DRAINAGE STRATEGY

INCORPORATING AN ASSESSMENT OF FLOOD RISK

for

Mr BEN LEE

PROPOSED RESIDENTIAL DEVELOPMENT

on

LAND TO THE REAR OF THE DOG INN

MARKET PLACE, LONGRIDGE, PR3 3RR

JANUARY 2021

REFORD

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CONTENTS

1. INTRODUCTION

1.1 This surface water and foul water drainage strategy, incorporating an assessment of flood risk, has been produced on behalf of Mr Ben Lee in support of a planning application for a proposed development comprising eight residential dwellings on land to the rear of the Dog Inn, Market Place, Longridge, PR3 3RR. A location plan is included within Appendix A.

1.2 This report describes the existing site conditions and proposed development. It assesses the potential impact of proposals on existing sewers and includes a proposed strategy for the provision of new drainage to serve the proposed development.

2. BASE INFORMATION

Existing site

2.1 The site is located in the centre of the town of Longridge off Market Place. The site lies to the rear of The Dog Inn public house and is accessed via a lane to the north east side of the pub which also serves the customer carpark.

2.2 The site size has been measured as 0.37ha.

2.3 The site is currently vacant, being made up of an area of shrub and brownfield land.

2.4 The site falls in a south easterly direction, with the access point off Market Place being at a higher level than the south eastern elements of the site, and the area of the site where the proposed dwellings are proposed is a level area approx. 8m below the level of Market Street.

Proposed development

2.5 The proposed development will comprise eight residential dwellings. The masterplan is shown on the drawing accompanying the planning application.

Site geology

2.6 The online Soilscapes Viewer has identified the site lying in a region characterised by the following two types of soils:

- Freely draining slightly acid loamy soils
- Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils with impeded drainage.

2.7 Initial infiltration testing has been carried out at two locations within the area of the site where the development is proposed. One test was carried out in each of the locations and a permeability rate of 2.438×10^{-5} m/s and 3.881×10^{-5} has been calculated.

Understanding of existing drainage within and local to the site

2.8 United Utilities sewer records identify a 225mm diameter public sewer crossing the site in a northeast to southwest direction. The line of the sewer where it crosses the site is clearly identified as existing manholes lie within the development site boundary.

2.9 The sewer records also identify a possible watercourse in culvert that lies approx. 70m to the northwest of the development site and flows in a south westerly direction along the rear of the properties that lie along King Street, the southern end of Dixon Road to cross Berry Lane and along Brewery Street.

2.10 The sewer records are included within Appendix B.

2.11 The existing Dog Inn public house has an existing private drainage system which connects to the public sewer network.

Flood risk

2.12 The flood map for planning identifies the site lying within Flood Zone 1, the lowest risk.

2.13 The Long Term Flood Risk map on the GOV.uk website shows the site is at a very low risk of surface water flooding. A very low risk means that each year, this area has a chance of flooding of less than 1 in 1000 (0.1%).

2.14 There are no canals or artificial sources local to the development site.

2.15 A 225mm diameter public foul sewer crosses the site in a northeast to southwest direction.

2.16 The Environment Agency risk of flooding from reservoirs map identifies the site is not at risk.

2.17 The Environment Agency does not consider groundwater flooding to be a significant flood risk factor in the Ribble Valley area.

2.18 Surface water runoff from the development will be controlled such there will be no change to the flood risk upstream or downstream of this location.

3. PROPOSED DRAINAGE STRATEGY

3.1 The proposed drainage layout is included within Appendix C.

Surface Water Drainage

3.2 In accordance with the National Standards for Sustainable Drainage, the drainage strategy 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 be restricted to the pre-development values as far as practicable.

Surface water drainage discharges from the developed site

3.4 The online Soilscapes Viewer has identified the site lying in a region characterised by the following two types of soils:

- Freely draining slightly acid loamy soils
- Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils with impeded drainage.

