.17	CO	147.26	750			CO	42.42641	1 in 129
0702		CO	0	150			VC	16.12452	
8603	160.44	CO	158.65	225			VC	3	1 in 3
5801	135.62	CO	132.3	225			VC	29.68164	1 in 9
7800	151.37	CO	0	300			VC	38.11824	
6713		CO		150			VC	14.51412	
6806	142.36	CO	0	450			VC	45.27692	
7406		CO		150			VC	5.988619	
7406		CO		150			VC	5.988619	
7612		CO	0	750			CO	63.3877	
5806		SW		450				90.46242	
6501	143.38	CO	141.32	225			VC	40.31129	
6904		SW		450			MAC	103.1213	
7801	153.79	CO	151.28	300			VC	30.01666	
8803	164.45	CO	161.72	450			VC	15.13275	1 in 49
7905		CO		100			VC	16.74927	
6706	150.79	CO	147.27	225			VC	55.57877	1 in 23
7605		CO	0	300			VC	63.07139	
6602	145.89	CO	140.91	300			VC	90.44335	1 in 35
0801		CO	0	225			VC	38.83298	
7401		SW		150			PVC	48.35646	
7401		SW		150			PVC	48.35646	
9909		CO		100			VC	11.27305	
7402		SW		100			VC	3.610298	
7402		SW		100			VC	3.610298	
9816		CO		100			VC	5.222969	
5707		CO		225			VC	9.498874	

Refno	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad

LEGEND

Abandoned | Foul | Surface Water | Combined

- Public Sewer
- Private Sewer
- Section 104
- Rising Main
- Sludge Main
- Overflow
- Water Course
- Highway Drain

All point assets follow the standard colour convention:
red - combined, blue - surface water, brown - foul, purple - overflow

- Manhole
- Head of System
- Extent of Survey
- Rodding 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
- Ww Treatment Works
- Ww Pumping Station
- Septic Tank
- Control Kiosk
- Change of Characteristic

MANHOLE FUNCTION

- FO Foul
- SW Surface Water
- CO Combined
- OV Overflow

SEWER SHAPE

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

SEWER MATERIAL

- AC Asbestos Cement
- BR Brick
- PE Polyethylene
- RP Reinforced Plastic Matrix
- CO Concrete
- CSB Concrete Segment Bolted
- CSU Concrete Segment Unbolted
- CC Concrete Box Culverted
- PSC Plastic / Steel Composite
- GRC Glass Reinforecd 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

Address or Site Reference:

Holcombe Mill,

OS sheet Number: SD7916NE
Scale: 1:1250 **Date:** 24/05/2019
Nodes: 127
Sheet: 3 of 4

Printed by: Property Searches

SEWER RECORDS

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The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. United Utilities Water will not accept liability for any loss or damage caused by the actual position being different from those shown.

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Refno	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad
0803	139.28	CO	136.82	225			VC	16.12452	
2701	127.11	CO	122.43	900			CO	81.00617	1 in 245
2901	126.5	CO	123.42	450			VC	24.33105	1 in 487
0002	138.41	CO	137.19	225			VC	46.2277	1 in 7
4804	127.4	CO	122.85	750			CO	15.0333	1 in 72
4602	124.64	CO	121.75	1000			CO	124.6796	1 in 277
4602	124.64	CO	121.75	1000			CO	124.6796	1 in 277
2801	128.36	CO	122.84	900			CO	31.01612	
4601		CO	0	1000			CO	8	
4601		CO	0	1000			CO	8	
0901	138.19	CO	136.2	450			VC	13.41641	1 in 4
1902	133.59	CO	131.46	300			VC	25.05993	
1012	129.22	CO	126.77	225			VC	24.46871	1 in 63
2802	129.22	FO	127.25	375			VC	18.02776	1 in 37
1009	129.13	CO	126.99	225			VC	8.959467	1 in 64
0703	137.83	CO	135.73	375			VC	26.68333	1 in 9
4801	126.29	CO	122.68	825			CO	32.01562	1 in 1067
2804	128.57	FO	126.42	300			VC	11.40175	
4807	126.94	CO	122.28	300			ST	56.32051	1 in 97
2601	126.53	CO	124.8	150			VC	2	1 in 20
4953	125.66	SW	123.88	525			CO	4	
0903		CO	0	450			CO	35.77709	
3002	126.33	CO	124.68	225			VC	44.01136	1 in 191
3501	123.92	CO	120.86	1200			CO	127.4402	1 in 1593
4851	126.19	SW	123.49	750			CO	46.09772	
0506	135.42	SW	133.37	750			RPM	8.602325	1 in 19
0951	135.43	SW	134.28	150			VC	3.162278	
2852	127.9	SW	125.65	225			VC	11.18034	
4001	126.12	CO	124.19	600			VC	27.07397	
4901	125.66	CO	123.34	750			CO	54.00926	1 in 146
0515		CO	0	300			VC	24.72511	
0515		CO	0	300			VC	24.72511	
0001		CO	0	300			VC	109.9172	
0752	132.33	SW	131.45	225			VC	27.07397	1 in 104
5803	130.96	CO	128.41	600			CO	68	1 in 16
5803	130.96	CO	128.41	600			CO	68	1 in 16
1905	132.5	CO	129.93	450			CO	66.12866	1 in 20
2602	126.64	CO	122.06	900			CO	31.06445	
1506		CO	0				VC	5.433882	
1506		CO	0				VC	5.433882	
9906		CO	0				VC	4.560554	
0003		CO	0	150			VC	30.19428	
2502	126.46	CO	121.96	1000			CO	7.615773	1 in 32
1709		CO	125.96	375			VC	4.10278	1 in 9
0902	132.51	CO	129.94	560			BR	38.32754	
1907		SW		225			VC	20.24339	
2902	125.91	CO	123.16	900			CO	77.3575	1 in 455
1007	127.38	CO	125.98	300			VC	16.95098	
4951		SW	0	375			VC	34.23449	
1601	132.21	FO	130.15	225			VC	40.49691	1 in 49
1701	132.24	CO	129.9	600			BR	24.18677	1 in 35
2002	126.28	CO	124.94	375			VC	31.257	
1052		CO	0	300			VC	37.66256	
0603		CO		225			VC	8.764597	
5806		SW		450				90.46242	
0601	146.19	CO	142.94	450			VC	120.1871	1 in 22
1010	129.1	CO	126.84	225			VC	17.96289	1 in 257
4952	125.86	SW	0	375			VC	23.08679	
0805	138.69	CO	0	225			VC	15.0333	
2961	125.83	CO	123.52	225			VC	4	
4805	127.63	CO	122.64	1000			CO	4.123106	1 in 69
0653	132.2	SW	130.92	225			VC	43.28972	1 in 160
4806	127.63	CO	122.58	1000			CO	9.486833	1 in 68
3001	125.61	CO	123.94	300			CO	24.18677	1 in 46
1554	132.71	SW	129.86	600			CO	40.80441	1 in 23
1554	132.71	SW	129.86	600			CO	40.80441	1 in 23
2003	125.52	CO	123.41	900			CO	54.97115	
0806	138.61	CO	135.31	450			VC	36.01389	1 in 78
0702	141.08	CO	137.43	450			VC	56.02105	1 in 45
4954	125.8	SW	124.45	450			VC	21.2132	1 in 37
0914		CO		100			VC	4.581688	
4702	124.99	CO	122.25	900			CO	30.08322	1 in 0
4702	124.99	CO	122.25	900			CO	30.08322	1 in 0
0509	135.32	CO	0	300			VC	27.07397	
0509	135.32	CO	0	300			VC	27.07397	
0904	139.13	CO	0	225			VC	48.04165	
9604	147.21	CO	144.25	375			VC	18.38478	1 in 29
4003	126.37	CO	123.71	750			CO	74.02702	1 in 206
2803	128.34	CO	122.96	900			CO	24.18677	
0501	138.31	CO	136.98	300			VC	101	1 in 133
5804	133.24	CO	130.96	300			VC	41.01219	1 in 16
2004	127.21	CO	0	375			VC	19.10497	
4803		CO	0	150			VC	41.4367	
0516		CO		150			VC	8.000196	
0516		CO		150			VC	8.000196	
1551	133.5	SW	130.65	225			VC	39.11557	1 in 87
1752	127.84	SW	126.54	300			VC	16.03122	1 in 28
1702	131.54	CO	128.62	670			BR	87.65842	1 in 89
1801	130.55	FO	127.92	375			VC	17.26703	1 in 281
1703	131.77	CO	129.17	600			BR	9.433981	1 in 30
2503	125.94	CO	121.74	1000			CO	117.2295	1 in 189
4807	126.94	CO	122.48	1000			CO	56.80708	1 in 77
0709		CO		100			VC	10.10155	
0508		CO	0	225			VC	45.67829	
0508		CO	0	225			VC	45.67829	
0813		CO	0	300			VC	31.73777	
0517		CO		150			VC	28.8585	
0517		CO		150			VC	28.8585	
1804	129.54	FO	127.39	450			VC	67.35725	1 in 74
9802	142.81	CO	140.9	225			VC	16.03122	1 in 6
1553	133.05	SW	130.2	600			CO	14.03567	1 in 47
1553	133.05	SW	130.2	600			CO	14.03567	1 in 47
1005	126.01	CO	123.6	900			CO	94.04786	1 in 495
0510	134.38	SW	132.47	520			RPM	7.81025	1 in 0
0510	134.38	SW	132.47	520			RPM	7.81025	1 in 0
0652	131.91	SW	131.31	225			VC	21.09502	1 in 54
2952	127.69	SW	126.12	225			VC	38.63936	
3601	124.35	CO	121.25	1000			CO	75.69016	1 in 445
9701	146.45	CO	144.56	300			VC	10.77033	
0512		SW	0	390			RPM	7.071068	
0512		SW	0	390			RPM	7.071068	
0808	133.62	CO	131.22	1000			CO	27.51363	1 in 41
2505	125.68	CO	122.44	225			VC	15.81139	
2811		CO	123.16	900			CO	24.51006	1 in 144
1802	130.21	FO	127.83	375			VC	36.40055	1 in 63
4002	126.1	CO	124.27	600			CO	44.28318	1 in 103
0801	138.21	CO	134.39	700			BR	24.18677	
0905		CO		150			VC	18.64742	
0802	135.93	CO	133.49	1000			CO	64.28841	1 in 28
2851	128.34	SW	127.04	0				102.5834	
4701	124.87	CO	121.9	1000			CO	12.72792	
1751	130.6	SW	128.09	300			VC	35.69314	1 in 23
1903	134.56	CO	132.13	300			VC	22.82542	1 in 34
1552	133.06	SW	131.46	600			CO	5	1 in 9
1552	133.06	SW	131.46	600			CO	5	1 in 9
0702	141.08	CO	138.36	300			VC	13	1 in 9
1803	130.09	FO		300			VC	18.97367	
0952	135.38	SW	133.67	400			BR	17.46425	
3402	123.3	CO	120.55	1200			CO	32.24903	1 in 461
3402	123.3	CO	120.55	1200			CO	32.24903	1 in 461
0705	138.52	CO	136.22	300			VC	57.00877	1 in 116
1501	133.26	CO	131.01	300			VC	24.08319	1 in 30
1501	133.26	CO	131.01	300			VC	24.08319	1 in 30
5801	135.62	CO	132.3	225			VC	29.68164	1 in 9
4902	125.6	CO	123.5	525			CO	26.1725	1 in 187
0804	139.17	CO	137.09	300			VC	13	
3404	124.22	CO	123.02	1200			CO	8.062258	
3404	124.22	CO	123.02	1200			CO	8.062258	
3401	123.24	CO	0	1200			CO	5.385165	
3401	123.24	CO	0	1200			CO	5.385165	
1651	132.09	SW	131.19	225			VC	34.23449	
1652	132.03	FO	129.95	225			VC	26	
1008	129.59	CO	127.99	300			VC	28.79027	1 in 14
1753	127.29	CO	125.49	375			VC	38.0526	1 in 115
9901	138.96	CO	136.46	375			VC	31.90611	1 in 123
0816		CO		150			VC	5.976882	
4808		CO		100			VC	22.02728	
0815		CO		150			VC	5.646144	
1402	130.58	SW	127.99	600			CO	78.78506	1 in 14
1402	130.58	SW	127.99	600			CO	78.78506	1 in 14
1851	128.87	SW	126.51	375			VC	47.75982	
1904	129.47	CO	127.71	225			VC	41.48494	
2509	126.66	CO	0	825			CO	16.32455	
9601	156.29	CO	153.32	300			VC	23.08679	1 in 7
2823		SW		150			VC	1.964025	
4802	125.39	CO	123.56	225			VC	22.46728	1 in 75
3403	124.23	CO	120.45	1200			CO	129.5264	1 in 463
3403	124.23	CO	120.45	1200			CO	129.5264	1 in 463
1401	130.19	SW	128.31	225			VC	62.32987	1 in 12
1401	130.19	SW	128.31	225			VC	62.32987	1 in 12
1901	127.79	CO	123.84	375			VC	23.37756	
2820		CO		375			VC	9.675877	
2504	126.27	CO	125.29	225			VC	15.25434	

Refno	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad

LEGEND

Abandoned | Foul | Surface Water | Combined

- Public Sewer
- Private Sewer
- Section 104
- Rising Main
- Sludge Main
- Overflow
- Water Course
- Highway Drain

All point assets follow the standard colour convention:
red - combined, blue - surface water, brown - foul, purple - overflow

- Manhole
- Head of System
- Extent of Survey
- Rodding 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
- Ww Treatment Works
- Ww Pumping Station
- Septic Tank
- Control Kiosk
- Change of Characteristic

MANHOLE FUNCTION

- FO Foul
- SW Surface Water
- CO Combined
- OV Overflow

SEWER SHAPE

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

SEWER MATERIAL

- AC Asbestos Cement
- BR Brick
- PE Polyethylene
- RP Reinforced Plastic Matrix
- CO Concrete
- CSB Concrete Segment Bolted
- CSU Concrete Segment Unbolted
- CC Concrete Box Culverted
- PSC Plastic / Steel Composite
- GRC Glass Reinforecd 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

Address or Site Reference:

Holcombe Mill,

OS sheet Number: SD7916NW

Scale: 1:1250 **Date:** 24/05/2019

Nodes: 163

Sheet: 4 of 4

Printed by: Property Searches

SEWER RECORDS

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APPENDIX H

Combined Sewer Investigation

Mondi Mill – On Site Combined Sewer Investigation – October 2021

Survey carried out to identify the existing UU public combined sewer and confirm existing connections to it from the site.

