

20218586

10 Moxley Road

Below Ground Drainage Strategy

Document Control

Revision	Originator	Checked By	Reviewed By	Approved By	Issued to	Issue Date
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The above signatures confirm that:

- the **originator** has to the best of their ability produced a document of high quality work, and made any amendments as required during the checking and reviewing process
- the **checker** has completed a line by line check using source data and agreed changes to be made with the originator
- the **reviewer** has completed a high level review and agreed any changes/corrections with the originator and ensured they have been completed
- the **approver** has confirmed that the check and review has been completed by persons appropriately qualified and that the document is fit for issue

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1 Introduction

1.1 General

This design solution has been developed in relation to the above-mentioned project.

This report may be modified and updated to suit requirements and obligations of the Local Planning Authority, Environment Agency, Sewerage Undertakers and any other statutory authorities.

This strategy report aims to include the following:

- Identify available data relating to drainage at the existing site.
- Discuss Sustainable Urban Drainage Systems (SUDS) as an option for reducing surface water flood risk
- Devise an appropriate outline surface water drainage strategy to deal with any surface water runoff and include for climate change
- Demonstrate compliance of the solution via hydraulic analysis

The proposed drainage network must be capable of operating effectively following climate-change over the anticipated lifespan of the development. Residential developments are considered likely to remain for at least 100 years. According to Table 2 of DEFRA guidance on climate change, the peak rainfall intensity that is used to test the system performance must be increased by 40%. The drainage network, therefore, must be effective at managing surface water on the site for rainfall up to and including the 1 in 100 + 40% storm event.

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2 Introduction

2.1 Site Address

10 Moxley Road
Crumpsal
M8 4HJ
United Kingdom

Grid Reference: 383540, 402374 (Easting, Northing)

2.2 Description

Site as demonstrated in figure 1 below



Figure 1: Google Earth Image of development site, boundary shown in red.

The development site is greenfield and occupies an approximate area of 177m². Historically, the site contained an end terrace structure similar to those adjacent though this has long since been demolished. There is no evidence that the previous building on site had positive drainage into the sewer below Moxley Road.

To the north, the site is bound by a private field. To the east the site is bound by a ginnel/access path. To the south, the site is bound by Moxley Road and associated pavement. To the west, the site is bound by the adjacent building (12 Moxley Road)

No topographical survey has been completed though the site appears to generally be flat.

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2.2.1 Geology and Groundwater

A desktop study has been completed to characterise the anticipated site ground conditions.

DEFRA mapping (see figure 2) notes that site is located on the boundary between slowly permeable, seasonally wet, acid loamy and clayey soils and free draining sandy soils.

BGS surface geology mapping (see figure 3) notes that the site is located within a region of glaciofluvial deposits (sand gravel)

Whilst no site investigation has been completed, there are numerous historic BGS borehole records (see Appendix A) located approx 0.60km to the south of site. Boreholes in that region indicate soils to be predominately sand with some clay/silt deposits.

