Reid Jones partnership

Consulting Civil & Structural Engineers

SURFACE WATER DRAINAGE SCHEME

For

PROPOSED ECO LODGES AT EAVES HALL, MOOR LANE, WEST BRADFORD, CLITHEROE, BB7 3JG

For

EMPORIA LEISURE LTD

Project No.: 10855				
Issue Date	**Revision**	**Status**	**Issued By**	**Checked By**
06.09.2021	---	For Approval	R E Ford	S J Reid

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QMS ISO 9001 : 2015 REGISTERED QUALITY MANAGEMENT

CONTENTS

1.0 INTRODUCTION

1.1 This surface water drainage scheme has been produced on behalf of Emporia Leisure Ltd to discharge Condition 14 of the planning approval from Ribble Valley Borough Council (Reference 3/2020/0544) for the construction of 15no. eco lodges and associated infrastructure at Eaves Hall, Moor Lane, West Bradford, Clitheroe, BB7 3JG. A location plan is included within Appendix A.

1.2 Condition 14 states the following:

No development shall commence until final details of the design and implementation of an appropriate surface water drainage scheme have been submitted to and approved in writing by the local planning authority.

Those details shall include:

a) *A final surface water drainage layout plan; appropriately labelled to include all pipe / structure references, dimensions, design levels, finished floor levels and external ground levels (in AOD);*

b) *A full set of flow calculations for the surface water drainage network. The calculations must show the full network design criteria, pipeline schedules and simulation outputs for the 1 in 1 year, 1 in 30 year and 1 in 100 year return period, plus an appropriate allowance for climate change and urban creep. The calculations must demonstrate that surface water runoff from the application site will not exceed existing pre-development surface water runoff rates and volumes for the corresponding rainfall intensity.*

c) *A final site plan showing all on-site surface water catchment areas, i.e. areas that will contribute to the proposed surface water drainage network.*

d) *Confirmation of how surface water will be managed within any non-drained areas of the site, i.e. verges, gardens and public open space.*

e) *A final site plan showing all overland flow routes and flood water exceedance routes, both on and off site;*

f) *Details of any measures taken to prevent flooding and pollution of the receiving groundwater and / or surface waters, including watercourses; and*

g) *Details of how the surface water drainage network will be managed and maintained over the lifetime of the development.*

The scheme shall be implemented in accordance with the approved details prior to first occupation or completion of the development, whichever is the sooner. Thereafter the drainage system shall be retained, managed and maintained in accordance with the approved details.

1.3 This drainage scheme is to discharge Condition 14 of the planning approval. It describes the existing site conditions and proposed development. It assesses the potential impact of proposals on existing drainage and includes a proposed scheme for the provision of new drainage to serve the proposed development.

2.0 BASE INFORMATION

Existing site

2.1 The proposal relates to a piece of land within the Eaves Hall estate, approx. 150m to the north of Eaves Hall. Moor Lane lies along the site's eastern boundary. The site is approx. 1.8 hectare in size.

2.2 The majority of the land currently comprises grassland with mature trees along the line of the watercourse that lies within the site along its western boundary. A smaller watercourse lies along the eastern boundary with Moor Lane.

2.3 Access to the site is from Moor Lane through a gate at its south-eastern corner via a compacted gravel track that loops round towards Eaves Hall to the south.

2.4 The site falls towards the south, a level of approx. 134.5m AOD along its northern boundary and a level approx. 121.3m AOD along its southern boundary.

Site geology

2.5 The online Soilscapes Viewer has identified the site lying in a region characterised by slowly permeable seasonally wet acid loamy and clayey soils with impeded drainage that are not conducive to infiltration techniques.

2.6 The Flood Risk Assessment and Outline Drainage Strategy accompanying the planning application stated that infiltration methods such as soakaways are unlikely to be feasible on the account of deep deposits of silty clay and boulder clay expected below the site.

Understanding of existing drainage local to the site

2.7 The site is drained by the watercourses that lie along the site's western and eastern boundaries.

2.8 The watercourse within the western site boundary is Greg Sike, flowing southeast, discharging into the River Ribble over 1.4km away. The watercourse running adjacent to Moor Lane along the eastern boundary of the site flows towards West Bradford Brook to the east and ultimately the River Ribble.

2.9 United Utilities sewer records identify a public combined sewer running south eastwards along the line of the public right of way that lies within the land immediately to the east of Moor Lane opposite the site. The sewer enters Moor

Lane at the site's south eastern corner and continues to run to the southeast along Moor Lane. The sewer records are included within Appendix B.

Proposed development

2.10 The proposal is for a small-scale tourism development of 15 self-catering eco-lodges on the site to provide additional accommodation for Eaves Hall.

2.11 Pedestrian access will be via gravel pathways and a car park on the south side will provide 20 parking spaces including two disabled spaces.

3.0 PROPOSED SURFACE WATER DRAINAGE SCHEME

3.1 The proposed surface water drainage layout is included within Appendix C.

3.2 In accordance with the National Standards for Sustainable Drainage, the drainage scheme should incorporate the use of Sustainable Drainage (SUDS) where possible. The approach promotes the use infiltration features in the first instance. If drainage cannot be achieved solely through infiltration due to site conditions or contamination risks, the preferred options are (in order of preference):

(i) a controlled discharge to a local waterbody or watercourse, or

(ii) a controlled discharge into the public sewer network (depending on availability and capacity).

3.3 The rate and volume of discharge should strive to provide betterment and be restricted to the pre-development values as far as practicable.

3.4 The site has been identified as lying in a region characterised by slowly permeable seasonally wet acid loamy and clayey soils with impeded drainage that are not conducive to infiltration techniques due to the deep deposits of silty clay and boulder clay expected below the site.

3.5 The watercourse Greg Sike lies within the western site boundary and flows southeast to discharge into the River Ribble over 1.4km away.

3.6 The majority of the site comprises grassland and has a fall to the south. The layout of the site locates the eco-lodges to the north of the site access and car parking area that lie adjacent to the site's southern boundary.

