

Project Name:	ARDWICK GREEN	Job Number:	2075
Date:	03/04/2025	Prepared By:	JSF
Document No:	2075-CIV-XX-XX-FN-C-0001	Revision No:	0

Title

Introduction

This File Note has been prepared to outline changes to the detailed design of the surface water drainage network serving a new residential development off Ardwick Green North, Manchester.

Original Design

The detailed drainage strategy originally submitted in support of discharging Condition 15 of permission ref 135857/FO2022 was approved on 4th October 2024. The original surface water drainage design restricted surface water run-off into the existing public sewer in Ardwick Green North at a rate of 3.5l/s, with all excess surface water run-off for storm events up to 1 in 100 year annual exceedance probability (AEP) plus a 45% allowance for climate change being contained within the site demise. Surface water drained through a permeable asphalt surface with storage being provided in a no fines sub-base which was lined with an impermeable membrane.

Updated Design

Once construction works commenced on site, the appointed Contractor when considering site logistics raised concerns on the installation of the no fines sub-base and its suitability to provide a safe working platform to construct the buildings. Installing the permeable asphalt surface was discounted due to the risk of dust/detritus clogging the pores during the construction period which would impact its operation effectiveness post completion and the request was made to consider alternative proposals for the surface water attenuation.

The design was subsequently updated to propose the below ground attenuation to be provided in the form of a *Polystorm* modular attenuation tank manufactured by Polypipe. The attenuation tank has a capacity of 61m³, equivalent to the minimum requirements of the approved design.

Pollution prevention requirements were assessed against PPG3 which, although withdrawn from formal publication in December 2015 remains to be the sole guidance on best practice published by a public body. PPG3 recommends oil separators should be installed on car parks of over 50 spaces or 800m². The development car park has an area of approximately 325m², so is significantly below this threshold therefore it is deemed that an oil separator is not required.

The updated drainage general arrangement and construction details are appended to this note, together with the associated hydraulic calculations.



STANDARD NOTES

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECT'S AND ENGINEER'S DRAWINGS AND THE SPECIFICATIONS.

2. THIS DRAWING SHOULD NOT BE SCALED.

3. ALL DIMENSIONS ARE TO BE VERIFIED BY THE CONTRACTOR ON SITE.

4. ALL DISCREPANCIES SHOULD BE REPORTED TO C.A./E.A. PRIOR TO THE COMMENCEMENT OF WORKS.

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NOTES:

1. SITE PLAN PROVIDED BY CODA ARCHITECTS, RECEIVED 19TH APRIL 2024.

2. COVER LEVELS APPROX BASED ON THE PROPOSED FFL PROVIDED BY CODA ARCHITECTURE ON THE 4TH APRIL 2024, DRAWING 2565-CDA-00-SL-DR-A-2602.

3. DROP DOWN LOCATIONS PROVIDED BY CODA ARCHITECTS, RECEIVED SEPTEMBER 2024, DRAWING 2565-CDA-01-XX-DR-A-0600.

KEY:

EXISTING UU SEWER

EXISTING UU MAIN

EXISTING MH

PROPOSED SURFACE WATER MH/IC

PROPOSED FOUL WATER MH/IC

PROPOSED COMBINED MH

PROPOSED SW SEWER

PROPOSED SLOT DRAIN*

PROPOSED ATTENUATION TANK

PROPOSED FW SEWER

PROPOSED WASH DOWN GULLY

PROPOSED CW SEWER

PROPOSED BACK DROP

PROPOSED RODDING EYE

SITE BOUNDARY

PROPOSED FILTER DRAIN

PROPOSED PERFORATED PIPE

*SLOT DRAINS PROPOSED AT ENTRANCES AND CHANNEL DRAINS ELSE WHERE

29.11.24	C02	UPDATED TO SUIT AEDI COMMENTS	CER	JF
25.11.24	C01	ISSUED FOR CONSTRUCTION	CER	JF
18.11.24	T10	ATTENUATION TANK DESIGN	CER	JF
14.10.24	T09	SADDLE CONNECTION ISSUED TO UU	CER	JF
25.09.24	T08	REDUCED NO OF CHAMBERS	CER	JF
19.07.24	T07	ISSUED IN RESPONSE TO PLANNING QUERY	CER	JF
04.07.24	T06	UPDATED TO SUIT AEDI COMMENTS	NL	CER
25.06.24	T05	UPDATED FOLLOWING LLFA COMMENTS	CER	JF
14.05.24	T04	EXISTING SEWER DMS ADDED	CER	CER
13.05.24	T03	ADDITIONAL EXISTING CW SEWER ADDED	CER	CER
02.05.24	T02	INVERT LEVELS UPDATED	CER	JF
19.04.24	T01	FIRST ISSUE	NL	CER
DATE	REV	DESCRIPTION	DRAWN	CHKD

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PROJECT

ARDWICK GREEN

TITLE

GENERAL DRAINAGE ARRANGEMENT

DRAWING STATUS

CONSTRUCTION

STATUS CODE

CE PROJECT No.	SCALE @ A1	DATE CREATED	DRAWN	CHECKED
2075	1:200	27.02.24	CER	PM

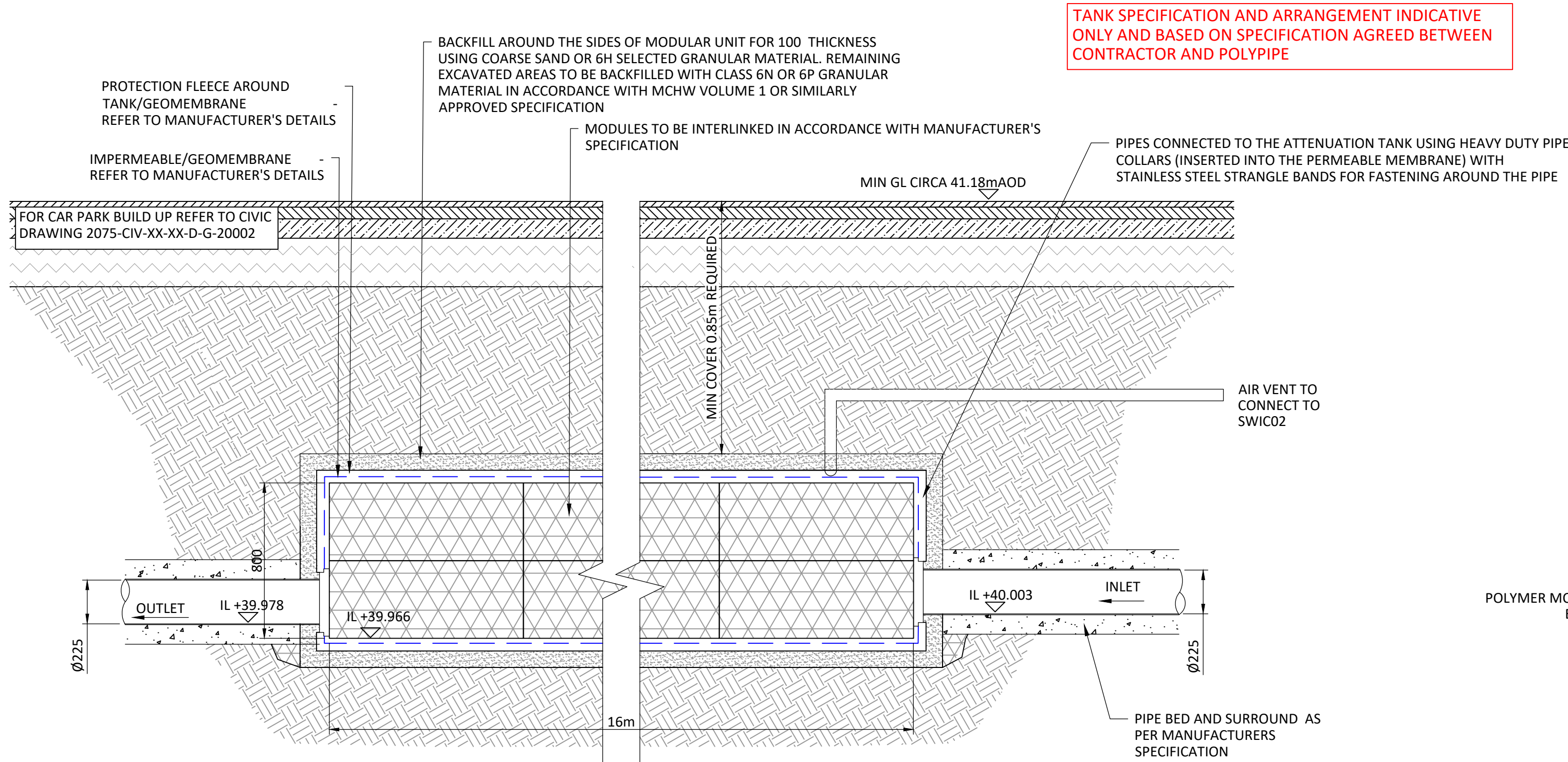
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2075-CIV-XX-XX-D-C-30001

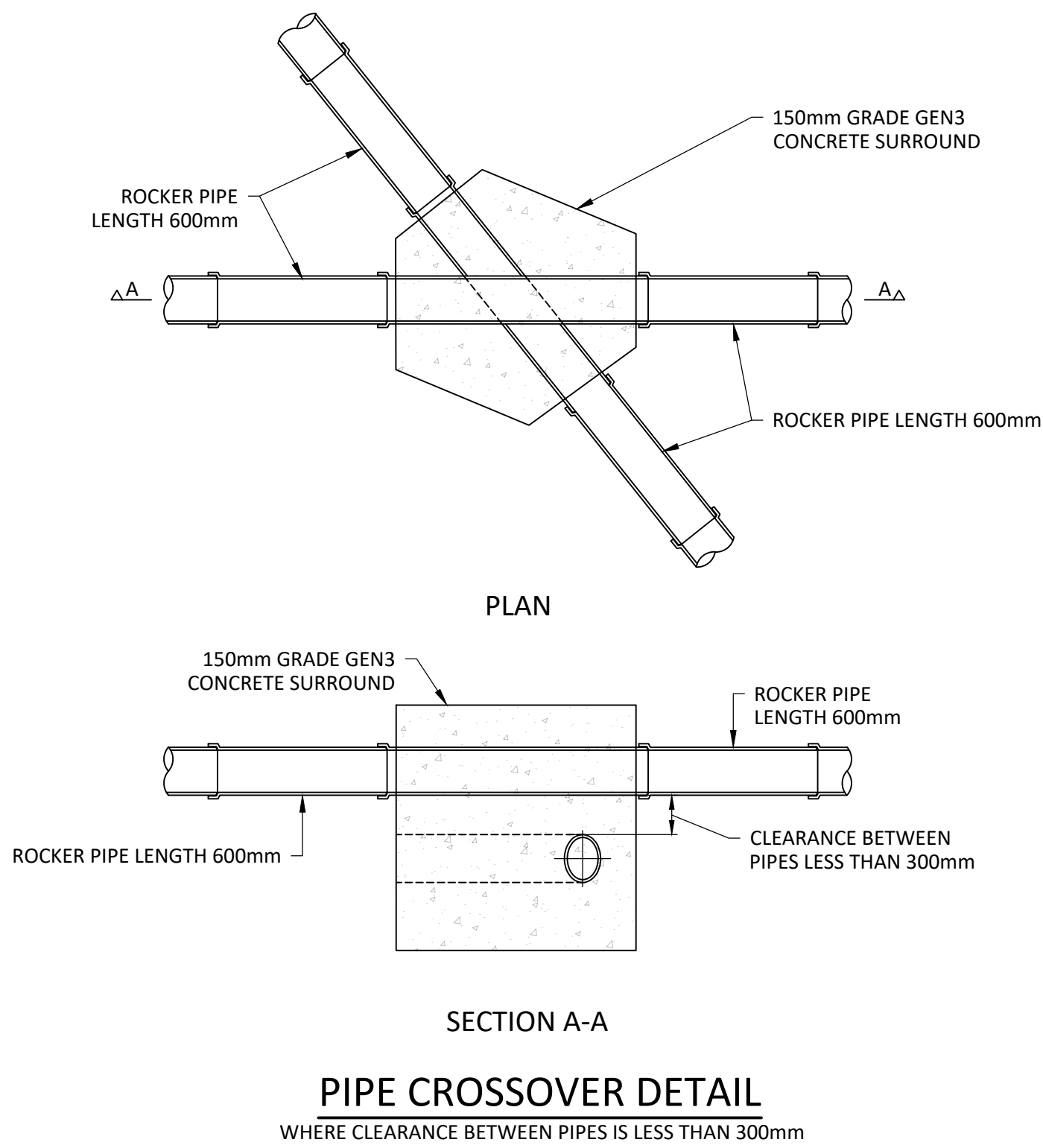
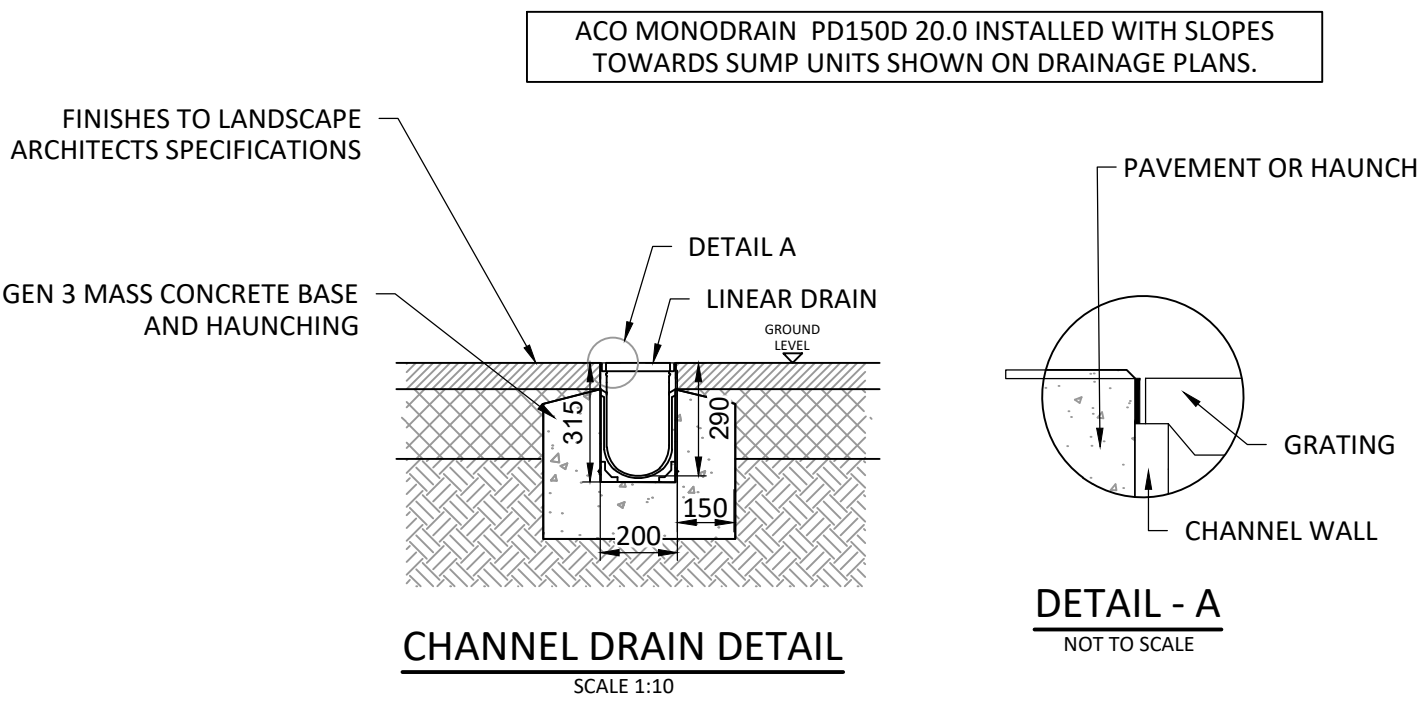
REV