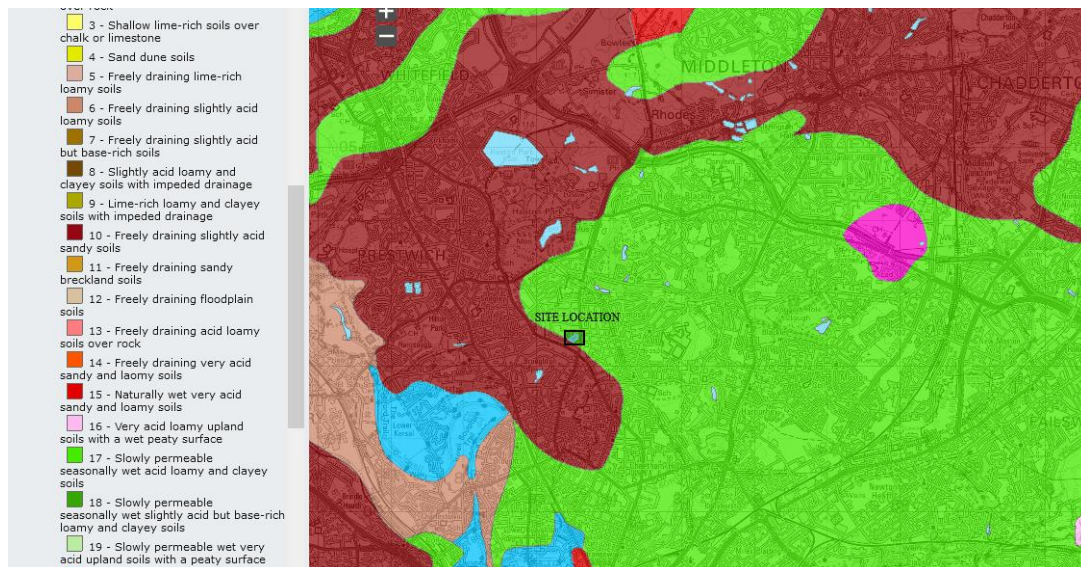


Figure 2: Defra Magic Map noting typical soilscape in vicinity

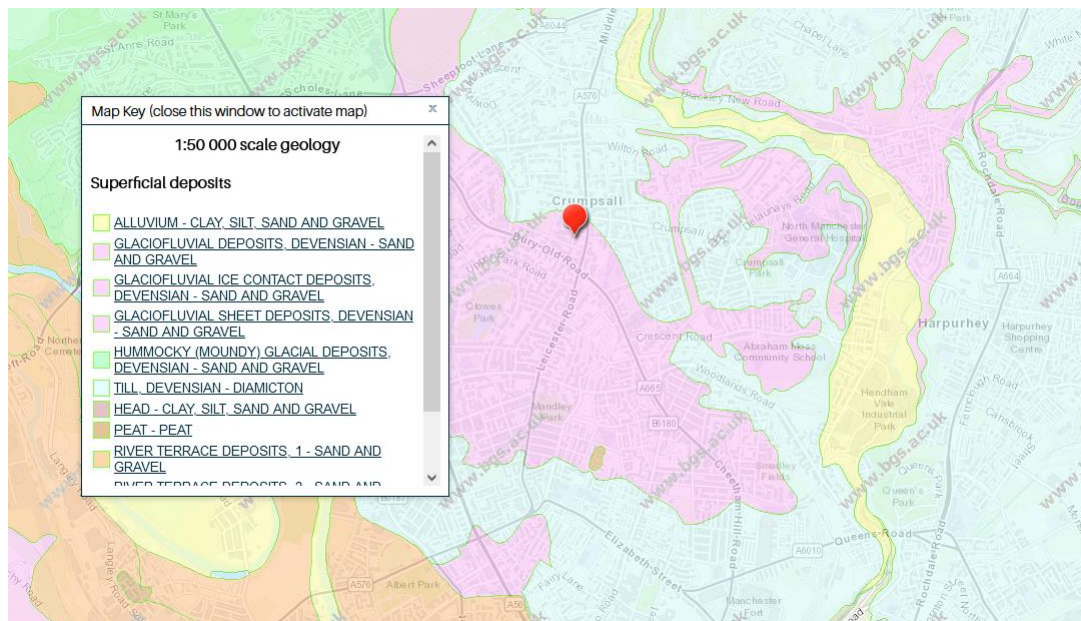


Figure 3: BGS Surface geology mapping

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2.2.2 Existing Site Drainage

No CCTV drainage survey has been completed. It is not known if the previous demolished buildings had any below ground drainage installed prior to demolition.

3 Development Proposal

It is proposed to develop a 3 storey residential building on site. The proposed building will have an impermeable hardstanding area of approximately 70m² (total roof area), there will not be any impermeable hardstanding to the front or rear of the proposed building.

4 Surface Water Strategy

The following outlines the strategy developed by BDI

4.1 General

Planning Policy Statement 25: Development and Flood Risk

PPS 25 states that 'Surface water arising from a developed site should as far as is practicable, be managed in a sustainable manner to mimic the surface water flows arising from the site prior to the proposed development, while reducing the flood risk to the site itself and elsewhere, taking climate change into account.' A hierarchy of preferred options are as follows:

1. Run off managed at source via infiltration to the ground
2. Discharge to surface body of water
3. Discharge to existing surface water sewer or highway drain
4. Connection to combined sewer

4.2 Runoff Destination

Means of discharging surface water generated onsite discussed as below.

4.2.1 Site control - Infiltration

Infiltration offers full source control and where viable mimics the natural behaviour of the predeveloped site. The desk study completed indicates that soil on site is most likely to be sands. Sands generally offer good infiltration rates and serve as a good medium for construction of soakaways however in this instance the site boundary is tight and it isn't possible to position a soakaway within the following dimensional criteria:

1. Soakaway positioned atleast 5m away from foundations
2. Soakaway positioned atleast 2.5m away from boundary lines.

Given that the above criteria cannot be satisfied, using a soakaway has been discounted.

The site does not lend itself to the formation of swales, detention basins and other such similar features given site constraints and use.

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4.2.2 Discharge to surface water body

There are no surface water bodies or water courses within local vicinity for this option to be considered. The proposed development site does not lend itself to formation of new surface water bodies or detention basins to hold storm water and promote natural mechanisms such as evaporation.

4.2.3 Discharge to surface water sewer

Based on UU survey mapping (see Appendix B) it appears there are no existing below ground surface water sewers in this vicinity that could be used to discharge surface water runoff to.

4.2.4 Discharge to combined sewer

UU mapping indicates there is an existing 375mm diameter vitrified clay combined sewer below Moxley Road, it is proposed to discharge surface water runoff into this sewer. If an existing outfall pipe can be located on site this will be utilised to avoid the requirement of forming a new sewer connection below Moxley Road. If an existing outfall cannot be located, a new connection will be formed to the sewer below Moxley Road.

Existing site is greenfield, given the sites small area it will not be viable to limit surface water discharge rates to suit greenfield runoff rates. Surface water discharge rate will instead be limited to a maximum rate of 5.00litres/second to help reduce the risk of upstream flooding associated with blockage of small diameter flow restriction devices.

Surface water and foul drainage will kept independent on site and will only combine in the final combined chamber before discharge from site.

4.3 Proposed design methodology

Surface water runoff generated on impermeable surfaces is to be collected into below ground drainage pipes via traditional rainwater pipes and gulleys and routed towards the front of site. Surface water flow will be restricted via an orifice plate in a preformed chamber or similar to ensure that peak flow rate is maintained at 5.00litres/second (in all events, including the 1 in 100 year event (+40% CC)) before combining with foul in the outfall chamber.

The inherent volume of the surface water pipes and inspection chambers will offer temporary storage to runoff in storms resulting in flows that exceed permitted rates. The system is designed to prevent any flooding in all storm events and durations up to and including the 100 year event + 40% allowance for climate change.

The new surface water network onsite is to be kept private. All drainage is to be formed in accordance with current building regulations and also with Ciria C753 The SUDS Manual.

The new surface water drainage system is designed as follows:

1. Pipes are to be sized to accommodate 1 in 2 year event storm without surcharge.
2. System is to be designed not to flood any part of the site in a 1 in 100 year event design storm plus 40% allowance for climate change.

4.3.1 Correspondence with Statutory and Other Authorities

No consultation has been made with United Utilities

No consultation has been made with the LLFA

5 Design of surface water network

Hydraulic modelling of the surface water network has been completed in software Causeway Flow. (output can be found in Appendix D). All primary storm events and durations considered to ensure site flooding does not occur as described earlier.

Discharge rates for storm return periods are as follows:

- 1 in 1 year storm – flow limited to 0.8 litres/second
- 1 in 30 year storm – flow limited to 1.9 litres/second
- 1 in 100 year storm (+40% CC) – flow limited to 2.9 litres/second

The proposed surface water system is shown on BDI drawing 20218586 C1 01 (see Appendix C) and comprises the following:

- Minimum pipe diameter, minimum fall and span of surface water carrier drains. Indicative location and diameter of inspection chambers.
- Location and size of required orifice plate on preformed chamber to limit flow rate as indicated above.