3.7 At the completion of the development the area of the site where the lodges are located will remain grassland as the lodges will be sited over the existing ground, pedestrian access to the lodges will be via gravel pathways and no positive surface water drainage will be provided within the area of the site where the lodges are to be sited, enabling rainwater falling onto the lodges and pathways to runoff to adjacent ground. There will be an element of infiltration into the ground and water will be held up by the grass and landscaped areas.

3.8 Swale basins have been incorporated into the site design and are located within the areas of grassland in between the lodges to intercept and store any surface

water runoff from this area of the development site that does not infiltrate or evaporate, prior to entering the watercourses. The surface water runoff from this area of the site will therefore behave as it currently does, mimicking the natural drainage patterns, and the surface water runoff regime of the site will not be altered.

3.9 Surface water runoff from the access road and car parking area will be collected by a combination of French drains and swales and be controlled to 5 l/s prior to a discharge being made into the Greg Sike watercourse via a swale that is to run along the western part of the site's southern boundary. A maximum of 87m^3 of storage will be required to cater for the 100 year storm event plus 40% added for climate change and is contained within the swale. The swales will provide water treatment.

3.10 A surface water drainage design has been carried out for the 100 year critical rain storm plus 40% on stored volumes. The design is included within Appendix D.

4.0 MANAGEMENT AND MAINTENANCE PLAN

4.1 The maintenance responsibilities for the various drainage features of the scheme will be with the site operator.

4.2 The table below lists the various drainage features utilised within the proposed drainage design along with the maintenance regime that should be followed.

SURFACE WATER DRAINAGE FOR THE ACCESS ROAD AND CAR PARKING AREA	
Regular maintenance	**Frequency**
Manhole covers are securely in place. Specialist operatives with current confined spaces training to lift covers and visually inspect manholes to ensure they are kept clear of leaves, debris, silt, etc. Check drainage pipes are operating as expected.	Annually or when notified.
Occasional tasks	**Frequency**
Specialist operatives with current confined spaces training to remove debris and silt from the manholes to ensure outlets are kept clear of debris to ensure adequate drainage.	As required from regular maintenance inspection to trigger works.
Remedial work	**Frequency**
The specialist operatives are to advise the management company of any repair works necessary to the manholes. Drains heavily blocked or damaged to be jetted / repaired.	As required from regular maintenance inspection to trigger works.
WATERCOURSE / SWALES	
Regular maintenance	**Frequency**
Visually inspect watercourse and swales to ensure they are kept reasonably clear of leaves and debris etc. at surface. Inspection of inlet and outlet structures.	Annually. No triggers other than maintenance to be taken on regular schedule.
Cutting of vegetation along length of open watercourse sections and swales so that the watercourse and swales don't become overgrown.	Frequency varies, vegetation will require cutting more often in summer / spring months than autumn / winter months. To be cut as required. No triggers other than maintenance to be taken on regular schedule.
Remedial work	**Frequency**
Maintenance of watercourse and swales profile should scour or erosion or build-up of silt occur. Repair of inlets and outlets.	As required. Indicator of problem / trigger for maintenance when significant watercourse or swale scour and erosion or build-up of silt has occurred.

5.0 SUMMARY AND CONCLUSIONS

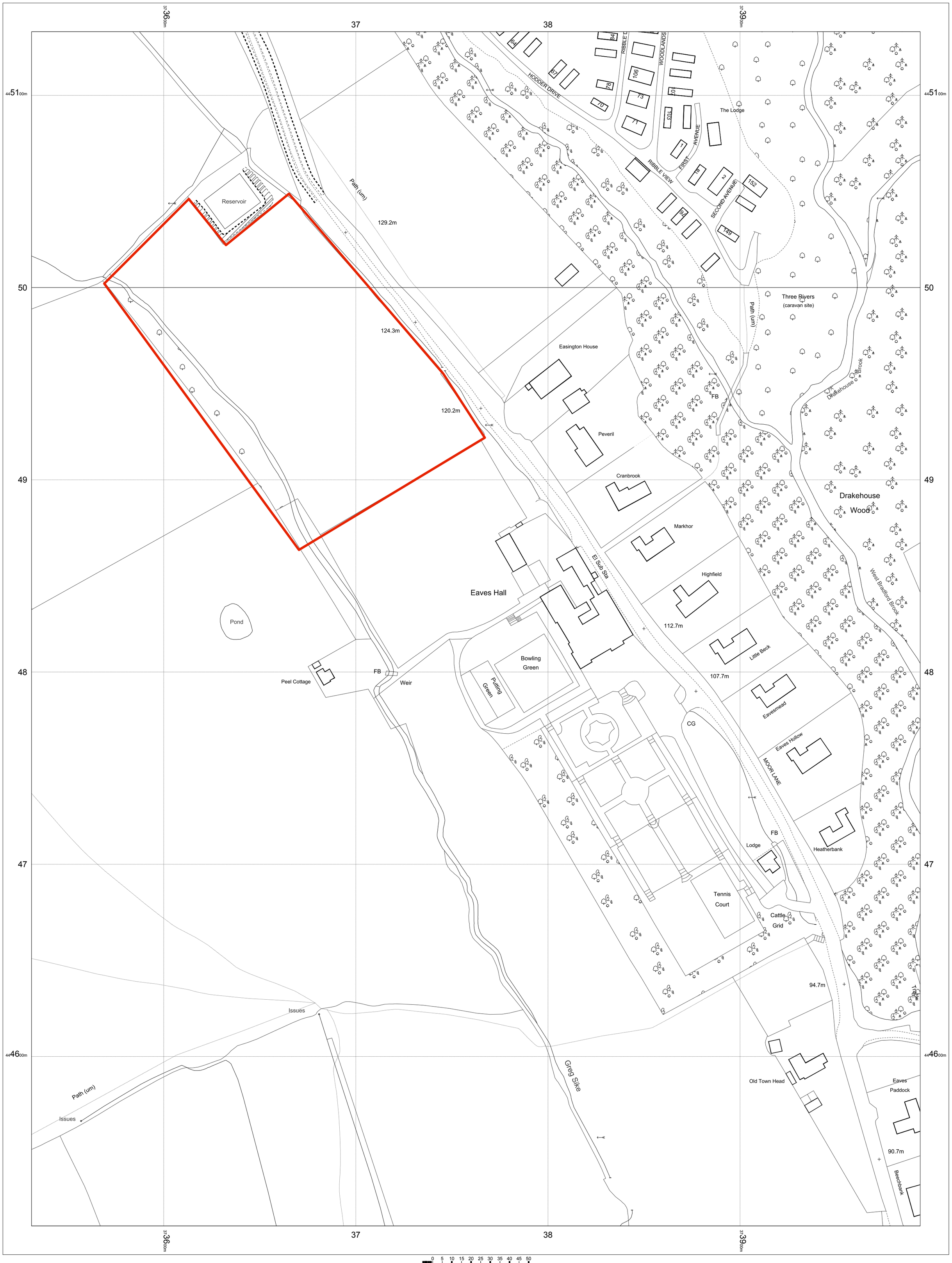
5.1 This surface water drainage scheme has been produced on behalf of Emporia Leisure Ltd to discharge Condition 14 of the planning approval from Ribble Valley Borough Council (Reference 3/2020/0544) for the construction of 15no. eco lodges and associated infrastructure at Eaves Hall, Moor Lane, West Bradford, Clitheroe, BB7 3JG.