C02

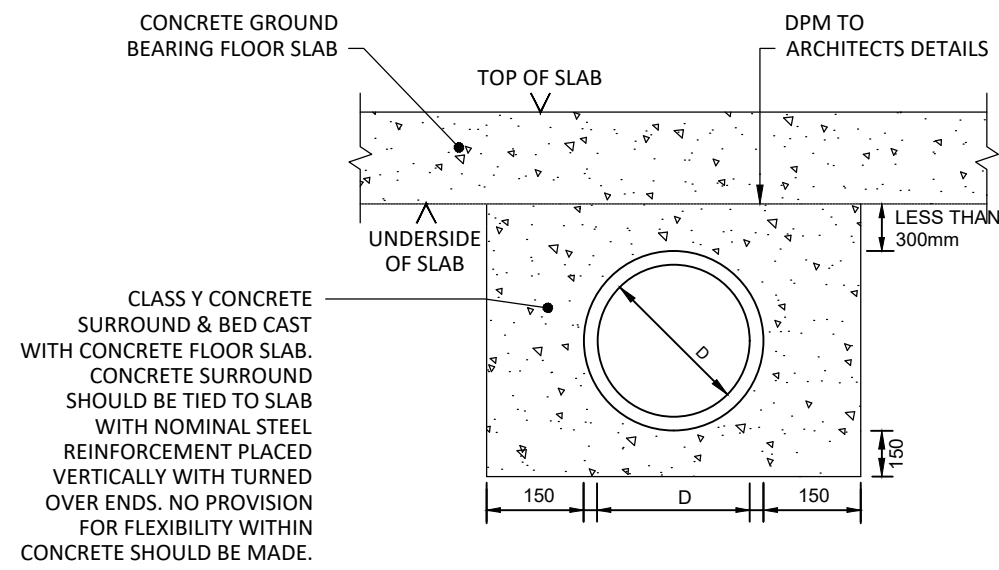
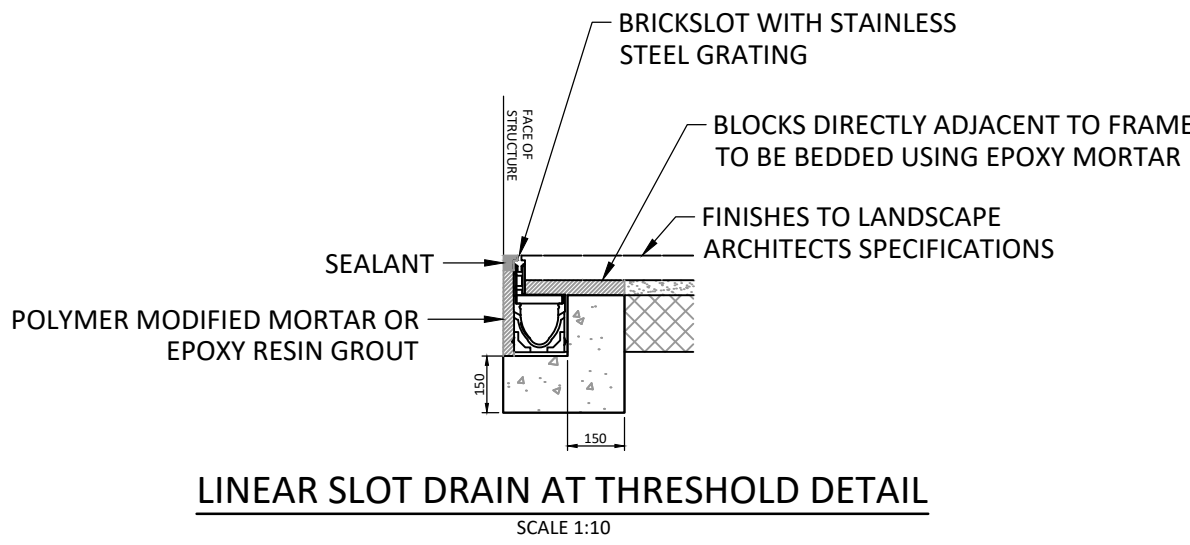
FILE LOCATION PATH: P:\PROJECTS\HOT\2075 ARDWICK GREEN, MANCHESTER\004 BIM\CIVILS\DRAWINGS\2075-CIV-XX-XX-D-C-31001- DRAINAGE DETAILS.DWG



LONG SECTION THROUGH GEOCELLULAR ATTENUATION TANK



TANK SPECIFICATION AND ARRANGEMENT INDICATIVE ONLY AND BASED ON SPECIFICATION AGREED BETWEEN CONTRACTOR AND POLYPIPE

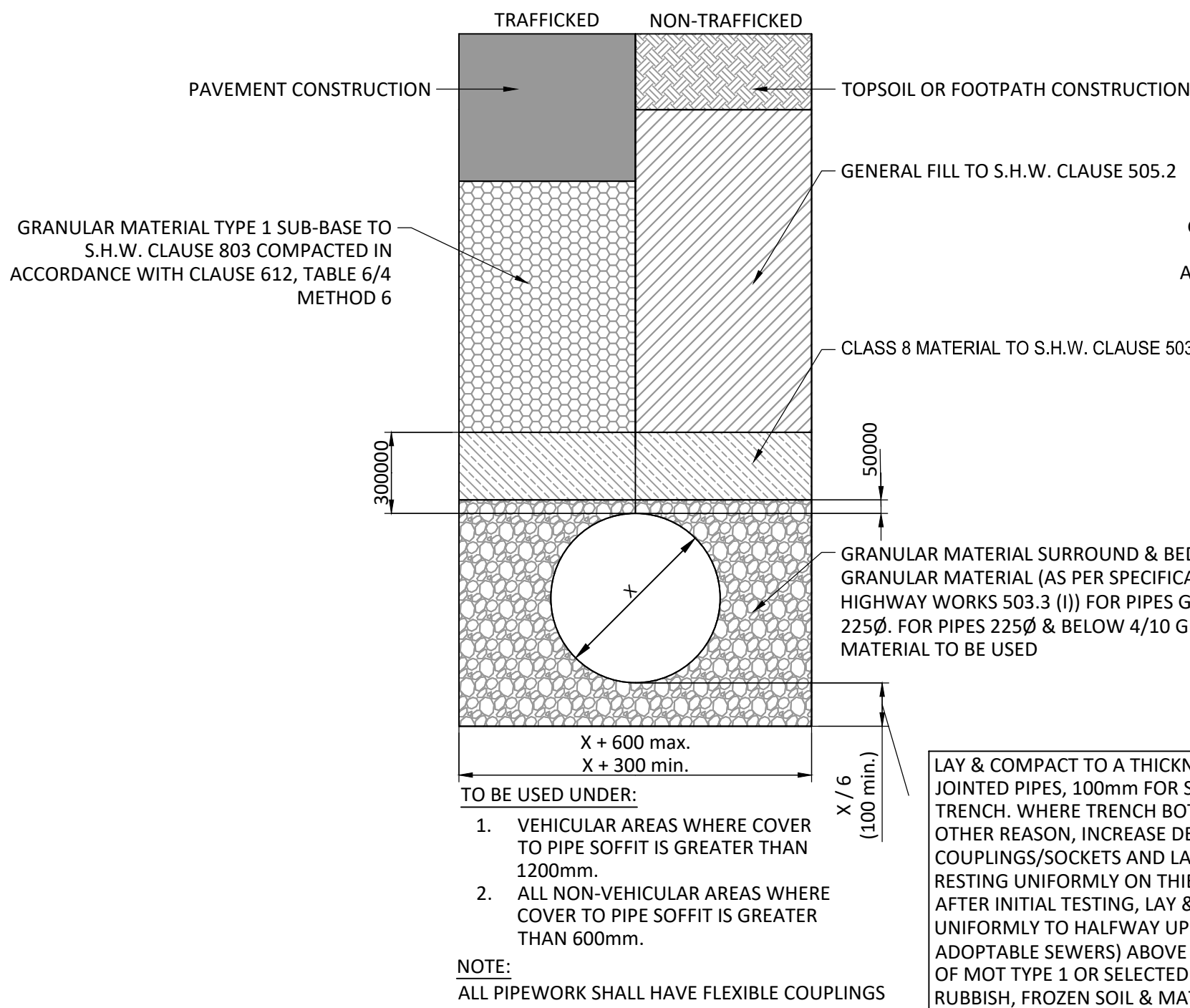


DRAINAGE BELOW GROUND SLAB
WHERE DISTANCE BETWEEN PIPE SOFFIT & UNDERSIDE OF CONCRETE GROUND BEARING FLOOR SLAB/GROUND BEAM IS LESS THAN 300mm

WHERE SOFFIT OF PIPE IS WITHIN 300mm OF UNDERSIDE OF CONCRETE FLOOR SLAB, THE PIPE SHALL BE SURROUNDED & BEDDED INTEGRAL WITH REINFORCED GROUND SLAB (REFER TO CIVIC STRUCTURAL DRGS FOR DETAILS)

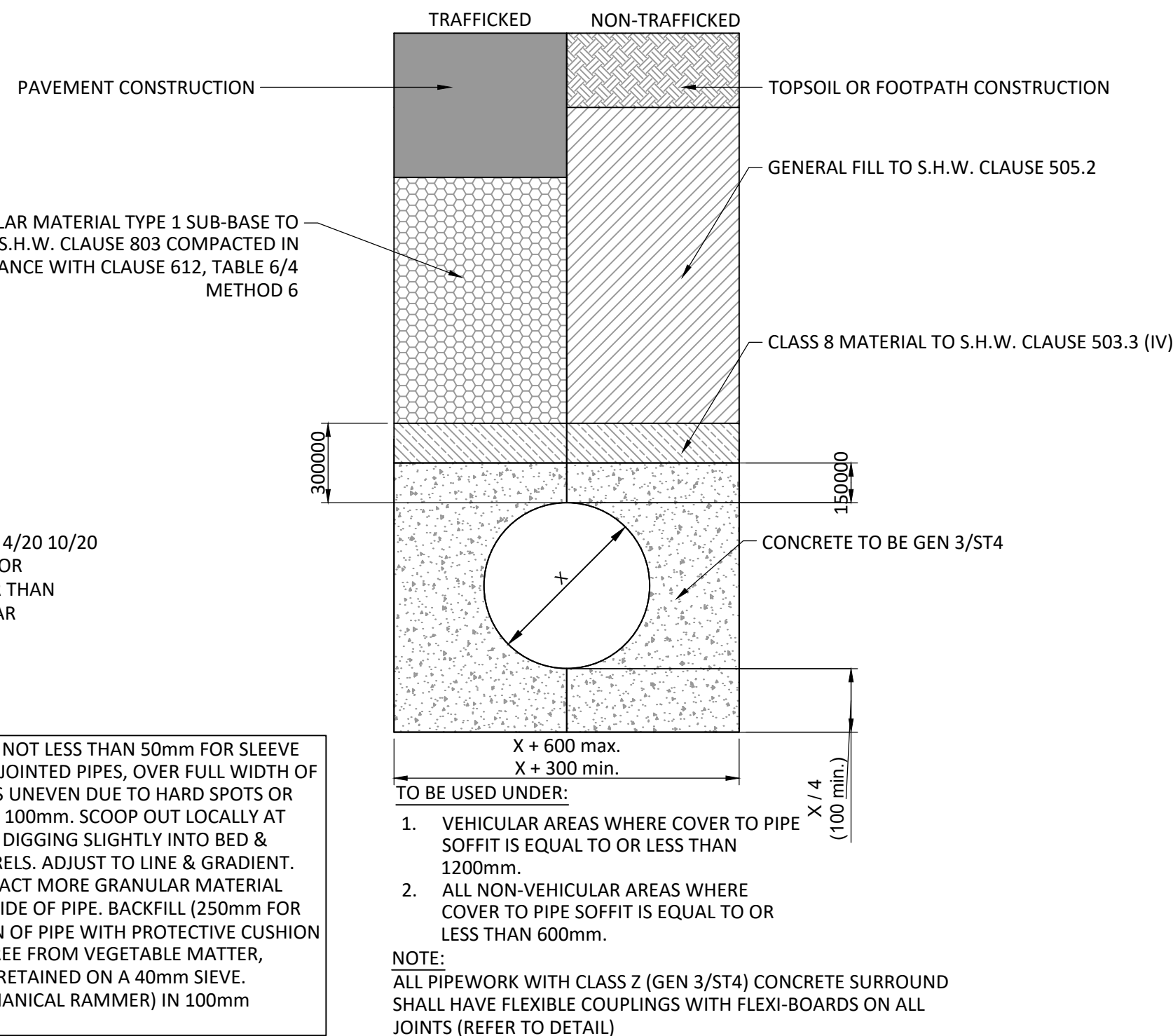
NOTE: ROCKER PIPE DETAIL SHOULD BE USED AS THE PIPE LEAVES THE CONCRETE SURROUND CAST WITH CONCRETE FLOOR SLAB (ie. 150mm FROM EDGE OF CONCRETE STRUCTURE TO FIRST FLEXIBLE COUPLING, 600mm LONG ROCKER PIPE WITH FLEXIBLE COUPLINGS & COMPRESSIBLE BOARDS ON EACH COUPLING IF PIPE IS TO HAVE CLASS Z SURROUND & BED.)

NOTES:
1. THIS DETAIL SHALL ONLY BE USED UNDER AREAS OF GROUND BEARING SLAB WHERE UNDER SLAB PIPEWORK CAN BE SUPPORTED BY UNDER SLAB FILL MATERIAL.



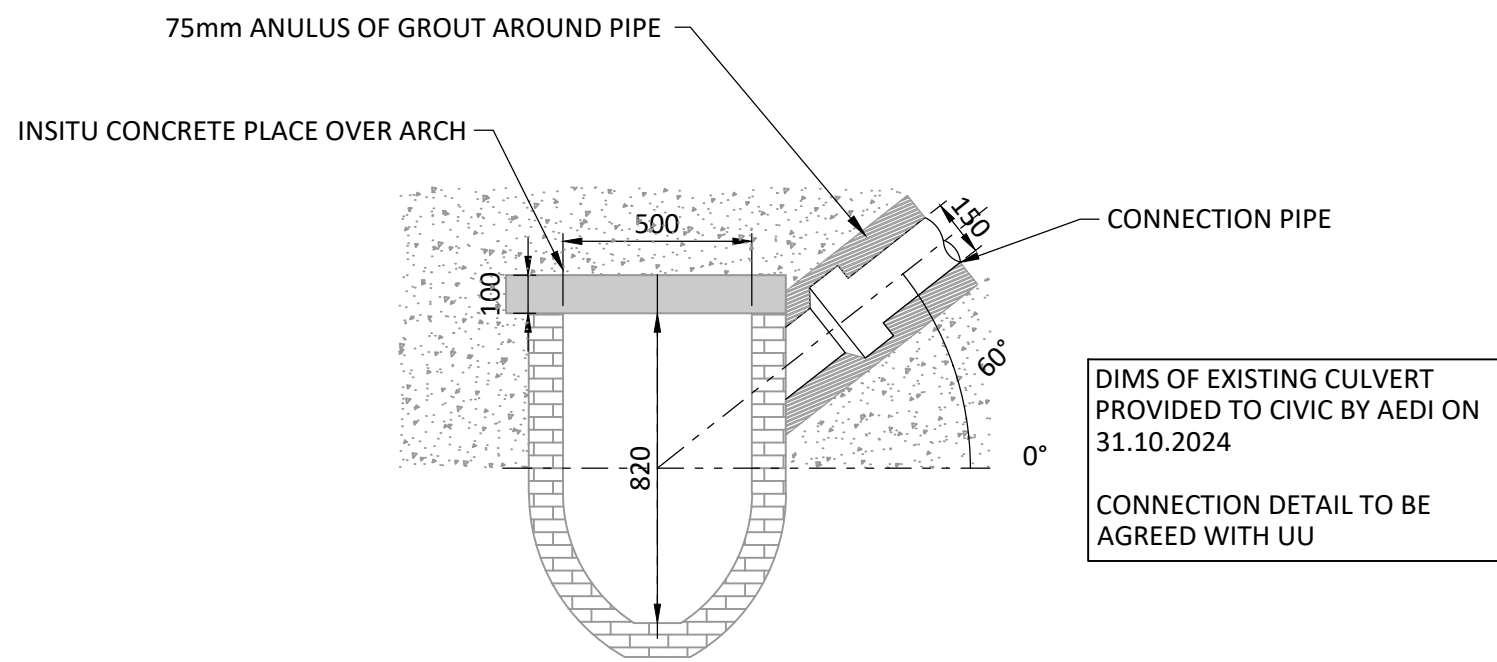
CLASS S PIPE BEDDING & SURROUND
(TO BE USED FOR PLASTIC, VITRIFIED CLAY AND CONCRETE PIPEWORK).