Sewer Record Extract

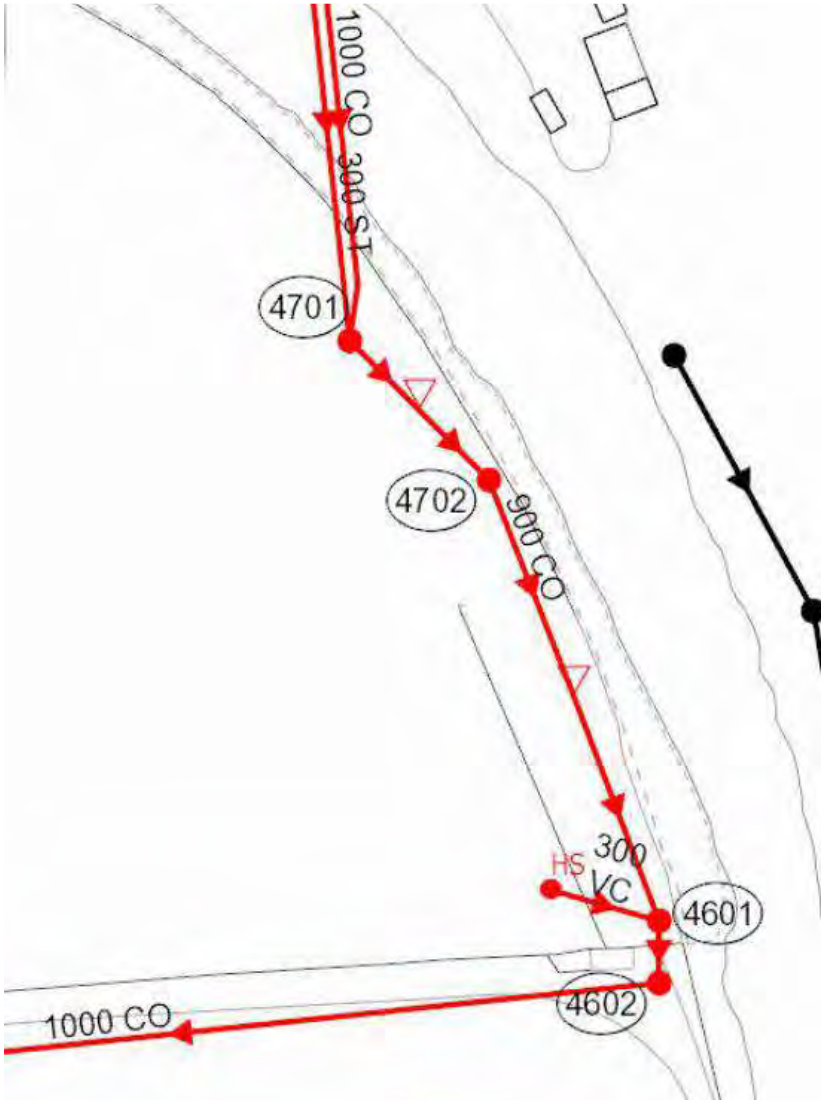


Photo of MH 4601 – located in southeast corner of site adjacent the boundary with Cricket Club and river.

Photo of MH 4601 – showing 900 dia through channel flowing right to left and 300mm dia combined connection from site.

Photo taken from MH 4601 into site towards MH labelled as HS on sewer records.

Photo taken from HS (actual MH) towards MH 4601 (top centre) showing evidence of 225mm dia plastic SW pipe connection and then 300mm dia combined pipe towards sewer.

Photo of MH 4702 looking downstream

Photo of MH 4702 with evidence of 150mm dia plastic pipe former site connection on far side of channel. Flow going right to left.

Photo of MH 4701 flows from top to bottom. Mh located within concrete slab area, flow from top to bottom.

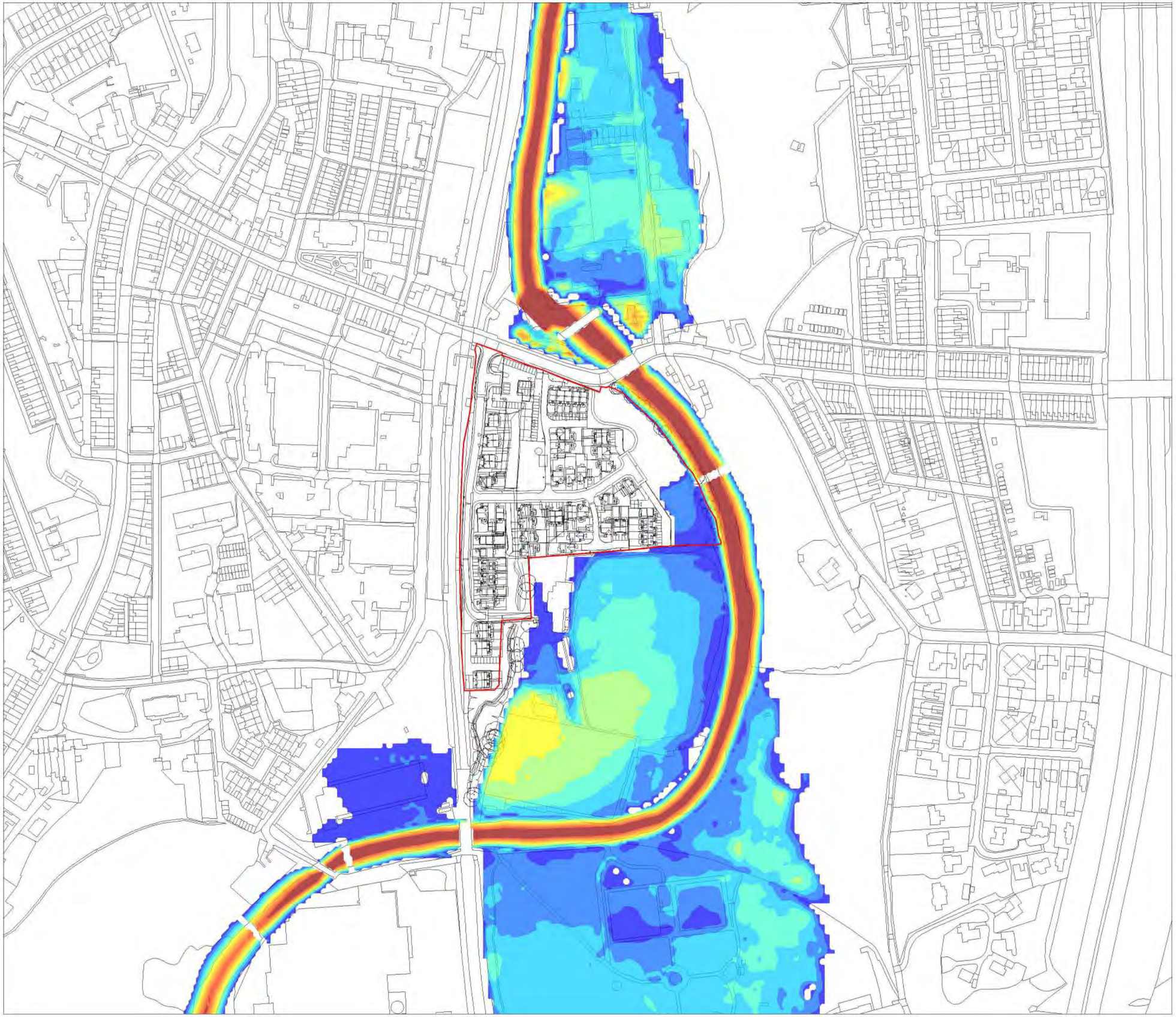
Summary

The findings of the investigation confirmed that the sewer records for the sewers running through the site are correct. In addition to the existing 300mm dia combined sewer connection from the site from MH ref HS to MH ref 4601, another 150mm dia connection from the site to MH 4702 was identified.

The existing connection reference HS to MH 4601 will be maintained and used to drain foul only drainage for the majority of the new development. This will take the form of a new 150mm dia FW pipe and new MH on the existing 300mm dia sewer. Foul drainage from the south west of the development will connect to the combined sewer network further downstream near to the existing cricket club access, with another 150mm dia foul connection.

APPENDIX I

Model Output Plots – Proposed Scenario



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KEY:

Site Location

Depth (metres)

- 0.00 to 0.25
- 0.25 to 0.50
- 0.50 to 0.75
- 0.75 to 1.00
- 1.00 to 1.25
- 1.25 to 1.50
- 1.50 to 1.75
- 1.75 to 2.00
- 2.00 to 2.25
- 2.25 to 2.50
- > 2.50

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Client:
Eccleston Homes

Project Title:
Holcombe Mill, Ramsbottom

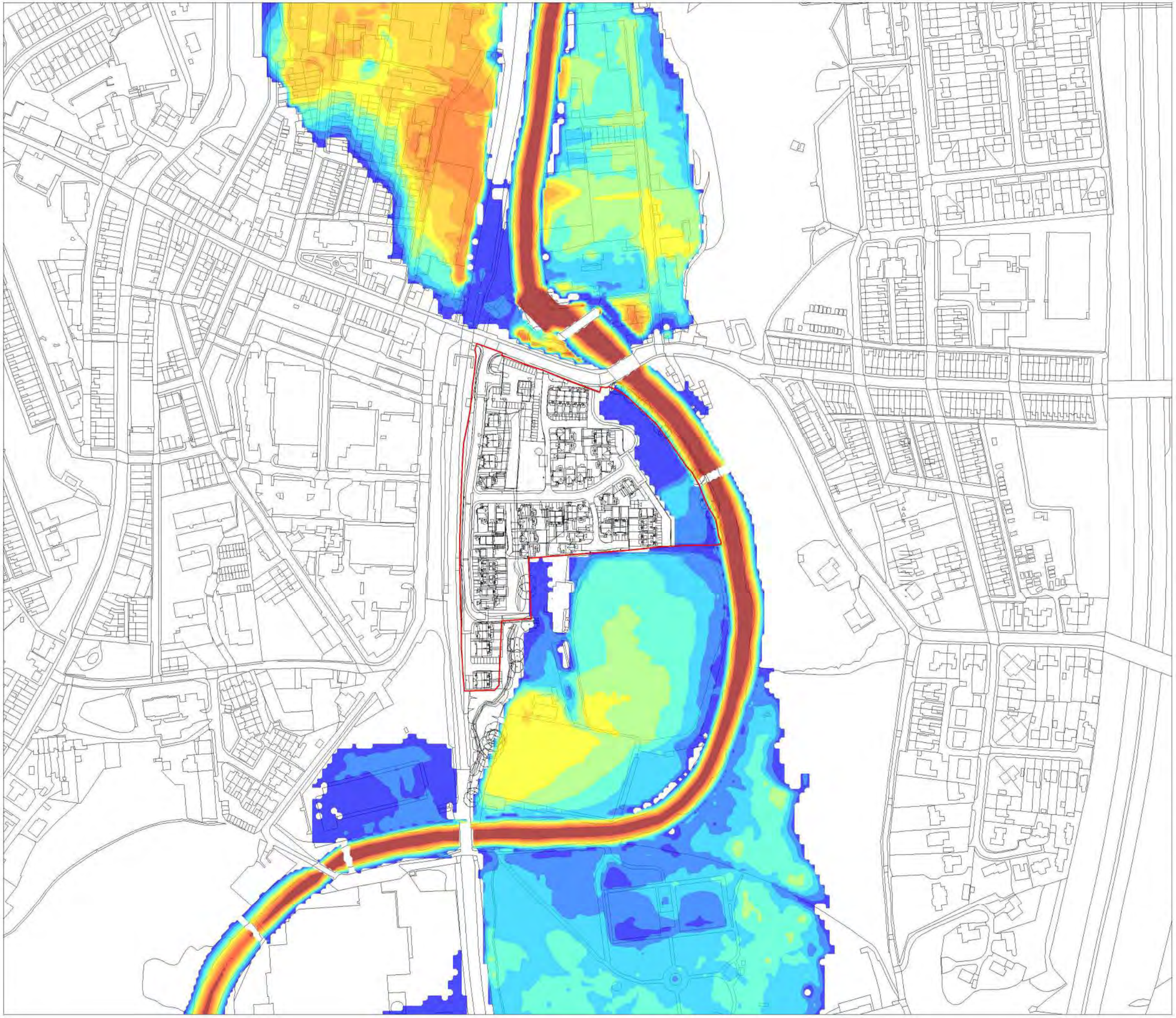
Drawing Title:
Proposed Scenario
3.3% AEP Event

Map Orientation: N W E S

Scale: 0 30 60 metres

Drawn:	Checked:	Date:
JA	KT	20 October 2023

Drawing No:	Rev:
4714_055_Q0030_d	A



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KEY:

Site Location

Depth (metres)

- 0.00 to 0.25
- 0.25 to 0.50
- 0.50 to 0.75
- 0.75 to 1.00
- 1.00 to 1.25
- 1.25 to 1.50
- 1.50 to 1.75
- 1.75 to 2.00
- 2.00 to 2.25
- 2.25 to 2.50
- > 2.50

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Client:
Eccleston Homes

Project Title:
Holcombe Mill, Ramsbottom

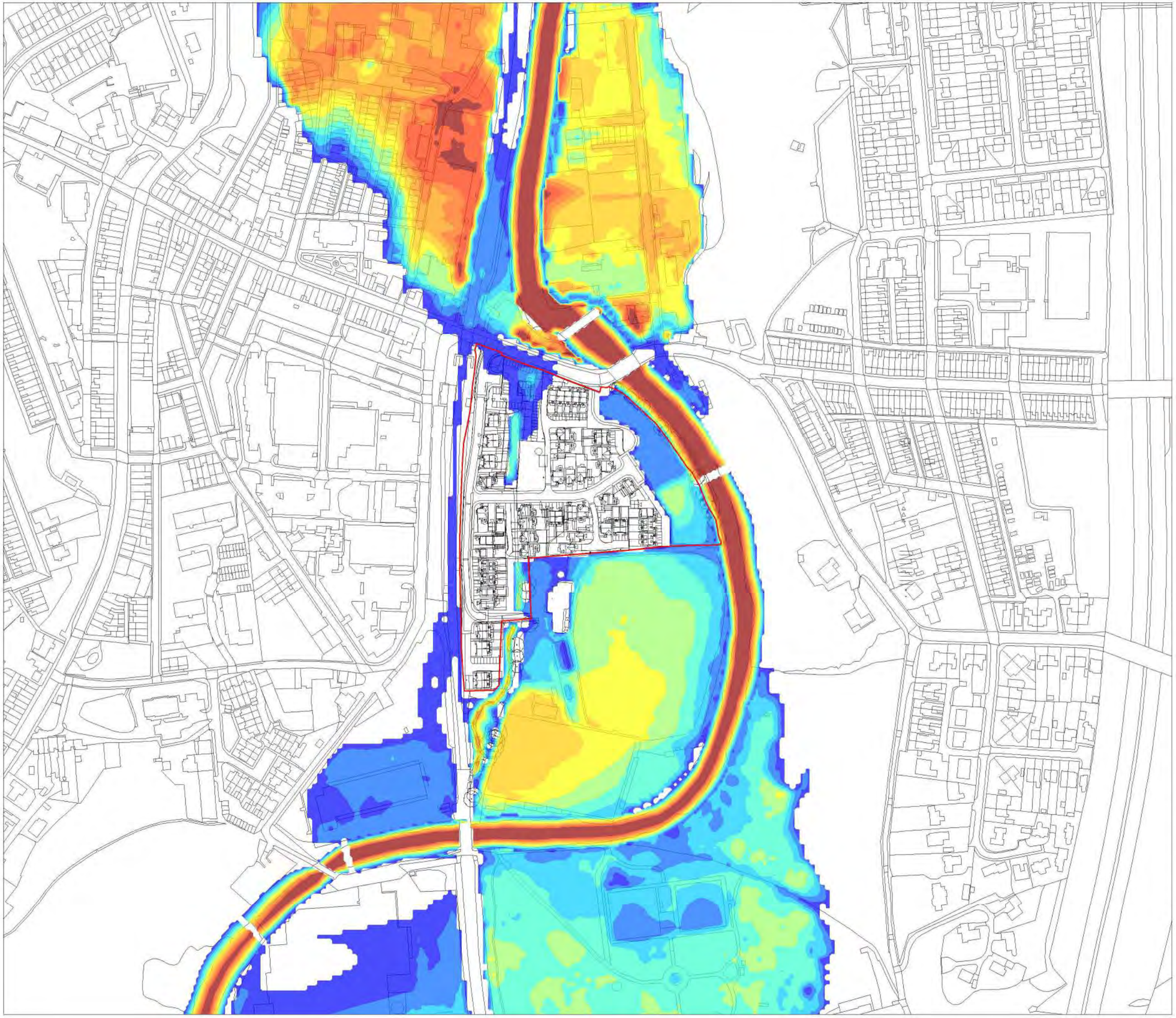
Drawing Title:
Proposed Scenario
1.0% AEP Event