3.5 Initial infiltration testing has been carried out at two locations within the area of the site where a soakaway is proposed. One test was carried out in each of the locations and a permeability rate of 2.438×10^{-5} m/s and 3.881×10^{-5} has been calculated.

3.6 It is therefore intended that surface water runoff from the proposed residential roofs and accessway will discharge to a soakaway located within the site. As three tests were not carried out, based upon previous experience the infiltration rate to be used within the design of the soakaway should be halved. Using the most conservative rate of

2.438 x 10^{-5} m/s, a permeability rate of 1.219 x 10^{-5} m/s (0.0439 m/hr) has been used within the calculation.

3.7 Surface water will be managed within the non-drained areas of the site, i.e. the gardens, footpaths, etc. by allowing water to infiltrate into the upper strata and be stored where it will be either taken up by plants or evaporated. There may, potentially, be periods where the upper strata may become saturated and surface ponding may occur but this will be shallow in depth and will disappear over a short period of time.

3.8 The soakaway has been designed to take surface water runoff generated by all rainfall events up to the 100 year critical rain storm plus 30%. The additional 30% is to allow for climate change.

3.9 A surface water drainage design has been carried out for the proposed development using a total area of roofs and hardstandings of 1,800m^2.

3.10 The design demonstrates that a soakaway of size 6m x 19m x 1.2m deep will be adequate to drain the surface water runoff from the building roof for storm events up to a 1 in 100 year return period with an additional 30% added to rainfall intensities to allow for climate change. The surface water drainage design is included within Appendix D.

3.11 The size of the soakaway has been increased by an additional 5% to 6m x 20m x 1.2m deep to take account of the possible loss of volume over its lifetime.

3.12 The soakaway is to comprise storage crates and is to be located a distance of at least 5m from the building and 2.5m from boundaries. Crates are to be installed in accordance with manufacturer's instructions.

3.13 Further infiltration testing is to be carried out prior to the detailed design of the surface water drainage to confirm that a soakaway solution is viable. If infiltration rates are proved not to be suitable then alternative methods of discharge of surface water from the developed site are to be investigated.

3.14 The sewer records identify a possible watercourse in culvert that lies approx. 70m to the northwest of the development site and flows in a south westerly direction along the rear of the properties that lie along King Street, the southern end of Dixon Road to cross Berry Lane and along Brewery Street. The development site lies approx. 8m below Berry Lane where the culverted watercourse crosses and therefore it is not possible for a connection to be made.

3.15 The existing Dog Inn public house has an existing drainage system which connects to the public sewer network. As such it would be intended that an attenuated surface water discharge would be made into the public sewer crossing the site if a soakaway is not possible.

Foul Water Drainage

3.16 United Utilities sewer records identify a 225mm diameter public sewer crossing the site in a northeast to southwest direction. The line of the sewer where it crosses the site is clearly identified as existing manholes lie within the development site boundary.

3.17 It is therefore intended that foul water from the proposed development will be collected by a piped system and discharged into the public sewer that crosses the development site.

4. SUMMARY AND CONCLUSIONS

4.1 This surface water and foul water drainage strategy, incorporating an assessment of flood risk, has been produced on behalf of Mr Ben Lee in support of a planning application for a proposed development comprising eight residential dwellings on land to the rear of the Dog Inn, Market Place, Longridge, PR3 3RR.