5.2 Surface water runoff from the lodges and pathways will runoff to the adjacent ground. Swale basins have been incorporated into the site design and are located within the areas of grassland in between the lodges to intercept and store any surface water runoff from this area of the development site that does not infiltrate or evaporate, prior to entering the watercourses. The surface water runoff from this area of the site will therefore behave as it currently does, mimicking the natural drainage patterns, and the surface water runoff regime of the site will not be altered.

5.3 Surface water runoff from the access road and car parking area will be collected by a combination of French drains and swales and be controlled to 5 l/s prior to a discharge being made into the Greg Sike watercourse via a swale that is to run along the western part of the site's southern boundary.

APPENDIX A

LOCATION PLAN



Eaves Hall
Eaves Hall Lane
Clitheroe
Lancashire
BB7 3JG

OS Mastermap
28 November 2012, ID: MDP-00192997
www.mapdataportal.co.uk

1:1250 scale print at A2, Centre: 373762 E, 444823 N

N

Mapping sourced from Ordnance Survey

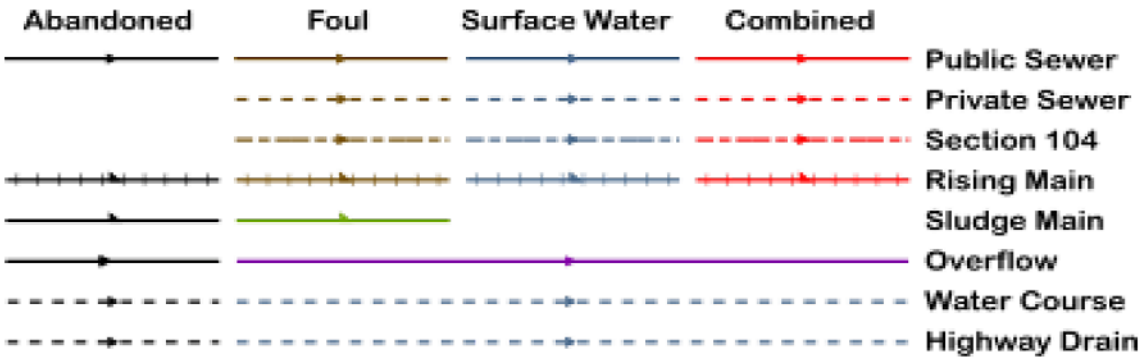
Maps @ Malcolm Hughes Ltd
Tel: 0161 926 0650

APPENDIX B

UNITED UTILITIES SEWER RECORDS

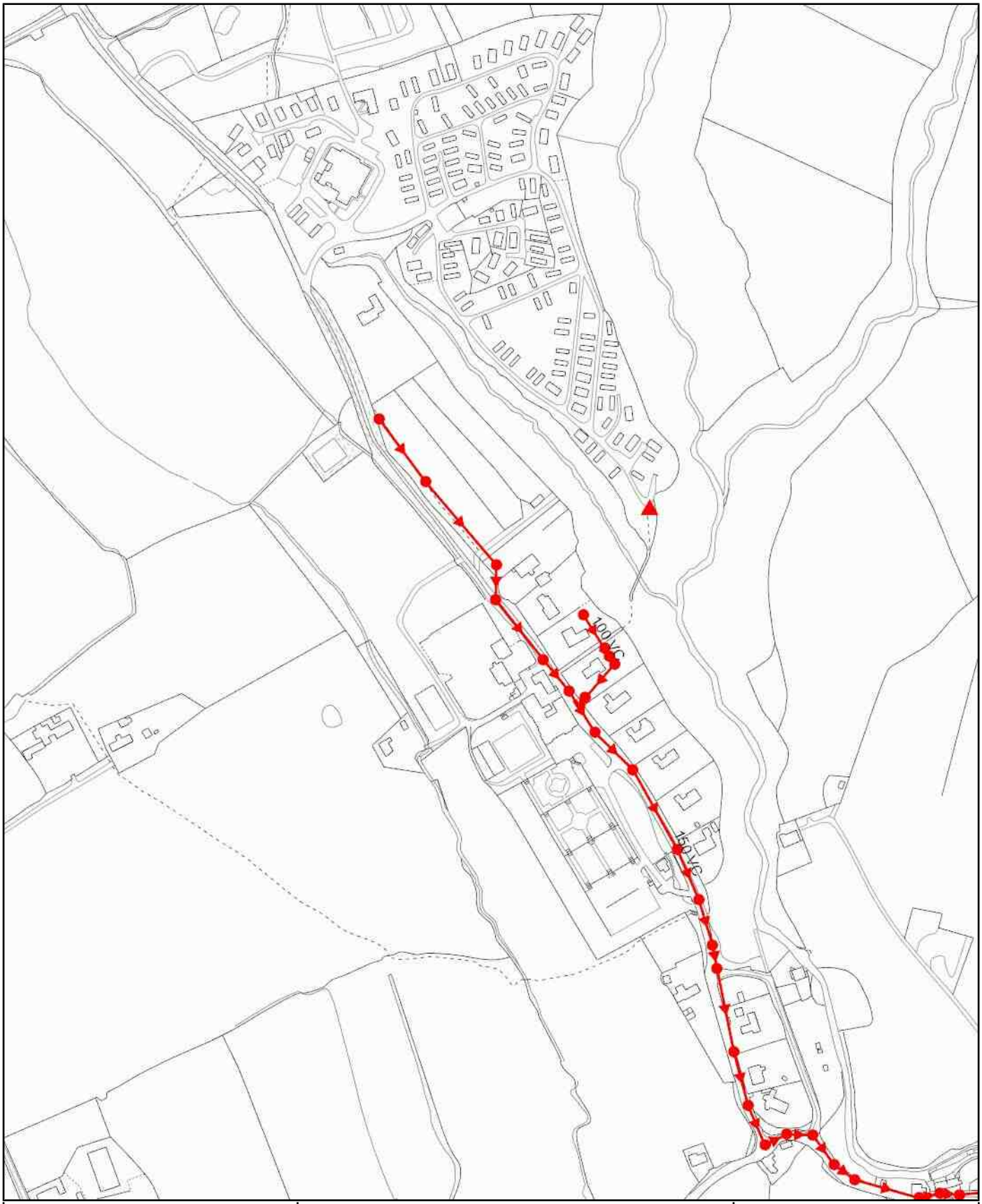
United Utilities
Water for the North West