Appendix A: Historic Borehole Logs

GEO-RESEARCH LTD. CALE STREET, CALE GREEN, STOCKPORT, CHESHIRE.				Borehole No. 1 SD80SW475 Sheet No. 1 8366 0183			
CONTRACT: Cheetham Redevelopment LOCATION: Cheetham Hill.				Date Commenced 26.5.66. Date Completed 27.5.66. Scale $\frac{1}{4}$ inch = 1 foot.			
Stratum	Legend	Thick- ness	Depth	Sample No.	N Value	Level	Remarks
			G. L.				
Cobbles and cinder fill		2'0"	2'0"				Damp
Loose medium brown sand.			2'6"	P1	4		
			5'0"	P2	2		
			7'6"	P3	6		
			10'0"	P4	3		Water struck at 10'6" Borehole Wet.
			12'0"	P5	8		
			13'0"	B1			
		12'0"	14'0"				Borehole sealed on driving casing to 15'0"
Compact medium brown silty sand.			15'0"	P6	14		
			18'0"	P7	13		
			19'0"	B2			Wet
			21'0"				
			21'0"	P8	12		
			24'0"	P9	13		
			27'0"	P10	15		26.5.66. 6pm Borehole at 28'6" Casing at 25'0"
		14'6"	28'6"				Borehole wet but no water standing 27.5.66. 8.10am Standing water level 28'0"
Borehole continued on sheet No. 2.							

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CALE STREET, CALE GREEN,
STOCKPORT, CHESHIRE.

Borehole No.

2

Sheet No.

1

Date Commenced

24.5.66.

Date Completed

25.5.66.

Scale

 $\frac{1}{4}$ inch = 1 foot.

CONTRACT: Cheetham Hill Redevelopment.

LOCATION: Cheetham Hill.

Stratum	Legend	Thick- ness	Depth	Sample No.	N Value	Level	Remarks
			G. L.				
Brick and cinder fill.		2'0"	2'0"	B1			Damp
Compact medium brown sand.		2'6"	2'6"	P1	13		Damp
			5'0"	P2	16		
			7'6"	P3	14		
			7'0"				Water struck at 9'0". S.W. L. 9'0"
Loose medium brown sand.		10'0"	10'0"	P4	4		
			3'0"				
Loose brown sandy clayey silt.		13'0"	13'0"	P5	3		Borehole sealed on driving casing to 12'6"
			14'0"	B2			Damp
			3'0"				
Loose medium brown peaty sand.		15'6"	15'6"	B3			
			16'0"	P6	5		Damp
			3'0"				
Loose medium brown sand.		19'0"	19'0"	P7	7		
			20'0"	B4			
			22'0"	P8	7		
			25'0"	P9	5		
			28'0"	P10	6		Water struck at 28'0". Borehole wet but no water standing.
			31'0"	P11	4		
			14'0"				24.5.66. 6pm BH @ 32'0"
Borehole continued on sheet No. 2.							Casing @ 30'0" S.W. L. 28'0" W.L. 32'0"
							25.5.66. 8.10am S.W. L. 28'0".

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CALE STREET, CALE GREEN,
STOCKPORT, CHESHIRE.

Borehole No.

3

Sheet No.

1

Date Commenced 23.5.66.

Date Completed 23.5.66.

Scale $\frac{1}{4}$ inch = 1 foot.

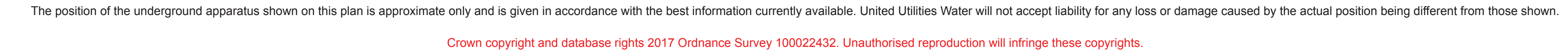
CONTRACT: Cheetham Hill Redevelopment.

LOCATION: Cheetham Hill.

Stratum	Legend	Thick- ness	Depth	Sample No.	N Value	Level	Remarks
			G. L.				
Brick and hardcore fill.		1'6"	1'6"				Damp
Loose medium brown clayey sand.			2'0" 2'6"	D1 P1	4		
			5'0"	P2	5		
			7'6"	P3	7		
Compact sand and gravel.		8'6"	10'0" to 12'6"	B1 P4	13		Water struck at 10'0" S.W.L. 10'0" COMMERCIAL IN CONFIDENCE W1. 17'6"
			13'0"	P5	16		
			16'0"	P6	17		
			10'0"				
Compact medium brown silty sand.			20'0" 21'0"	P7 U1	18		Borehole sealed on driving casing to 21'0" Water struck at 28'0" S.W.L. 28'0".
			25'0" to 26'6"	B2 P8	16		
			28'0"	P9	13		
		9'0"	29'0"				
Borehole continued on sheet No. 2.							

SD80SW477
8373 0177

Appendix B: United Utility Map Local to Site



**SEWER
RECORDS**

 **United
Utilities**

Appendix C: Below Ground Drainage Layout

ALL ELEMENTS ARE INDICATIVELY SET OUT. CONTRACTOR TO DETERMINE ALL SETTING OUT ON SITE IN CONJUNCTION WITH ARCHITECTURAL PROPOSALS, PROPOSED FALLS AND SITE LEVELS.

