

Manchester Road, Heywood

Discharge of Surface Water Conditions

DOCUMENT CONTROL SHEET

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Client: Trammell Crow Company

Project: Manchester Road, Heywood

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Title: Discharge of Surface Water Conditions

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Prepared By: Jack Williams CEng MICE MCIHT – Civils Director

Document Revision Record

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P01	14/01/2025	First Issue
P02	15/01/2025	Appendices updated

Burrows Graham Limited has prepared this report in accordance with the instructions of the above-named Client for their sole and specific use. Any third parties who may use the information contained herein do so at their own risk.

The following technical note has been prepared by Burrows Graham Ltd. on behalf of their clients Trammell Crow Company to discharge Condition 7, our response is outlined below;

Condition 7

Construction of the development hereby permitted shall not commence until a finalised drainage scheme informed by the Flood Risk Assessment and Drainage Strategy ref. 21194-BGL-XX-XX-RP-D-00001 Version 7 dated June 2023 has been submitted to and approved in writing by the Local Planning Authority. The approved scheme shall be fully implemented and operational prior to the first occupation of the development, and shall thereafter be maintained in a fully functional state.

Burrows Graham Response

The drainage layouts in Appendix A ref. (21194-BGL-XX-XX-C-DR-01210, 01211 and 01212) show the proposed scheme which is line with the approved strategy set out in the Flood Risk Assessment & Drainage Strategy ref. 21194-BGL-XX-XX-RP-D-00001 Version 7.

In line with the approved strategy, the majority of the site will discharge to the existing 600dia pipe which ultimately discharges to the watercourse south of the Hareshill Road at 215.5 l/s, with a small area of the site discharging at 5l/s to the existing outfall to the front of the site into Manchester Road. This is reflected in the hydraulic calculations for this scheme which are in Appendix B.

Appendix A – Drainage Layouts

1. This drawing shall be read in conjunction with all the relevant architects, engineers' & service engineers drawings & specifications.
2. All dimensions in millimeters U.O.N. on the drawing. Do not scale off the drawing.
3. All temporary works for formwork, excavations etc., to be the design responsibility of the Contractor.
4. The Contractor shall allow for the protection, temporary and permanent support and diversion of services as necessary, to all existing services to the satisfaction of the asset owners.
5. The Contractor shall allow for dealing with surface water run-off into excavations and from groundwater by means of sumps, pumping and de-watering as appropriate, in order to keep the excavations as reasonably dry as possible during the construction of the works.
6. The Contractor is responsible for obtaining all required permits and licenses.
7. All private drainage within the site is to comply with the requirements of the relevant British/European Standards including BS EN 1610, BS EN 295, BS EN 1917, BS5911, BS8000-6 & 14 and BS EN 1254, and the Building Regulations Part H.
8. Any adoptable drainage is to be in accordance with the requirements of the adopting authority. If in doubt, the Contractor shall clarify.
9. All pipework within chambers are to be laid soffit to soffit (U.O.N). All chamber invert levels are for the outgoing pipe levels. Backdrop pipework shall be connected at soffit to soffit with the backdrop / rodding access level specified.
10. Catchpit invert levels are for the outgoing pipe, pipes to be soffit level, sump level specified separately. All Catchpits are to be built with a 300 sump (U.O.N).
11. Any gradients of drains indicated are indicative only and the Contractor shall install the drains to the specified levels shown for each chamber (U.O.N).
12. Cover levels of the access points are provisional and subject to adjustment on site to suit the finished ground levels.
13. Positions and sizes of above ground foul and surface water drainage connections ("pop-ups") are indicative only. Setting out and confirmation of the internal requirements is the responsibility of the Architect. Contractor to confirm requirement prior to commencement of work.
14. Ø of PCC manholes varies with pipe size, number of connections, depth etc. Minimum sizes are shown on the Burrows Graham Standard Details drawings. Sizes shown on drainage layout and/or manhole schedule take precedence over minimum sizes.
15. Flow control chambers should be built in accordance with the

requirement of the manufacturer. Allowance should be made for a 600 stamp and double covers and frames on the chambers.

Instal concrete drains to be as stated on the drawings. Design of concrete drains shall be as per concrete products shall be DCA unless agreed otherwise.

All separators shall be in accordance with Building Regulations Part H3-A and with BS EN 858 and be k-itemarked / CE-marked in accordingly. The oil alarm system is to be in accordance with the manufacturer's requirements. Separators to be installed in accordance with manufacturer's recommendations / requirements (venting, protection etc)

All below ground plastic /GRP tanks shall be installed in accordance with the manufacturers instructions / requirements. They shall be provided with sufficient structural strength to counter floatation and shall have a wall thickness adequate to resist the highest ground water level which could be encountered at their location.

All existing drainage/structures to be abandoned shall be broken out and removed from site, the excavation shall be backfilled with a suitable granular material to the required level. Alternatively, deep drains may be cleaned and grouted with a 1:10 cementitious grout, with structures broken down to 1m below proposed finished ground level and infilled with a suitable granular material. Abandoned gullies are to be removed from site and abandoned tails are to be sealed with a 300 thick concrete plug at a depth of 1.0m below proposed finished ground level.

Where utility/land drainage trenches exist cross over drainage trenches, the Contractor shall construct an impermeable barrier to prevent groundwater infiltrating into the abandoned trench.

Design assumes that no sewerage authority sewers or other drainage systems require modification, diversion or abandoning (I.O.N on the drawings)

Unless otherwise agreed, all outfalls to ponds and watercourses to be proprietary PCC units. Where applicable, headwall outfalls are to be constructed to the consent authority (i.e. Internal Drainage Board / Lead Local Flood Authority / Environment Agency / Highway Authority)

All headwalls to have guardrail and headwalls with pipes greater than Ø375 to have a trash screen/grating fitted.

All manholes less than 1.5m deep shall be as no man entry and shall be maintained from ground level.

Upon completion of the works, the Contractor shall clean all drainage by jetting, removing all debris from site and the system is to be CCTV surveyed. No debris shall be permitted to enter the existing

The storage and installation of all proprietary drainage items used should be strictly in accordance with the manufacturers' instructions / requirements.

Any works within the public highway to be reinstated to highway authority requirements.

All relevant permits/licences must be sought by the contractors prior to the work commencing.

Penstocks, where indicated, shall be electronically operated complete with power supply and connection (refer to services engineers drawings for cable and ducting etc).

Statutory Undertakers information, where applicable, is indicative only based on supplied records. The contractor shall verify the depth/position and nature of the services as necessary in order to construct the works.

Drainage channels are to be ACCO Qmax in service yards and ACCO Qmax in car parks, or similar approved. Channels are to be sized by the supplier and approved by the Engineer in writing prior to ordering. Drainage channels to be installed to manufacturers' requirements. Design of channels shall be based on a 1 in 30 year return period, 15 minutes duration. Outlet units on channel drains to include silt traps.

All RWP, gully and channel connections shall be Ø150 U.O.N. Waste/silt stock connections shall be Ø100mm U.O.N and shall have internal above ground rounded eyes or large access fittings in accordance with Building Regulations.

All WPC's, SRWP's and RWP's are shown indicatively. Locations shall be confirmed by others.

Siphonic break chambers (i.e. with SRWP entering) to be constructed with open graded manhole covers. ("Wastway 2000" or similar "improved").

All sprinkler drain, gully locations and flow rates to be confirmed by the sprinkler Contractor. Potential local storage manholes for sprinkler discharge are to be confirmed following definition of system requirements. It is assumed that the full flow up to 15 minutes points will be located close to foul water drainage runs.

Below ground drainage connections to be provided to all canopy downpipes

1.1. Ø150mm in concrete bed and surround U.O.N.

1.2. Ø150mm in concrete bed at minimum gradients of 1:500 rising and 1:300 falling. Air valves and washout valves may be required at high and low points respectively.

	
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[illegible]

Technical drawing of a road layout showing a U-turn. The drawing includes a red hatched area, a green dashed line, and a blue dashed line. A table of data is provided below the drawing.