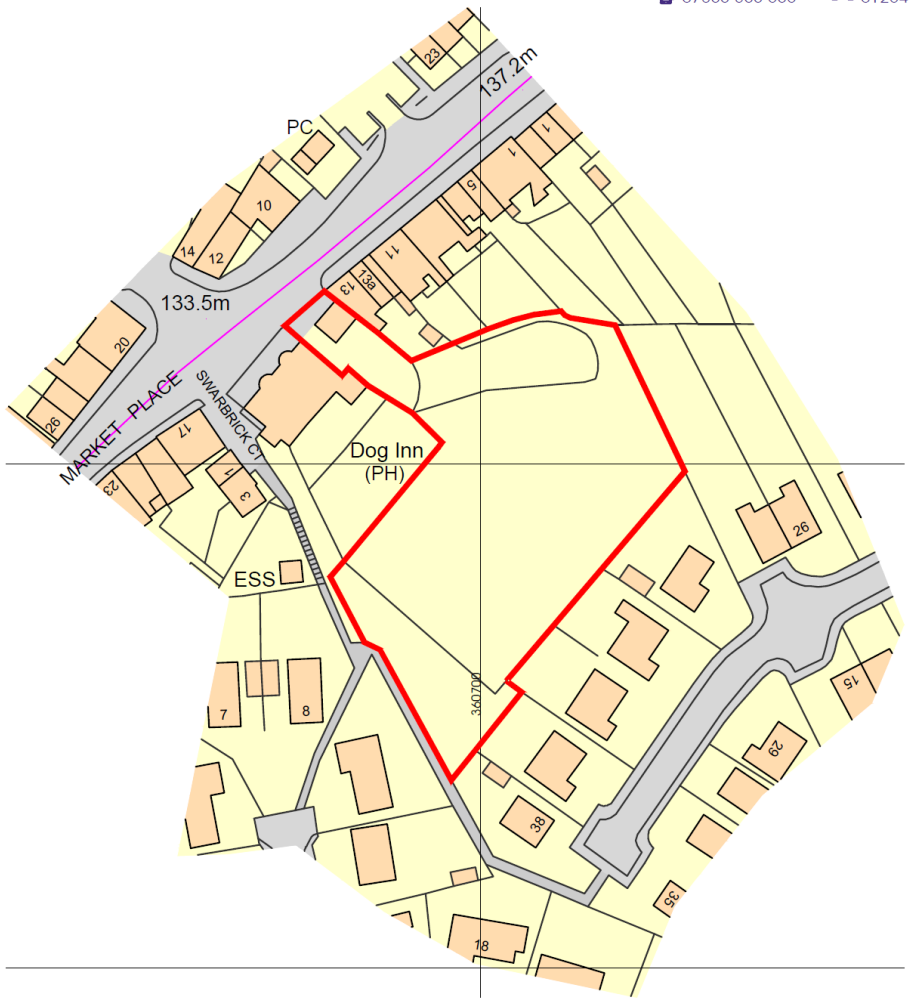
4.2 The nature of the local geology means that infiltration of surface water runoff back into the ground is likely to be feasible on this site.

4.3 It is intended that surface water runoff from the developed site will be discharged back into the ground via a soakaway. If this is proved not to be possible by further testing at the detailed design stage then an attenuated discharge is to be made into the public sewer crossing the site.

4.4 Foul water from the proposed development will be collected by a piped system and discharged into the public sewer that crosses the development site.

APPENDIX A

PGB Architectural Services LTD Lily Cottage, 12 Glen Avenue, Knowle Green, Preston PR3 2ZQ
07866 366 565 01254 820092 info@pgb-arch.com pgb-arch.com