GREEN DASHED LINE
DENOTES APPROXIMATE
SITE BOUNDARY

SITE DOES NOT LEND ITSELF TOWARDS
DISCHARGE OF SURFACE WATER VIA
INFILTRATION. IT IS NOT POSSIBLE TO POSITION
AN APPROPRIATELY SIZED SOAKAWAY TO SUIT
FOLLOWING CRITERIUM:
• SOAKAWAY WITHIN 5m OF FOOTINGS
• SOAKAWAY WITHIN 2.5m OF BOUNDARY

ICF01 (450mmØ PPIC)

SURFACE WATER PIPES TO BE
100mmØ LAID AT 1:100 FALL

FOUL PIPES TO BE 100mmØ LAID AT
1:40 FALL TO HELP MAINTAIN
SELF-CLEANSING VELOCITY

ICF02 (450mmØ PPIC)

ICS01 (450mmØ PPIC)

ICS02 (500mmØ PPIC)
USE PREFORMED RIDGISTORM
ORIFICE PLATE FLOW CONTROL
CHAMBER OR SIMILAR TO ALLOW
INSTALLATION OF ORIFICE PLATE

60mmØ ORIFICE PLATE FITTED TO
OUTFALL PLATE TO LIMIT FLOW TO
5litres/second AT 0.45m HEAD

ICC01 (450mmØ PPIC)

LOCATE EXISTING OUTFALL PIPE FROM SITE
AND CONNECT NEW SW OUTFALL AND FOUL
OUTFALL PIPES AT THIS JUNCTION

EXISTING OUTFALL PIPE
EXACT LOCATION AND CONDITION NOT
KNOWN, TBC WITH CCTV SURVEY

LOCATION AND CONDITION OF EXISTING OUTFALL
PIPE NOT KNOWN. CCTV SURVEY TO BE CARRIED OUT
TO ASCERTAIN THE FOLLOWING:
1. IF THERE IS AN EXISTING OUTFALL
2. IF OUTFALL PIPE IS FOUND, CCTV TO VERIFY THAT
IT IS SUITABLE CONDITION FOR REUSE
3. THAT OUTFALL PIPE HAS ADEQUATE
CONNECTION INTO SEWER BELOW MOXLEY ROAD

EXISTING 375mmØ VC COMBINED SEWER

UU REFERENCE 5302

SURFACE WATER DISCHARGE RATES
1 IN 1 YEAR = 0.8litres/second
1 IN 30 YEAR = 1.9litres/second
1 IN 100 YEAR (+40% CC) = 2.9litres/second

This drawing is to be read in conjunction with all other relevant documentation.
Do not Scale
All setting out by contractor. Report all discrepancies to bdi Structural Solutions.
Drawing Copyright of BDI Structural Solutions ©
Client required to comply with requirements of Party Wall Act as required by nature of work.

NOTES

Setting Out	
All levels, setting out and dimensions are to be confirmed on site.	

Drainage Notation	
	Denotes Combined Water Carrier Drain
	Denotes Surface Water Carrier Drain
	Denotes Foul Water Carrier Drain
	Denotes Proposed Rainwater Gully
	Denotes Proposed Rodding Eye
	Denotes Proposed Soil and Vent Pipe

DRAINAGE

- ALL RWG'S TO BE ACCESS GULLIES WITH INTEGRAL BACK INLETS FOR RODDING.
- DRAINAGE TO BE LAID TO FALLS TO SUIT INVERT LEVELS SHOWN.
- ALL DRAINAGE TO COMPLY WITH BS 8301:1985 TOGETHER WITH PARTS H1, 2 & 3 OF THE BUILDING REGULATIONS.
- MANHOLES, INSPECTION CHAMBERS AND ACCESS CHAMBERS OR RODDING EYES SHALL BE PROVIDED AT EVERY CHANGE OF DIRECTION, DRAIN & OR GRADIENT CHANGE AND ALSO AT OR WITHIN 12.5M OF A JUNCTION.
- EXTERNAL DRAINAGE SHALL BE 100MM DIAMETER, UNLESS NOTED OTHERWISE. HEPWORTH SUPERSLEAVE VITREOUS CLAY PIPEWORK TO BS65:1981 LAID AND BEDDED TO MANUFACTURERS INSTRUCTIONS TO SIZES DEPENDANT UPON LOADING CONDITIONS AND GRADIENTS WITHIN THEIR RECOMMENDATIONS.
- JOINTING SHALL BE EITHER U.P.V.C PUSH-FIT COUPLINGS OR BY SEALING RUBBER 'O' RINGS IN POLYESTER MOULDINGS.
- ALL DRAINS WHICH ARE LOCATED WITHIN 2000MM OF EXTERNAL WALLS OR PASS UNDER BUILDINGS ARE TO BE ENCASED IN MIN 150MM CONCRETE OF FULL WIDTH OF TRENCH.
- MANHOLE CONSTRUCTION TO BE 225MM CLASS 'B' ENGINEERING BRICKWORK IN 1:3 CEMENT/MORTAR WITH 150MM THICK CONCRETE BASE UP TO BELOW GROUND LEVEL. CAST IRON STEPS TO BS1247:1975 SHALL BE PROVIDED WHERE DEPTH OF CHAMBER EXCEEDS 1000MM. BENCHING OF CONCRETE TO BE FORMED AROUND DRAINAGE CHANNELS TO A SMOOTH FINISH AND FALL.
- ALL EXTERNAL MH COVERS SHALL BE MEDIUM DUTY GALV. STEEL TO BS487 UNLESS LOCATED WITHIN CARRIAGEWAYS OR CAR PARKS WHERE HEAVY DUTY CAST IRON ARE TO BE USED.
- MANHOLE COVER TO BE SEATED IN REBATE STEEL FRAMES AND SEALED WITH GREASE ON 100MM THK CONCRETE FRAME BASE WITH 600X600MM MIN OPENING.
- ANY INTERNAL CHAMBERS SHALL BE FITTED WITH A DOUBLE SEAL BOLT DOWN COVER WITH AN 'INLAY' RECESS FOR FINISHES AND SET IN GREASED FRAME. PROPRIETARY U.P.V.C INSPECTION CHAMBERS TO HAVE 150MM MIN SULPHATE RESISTING CONC BASE
- SURVEYS
 - CLIENT TO INSTRUCT TOPO SURVEY TO ESTABLISH LAND LEVELS ALONG LENGTH OF PROPOSED PIPES AND AT MANHOLES
 - CLIENT TO INSTRUCT CCTV DRAINAGE SURVEY TO ESTABLISH CONDITION, FALL AND INVERT LEVELS OF EXISTING DRAINAGE
- PERMISSIONS REQUIRED: CLIENT TO OBTAIN THE FOLLOWING PERMISSIONS:
 - SECTION 106 FROM UNITED UTILITIES FOR CONNECTION PROPOSAL
 - ACCESS CERTIFICATE PRIOR TO CCTV SURVEY OF DRAINS.
 - PERMISSION FROM LAND OWNER PRIOR TO INSTALLATION OF DRAINAGE THROUGH PRIVATE LAND
 - PERMISSION FROM HIGHWAYS OWNER PRIOR TO INSTALLATION OF DRAINAGE THROUGH HIGHWAYS