SW-U3-0	CL: 129.4	IL: 128.1	Ø: 1200
305			
80			
PIC			

Technical drawing of Pond 2, showing its location, dimensions, and elevation data. The drawing includes a red hatched area representing the pond's boundary, a blue dashed line indicating the invert level, and a green dashed line indicating the top of bank level. A callout box provides the following information:

- Pond 2
- Top of bank level: 129.600
- Invert level: 128.100
- Capacity: 494 m³

The drawing also shows a red hatched area labeled "POND" and a green dashed line labeled "PPIC-08". A dimension line indicates a distance of 1.350 between two points. The drawing is oriented vertically, with the pond's location at the top and the PPIC-08 line at the bottom.

SW-U3-02
Cl.: 129.435
Il.: 128.245
ø: 1200

SW-U3-01
Cl.: 129.435
Il.: 128.385
ø: 1350

ø 300 @ 1:300



PPIC-06
CL: 129.335
IL: 127.430
Ø: 600 PPIC

SAFETY, HEALTH & ENVIRONMENTAL PROTECTION	
IN ADDITION TO THE HAZARDS/RISKS NOTED ON THIS DRAWING, THE FOLLOWING ARE TO BE CONSIDERED:	IN ADDITION TO THE HAZARDS/RISKS NOTED ON THIS DRAWING, THE FOLLOWING ARE TO BE CONSIDERED:
CONSTRUCTION	
MAINTENANCE	
DEMOLITION	
IT IS ASSUMED THAT ALL WORKS WILL BE COMPLETED IN ACCORDANCE WITH THE FOLLOWING WORKING, WHERE APPLICABLE:	
GENERAL NOTES: - This drawing must be read in conjunction with the relevant service engineers drawings & specifications. - All units in millimeters U.O.N. - Do Not Scale off the drawing.	
Key:	

LAND ENVIRONMENTAL INFORMATION

BE CARRIED OUT BY A COMPETENT CONTRACTOR, TO AN APPROVED METHOD STATEMENT

in connection with all the relevant architects, engineers and other professionals.

drawing.

Surface Water Drainage Pipe

Surface Water Drainage Manhole

Drainage

Water Rising Main (specialist)

Surface Water Drainage Channel

Acoustic Roof Downpipe (specialist design)

Proposed petrol interceptor / separator

Surface Water Attenuation Pond

Surface Water Attenuation Tank

Water Drainage Pipe

Water Drainage Manhole

Site Foul Water Drainage Pipe

Acceptable Foul Water Drainage Manhole

Drainage

cast concrete headwall

drain and PPIC

ON

OR

' and

)

Unit 3 below ground attenuation
 610 cu m3 of storage
 Dims: 20m x 16m (w) x 2m (h)
 Min CL: 128.610
 IL: 124.295
 Additional inspection chambers
 be required, manufacturer to con

Proposed full
 retention separator
 SPEL ref: P250/1CSC
 or similar approved
 product.

W-03-17
 : 127.015
 : 125.210
 : 1350

2.4

SW-U3-18
CL: 128.570
IL: 125.015
Ø: 1350
Non-return va

1400

28.950
24.255
Ø: 1800

750 @ 1:400
300 @ 1:210
Ø 750 @ 1:150
Ø 750 @ 1:210

SW-U3-21
CL: 129.000
IL: 127.000
Ø: 1350

SW-U3-22
CL: 129.000
IL: 127.000
Ø: 1350

Technical drawing of a sewerage network plan. The drawing shows three manholes labeled SW-U3-19, SW-U3-20, and SW-U3-21. The manholes are represented by circles with a diameter of 1350 mm. The drawing includes dimensions for the pipe diameters and slopes. The manhole SW-U3-19 has a diameter of 1350 mm and a slope of 1:400. The manhole SW-U3-20 has a diameter of 1800 mm and a slope of 1:400. The manhole SW-U3-21 has a diameter of 1350 mm and a slope of 1:400. The drawing also shows a scale bar indicating a distance of 15.00 meters.

SW-U3-19
CL: 128.950
IL: 125.000
Ø: 1350

SW-U3-20
CL: 128.840
IL: 124.640
Ø: 1800

SW-U3-21
CL: 128.840
IL: 124.640
Ø: 1350

15.00

SW-U3-11
CL: 128.820
IL: 126.535
Ø: 1800

8no DOCK DOOR

U3-FW-05
CL: 129.070
IL: 126.240
Ø: 1200

Technical drawing showing a plan view of a dock door layout. Two dock doors are indicated by dashed blue lines. The first dock door, labeled SW-U3-11, has a center line (CL) of 128.820, an inner line (IL) of 126.535, and a diameter (Ø) of 1800. The second dock door, labeled U3-FW-05, has a center line (CL) of 129.070, an inner line (IL) of 126.240, and a diameter (Ø) of 1200. The drawing also shows a slope of 8no DOCK DOOR and a slope of 0.750 @ 1:400. A dimension of 0.300 @ 1:210 is also indicated.

U3-FW-0
CL: 128.9
IL: 126.8
Ø: 1200

300 @
1270.0

TWO HUB

SW-U3-15
Hydrobrake flow control
CL: 128.820
IL: 126.410
Q: 400 l/s
Ø: 1800

U3-FW-03
CL: 129.260
IL: 127.000
Ø: 1200

All in roof
indica
to co
design

Unit 3
FFL 129.500

al drainage and
age is shown
ly and subject
ination / detailed

Technical drawing of a road cross-section. The drawing shows a dashed green line representing the centerline and a solid grey line representing the road edge. The road width is indicated as 600 PPIC. The centerline stationing is marked as CL: 129.305 and IL: 127.730. The road edge stationing is marked as 129.305 and 127.865. The drawing also includes a label for the road width: Ø: 600 PPIC.

PPIC-05
CL: 129.305
IL: 127.580
Ø: 600 PPIC

0
SCALE

PO3	15.01.21
PO2	10.01.21
PO1	09.01.21
REV	DATE



CLIENT



PROJECT

MANC

DRAWING TITLE

PROPO

SHEET

BGL PROJECT NUMBER

21194

SCALE @ A1

1:500

DRAWING No

21194-

JB	Rainwater harvesting tanks
JB	Foul drainage manhole U3
JB	Issued for Information
BY	DESCRIPTION