Map Orientation: N W E S

Scale: 0 30 60 metres

Drawn:	Checked:	Date:
JA	KT	20 October 2023

Drawing No:	Rev:
4714_055_Q0100_d	A



Notes:

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KEY:

Site Location

Depth (metres)

- 0.00 to 0.25
- 0.25 to 0.50
- 0.50 to 0.75
- 0.75 to 1.00
- 1.00 to 1.25
- 1.25 to 1.50
- 1.50 to 1.75
- 1.75 to 2.00
- 2.00 to 2.25
- 2.25 to 2.50
- > 2.50

Weetwood
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CH7 1FQ

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Email: info@weetwood.net

Client:
Eccleston Homes

Project Title:
Holcombe Mill, Ramsbottom

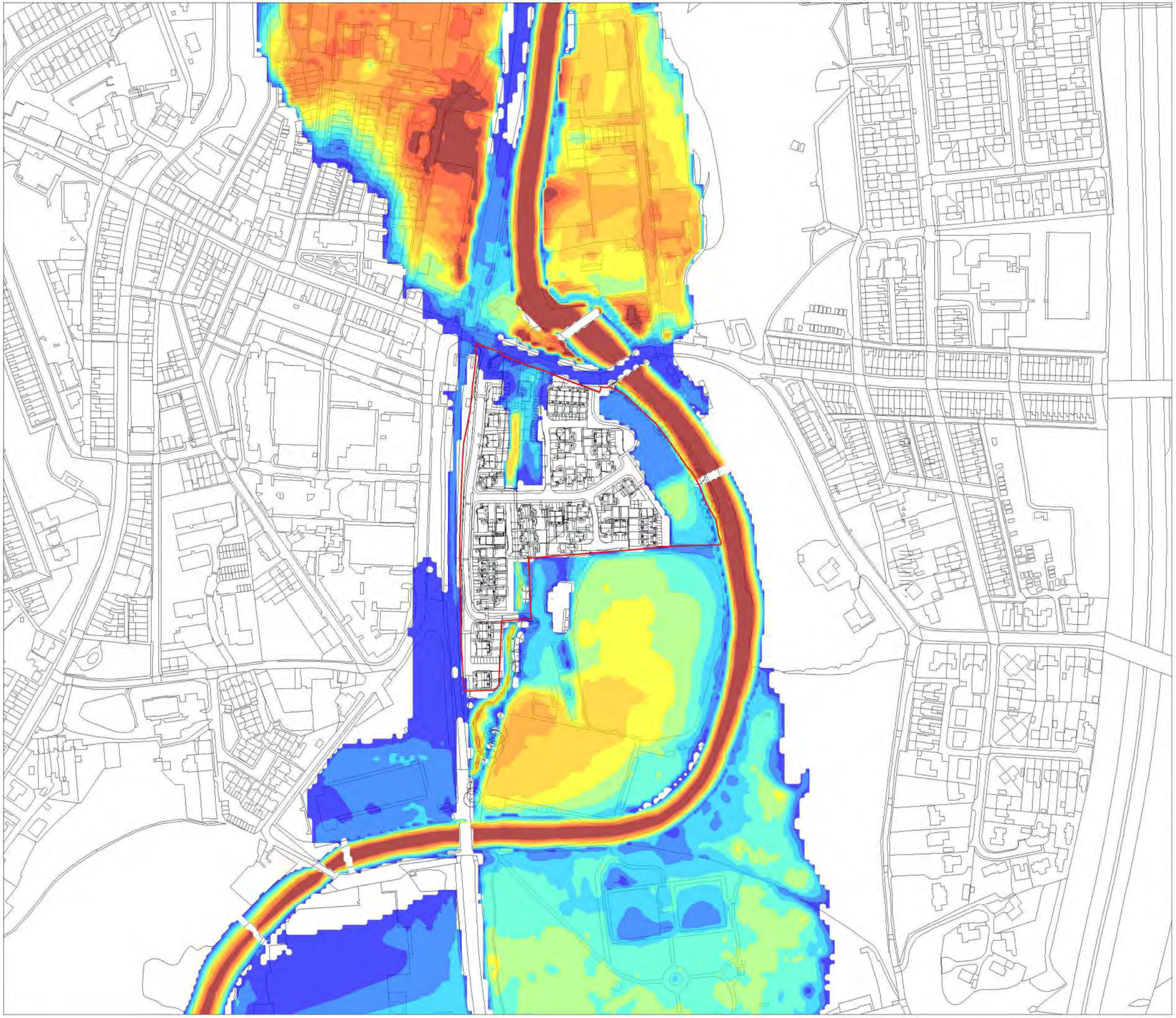
Drawing Title:
Proposed Scenario
1.0% AEP (+35%) Event

Map Orientation: N W E S

Scale: 0 30 60 metres

Drawn:	Checked:	Date:
JA	KT	20 October 2023

Drawing No:	Rev:
4714_055_Q0100_CC35_d	A



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KEY:

Site Location

Depth (metres)

- 0.00 to 0.25
- 0.25 to 0.50
- 0.50 to 0.75
- 0.75 to 1.00
- 1.00 to 1.25
- 1.25 to 1.50
- 1.50 to 1.75
- 1.75 to 2.00
- 2.00 to 2.25
- 2.25 to 2.50
- > 2.50

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Tel: 01352 700045
Email: info@weetwood.net

Client:
Eccleston Homes

Project Title:
Holcombe Mill, Ramsbottom

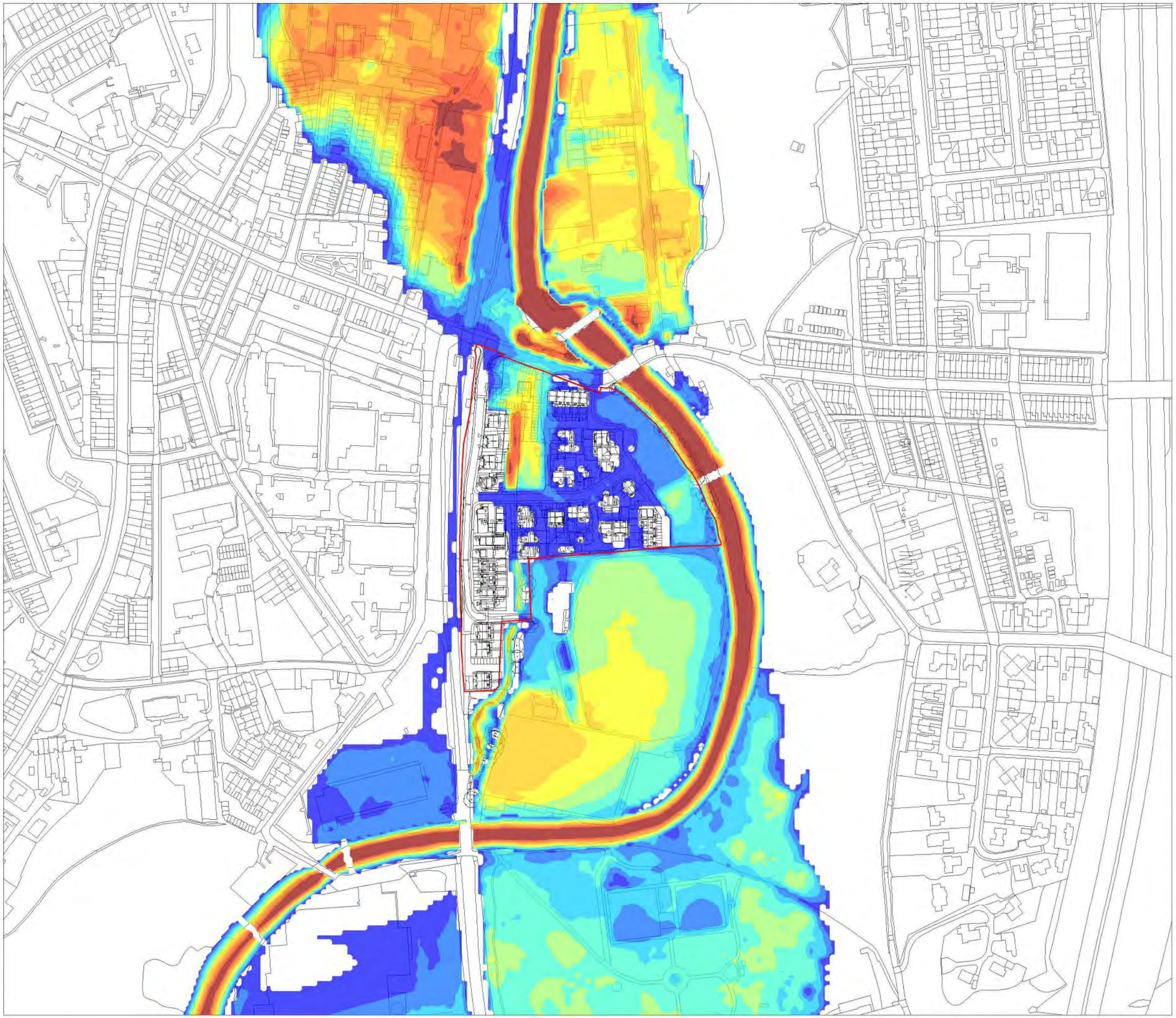
Drawing Title:
Proposed Scenario
0.1% AEP Event

Map Orientation: N W E S

Scale: 0 30 60 metres

Drawn:	Checked:	Date:
JA	KT	20 October 2023

Drawing No:	Rev:
4714_055_Q1000_d	A



Notes:

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KEY:

Site Location

Depth (metres)

- 0.00 to 0.25
- 0.25 to 0.50
- 0.50 to 0.75
- 0.75 to 1.00
- 1.00 to 1.25
- 1.25 to 1.50
- 1.50 to 1.75
- 1.75 to 2.00
- 2.00 to 2.25
- 2.25 to 2.50
- > 2.50

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Client:
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Project Title:
Holcombe Mill, Ramsbottom

Drawing Title:
Wall Failure Scenario
1.0% AEP (+35%) Event

Map Orientation: N W E S

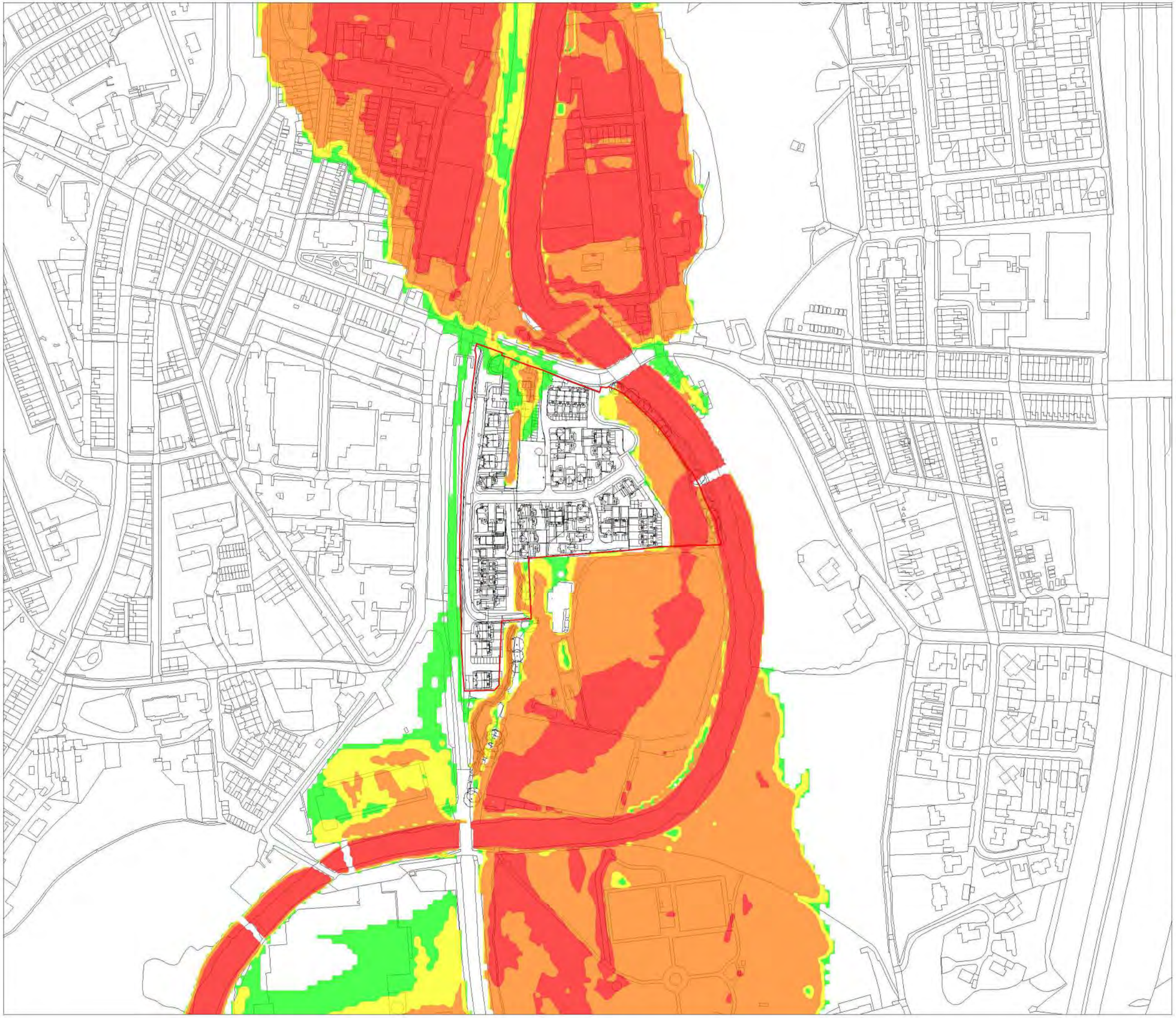
Scale: 0 30 60 metres

Drawn:	Checked:	Date:
JA	KT	20 October 2023

Drawing No:	Rev:
4714_056_Q0100_CC35_d	A

APPENDIX J

Model Output Plots – Flood Hazard Rating



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KEY:

