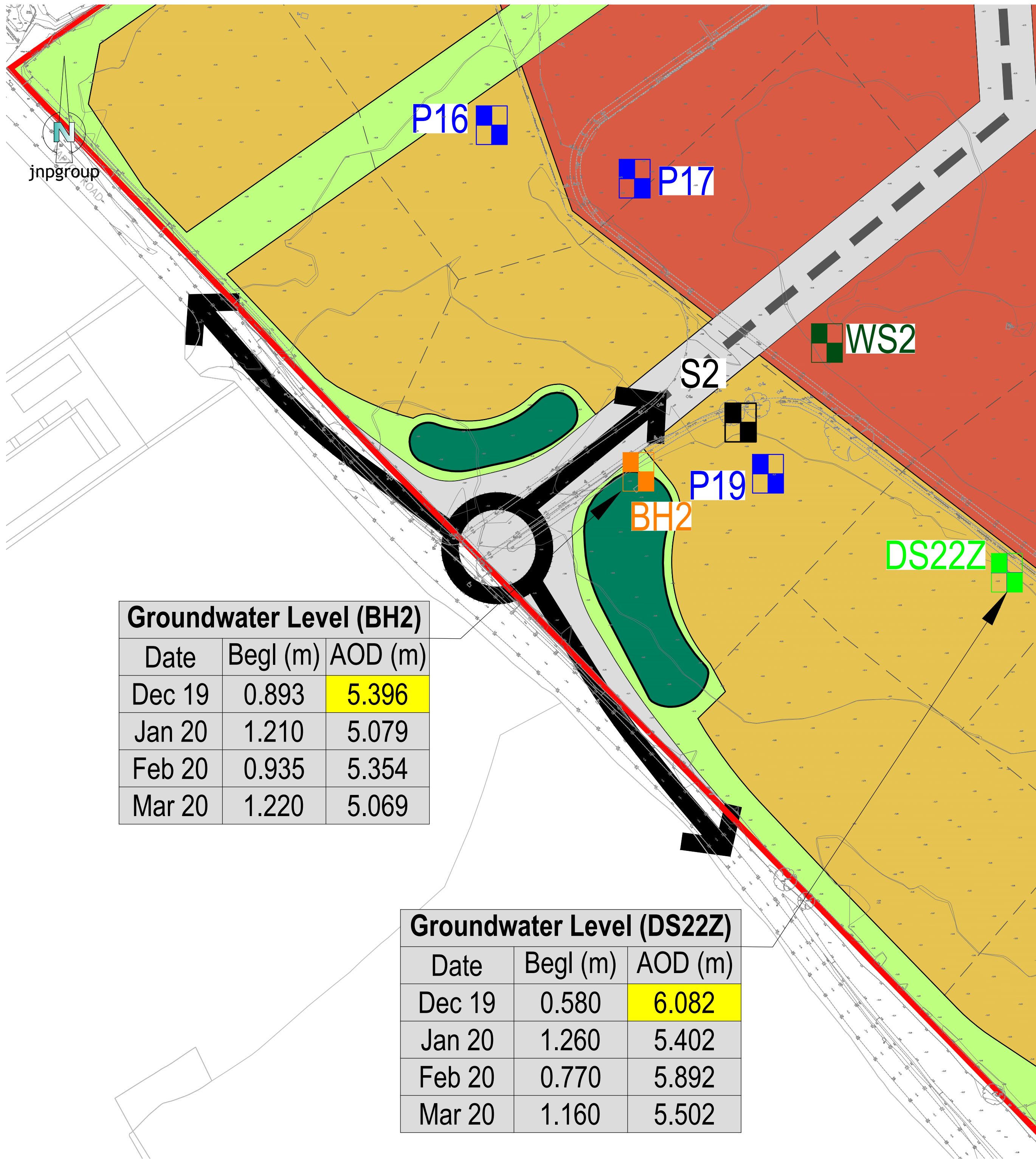


Appendix J

The Southwest Attenuation Basin



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Legend
— Site Boundary

Rev.	Date	Amendment	By	Chk.	
Status					
Indicative					

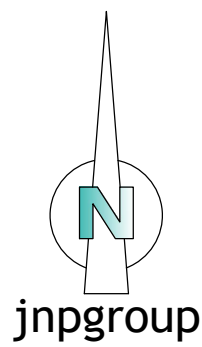


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jnpgroup
Consulting Engineers
www.jnpgroup.co.uk
Chesham • Brighouse • Hartlepool • Leamington Spa • Sheffield
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Client	Wates Redrow
Job	Ford Airfield
Title	South West Parcels Groundwater Levels

Scale	1:1000	@ A1	Date	December 2020
Drawn by	IS	Checked by		Approved by

Drawing No.	C85228-D190	Rev.	-
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Infiltration Test (T17s)		
Test no	Depth (m)	Infiltration Rate (m/s)
1	0.500	4.24x10-7
2	0.500	1.41x10-6
3	0.500	1.48x10-6