North O
5 Amba
Altrinch
Tel: +44

South O
Bucklan
High Str
Tel: +44

ammell CrowComp

ESTER ROAD HEY

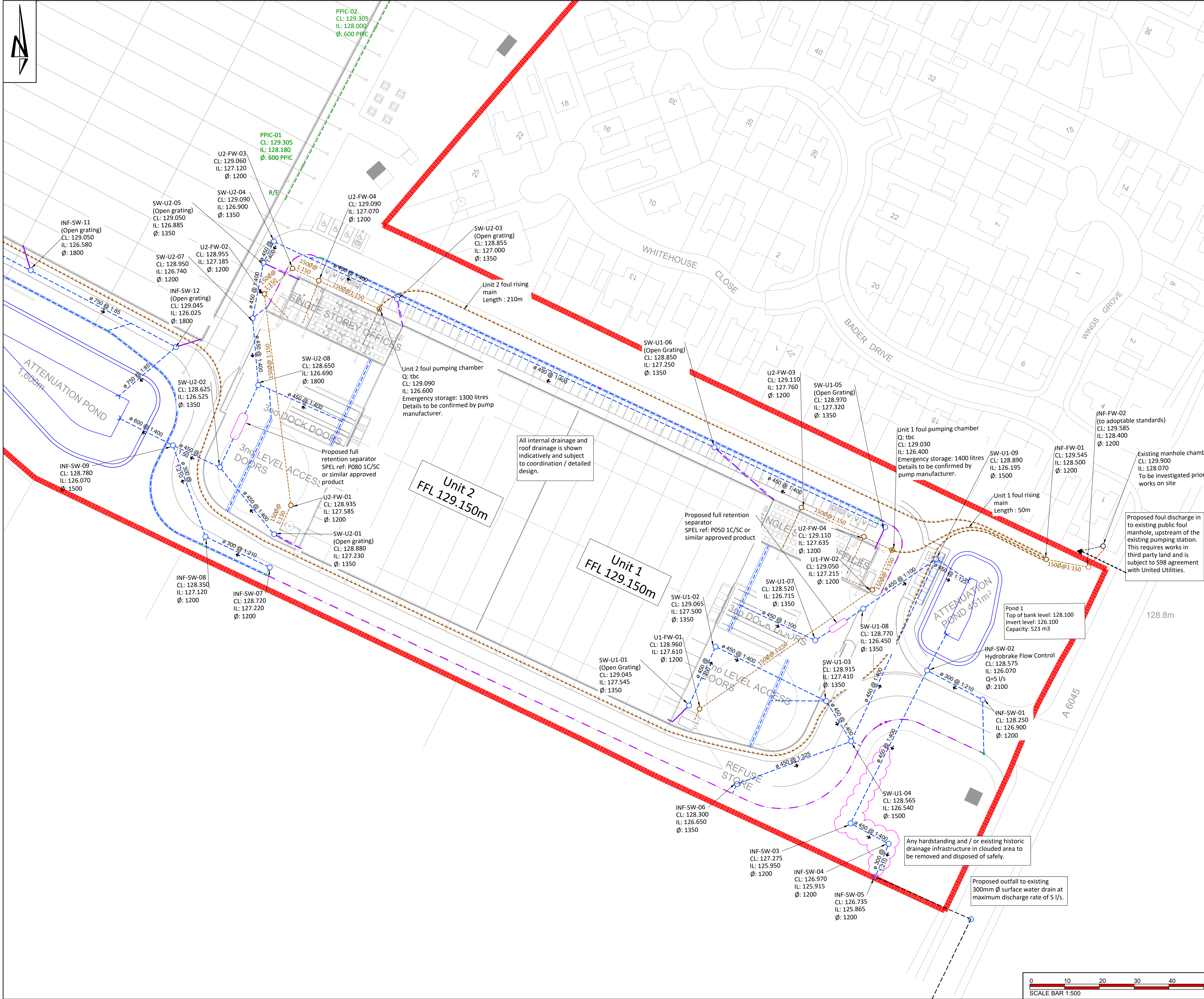
ED DRAINAGE LA

OF 3

DRAWING STATUS	
PRELIMINARY	
DATE	09.01.2025

GL-XX-XX-DR-C-C

moved	JW
01a added.	JW
	JW
	CHKD
Place, Stockport Road, A15 80B 15 80A 80A6	
Use, Dower Mews, Arkhamstead HP4 2BL 42 508 402	
my	
FOOD	
OUT	
CE NORTH	
WIN BY JB	CHECKED BY JW
210	REV P03



THIS DRAWING IS THE COPYRIGHT OF BURROWS GRAHAM LIMITED.

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING

CONSTRUCTION

MAINTENANCE

DEMOLITION

IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR WORKING, WHERE APPROPRIATE, TO AN APPROVED METHOD STATEMENT

GENERAL NOTES:

1. This drawing shall be read in conjunction with all the relevant architects, engineers' and service engineers drawings & specifications.

2. All units in millimeters U.O.N. on the drawing.

3. Do Not Scale off the drawing.

Key:

Surface Water Drainage Pipe

Surface Water Drainage Manhole

Kerb Drainage

Foul Water Rising Main (specialist)

Surface Water Drainage Channel

Siphonic Roof Downpipe (specialist design)

Proposed petrol interceptor / separator

Surface Water Attenuation Pond

Surface Water Attenuation Tank

Foul Water Drainage Pipe

Foul Water Drainage Manhole

Off-Site Foul Water Drainage Pipe

Adoptable Foul Water Drainage Manhole

Existing Drainage

Precast concrete headwall

Filter drain and PPIC

Pond 1

Top of bank level: 128.100

Invert level: 126.100

Capacity: 523 m3

Existing manhole chamber

CL: 129.900

IL: 128.070

To be investigated prior to works on site

Proposed foul discharge in to existing public foul manhole, upstream of the existing pumping station.

This requires works in third party land and is subject to S98 agreement with United Utilities.

Unit 1 foul rising main

Length : 50m

Unit 2 foul rising main

Length : 210m

Unit 1 foul pumping chamber

Q: tbc

CL: 129.030

IL: 126.400

Emergency storage: 1400 litres

Details to be confirmed by pump manufacturer.

Unit 2 foul pumping chamber

Q: tbc

CL: 129.090

IL: 126.600

Emergency storage: 1300 litres

Details to be confirmed by pump manufacturer.

Proposed full retention separator

SPEL ref: P050 1C/SC or similar approved product

Proposed full retention separator

SPEL ref: P080 1C/SC or similar approved product

Any hardstanding and / or existing historic drainage infrastructure in clouded area to be removed and disposed of safely.

Proposed outfall to existing 300mm Ø surface water drain at maximum discharge rate of 5 l/s.

P03	15.01.25	JB	Rainwater harvesting tanks removed	JW
P02	10.01.25	JB	Foul drainage manhole U3-FW-01a added.	JW
P01	09.01.25	JB	Issued for Information	JW
REV	DATE	BY	DESCRIPTION	CHKD

Burrows Graham

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CLIENT

Trammell Crow Company

PROJECT

MANCHESTER ROAD HEYWOOD

DRAWING TITLE

PROPOSED DRAINAGE LAYOUT

SHEET 3 OF 3

BGL PROJECT NUMBER	DRAWING STATUS	OFFICE
21194	PRELIMINARY	NORTH
SCALE @ A1	DATE	DRAWN BY
1:500	09.01.2025	JB
CHECKED BY	REV	
JW		

DRAWING No

21194-BGL-XX-XX-DR-C-01212

REV

P03

0 10 20 30 40 50

SCALE BAR 1:500

Appendix B – Hydraulic Calculations

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	100	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)	20.000	Minimum Backdrop Height (m)	0.200
Ratio-R	0.300	Preferred Cover Depth (m)	1.200
CV	0.750	Include Intermediate Ground	✓
Time of Entry (mins)	5.00	Enforce best practice design rules	x

Simulation Settings

Rainfall Methodology	FSR	Analysis Speed	Normal
FSR Region	England and Wales	Skip Steady State	x
M5-60 (mm)	20.000	Drain Down Time (mins)	240
Ratio-R	0.300	Additional Storage (m³/ha)	20.0
Summer CV	0.750	Check Discharge Rate(s)	x
Winter CV	0.840	Check Discharge Volume	x

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 %)
1	0	0	0
30	30	0	0
100	30	0	0

Node Outlet 2 - INF-SW-02 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Downstream Link	14.006	Sump Available	✓
Replaces Downstream Link	x	Product Number	CTL-SHE-0094-5000-1800-5000
Invert Level (m)	126.070	Min Outlet Diameter (m)	0.150
Design Depth (m)	1.800	Min Node Diameter (mm)	1200
Design Flow (l/s)	5.0		

Node SW-U3-15 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	126.410	Product Number	CTL-CHE-0643-4000-2500-4000
Design Depth (m)	2.500	Min Outlet Diameter (m)	
Design Flow (l/s)	400.0	Min Node Diameter (mm)	

Node SW-U3-18 Online Orifice Control

Flap Valve	✓	Design Depth (m)	1.000	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Design Flow (l/s)	370.0		
Invert Level (m)	125.018	Diameter (m)	0.448		

Node Outlet 1 - INF-SW-14 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	124.053	Product Number	CTL-SHE-0513-2155-3400-2155
Design Depth (m)	3.400	Min Outlet Diameter (m)	
Design Flow (l/s)	215.5	Min Node Diameter (mm)	

Node Pond 2 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	128.100	Product Number	CTL-SHE-0464-1600-2300-1600
Design Depth (m)	2.300	Min Outlet Diameter (m)	0.500
Design Flow (l/s)	160.0	Min Node Diameter (mm)	