Wastewater Symbology



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

- Manhole
- HS Head of System
- ES Extent of Survey
- RE Rodding Eye
- IN Inlet
- DP Discharge Point
- HY Vortex
- PE Penstock
- WO Washout Chamber
- VA Valve
- AV Air Valve
- NRV Non Return Valve
- SO Soakaway
- GU Gully
- CA Cascade
- FM Flow Meter
- HA Hatch Box
- OI Oil Interceptor
- SM Summit
- DS Drop Shaft
- OP Orifice Plate
- Side Entry Manhole
- Outfall
- Screen Chamber
- IC Inspection Chamber
- Bifurcation Chamber
- LH Lamp Hole
- T Junction / Saddle
- CA Catchpit
- VC Valve Chamber
- Vent Column
- Vortex Chamber
- Penstock Chamber
- T Network Storage Tank
- V Sewer Overflow
- WwTW Ww Treatment Works
- Ww Pumping Station
- ST Septic Tank
- CK Control Kiosk
- Change of Characteristic



Scale:	1:4432
Date:	07/10/2020

SEWER RECORDS

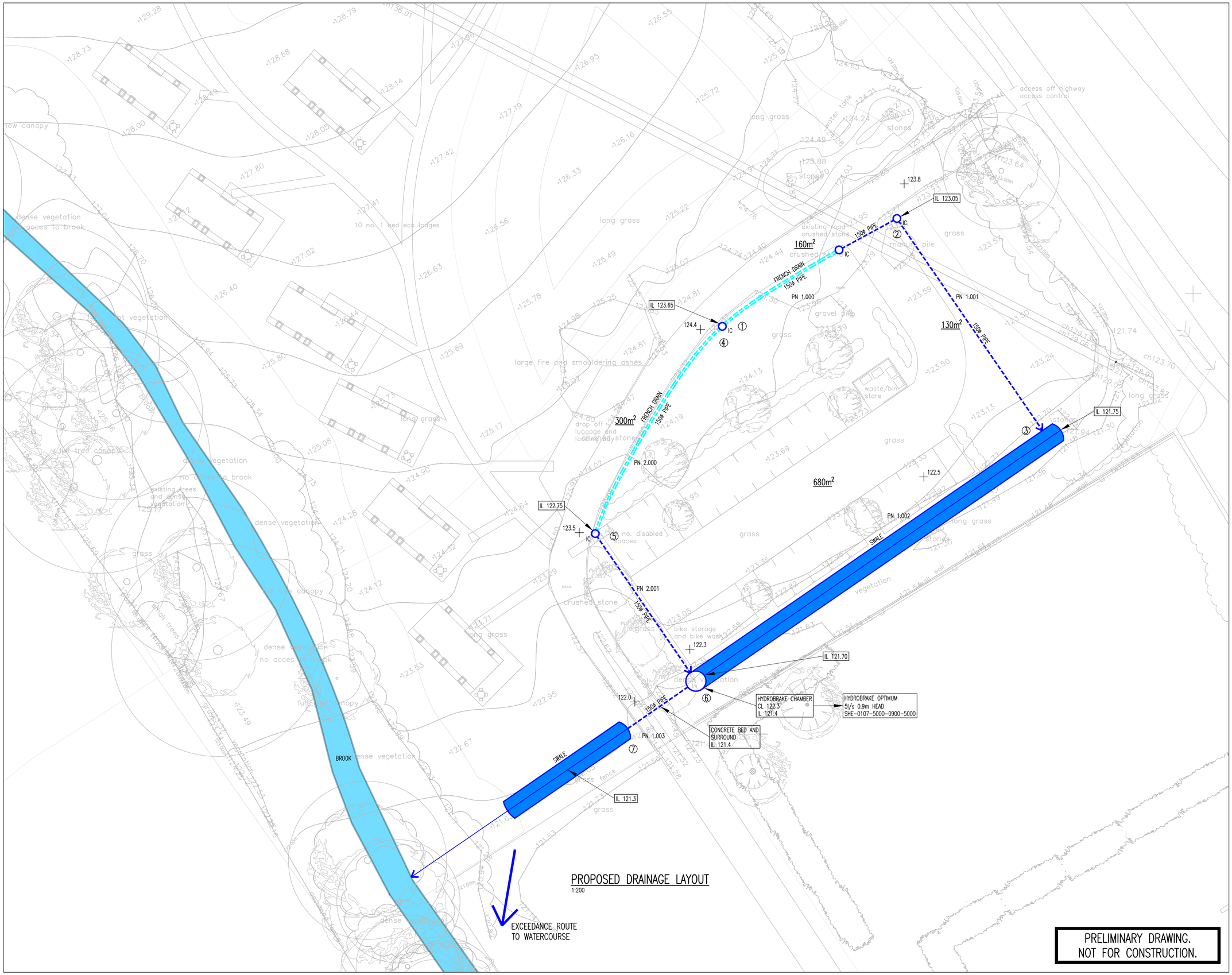
United Utilities
Water for the North West