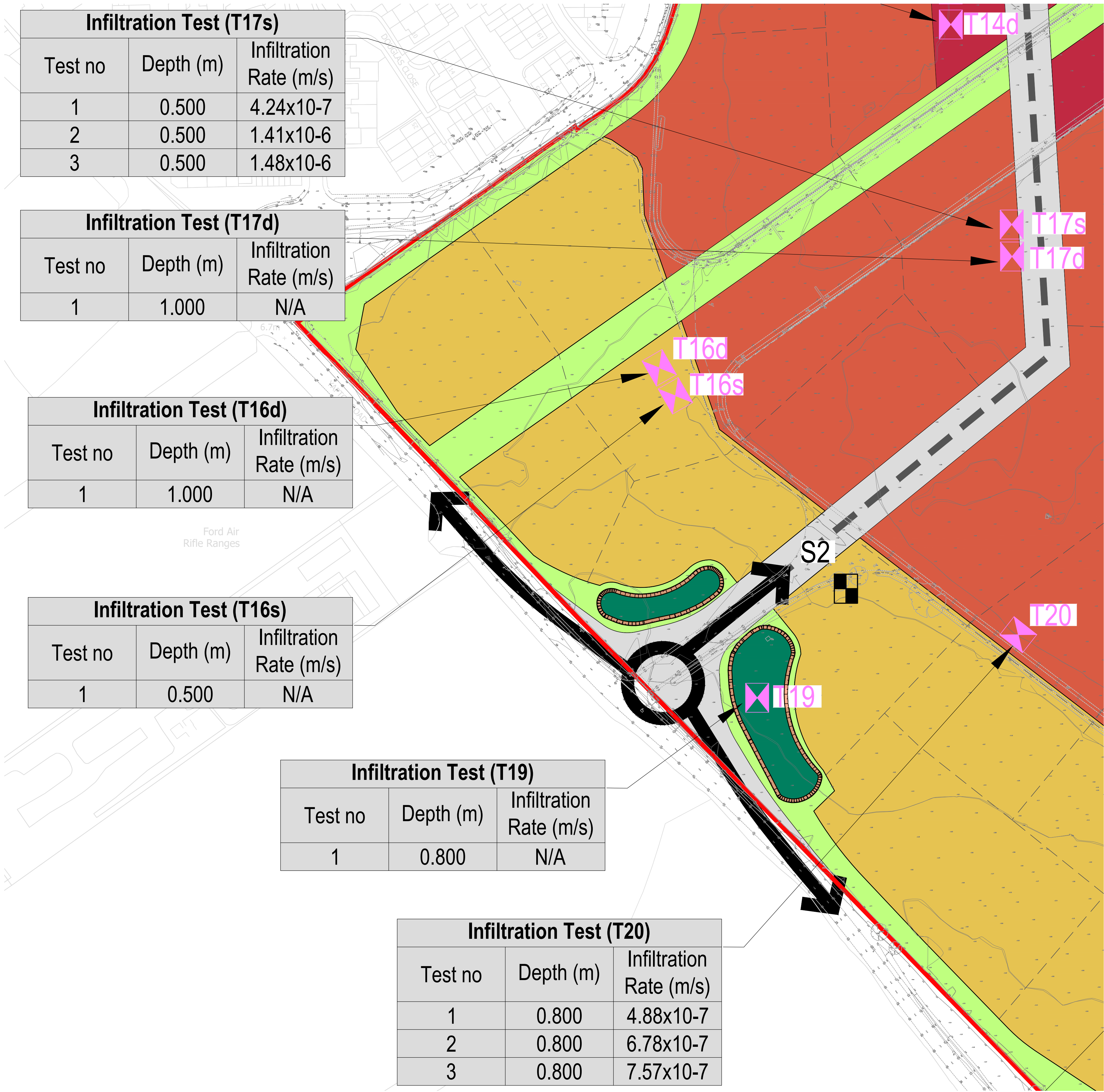
Infiltration Test (T17d)		
Test no	Depth (m)	Infiltration Rate (m/s)
1	1.000	N/A

Infiltration Test (T16d)		
Test no	Depth (m)	Infiltration Rate (m/s)
1	1.000	N/A

Infiltration Test (T16s)		
Test no	Depth (m)	Infiltration Rate (m/s)
1	0.500	N/A

Infiltration Test (T19)		
Test no	Depth (m)	Infiltration Rate (m/s)
1	0.800	N/A

Infiltration Test (T20)		
Test no	Depth (m)	Infiltration Rate (m/s)
1	0.800	4.88x10-7
2	0.800	6.78x10-7
3	0.800	7.57x10-7



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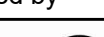
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- Legend
- Site Boundary
 - Soakaway Test carried out by RSK dated February 2020