DRAINAGE STRATEGY

...	...	...	...	...	...	
...	...	...	...	...	...	
Rev	Date	FIRST ISSUE OF DRAINAGE STRATEGY, FOR APPROVAL			Drawn	Appr'd
A0	15.09.21				DA	DA

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Drawing Title Proposed Below Ground Drainage Strategy

Scale		Drg No.	
As shown at A1		20218586	
Drawn	Chk'd by	C1 01	
DA	DA		
Date	Date Chk'd		
15.09.2021	15.09.2021		
		Rev	AO

Appendix D: Hydraulic Model Output

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	1	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00
FSR Region	England and Wales	Connection Type	Level Soffits
M5-60 (mm)	18.000	Minimum Backdrop Height (m)	0.200
Ratio-R	0.360	Preferred Cover Depth (m)	0.300
CV	0.750	Include Intermediate Ground	✓
Time of Entry (mins)	5.00	Enforce best practice design rules	x

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Depth (m)
RWP	0.007	5.00	0.000		0.400
ICS01			0.000	450	0.500
ICS02			0.000	1200	0.565
OUTFALL			0.000	450	0.575

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
Pipe 1.01	RWP	ICS01	10.000	0.600	-0.400	-0.500	0.100	100.0	100	5.22	46.0
Pipe 1.02	ICS01	ICS02	6.500	0.600	-0.500	-0.565	0.065	100.0	100	5.36	45.4
Outfall	ICS02	OUTFALL	1.000	0.600	-0.565	-0.575	0.010	100.0	100	5.38	45.4

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
Pipe 1.01	0.769	6.0	0.9	0.300	0.400	0.007	0.0	25	0.541
Pipe 1.02	0.769	6.0	0.9	0.400	0.465	0.007	0.0	25	0.541
Outfall	0.769	6.0	0.9	0.465	0.475	0.007	0.0	25	0.541

Simulation Settings

Rainfall Methodology	FSR	Skip Steady State	x
FSR Region	England and Wales	Drain Down Time (mins)	60
M5-60 (mm)	18.000	Additional Storage (m³/ha)	0.0
Ratio-R	0.360	Check Discharge Rate(s)	x
Winter CV	0.840	Check Discharge Volume	x
Analysis Speed	Normal		

Storm Durations

15 | 30 | 60 | 120 | 180 | 240 | 360 | 480

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
1	0	0	0
30	0	0	0
100	40	0	0



Node ICS02 Online Orifice Control

Flap Valve	x	Design Depth (m)	0.450	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Design Flow (l/s)	5.0		
Invert Level (m)	-0.565	Diameter (m)	0.060		

Results for 1 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	RWP	10	-0.374	0.026	0.9	0.0000	0.0000	OK
15 minute winter	ICS01	11	-0.475	0.025	0.9	0.0040	0.0000	OK
15 minute winter	ICS02	12	-0.521	0.044	0.9	0.0496	0.0000	OK
15 minute winter	OUTFALL	1	-0.575	0.000	0.8	0.0000	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	RWP	Pipe 1.01	ICS01	0.9	0.551	0.143	0.0157	
15 minute winter	ICS01	Pipe 1.02	ICS02	0.9	0.457	0.142	0.0157	
15 minute winter	ICS02	Orifice	OUTFALL	0.8				0.4

Results for 30 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	RWP	10	-0.359	0.041	2.1	0.0000	0.0000	OK
15 minute winter	ICS01	11	-0.460	0.040	2.1	0.0064	0.0000	OK
15 minute winter	ICS02	12	-0.470	0.095	2.1	0.1076	0.0000	OK
15 minute winter	OUTFALL	1	-0.575	0.000	1.9	0.0000	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	RWP	Pipe 1.01	ICS01	2.1	0.696	0.344	0.0298	
15 minute winter	ICS01	Pipe 1.02	ICS02	2.1	0.547	0.340	0.0341	
15 minute winter	ICS02	Orifice	OUTFALL	1.9				1.0

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	RWP	10	-0.343	0.057	3.8	0.0000	0.0000	OK
15 minute winter	ICS01	12	-0.364	0.136	3.8	0.0217	0.0000	SURCHARGED
15 minute winter	ICS02	12	-0.385	0.180	3.2	0.2041	0.0000	SURCHARGED
15 minute winter	OUTFALL	1	-0.575	0.000	2.9	0.0000	0.0000	OK
Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	RWP	Pipe 1.01	ICS01	3.8	0.761	0.623	0.0616	
15 minute winter	ICS01	Pipe 1.02	ICS02	3.2	0.572	0.527	0.0509	
15 minute winter	ICS02	Orifice	OUTFALL	2.9				1.8

Results for 1 year 15 minute winter. 75 minute analysis at 1 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	RWP	10	-0.374	0.026	0.9	0.0000	0.0000	OK
15 minute winter	ICS01	11	-0.475	0.025	0.9	0.0040	0.0000	OK
15 minute winter	ICS02	12	-0.521	0.044	0.9	0.0496	0.0000	OK
15 minute winter	OUTFALL	1	-0.575	0.000	0.8	0.0000	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	RWP	Pipe 1.01	ICS01	0.9	0.551	0.143	0.0157	
15 minute winter	ICS01	Pipe 1.02	ICS02	0.9	0.457	0.142	0.0157	
15 minute winter	ICS02	Orifice	OUTFALL	0.8				0.4