Site Location

Hazard Rating

- No Hazard
- Low Hazard
- Moderate Hazard
- Significant Hazard
- Extreme Hazard

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Client:
Eccleston Homes

Project Title:
Holcombe Mill, Ramsbottom

Drawing Title:
Proposed Flood Hazard
1.0% AEP (+35%) Event

Map Orientation: N W E S

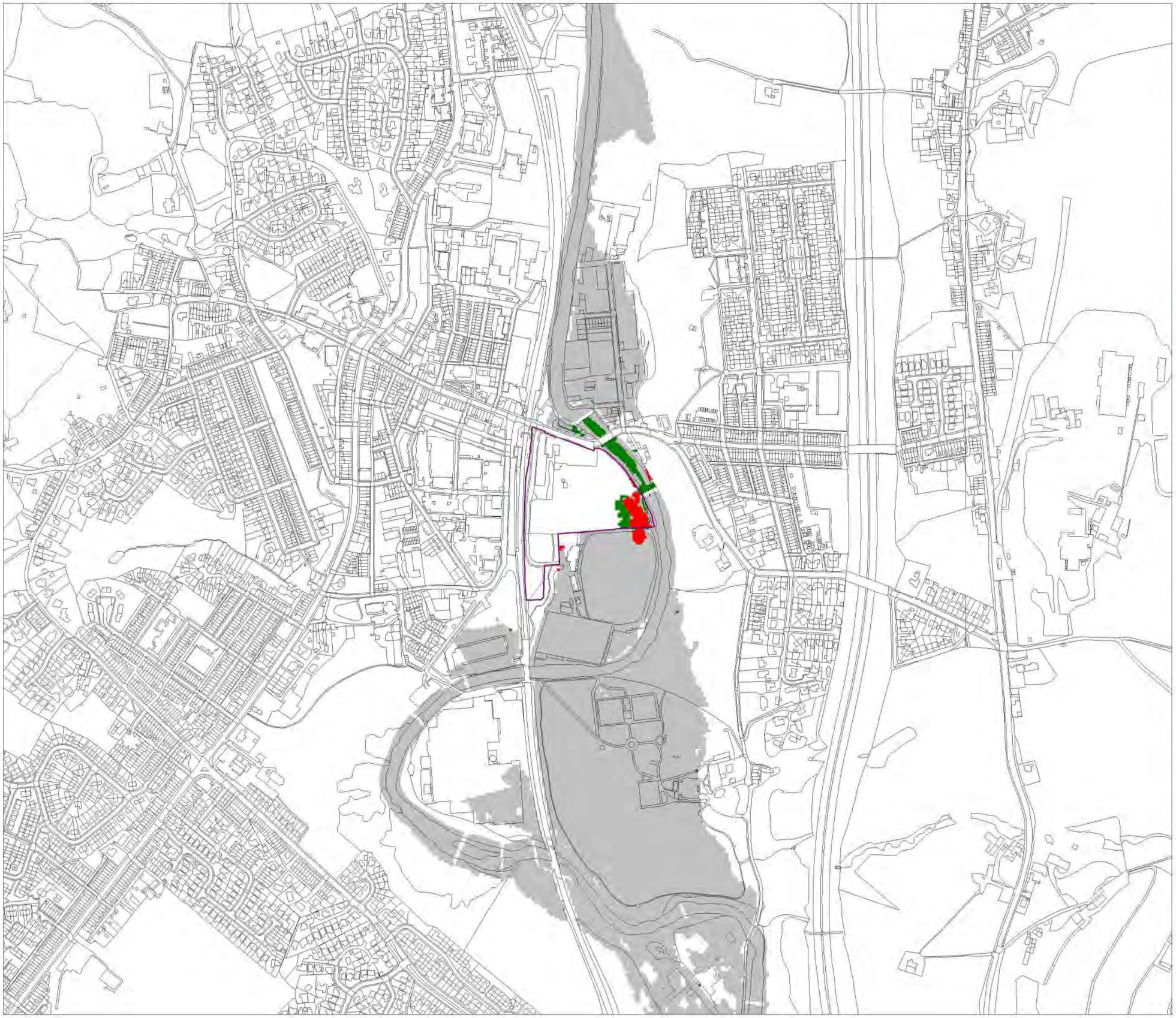
Scale: 0 30 60 metres

Drawn:	Checked:	Date:
JA	KT	20 October 2023

Drawing No:	Rev:
4714_055_Q0100_CC35_ZUK0	A

APPENDIX K

Model Output Plots – Flood Depth Comparison



Notes:

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KEY:

Site Location

Depth (metres)

- Decrease (> 0.03)
- No Change (+/- 0.03)
- Increase (> 0.03)

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Tel: 01352 700045
Email: info@weetwood.net

Client:
Eccleston Homes

Project Title:
Holcombe Mill, Ramsbottom

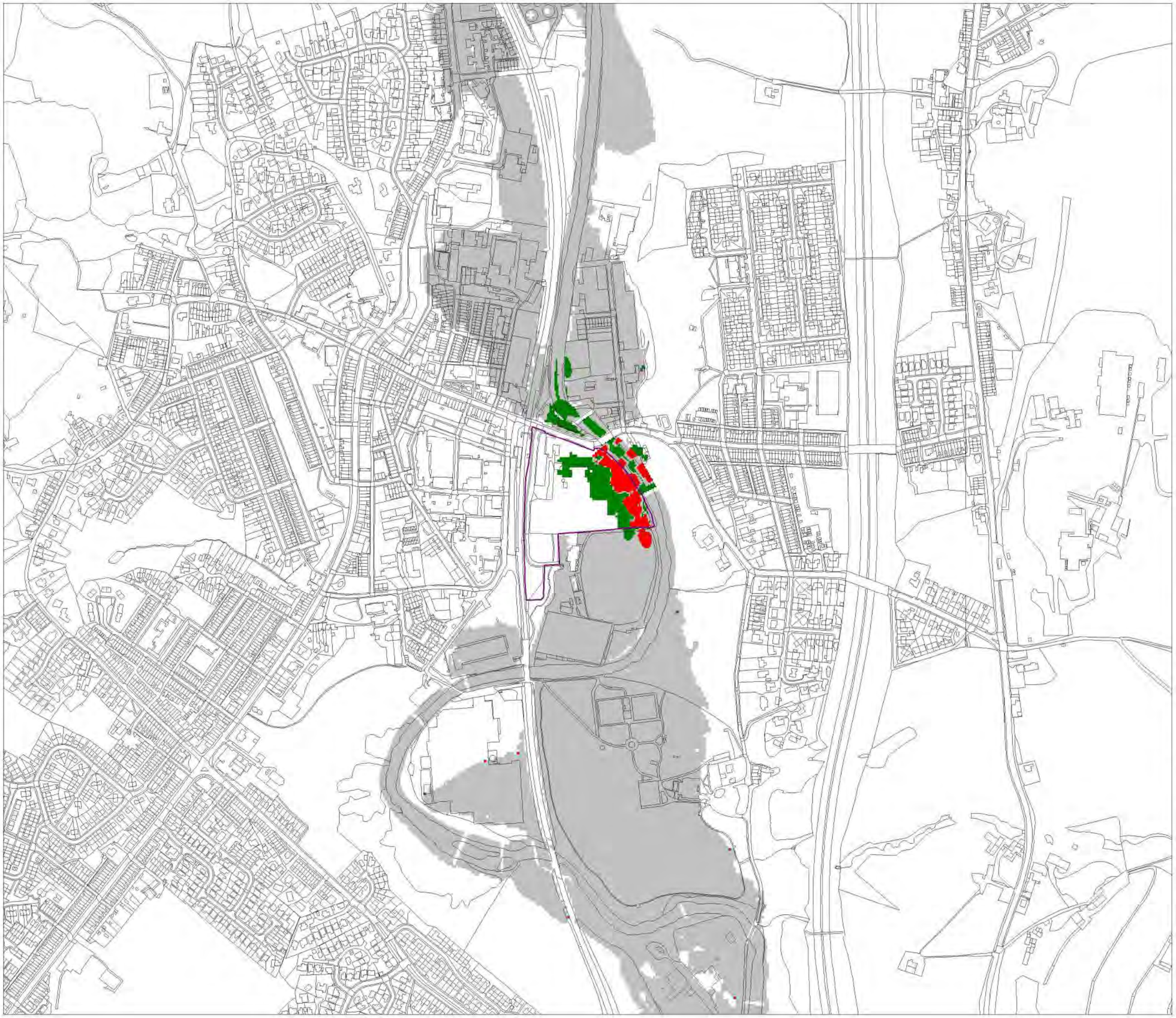
Drawing Title:
Flood Depth Comparison
3.3% AEP Event

Map Orientation: N W E S

Scale: 0 50 100 metres

Drawn:	Checked:	Date:
JA	KT	20 October 2023

Drawing No:	Rev:
4714_055-026_Q0030_d	A



Notes:

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KEY:

Site Location

Depth (metres)

- Decrease (> 0.03)
- No Change (+/- 0.03)
- Increase (> 0.03)

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Email: info@weetwood.net

Client:
Eccleston Homes

Project Title:
Holcombe Mill, Ramsbottom

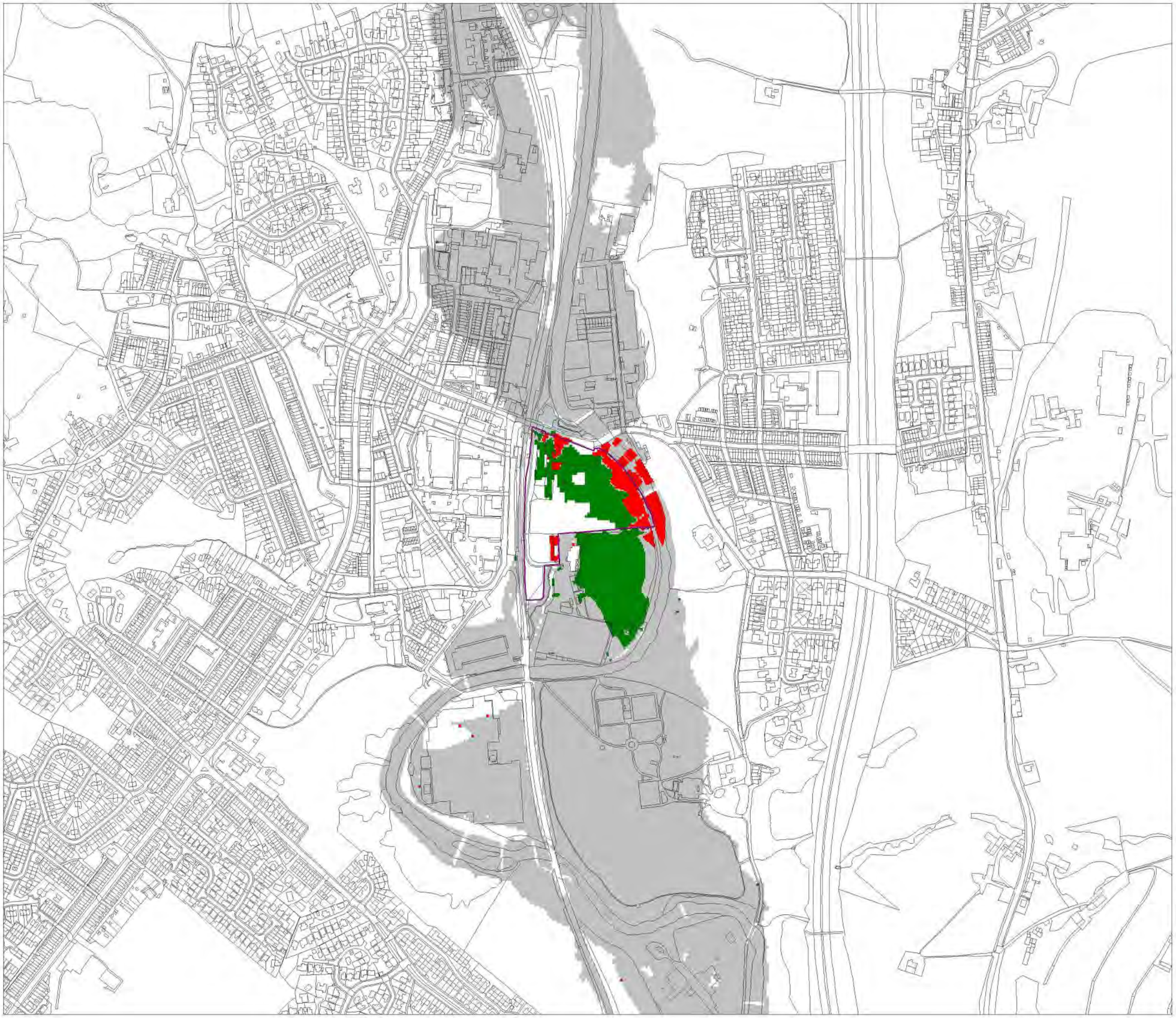
Drawing Title:
Flood Depth Comparison
1.0% AEP Event

Map Orientation: N W E S

Scale: 0 50 100 metres

Drawn:	Checked:	Date:
JA	KT	20 October 2023

Drawing No:	Rev:
4714_055-026_Q0100_d	A



Notes:

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KEY:

Site Location

Depth (metres)

- Decrease (> 0.03)
- No Change (+/- 0.03)
- Increase (> 0.03)

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Client:
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Project Title:
Holcombe Mill, Ramsbottom

Drawing Title:
Flood Depth Comparison
1.0% AEP (+35%) Event

Map Orientation: N W E S

Scale: 0 50 100 metres

Drawn:	Checked:	Date:
JA	KT	20 October 2023

Drawing No:	Rev:
4714_055-026_Q0100_CC35_d	A

APPENDIX L

Model Output Plots – Flood Level Comparison

Notes:

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KEY:

Site Location

Level (metres)

- Decrease (> 0.03)
- No Change (+/- 0.03)
- Increase (> 0.03)

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Client:
Eccleston Homes

Project Title:
Holcombe Mill, Ramsbottom

Drawing Title:
Flood Level Comparison
1.0% AEP (+35%) Event

Map Orientation: N W E S

Scale: 0 10 20 metres

Drawn:	Checked:	Date:
JA	KT	20 October 2023

Drawing No:	Rev:
4714_055-026_Q0100_CC35_h	A

APPENDIX M

United Utilities Correspondence

James Aldridge

From: Williams, Nicola (Customer Area Manager) <Nicola.Williams1@uuplc.co.uk>
Sent: 09 October 2023 14:17
To: Stephen Parker
Cc: Aljafarawi, Mohammed; Kevin Tilford; James Aldridge
Subject: UU Ref 03678503 / 4200040413 Mondi Mill, Ramsbottom

Follow Up Flag: Follow up
Flag Status: Flagged

Dear Stephen,

I write to you as per your request, in relation to the proposed redevelopment of the site at Mondi Mill, Ramsbottom.

Since your original application, we have updated our baseline model for this catchment and have re-run the modelled impact of the proposed development. I am aware that the previous model predicted approx. 14m3 of flooding from our combined sewer at the point of connection and our comments at the planning stage, at that time, reflected these findings.

As you are aware, United Utilities do not supply full investigation reports to third parties due to the nature of the information contained within, however, since the data has been re-run on the updated model, we have found the following:-

- There is no threat of flooding to the new properties given the respective model predicted Top Water Levels (TWL) in the new foul sewers and the FFL of the properties within the development site, &
- RPA analysis indicates no deterioration to the flood risk of any nodes / manholes that are hydraulically connected to the development flow conveyance sewers

Consequently, we believe that there is no longer a cause for concern from our perspective, and based on this new information, we no longer consider this to be a problem.

I hope this helps, but if you need anything further on this, please do get in touch.

Kind regards,

Nic.

Nic Williams
Customer Area Manager (WW North)
Developer Services & Metering
M: 07717 767187
unitedutilities.com

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APPENDIX N

Greenfield Runoff Rates

ICP SUDS Mean Annual Flood

Input

Return Period (years)	2	Soil	0.500
Area (ha)	0.580	Urban	0.000
SAAR (mm)	1276	Region Number	Region 10

Results	**l/s**
QBAR Rural	6.5
QBAR Urban	6.5
Q2 years	6.0
Q1 year	5.6
Q30 years	11.0
Q100 years	13.4

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APPENDIX O

Brownfield Runoff Rates

The following parameters have been obtained from the maps in Volume 3 of the Wallingford Procedure:

M5-60 minute rainfall depth:	20 mm
Ratio of M5-60 to M5-2 day rainfall:	0.3
Average Annual Rainfall:	1276 mm
Winter Rain Acceptance Potential/ Soil Type :	5
The Urban Catchment Wetness Index (UCWI) value:	133.8

A time of concentration of 15 minutes has been used.