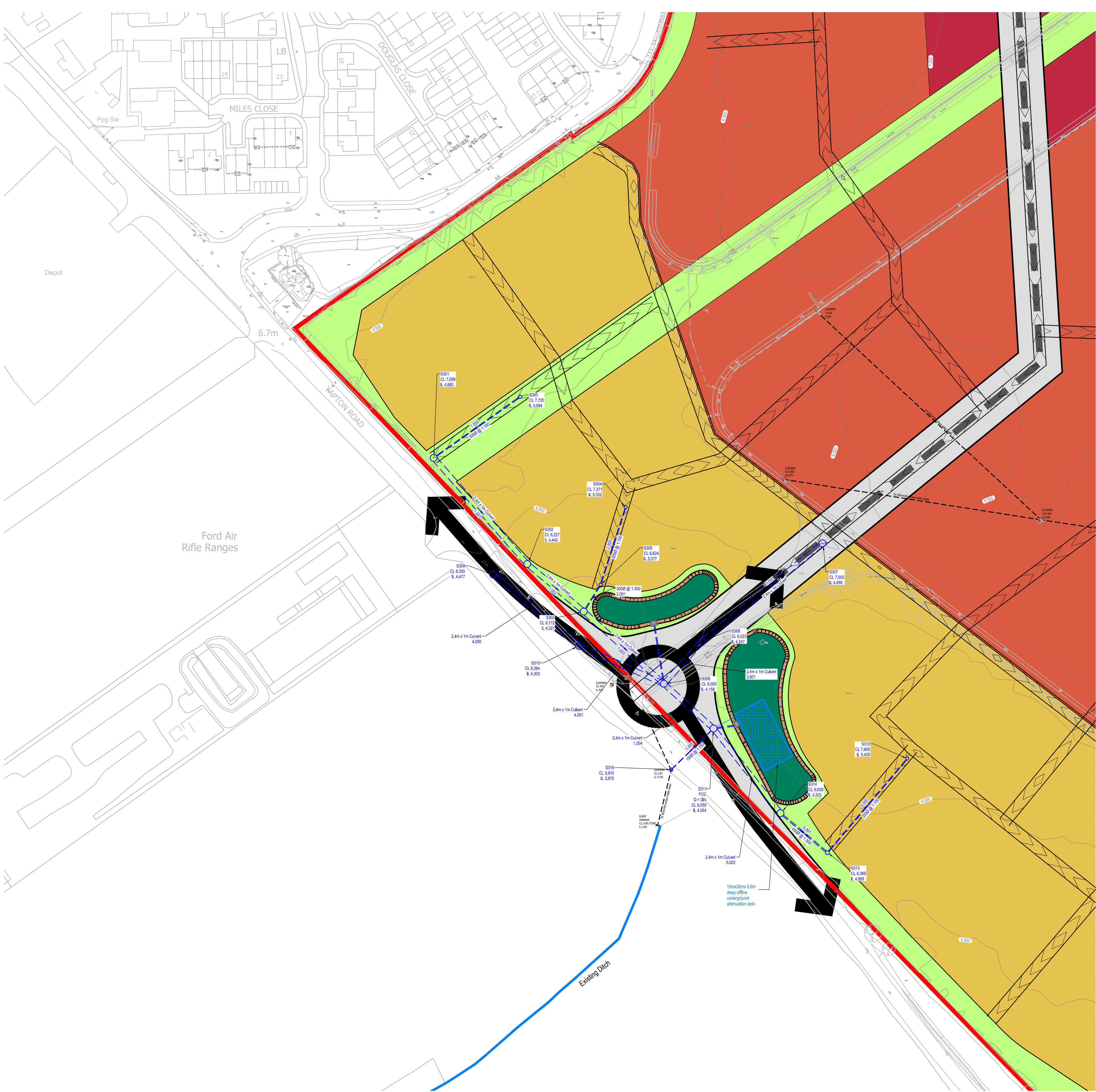
Rev.	Date	Amendment	By	Chk.
Status				
Indicative				



Client	Wates Redrow
Job	Ford Airfield
Title	South West Parcels Infiltration Rates

Scale	1:1000	@ A1	Date	December 2020
Drawn by	IS	Checked by	Approved by	
 012    Part of Capita plc  A01010 Supplier No. 000026				

Drawing No.	C85228-D191	Rev.	-
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Legend	
	Site boundary
	Surface water sewer
	Surface water rising main
	Existing ground contour
	Proposed road contours

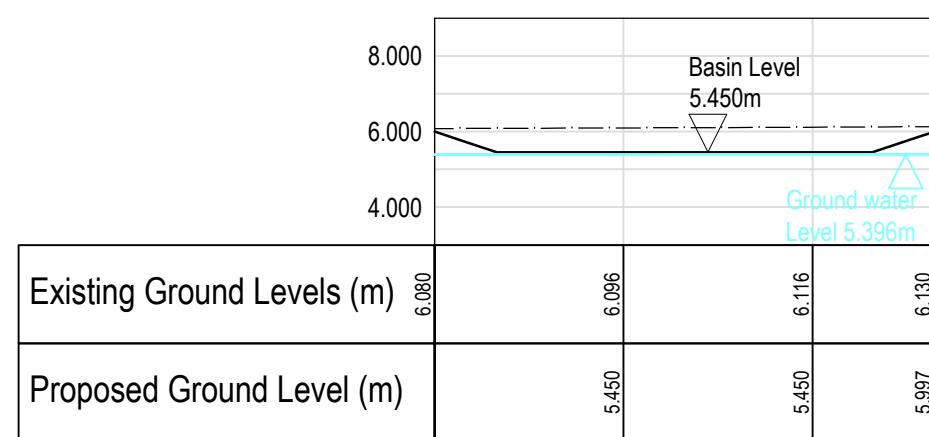
Rev.	Date	Amendment	By	Chk.
Status				
Indicative				

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Consulting Engineers
www.jnpgroup.co.uk
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Tel: 01494 771221 E-mail: chesham@jnpgroup.co.uk