Results for 1 year 30 minute winter. 90 minute analysis at 1 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute winter	RWP	18	-0.377	0.023	0.7	0.0000	0.0000	OK
30 minute winter	ICS01	18	-0.477	0.023	0.7	0.0036	0.0000	OK
30 minute winter	ICS02	19	-0.526	0.039	0.7	0.0436	0.0000	OK
30 minute winter	OUTFALL	1	-0.575	0.000	0.7	0.0000	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute winter	RWP	Pipe 1.01	ICS01	0.7	0.515	0.116	0.0136	
30 minute winter	ICS01	Pipe 1.02	ICS02	0.7	0.379	0.114	0.0133	
30 minute winter	ICS02	Orifice	OUTFALL	0.7				0.5

Results for 1 year 60 minute winter. 120 minute analysis at 1 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute winter	RWP	33	-0.380	0.020	0.5	0.0000	0.0000	OK
60 minute winter	ICS01	33	-0.481	0.019	0.5	0.0030	0.0000	OK
60 minute winter	ICS02	34	-0.535	0.030	0.5	0.0343	0.0000	OK
60 minute winter	OUTFALL	1	-0.575	0.000	0.5	0.0000	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute winter	RWP	Pipe 1.01	ICS01	0.5	0.469	0.083	0.0106	
60 minute winter	ICS01	Pipe 1.02	ICS02	0.5	0.379	0.079	0.0098	
60 minute winter	ICS02	Orifice	OUTFALL	0.5				0.7

Results for 1 year 120 minute winter. 180 minute analysis at 2 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
120 minute winter	RWP	58	-0.385	0.015	0.3	0.0000	0.0000	OK
120 minute winter	ICS01	60	-0.485	0.015	0.3	0.0024	0.0000	OK
120 minute winter	ICS02	70	-0.542	0.023	0.3	0.0255	0.0000	OK
120 minute winter	OUTFALL	2	-0.575	0.000	0.3	0.0000	0.0000	OK
Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
120 minute winter	RWP	Pipe 1.01	ICS01	0.3	0.403	0.050	0.0075	
120 minute winter	ICS01	Pipe 1.02	ICS02	0.3	0.369	0.050	0.0067	
120 minute winter	ICS02	Orifice	OUTFALL	0.3				0.9

Results for 1 year 180 minute winter. 240 minute analysis at 4 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute winter	RWP	80	-0.387	0.013	0.2	0.0000	0.0000	OK
180 minute winter	ICS01	84	-0.488	0.012	0.2	0.0020	0.0000	OK
180 minute winter	ICS02	96	-0.548	0.017	0.2	0.0195	0.0000	OK
180 minute winter	OUTFALL	4	-0.575	0.000	0.2	0.0000	0.0000	OK
Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
180 minute winter	RWP	Pipe 1.01	ICS01	0.2	0.362	0.033	0.0056	
180 minute winter	ICS01	Pipe 1.02	ICS02	0.2	0.329	0.033	0.0047	
180 minute winter	ICS02	Orifice	OUTFALL	0.2				0.8

Results for 1 year 240 minute winter. 300 minute analysis at 4 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute winter	RWP	112	-0.387	0.013	0.2	0.0000	0.0000	OK
240 minute winter	ICS01	116	-0.488	0.012	0.2	0.0020	0.0000	OK
240 minute winter	ICS02	128	-0.548	0.017	0.2	0.0195	0.0000	OK
240 minute winter	OUTFALL	4	-0.575	0.000	0.2	0.0000	0.0000	OK
Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
240 minute winter	RWP	Pipe 1.01	ICS01	0.2	0.362	0.033	0.0056	
240 minute winter	ICS01	Pipe 1.02	ICS02	0.2	0.329	0.033	0.0047	
240 minute winter	ICS02	Orifice	OUTFALL	0.2				0.9

Results for 1 year 360 minute winter. 424 minute analysis at 8 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute winter	RWP	128	-0.391	0.009	0.1	0.0000	0.0000	OK
360 minute winter	ICS01	128	-0.491	0.009	0.1	0.0014	0.0000	OK
360 minute winter	ICS02	144	-0.554	0.011	0.1	0.0123	0.0000	OK
360 minute winter	OUTFALL	8	-0.575	0.000	0.1	0.0000	0.0000	OK
Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
360 minute winter	RWP	Pipe 1.01	ICS01	0.1	0.296	0.017	0.0035	
360 minute winter	ICS01	Pipe 1.02	ICS02	0.1	0.353	0.017	0.0026	
360 minute winter	ICS02	Orifice	OUTFALL	0.1				0.9

Results for 1 year 480 minute winter. 544 minute analysis at 8 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
480 minute winter	RWP	176	-0.391	0.009	0.1	0.0000	0.0000	OK
480 minute winter	ICS01	176	-0.491	0.009	0.1	0.0014	0.0000	OK
480 minute winter	ICS02	192	-0.554	0.011	0.1	0.0123	0.0000	OK
480 minute winter	OUTFALL	8	-0.575	0.000	0.1	0.0000	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m ³)	Discharge Vol (m ³)
480 minute winter	RWP	Pipe 1.01	ICS01	0.1	0.296	0.017	0.0035	
480 minute winter	ICS01	Pipe 1.02	ICS02	0.1	0.353	0.017	0.0026	
480 minute winter	ICS02	Orifice	OUTFALL	0.1				1.0

Results for 30 year 15 minute winter. 75 minute analysis at 1 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	RWP	10	-0.359	0.041	2.1	0.0000	0.0000	OK
15 minute winter	ICS01	11	-0.460	0.040	2.1	0.0064	0.0000	OK
15 minute winter	ICS02	12	-0.470	0.095	2.1	0.1076	0.0000	OK
15 minute winter	OUTFALL	1	-0.575	0.000	1.9	0.0000	0.0000	OK
Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	RWP	Pipe 1.01	ICS01	2.1	0.696	0.344	0.0298	
15 minute winter	ICS01	Pipe 1.02	ICS02	2.1	0.547	0.340	0.0341	
15 minute winter	ICS02	Orifice	OUTFALL	1.9				1.0