Node Pond 3 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	125.750
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	112

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	386.9	0.0	2.500	1597.1	0.0	2.501	0.0	0.0

Node Pond 2 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	128.100
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	0

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	116.9	0.0	1.500	541.8	0.0	1.501	0.0	0.0

Node Pond 1 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	126.100
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	72.9	0.0	2.000	451.7	0.0	2.001	0.0	0.0

Node Unit 3 Tank Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	124.295
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	162

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	320.0	0.0	2.000	320.0	0.0	2.001	0.0	0.0

Results for 1 year Critical Storm Duration. Lowest mass balance: 95.15%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	SW-U3-01	10	128.542	0.157	35.6	1.0544	0.0000	OK
15 minute winter	SW-U3-02	10	128.454	0.209	42.6	0.4583	0.0000	OK
15 minute winter	SW-U3-03	9	128.401	0.137	8.2	0.1894	0.0000	OK
15 minute winter	SW-U3-04	9	128.394	0.248	48.3	0.2810	0.0000	OK
60 minute winter	Pond 2	42	128.221	0.121	25.7	16.3870	0.0000	OK
60 minute winter	SW-U3-07	42	127.497	0.052	17.3	0.1321	0.0000	OK
15 minute winter	SW-U3-08	12	127.164	0.144	45.1	0.8128	0.0000	OK
15 minute winter	U3DOCK02	11	127.591	0.140	31.5	1.1037	0.0000	OK
15 minute winter	SW-U3-09	12	126.843	0.170	72.7	0.3000	0.0000	OK
15 minute winter	SW-U3-10	10	127.669	0.029	1.5	0.0376	0.0000	OK
15 minute winter	SW-U3-11	13	126.822	0.285	89.2	1.0855	0.0000	OK
15 minute winter	SW-U3-14	11	127.459	0.139	33.2	0.6382	0.0000	OK
15 minute winter	U3DOCK	11	127.640	0.190	52.4	2.1586	0.0000	OK
15 minute winter	SW-U3-15	13	126.812	0.402	154.9	1.0225	0.0000	OK
15 minute winter	SW-U3-16	11	125.564	0.044	3.6	0.0679	0.0000	OK
15 minute winter	SW-U3-17	11	125.326	0.118	25.9	0.3990	0.0000	OK
15 minute winter	SW-U3-18	12	125.229	0.211	41.6	0.4658	0.0000	OK
15 minute winter	SW-U3-19	11	125.178	0.179	51.7	0.3516	0.0000	OK
15 minute winter	SW-U3-20	12	124.948	0.307	219.0	1.0319	0.0000	OK
120 minute winter	Unit 3 Tank	82	124.809	0.514	110.6	156.3860	0.0000	OK
15 minute winter	SW-U3-12	10	127.925	0.060	6.7	0.1279	0.0000	OK
15 minute winter	SW-U3-13	11	127.785	0.061	6.5	0.0879	0.0000	OK
120 minute winter	SW-U3-21	84	124.809	0.552	73.3	1.6507	0.0000	OK
120 minute winter	SW-U3-22	84	124.808	0.711	73.1	1.8093	0.0000	SURCHARGED
15 minute winter	SW-U2-03	12	127.219	0.220	72.6	0.8074	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	SW-U3-01	1.000	SW-U3-02	34.5	0.797	0.541	1.8835	
15 minute winter	SW-U3-02	6.001	SW-U3-04	44.3	0.946	0.752	1.9215	
15 minute winter	SW-U3-03	7.000	SW-U3-04	-6.7	-0.226	-0.088	1.1900	
15 minute winter	SW-U3-04	6.002	Pond 2	53.8	2.039	0.689	0.2851	
60 minute winter	Pond 2	Hydro-Brake®	SW-U3-07	17.3				
60 minute winter	SW-U3-07	6.004	SW-U3-08	17.3	0.704	0.016	0.4883	
15 minute winter	SW-U3-08	6.005	SW-U3-09	42.4	0.880	0.124	3.7965	
15 minute winter	U3DOCK02	8.000	SW-U3-09	31.3	1.005	0.409	0.6881	
15 minute winter	SW-U3-09	6.006	SW-U3-11	72.6	0.752	0.118	6.1822	
15 minute winter	SW-U3-10	9.000	SW-U3-11	1.4	0.427	0.019	0.0429	
15 minute winter	SW-U3-11	6.007	SW-U3-15	86.8	0.509	0.141	10.0279	
15 minute winter	SW-U3-14	10.000	SW-U3-15	32.2	1.032	0.422	1.2524	
15 minute winter	U3DOCK	11.000	SW-U3-15	50.6	1.130	0.662	0.9909	
15 minute winter	SW-U3-15	Hydro-Brake®	SW-U3-20	152.1				
15 minute winter	SW-U3-16	12.000	SW-U3-17	3.5	0.554	0.046	0.2143	
15 minute winter	SW-U3-17	12.001	SW-U3-18	24.9	0.494	0.155	4.0317	
15 minute winter	SW-U3-18	Orifice	SW-U3-19	39.4				
15 minute winter	SW-U3-19	12.003	SW-U3-20	51.1	0.959	0.316	1.2249	
15 minute winter	SW-U3-20	6.009	Unit 3 Tank	218.6	1.361	0.355	2.4366	
120 minute winter	Unit 3 Tank	6.010	SW-U3-21	69.2	0.765	0.112	5.0965	
15 minute winter	SW-U3-12	13.000	SW-U3-13	6.5	0.656	0.086	0.2979	
15 minute winter	SW-U3-13	13.001	SW-U3-21	6.5	0.651	0.085	0.1136	
120 minute winter	SW-U3-21	6.011	SW-U3-22	73.1	0.425	0.073	9.4039	
120 minute winter	SW-U3-22	6.012	Outlet 1 - INF-SW-14	73.2	0.306	0.151	2.5038	
15 minute winter	SW-U2-03	1.002	SW-U2-04	67.9	0.791	0.423	3.3551	