A rainfall estimation calculation has been carried out to convert the M5-60 minute rainfall to the 15-minute duration rainfall for the 100%, 50%, 3.3% and 1.0% AEP rainfall events. The calculated rainfall intensities for these events are 28.9, 37.4, 70.7 and 90.9 mm/hr respectively.

The flow rate as given by the Modified Rational Method is:

$Q=2.78 \times C_v \times C_r \times$ rainfall intensity x impermeable area

where:

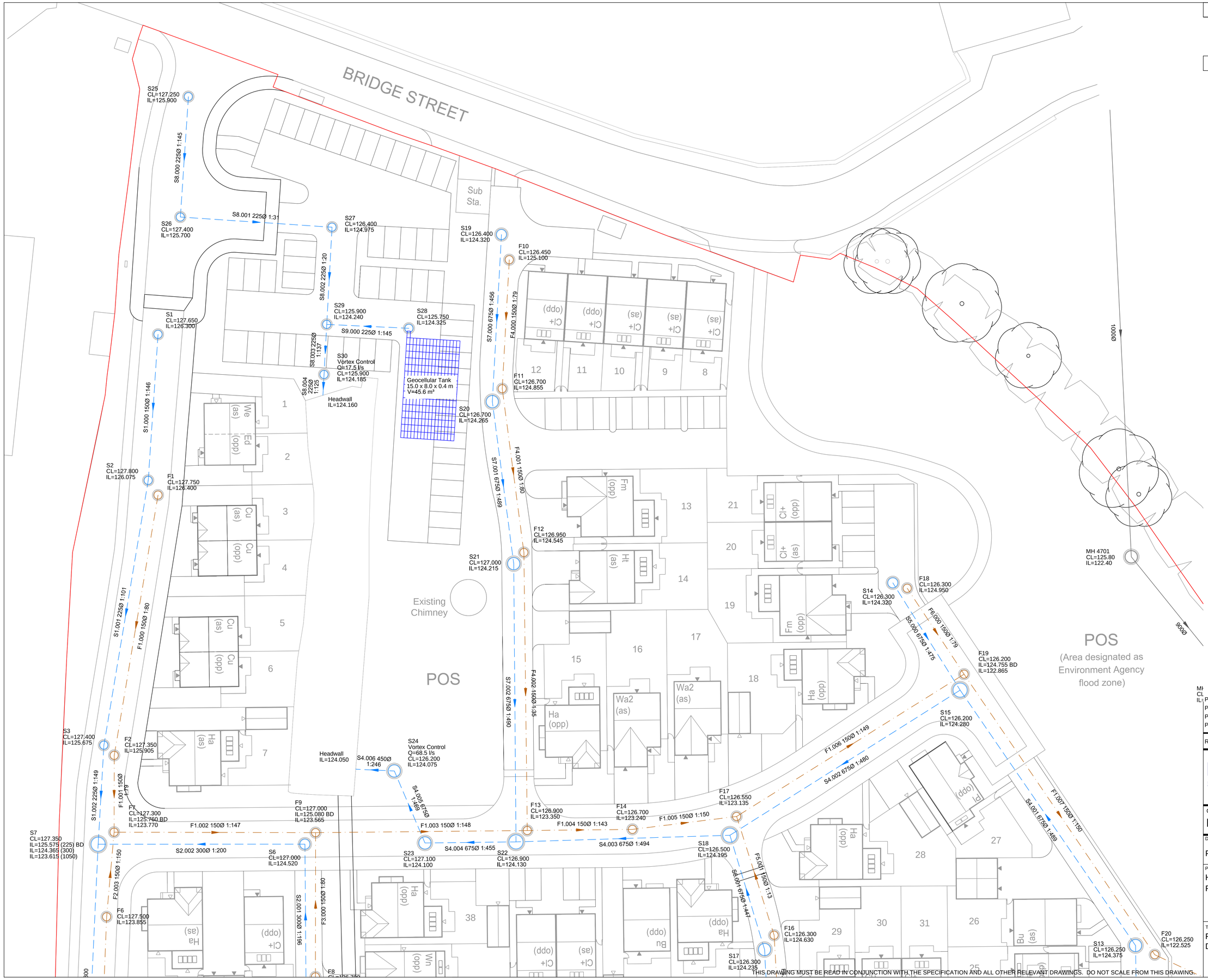
C_v is the volumetric runoff coefficient = P_r/PIMP = 0.86
where P_r is Percentage Runoff and PIMP is Percentage Impermeable Area
C_r is the routing coefficient = 1.3
Impermeable Area = 2.274 ha

The peak discharges of surface runoff from impermeable areas of the existing site are shown in the table below:

Rainfall Event (AEP)	Peak Runoff Rate (l/s)
100%	203.5
50%	263.3
3.3%	497.8
1.0%	640.3

APPENDIX P

Preliminary Drainage Layout



NOTES

1. This drawing to be read in conjunction with all relevant Weetwood drawings.

LEGEND

- Site boundary
- Proposed surface water pipe
- Proposed surface water manhole
- Proposed foul water pipe
- Proposed foul water manhole
- Existing combined water pipe
- Existing combined water manhole

Rev	Date	Description	Drawn	Check
P4	26/10/23	SITE LAYOUT UPDATED	JA	TB
P3	17/01/22	FOUL NETWORK UPDATED	JA	
P2	17/12/21	FOUL NETWORK INCLUDED	JA	TB
P1	06/08/20	INITIAL ISSUE	JA	KT

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Client
ECCLESTON HOMES

Drawing Status
PLANNING

Date
AUG 2020

Scale (A1)
1:250

Project
HOLCOMBE MILL
RAMSBOTTOM

Drawn
JA

Checked
KT

Project No
4714

Title
FOUL AND SURFACE WATER DRAINAGE LAYOUT

Drawing No
C100

Revision
P4

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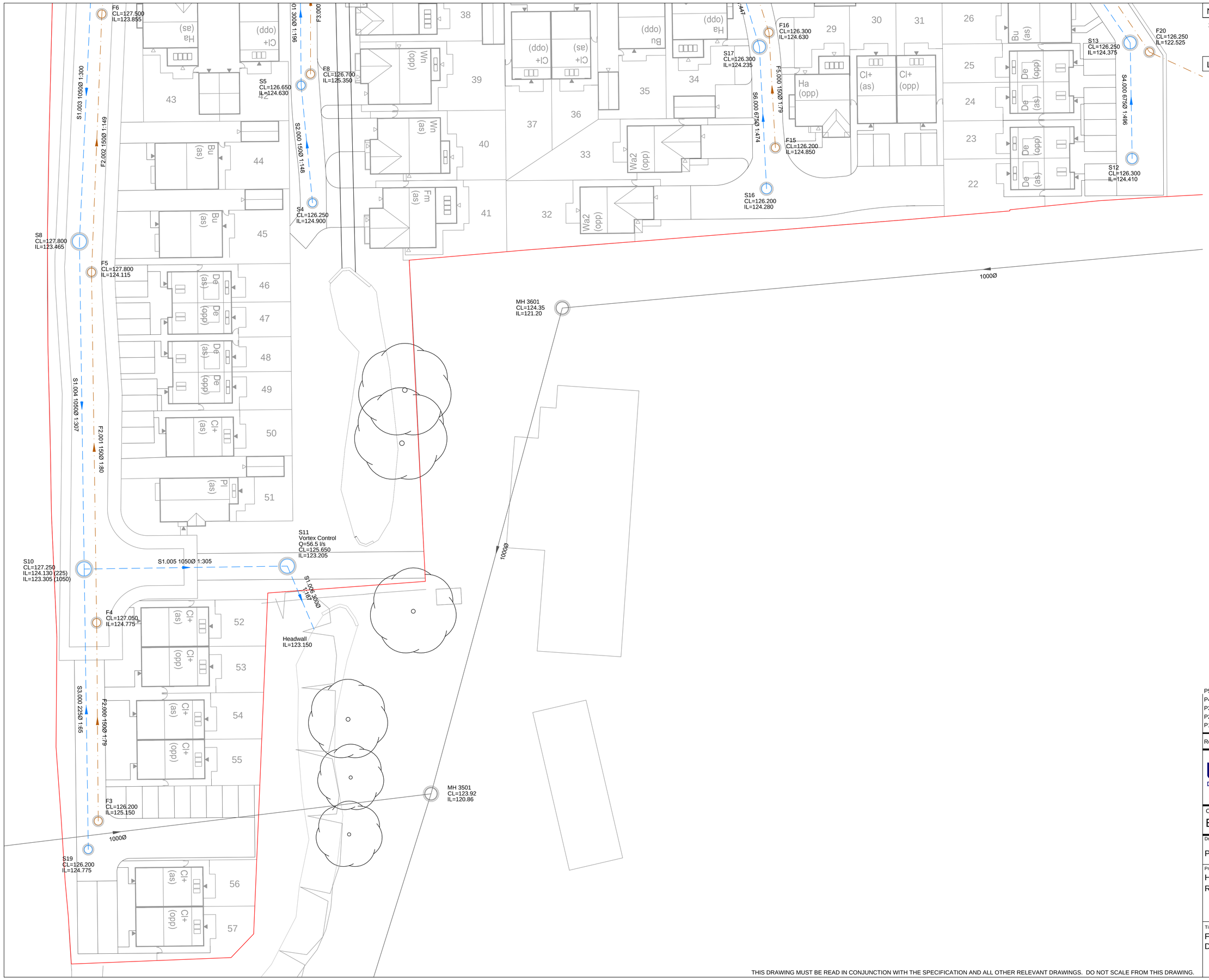

NOTES

1. This drawing to be read in conjunction with all relevant Weetwood drawings.

LEGEND

- Site boundary
- S1.000 150Ø 1:150 — Proposed surface water pipe
- Proposed surface water manhole
- F1.000 150Ø 1:150 — Proposed foul water pipe
- Proposed foul water manhole
- 150Ø — Existing combined water pipe
- Existing combined water manhole

Rev	Date	Description	Drawn	Check
P5	26/10/23	SITE LAYOUT UPDATED	JA	TB
P4	17/01/22	FOUL NETWORK UPDATED	JA	
P3	12/01/22	COVER LEVELS UPDATED	JA	
P2	17/12/21	FOUL NETWORK INCLUDED	JA	TB
P1	06/08/20	INITIAL ISSUE	JA	KT

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Client
ECCLESTON HOMES

Drawing Status
PLANNING

Date
AUG 2020

Scale (A1)
1:250

Project
HOLCOMBE MILL
RAMSBOTTOM

Drawn
JA

Checked
KT

Project No
4714

Title
FOUL AND SURFACE WATER DRAINAGE LAYOUT

Drawing No
C101

Revision
P5

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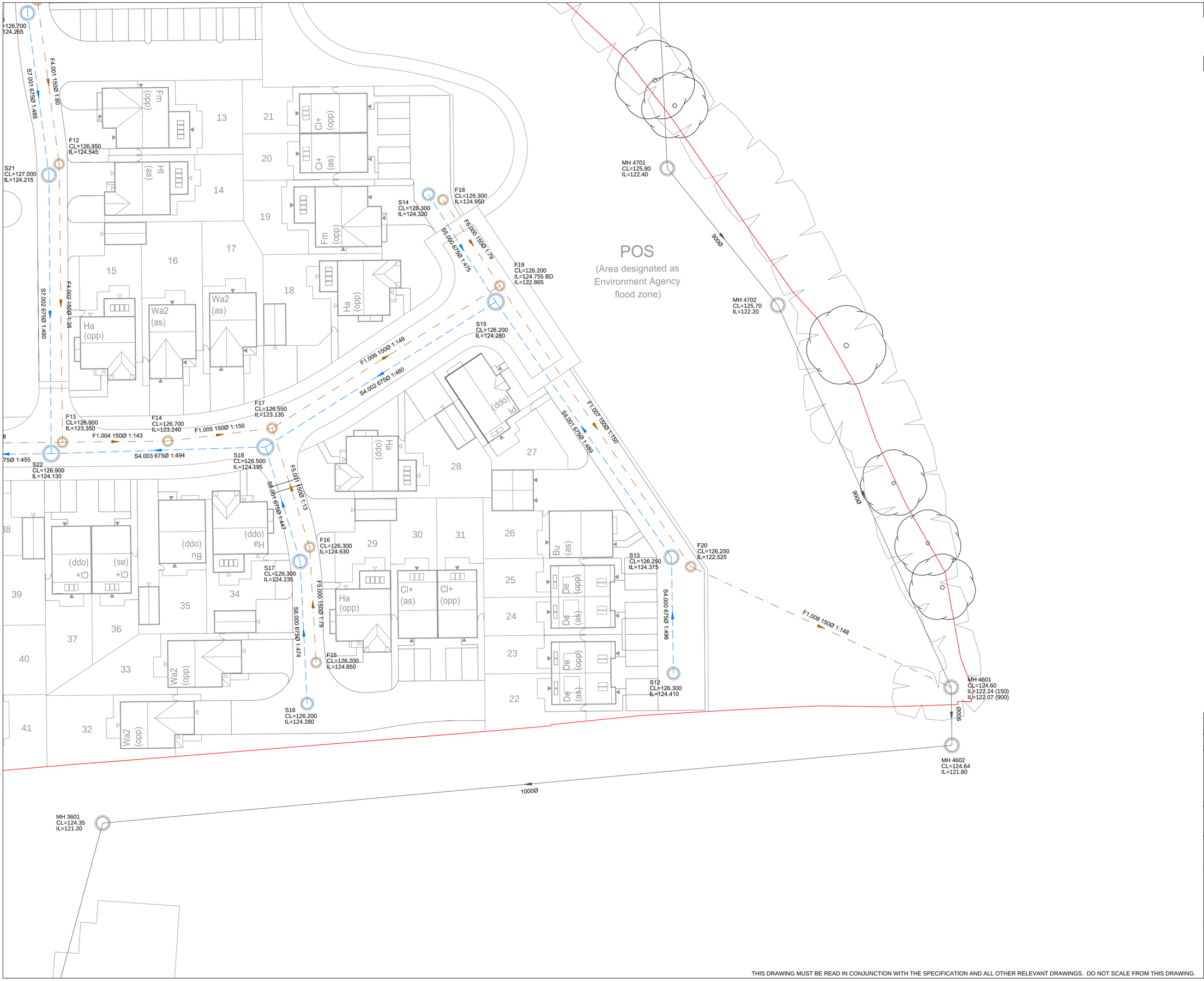

NOTES

1. This drawing to be read in conjunction with all relevant Weetwood drawings.

LEGEND

- Site boundary
- Proposed surface water pipe
- Proposed surface water manhole
- Proposed foul water pipe
- Proposed foul water manhole
- Existing combined water pipe
- Existing combined water manhole

Rev	Date	Description	Drawn	Check
P2	26/10/23	SITE LAYOUT UPDATED	JA	TB
P1	17/12/21	INITIAL ISSUE	JA	TB

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Client
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Drawing Status
PLANNING