Results for 30 year 30 minute winter. 90 minute analysis at 1 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute winter	RWP	18	-0.364	0.036	1.6	0.0000	0.0000	OK
30 minute winter	ICS01	18	-0.465	0.035	1.6	0.0056	0.0000	OK
30 minute winter	ICS02	19	-0.492	0.073	1.6	0.0821	0.0000	OK
30 minute winter	OUTFALL	1	-0.575	0.000	1.5	0.0000	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute winter	RWP	Pipe 1.01	ICS01	1.6	0.647	0.265	0.0248	
30 minute winter	ICS01	Pipe 1.02	ICS02	1.6	0.480	0.264	0.0276	
30 minute winter	ICS02	Orifice	OUTFALL	1.5				1.3

Results for 30 year 60 minute winter. 120 minute analysis at 1 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute winter	RWP	32	-0.371	0.029	1.1	0.0000	0.0000	OK
60 minute winter	ICS01	33	-0.471	0.029	1.1	0.0046	0.0000	OK
60 minute winter	ICS02	34	-0.511	0.054	1.1	0.0605	0.0000	OK
60 minute winter	OUTFALL	1	-0.575	0.000	1.1	0.0000	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute winter	RWP	Pipe 1.01	ICS01	1.1	0.584	0.182	0.0189	
60 minute winter	ICS01	Pipe 1.02	ICS02	1.1	0.432	0.182	0.0199	
60 minute winter	ICS02	Orifice	OUTFALL	1.1				1.6

Results for 30 year 120 minute winter. 180 minute analysis at 2 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
120 minute winter	RWP	60	-0.377	0.023	0.7	0.0000	0.0000	OK
120 minute winter	ICS01	62	-0.477	0.023	0.7	0.0037	0.0000	OK
120 minute winter	ICS02	68	-0.525	0.040	0.7	0.0449	0.0000	OK
120 minute winter	OUTFALL	2	-0.575	0.000	0.7	0.0000	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
120 minute winter	RWP	Pipe 1.01	ICS01	0.7	0.513	0.116	0.0137	
120 minute winter	ICS01	Pipe 1.02	ICS02	0.7	0.369	0.116	0.0138	
120 minute winter	ICS02	Orifice	OUTFALL	0.7				2.0

Results for 30 year 180 minute winter. 240 minute analysis at 4 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute winter	RWP	88	-0.380	0.020	0.5	0.0000	0.0000	OK
180 minute winter	ICS01	88	-0.481	0.019	0.5	0.0031	0.0000	OK
180 minute winter	ICS02	100	-0.533	0.032	0.5	0.0359	0.0000	OK
180 minute winter	OUTFALL	4	-0.575	0.000	0.5	0.0000	0.0000	OK
Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
180 minute winter	RWP	Pipe 1.01	ICS01	0.5	0.465	0.083	0.0107	
180 minute winter	ICS01	Pipe 1.02	ICS02	0.5	0.329	0.083	0.0104	
180 minute winter	ICS02	Orifice	OUTFALL	0.5				2.2

Results for 30 year 240 minute winter. 300 minute analysis at 4 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute winter	RWP	112	-0.382	0.018	0.4	0.0000	0.0000	OK
240 minute winter	ICS01	112	-0.483	0.017	0.4	0.0028	0.0000	OK
240 minute winter	ICS02	124	-0.538	0.027	0.4	0.0309	0.0000	OK
240 minute winter	OUTFALL	4	-0.575	0.000	0.4	0.0000	0.0000	OK
Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
240 minute winter	RWP	Pipe 1.01	ICS01	0.4	0.436	0.066	0.0092	
240 minute winter	ICS01	Pipe 1.02	ICS02	0.4	0.329	0.066	0.0086	
240 minute winter	ICS02	Orifice	OUTFALL	0.4				2.5

Results for 30 year 360 minute winter. 424 minute analysis at 8 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute winter	RWP	176	-0.385	0.015	0.3	0.0000	0.0000	OK
360 minute winter	ICS01	168	-0.485	0.015	0.3	0.0024	0.0000	OK
360 minute winter	ICS02	184	-0.542	0.023	0.3	0.0255	0.0000	OK
360 minute winter	OUTFALL	8	-0.575	0.000	0.3	0.0000	0.0000	OK
Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
360 minute winter	RWP	Pipe 1.01	ICS01	0.3	0.401	0.050	0.0075	
360 minute winter	ICS01	Pipe 1.02	ICS02	0.3	0.353	0.050	0.0067	
360 minute winter	ICS02	Orifice	OUTFALL	0.3				2.9

Results for 30 year 480 minute winter. 544 minute analysis at 8 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
480 minute winter	RWP	248	-0.385	0.015	0.3	0.0000	0.0000	OK
480 minute winter	ICS01	248	-0.485	0.015	0.3	0.0024	0.0000	OK
480 minute winter	ICS02	248	-0.542	0.023	0.3	0.0255	0.0000	OK
480 minute winter	OUTFALL	8	-0.575	0.000	0.3	0.0000	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m ³)	Discharge Vol (m ³)
480 minute winter	RWP	Pipe 1.01	ICS01	0.3	0.401	0.050	0.0075	
480 minute winter	ICS01	Pipe 1.02	ICS02	0.3	0.353	0.050	0.0067	
480 minute winter	ICS02	Orifice	OUTFALL	0.3				2.5