Results for 1 year Critical Storm Duration. Lowest mass balance: 95.15%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	SW-U2-04	12	127.161	0.260	80.5	0.6706	0.0000	OK
15 minute winter	SW-U2-05	12	127.124	0.240	84.9	0.4436	0.0000	OK
15 minute winter	SW-U2-07	12	126.985	0.247	88.2	0.3650	0.0000	OK
15 minute winter	U2DOCK	11	127.035	0.085	12.6	0.2975	0.0000	OK
15 minute winter	SW-U2-08	12	126.905	0.215	107.4	0.7741	0.0000	OK
15 minute winter	SW-U2-01	10	127.357	0.127	27.3	0.5089	0.0000	OK
15 minute winter	SW-U2-02	12	126.709	0.184	130.1	0.2627	0.0000	OK
15 minute winter	INF-SW-07	10	127.326	0.106	19.2	0.3325	0.0000	OK
15 minute winter	INF-SW-08	11	127.230	0.108	20.1	0.1394	0.0000	OK
15 minute winter	INF-SW-09	12	126.340	0.272	148.2	0.4798	0.0000	OK
15 minute winter	INF-SW-10	10	127.271	0.165	146.7	2.3641	0.0000	OK
15 minute winter	INF-SW-11	10	126.828	0.246	292.9	2.9290	0.0000	OK
60 minute winter	INF-SW-12	49	126.337	0.311	256.8	3.2664	0.0000	OK
60 minute winter	Pond 3	48	126.275	0.525	350.1	269.7875	0.0000	OK
60 minute winter	INF-SW-13	48	126.261	0.696	143.8	1.7717	0.0000	SURCHARGED
120 minute winter	Outlet 1 - INF-SW-14	84	124.805	0.752	187.1	1.3292	0.0000	SURCHARGED
120 minute winter	Outfall_1	84	124.122	0.252	187.3	0.0000	0.0000	OK
15 minute winter	SW-U1-01	10	127.676	0.131	27.4	0.5604	0.0000	OK
15 minute winter	SW-U1-02	11	127.623	0.124	26.8	0.1775	0.0000	OK
15 minute winter	SW-U1-03	11	127.565	0.155	39.0	0.4306	0.0000	OK
15 minute winter	SW-U1-04	12	126.704	0.162	45.3	0.3750	0.0000	OK
15 minute winter	U1DOCK	10	126.992	0.042	5.6	0.0993	0.0000	OK
15 minute winter	SW-U1-07	11	126.749	0.036	5.5	0.0517	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	SW-U2-04	1.003	SW-U2-05	80.4	0.889	0.500	0.6173	
15 minute winter	SW-U2-05	1.004	SW-U2-07	84.4	0.963	0.525	5.1318	
15 minute winter	SW-U2-07	1.005	SW-U2-08	88.1	1.085	0.549	1.5849	
15 minute winter	U2DOCK	2.000	SW-U2-08	12.2	0.645	0.076	0.5337	
15 minute winter	SW-U2-08	1.006	SW-U2-02	106.6	1.598	0.415	1.7665	
15 minute winter	SW-U2-01	3.000	SW-U2-02	26.5	0.800	0.165	0.8229	
15 minute winter	SW-U2-02	1.007	INF-SW-09	129.6	2.333	0.279	0.8282	
15 minute winter	INF-SW-07	4.000	INF-SW-08	18.8	0.846	0.247	0.4562	
15 minute winter	INF-SW-08	4.001	INF-SW-09	20.0	0.905	0.262	0.6165	
15 minute winter	INF-SW-09	1.008	Pond 3	147.8	1.269	0.432	1.9791	
15 minute winter	INF-SW-10	5.000	INF-SW-11	144.6	1.482	0.108	4.3730	
15 minute winter	INF-SW-11	5.001	INF-SW-12	288.1	1.989	0.215	6.8778	
60 minute winter	INF-SW-12	5.002	Pond 3	253.9	2.582	0.189	5.8053	
60 minute winter	Pond 3	1.009	INF-SW-13	143.8	0.968	0.420	20.0868	
60 minute winter	INF-SW-13	1.010	Outlet 1 - INF-SW-14	115.4	1.644	1.510	4.8854	
120 minute winter	Outlet 1 - INF-SW-14	1.011	Outfall_1	187.3	1.578	0.385	4.3532	1042.8
15 minute winter	SW-U1-01	14.000	SW-U1-02	26.8	0.735	0.167	0.6770	
15 minute winter	SW-U1-02	14.001	SW-U1-03	26.8	0.640	0.167	1.4863	
15 minute winter	SW-U1-03	14.002	SW-U1-04	38.7	0.879	0.241	0.5996	
15 minute winter	SW-U1-04	14.003	SW-U1-09	42.9	0.918	0.267	2.7100	
15 minute winter	U1DOCK	16.000	SW-U1-07	5.5	0.834	0.017	0.1573	
15 minute winter	SW-U1-07	16.001	SW-U1-08	5.5	0.618	0.013	0.1491	

Results for 1 year Critical Storm Duration. Lowest mass balance: 95.15%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute winter	SW-U1-08	280	126.681	0.233	2.4	0.4420	0.0000	OK
15 minute winter	SW-U1-06	11	127.415	0.164	49.9	0.6579	0.0000	OK
15 minute winter	SW-U1-05	10	127.440	0.120	24.4	0.4492	0.0000	OK
360 minute winter	SW-U1-09	280	126.681	0.487	15.5	0.8613	0.0000	SURCHARGED
360 minute winter	Pond 1	280	126.681	0.581	24.5	74.6463	0.0000	SURCHARGED
15 minute winter	INF-SW-01	10	126.990	0.090	14.2	0.2496	0.0000	OK
360 minute winter	Outlet 2 - INF-SW-02	280	126.681	0.611	6.3	2.6585	0.0000	SURCHARGED
60 minute summer	INF-SW-03	57	126.000	0.053	4.4	0.0596	0.0000	OK
60 minute summer	INF-SW-04	58	125.966	0.050	4.4	0.0570	0.0000	OK
60 minute summer	INF-SW-05	58	125.915	0.048	10.1	0.0000	0.0000	OK
15 minute winter	INF-SW-06	12	126.712	0.062	3.2	0.0964	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)
360 minute winter	SW-U1-08	16.002	SW-U1-09	2.4	0.246	0.007	3.0673	
15 minute winter	SW-U1-06	1.001	SW-U2-03	47.5	0.763	0.295	6.4236	
15 minute winter	SW-U1-05	1.000_1	SW-U1-06	23.6	0.565	0.147	1.1898	
360 minute winter	SW-U1-09	14.004	Pond 1	23.4	0.739	0.081	1.8478	
360 minute winter	Pond 1	14.005	Outlet 2 - INF-SW-02	4.3	-0.108	0.027	1.9048	
15 minute winter	INF-SW-01	17.000	Outlet 2 - INF-SW-02	13.8	0.812	0.181	0.3082	
360 minute winter	Outlet 2 - INF-SW-02	14.006	INF-SW-03	4.4	0.439	0.027	0.4925	
60 minute summer	INF-SW-03	14.007	INF-SW-04	4.4	0.440	0.027	0.1243	
60 minute summer	INF-SW-04	14.008	INF-SW-05	4.4	0.582	0.058	0.0777	65.5
15 minute winter	INF-SW-06	15.000	SW-U1-04	-2.0	0.088	-0.011	1.1338	

Results for 30 year +30% CC Critical Storm Duration. Lowest mass balance: 95.15%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	SW-U3-01	11	129.424	1.039	113.4	6.9899	0.0000	FLOOD RISK
15 minute winter	SW-U3-02	11	129.024	0.779	123.0	1.7058	0.0000	SURCHARGED
15 minute winter	SW-U3-03	12	128.521	0.257	15.1	0.3566	0.0000	OK
15 minute winter	SW-U3-04	12	128.521	0.375	125.5	0.4247	0.0000	SURCHARGED
30 minute winter	Pond 2	24	128.360	0.260	104.5	40.3443	0.0000	OK
15 minute winter	SW-U3-07	14	127.929	0.484	63.5	1.2305	0.0000	OK
15 minute winter	SW-U3-08	14	127.915	0.895	228.5	5.0615	0.0000	SURCHARGED
15 minute winter	U3DOCK02	14	127.940	0.490	100.2	3.8461	0.0000	SURCHARGED
15 minute winter	SW-U3-09	13	127.876	1.203	251.4	2.1259	0.0000	SURCHARGED
15 minute winter	SW-U3-10	14	127.869	0.229	45.7	0.2953	0.0000	OK
15 minute winter	SW-U3-11	13	127.850	1.313	295.9	4.9969	0.0000	SURCHARGED
15 minute winter	SW-U3-14	14	127.924	0.604	105.7	2.7673	0.0000	SURCHARGED
15 minute winter	U3DOCK	11	128.181	0.731	166.9	8.3058	0.0000	FLOOD RISK
15 minute winter	SW-U3-15	14	127.835	1.425	403.5	3.6267	0.0000	SURCHARGED
120 minute winter	SW-U3-16	100	126.756	1.235	7.9	1.9075	0.0000	FLOOD RISK
120 minute winter	SW-U3-17	96	126.735	1.527	30.7	5.1779	0.0000	FLOOD RISK
120 minute winter	SW-U3-18	96	126.726	1.708	69.6	3.7712	0.0000	SURCHARGED
120 minute winter	SW-U3-19	98	126.734	1.735	124.5	3.4066	0.0000	SURCHARGED
120 minute winter	SW-U3-20	98	126.730	2.089	369.3	7.0286	0.0000	SURCHARGED
120 minute winter	Unit 3 Tank	102	126.744	2.449	330.4	608.1520	0.0000	SURCHARGED
15 minute winter	SW-U3-12	10	127.976	0.111	21.2	0.2352	0.0000	OK
15 minute winter	SW-U3-13	11	127.838	0.114	20.9	0.1627	0.0000	OK
120 minute winter	SW-U3-21	98	126.728	2.471	94.2	7.3928	0.0000	SURCHARGED
120 minute winter	SW-U3-22	98	126.725	2.627	87.5	6.6870	0.0000	SURCHARGED
15 minute winter	SW-U2-03	12	128.103	1.104	202.0	4.0551	0.0000	SURCHARGED