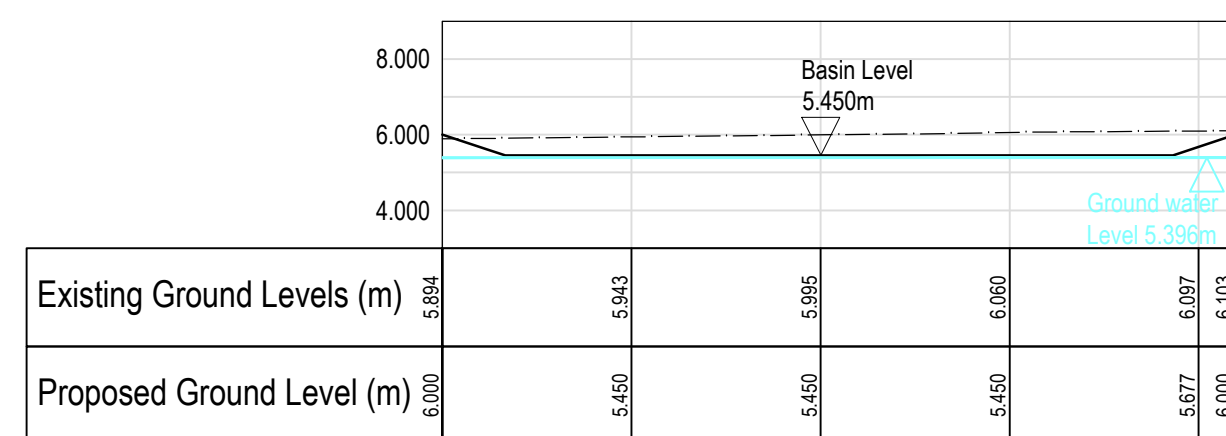
Client	Wates Redrow
Job	Ford Airfield
Title	South West Parcels Indicative Surface Water Drainage Strategy

Scale	1:1000	@ A1	Date	December 2020
Drawn by	IS	Checked by		Approved by
Accredited Contractor				

Drawing No.	C85228-D192	Rev.	-
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South West Parcels Attenuation Basin Section A-A
1:200



South West Parcels Attenuation Basin Section B-B
1:200

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Legend

 Site boundary
 Surface water sewer
 Surface water rising main
 Existing ground contour
 Proposed road contours

Rev.	Date	Amendment					By	Chk
Status Indicative								



Client	Wates Redrow		
Job	Ford Airfield		
Title	South West Parcels Attenuation Basin Plan Layout and Sections		
Scale As Shown	@ A1	Date	December 2020
Drawn by	IS	Checked by	Approved by
    			
312		Accredited Contractor	
Supplier No. 000020			
Drawing No.	C85228-D193		Rev.
			-

JNP Group	Page 1
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Date 10/02/2020 13:41 File C85228 SW Network 4 wit...	Designed by IS Checked by AMc
Micro Drainage	Network 2018.1.1



STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for JNP Surface Water Network 4 NEW with Roundabout design

Pipe Sizes Standard Manhole Sizes STANDARD

FEH Rainfall Model	
Return Period (years)	2
FEH Rainfall Version	2013
Site Location	GB 500450 103100 TQ 00450 03100
Data Type	Catchment
Maximum Rainfall (mm/hr)	50
Maximum Time of Concentration (mins)	30
Foul Sewage (l/s/ha)	0.000
Volumetric Runoff Coeff.	0.750
PIMP (%)	100
Add Flow / Climate Change (%)	0
Minimum Backdrop Height (m)	0.000
Maximum Backdrop Height (m)	0.000
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 JNP Surface Water Network 4 NEW with Roundabout design

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	1.134	4-8	0.599

Total Area Contributing (ha) = 1.733

Total Pipe Volume (m³) = 1020.224

Network Design Table for JNP Surface Water Network 4 NEW with Roundabout design

« - Indicates pipe capacity < flow

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	49.652	0.331	150.0	0.111	5.00	0.0	0.600	o	300	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	5.65	5.694	0.111	0.0	0.0	0.0	1.28	90.6	15.0