Land to the Rear of
The Dog Inn Market Place Longridge
NGJ Holdings Ltd

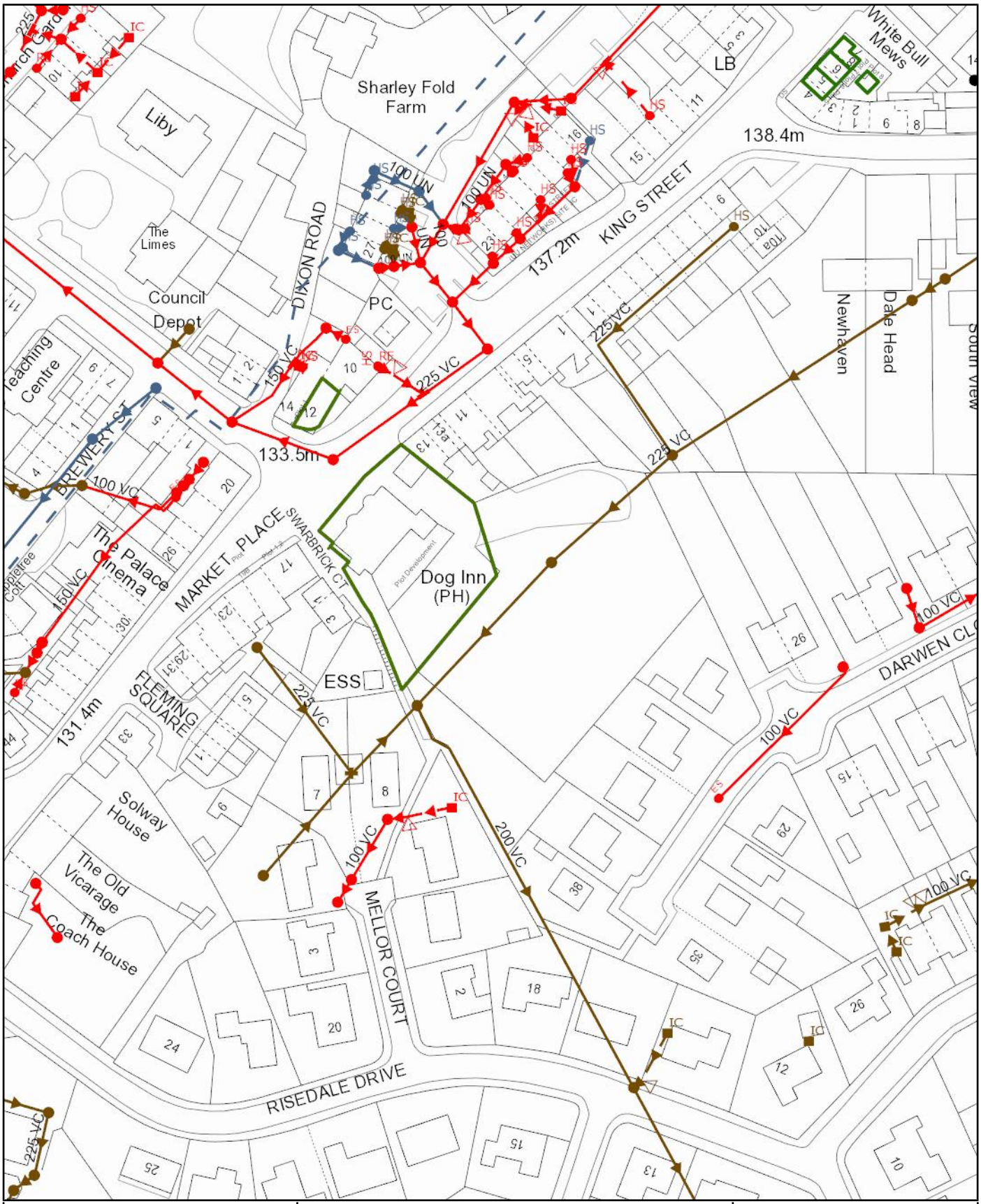
Location Plan

DATE 06.04.2020

JOB NO. 3156
DRAWING NO. 001
REVISION
SCALE 1:1250 @ A4

PGB ARCHITECTURAL SERVICES LTD

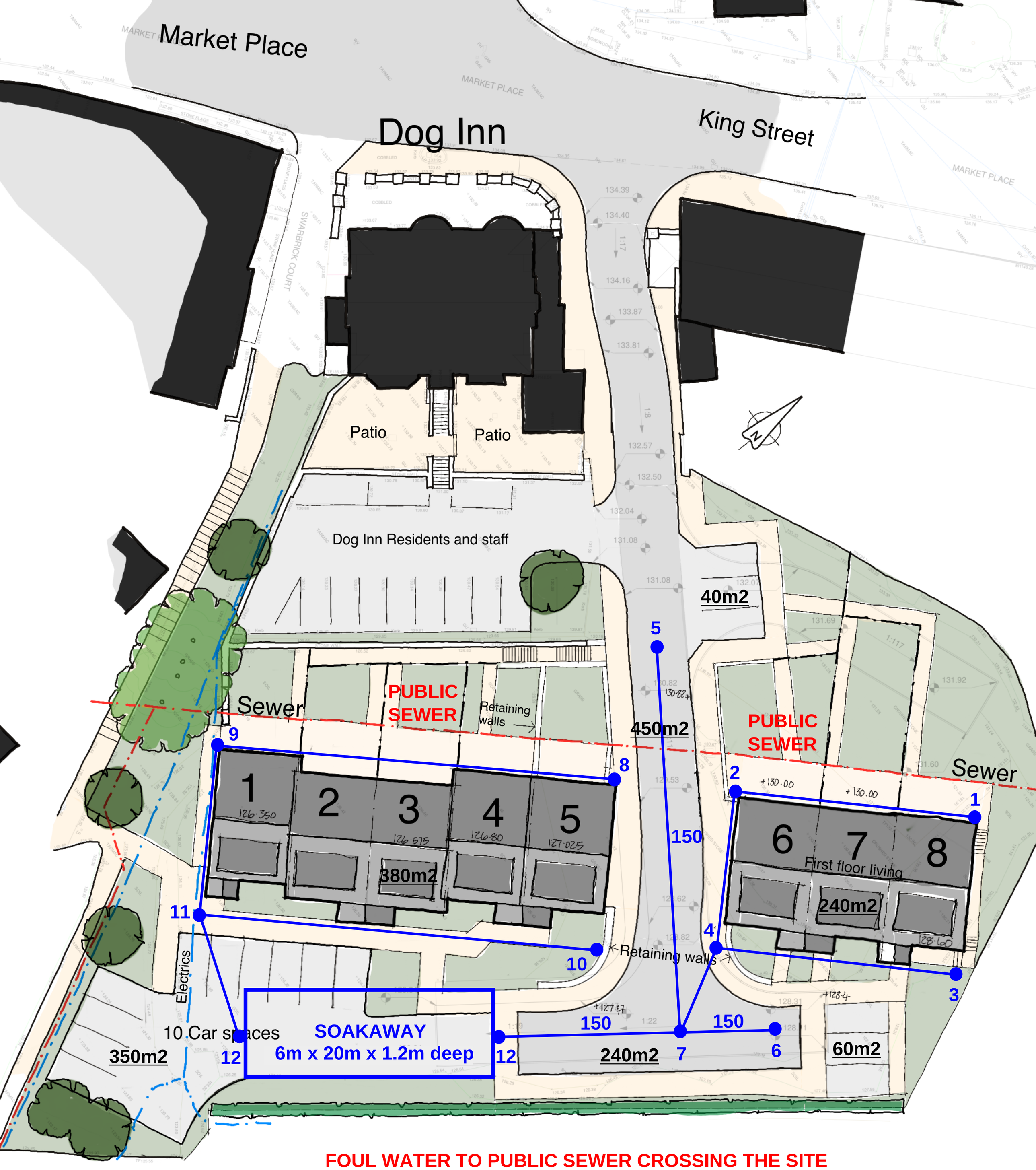
APPENDIX B



Scale:	1:1250	**SEWER RECORDS**	United Utilities Water for the North West
Date:	11/12/2020		
Address or Site Reference:	dog inn		
Printed by:	Property Searches		

The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. United Utilities Water will not accept liability for any loss or damage caused by the actual position being different from those shown.