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	SW-U3-01	1.000	SW-U3-02	98.8	1.404	1.549	2.9568	
15 minute winter	SW-U3-02	6.001	SW-U3-04	121.1	1.721	2.057	2.4728	
15 minute winter	SW-U3-03	7.000	SW-U3-04	14.0	-0.301	0.185	1.7126	
15 minute winter	SW-U3-04	6.002	Pond 2	125.4	2.135	1.606	0.5918	
30 minute winter	Pond 2	Hydro-Brake®	SW-U3-07	69.3				
15 minute winter	SW-U3-07	6.004	SW-U3-08	131.1	1.149	0.120	4.4444	
15 minute winter	SW-U3-08	6.005	SW-U3-09	164.2	1.094	0.479	22.1556	
15 minute winter	U3DOCK02	8.000	SW-U3-09	98.4	1.420	1.288	1.5577	
15 minute winter	SW-U3-09	6.006	SW-U3-11	291.2	0.774	0.473	23.8651	
15 minute winter	SW-U3-10	9.000	SW-U3-11	-42.9	-0.785	-0.562	0.7489	
15 minute winter	SW-U3-11	6.007	SW-U3-15	318.4	0.724	0.518	22.4215	
15 minute winter	SW-U3-14	10.000	SW-U3-15	101.3	1.457	1.326	2.8230	
15 minute winter	U3DOCK	11.000	SW-U3-15	154.3	2.192	2.020	1.5577	
15 minute winter	SW-U3-15	Hydro-Brake®	SW-U3-20	396.7				
120 minute winter	SW-U3-16	12.000	SW-U3-17	9.4	0.601	0.123	2.3912	
120 minute winter	SW-U3-17	12.001	SW-U3-18	65.7	0.477	0.409	12.0678	
120 minute winter	SW-U3-18	Orifice	SW-U3-19	121.6				
120 minute winter	SW-U3-19	12.003	SW-U3-20	168.4	1.063	1.042	3.6333	
120 minute winter	SW-U3-20	6.009	Unit 3 Tank	314.3	1.360	0.511	6.6740	
120 minute winter	Unit 3 Tank	6.010	SW-U3-21	85.9	0.757	0.140	6.7044	
15 minute winter	SW-U3-12	13.000	SW-U3-13	20.9	0.875	0.273	0.7044	
15 minute winter	SW-U3-13	13.001	SW-U3-21	20.8	0.893	0.272	0.2645	
120 minute winter	SW-U3-21	6.011	SW-U3-22	87.5	0.511	0.087	10.6289	
120 minute winter	SW-U3-22	6.012	Outlet 1 - INF-SW-14	86.1	0.353	0.177	2.5038	
15 minute winter	SW-U2-03	1.002	SW-U2-04	187.5	1.183	1.167	6.1953	

Results for 30 year +30% CC Critical Storm Duration. Lowest mass balance: 95.15%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	SW-U2-04	12	127.936	1.035	227.6	2.6736	0.0000	SURCHARGED
15 minute winter	SW-U2-05	12	127.849	0.964	243.3	1.7814	0.0000	SURCHARGED
15 minute winter	SW-U2-07	13	127.458	0.720	256.2	1.0617	0.0000	SURCHARGED
120 minute winter	U2DOCK	110	127.350	0.400	14.5	1.3980	0.0000	OK
120 minute winter	SW-U2-08	110	127.350	0.660	146.5	2.3736	0.0000	SURCHARGED
15 minute winter	SW-U2-01	10	127.469	0.239	86.9	0.9607	0.0000	OK
120 minute winter	SW-U2-02	110	127.348	0.823	176.2	1.1772	0.0000	SURCHARGED
15 minute winter	INF-SW-07	10	127.444	0.224	61.1	0.6994	0.0000	OK
120 minute winter	INF-SW-08	110	127.346	0.224	23.6	0.2896	0.0000	OK
120 minute winter	INF-SW-09	110	127.345	1.277	192.0	2.2568	0.0000	SURCHARGED
15 minute winter	INF-SW-10	10	127.434	0.329	467.3	4.7017	0.0000	OK
120 minute winter	INF-SW-11	112	127.349	0.767	340.2	9.1453	0.0000	SURCHARGED
120 minute winter	INF-SW-12	112	127.347	1.321	515.3	13.8515	0.0000	SURCHARGED
120 minute winter	Pond 3	112	127.345	1.594	690.6	1232.2500	0.0000	SURCHARGED
120 minute winter	INF-SW-13	102	127.325	1.760	148.4	4.4789	0.0000	SURCHARGED
120 minute winter	Outlet 1 - INF-SW-14	98	126.723	2.670	216.7	4.7177	0.0000	SURCHARGED
120 minute winter	Outfall_1	64	124.143	0.273	215.3	0.0000	0.0000	OK
15 minute winter	SW-U1-01	10	127.808	0.263	87.3	1.1273	0.0000	OK
15 minute winter	SW-U1-02	11	127.760	0.261	85.2	0.3729	0.0000	OK
15 minute winter	SW-U1-03	11	127.707	0.297	123.1	0.8235	0.0000	OK
600 minute winter	SW-U1-04	585	127.602	1.060	18.0	2.4502	0.0000	SURCHARGED
600 minute winter	U1DOCK	570	127.602	0.652	2.1	1.5384	0.0000	FLOOD RISK
600 minute winter	SW-U1-07	570	127.602	0.889	2.0	1.2726	0.0000	SURCHARGED
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	SW-U2-04	1.003	SW-U2-05	229.0	1.445	1.425	1.0823	
15 minute winter	SW-U2-05	1.004	SW-U2-07	244.1	1.541	1.519	9.2761	
15 minute winter	SW-U2-07	1.005	SW-U2-08	255.2	1.611	1.588	3.0597	
120 minute winter	U2DOCK	2.000	SW-U2-08	14.5	0.672	0.090	4.3394	
120 minute winter	SW-U2-08	1.006	SW-U2-02	144.8	1.685	0.564	4.1281	
15 minute winter	SW-U2-01	3.000	SW-U2-02	85.0	1.105	0.529	1.9133	
120 minute winter	SW-U2-02	1.007	INF-SW-09	168.4	2.248	0.362	2.3616	
15 minute winter	INF-SW-07	4.000	INF-SW-08	59.9	1.076	0.784	1.1401	
120 minute winter	INF-SW-08	4.001	INF-SW-09	23.6	0.944	0.309	1.7656	
120 minute winter	INF-SW-09	1.008	Pond 3	190.4	1.128	0.556	4.7815	
15 minute winter	INF-SW-10	5.000	INF-SW-11	463.7	1.740	0.345	11.7458	
120 minute winter	INF-SW-11	5.001	INF-SW-12	338.3	1.744	0.252	20.7689	
120 minute winter	INF-SW-12	5.002	Pond 3	503.7	2.779	0.375	10.3107	
120 minute winter	Pond 3	1.009	INF-SW-13	148.4	0.901	0.433	20.8354	
120 minute winter	INF-SW-13	1.010	Outlet 1 - INF-SW-14	148.6	2.111	1.946	5.0832	
120 minute winter	Outlet 1 - INF-SW-14	1.011	Outfall_1	215.3	1.633	0.443	4.8363	3110.1
15 minute winter	SW-U1-01	14.000	SW-U1-02	85.2	0.913	0.530	1.7692	
15 minute winter	SW-U1-02	14.001	SW-U1-03	84.4	0.818	0.525	3.6499	
15 minute winter	SW-U1-03	14.002	SW-U1-04	124.0	1.241	0.772	1.3592	
600 minute winter	SW-U1-04	14.003	SW-U1-09	17.8	0.553	0.111	9.1507	
600 minute winter	U1DOCK	16.000	SW-U1-07	2.0	0.569	0.006	3.7531	
600 minute winter	SW-U1-07	16.001	SW-U1-08	1.6	0.364	0.004	2.6173	