Results for 100 year +40% CC 15 minute winter. 75 minute analysis at 1 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	RWP	10	-0.343	0.057	3.8	0.0000	0.0000	OK
15 minute winter	ICS01	12	-0.364	0.136	3.8	0.0217	0.0000	SURCHARGED
15 minute winter	ICS02	12	-0.385	0.180	3.2	0.2041	0.0000	SURCHARGED
15 minute winter	OUTFALL	1	-0.575	0.000	2.9	0.0000	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	RWP	Pipe 1.01	ICS01	3.8	0.761	0.623	0.0616	
15 minute winter	ICS01	Pipe 1.02	ICS02	3.2	0.572	0.527	0.0509	
15 minute winter	ICS02	Orifice	OUTFALL	2.9				1.8

Results for 100 year +40% CC 30 minute winter. 90 minute analysis at 1 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute winter	RWP	17	-0.350	0.050	3.0	0.0000	0.0000	OK
30 minute winter	ICS01	20	-0.405	0.095	3.0	0.0152	0.0000	OK
30 minute winter	ICS02	20	-0.419	0.146	2.6	0.1651	0.0000	SURCHARGED
30 minute winter	OUTFALL	1	-0.575	0.000	2.6	0.0000	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute winter	RWP	Pipe 1.01	ICS01	3.0	0.727	0.497	0.0561	
30 minute winter	ICS01	Pipe 1.02	ICS02	2.6	0.526	0.435	0.0505	
30 minute winter	ICS02	Orifice	OUTFALL	2.6				2.3

Results for 100 year +40% CC 60 minute winter. 120 minute analysis at 1 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute winter	RWP	32	-0.360	0.040	2.0	0.0000	0.0000	OK
60 minute winter	ICS01	33	-0.460	0.040	2.0	0.0063	0.0000	OK
60 minute winter	ICS02	35	-0.466	0.099	2.0	0.1123	0.0000	OK
60 minute winter	OUTFALL	1	-0.575	0.000	2.0	0.0000	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute winter	RWP	Pipe 1.01	ICS01	2.0	0.686	0.331	0.0292	
60 minute winter	ICS01	Pipe 1.02	ICS02	2.0	0.470	0.331	0.0347	
60 minute winter	ICS02	Orifice	OUTFALL	2.0				3.0

Results for 100 year +40% CC 120 minute winter. 180 minute analysis at 2 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
120 minute winter	RWP	62	-0.368	0.032	1.3	0.0000	0.0000	OK
120 minute winter	ICS01	62	-0.469	0.031	1.3	0.0050	0.0000	OK
120 minute winter	ICS02	66	-0.505	0.060	1.3	0.0678	0.0000	OK
120 minute winter	OUTFALL	2	-0.575	0.000	1.3	0.0000	0.0000	OK
Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
120 minute winter	RWP	Pipe 1.01	ICS01	1.3	0.610	0.215	0.0213	
120 minute winter	ICS01	Pipe 1.02	ICS02	1.3	0.410	0.215	0.0228	
120 minute winter	ICS02	Orifice	OUTFALL	1.3				3.7

Results for 100 year +40% CC 180 minute winter. 240 minute analysis at 4 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute winter	RWP	96	-0.372	0.028	1.0	0.0000	0.0000	OK
180 minute winter	ICS01	96	-0.472	0.028	1.0	0.0044	0.0000	OK
180 minute winter	ICS02	96	-0.515	0.050	1.0	0.0569	0.0000	OK
180 minute winter	OUTFALL	4	-0.575	0.000	1.0	0.0000	0.0000	OK
Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
180 minute winter	RWP	Pipe 1.01	ICS01	1.0	0.567	0.166	0.0176	
180 minute winter	ICS01	Pipe 1.02	ICS02	1.0	0.358	0.166	0.0185	
180 minute winter	ICS02	Orifice	OUTFALL	1.0				4.2

Results for 100 year +40% CC 240 minute winter. 300 minute analysis at 4 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute winter	RWP	124	-0.375	0.025	0.8	0.0000	0.0000	OK
240 minute winter	ICS01	124	-0.475	0.025	0.8	0.0039	0.0000	OK
240 minute winter	ICS02	128	-0.522	0.043	0.8	0.0490	0.0000	OK
240 minute winter	OUTFALL	4	-0.575	0.000	0.8	0.0000	0.0000	OK
Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
240 minute winter	RWP	Pipe 1.01	ICS01	0.8	0.533	0.133	0.0150	
240 minute winter	ICS01	Pipe 1.02	ICS02	0.8	0.345	0.133	0.0154	
240 minute winter	ICS02	Orifice	OUTFALL	0.8				4.3

Results for 100 year +40% CC 360 minute winter. 424 minute analysis at 8 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute winter	RWP	184	-0.379	0.021	0.6	0.0000	0.0000	OK
360 minute winter	ICS01	184	-0.479	0.021	0.6	0.0034	0.0000	OK
360 minute winter	ICS02	192	-0.529	0.036	0.6	0.0405	0.0000	OK
360 minute winter	OUTFALL	8	-0.575	0.000	0.6	0.0000	0.0000	OK
Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
360 minute winter	RWP	Pipe 1.01	ICS01	0.6	0.491	0.099	0.0122	
360 minute winter	ICS01	Pipe 1.02	ICS02	0.6	0.353	0.099	0.0121	
360 minute winter	ICS02	Orifice	OUTFALL	0.6				4.8

Results for 100 year +40% CC 480 minute winter. 544 minute analysis at 8 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
480 minute winter	RWP	248	-0.380	0.020	0.5	0.0000	0.0000	OK
480 minute winter	ICS01	248	-0.481	0.019	0.5	0.0031	0.0000	OK
480 minute winter	ICS02	248	-0.533	0.032	0.5	0.0359	0.0000	OK
480 minute winter	OUTFALL	8	-0.575	0.000	0.5	0.0000	0.0000	OK
Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
480 minute winter	RWP	Pipe 1.01	ICS01	0.5	0.465	0.083	0.0107	
480 minute winter	ICS01	Pipe 1.02	ICS02	0.5	0.353	0.083	0.0104	
480 minute winter	ICS02	Orifice	OUTFALL	0.5				5.4