SCALE 1:20

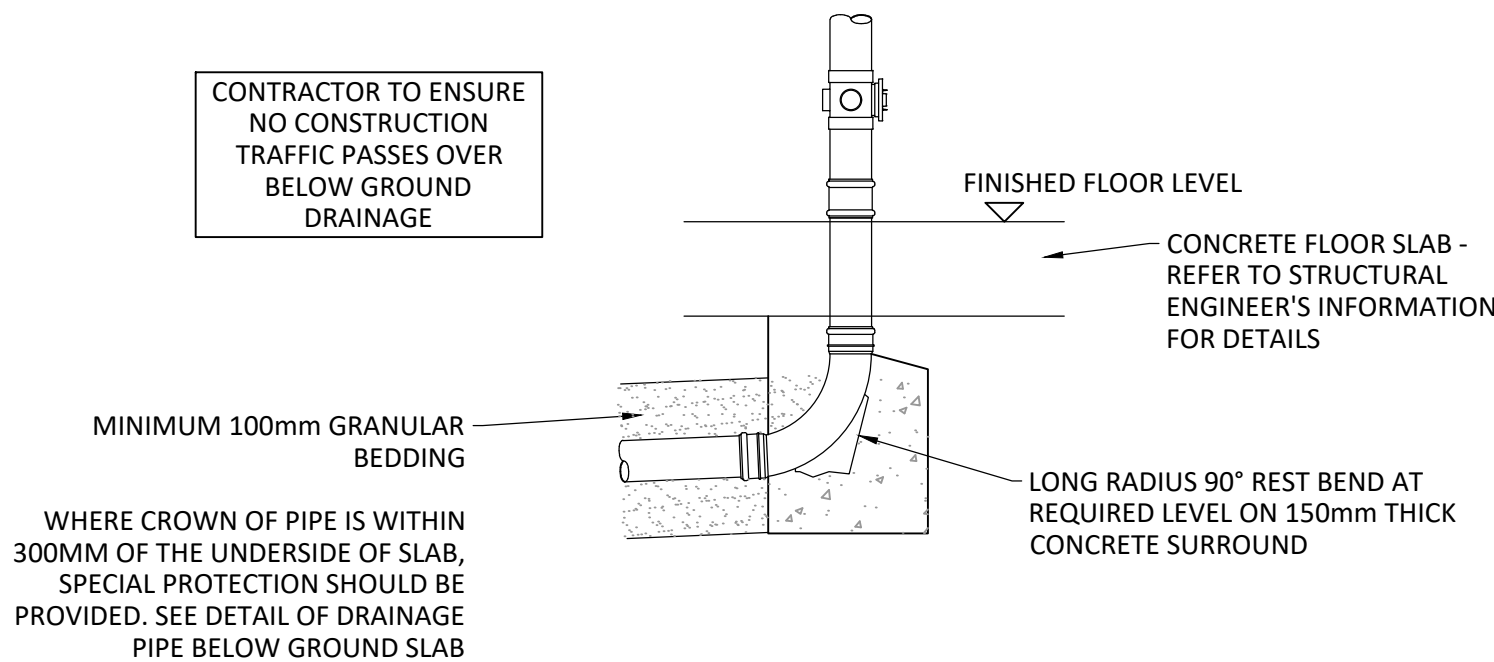
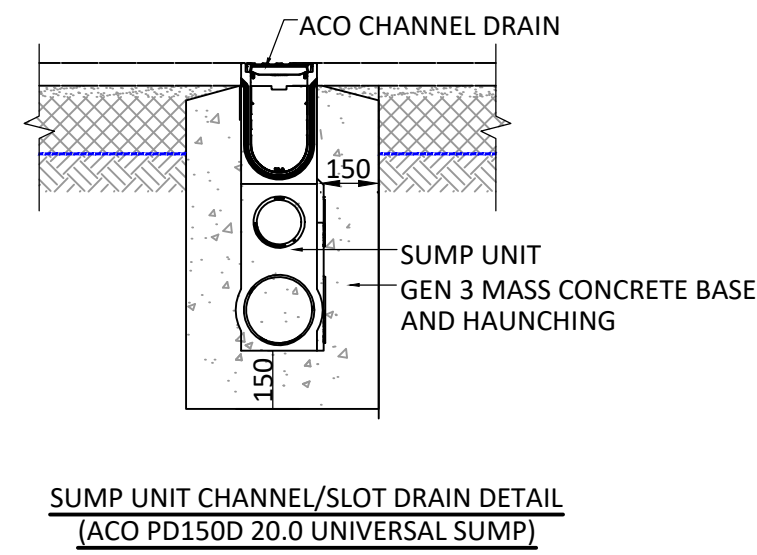


CLASS Z PIPE BEDDING & SURROUND
(TO BE USED FOR PLASTIC, VITRIFIED CLAY AND CONCRETE PIPEWORK).

SCALE 1:20



CONNECTIONS TO BRICK CULVERT



TYPICAL SOIL VENT PIPE / STUB STACK / INTERNAL RAINWATER PIPE CONNECTION DETAIL

SCALE 1:20

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25.11.24	C01	ISSUED FOR CONSTRUCTION	CER	JF
18.11.24	T07	ATTENUATION CRATES ADDED	CER	JF
21.10.24	T06	UPDATED DETAILS	CER	JF
14.10.24	T05	SADDLE CONNECTION TO UU	CER	JF
25.09.24	T04	IMPERMEABLE MEMBRANE UPDATED ON DETAIL	CER	JF
07.07.24	T03	LINEAR SLO DRAIN DETAIL ADDED	CER	JF
25.06.24	T02	BACKDROP DETAIL ADDED	CER	JF
19.04.24	T01	FIRST ISSUE	NL	LT
DATE	REV	DESCRIPTION	DRAWN	CHKD

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PROJECT
ARDWICK GREEN

TITLE
TYPICAL DRAINAGE DETAILS
SHEET 2

DRAWING STATUS					STATUS CODE
CONSTRUCTION					
CE PROJECT NO.	SCALE @ A1	DATE CREATED	DRAWN	CHECKED	
2075	1:20	MAR'24	NL	LT	
DRAWING No.					REV
2075-CIV-XX-XX-D-C-31002					C01

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	5	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)	17.000	Minimum Backdrop Height (m)	0.200
Ratio-R	0.400	Preferred Cover Depth (m)	1.200
CV	1.000	Include Intermediate Ground	✓
Time of Entry (mins)	5.00	Enforce best practice design rules	✓

Adoptable Manhole Type

Max Width (mm)	Diameter (mm)	Max Width (mm)	Diameter (mm)
374	1200	749	1500
499	1350	900	1800

>900 Link+900 mm

Max Depth (m)	Diameter (mm)	Max Depth (m)	Diameter (mm)
1.500	1050	99.999	1200

Circular Link Type

Shape	Circular	Auto Increment (mm)	75
Barrels	1	Follow Ground	x

Available Diameters (mm)

100 | 150

tank Link Type

Shape	Closed Rectangular	Auto Increment (mm)	100
Barrels	1	Follow Ground	x
Height (mm)	800		

Available Diameters (mm)

4750

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
Gavel Strip Inlet	0.004	5.00	41.220	300	385183.446	397277.676	0.420
Gavel Strip Outlet			41.220	300	385190.519	397290.505	0.518
RE01	0.009	5.00	41.214	300	385187.147	397273.878	0.792
IC06			41.223	450	385195.927	397289.898	0.989
RE02	0.010	5.00	41.221	300	385190.912	397271.912	0.721
IC05			41.222	450	385199.667	397287.904	1.016
RE03	0.010	5.00	41.240	300	385197.461	397268.387	0.740
IC04			41.222	450	385206.346	397284.323	1.067
RE04	0.010	5.00	41.250	300	385201.471	397266.222	0.750
IC03	0.054	5.00	41.221	600	385210.258	397282.292	1.170
RE05	0.011	5.00	41.953	300	385212.854	397321.266	0.453
IC11			41.940	450	385203.518	397304.297	1.000
RE06	0.010	5.00	41.932	300	385217.199	397319.169	0.432

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
IC10			41.941	450	385207.735	397301.900	1.350
RE07	0.011	5.00	41.950	300	385223.229	397316.098	0.450
IC09			41.941	450	385213.525	397298.738	1.394
RE08	0.012	5.00	41.950	300	385227.919	397313.702	0.450
IC08			41.944	600	385218.333	397296.008	1.434
IC02			41.815	600	385216.526	397293.496	1.850
INLET			41.800	450	385215.382	397294.122	1.836
OUTLET			41.777	450	385201.104	397301.287	1.815
IC01			41.777	600	385199.924	397301.963	1.824
IC16	0.004	5.00	42.000	450	385205.467	397316.247	0.807
MH01			41.841	1350	385198.033	397303.014	1.902
CW03			41.920	450	385196.501	397303.793	1.987
CW02			41.278	450	385192.717	397293.349	1.623
CW01			41.215	450	385183.172	397275.659	1.811
CW			41.221	450	385177.875	397267.666	2.291

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)
1.000	Gavel Strip Inlet	Gavel Strip Outlet	14.650	0.600	40.800	40.702	0.098	150.0	250	5.21	50.0
1.001	Gavel Strip Outlet	IC06	5.442	0.600	40.702	40.666	0.036	150.0	150	5.33	50.0
2.000	RE01	IC06	18.268	0.600	40.422	40.300	0.122	150.0	150	5.37	50.0
1.002	IC06	IC05	4.238	0.600	40.234	40.206	0.028	150.0	150	5.46	50.0
3.000	RE02	IC05	18.233	0.600	40.500	40.378	0.122	150.0	150	5.37	50.0
1.003	IC05	IC04	7.578	0.600	40.206	40.155	0.051	150.0	150	5.61	50.0
4.000	RE03	IC04	18.246	0.600	40.500	40.378	0.122	150.0	150	5.37	50.0
1.004	IC04	IC03	4.415	0.600	40.155	40.126	0.029	150.0	150	5.70	50.0
5.000	RE04	IC03	18.332	0.600	40.500	40.378	0.122	150.0	150	5.37	50.0
1.005	IC03	IC02	12.855	0.600	40.051	39.965	0.086	150.0	225	5.90	50.0
6.000	RE05	IC11	19.368	0.600	41.500	41.371	0.129	150.0	150	5.39	50.0
6.001	IC11	IC10	4.851	0.600	40.940	40.908	0.032	150.0	150	5.49	50.0
7.000	RE06	IC10	19.692	0.600	41.500	41.369	0.131	150.0	150	5.40	50.0
6.002	IC10	IC09	6.597	0.600	40.591	40.547	0.044	150.0	150	5.63	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)
1.000	1.140	56.0	0.7	0.170	0.268	0.004	0.0
1.001	0.818	14.5	0.7	0.368	0.407	0.004	0.0
2.000	0.818	14.5	1.7	0.642	0.773	0.009	0.0
1.002	0.818	14.5	2.4	0.839	0.866	0.013	0.0
3.000	0.818	14.5	1.8	0.571	0.694	0.010	0.0
1.003	0.818	14.5	4.1	0.866	0.917	0.023	0.0
4.000	0.818	14.5	1.9	0.590	0.694	0.010	0.0
1.004	0.818	14.5	6.0	0.917	0.945	0.033	0.0
5.000	0.818	14.5	1.8	0.600	0.693	0.010	0.0
1.005	1.065	42.3	17.5	0.945	1.625	0.097	0.0
6.000	0.818	14.5	1.9	0.303	0.419	0.011	0.0
6.001	0.818	14.5	1.9	0.850	0.883	0.011	0.0
7.000	0.818	14.5	1.9	0.282	0.422	0.010	0.0
6.002	0.818	14.5	3.8	1.200	1.244	0.021	0.0

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)
8.000	RE07	IC09	19.888	0.600	41.500	41.367	0.133	150.0	150	5.41	50.0
6.003	IC09	IC08	5.529	0.600	40.547	40.510	0.037	150.0	150	5.74	50.0
9.000	RE08	IC08	20.124	0.600	41.500	41.366	0.134	150.0	150	5.41	50.0
6.004	IC08	IC02	3.094	0.600	40.510	40.489	0.021	150.0	225	5.79	50.0
1.006	IC02	INLET	1.304	0.600	39.973	39.964	0.009	150.0	225	5.92	50.0
1.007	INLET	OUTLET	16.000	0.600	39.964	39.962	0.002	10000.0	4750	6.60	50.0
1.008	OUTLET	IC01	1.360	0.600	39.962	39.953	0.009	150.0	225	6.62	50.0
1.009	IC01	MH01	2.163	0.600	39.953	39.939	0.014	150.0	225	6.65	50.0
10.000	IC16	MH01	15.178	0.600	41.193	41.092	0.101	150.0	150	5.31	50.0
1.010	MH01	CW03	1.719	0.600	39.939	39.933	0.006	286.4	225	6.69	50.0
1.011	CW03	CW02	11.108	0.600	39.933	39.655	0.278	40.0	225	6.78	50.0
1.012	CW02	CW01	20.101	0.600	39.655	39.404	0.251	80.0	225	7.01	50.0
1.013	CW01	CW	9.591	0.600	39.404	38.930	0.474	20.2	225	7.06	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)
8.000	0.818	14.5	2.1	0.300	0.424	0.011	0.0
6.003	0.818	14.5	5.9	1.244	1.284	0.033	0.0
9.000	0.818	14.5	2.2	0.300	0.428	0.012	0.0
6.004	1.065	42.3	8.1	1.209	1.101	0.045	0.0
1.006	1.065	42.3	25.6	1.617	1.611	0.142	0.0
1.007	0.395	1501.7	25.6	1.036	1.015	0.142	0.0
1.008	1.065	42.3	25.6	1.590	1.599	0.142	0.0
1.009	1.065	42.3	25.6	1.599	1.677	0.142	0.0
10.000	0.818	14.5	0.7	0.657	0.599	0.004	0.0
1.010	0.767	30.5	26.3	1.677	1.762	0.146	0.0
1.011	2.074	82.5	26.3	1.762	1.398	0.146	0.0
1.012	1.463	58.2	26.3	1.398	1.586	0.146	0.0
1.013	2.922	116.2	26.3	1.586	2.066	0.146	0.0

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	14.650	150.0	250	Circular	41.220	40.800	0.170	41.220	40.702	0.268
1.001	5.442	150.0	150	Circular	41.220	40.702	0.368	41.223	40.666	0.407
2.000	18.268	150.0	150	Circular	41.214	40.422	0.642	41.223	40.300	0.773
1.002	4.238	150.0	150	Circular	41.223	40.234	0.839	41.222	40.206	0.866
3.000	18.233	150.0	150	Circular	41.221	40.500	0.571	41.222	40.378	0.694
1.003	7.578	150.0	150	Circular	41.222	40.206	0.866	41.222	40.155	0.917
4.000	18.246	150.0	150	Circular	41.240	40.500	0.590	41.222	40.378	0.694

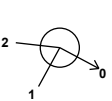
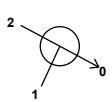
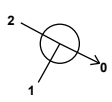
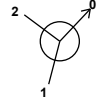
Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	Gavel Strip Inlet	300	Manhole	Adoptable	Gavel Strip Outlet	300	Manhole	Adoptable
1.001	Gavel Strip Outlet	300	Manhole	Adoptable	IC06	450	Manhole	Adoptable
2.000	RE01	300	Manhole	Adoptable	IC06	450	Manhole	Adoptable
1.002	IC06	450	Manhole	Adoptable	IC05	450	Manhole	Adoptable
3.000	RE02	300	Manhole	Adoptable	IC05	450	Manhole	Adoptable
1.003	IC05	450	Manhole	Adoptable	IC04	450	Manhole	Adoptable
4.000	RE03	300	Manhole	Adoptable	IC04	450	Manhole	Adoptable