Results for 30 year +30% CC Critical Storm Duration. Lowest mass balance: 95.15%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
600 minute winter	SW-U1-08	570	127.602	1.154	3.6	2.1895	0.0000	SURCHARGED
15 minute winter	SW-U1-06	12	128.287	1.036	145.2	4.1520	0.0000	SURCHARGED
15 minute winter	SW-U1-05	12	128.273	0.953	77.5	3.5581	0.0000	SURCHARGED
600 minute winter	SW-U1-09	585	127.602	1.408	20.7	2.4882	0.0000	SURCHARGED
600 minute winter	Pond 1	585	127.602	1.502	28.5	323.9837	0.0000	SURCHARGED
600 minute winter	INF-SW-01	585	127.602	0.702	5.3	1.9488	0.0000	SURCHARGED
600 minute winter	Outlet 2 - INF-SW-02	585	127.602	1.532	10.1	6.6653	0.0000	SURCHARGED
600 minute winter	INF-SW-03	585	126.001	0.054	4.6	0.0607	0.0000	OK
600 minute winter	INF-SW-04	585	125.967	0.051	4.6	0.0582	0.0000	OK
600 minute winter	INF-SW-05	585	125.916	0.049	7.0	0.0000	0.0000	OK
600 minute winter	INF-SW-06	585	127.602	0.952	1.0	1.4788	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
600 minute winter	SW-U1-08	16.002	SW-U1-09	3.2	0.228	0.010	4.0286	
15 minute winter	SW-U1-06	1.001	SW-U2-03	122.1	0.905	0.760	15.9549	
15 minute winter	SW-U1-05	1.000_1	SW-U1-06	66.1	0.674	0.411	4.3795	
600 minute winter	SW-U1-09	14.004	Pond 1	20.5	0.755	0.071	1.8478	
600 minute winter	Pond 1	14.005	Outlet 2 - INF-SW-02	-5.7	-0.132	-0.036	1.9048	
600 minute winter	INF-SW-01	17.000	Outlet 2 - INF-SW-02	5.0	0.595	0.065	1.2683	
600 minute winter	Outlet 2 - INF-SW-02	14.006	INF-SW-03	4.6	0.444	0.028	0.5064	
600 minute winter	INF-SW-03	14.007	INF-SW-04	4.6	0.444	0.028	0.1280	
600 minute winter	INF-SW-04	14.008	INF-SW-05	4.6	0.588	0.060	0.0799	201.6
600 minute winter	INF-SW-06	15.000	SW-U1-04	-0.5	0.035	-0.003	5.5607	

Results for 100 year +30% CC Critical Storm Duration. Lowest mass balance: 95.15%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	SW-U3-01	9	129.435	1.050	146.6	7.0634	9.6256	FLOOD
15 minute winter	SW-U3-02	10	129.093	0.848	128.4	1.8566	0.0000	SURCHARGED
30 minute winter	SW-U3-03	21	128.609	0.344	7.7	0.4778	0.0000	SURCHARGED
30 minute winter	SW-U3-04	21	128.608	0.463	127.8	0.5238	0.0000	SURCHARGED
30 minute winter	Pond 2	24	128.474	0.374	127.4	64.1236	0.0000	OK
30 minute summer	SW-U3-07	19	128.341	0.895	98.4	2.2790	0.0000	SURCHARGED
15 minute winter	SW-U3-08	12	128.327	1.307	224.4	7.3926	0.0000	SURCHARGED
30 minute winter	U3DOCK02	19	128.250	0.800	113.0	6.2848	19.6791	FLOOD
15 minute summer	SW-U3-09	12	128.351	1.677	304.0	2.9641	0.0000	SURCHARGED
30 minute summer	SW-U3-10	19	128.288	0.648	9.9	0.8368	0.0000	SURCHARGED
30 minute summer	SW-U3-11	19	128.352	1.815	306.3	6.9065	0.0000	SURCHARGED
15 minute winter	SW-U3-14	12	128.671	1.351	136.6	6.1917	0.0000	FLOOD RISK
30 minute winter	U3DOCK	18	128.250	0.800	175.7	9.0848	26.6055	FLOOD
30 minute summer	SW-U3-15	19	128.297	1.887	395.6	4.8021	0.0000	SURCHARGED
240 minute winter	SW-U3-16	140	127.017	1.497	8.3	2.3119	1.3805	FLOOD
180 minute winter	SW-U3-17	108	127.015	1.807	52.9	6.1257	59.1054	FLOOD
60 minute winter	SW-U3-18	46	127.085	2.067	121.1	4.5646	0.0000	SURCHARGED
120 minute winter	SW-U3-19	86	127.726	2.727	79.5	5.3535	0.0000	SURCHARGED
120 minute winter	SW-U3-20	86	127.726	3.085	692.7	10.3786	0.0000	SURCHARGED
120 minute winter	Unit 3 Tank	86	127.721	3.426	854.3	608.1520	0.0000	SURCHARGED
15 minute winter	SW-U3-12	10	127.993	0.128	27.4	0.2723	0.0000	OK
15 minute winter	SW-U3-13	11	127.856	0.132	27.0	0.1883	0.0000	OK
120 minute winter	SW-U3-21	86	127.716	3.459	654.4	10.3504	0.0000	SURCHARGED
120 minute winter	SW-U3-22	86	127.707	3.610	236.9	9.1863	0.0000	SURCHARGED
15 minute winter	SW-U2-03	11	128.779	1.780	243.9	6.5381	0.0000	FLOOD RISK

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	SW-U3-01	1.000	SW-U3-02	97.1	1.379	1.523	2.9568	
15 minute winter	SW-U3-02	6.001	SW-U3-04	125.0	1.776	2.123	2.4728	
30 minute winter	SW-U3-03	7.000	SW-U3-04	-6.4	0.299	-0.085	1.7908	
30 minute winter	SW-U3-04	6.002	Pond 2	127.4	1.959	1.631	0.6374	
30 minute winter	Pond 2	Hydro-Brake®	SW-U3-07	110.0				
30 minute summer	SW-U3-07	6.004	SW-U3-08	107.3	1.143	0.098	4.7741	
15 minute winter	SW-U3-08	6.005	SW-U3-09	190.0	1.078	0.555	22.1556	
30 minute winter	U3DOCK02	8.000	SW-U3-09	103.3	1.483	1.352	1.5577	
15 minute summer	SW-U3-09	6.006	SW-U3-11	303.1	0.769	0.493	23.8651	
30 minute summer	SW-U3-10	9.000	SW-U3-11	6.4	0.619	0.084	0.8942	
30 minute summer	SW-U3-11	6.007	SW-U3-15	308.8	0.702	0.502	22.4215	
15 minute winter	SW-U3-14	10.000	SW-U3-15	119.8	1.702	1.569	2.8230	
30 minute winter	U3DOCK	11.000	SW-U3-15	149.7	2.126	1.960	1.5577	
30 minute summer	SW-U3-15	Hydro-Brake®	SW-U3-20	396.9				
240 minute winter	SW-U3-16	12.000	SW-U3-17	16.6	0.543	0.217	2.3912	
180 minute winter	SW-U3-17	12.001	SW-U3-18	136.0	0.858	0.847	12.0678	
60 minute winter	SW-U3-18	Orifice	SW-U3-19	144.9				
120 minute winter	SW-U3-19	12.003	SW-U3-20	76.2	1.009	0.472	3.6333	
120 minute winter	SW-U3-20	6.009	Unit 3 Tank	425.6	1.352	0.692	6.6740	
120 minute winter	Unit 3 Tank	6.010	SW-U3-21	219.2	0.572	0.356	6.7044	
15 minute winter	SW-U3-12	13.000	SW-U3-13	27.0	0.929	0.353	0.8577	
15 minute winter	SW-U3-13	13.001	SW-U3-21	26.9	0.953	0.352	0.3200	
120 minute winter	SW-U3-21	6.011	SW-U3-22	236.9	0.543	0.236	10.6289	
120 minute winter	SW-U3-22	6.012	Outlet 1 - INF-SW-14	236.9	0.841	0.488	2.5038	
15 minute winter	SW-U2-03	1.002	SW-U2-04	208.4	1.315	1.297	6.1953	