Date
DEC 2021

Scale (A1)
1:250

Project
HOLCOMBE MILL
RAMSBOTTOM

Drawn
JA

Checked
TB

Project No
4714

Title
FOUL AND SURFACE WATER DRAINAGE LAYOUT

Drawing No
C102

Revision
P2

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APPENDIX Q

MicroDrainage Calculations

Manhole Schedules for Storm

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	Pipe Out PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
S1	127.650	1.350	Open Manhole	1200	S1.000	126.300	150				
S2	127.800	1.725	Open Manhole	1200	S1.001	126.075	225	S1.000	126.150	150	
S3	127.400	1.725	Open Manhole	1200	S1.002	125.675	225	S1.001	125.675	225	
S4	126.250	1.350	Open Manhole	1200	S2.000	124.900	150				
S5	126.650	2.020	Open Manhole	1200	S2.001	124.630	300	S2.000	124.780	150	
S6	127.000	2.480	Open Manhole	1500	S2.002	124.520	300	S2.001	124.520	300	
S7	127.350	3.735	Open Manhole	2100	S1.003	123.615	1050	S1.002	125.575	225	1135
								S2.002	124.365	300	
S8	127.800	4.335	Open Manhole	2100	S1.004	123.465	1050	S1.003	123.465	1050	
S9	126.200	1.425	Open Manhole	1200	S3.000	124.775	225				
S10	127.250	3.945	Open Manhole	2100	S1.005	123.305	1050	S1.004	123.305	1050	
								S3.000	124.130	225	
S11	125.650	2.445	Open Manhole	2100	S1.006	123.205	300	S1.005	123.205	1050	
S	123.770	0.620	Open Manhole	0		OUTFALL		S1.006	123.150	300	
S12	126.300	1.890	Open Manhole	1500	S4.000	124.410	675				
S13	126.250	1.875	Open Manhole	1800	S4.001	124.375	675	S4.000	124.375	675	
S14	126.300	1.980	Open Manhole	1500	S5.000	124.320	675				
S15	126.200	1.920	Open Manhole	2100	S4.002	124.280	675	S4.001	124.280	675	
								S5.000	124.280	675	
S16	126.200	1.920	Open Manhole	1500	S6.000	124.280	675				
S17	126.300	2.065	Open Manhole	1800	S6.001	124.235	675	S6.000	124.235	675	
S18	126.500	2.305	Open Manhole	2100	S4.003	124.195	675	S4.002	124.195	675	
								S6.001	124.195	675	
S19	126.400	2.080	Open Manhole	1500	S7.000	124.320	675				
S20	126.700	2.435	Open Manhole	1800	S7.001	124.265	675	S7.000	124.265	675	
S21	127.000	2.785	Open Manhole	1800	S7.002	124.215	675	S7.001	124.215	675	
S22	126.900	2.770	Open Manhole	2100	S4.004	124.130	675	S4.003	124.130	675	
								S7.002	124.130	675	
S23	127.100	3.000	Open Manhole	1800	S4.005	124.100	675	S4.004	124.100	675	
S24	126.200	2.125	Open Manhole	1800	S4.006	124.075	450	S4.005	124.075	675	
S	126.150	2.100	Open Manhole	0		OUTFALL		S4.006	124.050	450	
S25	127.250	1.350	Open Manhole	1200	S8.000	125.900	150				
S26	127.400	1.700	Open Manhole	1200	S8.001	125.700	225	S8.000	125.775	150	
S27	126.400	1.425	Open Manhole	1200	S8.002	124.975	225	S8.001	124.975	225	
S28	125.750	1.425	Open Manhole	1200	S9.000	124.325	225				
S29	125.900	1.660	Open Manhole	1200	S8.003	124.240	225	S8.002	124.240	225	
								S9.000	124.240	225	

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Manhole Schedules for Storm

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	Pipe Out PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
S30	125.650	1.465	Open Manhole	1200	S8.004	124.185	225	S8.003	124.185	225	
S	125.050	0.890	Open Manhole	0		OUTFALL		S8.004	124.160	225	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S1	379313.616	416802.902	379313.616	416802.902	Required	
S2	379312.148	416781.026	379312.148	416781.026	Required	
S3	379305.501	416741.356	379305.501	416741.356	Required	
S4	379337.510	416687.349	379337.510	416687.349	Required	
S5	379335.796	416704.970	379335.796	416704.970	Required	
S6	379335.626	416726.535	379335.626	416726.535	Required	
S7	379304.642	416726.521	379304.642	416726.521	Required	
S8	379302.558	416681.566	379302.558	416681.566	Required	
S9	379303.884	416590.431	379303.884	416590.431	Required	
S10	379303.273	416632.469	379303.273	416632.469	Required	
S11	379333.730	416632.913	379333.730	416632.913	Required	
S	379337.730	416623.437			No Entry	

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Manhole Schedules for Storm

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S12	379460.402	416693.987	379460.402	416693.987	Required	
S13	379460.105	416711.352	379460.105	416711.352	Required	
S14	379423.732	416765.677	379423.732	416765.677	Required	
S15	379433.821	416749.602	379433.821	416749.602	Required	
S16	379405.584	416689.465	379405.584	416689.465	Required	
S17	379404.513	416710.748	379404.513	416710.748	Required	
S18	379399.321	416727.871	379399.321	416727.871	Required	
S19	379365.083	416817.855	379365.083	416817.855	Required	
S20	379363.713	416792.812	379363.713	416792.812	Required	
S21	379366.918	416768.554	379366.918	416768.554	Required	
S22	379367.259	416726.877	379367.259	416726.877	Required	
S23	379353.618	416726.717	379353.618	416726.717	Required	
S24	379349.024	416737.499	379349.024	416737.499	Required	
S	379342.889	416737.792			No Entry	
S25	379318.170	416838.517	379318.170	416838.517	Required	

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Manhole Schedules for Storm

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S26	379316.960	416820.476	379316.960	416820.476	Required	
S27	379339.692	416818.951	379339.692	416818.951	Required	
S28	379351.216	416803.813	379351.216	416803.813	Required	
S29	379338.900	416804.391	379338.900	416804.391	Required	
S30	379338.492	416796.885	379338.492	416796.492	Required	
S	379338.323	416793.777			No Entry	

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PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S1.000	o	150	S1	127.650	126.300	1.200	Open Manhole	1200
S1.001	o	225	S2	127.800	126.075	1.500	Open Manhole	1200
S1.002	o	225	S3	127.400	125.675	1.500	Open Manhole	1200
S2.000	o	150	S4	126.250	124.900	1.200	Open Manhole	1200
S2.001	o	300	S5	126.650	124.630	1.720	Open Manhole	1200
S2.002	o	300	S6	127.000	124.520	2.180	Open Manhole	1500
S1.003	o	1050	S7	127.350	123.615	2.685	Open Manhole	2100
S1.004	o	1050	S8	127.800	123.465	3.285	Open Manhole	2100
S3.000	o	225	S9	126.200	124.775	1.200	Open Manhole	1200
S1.005	o	1050	S10	127.250	123.305	2.895	Open Manhole	2100
S1.006	o	300	S11	125.650	123.205	2.145	Open Manhole	2100
S4.000	o	675	S12	126.300	124.410	1.215	Open Manhole	1500
S4.001	o	675	S13	126.250	124.375	1.200	Open Manhole	1800
S5.000	o	675	S14	126.300	124.320	1.305	Open Manhole	1500

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S1.000	21.925	146.2	S2	127.800	126.150	1.500	Open Manhole	1200
S1.001	40.223	100.6	S3	127.400	125.675	1.500	Open Manhole	1200
S1.002	14.860	148.6	S7	127.350	125.575	1.550	Open Manhole	2100
S2.000	17.705	147.5	S5	126.650	124.780	1.720	Open Manhole	1200
S2.001	21.566	196.1	S6	127.000	124.520	2.180	Open Manhole	1500
S2.002	30.984	199.9	S7	127.350	124.365	2.685	Open Manhole	2100
S1.003	45.003	300.0	S8	127.800	123.465	3.285	Open Manhole	2100
S1.004	49.102	306.9	S10	127.250	123.305	2.895	Open Manhole	2100
S3.000	42.043	65.2	S10	127.250	124.130	2.895	Open Manhole	2100
S1.005	30.461	304.6	S11	125.650	123.205	1.395	Open Manhole	2100
S1.006	10.285	187.0	S	123.770	123.150	0.320	Open Manhole	0
S4.000	17.368	496.2	S13	126.250	124.375	1.200	Open Manhole	1800
S4.001	46.410	488.5	S15	126.200	124.280	1.245	Open Manhole	2100
S5.000	18.979	474.5	S15	126.200	124.280	1.245	Open Manhole	2100

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PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S4.002	o	675	S15	126.200	124.280	1.245	Open Manhole	2100
S6.000	o	675	S16	126.200	124.280	1.245	Open Manhole	1500
S6.001	o	675	S17	126.300	124.235	1.390	Open Manhole	1800
S4.003	o	675	S18	126.500	124.195	1.630	Open Manhole	2100
S7.000	o	675	S19	126.400	124.320	1.405	Open Manhole	1500
S7.001	o	675	S20	126.700	124.265	1.760	Open Manhole	1800
S7.002	o	675	S21	127.000	124.215	2.110	Open Manhole	1800
S4.004	o	675	S22	126.900	124.130	2.095	Open Manhole	2100
S4.005	o	675	S23	127.100	124.100	2.325	Open Manhole	1800
S4.006	o	450	S24	126.200	124.075	1.675	Open Manhole	1800
S8.000	o	150	S25	127.250	125.900	1.200	Open Manhole	1200
S8.001	o	225	S26	127.400	125.700	1.475	Open Manhole	1200
S8.002	o	225	S27	126.400	124.975	1.200	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S4.002	40.774	479.7	S18	126.500	124.195	1.630	Open Manhole	2100
S6.000	21.309	473.5	S17	126.300	124.235	1.390	Open Manhole	1800
S6.001	17.893	447.3	S18	126.500	124.195	1.630	Open Manhole	2100
S4.003	32.077	493.5	S22	126.900	124.130	2.095	Open Manhole	2100
S7.000	25.080	456.0	S20	126.700	124.265	1.760	Open Manhole	1800
S7.001	24.469	489.4	S21	127.000	124.215	2.110	Open Manhole	1800
S7.002	41.678	490.3	S22	126.900	124.130	2.095	Open Manhole	2100
S4.004	13.642	454.7	S23	127.100	124.100	2.325	Open Manhole	1800
S4.005	11.720	468.8	S24	126.200	124.075	1.450	Open Manhole	1800
S4.006	6.143	245.7	S	126.150	124.050	1.650	Open Manhole	0
S8.000	18.082	144.7	S26	127.400	125.775	1.475	Open Manhole	1200
S8.001	22.784	31.4	S27	126.400	124.975	1.200	Open Manhole	1200
S8.002	14.582	19.8	S29	125.900	124.240	1.435	Open Manhole	1200

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PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S9.000	o	225	S28	125.750	124.325	1.200	Open Manhole	1200
S8.003	o	225	S29	125.900	124.240	1.435	Open Manhole	1200
S8.004	o	225	S30	125.650	124.185	1.240	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S9.000	12.329	145.0	S29	125.900	124.240	1.435	Open Manhole	1200
S8.003	7.517	136.7	S30	125.650	124.185	1.240	Open Manhole	1200
S8.004	3.113	124.5	S	125.050	124.160	0.665	Open Manhole	0

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Area Summary for Storm

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	User	-	100	0.024	0.024	0.024
	User	-	100	0.015	0.015	0.040
1.001	User	-	100	0.035	0.035	0.035
	User	-	100	0.037	0.037	0.071
1.002	User	-	100	0.007	0.007	0.007
	User	-	100	0.018	0.018	0.025
2.000	User	-	100	0.009	0.009	0.009
	User	-	100	0.035	0.035	0.044
2.001	User	-	100	0.008	0.008	0.008
	User	-	100	0.016	0.016	0.024
2.002	User	-	100	0.027	0.027	0.027
	User	-	100	0.031	0.031	0.058
1.003	User	-	100	0.045	0.045	0.045
1.004	User	-	100	0.032	0.032	0.032
	User	-	100	0.053	0.053	0.084
3.000	User	-	100	0.034	0.034	0.034
	User	-	100	0.033	0.033	0.067
	User	-	100	0.017	0.017	0.084
	User	-	100	0.011	0.011	0.094
1.005	User	-	100	0.050	0.050	0.050
	User	-	100	0.032	0.032	0.083
1.006	-	-	100	0.000	0.000	0.000
4.000	User	-	100	0.025	0.025	0.025
	User	-	100	0.013	0.013	0.038
4.001	User	-	100	0.033	0.033	0.033
	User	-	100	0.016	0.016	0.048
5.000	User	-	100	0.016	0.016	0.016
	User	-	100	0.035	0.035	0.051
4.002	User	-	100	0.005	0.005	0.005
	User	-	100	0.009	0.009	0.014
	User	-	100	0.056	0.056	0.070
	User	-	100	0.010	0.010	0.081
6.000	User	-	100	0.037	0.037	0.037
	User	-	100	0.027	0.027	0.064
	User	-	100	0.013	0.013	0.077
	User	-	100	0.019	0.019	0.096
6.001	User	-	100	0.011	0.011	0.011
4.003	User	-	100	0.010	0.010	0.010
	User	-	100	0.015	0.015	0.025
	User	-	100	0.010	0.010	0.036
	User	-	100	0.034	0.034	0.070
	User	-	100	0.006	0.006	0.075
	User	-	100	0.013	0.013	0.089
	User	-	100	0.013	0.013	0.101
7.000	User	-	100	0.021	0.021	0.021
	User	-	100	0.037	0.037	0.058
7.001	User	-	100	0.014	0.014	0.014
	User	-	100	0.033	0.033	0.047
7.002	User	-	100	0.015	0.015	0.015
	User	-	100	0.033	0.033	0.048

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Area Summary for Storm

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
	User	-	100	0.005	0.005	0.053
4.004	User	-	100	0.002	0.002	0.002
	User	-	100	0.003	0.003	0.005
	User	-	100	0.017	0.017	0.022
	User	-	100	0.010	0.010	0.032
	User	-	100	0.011	0.011	0.043
4.005	User	-	100	0.010	0.010	0.010
	User	-	100	0.005	0.005	0.015
	User	-	100	0.023	0.023	0.039
4.006	-	-	100	0.000	0.000	0.000
8.000	User	-	100	0.022	0.022	0.022
8.001	User	-	100	0.038	0.038	0.038
8.002	User	-	100	0.046	0.046	0.046
9.000	User	-	100	0.045	0.045	0.045
8.003	User	-	100	0.040	0.040	0.040
8.004	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				1.425	1.425	1.425

Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
S1.006	S	123.770	123.150	0.000	0	0

Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
S4.006	S	126.150	124.050	0.000	0	0

Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
S8.004	S	125.050	124.160	0.000	0	0

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Online Controls for Storm

Hydro-Brake® Optimum Manhole: S11, DS/PN: S1.006, Volume (m³): 33.0

Unit Reference	MD-SHE-0290-5650-2445-5650
Design Head (m)	2.445
Design Flow (l/s)	56.5
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	290
Invert Level (m)	123.205
Minimum Outlet Pipe Diameter (mm)	375
Suggested Manhole Diameter (mm)	Site Specific Design (Contact Hydro International)

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	2.445	56.5
Flush-Flo™	0.714	56.4
Kick-Flo®	1.556	45.4
Mean Flow over Head Range	-	48.8