Pipeline Schedule

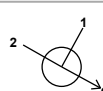
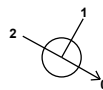
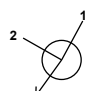
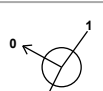
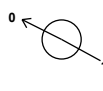
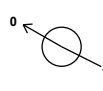
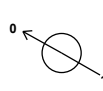
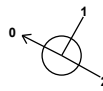
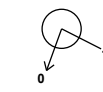
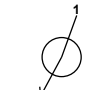
Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.004	4.415	150.0	150	Circular	41.222	40.155	0.917	41.221	40.126	0.945
5.000	18.332	150.0	150	Circular	41.250	40.500	0.600	41.221	40.378	0.693
1.005	12.855	150.0	225	Circular	41.221	40.051	0.945	41.815	39.965	1.625
6.000	19.368	150.0	150	Circular	41.953	41.500	0.303	41.940	41.371	0.419
6.001	4.851	150.0	150	Circular	41.940	40.940	0.850	41.941	40.908	0.883
7.000	19.692	150.0	150	Circular	41.932	41.500	0.282	41.941	41.369	0.422
6.002	6.597	150.0	150	Circular	41.941	40.591	1.200	41.941	40.547	1.244
8.000	19.888	150.0	150	Circular	41.950	41.500	0.300	41.941	41.367	0.424
6.003	5.529	150.0	150	Circular	41.941	40.547	1.244	41.944	40.510	1.284
9.000	20.124	150.0	150	Circular	41.950	41.500	0.300	41.944	41.366	0.428
6.004	3.094	150.0	225	Circular	41.944	40.510	1.209	41.815	40.489	1.101
1.006	1.304	150.0	225	Circular	41.815	39.973	1.617	41.800	39.964	1.611
1.007	16.000	10000.0	4750	tank	41.800	39.964	1.036	41.777	39.962	1.015
1.008	1.360	150.0	225	Circular	41.777	39.962	1.590	41.777	39.953	1.599
1.009	2.163	150.0	225	Circular	41.777	39.953	1.599	41.841	39.939	1.677
10.000	15.178	150.0	150	Circular	42.000	41.193	0.657	41.841	41.092	0.599
1.010	1.719	286.4	225	Circular	41.841	39.939	1.677	41.920	39.933	1.762
1.011	11.108	40.0	225	Circular	41.920	39.933	1.762	41.278	39.655	1.398
1.012	20.101	80.0	225	Circular	41.278	39.655	1.398	41.215	39.404	1.586
1.013	9.591	20.2	225	Circular	41.215	39.404	1.586	41.221	38.930	2.066

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.004	IC04	450	Manhole	Adoptable	IC03	600	Manhole	Adoptable
5.000	RE04	300	Manhole	Adoptable	IC03	600	Manhole	Adoptable
1.005	IC03	600	Manhole	Adoptable	IC02	600	Manhole	Adoptable
6.000	RE05	300	Manhole	Adoptable	IC11	450	Manhole	Adoptable
6.001	IC11	450	Manhole	Adoptable	IC10	450	Manhole	Adoptable
7.000	RE06	300	Manhole	Adoptable	IC10	450	Manhole	Adoptable
6.002	IC10	450	Manhole	Adoptable	IC09	450	Manhole	Adoptable
8.000	RE07	300	Manhole	Adoptable	IC09	450	Manhole	Adoptable
6.003	IC09	450	Manhole	Adoptable	IC08	600	Manhole	Adoptable
9.000	RE08	300	Manhole	Adoptable	IC08	600	Manhole	Adoptable
6.004	IC08	600	Manhole	Adoptable	IC02	600	Manhole	Adoptable
1.006	IC02	600	Manhole	Adoptable	INLET	450	Manhole	Adoptable
1.007	INLET	450	Manhole	Adoptable	OUTLET	450	Manhole	Adoptable
1.008	OUTLET	450	Manhole	Adoptable	IC01	600	Manhole	Adoptable
1.009	IC01	600	Manhole	Adoptable	MH01	1350	Manhole	Adoptable
10.000	IC16	450	Manhole	Adoptable	MH01	1350	Manhole	Adoptable
1.010	MH01	1350	Manhole	Adoptable	CW03	450	Manhole	Adoptable
1.011	CW03	450	Manhole	Adoptable	CW02	450	Manhole	Adoptable
1.012	CW02	450	Manhole	Adoptable	CW01	450	Manhole	Adoptable
1.013	CW01	450	Manhole	Adoptable	CW	450	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
Gavel Strip Inlet	385183.446	397277.676	41.220	0.420	300				
						0	1.000	40.800	250
Gavel Strip Outlet	385190.519	397290.505	41.220	0.518	300		1	1.000	40.702
						0	1.001	40.702	150
RE01	385187.147	397273.878	41.214	0.792	300				
						0	2.000	40.422	150
IC06	385195.927	397289.898	41.223	0.989	450		1	2.000	40.300
						2	1.001	40.666	150
						0	1.002	40.234	150
RE02	385190.912	397271.912	41.221	0.721	300				
						0	3.000	40.500	150
IC05	385199.667	397287.904	41.222	1.016	450		1	3.000	40.378
						2	1.002	40.206	150
						0	1.003	40.206	150
RE03	385197.461	397268.387	41.240	0.740	300				
						0	4.000	40.500	150
IC04	385206.346	397284.323	41.222	1.067	450		1	4.000	40.378
						2	1.003	40.155	150
						0	1.004	40.155	150
RE04	385201.471	397266.222	41.250	0.750	300				
						0	5.000	40.500	150
IC03	385210.258	397282.292	41.221	1.170	600		1	5.000	40.378
						2	1.004	40.126	150
						0	1.005	40.051	225
RE05	385212.854	397321.266	41.953	0.453	300				
						0	6.000	41.500	150
IC11	385203.518	397304.297	41.940	1.000	450		1	6.000	41.371
						0	6.001	40.940	150
RE06	385217.199	397319.169	41.932	0.432	300				
						0	7.000	41.500	150

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections		Link	IL (m)	Dia (mm)
IC10	385207.735	397301.900	41.941	1.350	450		1	7.000	41.369	150
							2	6.001	40.908	150
							0	6.002	40.591	150
RE07	385223.229	397316.098	41.950	0.450	300		0	8.000	41.500	150
IC09	385213.525	397298.738	41.941	1.394	450		1	8.000	41.367	150
							2	6.002	40.547	150
							0	6.003	40.547	150
RE08	385227.919	397313.702	41.950	0.450	300		0	9.000	41.500	150
IC08	385218.333	397296.008	41.944	1.434	600		1	9.000	41.366	150
							2	6.003	40.510	150
							0	6.004	40.510	225
IC02	385216.526	397293.496	41.815	1.850	600		1	6.004	40.489	225
							2	1.005	39.965	225
							0	1.006	39.973	225
INLET	385215.382	397294.122	41.800	1.836	450		1	1.006	39.964	225
							0	1.007	39.964	4750
OUTLET	385201.104	397301.287	41.777	1.815	450		1	1.007	39.962	4750
							0	1.008	39.962	225
IC01	385199.924	397301.963	41.777	1.824	600		1	1.008	39.953	225
							0	1.009	39.953	225
IC16	385205.467	397316.247	42.000	0.807	450		0	10.000	41.193	150
MH01	385198.033	397303.014	41.841	1.902	1350		1	10.000	41.092	150
							2	1.009	39.939	225
							0	1.010	39.939	225
CW03	385196.501	397303.793	41.920	1.987	450		1	1.010	39.933	225
CW02	385192.717	397293.349	41.278	1.623	450		0	1.011	39.933	225
							1	1.011	39.655	225
							0	1.012	39.655	225

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
CW01	385183.172	397275.659	41.215	1.811	450	 1	1.012	39.404	225
						0 	1.013	39.404	225
CW	385177.875	397267.666	41.221	2.291	450	1 	1.013	38.930	225

Simulation Settings

Rainfall Methodology	FSR	Skip Steady State	x
FSR Region	England and Wales	Drain Down Time (mins)	240
M5-60 (mm)	17.000	Additional Storage (m³/ha)	20.0
Ratio-R	0.400	Check Discharge Rate(s)	x
Winter CV	1.000	Check Discharge Volume	x
Analysis Speed	Detailed		

Storm Durations

15 | 30 | 60 | 120 | 180 | 240 | 360 | 480 | 600 | 720 | 960 | 1440

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
100	45	0	0

Node MH01 Online Hydro-Brake® Control

Flap Valve	✓	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	39.939	Product Number	CTL-SHE-0090-3500-0900-3500
Design Depth (m)	0.900	Min Outlet Diameter (m)	0.150
Design Flow (l/s)	3.5	Min Node Diameter (mm)	1200

Other (defaults)

Entry Loss (manhole)	0.250	Entry Loss (junction)	0.000	Apply Recommended Losses	x
Exit Loss (manhole)	0.250	Exit Loss (junction)	0.000	Flood Risk (m)	0.300

Approval Settings

Node Size	✓	Minimum Backdrop Height (m)	0.200
Node Losses	✓	Maximum Backdrop Height (m)	1.500
Link Size	✓	Full Bore Velocity	✓
Minimum Diameter (mm)	150	Minimum Full Bore Velocity (m/s)	1.000
Link Length	✓	Maximum Full Bore Velocity (m/s)	3.000
Maximum Length (m)	100.000	Proportional Velocity	✓
Coordinates	✓	Return Period (years)	100
Accuracy (m)	1.000	Minimum Proportional Velocity (m/s)	0.750
Crossings	✓	Maximum Proportional Velocity (m/s)	3.000
Cover Depth	✓	Surcharged Depth	✓
Minimum Cover Depth (m)	1.200	Return Period (years)	1
Maximum Cover Depth (m)	3.000	Maximum Surcharged Depth (m)	0.100
Backdrops	✓	Flooding	✓

Approval Settings

Return Period (years)	30	100 year (l/s)	3.5
Time to Half Empty	✓	Discharge Volume	✓
Return Period (years)	2	100 year 360 minute (m³)	20
Discharge Rates	✓		

Rainfall

Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)	Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
100 year +45% CC 15 minute winter	296.885	119.712	100 year +45% CC 360 minute winter	33.238	13.158
100 year +45% CC 30 minute winter	195.350	78.770	100 year +45% CC 480 minute winter	26.348	10.480
100 year +45% CC 60 minute winter	124.515	49.529	100 year +45% CC 600 minute winter	21.932	8.780
100 year +45% CC 120 minute winter	75.946	30.209	100 year +45% CC 720 minute winter	19.063	7.602
100 year +45% CC 180 minute winter	56.520	22.375	100 year +45% CC 960 minute winter	15.225	6.052
100 year +45% CC 240 minute winter	45.253	18.001	100 year +45% CC 1440 minute winter	10.990	4.383

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 98.84%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	Gavel Strip Inlet	10	40.835	0.035	2.4	0.0087	0.0000	OK
15 minute winter	Gavel Strip Outlet	11	40.745	0.043	2.4	0.0031	0.0000	OK
180 minute winter	RE01	172	40.737	0.315	1.4	0.0966	0.0000	SURCHARGED
180 minute winter	IC06	172	40.737	0.503	2.0	0.0799	0.0000	SURCHARGED
180 minute winter	RE02	176	40.737	0.237	1.5	0.0811	0.0000	SURCHARGED
180 minute winter	IC05	172	40.737	0.531	3.1	0.0844	0.0000	SURCHARGED
180 minute winter	RE03	172	40.737	0.237	1.6	0.0830	0.0000	SURCHARGED
180 minute winter	IC04	172	40.737	0.582	4.3	0.0925	0.0000	SURCHARGED
180 minute winter	RE04	172	40.736	0.236	1.5	0.0789	0.0000	SURCHARGED
180 minute winter	IC03	172	40.736	0.685	13.9	0.8238	0.0000	SURCHARGED
15 minute winter	RE05	10	41.575	0.075	7.0	0.0411	0.0000	OK
15 minute winter	IC11	11	41.019	0.079	6.8	0.0126	0.0000	OK
15 minute winter	RE06	10	41.574	0.074	6.8	0.0411	0.0000	OK
15 minute winter	IC10	11	40.830	0.239	13.4	0.0381	0.0000	SURCHARGED
15 minute winter	RE07	10	41.578	0.078	7.5	0.0455	0.0000	OK
15 minute winter	IC09	11	40.775	0.228	20.6	0.0363	0.0000	SURCHARGED
15 minute winter	RE08	10	41.580	0.080	7.7	0.0478	0.0000	OK
180 minute winter	IC08	172	40.736	0.226	6.9	0.0640	0.0000	SURCHARGED
180 minute winter	IC02	176	40.736	0.771	20.5	0.2182	0.0000	SURCHARGED
180 minute winter	INLET	176	40.736	0.772	20.3	0.1227	0.0000	OK
180 minute winter	OUTLET	176	40.736	0.774	11.8	0.1231	0.0000	SURCHARGED
180 minute winter	IC01	176	40.736	0.783	3.4	0.2215	0.0000	SURCHARGED
15 minute winter	IC16	10	41.237	0.044	2.6	0.0114	0.0000	OK
180 minute winter	MH01	176	40.735	0.796	3.8	1.1397	0.0000	SURCHARGED
960 minute winter	CW03	495	39.965	0.032	3.5	0.0050	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	Gavel Strip Inlet	1.000	Gavel Strip Outlet	2.4	0.494	0.043	0.0710	
15 minute winter	Gavel Strip Outlet	1.001	IC06	2.4	0.583	0.163	0.0220	
180 minute winter	RE01	2.000	IC06	1.4	0.516	0.097	0.3216	
180 minute winter	IC06	1.002	IC05	1.7	0.429	0.115	0.0746	
180 minute winter	RE02	3.000	IC05	1.5	0.529	0.104	0.3210	
180 minute winter	IC05	1.003	IC04	2.8	0.493	0.194	0.1334	
180 minute winter	RE03	4.000	IC04	1.6	0.536	0.111	0.3212	
180 minute winter	IC04	1.004	IC03	4.1	0.622	0.284	0.0777	
180 minute winter	RE04	5.000	IC03	1.5	0.528	0.104	0.3227	
180 minute winter	IC03	1.005	IC02	13.6	0.459	0.322	0.5113	
15 minute winter	RE05	6.000	IC11	6.8	0.794	0.471	0.1667	
15 minute winter	IC11	6.001	IC10	6.8	0.765	0.472	0.0433	
15 minute winter	RE06	7.000	IC10	6.6	0.788	0.457	0.1656	
15 minute winter	IC10	6.002	IC09	13.4	0.761	0.926	0.1161	
15 minute winter	RE07	8.000	IC09	7.3	0.808	0.503	0.1795	
15 minute winter	IC09	6.003	IC08	20.6	1.169	1.424	0.0973	
15 minute winter	RE08	9.000	IC08	7.5	0.814	0.519	0.1863	
180 minute winter	IC08	6.004	IC02	6.9	0.741	0.163	0.1230	
180 minute winter	IC02	1.006	INLET	20.3	1.053	0.478	0.0519	
180 minute winter	INLET	1.007	OUTLET	11.8	0.046	0.008	58.7505	
180 minute winter	OUTLET	1.008	IC01	3.4	0.335	0.081	0.0541	
180 minute winter	IC01	1.009	MH01	3.4	0.169	0.081	0.0860	
15 minute winter	IC16	10.000	MH01	2.5	0.611	0.176	0.0634	
180 minute winter	MH01	Hydro-Brake®	CW03	3.5				
960 minute winter	CW03	1.011	CW02	3.5	0.869	0.042	0.0450	

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 98.84%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	CW02	106	39.695	0.040	3.5	0.0063	0.0000	OK
240 minute winter	CW01	472	39.432	0.028	3.5	0.0044	0.0000	OK
240 minute winter	CW	472	38.957	0.027	3.5	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	CW02	1.012	CW01	3.5	0.944	0.060	0.0753	
240 minute winter	CW01	1.013	CW	3.5	1.293	0.030	0.0260	83.2