Results for 100 year +30% CC Critical Storm Duration. Lowest mass balance: 95.15%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	SW-U2-04	11	128.590	1.689	272.2	4.3634	0.0000	SURCHARGED
15 minute winter	SW-U2-05	12	128.489	1.605	282.8	2.9650	0.0000	SURCHARGED
30 minute winter	SW-U2-07	20	128.058	1.320	269.9	1.9475	0.0000	SURCHARGED
120 minute winter	U2DOCK	112	127.900	0.950	19.0	3.3193	4.7727	FLOOD
120 minute winter	SW-U2-08	116	127.901	1.211	169.5	4.3540	0.0000	SURCHARGED
120 minute winter	SW-U2-01	116	127.902	0.672	41.3	2.6959	0.0000	SURCHARGED
120 minute winter	SW-U2-02	118	127.902	1.377	200.3	1.9707	0.0000	SURCHARGED
120 minute winter	INF-SW-07	118	127.901	0.681	29.0	2.1315	0.0000	SURCHARGED
120 minute winter	INF-SW-08	118	127.902	0.779	30.9	1.0086	0.0000	SURCHARGED
120 minute winter	INF-SW-09	118	127.900	1.832	220.6	3.2373	0.0000	SURCHARGED
120 minute winter	INF-SW-10	116	127.903	0.798	221.8	11.4071	0.0000	SURCHARGED
120 minute winter	INF-SW-11	116	127.903	1.321	446.1	15.7613	0.0000	SURCHARGED
120 minute winter	INF-SW-12	116	127.902	1.876	649.0	19.6774	0.0000	SURCHARGED
120 minute winter	Pond 3	118	127.901	2.151	859.2	1952.5420	0.0000	SURCHARGED
120 minute winter	INF-SW-13	118	127.888	2.323	166.1	5.9131	0.0000	SURCHARGED
120 minute winter	Outlet 1 - INF-SW-14	86	127.688	3.635	236.9	6.4235	0.0000	SURCHARGED
120 minute summer	Outfall_1	62	124.143	0.273	215.3	0.0000	0.0000	OK
720 minute winter	SW-U1-01	660	127.900	0.355	11.4	1.5222	0.0000	OK
720 minute winter	SW-U1-02	660	127.900	0.401	11.4	0.5741	0.0000	OK
720 minute winter	SW-U1-03	690	127.900	0.490	16.8	1.3597	0.0000	SURCHARGED
720 minute winter	SW-U1-04	690	127.900	1.358	20.0	3.1387	0.0000	SURCHARGED
720 minute winter	U1DOCK	660	127.900	0.950	2.3	2.2401	0.4770	FLOOD
720 minute winter	SW-U1-07	690	127.900	1.187	2.1	1.6988	0.0000	SURCHARGED
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	SW-U2-04	1.003	SW-U2-05	260.4	1.644	1.621	1.0823	
15 minute winter	SW-U2-05	1.004	SW-U2-07	275.1	1.737	1.713	9.2761	
30 minute winter	SW-U2-07	1.005	SW-U2-08	264.7	1.671	1.648	3.0597	
120 minute winter	U2DOCK	2.000	SW-U2-08	17.9	0.684	0.112	4.4740	
120 minute winter	SW-U2-08	1.006	SW-U2-02	162.1	1.672	0.631	4.1281	
120 minute winter	SW-U2-01	3.000	SW-U2-02	41.3	0.899	0.257	3.9216	
120 minute winter	SW-U2-02	1.007	INF-SW-09	191.5	2.256	0.412	2.3616	
120 minute winter	INF-SW-07	4.000	INF-SW-08	29.0	0.946	0.380	1.4423	
120 minute winter	INF-SW-08	4.001	INF-SW-09	31.4	1.012	0.411	1.9613	
120 minute winter	INF-SW-09	1.008	Pond 3	219.2	1.124	0.640	4.7815	
120 minute winter	INF-SW-10	5.000	INF-SW-11	221.8	1.677	0.165	19.5304	
120 minute winter	INF-SW-11	5.001	INF-SW-12	421.3	1.744	0.314	20.7689	
120 minute winter	INF-SW-12	5.002	Pond 3	641.5	2.969	0.478	10.3107	
120 minute winter	Pond 3	1.009	INF-SW-13	166.1	0.931	0.485	20.8354	
120 minute winter	INF-SW-13	1.010	Outlet 1 - INF-SW-14	166.4	2.363	2.178	5.0832	
120 minute winter	Outlet 1 - INF-SW-14	1.011	Outfall_1	215.3	1.633	0.443	4.8363	3795.1
720 minute winter	SW-U1-01	14.000	SW-U1-02	11.4	0.582	0.071	2.6295	
720 minute winter	SW-U1-02	14.001	SW-U1-03	11.4	0.505	0.071	5.4495	
720 minute winter	SW-U1-03	14.002	SW-U1-04	16.8	0.702	0.105	2.1577	
720 minute winter	SW-U1-04	14.003	SW-U1-09	19.8	0.509	0.123	9.1507	
720 minute winter	U1DOCK	16.000	SW-U1-07	2.1	0.549	0.006	3.7531	
720 minute winter	SW-U1-07	16.001	SW-U1-08	1.9	0.327	0.005	2.6173	

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Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
720 minute winter	SW-U1-08	690	127.900	1.452	4.7	2.7548	0.0000	SURCHARGED
15 minute winter	SW-U1-06	11	128.850	1.599	215.5	6.4088	10.5863	FLOOD
30 minute winter	SW-U1-05	19	128.898	1.578	81.6	5.8919	0.0000	FLOOD RISK
720 minute winter	SW-U1-09	690	127.900	1.706	24.0	3.0147	0.0000	SURCHARGED
720 minute winter	Pond 1	660	127.900	1.800	33.4	438.9722	0.0000	FLOOD RISK
720 minute winter	INF-SW-01	660	127.900	1.000	5.9	2.7752	0.0000	SURCHARGED
720 minute winter	Outlet 2 - INF-SW-02	660	127.900	1.830	11.5	7.9607	0.0000	SURCHARGED
720 minute winter	INF-SW-03	690	126.003	0.056	5.0	0.0632	0.0000	OK
720 minute winter	INF-SW-04	690	125.970	0.054	5.0	0.0607	0.0000	OK
720 minute winter	INF-SW-05	690	125.918	0.051	7.8	0.0000	0.0000	OK
720 minute winter	INF-SW-06	690	127.900	1.250	1.0	1.9414	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
720 minute winter	SW-U1-08	16.002	SW-U1-09	4.5	0.227	0.014	4.0286	
15 minute winter	SW-U1-06	1.001	SW-U2-03	134.1	0.920	0.835	15.9549	
30 minute winter	SW-U1-05	1.000_1	SW-U1-06	75.8	0.657	0.472	4.3795	
720 minute winter	SW-U1-09	14.004	Pond 1	23.8	0.755	0.082	1.8478	
720 minute winter	Pond 1	14.005	Outlet 2 - INF-SW-02	-7.0	-0.132	-0.043	1.9048	
720 minute winter	INF-SW-01	17.000	Outlet 2 - INF-SW-02	5.6	0.591	0.073	1.2683	
720 minute winter	Outlet 2 - INF-SW-02	14.006	INF-SW-03	5.0	0.455	0.031	0.5376	
720 minute winter	INF-SW-03	14.007	INF-SW-04	5.0	0.454	0.031	0.1362	
720 minute winter	INF-SW-04	14.008	INF-SW-05	5.0	0.603	0.065	0.0849	247.2
720 minute winter	INF-SW-06	15.000	SW-U1-04	-0.6	0.034	-0.003	5.5607	