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Date 10/02/2020 13:41 File C85228 SW Network 4 wit...					Designed by IS Checked by AMc						
Micro Drainage					Network 2018.1.1						
<u>Network Design Table for JNP Surface Water Network 4 NEW with Roundabout design</u>											
PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.001	66.357	0.221	300.3	0.239	0.00	0.0	0.600	[]	12	Pipe/Conduit	
1.002	34.606	0.115	300.9	0.259	0.00	0.0	0.600	[]	12	Pipe/Conduit	
2.000	38.214	0.255	150.0	0.000	5.00	0.0	0.600	o	300	Pipe/Conduit	
2.001	14.870	0.050	300.0	0.077	0.00	0.0	0.600	o	300	Pipe/Conduit	
1.003	50.577	0.169	300.0	0.000	0.00	0.0	0.600	[]	12	Pipe/Conduit	
3.000	72.989	0.243	300.0	0.000	5.00	0.0	0.600	[]	12	Pipe/Conduit	
3.001	26.635	0.089	300.0	0.246	0.00	0.0	0.600	[]	12	Pipe/Conduit	
4.000	52.311	0.174	300.0	0.044	5.00	0.0	0.600	[]	12	Pipe/Conduit	
4.001	43.612	0.145	300.0	0.000	0.00	0.0	0.600	[]	12	Pipe/Conduit	
1.004	31.308	0.104	301.0	0.341	0.00	0.0	0.600	[]	12	Pipe/Conduit	
5.000	57.923	0.386	150.0	0.058	5.00	0.0	0.600	o	300	Pipe/Conduit	
5.001	28.776	0.096	300.0	0.341	0.00	0.0	0.600	o	450	Pipe/Conduit	
5.002	50.764	0.169	300.0	0.017	0.00	0.0	0.600	[]	12	Pipe/Conduit	
1.005	27.616	0.184	150.0	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
<u>Network Results Table</u>											
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)	
1.001	50.00	6.10	4.663	0.350	0.0	0.0	0.0	2.43	5693.0	47.4	
1.002	50.00	6.34	4.442	0.609	0.0	0.0	0.0	2.43	5686.7	82.5	
2.000	50.00	5.50	5.332	0.000	0.0	0.0	0.0	1.28	90.6	0.0	
2.001	50.00	5.77	5.077	0.077	0.0	0.0	0.0	0.90	63.8	10.4	
1.003	50.00	6.68	4.327	0.686	0.0	0.0	0.0	2.43	5695.4	92.9	
3.000	50.00	5.50	4.490	0.000	0.0	0.0	0.0	2.43	5695.4	0.0	
3.001	50.00	5.68	4.247	0.246	0.0	0.0	0.0	2.43	5695.4	33.3	
4.000	50.00	5.36	4.477	0.044	0.0	0.0	0.0	2.43	5695.4	6.0	
4.001	50.00	5.66	4.303	0.044	0.0	0.0	0.0	2.43	5695.4	6.0	
1.004	50.00	6.90	4.158	1.317	0.0	0.0	0.0	2.43	5685.5	178.3	
5.000	50.00	5.75	5.405	0.058	0.0	0.0	0.0	1.28	90.6	7.9	
5.001	50.00	6.16	4.869	0.399	0.0	0.0	0.0	1.17	185.8	54.0	
5.002	50.00	6.51	4.223	0.416	0.0	0.0	0.0	2.43	5695.4	56.3	
1.005	50.00	7.46	4.054	1.733	0.0	0.0	0.0	0.82	14.5«	234.7	
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JNP Group		Page 3																
3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP	Ford Airfield System 4 South West Network																	
Date 10/02/2020 13:41 File C85228 SW Network 4 wit...	Designed by IS Checked by AMc																	
Micro Drainage	Network 2018.1.1																	
<u>Conduit Sections for JNP Surface Water Network 4 NEW with Roundabout design</u>																		
NOTE: Diameters less than 66 refer to section numbers of hydraulic conduits. These conduits are marked by the symbols:- [] box culvert, \ / open channel, oo dual pipe, ooo triple pipe, O egg. Section numbers < 0 are taken from user conduit table <table><tr><th>Section Number</th><th>Conduit Type</th><th>Major Dimn. (mm)</th><th>Minor Dimn. (mm)</th><th>Side Slope (Deg)</th><th>Corner Splay (mm)</th><th>4*Hyd Radius (m)</th><th>XSect Area (m²)</th></tr><tr><td>12</td><td>[]</td><td>2400</td><td>1000</td><td>90.0</td><td>175</td><td>1.464</td><td>2.339</td></tr></table>			Section Number	Conduit Type	Major Dimn. (mm)	Minor Dimn. (mm)	Side Slope (Deg)	Corner Splay (mm)	4*Hyd Radius (m)	XSect Area (m ²)	12	[]	2400	1000	90.0	175	1.464	2.339
Section Number	Conduit Type	Major Dimn. (mm)	Minor Dimn. (mm)	Side Slope (Deg)	Corner Splay (mm)	4*Hyd Radius (m)	XSect Area (m ²)											
12	[]	2400	1000	90.0	175	1.464	2.339											
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Micro Drainage Network 2018.1.1		

Manhole Schedules for JNP Surface Water Network 4 NEW with Roundabout design

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Diameter (mm)	PN	Pipes In Invert Level (m)	Diameter (mm)	Backdrop (mm)
400	7.720	2.026	Open Manhole	1200	1.000	5.694	300				
401	7.099	2.436	Open Manhole	3000	1.001	4.663	12	1.000	5.363	300	
402	6.227	1.785	Open Manhole	3000	1.002	4.442	12	1.001	4.442	12	
404	7.371	2.039	Open Manhole	1200	2.000	5.332	300				
405	6.624	1.547	Open Manhole	1200	2.001	5.077	300	2.000	5.077	300	
403	6.112	1.785	Open Manhole	3000	1.003	4.327	12	1.002	4.327	12	
								2.001	5.027	300	
407	7.002	2.512	Open Manhole	3000	3.000	4.490	12				
408	6.023	1.776	Open Manhole	3000	3.001	4.247	12	3.000	4.247	12	
409	6.355	1.878	Open Manhole	3000	4.000	4.477	12				
410	6.364	2.061	Open Manhole	3000	4.001	4.303	12	4.000	4.303	12	
406	6.093	1.935	Open Manhole	3000	1.004	4.158	12	1.003	4.158	12	
								3.001	4.158	12	
								4.001	4.158	12	
412	7.665	2.260	Open Manhole	1200	5.000	5.405	300				
413	6.369	1.500	Open Manhole	1500	5.001	4.869	450	5.000	5.019	300	
414	6.008	1.785	Open Manhole	3000	5.002	4.223	12	5.001	4.773	450	
411	6.050	1.996	Open Manhole	3000	1.005	4.054	150	1.004	4.054	12	
								5.002	4.054	12	
415	5.610	1.740	Open Manhole	1200		OUTFALL		1.005	3.870	150	