Results for 100 year +45% CC 15 minute winter. 255 minute analysis at 1 minute timestep. Mass balance: 99.79%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	Gavel Strip Inlet	10	40.835	0.035	2.4	0.0087	0.0000	OK
15 minute winter	Gavel Strip Outlet	11	40.745	0.043	2.4	0.0031	0.0000	OK
15 minute winter	RE01	12	40.631	0.209	6.1	0.0642	0.0000	SURCHARGED
15 minute winter	IC06	12	40.620	0.386	7.5	0.0613	0.0000	SURCHARGED
15 minute winter	RE02	12	40.625	0.125	6.4	0.0429	0.0000	OK
15 minute winter	IC05	12	40.611	0.405	11.0	0.0644	0.0000	SURCHARGED
15 minute winter	RE03	12	40.582	0.082	6.7	0.0288	0.0000	OK
15 minute winter	IC04	12	40.572	0.417	15.7	0.0663	0.0000	SURCHARGED
15 minute winter	RE04	10	40.572	0.072	6.4	0.0239	0.0000	OK
15 minute winter	IC03	12	40.520	0.469	53.0	0.5637	0.0000	SURCHARGED
15 minute winter	RE05	10	41.575	0.075	7.0	0.0411	0.0000	OK
15 minute winter	IC11	11	41.019	0.079	6.8	0.0126	0.0000	OK
15 minute winter	RE06	10	41.574	0.074	6.8	0.0411	0.0000	OK
15 minute winter	IC10	11	40.830	0.239	13.4	0.0381	0.0000	SURCHARGED
15 minute winter	RE07	10	41.578	0.078	7.5	0.0455	0.0000	OK
15 minute winter	IC09	11	40.775	0.228	20.6	0.0363	0.0000	SURCHARGED
15 minute winter	RE08	10	41.580	0.080	7.7	0.0478	0.0000	OK
15 minute winter	IC08	11	40.663	0.153	28.0	0.0433	0.0000	OK
15 minute winter	IC02	20	40.431	0.466	79.0	0.1319	0.0000	SURCHARGED
15 minute winter	INLET	20	40.431	0.467	78.0	0.0742	0.0000	OK
15 minute winter	OUTLET	20	40.431	0.469	39.2	0.0746	0.0000	SURCHARGED
15 minute winter	IC01	20	40.431	0.478	3.6	0.1352	0.0000	SURCHARGED
15 minute winter	IC16	10	41.237	0.044	2.6	0.0114	0.0000	OK
15 minute winter	MH01	20	40.431	0.492	4.8	0.7035	0.0000	SURCHARGED
15 minute winter	CW03	106	39.965	0.032	3.5	0.0050	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	Gavel Strip Inlet	1.000	Gavel Strip Outlet	2.4	0.494	0.043	0.0710	
15 minute winter	Gavel Strip Outlet	1.001	IC06	2.4	0.583	0.163	0.0220	
15 minute winter	RE01	2.000	IC06	5.6	0.692	0.387	0.3216	
15 minute winter	IC06	1.002	IC05	6.3	0.472	0.433	0.0746	
15 minute winter	RE02	3.000	IC05	6.4	0.750	0.440	0.3037	
15 minute winter	IC05	1.003	IC04	11.0	0.623	0.759	0.1334	
15 minute winter	RE03	4.000	IC04	6.8	0.758	0.471	0.2504	
15 minute winter	IC04	1.004	IC03	16.3	0.923	1.124	0.0777	
15 minute winter	RE04	5.000	IC03	6.2	0.748	0.431	0.2213	
15 minute winter	IC03	1.005	IC02	50.9	1.281	1.203	0.5113	
15 minute winter	RE05	6.000	IC11	6.8	0.794	0.471	0.1667	
15 minute winter	IC11	6.001	IC10	6.8	0.765	0.472	0.0433	
15 minute winter	RE06	7.000	IC10	6.6	0.788	0.457	0.1656	
15 minute winter	IC10	6.002	IC09	13.4	0.761	0.926	0.1161	
15 minute winter	RE07	8.000	IC09	7.3	0.808	0.503	0.1795	
15 minute winter	IC09	6.003	IC08	20.6	1.169	1.424	0.0973	
15 minute winter	RE08	9.000	IC08	7.5	0.814	0.519	0.1863	
15 minute winter	IC08	6.004	IC02	28.0	1.060	0.662	0.0818	
15 minute winter	IC02	1.006	INLET	78.0	2.088	1.843	0.0519	
15 minute winter	INLET	1.007	OUTLET	39.2	0.140	0.026	35.5716	
15 minute winter	OUTLET	1.008	IC01	3.6	0.464	0.084	0.0541	
15 minute winter	IC01	1.009	MH01	3.4	0.199	0.081	0.0860	
15 minute winter	IC16	10.000	MH01	2.5	0.611	0.176	0.0634	
15 minute winter	MH01	Hydro-Brake®	CW03	3.5				
15 minute winter	CW03	1.011	CW02	3.5	0.869	0.042	0.0450	

Results for 100 year +45% CC 15 minute winter. 255 minute analysis at 1 minute timestep. Mass balance: 99.79%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	CW02	106	39.695	0.040	3.5	0.0063	0.0000	OK
15 minute winter	CW01	106	39.432	0.028	3.5	0.0044	0.0000	OK
15 minute winter	CW	106	38.957	0.027	3.5	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)
15 minute winter	CW02	1.012	CW01	3.5	0.944	0.060	0.0753	
15 minute winter	CW01	1.013	CW	3.5	1.293	0.030	0.0260	41.7

Results for 100 year +45% CC 30 minute winter. 270 minute analysis at 1 minute timestep. Mass balance: 99.53%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute winter	Gavel Strip Inlet	18	40.831	0.031	1.9	0.0078	0.0000	OK
30 minute winter	Gavel Strip Outlet	18	40.740	0.038	1.9	0.0027	0.0000	OK
30 minute winter	RE01	21	40.594	0.172	4.7	0.0528	0.0000	SURCHARGED
30 minute winter	IC06	21	40.587	0.353	6.4	0.0560	0.0000	SURCHARGED
30 minute winter	RE02	21	40.587	0.087	4.9	0.0298	0.0000	OK
30 minute winter	IC05	21	40.581	0.375	9.8	0.0597	0.0000	SURCHARGED
30 minute winter	RE03	17	40.563	0.063	5.2	0.0222	0.0000	OK
30 minute winter	IC04	22	40.557	0.402	12.9	0.0639	0.0000	SURCHARGED
30 minute winter	RE04	18	40.562	0.062	5.0	0.0208	0.0000	OK
30 minute winter	IC03	34	40.556	0.505	43.5	0.6075	0.0000	SURCHARGED
30 minute winter	RE05	18	41.565	0.065	5.4	0.0357	0.0000	OK
30 minute winter	IC11	18	41.009	0.069	5.4	0.0110	0.0000	OK
30 minute winter	RE06	18	41.565	0.065	5.3	0.0359	0.0000	OK
30 minute winter	IC10	19	40.745	0.154	10.7	0.0245	0.0000	SURCHARGED
30 minute winter	RE07	18	41.568	0.068	5.8	0.0395	0.0000	OK
30 minute winter	IC09	19	40.712	0.165	16.3	0.0262	0.0000	SURCHARGED
30 minute winter	RE08	18	41.569	0.069	6.0	0.0416	0.0000	OK
30 minute winter	IC08	19	40.641	0.131	22.2	0.0371	0.0000	OK
30 minute winter	IC02	34	40.557	0.592	63.7	0.1675	0.0000	SURCHARGED
30 minute winter	INLET	34	40.557	0.593	63.0	0.0943	0.0000	OK
30 minute winter	OUTLET	34	40.557	0.595	34.2	0.0946	0.0000	SURCHARGED
30 minute winter	IC01	34	40.557	0.604	3.6	0.1708	0.0000	SURCHARGED
30 minute winter	IC16	18	41.232	0.039	2.1	0.0102	0.0000	OK
30 minute winter	MH01	34	40.556	0.617	4.7	0.8836	0.0000	SURCHARGED
30 minute winter	CW03	184	39.965	0.032	3.5	0.0050	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	Gavel Strip Inlet	1.000	Gavel Strip Outlet	1.9	0.463	0.034	0.0607	
30 minute winter	Gavel Strip Outlet	1.001	IC06	1.9	0.548	0.130	0.0187	
30 minute winter	RE01	2.000	IC06	4.7	0.675	0.322	0.3216	
30 minute winter	IC06	1.002	IC05	5.4	0.471	0.376	0.0746	
30 minute winter	RE02	3.000	IC05	4.9	0.711	0.339	0.2571	
30 minute winter	IC05	1.003	IC04	8.4	0.602	0.584	0.1334	
30 minute winter	RE03	4.000	IC04	5.2	0.736	0.362	0.2233	
30 minute winter	IC04	1.004	IC03	12.0	0.780	0.831	0.0777	
30 minute winter	RE04	5.000	IC03	5.1	0.727	0.354	0.2170	
30 minute winter	IC03	1.005	IC02	41.6	1.047	0.983	0.5113	
30 minute winter	RE05	6.000	IC11	5.4	0.749	0.373	0.1395	
30 minute winter	IC11	6.001	IC10	5.4	0.720	0.373	0.0363	
30 minute winter	RE06	7.000	IC10	5.3	0.745	0.366	0.1399	
30 minute winter	IC10	6.002	IC09	10.6	0.600	0.730	0.1161	
30 minute winter	RE07	8.000	IC09	5.8	0.764	0.401	0.1508	
30 minute winter	IC09	6.003	IC08	16.3	0.927	1.126	0.0938	
30 minute winter	RE08	9.000	IC08	6.0	0.770	0.415	0.1567	
30 minute winter	IC08	6.004	IC02	22.2	1.005	0.524	0.0683	
30 minute winter	IC02	1.006	INLET	63.0	1.591	1.487	0.0519	
30 minute winter	INLET	1.007	OUTLET	34.2	0.124	0.023	45.1377	
30 minute winter	OUTLET	1.008	IC01	3.6	0.491	0.085	0.0541	
30 minute winter	IC01	1.009	MH01	3.4	0.218	0.081	0.0860	
30 minute winter	IC16	10.000	MH01	2.1	0.578	0.145	0.0550	
30 minute winter	MH01	Hydro-Brake®	CW03	3.5				
30 minute winter	CW03	1.011	CW02	3.5	0.869	0.042	0.0450	

Results for 100 year +45% CC 30 minute winter. 270 minute analysis at 1 minute timestep. Mass balance: 99.53%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute winter	CW02	185	39.695	0.040	3.5	0.0063	0.0000	OK
30 minute winter	CW01	185	39.432	0.028	3.5	0.0044	0.0000	OK
30 minute winter	CW	185	38.957	0.027	3.5	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	CW02	1.012	CW01	3.5	0.944	0.060	0.0753	
30 minute winter	CW01	1.013	CW	3.5	1.293	0.030	0.0260	50.6

Results for 100 year +45% CC 60 minute winter. 300 minute analysis at 1 minute timestep. Mass balance: 99.07%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute winter	Gavel Strip Inlet	33	40.826	0.026	1.3	0.0065	0.0000	OK
60 minute winter	Gavel Strip Outlet	33	40.733	0.031	1.3	0.0022	0.0000	OK
60 minute winter	RE01	60	40.662	0.239	3.2	0.0735	0.0000	SURCHARGED
60 minute winter	IC06	62	40.662	0.428	4.5	0.0680	0.0000	SURCHARGED
60 minute winter	RE02	62	40.662	0.162	3.3	0.0554	0.0000	SURCHARGED
60 minute winter	IC05	62	40.662	0.456	7.1	0.0724	0.0000	SURCHARGED
60 minute winter	RE03	62	40.662	0.162	3.5	0.0567	0.0000	SURCHARGED
60 minute winter	IC04	62	40.662	0.507	9.4	0.0806	0.0000	SURCHARGED
60 minute winter	RE04	62	40.662	0.162	3.3	0.0540	0.0000	SURCHARGED
60 minute winter	IC03	62	40.662	0.611	29.8	0.7340	0.0000	SURCHARGED
60 minute winter	RE05	34	41.552	0.052	3.6	0.0285	0.0000	OK
60 minute winter	IC11	34	40.995	0.055	3.6	0.0087	0.0000	OK
60 minute winter	RE06	34	41.551	0.051	3.5	0.0286	0.0000	OK
60 minute winter	IC10	34	40.678	0.087	7.1	0.0139	0.0000	OK
60 minute winter	RE07	33	41.554	0.054	3.9	0.0316	0.0000	OK
60 minute winter	IC09	62	40.662	0.115	11.0	0.0183	0.0000	OK
60 minute winter	RE08	33	41.555	0.055	4.0	0.0331	0.0000	OK
60 minute winter	IC08	62	40.662	0.152	15.0	0.0430	0.0000	OK
60 minute winter	IC02	62	40.662	0.697	44.2	0.1972	0.0000	SURCHARGED
60 minute winter	INLET	62	40.662	0.698	43.7	0.1109	0.0000	OK
60 minute winter	OUTLET	62	40.662	0.700	23.4	0.1113	0.0000	SURCHARGED
60 minute winter	IC01	62	40.662	0.709	3.5	0.2005	0.0000	SURCHARGED
60 minute winter	IC16	33	41.225	0.032	1.4	0.0083	0.0000	OK
60 minute winter	MH01	62	40.661	0.722	4.2	1.0336	0.0000	SURCHARGED
60 minute winter	CW03	270	39.965	0.032	3.5	0.0050	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	Gavel Strip Inlet	1.000	Gavel Strip Outlet	1.3	0.417	0.023	0.0459	
60 minute winter	Gavel Strip Outlet	1.001	IC06	1.3	0.493	0.089	0.0141	
60 minute winter	RE01	2.000	IC06	3.2	0.634	0.221	0.3216	
60 minute winter	IC06	1.002	IC05	3.7	0.463	0.259	0.0746	
60 minute winter	RE02	3.000	IC05	3.3	0.655	0.230	0.3210	
60 minute winter	IC05	1.003	IC04	6.0	0.582	0.412	0.1334	
60 minute winter	RE03	4.000	IC04	3.6	0.665	0.247	0.3212	
60 minute winter	IC04	1.004	IC03	8.4	0.765	0.578	0.0777	
60 minute winter	RE04	5.000	IC03	3.3	0.657	0.230	0.3227	
60 minute winter	IC03	1.005	IC02	29.2	0.734	0.690	0.5113	
60 minute winter	RE05	6.000	IC11	3.6	0.673	0.249	0.1036	
60 minute winter	IC11	6.001	IC10	3.6	0.650	0.249	0.0269	
60 minute winter	RE06	7.000	IC10	3.5	0.668	0.242	0.1032	
60 minute winter	IC10	6.002	IC09	7.1	0.572	0.491	0.0817	
60 minute winter	RE07	8.000	IC09	3.9	0.689	0.270	0.1125	
60 minute winter	IC09	6.003	IC08	11.0	0.810	0.760	0.0887	
60 minute winter	RE08	9.000	IC08	4.0	0.693	0.276	0.1161	
60 minute winter	IC08	6.004	IC02	15.0	0.908	0.353	0.0947	
60 minute winter	IC02	1.006	INLET	43.7	1.383	1.031	0.0519	
60 minute winter	INLET	1.007	OUTLET	23.4	0.108	0.016	53.1097	
60 minute winter	OUTLET	1.008	IC01	3.5	0.460	0.082	0.0541	
60 minute winter	IC01	1.009	MH01	3.4	0.253	0.081	0.0860	
60 minute winter	IC16	10.000	MH01	1.4	0.515	0.096	0.0411	
60 minute winter	MH01	Hydro-Brake®	CW03	3.5				
60 minute winter	CW03	1.011	CW02	3.5	0.869	0.042	0.0450	

Results for 100 year +45% CC 60 minute winter. 300 minute analysis at 1 minute timestep. Mass balance: 99.07%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute winter	CW02	270	39.695	0.040	3.5	0.0063	0.0000	OK
60 minute winter	CW01	270	39.432	0.028	3.5	0.0044	0.0000	OK
60 minute winter	CW	270	38.957	0.027	3.5	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	CW02	1.012	CW01	3.5	0.944	0.060	0.0753	
60 minute winter	CW01	1.013	CW	3.5	1.293	0.030	0.0260	54.9