Address or Site Reference: EAVES HALL EAVES HALL LANE, WEST BRADFORD, CLITHEROE, BB7 3JG

Printed by: Property Searches

APPENDIX C

PROPOSED SURFACE WATER DRAINAGE LAYOUT AND DETAILS



LEGEND

- PROPOSED SURFACE WATER DRAIN
- PROPOSED PERFORATED PIPE FRENCH DRAIN
- IC — PROPOSED INSPECTION CHAMBER

Rev	Details	Drawn By	Chk/App By	Date
P1	ISSUED FOR INFORMATION	LR	RF	06.09.21

Client:
EMPORIA LEISURE LTD

Project:
EAVES HALL
ECO PODS

Title:
PROPOSED
DRAINAGE LAYOUT
SHEET 2 OF 2

Issued For:
PRELIMINARY

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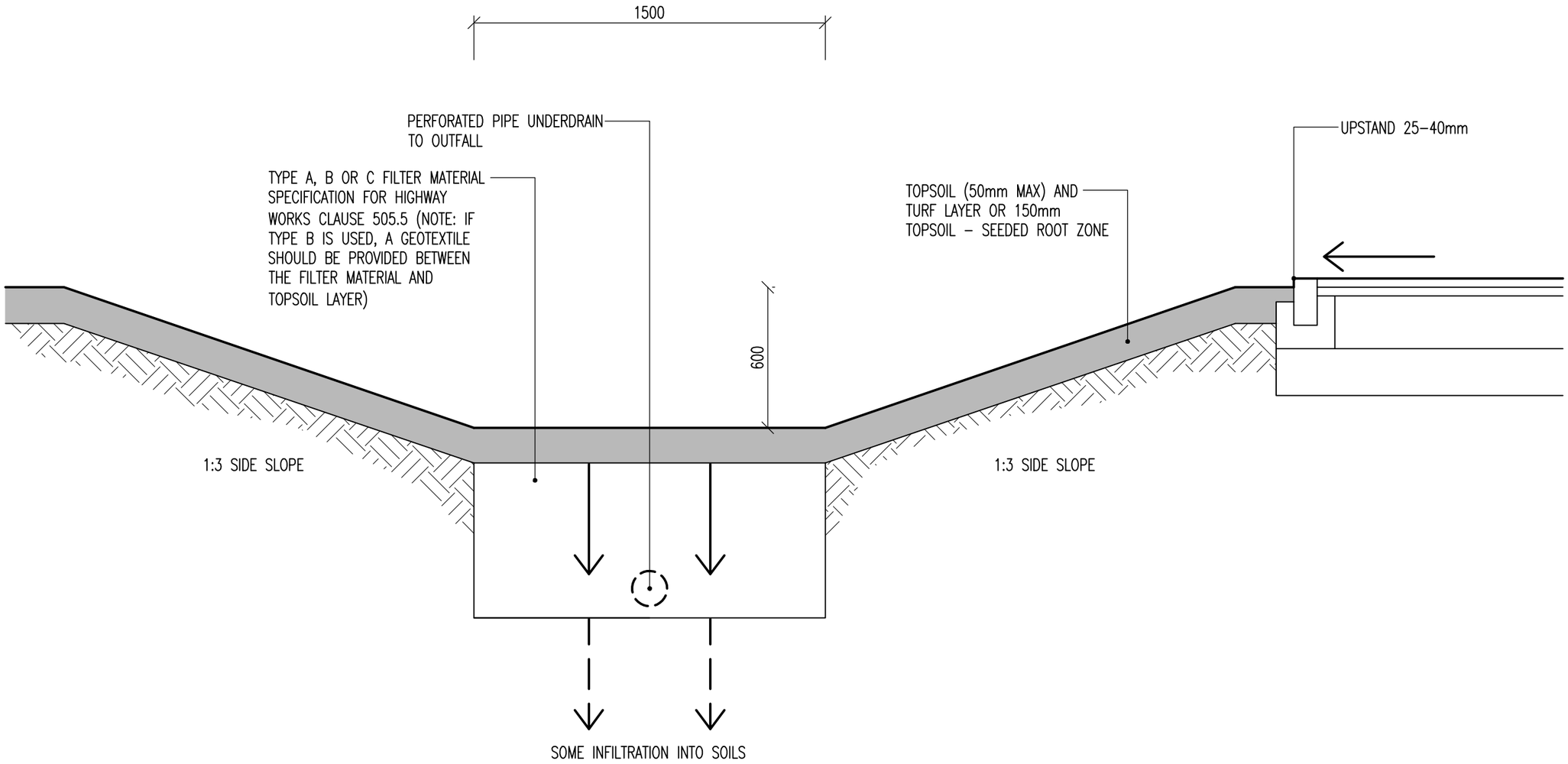
Scale: AS INDICATED @ (A1)

Project No:	Drawing No:	Issue:
10855	102	P1



SWALE DETAIL

1:20

PRELIMINARY DRAWING.
NOT FOR CONSTRUCTION.