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3rd Floor, Marlborough House 48 Holly Walk Leamington Spa CV32 4XP	Ford Airfield System 4 South West Network	
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Micro Drainage	Network 2018.1.1	

PIPELINE SCHEDULES for JNP Surface Water Network 4 NEW with Roundabout design

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)
1.000	o	300	400	7.720	5.694	1.726	Open Manhole	1200
1.001	[]	12	401	7.099	4.663	1.436	Open Manhole	3000
1.002	[]	12	402	6.227	4.442	0.785	Open Manhole	3000
2.000	o	300	404	7.371	5.332	1.739	Open Manhole	1200
2.001	o	300	405	6.624	5.077	1.247	Open Manhole	1200
1.003	[]	12	403	6.112	4.327	0.785	Open Manhole	3000
3.000	[]	12	407	7.002	4.490	1.512	Open Manhole	3000
3.001	[]	12	408	6.023	4.247	0.776	Open Manhole	3000
4.000	[]	12	409	6.355	4.477	0.878	Open Manhole	3000
4.001	[]	12	410	6.364	4.303	1.061	Open Manhole	3000
1.004	[]	12	406	6.093	4.158	0.935	Open Manhole	3000
5.000	o	300	412	7.665	5.405	1.960	Open Manhole	1200
5.001	o	450	413	6.369	4.869	1.050	Open Manhole	1500
5.002	[]	12	414	6.008	4.223	0.785	Open Manhole	3000

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)
1.000	49.652	150.0	401	7.099	5.363	1.436	Open Manhole	3000
1.001	66.357	300.3	402	6.227	4.442	0.785	Open Manhole	3000
1.002	34.606	300.9	403	6.112	4.327	0.785	Open Manhole	3000
2.000	38.214	150.0	405	6.624	5.077	1.247	Open Manhole	1200
2.001	14.870	300.0	403	6.112	5.027	0.785	Open Manhole	3000
1.003	50.577	300.0	406	6.093	4.158	0.935	Open Manhole	3000
3.000	72.989	300.0	408	6.023	4.247	0.776	Open Manhole	3000
3.001	26.635	300.0	406	6.093	4.158	0.935	Open Manhole	3000
4.000	52.311	300.0	410	6.364	4.303	1.061	Open Manhole	3000
4.001	43.612	300.0	406	6.093	4.158	0.935	Open Manhole	3000
1.004	31.308	301.0	411	6.050	4.054	0.996	Open Manhole	3000
5.000	57.923	150.0	413	6.369	5.019	1.050	Open Manhole	1500
5.001	28.776	300.0	414	6.008	4.773	0.785	Open Manhole	3000
5.002	50.764	300.0	411	6.050	4.054	0.996	Open Manhole	3000

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Date 10/02/2020 13:41 File C85228 SW Network 4 wit...	Designed by IS Checked by AMc	
Micro Drainage	Network 2018.1.1	

PIPELINE SCHEDULES for JNP Surface Water Network 4 NEW with Roundabout design

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)
1.005	o	150	411	6.050	4.054	1.846	Open Manhole	3000

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)
1.005	27.616	150.0	415	5.610	3.870	1.590	Open Manhole	1200

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Date 10/02/2020 13:41 File C85228 SW Network 4 wit...	Designed by IS Checked by AMc
Micro Drainage	Network 2018.1.1



Area Summary for JNP Surface Water Network 4 NEW with Roundabout design

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	-	-	100	0.111	0.111	0.111
1.001	-	-	100	0.239	0.239	0.239
1.002	-	-	100	0.259	0.259	0.259
2.000	-	-	100	0.000	0.000	0.000
2.001	-	-	100	0.077	0.077	0.077
1.003	-	-	100	0.000	0.000	0.000
3.000	-	-	100	0.000	0.000	0.000
3.001	-	-	100	0.246	0.246	0.246
4.000	-	-	100	0.044	0.044	0.044
4.001	-	-	100	0.000	0.000	0.000
1.004	-	-	100	0.341	0.341	0.341
5.000	-	-	100	0.058	0.058	0.058
5.001	-	-	100	0.341	0.341	0.341
5.002	-	-	100	0.017	0.017	0.017
1.005	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				1.733	1.733	1.733

Free Flowing Outfall Details for JNP Surface Water Network 4 NEW with Roundabout design

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.005	415	5.610	3.870	3.870	1200	0

Simulation Criteria for JNP Surface Water Network 4 NEW with Roundabout design

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m ³ /ha Storage	0.000
Hot Start (mins)	0	Inlet Coefficient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1

Number of Input Hydrographs	0	Number of Storage Structures	2
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FEH
Return Period (years)	2
FEH Rainfall Version	2013
Site Location	GB 500450 103100 TQ 00450 03100
Data Type	Catchment

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Micro Drainage	Network 2018.1.1	
Synthetic Rainfall Details Summer Storms Yes Winter Storms No Cv (Summer) 0.750 Cv (Winter) 0.840 Storm Duration (mins) 30		
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Micro Drainage Network 2018.1.1		