Results for 100 year +45% CC 120 minute winter. 360 minute analysis at 2 minute timestep. Mass balance: 98.84%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
120 minute winter	Gavel Strip Inlet	64	40.821	0.021	0.8	0.0052	0.0000	OK
120 minute winter	Gavel Strip Outlet	120	40.730	0.028	0.8	0.0020	0.0000	OK
120 minute winter	RE01	120	40.730	0.308	2.0	0.0945	0.0000	SURCHARGED
120 minute winter	IC06	120	40.730	0.496	2.8	0.0788	0.0000	SURCHARGED
120 minute winter	RE02	120	40.730	0.230	2.0	0.0788	0.0000	SURCHARGED
120 minute winter	IC05	120	40.730	0.524	4.3	0.0832	0.0000	SURCHARGED
120 minute winter	RE03	118	40.729	0.229	2.2	0.0805	0.0000	SURCHARGED
120 minute winter	IC04	120	40.729	0.574	5.9	0.0913	0.0000	SURCHARGED
120 minute winter	RE04	118	40.729	0.229	2.1	0.0766	0.0000	SURCHARGED
120 minute winter	IC03	118	40.729	0.678	18.8	0.8153	0.0000	SURCHARGED
120 minute winter	RE05	64	41.541	0.041	2.3	0.0225	0.0000	OK
120 minute winter	IC11	64	40.983	0.043	2.3	0.0068	0.0000	OK
120 minute winter	RE06	64	41.540	0.040	2.2	0.0224	0.0000	OK
120 minute winter	IC10	118	40.729	0.138	4.5	0.0220	0.0000	OK
120 minute winter	RE07	64	41.542	0.042	2.4	0.0244	0.0000	OK
120 minute winter	IC09	118	40.729	0.182	6.9	0.0290	0.0000	SURCHARGED
120 minute winter	RE08	64	41.543	0.043	2.5	0.0258	0.0000	OK
120 minute winter	IC08	118	40.729	0.219	9.4	0.0620	0.0000	OK
120 minute winter	IC02	118	40.729	0.764	27.6	0.2162	0.0000	SURCHARGED
120 minute winter	INLET	120	40.729	0.765	27.3	0.1216	0.0000	OK
120 minute winter	OUTLET	120	40.729	0.767	15.3	0.1219	0.0000	SURCHARGED
120 minute winter	IC01	120	40.729	0.776	3.4	0.2195	0.0000	SURCHARGED
120 minute winter	IC16	64	41.219	0.026	0.9	0.0067	0.0000	OK
120 minute winter	MH01	120	40.729	0.790	3.9	1.1298	0.0000	SURCHARGED
120 minute winter	CW03	360	39.965	0.032	3.5	0.0050	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	Gavel Strip Inlet	1.000	Gavel Strip Outlet	0.8	0.366	0.014	0.0325	
120 minute winter	Gavel Strip Outlet	1.001	IC06	0.8	0.432	0.055	0.0254	
120 minute winter	RE01	2.000	IC06	2.0	0.553	0.138	0.3216	
120 minute winter	IC06	1.002	IC05	2.3	0.451	0.156	0.0746	
120 minute winter	RE02	3.000	IC05	2.0	0.573	0.139	0.3210	
120 minute winter	IC05	1.003	IC04	3.8	0.523	0.266	0.1334	
120 minute winter	RE03	4.000	IC04	2.2	0.586	0.154	0.3212	
120 minute winter	IC04	1.004	IC03	5.5	0.686	0.381	0.0777	
120 minute winter	RE04	5.000	IC03	2.1	0.577	0.147	0.3227	
120 minute winter	IC03	1.005	IC02	18.4	0.512	0.434	0.5113	
120 minute winter	RE05	6.000	IC11	2.3	0.595	0.159	0.0748	
120 minute winter	IC11	6.001	IC10	2.3	0.577	0.159	0.0193	
120 minute winter	RE06	7.000	IC10	2.2	0.588	0.152	0.0737	
120 minute winter	IC10	6.002	IC09	4.5	0.540	0.311	0.1141	
120 minute winter	RE07	8.000	IC09	2.4	0.604	0.166	0.0791	
120 minute winter	IC09	6.003	IC08	6.9	0.714	0.477	0.0973	
120 minute winter	RE08	9.000	IC08	2.5	0.610	0.173	0.0825	
120 minute winter	IC08	6.004	IC02	9.4	0.804	0.222	0.1226	
120 minute winter	IC02	1.006	INLET	27.3	1.185	0.644	0.0519	
120 minute winter	INLET	1.007	OUTLET	15.3	0.066	0.010	58.2221	
120 minute winter	OUTLET	1.008	IC01	3.4	0.385	0.081	0.0541	
120 minute winter	IC01	1.009	MH01	3.4	0.240	0.081	0.0860	
120 minute winter	IC16	10.000	MH01	0.9	0.454	0.062	0.0301	
120 minute winter	MH01	Hydro-Brake®	CW03	3.5				
120 minute winter	CW03	1.011	CW02	3.5	0.869	0.042	0.0450	

Results for 100 year +45% CC 120 minute winter. 360 minute analysis at 2 minute timestep. Mass balance: 98.84%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
120 minute winter	CW02	360	39.695	0.040	3.5	0.0063	0.0000	OK
120 minute winter	CW01	56	39.432	0.028	3.5	0.0044	0.0000	OK
120 minute winter	CW	56	38.957	0.027	3.5	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)
120 minute winter	CW02	1.012	CW01	3.5	0.944	0.060	0.0753	
120 minute winter	CW01	1.013	CW	3.5	1.293	0.030	0.0260	64.1

Results for 100 year +45% CC 180 minute winter. 420 minute analysis at 4 minute timestep. Mass balance: 98.93%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute winter	Gavel Strip Inlet	96	40.818	0.018	0.6	0.0045	0.0000	OK
180 minute winter	Gavel Strip Outlet	172	40.737	0.035	0.6	0.0025	0.0000	OK
180 minute winter	RE01	172	40.737	0.315	1.4	0.0966	0.0000	SURCHARGED
180 minute winter	IC06	172	40.737	0.503	2.0	0.0799	0.0000	SURCHARGED
180 minute winter	RE02	176	40.737	0.237	1.5	0.0811	0.0000	SURCHARGED
180 minute winter	IC05	172	40.737	0.531	3.1	0.0844	0.0000	SURCHARGED
180 minute winter	RE03	172	40.737	0.237	1.6	0.0830	0.0000	SURCHARGED
180 minute winter	IC04	172	40.737	0.582	4.3	0.0925	0.0000	SURCHARGED
180 minute winter	RE04	172	40.736	0.236	1.5	0.0789	0.0000	SURCHARGED
180 minute winter	IC03	172	40.736	0.685	13.9	0.8238	0.0000	SURCHARGED
180 minute winter	RE05	96	41.535	0.035	1.7	0.0192	0.0000	OK
180 minute winter	IC11	96	40.977	0.037	1.7	0.0058	0.0000	OK
180 minute winter	RE06	96	41.534	0.034	1.6	0.0190	0.0000	OK
180 minute winter	IC10	172	40.736	0.145	3.3	0.0231	0.0000	OK
180 minute winter	RE07	96	41.536	0.036	1.8	0.0211	0.0000	OK
180 minute winter	IC09	172	40.736	0.189	5.1	0.0301	0.0000	SURCHARGED
180 minute winter	RE08	96	41.536	0.036	1.8	0.0218	0.0000	OK
180 minute winter	IC08	172	40.736	0.226	6.9	0.0640	0.0000	SURCHARGED
180 minute winter	IC02	176	40.736	0.771	20.5	0.2182	0.0000	SURCHARGED
180 minute winter	INLET	176	40.736	0.772	20.3	0.1227	0.0000	OK
180 minute winter	OUTLET	176	40.736	0.774	11.8	0.1231	0.0000	SURCHARGED
180 minute winter	IC01	176	40.736	0.783	3.4	0.2215	0.0000	SURCHARGED
180 minute winter	IC16	96	41.214	0.021	0.6	0.0055	0.0000	OK
180 minute winter	MH01	176	40.735	0.796	3.8	1.1397	0.0000	SURCHARGED
180 minute winter	CW03	420	39.965	0.032	3.5	0.0050	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	Gavel Strip Inlet	1.000	Gavel Strip Outlet	0.6	0.335	0.011	0.0332	
180 minute winter	Gavel Strip Outlet	1.001	IC06	0.6	0.397	0.042	0.0305	
180 minute winter	RE01	2.000	IC06	1.4	0.516	0.097	0.3216	
180 minute winter	IC06	1.002	IC05	1.7	0.429	0.115	0.0746	
180 minute winter	RE02	3.000	IC05	1.5	0.529	0.104	0.3210	
180 minute winter	IC05	1.003	IC04	2.8	0.493	0.194	0.1334	
180 minute winter	RE03	4.000	IC04	1.6	0.536	0.111	0.3212	
180 minute winter	IC04	1.004	IC03	4.1	0.622	0.284	0.0777	
180 minute winter	RE04	5.000	IC03	1.5	0.528	0.104	0.3227	
180 minute winter	IC03	1.005	IC02	13.6	0.459	0.322	0.5113	
180 minute winter	RE05	6.000	IC11	1.7	0.547	0.118	0.0602	
180 minute winter	IC11	6.001	IC10	1.7	0.531	0.118	0.0155	
180 minute winter	RE06	7.000	IC10	1.6	0.538	0.111	0.0586	
180 minute winter	IC10	6.002	IC09	3.3	0.509	0.228	0.1156	
180 minute winter	RE07	8.000	IC09	1.8	0.557	0.125	0.0643	
180 minute winter	IC09	6.003	IC08	5.1	0.662	0.353	0.0973	
180 minute winter	RE08	9.000	IC08	1.8	0.556	0.125	0.0652	
180 minute winter	IC08	6.004	IC02	6.9	0.741	0.163	0.1230	
180 minute winter	IC02	1.006	INLET	20.3	1.053	0.478	0.0519	
180 minute winter	INLET	1.007	OUTLET	11.8	0.046	0.008	58.7505	
180 minute winter	OUTLET	1.008	IC01	3.4	0.335	0.081	0.0541	
180 minute winter	IC01	1.009	MH01	3.4	0.169	0.081	0.0860	
180 minute winter	IC16	10.000	MH01	0.6	0.403	0.042	0.0226	
180 minute winter	MH01	Hydro-Brake®	CW03	3.5				
180 minute winter	CW03	1.011	CW02	3.5	0.869	0.042	0.0450	

Results for 100 year +45% CC 180 minute winter. 420 minute analysis at 4 minute timestep. Mass balance: 98.93%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute winter	CW02	420	39.695	0.040	3.5	0.0063	0.0000	OK
180 minute winter	CW01	420	39.432	0.028	3.5	0.0044	0.0000	OK
180 minute winter	CW	420	38.957	0.027	3.5	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	CW02	1.012	CW01	3.5	0.944	0.060	0.0753	
180 minute winter	CW01	1.013	CW	3.5	1.293	0.030	0.0260	73.5

Results for 100 year +45% CC 240 minute winter. 480 minute analysis at 4 minute timestep. Mass balance: 99.14%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute winter	Gavel Strip Inlet	124	40.817	0.017	0.5	0.0042	0.0000	OK
240 minute winter	Gavel Strip Outlet	128	40.722	0.020	0.5	0.0014	0.0000	OK
240 minute winter	RE01	204	40.720	0.298	1.2	0.0915	0.0000	SURCHARGED
240 minute winter	IC06	204	40.720	0.486	1.7	0.0773	0.0000	SURCHARGED
240 minute winter	RE02	200	40.720	0.220	1.2	0.0755	0.0000	SURCHARGED
240 minute winter	IC05	200	40.720	0.514	2.6	0.0817	0.0000	SURCHARGED
240 minute winter	RE03	204	40.720	0.220	1.3	0.0772	0.0000	SURCHARGED
240 minute winter	IC04	200	40.720	0.565	3.6	0.0898	0.0000	SURCHARGED
240 minute winter	RE04	204	40.720	0.220	1.2	0.0735	0.0000	SURCHARGED
240 minute winter	IC03	200	40.720	0.669	11.5	0.8040	0.0000	SURCHARGED
240 minute winter	RE05	124	41.532	0.032	1.4	0.0173	0.0000	OK
240 minute winter	IC11	124	40.973	0.033	1.4	0.0052	0.0000	OK
240 minute winter	RE06	124	41.531	0.031	1.3	0.0171	0.0000	OK
240 minute winter	IC10	200	40.720	0.129	2.7	0.0205	0.0000	OK
240 minute winter	RE07	124	41.532	0.032	1.4	0.0186	0.0000	OK
240 minute winter	IC09	200	40.720	0.173	4.1	0.0275	0.0000	SURCHARGED
240 minute winter	RE08	128	41.533	0.033	1.5	0.0198	0.0000	OK
240 minute winter	IC08	200	40.720	0.210	5.6	0.0593	0.0000	OK
240 minute winter	IC02	200	40.720	0.755	16.8	0.2136	0.0000	SURCHARGED
240 minute winter	INLET	200	40.719	0.755	16.6	0.1201	0.0000	OK
240 minute winter	OUTLET	200	40.719	0.757	10.0	0.1204	0.0000	SURCHARGED
240 minute winter	IC01	200	40.719	0.766	3.4	0.2168	0.0000	SURCHARGED
240 minute winter	IC16	124	41.212	0.019	0.5	0.0050	0.0000	OK
240 minute winter	MH01	200	40.719	0.780	3.7	1.1161	0.0000	SURCHARGED
240 minute winter	CW03	472	39.965	0.032	3.5	0.0050	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	Gavel Strip Inlet	1.000	Gavel Strip Outlet	0.5	0.319	0.009	0.0232	
240 minute winter	Gavel Strip Outlet	1.001	IC06	0.5	0.377	0.035	0.0188	
240 minute winter	RE01	2.000	IC06	1.2	0.483	0.083	0.3216	
240 minute winter	IC06	1.002	IC05	1.4	0.410	0.095	0.0746	
240 minute winter	RE02	3.000	IC05	1.2	0.496	0.083	0.3210	
240 minute winter	IC05	1.003	IC04	2.4	0.474	0.164	0.1334	
240 minute winter	RE03	4.000	IC04	1.3	0.507	0.090	0.3212	
240 minute winter	IC04	1.004	IC03	3.5	0.599	0.239	0.0777	
240 minute winter	RE04	5.000	IC03	1.2	0.495	0.083	0.3227	
240 minute winter	IC03	1.005	IC02	11.2	0.415	0.266	0.5113	
240 minute winter	RE05	6.000	IC11	1.4	0.516	0.096	0.0520	
240 minute winter	IC11	6.001	IC10	1.4	0.501	0.095	0.0133	
240 minute winter	RE06	7.000	IC10	1.3	0.507	0.090	0.0505	
240 minute winter	IC10	6.002	IC09	2.7	0.490	0.185	0.1112	
240 minute winter	RE07	8.000	IC09	1.4	0.518	0.097	0.0537	
240 minute winter	IC09	6.003	IC08	4.1	0.622	0.281	0.0973	
240 minute winter	RE08	9.000	IC08	1.5	0.528	0.104	0.0572	
240 minute winter	IC08	6.004	IC02	5.6	0.699	0.131	0.1212	
240 minute winter	IC02	1.006	INLET	16.6	1.014	0.393	0.0519	
240 minute winter	INLET	1.007	OUTLET	10.0	0.052	0.007	57.4973	
240 minute winter	OUTLET	1.008	IC01	3.4	0.310	0.081	0.0541	
240 minute winter	IC01	1.009	MH01	3.4	0.181	0.081	0.0860	
240 minute winter	IC16	10.000	MH01	0.5	0.382	0.035	0.0199	
240 minute winter	MH01	Hydro-Brake®	CW03	3.5				
240 minute winter	CW03	1.011	CW02	3.5	0.869	0.042	0.0450	

Results for 100 year +45% CC 240 minute winter. 480 minute analysis at 4 minute timestep. Mass balance: 99.14%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute winter	CW02	472	39.695	0.040	3.5	0.0063	0.0000	OK
240 minute winter	CW01	472	39.432	0.028	3.5	0.0044	0.0000	OK
240 minute winter	CW	472	38.957	0.027	3.5	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)
240 minute winter	CW02	1.012	CW01	3.5	0.944	0.060	0.0753	
240 minute winter	CW01	1.013	CW	3.5	1.293	0.030	0.0260	83.2