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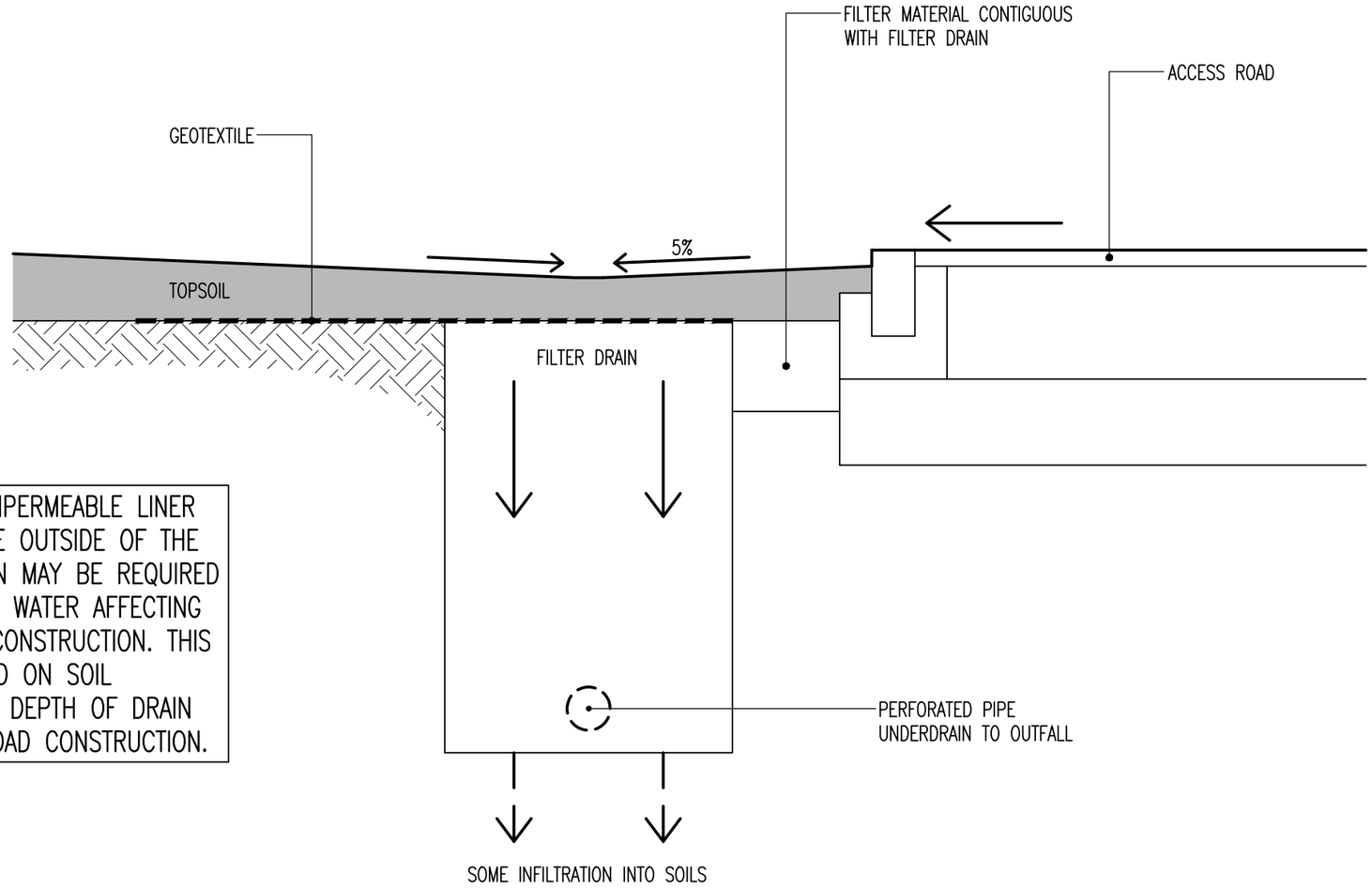
Client:	Project:	Title:
EMPORIA LEISURE LTD	EAVES HALL ECO PODS	SWALE DETAIL

Rev	Details	Drawn By	Ckd/App By	Date
P1	ISSUED FOR INFORMATION	LR	RF	06.09.21

Issued For: PRELIMINARY

Scale: AS INDICATED @ A3

Project No:	Drawing No:	Issue:
10855	103	P1



NOTE: AN IMPERMEABLE LINER AROUND THE OUTSIDE OF THE FILTER DRAIN MAY BE REQUIRED TO PREVENT WATER AFFECTING THE ROAD CONSTRUCTION. THIS WILL DEPEND ON SOIL CONDITIONS, DEPTH OF DRAIN AND THE ROAD CONSTRUCTION.

FILTER DRAIN DETAILS – COMBINED SURFACE WATER AND GROUNDWATER DRAINAGE

1:20

PRELIMINARY DRAWING. NOT FOR CONSTRUCTION.

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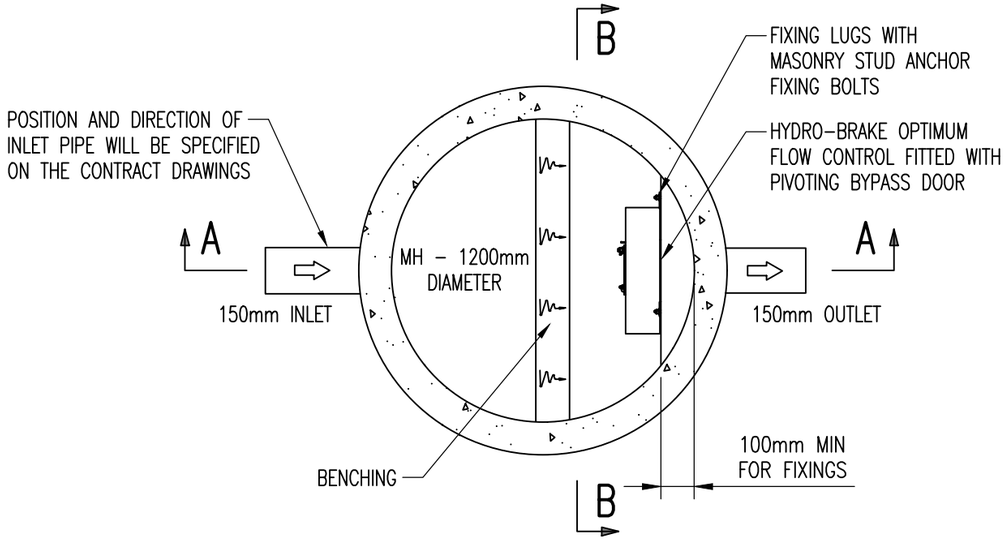
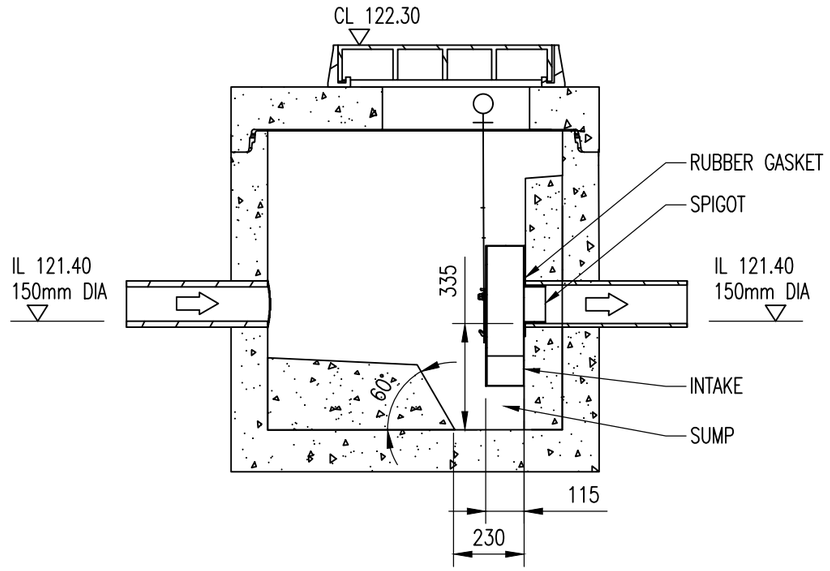
Client: EMPORIA LEISURE LTD	Project: EAVES HALL ECO PODS	Title: FILTER DRAIN DETAILS COMBINED SURFACE WATER AND GROUNDWATER DRAINAGE	P1	ISSUED FOR INFORMATION	LR	RF	06.09.21	Issued For: PRELIMINARY	
			Rev	Details	Drawn By	Ckd/App By	Date	Scale: AS INDICATED @ A3	
								Project No: 10855	Drawing No: 104 / Issue: P1