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	9.0	1.200	53.6	3.000	62.4	7.000	94.1
0.200	29.9	1.400	50.3	3.500	67.2	7.500	97.3
0.300	50.0	1.600	46.0	4.000	71.7	8.000	100.4
0.400	53.3	1.800	48.7	4.500	75.9	8.500	103.4
0.500	55.2	2.000	51.3	5.000	79.9	9.000	106.3
0.600	56.1	2.200	53.7	5.500	83.7	9.500	109.2
0.800	56.3	2.400	56.0	6.000	87.3		
1.000	55.3	2.600	58.2	6.500	90.7		

Hydro-Brake® Optimum Manhole: S24, DS/PN: S4.006, Volume (m³): 9.0

Unit Reference	MD-SHE-0322-6850-2125-6850
Design Head (m)	2.125
Design Flow (l/s)	68.5
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	322
Invert Level (m)	124.075
Minimum Outlet Pipe Diameter (mm)	375
Suggested Manhole Diameter (mm)	Site Specific Design (Contact Hydro International)

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Hydro-Brake® Optimum Manhole: S24, DS/PN: S4.006, Volume (m³): 9.0

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	2.125	68.5
Flush-Flo™	0.654	68.5
Kick-Flo®	1.431	56.6
Mean Flow over Head Range	-	58.7

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	9.6	1.200	64.0	3.000	80.9	7.000	122.2
0.200	32.9	1.400	58.1	3.500	87.2	7.500	126.4
0.300	58.1	1.600	59.7	4.000	93.1	8.000	130.5
0.400	65.8	1.800	63.2	4.500	98.5	8.500	134.4
0.500	67.7	2.000	66.5	5.000	103.7	9.000	138.2
0.600	68.4	2.200	69.6	5.500	108.7	9.500	141.9
0.800	68.0	2.400	72.6	6.000	113.4		
1.000	66.6	2.600	75.5	6.500	117.9		

Hydro-Brake® Optimum Manhole: S30, DS/PN: S8.004, Volume (m³): 1.9

Unit Reference	MD-SHE-0181-1750-1415-1750
Design Head (m)	1.415
Design Flow (l/s)	17.5
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	181
Invert Level (m)	124.185
Minimum Outlet Pipe Diameter (mm)	225
Suggested Manhole Diameter (mm)	1500

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.415	17.5
Flush-Flo™	0.426	17.5
Kick-Flo®	0.931	14.4
Mean Flow over Head Range	-	15.1

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	6.4	0.200	15.9	0.300	17.1	0.400	17.5

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Hydro-Brake® Optimum Manhole: S30, DS/PN: S8.004, Volume (m³): 1.9

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.500	17.4	1.800	19.6	4.000	28.8	7.500	38.9
0.600	17.2	2.000	20.6	4.500	30.4	8.000	40.2
0.800	16.2	2.200	21.6	5.000	32.0	8.500	41.4
1.000	14.8	2.400	22.5	5.500	33.5	9.000	42.5
1.200	16.2	2.600	23.4	6.000	35.0	9.500	43.7
1.400	17.4	3.000	25.0	6.500	36.3		
1.600	18.6	3.500	27.0	7.000	37.7		

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Storage Structures for Storm

Cellular Storage Manhole: S28, DS/PN: S9.000

Invert Level (m) 124.325 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	120.0	0.0	0.401	0.0	0.0
0.400	120.0	0.0			

Volume Summary (Static)

Length Calculations based on Centre-Centre

Pipe Number	USMH Name	Manhole Volume (m³)	Pipe Volume (m³)	Storage Structure Volume (m³)	Total Volume (m³)
S1.000	S1	1.527	0.387	0.000	1.914
S1.001	S2	1.951	1.599	0.000	3.550
S1.002	S3	1.951	0.591	0.000	2.542
S2.000	S4	1.527	0.313	0.000	1.840
S2.001	S5	2.285	1.524	0.000	3.809
S2.002	S6	4.383	2.190	0.000	6.573
S1.003	S7	12.937	38.968	0.000	51.905
S1.004	S8	15.015	42.517	0.000	57.532
S3.000	S9	1.612	1.672	0.000	3.283
S1.005	S10	13.664	26.376	0.000	40.040
S1.006	S11	8.469	0.727	0.000	9.196
S4.000	S12	3.340	6.215	0.000	9.555
S4.001	S13	4.771	16.608	0.000	21.379
S5.000	S14	3.499	6.792	0.000	10.291
S4.002	S15	6.650	14.591	0.000	21.241
S6.000	S16	3.393	7.625	0.000	11.018
S6.001	S17	5.255	6.403	0.000	11.658
S4.003	S18	7.984	11.479	0.000	19.462
S7.000	S19	3.676	8.975	0.000	12.650
S7.001	S20	6.196	8.756	0.000	14.952
S7.002	S21	7.087	14.914	0.000	22.001
S4.004	S22	9.594	4.882	0.000	14.476
S4.005	S23	7.634	4.194	0.000	11.828
S4.006	S24	5.407	0.977	0.000	6.384
S8.000	S25	1.527	0.320	0.000	1.846
S8.001	S26	1.923	0.906	0.000	2.829
S8.002	S27	1.612	0.580	0.000	2.191
S9.000	S28	1.612	0.490	45.638	47.740
S8.003	S29	1.877	0.314	0.000	2.192
S8.004	S30	1.657	0.108	0.000	1.765
Total		150.011	231.994	45.638	427.643

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2 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs	0	Number of Storage Structures	1
Number of Online Controls	3	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FEH
FEH Rainfall Version	2013
Site Location	GB 379395 416745 SD 79395 16745
Data Type	Point
Cv (Summer)	0.750
Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	OFF
DVD Status	ON
Inertia Status	ON

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360
Return Period(s) (years)	2, 30, 100
Climate Change (%)	0, 40, 45

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.
S1.000	S1	15 minute 2 year Winter I+0%	127.650	126.365	-0.085	0.000	0.38
S1.001	S2	15 minute 2 year Winter I+0%	127.800	126.156	-0.144	0.000	0.27
S1.002	S3	15 minute 2 year Winter I+0%	127.400	125.778	-0.122	0.000	0.43
S2.000	S4	15 minute 2 year Winter I+0%	126.250	124.970	-0.080	0.000	0.44
S2.001	S5	15 minute 2 year Winter I+0%	126.650	124.701	-0.229	0.000	0.13
S2.002	S6	15 minute 2 year Winter I+0%	127.000	124.614	-0.206	0.000	0.21
S1.003	S7	15 minute 2 year Winter I+0%	127.350	123.733	-0.932	0.000	0.03
S1.004	S8	15 minute 2 year Winter I+0%	127.800	123.605	-0.910	0.000	0.03
S3.000	S9	15 minute 2 year Winter I+0%	126.200	124.845	-0.155	0.000	0.21
S1.005	S10	15 minute 2 year Winter I+0%	127.250	123.529	-0.826	0.000	0.05
S1.006	S11	15 minute 2 year Winter I+0%	125.650	123.514	0.009	0.000	0.80
S4.000	S12	15 minute 2 year Winter I+0%	126.300	124.490	-0.595	0.000	0.02
S4.001	S13	15 minute 2 year Winter I+0%	126.250	124.471	-0.579	0.000	0.03
S5.000	S14	15 minute 2 year Winter I+0%	126.300	124.435	-0.560	0.000	0.02
S4.002	S15	30 minute 2 year Winter I+0%	126.200	124.431	-0.524	0.000	0.05

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2 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Overflow (l/s)	Overflow Vol (m³)	Pipe Flow (l/s)	Status
S1.000	S1			5.3	OK
S1.001	S2			13.5	OK
S1.002	S3			16.2	OK
S2.000	S4			5.9	OK
S2.001	S5			8.8	OK
S2.002	S6			15.3	OK
S1.003	S7			36.1	OK
S1.004	S8			43.0	OK
S3.000	S9			12.7	OK
S1.005	S10			54.6	OK
S1.006	S11			49.0	SURCHARGED
S4.000	S12			5.0	OK
S4.001	S13			9.9	OK
S5.000	S14			6.4	OK
S4.002	S15			19.0	OK

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2 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.
S6.000	S16	30 minute 2 year Winter I+0%	126.200	124.412	-0.543	0.000	0.03
S6.001	S17	30 minute 2 year Winter I+0%	126.300	124.407	-0.503	0.000	0.03
S4.003	S18	30 minute 2 year Winter I+0%	126.500	124.405	-0.465	0.000	0.10
S7.000	S19	15 minute 2 year Winter I+0%	126.400	124.407	-0.588	0.000	0.02
S7.001	S20	30 minute 2 year Winter I+0%	126.700	124.395	-0.545	0.000	0.03
S7.002	S21	30 minute 2 year Winter I+0%	127.000	124.390	-0.500	0.000	0.04
S4.004	S22	30 minute 2 year Winter I+0%	126.900	124.385	-0.420	0.000	0.19
S4.005	S23	30 minute 2 year Winter I+0%	127.100	124.368	-0.407	0.000	0.22
S4.006	S24	30 minute 2 year Winter I+0%	126.200	124.352	-0.173	0.000	0.38
S8.000	S25	15 minute 2 year Winter I+0%	127.250	125.947	-0.103	0.000	0.21
S8.001	S26	15 minute 2 year Winter I+0%	127.400	125.745	-0.180	0.000	0.09
S8.002	S27	15 minute 2 year Winter I+0%	126.400	125.028	-0.172	0.000	0.12
S9.000	S28	60 minute 2 year Winter I+0%	125.750	124.356	-0.194	0.000	0.05
S8.003	S29	15 minute 2 year Winter I+0%	125.900	124.398	-0.067	0.000	0.48
S8.004	S30	15 minute 2 year Winter I+0%	125.650	124.381	-0.029	0.000	0.52

PN	US/MH Name	Overflow (l/s)	Overflow Vol (m³)	Pipe Flow (l/s)	Status
S6.000	S16			10.2	OK
S6.001	S17			9.5	OK
S4.003	S18			34.0	OK
S7.000	S19			7.6	OK
S7.001	S20			9.8	OK
S7.002	S21			13.0	OK
S4.004	S22			44.9	OK
S4.005	S23			47.1	OK
S4.006	S24			47.0	OK
S8.000	S25			2.9	OK
S8.001	S26			7.3	OK
S8.002	S27			12.6	OK
S9.000	S28			1.7	OK
S8.003	S29			15.7	OK
S8.004	S30			15.7	OK

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs	0	Number of Storage Structures	1
Number of Online Controls	3	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FEH
FEH Rainfall Version	2013
Site Location	GB 379395 416745 SD 79395 16745
Data Type	Point
Cv (Summer)	0.750
Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	OFF
DVD Status	ON
Inertia Status	ON

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360
Return Period(s) (years)	2, 30, 100
Climate Change (%)	0, 40, 45

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.
S1.000	S1	15 minute 30 year Winter I+40%	127.650	126.572	0.122	0.000	1.20
S1.001	S2	15 minute 30 year Winter I+40%	127.800	126.363	0.063	0.000	0.93
S1.002	S3	15 minute 30 year Winter I+40%	127.400	126.011	0.111	0.000	1.48
S2.000	S4	15 minute 30 year Winter I+40%	126.250	125.166	0.116	0.000	1.41
S2.001	S5	15 minute 30 year Winter I+40%	126.650	124.776	-0.154	0.000	0.42
S2.002	S6	15 minute 30 year Winter I+40%	127.000	124.723	-0.097	0.000	0.78
S1.003	S7	30 minute 30 year Winter I+40%	127.350	124.258	-0.407	0.000	0.08
S1.004	S8	30 minute 30 year Winter I+40%	127.800	124.227	-0.288	0.000	0.07
S3.000	S9	15 minute 30 year Winter I+40%	126.200	124.913	-0.087	0.000	0.68
S1.005	S10	30 minute 30 year Winter I+40%	127.250	124.171	-0.184	0.000	0.08
S1.006	S11	30 minute 30 year Winter I+40%	125.650	124.117	0.612	0.000	0.92
S4.000	S12	60 minute 30 year Winter I+40%	126.300	124.896	-0.189	0.000	0.04
S4.001	S13	60 minute 30 year Winter I+40%	126.250	124.896	-0.154	0.000	0.05
S5.000	S14	60 minute 30 year Winter I+40%	126.300	124.890	-0.105	0.000	0.04
S4.002	S15	60 minute 30 year Winter I+40%	126.200	124.888	-0.067	0.000	0.09

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Overflow (l/s)	Overflow Vol (m³)	Pipe Flow (l/s)	Status
S1.000	S1			16.7	SURCHARGED
S1.001	S2			45.7	SURCHARGED
S1.002	S3			55.3	SURCHARGED
S2.000	S4			19.2	SURCHARGED
S2.001	S5			29.5	OK
S2.002	S6			55.7	OK
S1.003	S7			106.9	OK
S1.004	S8			88.2	OK
S3.000	S9			41.4	OK
S1.005	S10			94.0	OK
S1.006	S11			56.3	SURCHARGED
S4.000	S12			8.9	OK
S4.001	S13			16.7	OK
S5.000	S14			12.2	OK
S4.002	S15			31.4	OK

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.
S6.000	S16	30 minute 30 year Winter I+40%	126.200	124.864	-0.091	0.000	0.11
S6.001	S17	60 minute 30 year Winter I+40%	126.300	124.848	-0.062	0.000	0.07
S4.003	S18	60 minute 30 year Winter I+40%	126.500	124.833	-0.037	0.000	0.16
S7.000	S19	30 minute 30 year Winter I+40%	126.400	124.840	-0.155	0.000	0.06
S7.001	S20	30 minute 30 year Winter I+40%	126.700	124.834	-0.106	0.000	0.06
S7.002	S21	30 minute 30 year Winter I+40%	127.000	124.814	-0.076	0.000	0.07
S4.004	S22	30 minute 30 year Winter I+40%	126.900	124.754	-0.051	0.000	0.29
S4.005	S23	30 minute 30 year Winter I+40%	127.100	124.721	-0.054	0.000	0.34
S4.006	S24	30 minute 30 year Winter I+40%	126.200	124.697	0.172	0.000	0.55
S8.000	S25	15 minute 30 year Winter I+40%	127.250	125.994	-0.056	0.000	0.69
S8.001	S26	15 minute 30 year Winter I+40%	127.400	125.789	-0.136	0.000	0.32
S8.002	S27	15 minute 30 year Winter I+40%	126.400	125.086	-0.114	0.000	0.48
S9.000	S28	60 minute 30 year Winter I+40%	125.750	124.584	0.034	0.000	0.44
S8.003	S29	15 minute 30 year Summer I+40%	125.900	124.716	0.251	0.000	0.66
S8.004	S30	15 minute 30 year Summer I+40%	125.650	124.702	0.292	0.000	0.58

PN	US/MH Name	Overflow (l/s)	Overflow Vol (m³)	Pipe Flow (l/s)	Status
S6.000	S16			32.7	OK
S6.001	S17			18.9	OK
S4.003	S18			55.6	OK
S7.000	S19			19.0	OK
S7.001	S20			20.1	OK
S7.002	S21			25.0	OK
S4.004	S22			69.0	OK
S4.005	S23			74.3	OK
S4.006	S24			68.3	SURCHARGED
S8.000	S25			9.6	OK
S8.001	S26			27.6	OK
S8.002	S27			49.6	OK
S9.000	S28			16.3	SURCHARGED
S8.003	S29			21.7	SURCHARGED
S8.004	S30			17.5	SURCHARGED