Results for 100 year +45% CC 360 minute winter. 600 minute analysis at 8 minute timestep. Mass balance: 99.53%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute winter	Gavel Strip Inlet	160	40.813	0.013	0.3	0.0033	0.0000	OK
360 minute winter	Gavel Strip Outlet	168	40.717	0.015	0.3	0.0011	0.0000	OK
360 minute winter	RE01	280	40.676	0.254	0.9	0.0780	0.0000	SURCHARGED
360 minute winter	IC06	280	40.676	0.442	1.2	0.0703	0.0000	SURCHARGED
360 minute winter	RE02	280	40.676	0.176	0.9	0.0604	0.0000	SURCHARGED
360 minute winter	IC05	280	40.676	0.470	1.8	0.0748	0.0000	SURCHARGED
360 minute winter	RE03	280	40.676	0.176	1.0	0.0618	0.0000	SURCHARGED
360 minute winter	IC04	280	40.676	0.521	2.7	0.0828	0.0000	SURCHARGED
360 minute winter	RE04	280	40.676	0.176	0.9	0.0588	0.0000	SURCHARGED
360 minute winter	IC03	280	40.676	0.625	8.5	0.7512	0.0000	SURCHARGED
360 minute winter	RE05	184	41.527	0.027	1.0	0.0147	0.0000	OK
360 minute winter	IC11	184	40.968	0.028	1.0	0.0044	0.0000	OK
360 minute winter	RE06	184	41.527	0.027	1.0	0.0150	0.0000	OK
360 minute winter	IC10	280	40.676	0.085	2.0	0.0135	0.0000	OK
360 minute winter	RE07	184	41.528	0.028	1.1	0.0164	0.0000	OK
360 minute winter	IC09	280	40.676	0.129	3.1	0.0205	0.0000	OK
360 minute winter	RE08	184	41.528	0.028	1.1	0.0170	0.0000	OK
360 minute winter	IC08	280	40.676	0.166	4.2	0.0469	0.0000	OK
360 minute winter	IC02	280	40.676	0.711	12.5	0.2011	0.0000	SURCHARGED
360 minute winter	INLET	280	40.676	0.712	12.4	0.1131	0.0000	OK
360 minute winter	OUTLET	280	40.676	0.714	7.8	0.1134	0.0000	SURCHARGED
360 minute winter	IC01	280	40.675	0.722	3.4	0.2044	0.0000	SURCHARGED
360 minute winter	IC16	192	41.210	0.017	0.4	0.0045	0.0000	OK
360 minute winter	MH01	280	40.675	0.736	3.6	1.0533	0.0000	SURCHARGED
360 minute winter	CW03	552	39.965	0.032	3.5	0.0050	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	Gavel Strip Inlet	1.000	Gavel Strip Outlet	0.3	0.275	0.005	0.0161	
360 minute winter	Gavel Strip Outlet	1.001	IC06	0.3	0.324	0.021	0.0050	
360 minute winter	RE01	2.000	IC06	0.9	0.440	0.062	0.3216	
360 minute winter	IC06	1.002	IC05	1.0	0.375	0.069	0.0746	
360 minute winter	RE02	3.000	IC05	0.9	0.456	0.062	0.3210	
360 minute winter	IC05	1.003	IC04	1.8	0.449	0.124	0.1334	
360 minute winter	RE03	4.000	IC04	1.0	0.468	0.069	0.3212	
360 minute winter	IC04	1.004	IC03	2.6	0.550	0.177	0.0777	
360 minute winter	RE04	5.000	IC03	0.9	0.455	0.062	0.3227	
360 minute winter	IC03	1.005	IC02	8.3	0.381	0.196	0.5113	
360 minute winter	RE05	6.000	IC11	1.0	0.469	0.069	0.0413	
360 minute winter	IC11	6.001	IC10	1.0	0.458	0.069	0.0106	
360 minute winter	RE06	7.000	IC10	1.0	0.468	0.069	0.0417	
360 minute winter	IC10	6.002	IC09	2.0	0.458	0.138	0.0869	
360 minute winter	RE07	8.000	IC09	1.1	0.482	0.075	0.0450	
360 minute winter	IC09	6.003	IC08	3.1	0.581	0.213	0.0932	
360 minute winter	RE08	9.000	IC08	1.1	0.483	0.076	0.0459	
360 minute winter	IC08	6.004	IC02	4.2	0.647	0.098	0.1030	
360 minute winter	IC02	1.006	INLET	12.4	0.891	0.292	0.0519	
360 minute winter	INLET	1.007	OUTLET	7.8	0.025	0.005	54.1596	
360 minute winter	OUTLET	1.008	IC01	3.4	0.267	0.081	0.0541	
360 minute winter	IC01	1.009	MH01	3.4	0.195	0.081	0.0860	
360 minute winter	IC16	10.000	MH01	0.4	0.357	0.028	0.0170	
360 minute winter	MH01	Hydro-Brake®	CW03	3.5				
360 minute winter	CW03	1.011	CW02	3.5	0.869	0.042	0.0450	

Results for 100 year +45% CC 360 minute winter. 600 minute analysis at 8 minute timestep. Mass balance: 99.53%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute winter	CW02	552	39.695	0.040	3.5	0.0063	0.0000	OK
360 minute winter	CW01	552	39.432	0.028	3.5	0.0044	0.0000	OK
360 minute winter	CW	552	38.957	0.027	3.5	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)
360 minute winter	CW02	1.012	CW01	3.5	0.944	0.060	0.0753	
360 minute winter	CW01	1.013	CW	3.5	1.293	0.030	0.0260	102.1

Results for 100 year +45% CC 480 minute winter. 720 minute analysis at 8 minute timestep. Mass balance: 99.84%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
480 minute winter	Gavel Strip Inlet	232	40.813	0.013	0.3	0.0033	0.0000	OK
480 minute winter	Gavel Strip Outlet	240	40.717	0.015	0.3	0.0011	0.0000	OK
480 minute winter	RE01	352	40.618	0.196	0.7	0.0603	0.0000	SURCHARGED
480 minute winter	IC06	352	40.618	0.384	1.0	0.0611	0.0000	SURCHARGED
480 minute winter	RE02	352	40.618	0.118	0.7	0.0406	0.0000	OK
480 minute winter	IC05	352	40.618	0.412	1.6	0.0656	0.0000	SURCHARGED
480 minute winter	RE03	352	40.618	0.118	0.8	0.0415	0.0000	OK
480 minute winter	IC04	352	40.618	0.463	2.2	0.0737	0.0000	SURCHARGED
480 minute winter	RE04	352	40.618	0.118	0.7	0.0395	0.0000	OK
480 minute winter	IC03	352	40.618	0.567	6.7	0.6818	0.0000	SURCHARGED
480 minute winter	RE05	240	41.524	0.024	0.8	0.0132	0.0000	OK
480 minute winter	IC11	248	40.965	0.025	0.8	0.0040	0.0000	OK
480 minute winter	RE06	248	41.524	0.024	0.8	0.0134	0.0000	OK
480 minute winter	IC10	248	40.625	0.034	1.6	0.0054	0.0000	OK
480 minute winter	RE07	240	41.524	0.024	0.8	0.0141	0.0000	OK
480 minute winter	IC09	352	40.618	0.071	2.4	0.0113	0.0000	OK
480 minute winter	RE08	248	41.526	0.026	0.9	0.0154	0.0000	OK
480 minute winter	IC08	352	40.618	0.108	3.3	0.0306	0.0000	OK
480 minute winter	IC02	352	40.618	0.653	9.9	0.1848	0.0000	SURCHARGED
480 minute winter	INLET	360	40.618	0.654	9.8	0.1039	0.0000	OK
480 minute winter	OUTLET	360	40.618	0.656	6.6	0.1043	0.0000	SURCHARGED
480 minute winter	IC01	360	40.618	0.665	3.4	0.1881	0.0000	SURCHARGED
480 minute winter	IC16	232	41.208	0.015	0.3	0.0039	0.0000	OK
480 minute winter	MH01	360	40.617	0.678	3.6	0.9707	0.0000	SURCHARGED
480 minute winter	CW03	224	39.965	0.032	3.5	0.0050	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	Gavel Strip Inlet	1.000	Gavel Strip Outlet	0.3	0.275	0.005	0.0161	
480 minute winter	Gavel Strip Outlet	1.001	IC06	0.3	0.324	0.021	0.0050	
480 minute winter	RE01	2.000	IC06	0.7	0.423	0.048	0.3216	
480 minute winter	IC06	1.002	IC05	0.9	0.357	0.062	0.0746	
480 minute winter	RE02	3.000	IC05	0.7	0.424	0.048	0.2965	
480 minute winter	IC05	1.003	IC04	1.4	0.429	0.100	0.1334	
480 minute winter	RE03	4.000	IC04	0.8	0.440	0.055	0.2966	
480 minute winter	IC04	1.004	IC03	2.1	0.536	0.148	0.0777	
480 minute winter	RE04	5.000	IC03	0.7	0.423	0.048	0.2979	
480 minute winter	IC03	1.005	IC02	6.6	0.322	0.157	0.5113	
480 minute winter	RE05	6.000	IC11	0.8	0.440	0.055	0.0352	
480 minute winter	IC11	6.001	IC10	0.8	0.430	0.055	0.0090	
480 minute winter	RE06	7.000	IC10	0.8	0.440	0.055	0.0358	
480 minute winter	IC10	6.002	IC09	1.6	0.440	0.111	0.0342	
480 minute winter	RE07	8.000	IC09	0.8	0.441	0.055	0.0361	
480 minute winter	IC09	6.003	IC08	2.4	0.543	0.166	0.0602	
480 minute winter	RE08	9.000	IC08	0.9	0.455	0.062	0.0398	
480 minute winter	IC08	6.004	IC02	3.3	0.607	0.078	0.0655	
480 minute winter	IC02	1.006	INLET	9.8	0.829	0.232	0.0519	
480 minute winter	INLET	1.007	OUTLET	6.6	0.038	0.004	49.7690	
480 minute winter	OUTLET	1.008	IC01	3.4	0.305	0.081	0.0541	
480 minute winter	IC01	1.009	MH01	3.4	0.196	0.081	0.0860	
480 minute winter	IC16	10.000	MH01	0.3	0.328	0.021	0.0139	
480 minute winter	MH01	Hydro-Brake®	CW03	3.5				
480 minute winter	CW03	1.011	CW02	3.5	0.869	0.042	0.0450	

Results for 100 year +45% CC 480 minute winter. 720 minute analysis at 8 minute timestep. Mass balance: 99.84%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
480 minute winter	CW02	224	39.695	0.040	3.5	0.0063	0.0000	OK
480 minute winter	CW01	616	39.432	0.028	3.5	0.0044	0.0000	OK
480 minute winter	CW	616	38.957	0.027	3.5	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	CW02	1.012	CW01	3.5	0.944	0.060	0.0753	
480 minute winter	CW01	1.013	CW	3.5	1.293	0.030	0.0260	116.2

Results for 100 year +45% CC 600 minute winter. 840 minute analysis at 15 minute timestep. Mass balance: 99.95%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
600 minute winter	Gavel Strip Inlet	255	40.811	0.011	0.2	0.0027	0.0000	OK
600 minute winter	Gavel Strip Outlet	270	40.715	0.013	0.2	0.0009	0.0000	OK
600 minute winter	RE01	435	40.559	0.137	0.6	0.0421	0.0000	OK
600 minute winter	IC06	435	40.559	0.325	0.8	0.0517	0.0000	SURCHARGED
600 minute winter	RE02	435	40.559	0.059	0.6	0.0203	0.0000	OK
600 minute winter	IC05	435	40.559	0.353	1.3	0.0561	0.0000	SURCHARGED
600 minute winter	RE03	435	40.559	0.059	0.6	0.0207	0.0000	OK
600 minute winter	IC04	435	40.559	0.404	1.9	0.0642	0.0000	SURCHARGED
600 minute winter	RE04	435	40.559	0.059	0.6	0.0197	0.0000	OK
600 minute winter	IC03	435	40.559	0.508	5.6	0.6105	0.0000	SURCHARGED
600 minute winter	RE05	315	41.523	0.023	0.7	0.0124	0.0000	OK
600 minute winter	IC11	315	40.963	0.023	0.7	0.0037	0.0000	OK
600 minute winter	RE06	285	41.521	0.021	0.6	0.0117	0.0000	OK
600 minute winter	IC10	315	40.621	0.030	1.3	0.0048	0.0000	OK
600 minute winter	RE07	300	41.523	0.023	0.7	0.0132	0.0000	OK
600 minute winter	IC09	315	40.587	0.040	2.0	0.0063	0.0000	OK
600 minute winter	RE08	300	41.523	0.023	0.7	0.0136	0.0000	OK
600 minute winter	IC08	435	40.559	0.049	2.7	0.0138	0.0000	OK
600 minute winter	IC02	435	40.559	0.594	8.2	0.1680	0.0000	SURCHARGED
600 minute winter	INLET	435	40.559	0.595	8.2	0.0945	0.0000	OK
600 minute winter	OUTLET	435	40.559	0.597	5.8	0.0948	0.0000	SURCHARGED
600 minute winter	IC01	435	40.558	0.605	3.4	0.1713	0.0000	SURCHARGED
600 minute winter	IC16	255	41.205	0.012	0.2	0.0032	0.0000	OK
600 minute winter	MH01	435	40.558	0.619	3.6	0.8860	0.0000	SURCHARGED
600 minute winter	CW03	675	39.965	0.032	3.5	0.0050	0.0000	OK
Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
600 minute winter	Gavel Strip Inlet	1.000	Gavel Strip Outlet	0.2	0.245	0.004	0.0121	
600 minute winter	Gavel Strip Outlet	1.001	IC06	0.2	0.289	0.014	0.0038	
600 minute winter	RE01	2.000	IC06	0.6	0.403	0.042	0.3150	
600 minute winter	IC06	1.002	IC05	0.7	0.345	0.049	0.0746	
600 minute winter	RE02	3.000	IC05	0.6	0.405	0.042	0.2193	
600 minute winter	IC05	1.003	IC04	1.3	0.420	0.089	0.1334	
600 minute winter	RE03	4.000	IC04	0.6	0.405	0.042	0.2193	
600 minute winter	IC04	1.004	IC03	1.8	0.519	0.123	0.0777	
600 minute winter	RE04	5.000	IC03	0.6	0.404	0.042	0.2202	
600 minute winter	IC03	1.005	IC02	5.5	0.311	0.130	0.5113	
600 minute winter	RE05	6.000	IC11	0.7	0.423	0.048	0.0320	
600 minute winter	IC11	6.001	IC10	0.7	0.415	0.048	0.0082	
600 minute winter	RE06	7.000	IC10	0.6	0.404	0.042	0.0292	
600 minute winter	IC10	6.002	IC09	1.3	0.416	0.090	0.0207	
600 minute winter	RE07	8.000	IC09	0.7	0.424	0.048	0.0328	
600 minute winter	IC09	6.003	IC08	2.0	0.522	0.138	0.0212	
600 minute winter	RE08	9.000	IC08	0.7	0.423	0.048	0.0333	
600 minute winter	IC08	6.004	IC02	2.7	0.575	0.064	0.0259	
600 minute winter	IC02	1.006	INLET	8.2	0.750	0.193	0.0519	
600 minute winter	INLET	1.007	OUTLET	5.8	0.035	0.004	45.2666	
600 minute winter	OUTLET	1.008	IC01	3.4	0.319	0.081	0.0541	
600 minute winter	IC01	1.009	MH01	3.4	0.176	0.081	0.0860	
600 minute winter	IC16	10.000	MH01	0.2	0.291	0.014	0.0104	
600 minute winter	MH01	Hydro-Brake®	CW03	3.5				
600 minute winter	CW03	1.011	CW02	3.5	0.869	0.042	0.0450	

Results for 100 year +45% CC 600 minute winter. 840 minute analysis at 15 minute timestep. Mass balance: 99.95%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
600 minute winter	CW02	675	39.695	0.040	3.5	0.0063	0.0000	OK
600 minute winter	CW01	675	39.432	0.028	3.5	0.0044	0.0000	OK
600 minute winter	CW	675	38.957	0.027	3.5	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)
600 minute winter	CW02	1.012	CW01	3.5	0.944	0.060	0.0753	
600 minute winter	CW01	1.013	CW	3.5	1.293	0.030	0.0260	124.3