Online Controls for JNP Surface Water Network 4 NEW with Roundabout design

Hydro-Brake® Optimum Manhole: 411, DS/PN: 1.005, Volume (m³): 192.0

Unit Reference	MD-SHE-0060-2000-1635-2000
Design Head (m)	1.635
Design Flow (l/s)	2.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	60
Invert Level (m)	4.054
Minimum Outlet Pipe Diameter (mm)	75
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.635	2.0
Flush-Flo™	0.260	1.5
Kick-Flo®	0.532	1.2
Mean Flow over Head Range	-	1.5

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	1.3	1.200	1.7	3.000	2.6	7.000	3.9
0.200	1.5	1.400	1.9	3.500	2.8	7.500	4.0
0.300	1.5	1.600	2.0	4.000	3.0	8.000	4.2
0.400	1.4	1.800	2.1	4.500	3.2	8.500	4.3
0.500	1.3	2.000	2.2	5.000	3.3	9.000	4.4
0.600	1.3	2.200	2.3	5.500	3.5	9.500	4.5
0.800	1.4	2.400	2.4	6.000	3.6		
1.000	1.6	2.600	2.5	6.500	3.8		

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Micro Drainage Network 2018.1.1		

2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for JNP Surface Water Network 4 NEW with Roundabout design

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	0.000
Hot Start Level (mm)	0	Inlet Coefficient	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	2
Number of Online Controls	1	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 500450 103100 TQ 00450 03100
Data Type	Catchment
Cv (Summer)	0.750
Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0	DVD Status	OFF
Analysis Timestep	Fine	Inertia Status	OFF
DTS Status	OFF		

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 240, 360, 480, 960, 1440, 10080
Return Period(s) (years)	2, 30, 100
Climate Change (%)	0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	400	15 Winter	2	+0%				
1.001	401	15 Winter	2	+0%	100/10080	Winter		
1.002	402	10080 Winter	2	+0%	100/360	Winter		
2.000	404	120 Winter	2	+0%	100/10080	Winter		
2.001	405	15 Winter	2	+0%	100/360	Winter		
1.003	403	10080 Winter	2	+0%	100/360	Winter		
3.000	407	10080 Winter	2	+0%	100/480	Winter		
3.001	408	10080 Winter	2	+0%	100/240	Winter		
4.000	409	10080 Winter	2	+0%	100/480	Winter		
4.001	410	10080 Winter	2	+0%	100/240	Winter		
1.004	406	10080 Winter	2	+0%	100/240	Winter		
5.000	412	15 Winter	2	+0%				
5.001	413	15 Winter	2	+0%	100/15	Summer		
5.002	414	10080 Winter	2	+0%	100/240	Winter		
1.005	411	10080 Winter	2	+0%	2/15	Summer		

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Micro Drainage		Network 2018.1.1

2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for JNP Surface Water Network 4 NEW with Roundabout design

PN	US/MH Name	Water		Surcharged		Flooded		Pipe		Status	Level Exceeded
		Level (m)	Depth (m)	Volume (m ³)	Flow / Cap.	Overflow (l/s)	Flow (l/s)				
1.000	400	5.790	-0.204	0.000	0.22		19.0			OK	
1.001	401	4.689	-0.974	0.000	0.01		53.8			OK	
1.002	402	4.666	-0.776	0.000	0.00		1.7			OK	
2.000	404	5.332	-0.300	0.000	0.00		0.0			OK	
2.001	405	5.170	-0.207	0.000	0.21		11.2			OK	
1.003	403	4.666	-0.661	0.000	0.00		1.8			OK	
3.000	407	4.667	-0.823	0.000	0.00		0.0			OK	
3.001	408	4.667	-0.580	0.000	0.00		0.5			OK	
4.000	409	4.666	-0.811	0.000	0.00		0.1			OK	
4.001	410	4.666	-0.637	0.000	0.00		0.2			OK	
1.004	406	4.667	-0.491	0.000	0.00		2.4			OK	
5.000	412	5.473	-0.232	0.000	0.11		9.7			OK	
5.001	413	5.060	-0.259	0.000	0.37		59.4			OK	
5.002	414	4.667	-0.556	0.000	0.00		1.2			OK	
1.005	411	4.667	0.463	0.000	0.11		1.5			SURCHARGED	

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Micro Drainage Network 2018.1.1		

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for JNP Surface Water Network 4 NEW with Roundabout design

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	0.000
Hot Start Level (mm)	0	Inlet Coefficient	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	2
Number of Online Controls	1	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 500450 103100 TQ 00450 03100
Data Type	Catchment
Cv (Summer)	0.750
Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0	DVD Status	OFF
Analysis Timestep	Fine	Inertia Status	OFF
DTS Status	OFF		

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 240, 360, 480, 960, 1440, 10080
Return Period(s) (years)	2, 30, 100
Climate Change (%)	0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	400	15 Winter	30	+0%				
1.001	401	10080 Winter	30	+0%	100/10080 Winter			
1.002	402	10080 Winter	30	+0%	100/360 Winter			
2.000	404	120 Winter	30	+0%	100/10080 Winter			
2.001	405	15 Winter	30	+0%	100/360 Winter			
1.003	403	10080 Winter	30	+0%	100/360 Winter			
3.000	407	10080 Winter	30	+0%	100/480 Winter			
3.001	408	10080 Winter	30	+0%	100/240 Winter			
4.000	409	10080 Winter	30	+0%	100/480 Winter			
4.001	410	10080 Winter	30	+0%	100/240 Winter			
1.004	406	10080 Winter	30	+0%	100/240 Winter			
5.000	412	15 Winter	30	+0%				
5.001	413	15 Winter	30	+0%	100/15 Summer			
5.002	414	10080 Winter	30	+0%	100/240 Winter			
1.005	411	10080 Winter	30	+0%	2/15 Summer			