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000
Hot Start Level (mm) 0 Inlet Coeffiecient 0.800
Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0 Number of Storage Structures 1
Number of Online Controls 3 Number of Time/Area Diagrams 0
Number of Offline Controls 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FEH
FEH Rainfall Version 2013
Site Location GB 379395 416745 SD 79395 16745
Data Type Point
Cv (Summer) 0.750
Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0
Analysis Timestep 2.5 Second Increment (Extended)
DTS Status OFF
DVD Status ON
Inertia Status ON

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360
Return Period(s) (years) 2, 30, 100
Climate Change (%) 0, 40, 45

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.
S1.000	S1	15 minute 100 year Winter I+45%	127.650	127.025	0.575	0.000	1.56
S1.001	S2	15 minute 100 year Winter I+45%	127.800	126.685	0.385	0.000	1.16
S1.002	S3	15 minute 100 year Winter I+45%	127.400	126.139	0.239	0.000	1.85
S2.000	S4	60 minute 100 year Winter I+45%	126.250	125.664	0.614	0.000	1.16
S2.001	S5	60 minute 100 year Winter I+45%	126.650	125.644	0.714	0.000	0.35
S2.002	S6	60 minute 100 year Winter I+45%	127.000	125.637	0.817	0.000	0.63
S1.003	S7	60 minute 100 year Winter I+45%	127.350	125.622	0.957	0.000	0.08
S1.004	S8	60 minute 100 year Winter I+45%	127.800	125.620	1.105	0.000	0.06
S3.000	S9	60 minute 100 year Winter I+45%	126.200	125.646	0.646	0.000	0.55
S1.005	S10	60 minute 100 year Winter I+45%	127.250	125.617	1.262	0.000	0.07
S1.006	S11	60 minute 100 year Winter I+45%	125.650	125.614	2.109	0.000	0.92
S4.000	S12	60 minute 100 year Winter I+45%	126.300	126.184	1.099	0.000	0.05
S4.001	S13	60 minute 100 year Winter I+45%	126.250	126.184	1.134	0.000	0.05
S5.000	S14	60 minute 100 year Winter I+45%	126.300	126.183	1.188	0.000	0.06
S4.002	S15	60 minute 100 year Winter I+45%	126.200	126.182	1.227	0.000	0.09

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Overflow (l/s)	Overflow Vol (m³)	Pipe Flow (l/s)	Status
S1.000	S1			21.6	SURCHARGED
S1.001	S2			57.1	SURCHARGED
S1.002	S3			69.1	SURCHARGED
S2.000	S4			15.8	SURCHARGED
S2.001	S5			24.4	SURCHARGED
S2.002	S6			45.3	SURCHARGED
S1.003	S7			104.6	SURCHARGED
S1.004	S8			79.8	SURCHARGED
S3.000	S9			33.9	SURCHARGED
S1.005	S10			88.3	SURCHARGED
S1.006	S11			56.3	FLOOD RISK
S4.000	S12			11.5	FLOOD RISK
S4.001	S13			18.0	FLOOD RISK
S5.000	S14			16.0	FLOOD RISK
S4.002	S15			32.1	FLOOD RISK

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.
S6.000	S16	60 minute 100 year Winter I+45%	126.200	126.181	1.226	0.000	0.11
S6.001	S17	60 minute 100 year Winter I+45%	126.300	126.180	1.270	0.000	0.11
S4.003	S18	60 minute 100 year Winter I+45%	126.500	126.178	1.308	0.000	0.19
S7.000	S19	60 minute 100 year Winter I+45%	126.400	126.176	1.181	0.000	0.06
S7.001	S20	60 minute 100 year Winter I+45%	126.700	126.175	1.235	0.000	0.09
S7.002	S21	60 minute 100 year Winter I+45%	127.000	126.174	1.284	0.000	0.09
S4.004	S22	60 minute 100 year Winter I+45%	126.900	126.171	1.366	0.000	0.34
S4.005	S23	60 minute 100 year Winter I+45%	127.100	126.162	1.387	0.000	0.35
S4.006	S24	60 minute 100 year Winter I+45%	126.200	126.155	1.630	0.000	0.55
S8.000	S25	15 minute 100 year Winter I+45%	127.250	126.015	-0.035	0.000	0.92
S8.001	S26	15 minute 100 year Winter I+45%	127.400	125.804	-0.121	0.000	0.43
S8.002	S27	60 minute 100 year Winter I+45%	126.400	125.396	0.196	0.000	0.37
S9.000	S28	60 minute 100 year Winter I+45%	125.750	125.387	0.837	0.000	0.50
S8.003	S29	60 minute 100 year Winter I+45%	125.900	125.381	0.916	0.000	0.65
S8.004	S30	60 minute 100 year Winter I+45%	125.650	125.364	0.954	0.000	0.58

PN	US/MH Name	Overflow (l/s)	Overflow Vol (m³)	Pipe Flow (l/s)	Status
S6.000	S16			32.2	FLOOD RISK
S6.001	S17			30.3	FLOOD RISK
S4.003	S18			63.7	SURCHARGED
S7.000	S19			18.8	FLOOD RISK
S7.001	S20			27.8	SURCHARGED
S7.002	S21			32.0	SURCHARGED
S4.004	S22			79.5	SURCHARGED
S4.005	S23			76.9	SURCHARGED
S4.006	S24			68.3	FLOOD RISK
S8.000	S25			12.6	OK
S8.001	S26			36.5	OK
S8.002	S27			38.3	SURCHARGED
S9.000	S28			18.4	SURCHARGED
S8.003	S29			21.5	SURCHARGED
S8.004	S30			17.5	FLOOD RISK

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APPENDIX R

Exceedance Flow Routes

NOTES

1. This drawing to be read in conjunction with all relevant Weetwood drawings.

LEGEND

Site boundary

Direction of surface water exceedance flows

Rev	Date	Description	Drawn	Check
P3	27/10/23	SITE LAYOUT UPDATED	JA	KT
P2	17/12/21	SITE LAYOUT UPDATED	JA	TB
P1	17/06/21	INITIAL ISSUE	JA	KT

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Client
ECCLESTON HOMES

Drawing Status
PLANNING

Date
JUNE 2021

Scale (A1)
1:250

Project
HOLCOMBE MILL
RAMSBOTTOM

Drawn
JA

Checked
KT

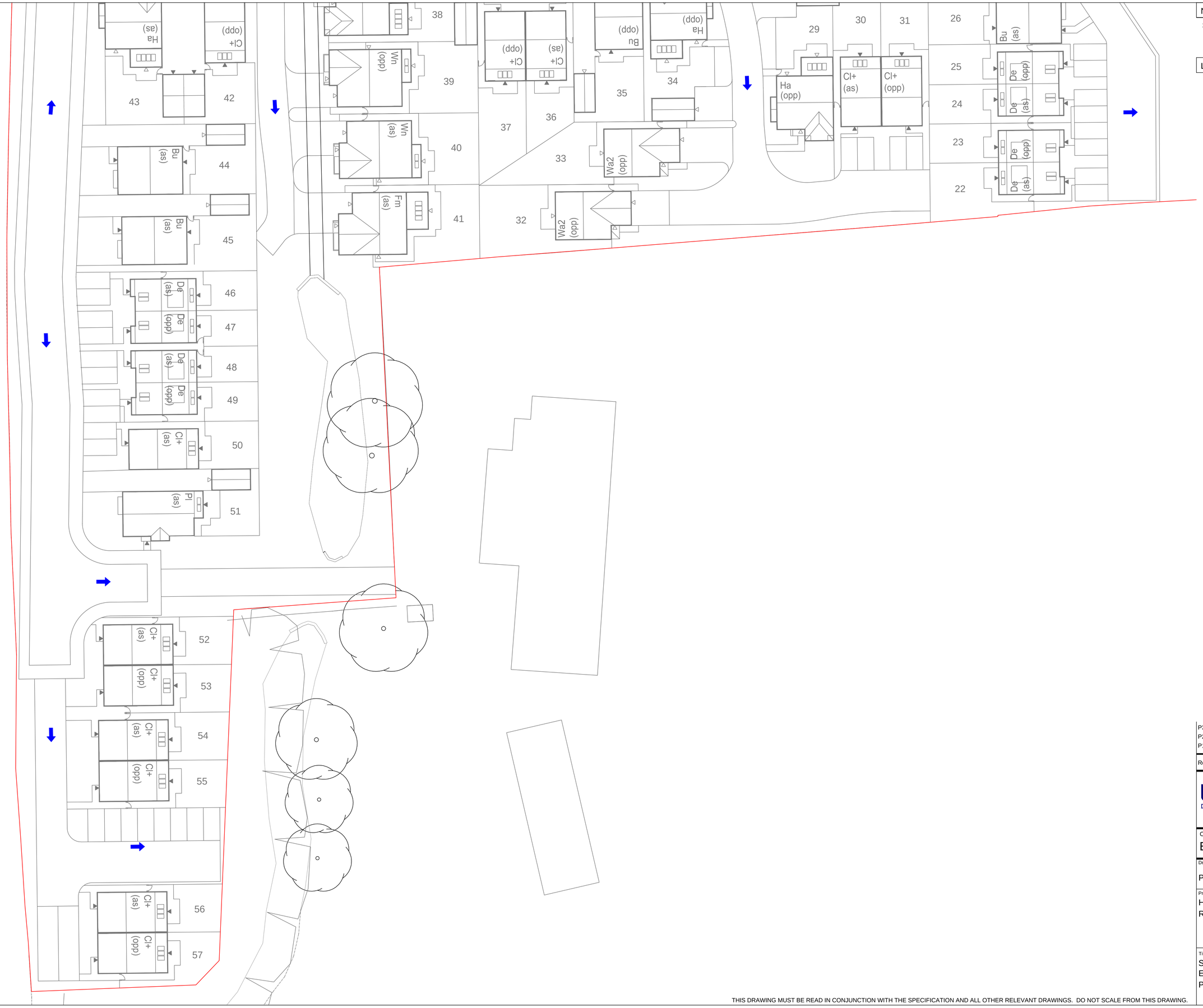
Project No
4714

Title
SURFACE WATER EXCEEDANCE FLOW PLAN

Drawing No
C150

Revision
P3

THIS DRAWING MUST BE READ IN CONJUNCTION WITH THE SPECIFICATION AND ALL OTHER RELEVANT DRAWINGS. DO NOT SCALE FROM THIS DRAWING.



NOTES

1. This drawing to be read in conjunction with all relevant Weetwood drawings.

LEGEND

Site boundary

Direction of surface water exceedance flows

Rev	Date	Description	Drawn	Check
P3	27/10/23	SITE LAYOUT UPDATED	JA	KT
P2	17/12/21	SITE LAYOUT UPDATED	JA	TB
P1	17/06/21	INITIAL ISSUE	JA	KT

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Client
ECCLESTON HOMES

Drawing Status
PLANNING

Date
JUNE 2021

Scale (A1)
1:250

Project
HOLCOMBE MILL
RAMSBOTTOM

Drawn
JA

Checked
KT

Project No
4714

Title
SURFACE WATER EXCEEDANCE FLOW PLAN

Drawing No
C151

Revision
P3

THIS DRAWING MUST BE READ IN CONJUNCTION WITH THE SPECIFICATION AND ALL OTHER RELEVANT DRAWINGS. DO NOT SCALE FROM THIS DRAWING.

APPENDIX S

United Utilities Pre Development Enquiry Response

Stephen Parker

From: Wastewater Developer Services <WastewaterDeveloperServices@uuplc.co.uk>
Sent: 10 June 2021 13:08
To: Stephen Parker; Wastewater Developer Services
Subject: PDE 4200040413 Mondi Mill Ramsbottom BL0 0BS

Good afternoon Stephen,

Pre Development Enquiry for: Mondi Mill Ramsbottom BL0 0BS UU Reference Number : 4200040413

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 1000mm diameter public combined sewer located on-site 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.

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

It is understood that there are made ground and shallow groundwater alongside a mixed geologic profile which appears to preclude the use of infiltration based drainage. Further clarification on this point should be discussed with the Lead Local Flood Authority.

Waterbody

You have indicated that you intend to drain surface water emanating from the proposed site into the on-site mill race leading to the River Irwell. We recommend that you contact the Lead Local Flood Authority and/or Environment Agency to discuss a point of discharge and rates to this system and where this is not feasible a direct connection to the River Irwell should be sought.

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.

Highway Drainage

If an evidence based assessment has been carried out and confirms that infiltration is not feasible, we recommend that you investigate the possibility of draining surface water to the highway drain where this ultimately discharges to a watercourse, by contacting the relevant Highway Authority.

Public Sewer

In this instance, given the proximity of watercourses on and immediately adjacent to the site

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.

We would recommend that all property finish floor levels and proposed cover levels are set a minimum of 300mm above the cover level on the receiving sewer network in order to provide some mitigation against surcharged flows.

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 pubic 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 which identifies that SuDS should be design in accordance with the CIRIA SuDS manual (C753):

Design and Construction Guidance

Sustainable Drainage Systems (SuDS)

If you need advice on any site proposals which incorporate open SuDS features either that are to be offered for adoption or that interact with a traditional adoptable piped network you can complete the form below and we will be in touch within 2 weeks to discuss the proposals further.

Pre Design Enquiry

Existing Wastewater Assets Crossing the Site

We have significant assets crossing this site that cannot simply be diverted. We would ask that you obtain a copy of our asset data records from your provider and plan your development around them ensuring that all legal easements are observed. If any work is required that may impart vibration into the ground we would ask that you contact us for further advice.

We will require unrestricted access to the sewer for maintenance purposes, we would ask that you maintain a minimum clearance of 6m which is measured 3m from the centre line of the pipe unless there happens to be a formal easement agreement in place, in which case the specified easement width would apply. If you cannot achieve this then you may wish to consider diverting and or abandoning the public sewer.

Please refer to the link below to obtain full details of the processes involved with sewer diversions:

https://www.unitedutilities.com/builders-developers/larger-developments/wastewater/sewer-diversions/

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,

United Utilities
Water for the North West

Robert Brenton
Developer Engineer
Developer Services & Metering
Customer Services
M: 07880299827
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Did you know we now have a live chat facility available to you Mon to Friday 8 -5pm. You just click on the orange live chat box on our webpage and one of our advisors will be ready to chat to you and help you with your enquiry https://www.unitedutilities.com/builders-developers/ or you can email us at developerserviceswater@uuplc.co.uk

Coronavirus | Prevent the spread

Wash your hands

Disinfect common surfaces

Practise social distancing

FEVER + COUGH

Stay home if you have symptoms

Click for our message to customers

From: Stephen Parker [mailto:Stephen.Parker@ecclestonhomes.co.uk]
Sent: 01 June 2021 16:17
To: Wastewater Developer Services <WastewaterDeveloperServices@uuplc.co.uk>
Subject: Pre-Dev Enquiry, Mondi Mill, Ramsbottom

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.

Sirs,

Pre-dev enquiry and supporting information duly completed and attached. As some reports are on the large size I have linked them here. SI.
https://app.box.com/s/ezwce9nhlyy8ozgga7hbx18xi4qz5eef
This scheme is currently in for planning and there is continuing dialogue with the EA/LLFA at this time regarding the scheme.
The DA - Drainage Assessment includes proposed surface water designs for the scheme with proposed flow rates.

I trust you can access these and if not please come back to me and I can try wetransfer etc.

regards

Stephen Parker
Engineering Manager

01925 939035
07722 042157

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