HYDROBRAKE DETAIL ON PLAN

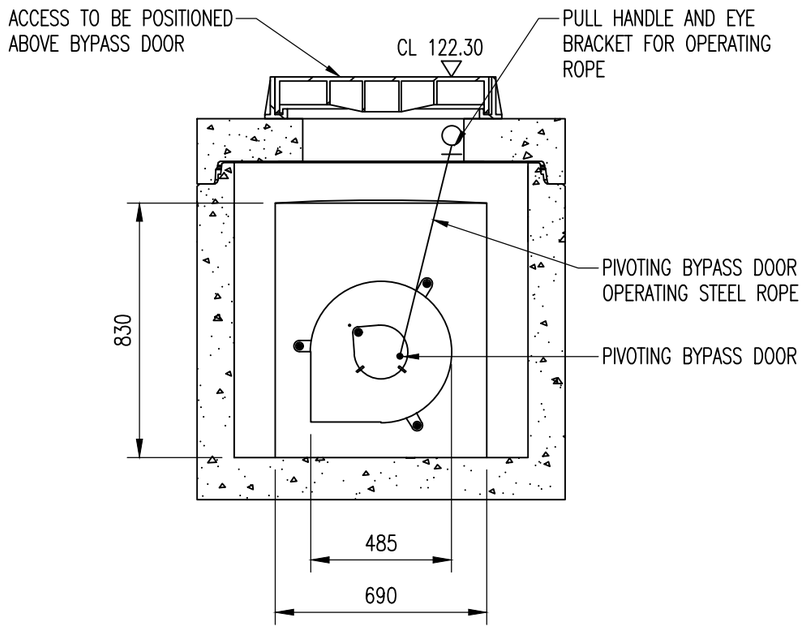
1:20

HYDROBRAKE OPTIMUM
SHE–0107–5000–0900–5000



SECTION A–A

1:20



SECTION B–B

1:20

PRELIMINARY DRAWING.
NOT FOR CONSTRUCTION.

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Client: EMPORIA LEISURE LTD

Project: EAVES HALL ECO PODS

Title: HYDROBRAKE DETAIL

Rev	Details	Drawn By	Ckd/App By	Date
P1	ISSUED FOR INFORMATION	LR	RF	06.09.21

Issued For: PRELIMINARY

Scale: AS INDICATED @ A3

Project No:	Drawing No:	Issue:
10855	105	P1

APPENDIX D

SURFACE WATER DRAINAGE DESIGN

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	2	Maximum Rainfall (mm/hr)	75.0
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00
FSR Region	England and Wales	Connection Type	Level Soffits
M5-60 (mm)	19.900	Minimum Backdrop Height (m)	0.200
Ratio-R	0.250	Preferred Cover Depth (m)	0.450
CV	0.750	Include Intermediate Ground	✓
Time of Entry (mins)	5.00	Enforce best practice design rules	✓

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Depth (m)
1	0.016	5.00	124.400	1200	0.750
2			123.800	1200	0.750
3	0.047	5.00	122.500		0.750
4	0.030	5.00	124.400	1200	0.750
5			123.500	1200	0.750
6	0.034	5.00	122.300		0.900
7			122.000	1200	0.700

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	1	2	30.000	0.600	123.650	123.050	0.600	50.0	150	5.35	53.6
1.001	2	3	30.000	0.600	123.050	121.750	1.300	23.1	150	5.59	52.7
1.002	3	6	50.000	0.320	121.750	121.700	0.050	1000.0	600	21.83	28.2
2.000	4	5	30.000	0.600	123.650	122.750	0.900	33.3	150	5.29	53.8
2.001	5	6	20.000	0.600	122.750	121.400	1.350	14.8	150	5.41	53.3
1.003	6	7	10.000	0.320	121.400	121.300	0.100	100.0	150	26.59	25.4