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Micro Drainage	Network 2018.1.1	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for JNP Surface Water Network 4 NEW with Roundabout design

PN	US/MH Name	Water		Surcharged		Flooded		Pipe		Status	Level Exceeded
		Level (m)	Depth (m)	Volume (m ³)	Flow / Cap.	Overflow (l/s)	Flow (l/s)				
1.000	400	5.842	-0.152	0.000	0.48		40.8			OK	
1.001	401	5.018	-0.645	0.000	0.00		1.5			OK	
1.002	402	5.018	-0.424	0.000	0.00		2.2			OK	
2.000	404	5.332	-0.300	0.000	0.00		0.0			OK	
2.001	405	5.239	-0.138	0.000	0.57		30.3			OK	
1.003	403	5.018	-0.309	0.000	0.00		2.2			OK	
3.000	407	5.018	-0.472	0.000	0.00		0.0			OK	
3.001	408	5.018	-0.229	0.000	0.00		0.5			OK	
4.000	409	5.018	-0.459	0.000	0.00		0.2			OK	
4.001	410	5.018	-0.285	0.000	0.00		0.2			OK	
1.004	406	5.018	-0.140	0.000	0.00		2.6			OK	
5.000	412	5.507	-0.198	0.000	0.24		20.8			OK	
5.001	413	5.223	-0.096	0.000	0.96		152.3			OK	
5.002	414	5.018	-0.205	0.000	0.00		1.7			OK	
1.005	411	5.018	0.814	0.000	0.11		1.6			SURCHARGED	

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Micro Drainage Network 2018.1.1		

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for JNP Surface Water Network 4 NEW with Roundabout design

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	0.000
Hot Start Level (mm)	0	Inlet Coefficient	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	2
Number of Online Controls	1	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 500450 103100 TQ 00450 03100
Data Type	Catchment
Cv (Summer)	0.750
Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0	DVD Status	OFF
Analysis Timestep	Fine	Inertia Status	OFF
DTS Status	OFF		

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 240, 360, 480, 960, 1440, 10080
Return Period(s) (years)	2, 30, 100
Climate Change (%)	0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	400	15 Winter	100	+40%				
1.001	401	10080 Winter	100	+40%	100/10080 Winter			
1.002	402	10080 Winter	100	+40%	100/360 Winter			
2.000	404	10080 Winter	100	+40%	100/10080 Winter			
2.001	405	10080 Winter	100	+40%	100/360 Winter			
1.003	403	10080 Winter	100	+40%	100/360 Winter			
3.000	407	10080 Winter	100	+40%	100/480 Winter			
3.001	408	10080 Winter	100	+40%	100/240 Winter			
4.000	409	10080 Winter	100	+40%	100/480 Winter			
4.001	410	10080 Winter	100	+40%	100/240 Winter			
1.004	406	10080 Winter	100	+40%	100/240 Winter			
5.000	412	10080 Winter	100	+40%				
5.001	413	10080 Winter	100	+40%	100/15 Summer			
5.002	414	10080 Winter	100	+40%	100/240 Winter			
1.005	411	10080 Winter	100	+40%	2/15 Summer			

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Micro Drainage	Network 2018.1.1	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for JNP Surface Water Network 4 NEW with Roundabout design

PN	US/MH Name	Water		Surcharged		Flooded		Pipe		Status	Level Exceeded
		Level (m)	Depth (m)	Volume (m ³)	Flow / Cap.	Flow / Cap.	Flow / Cap.	Flow (l/s)	Flow (l/s)		
1.000	400	5.908	-0.086	0.000	0.84			71.7		OK	
1.001	401	5.687	0.024	0.000	0.00			2.5		SURCHARGED	
1.002	402	5.687	0.245	0.000	0.00			11.8		SURCHARGED	
2.000	404	5.687	0.055	0.000	0.00			0.1		SURCHARGED	
2.001	405	5.687	0.310	0.000	0.02			1.1		SURCHARGED	
1.003	403	5.687	0.360	0.000	0.00			16.0		SURCHARGED	
3.000	407	5.687	0.197	0.000	0.00			0.8		SURCHARGED	
3.001	408	5.687	0.440	0.000	0.00			12.9		SURCHARGED	
4.000	409	5.687	0.210	0.000	0.00			0.8		SURCHARGED	
4.001	410	5.687	0.384	0.000	0.00			9.5		SURCHARGED	
1.004	406	5.687	0.529	0.000	0.00			15.6		SURCHARGED	
5.000	412	5.687	-0.018	0.000	0.00			0.4		OK	
5.001	413	5.687	0.368	0.000	0.02			3.0		SURCHARGED	
5.002	414	5.687	0.464	0.000	0.00			3.0		SURCHARGED	
1.005	411	5.687	1.483	0.000	0.14			2.0		SURCHARGED	