Results for 100 year +45% CC 720 minute winter. 960 minute analysis at 15 minute timestep. Mass balance: 99.97%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
720 minute winter	Gavel Strip Inlet	330	40.811	0.011	0.2	0.0027	0.0000	OK
720 minute winter	Gavel Strip Outlet	345	40.715	0.013	0.2	0.0009	0.0000	OK
720 minute winter	RE01	510	40.493	0.071	0.5	0.0218	0.0000	OK
720 minute winter	IC06	510	40.493	0.259	0.7	0.0412	0.0000	SURCHARGED
720 minute winter	RE02	345	40.519	0.019	0.5	0.0066	0.0000	OK
720 minute winter	IC05	510	40.493	0.287	1.2	0.0456	0.0000	SURCHARGED
720 minute winter	RE03	330	40.519	0.019	0.5	0.0068	0.0000	OK
720 minute winter	IC04	510	40.493	0.338	1.7	0.0537	0.0000	SURCHARGED
720 minute winter	RE04	345	40.519	0.019	0.5	0.0064	0.0000	OK
720 minute winter	IC03	510	40.493	0.442	4.8	0.5310	0.0000	SURCHARGED
720 minute winter	RE05	375	41.521	0.021	0.6	0.0115	0.0000	OK
720 minute winter	IC11	375	40.962	0.022	0.6	0.0034	0.0000	OK
720 minute winter	RE06	375	41.521	0.021	0.6	0.0117	0.0000	OK
720 minute winter	IC10	375	40.620	0.029	1.2	0.0046	0.0000	OK
720 minute winter	RE07	360	41.521	0.021	0.6	0.0122	0.0000	OK
720 minute winter	IC09	375	40.585	0.038	1.8	0.0060	0.0000	OK
720 minute winter	RE08	345	41.521	0.021	0.6	0.0126	0.0000	OK
720 minute winter	IC08	375	40.549	0.039	2.4	0.0110	0.0000	OK
720 minute winter	IC02	510	40.493	0.528	7.1	0.1493	0.0000	SURCHARGED
720 minute winter	INLET	510	40.492	0.528	7.1	0.0840	0.0000	OK
720 minute winter	OUTLET	510	40.492	0.530	5.2	0.0843	0.0000	SURCHARGED
720 minute winter	IC01	510	40.492	0.539	3.4	0.1526	0.0000	SURCHARGED
720 minute winter	IC16	315	41.205	0.012	0.2	0.0032	0.0000	OK
720 minute winter	MH01	510	40.492	0.553	3.6	0.7913	0.0000	SURCHARGED
720 minute winter	CW03	720	39.965	0.032	3.5	0.0050	0.0000	OK
Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
720 minute winter	Gavel Strip Inlet	1.000	Gavel Strip Outlet	0.2	0.245	0.004	0.0121	
720 minute winter	Gavel Strip Outlet	1.001	IC06	0.2	0.289	0.014	0.0038	
720 minute winter	RE01	2.000	IC06	0.5	0.383	0.035	0.2358	
720 minute winter	IC06	1.002	IC05	0.7	0.345	0.048	0.0746	
720 minute winter	RE02	3.000	IC05	0.5	0.383	0.035	0.1384	
720 minute winter	IC05	1.003	IC04	1.2	0.408	0.082	0.1334	
720 minute winter	RE03	4.000	IC04	0.5	0.383	0.035	0.1384	
720 minute winter	IC04	1.004	IC03	1.6	0.509	0.111	0.0777	
720 minute winter	RE04	5.000	IC03	0.5	0.383	0.035	0.1389	
720 minute winter	IC03	1.005	IC02	4.7	0.303	0.112	0.5113	
720 minute winter	RE05	6.000	IC11	0.6	0.404	0.042	0.0288	
720 minute winter	IC11	6.001	IC10	0.6	0.396	0.042	0.0073	
720 minute winter	RE06	7.000	IC10	0.6	0.404	0.042	0.0292	
720 minute winter	IC10	6.002	IC09	1.2	0.412	0.083	0.0193	
720 minute winter	RE07	8.000	IC09	0.6	0.405	0.042	0.0295	
720 minute winter	IC09	6.003	IC08	1.8	0.510	0.125	0.0195	
720 minute winter	RE08	9.000	IC08	0.6	0.404	0.042	0.0299	
720 minute winter	IC08	6.004	IC02	2.4	0.556	0.057	0.0134	
720 minute winter	IC02	1.006	INLET	7.1	0.714	0.167	0.0519	
720 minute winter	INLET	1.007	OUTLET	5.2	0.012	0.003	40.2379	
720 minute winter	OUTLET	1.008	IC01	3.4	0.300	0.081	0.0541	
720 minute winter	IC01	1.009	MH01	3.5	0.185	0.082	0.0860	
720 minute winter	IC16	10.000	MH01	0.2	0.291	0.014	0.0104	
720 minute winter	MH01	Hydro-Brake®	CW03	3.5				
720 minute winter	CW03	1.011	CW02	3.5	0.869	0.042	0.0450	

Results for 100 year +45% CC 720 minute winter. 960 minute analysis at 15 minute timestep. Mass balance: 99.97%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
720 minute winter	CW02	720	39.695	0.040	3.5	0.0063	0.0000	OK
720 minute winter	CW01	720	39.432	0.028	3.5	0.0044	0.0000	OK
720 minute winter	CW	720	38.957	0.027	3.5	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)
720 minute winter	CW02	1.012	CW01	3.5	0.944	0.060	0.0753	
720 minute winter	CW01	1.013	CW	3.5	1.293	0.030	0.0260	131.4

Results for 100 year +45% CC 960 minute winter. 1200 minute analysis at 15 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
960 minute winter	Gavel Strip Inlet	480	40.811	0.011	0.2	0.0027	0.0000	OK
960 minute winter	Gavel Strip Outlet	495	40.715	0.013	0.2	0.0009	0.0000	OK
960 minute winter	RE01	450	40.439	0.017	0.4	0.0053	0.0000	OK
960 minute winter	IC06	630	40.373	0.139	0.6	0.0220	0.0000	OK
960 minute winter	RE02	450	40.517	0.017	0.4	0.0059	0.0000	OK
960 minute winter	IC05	630	40.373	0.167	1.0	0.0265	0.0000	SURCHARGED
960 minute winter	RE03	435	40.517	0.017	0.4	0.0061	0.0000	OK
960 minute winter	IC04	630	40.372	0.217	1.4	0.0346	0.0000	SURCHARGED
960 minute winter	RE04	435	40.517	0.017	0.4	0.0058	0.0000	OK
960 minute winter	IC03	630	40.372	0.321	4.0	0.3862	0.0000	SURCHARGED
960 minute winter	RE05	495	41.519	0.019	0.5	0.0105	0.0000	OK
960 minute winter	IC11	495	40.960	0.020	0.5	0.0031	0.0000	OK
960 minute winter	RE06	435	41.517	0.017	0.4	0.0096	0.0000	OK
960 minute winter	IC10	495	40.616	0.025	0.9	0.0040	0.0000	OK
960 minute winter	RE07	465	41.519	0.019	0.5	0.0112	0.0000	OK
960 minute winter	IC09	495	40.580	0.033	1.4	0.0052	0.0000	OK
960 minute winter	RE08	465	41.519	0.019	0.5	0.0115	0.0000	OK
960 minute winter	IC08	495	40.544	0.034	1.9	0.0097	0.0000	OK
960 minute winter	IC02	630	40.372	0.407	5.8	0.1152	0.0000	SURCHARGED
960 minute winter	INLET	630	40.372	0.408	5.8	0.0648	0.0000	OK
960 minute winter	OUTLET	630	40.372	0.410	4.6	0.0652	0.0000	SURCHARGED
960 minute winter	IC01	630	40.372	0.419	3.4	0.1185	0.0000	SURCHARGED
960 minute winter	IC16	450	41.205	0.012	0.2	0.0032	0.0000	OK
960 minute winter	MH01	630	40.371	0.432	3.5	0.6186	0.0000	SURCHARGED
960 minute winter	CW03	495	39.965	0.032	3.5	0.0050	0.0000	OK
Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
960 minute winter	Gavel Strip Inlet	1.000	Gavel Strip Outlet	0.2	0.245	0.004	0.0121	
960 minute winter	Gavel Strip Outlet	1.001	IC06	0.2	0.289	0.014	0.0038	
960 minute winter	RE01	2.000	IC06	0.4	0.358	0.028	0.0833	
960 minute winter	IC06	1.002	IC05	0.6	0.336	0.042	0.0733	
960 minute winter	RE02	3.000	IC05	0.4	0.358	0.028	0.0204	
960 minute winter	IC05	1.003	IC04	1.0	0.413	0.069	0.1334	
960 minute winter	RE03	4.000	IC04	0.4	0.358	0.028	0.0204	
960 minute winter	IC04	1.004	IC03	1.4	0.491	0.095	0.0777	
960 minute winter	RE04	5.000	IC03	0.4	0.358	0.028	0.0205	
960 minute winter	IC03	1.005	IC02	4.0	0.297	0.094	0.5113	
960 minute winter	RE05	6.000	IC11	0.5	0.383	0.035	0.0253	
960 minute winter	IC11	6.001	IC10	0.5	0.376	0.035	0.0065	
960 minute winter	RE06	7.000	IC10	0.4	0.358	0.028	0.0220	
960 minute winter	IC10	6.002	IC09	0.9	0.375	0.062	0.0159	
960 minute winter	RE07	8.000	IC09	0.5	0.383	0.035	0.0259	
960 minute winter	IC09	6.003	IC08	1.4	0.475	0.097	0.0163	
960 minute winter	RE08	9.000	IC08	0.5	0.383	0.035	0.0263	
960 minute winter	IC08	6.004	IC02	1.9	0.521	0.045	0.0113	
960 minute winter	IC02	1.006	INLET	5.8	0.679	0.137	0.0519	
960 minute winter	INLET	1.007	OUTLET	4.6	0.017	0.003	31.0752	
960 minute winter	OUTLET	1.008	IC01	3.4	0.291	0.081	0.0541	
960 minute winter	IC01	1.009	MH01	3.5	0.179	0.082	0.0860	
960 minute winter	IC16	10.000	MH01	0.2	0.291	0.014	0.0104	
960 minute winter	MH01	Hydro-Brake®	CW03	3.5				
960 minute winter	CW03	1.011	CW02	3.5	0.869	0.042	0.0450	

Results for 100 year +45% CC 960 minute winter. 1200 minute analysis at 15 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
960 minute winter	CW02	495	39.695	0.040	3.5	0.0063	0.0000	OK
960 minute winter	CW01	495	39.432	0.028	3.5	0.0044	0.0000	OK
960 minute winter	CW	495	38.957	0.027	3.5	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)
960 minute winter	CW02	1.012	CW01	3.5	0.944	0.060	0.0753	
960 minute winter	CW01	1.013	CW	3.5	1.293	0.030	0.0260	142.1

Results for 100 year +45% CC 1440 minute winter. 1680 minute analysis at 30 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
1440 minute winter	Gavel Strip Inlet	510	40.808	0.008	0.1	0.0020	0.0000	OK
1440 minute winter	Gavel Strip Outlet	510	40.711	0.009	0.1	0.0007	0.0000	OK
1440 minute winter	RE01	690	40.437	0.015	0.3	0.0046	0.0000	OK
1440 minute winter	IC06	690	40.251	0.017	0.4	0.0027	0.0000	OK
1440 minute winter	RE02	690	40.515	0.015	0.3	0.0052	0.0000	OK
1440 minute winter	IC05	690	40.228	0.022	0.7	0.0036	0.0000	OK
1440 minute winter	RE03	660	40.515	0.015	0.3	0.0053	0.0000	OK
1440 minute winter	IC04	870	40.193	0.038	1.0	0.0060	0.0000	OK
1440 minute winter	RE04	660	40.515	0.015	0.3	0.0050	0.0000	OK
1440 minute winter	IC03	870	40.192	0.141	2.9	0.1699	0.0000	OK
1440 minute winter	RE05	660	41.515	0.015	0.3	0.0082	0.0000	OK
1440 minute winter	IC11	660	40.955	0.015	0.3	0.0024	0.0000	OK
1440 minute winter	RE06	660	41.515	0.015	0.3	0.0084	0.0000	OK
1440 minute winter	IC10	660	40.612	0.021	0.6	0.0033	0.0000	OK
1440 minute winter	RE07	750	41.517	0.017	0.4	0.0101	0.0000	OK
1440 minute winter	IC09	750	40.575	0.028	1.0	0.0044	0.0000	OK
1440 minute winter	RE08	750	41.517	0.017	0.4	0.0104	0.0000	OK
1440 minute winter	IC08	750	40.540	0.029	1.4	0.0083	0.0000	OK
1440 minute winter	IC02	870	40.192	0.227	4.3	0.0643	0.0000	OK
1440 minute winter	INLET	870	40.192	0.228	4.2	0.0363	0.0000	OK
1440 minute winter	OUTLET	870	40.192	0.230	3.8	0.0366	0.0000	SURCHARGED
1440 minute winter	IC01	870	40.192	0.239	3.4	0.0676	0.0000	SURCHARGED
1440 minute winter	IC16	510	41.202	0.009	0.1	0.0024	0.0000	OK
1440 minute winter	MH01	870	40.191	0.252	3.5	0.3613	0.0000	SURCHARGED
1440 minute winter	CW03	870	39.964	0.031	3.5	0.0050	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
1440 minute winter	Gavel Strip Inlet	1.000	Gavel Strip Outlet	0.1	0.201	0.002	0.0074	
1440 minute winter	Gavel Strip Outlet	1.001	IC06	0.1	0.243	0.007	0.0022	
1440 minute winter	RE01	2.000	IC06	0.3	0.329	0.021	0.0167	
1440 minute winter	IC06	1.002	IC05	0.4	0.293	0.028	0.0058	
1440 minute winter	RE02	3.000	IC05	0.3	0.329	0.021	0.0166	
1440 minute winter	IC05	1.003	IC04	0.7	0.373	0.048	0.0180	
1440 minute winter	RE03	4.000	IC04	0.3	0.329	0.021	0.0167	
1440 minute winter	IC04	1.004	IC03	1.0	0.456	0.069	0.0242	
1440 minute winter	RE04	5.000	IC03	0.3	0.328	0.021	0.0168	
1440 minute winter	IC03	1.005	IC02	2.9	0.273	0.068	0.4243	
1440 minute winter	RE05	6.000	IC11	0.3	0.328	0.021	0.0177	
1440 minute winter	IC11	6.001	IC10	0.3	0.323	0.021	0.0045	
1440 minute winter	RE06	7.000	IC10	0.3	0.328	0.021	0.0180	
1440 minute winter	IC10	6.002	IC09	0.6	0.341	0.042	0.0122	
1440 minute winter	RE07	8.000	IC09	0.4	0.358	0.028	0.0222	
1440 minute winter	IC09	6.003	IC08	1.0	0.429	0.069	0.0129	
1440 minute winter	RE08	9.000	IC08	0.4	0.358	0.028	0.0225	
1440 minute winter	IC08	6.004	IC02	1.4	0.478	0.033	0.0091	
1440 minute winter	IC02	1.006	INLET	4.2	0.548	0.100	0.0517	
1440 minute winter	INLET	1.007	OUTLET	3.8	0.008	0.003	17.4061	
1440 minute winter	OUTLET	1.008	IC01	3.4	0.304	0.080	0.0541	
1440 minute winter	IC01	1.009	MH01	3.4	0.172	0.080	0.0860	
1440 minute winter	IC16	10.000	MH01	0.1	0.244	0.007	0.0062	
1440 minute winter	MH01	Hydro-Brake®	CW03	3.5				
1440 minute winter	CW03	1.011	CW02	3.5	0.867	0.042	0.0448	

Results for 100 year +45% CC 1440 minute winter. 1680 minute analysis at 30 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
1440 minute winter	CW02	870	39.695	0.040	3.5	0.0063	0.0000	OK
1440 minute winter	CW01	870	39.431	0.027	3.5	0.0044	0.0000	OK
1440 minute winter	CW	870	38.957	0.027	3.5	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)
1440 minute winter	CW02	1.012	CW01	3.5	0.943	0.060	0.0751	
1440 minute winter	CW01	1.013	CW	3.5	1.291	0.030	0.0259	157.7