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)
1.000	1.426	25.2	2.3	0.600	0.600	0.016	0.0
1.001	2.105	37.2	2.3	0.600	0.600	0.016	0.0
1.002	0.051	101.6	4.8	0.150	0.000	0.063	0.0
2.000	1.749	30.9	4.4	0.600	0.600	0.030	0.0
2.001	2.630	46.5	4.3	0.600	0.750	0.030	0.0
1.003	0.035	0.6	8.8	0.750	0.550	0.127	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	30.000	50.0	150	Circular	124.400	123.650	0.600	123.800	123.050	0.600
1.001	30.000	23.1	150	Circular	123.800	123.050	0.600	122.500	121.750	0.600
1.002	50.000	1000.0	600	swale	122.500	121.750	0.150	122.300	121.700	0.000
2.000	30.000	33.3	150	Circular	124.400	123.650	0.600	123.500	122.750	0.600
2.001	20.000	14.8	150	Circular	123.500	122.750	0.600	122.300	121.400	0.750
1.003	10.000	100.0	150	Circular	122.300	121.400	0.750	122.000	121.300	0.550

Link
1.000
1.001
1.002
2.000
2.001
1.003

Simulation Settings

Rainfall Methodology	FSR	Analysis Speed	Normal
FSR Region	England and Wales	Skip Steady State	x
M5-60 (mm)	19.900	Drain Down Time (mins)	240
Ratio-R	0.250	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	0	0	0
100	0	0	0
100	40	0	0

Node 6 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	121.400	Product Number	CTL-SHE-0107-5000-0900-5000
Design Depth (m)	0.900	Min Outlet Diameter (m)	0.150
Design Flow (l/s)	5.0	Min Node Diameter (mm)	1200

Node 2 Link Surround Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Link	1.000
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	123.050	Surround Shape	(Trench)
Safety Factor	2.0	Time to half empty (mins)	0	Diameter (mm)	600

Node 5 Link Surround Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Link	2.000
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	122.750	Surround Shape	(Trench)
Safety Factor	2.0	Time to half empty (mins)	0	Diameter (mm)	600

Results for 1 year Critical Storm Duration. Lowest mass balance: 98.15%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	1	10	123.679	0.029	1.9	0.0449	0.0000	OK
15 minute winter	2	11	123.073	0.023	1.8	0.0279	0.0000	OK
360 minute winter	3	264	121.869	0.119	1.7	0.1495	0.0000	OK
15 minute winter	4	10	123.686	0.036	3.6	0.0699	0.0000	OK
15 minute winter	5	11	122.778	0.028	3.5	0.0336	0.0000	OK
360 minute winter	6	264	121.869	0.469	2.8	0.3546	0.0000	SURCHARGED
360 minute winter	7	264	121.328	0.028	1.0	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	1	1.000	2	1.8	0.920	0.073	0.0604	
15 minute winter	2	1.001	3	1.9	1.222	0.050	0.1001	
360 minute winter	3	1.002	6	1.3	0.013	0.012	14.0216	
15 minute winter	4	2.000	5	3.5	1.289	0.114	0.0826	
15 minute winter	5	2.001	6	3.5	0.293	0.076	0.1986	
360 minute winter	6	1.003	7	1.0	0.085	1.653	0.0996	28.4

Results for 30 year Critical Storm Duration. Lowest mass balance: 98.15%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	1	10	123.696	0.046	4.7	0.0716	0.0000	OK
15 minute winter	2	11	123.086	0.036	4.6	0.0450	0.0000	OK
480 minute winter	3	384	122.049	0.299	3.0	0.3748	0.0000	OK
15 minute winter	4	10	123.708	0.058	8.8	0.1119	0.0000	OK
15 minute winter	5	10	122.794	0.044	8.7	0.0543	0.0000	OK
480 minute winter	6	384	122.049	0.649	3.6	0.4907	0.0000	FLOOD RISK
480 minute winter	7	384	121.331	0.031	1.2	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	1	1.000	2	4.6	1.200	0.183	0.1158	
15 minute winter	2	1.001	3	4.6	1.305	0.123	0.2583	
480 minute winter	3	1.002	6	1.2	0.013	0.012	40.1613	
15 minute winter	4	2.000	5	8.7	1.652	0.281	0.1581	
15 minute winter	5	2.001	6	8.6	0.656	0.185	0.2187	
480 minute winter	6	1.003	7	1.2	0.099	1.957	0.1011	43.3

Results for 100 year Critical Storm Duration. Lowest mass balance: 98.15%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	1	10	123.703	0.053	6.1	0.0822	0.0000	OK
15 minute winter	2	11	123.091	0.040	6.0	0.0520	0.0000	OK
480 minute winter	3	448	122.132	0.382	3.8	0.4782	0.0000	OK
15 minute winter	4	10	123.717	0.067	11.4	0.1294	0.0000	OK
15 minute winter	5	10	122.800	0.050	11.2	0.0628	0.0000	OK
480 minute winter	6	448	122.132	0.732	4.5	0.5531	0.0000	FLOOD RISK
480 minute winter	7	448	121.332	0.032	1.3	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	1	1.000	2	6.0	1.289	0.238	0.1400	
15 minute winter	2	1.001	3	5.9	1.332	0.159	0.3043	
480 minute winter	3	1.002	6	1.1	0.013	0.011	55.3948	
15 minute winter	4	2.000	5	11.2	1.768	0.364	0.1913	
15 minute winter	5	2.001	6	11.1	0.822	0.239	0.2275	
480 minute winter	6	1.003	7	1.3	0.105	2.086	0.1017	46.9

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 98.15%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	1	10	123.713	0.063	8.5	0.0988	0.0000	OK
15 minute winter	2	11	123.098	0.048	8.4	0.0630	0.0000	OK
600 minute winter	3	570	122.276	0.526	4.4	0.6595	0.0000	OK
15 minute winter	4	10	123.732	0.082	15.9	0.1580	0.0000	OK
15 minute winter	5	10	122.810	0.060	15.7	0.0765	0.0000	OK
600 minute winter	6	570	122.276	0.876	5.2	0.6625	0.0000	FLOOD RISK
600 minute winter	7	570	121.334	0.034	1.4	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	1	1.000	2	8.4	1.408	0.333	0.1790	
15 minute winter	2	1.001	3	8.3	1.377	0.222	0.3370	
600 minute winter	3	1.002	6	0.9	0.012	0.009	87.0399	
15 minute winter	4	2.000	5	15.7	1.919	0.508	0.2457	
15 minute winter	5	2.001	6	15.6	1.098	0.335	0.2416	
600 minute winter	6	1.003	7	1.4	0.115	2.300	0.1028	59.6