APPENDIX C



FOUL WATER TO PUBLIC SEWER CROSSING THE SITE

PROPOSED DRAINAGE LAYOUT

APPENDIX D

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)	18.800	Minimum Backdrop Height (m)	2.000
Ratio-R	0.290	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	0.006	5.00	131.000	450	0.550
2	0.006	5.00	130.000	450	0.550
3	0.006	5.00	130.000	450	0.550
4	0.006	5.00	128.450	450	0.550
5	0.049	5.00	128.450	1200	1.050
6	0.006	5.00	128.200	1200	1.050
7	0.024	5.00	127.800	1200	1.050
8	0.010	5.00	126.950	450	0.550
9	0.009	5.00	126.200	450	0.550
10	0.010	5.00	126.950	450	0.550
11	0.009	5.00	126.200	450	0.786
12	0.035	5.00	126.200	1200	0.975
13			126.200	1200	1.015

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	20.000	0.600	130.450	129.450	1.000	20.0	100	5.19	55.2
1.001	2	4	14.000	0.600	129.450	127.900	1.550	9.0	100	5.28	54.8
2.000	3	4	20.000	0.600	129.450	127.900	1.550	12.9	100	5.15	55.3
1.002	4	7	8.000	0.600	127.900	126.800	1.100	7.3	100	5.33	54.6
3.000	5	7	32.000	0.600	127.400	126.750	0.650	49.2	150	5.37	54.5
4.000	6	7	8.000	0.600	127.150	126.750	0.400	20.0	150	5.06	55.7
1.003	7	12	16.000	0.600	126.750	125.225	1.525	10.5	150	5.46	54.1
5.000	8	9	32.000	0.600	126.400	125.650	0.750	42.7	100	5.45	54.1
5.001	9	11	14.000	0.600	125.650	125.414	0.236	59.3	100	5.68	53.3

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	1.734	13.6	0.9	0.450	0.450	0.006	0.0
1.001	2.587	20.3	1.8	0.450	0.450	0.012	0.0
2.000	2.162	17.0	0.9	0.450	0.450	0.006	0.0
1.002	2.885	22.7	3.6	0.450	0.900	0.024	0.0
3.000	1.437	25.4	7.2	0.900	0.900	0.049	0.0
4.000	2.262	40.0	0.9	0.900	0.900	0.006	0.0
1.003	3.128	55.3	15.1	0.900	0.825	0.103	0.0
5.000	1.183	9.3	1.5	0.450	0.450	0.010	0.0
5.001	1.002	7.9	2.7	0.450	0.686	0.019	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)
6.000	10	11	32.000	0.600	126.400	125.414	0.986	32.5	100	5.39	54.4
5.002	11	12	8.000	0.600	125.414	125.275	0.139	57.6	100	5.81	52.8
1.004	12	13	5.000	0.600	125.225	125.185	0.040	125.0	150	5.91	52.4

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)
6.000	1.359	10.7	1.5	0.450	0.686	0.010	0.0
5.002	1.017	8.0	5.4	0.686	0.825	0.038	0.0
1.004	0.897	15.9	25.0	0.825	0.865	0.176	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	20.000	20.0	100	Circular	131.000	130.450	0.450	130.000	129.450	0.450
1.001	14.000	9.0	100	Circular	130.000	129.450	0.450	128.450	127.900	0.450
2.000	20.000	12.9	100	Circular	130.000	129.450	0.450	128.450	127.900	0.450
1.002	8.000	7.3	100	Circular	128.450	127.900	0.450	127.800	126.800	0.900
3.000	32.000	49.2	150	Circular	128.450	127.400	0.900	127.800	126.750	0.900
4.000	8.000	20.0	150	Circular	128.200	127.150	0.900	127.800	126.750	0.900
1.003	16.000	10.5	150	Circular	127.800	126.750	0.900	126.200	125.225	0.825
5.000	32.000	42.7	100	Circular	126.950	126.400	0.450	126.200	125.650	0.450
5.001	14.000	59.3	100	Circular	126.200	125.650	0.450	126.200	125.414	0.686
6.000	32.000	32.5	100	Circular	126.950	126.400	0.450	126.200	125.414	0.686
5.002	8.000	57.6	100	Circular	126.200	125.414	0.686	126.200	125.275	0.825
1.004	5.000	125.0	150	Circular	126.200	125.225	0.825	126.200	125.185	0.865

Link
1.000
1.001
2.000
1.002
3.000
4.000
1.003
5.000
5.001
6.000
5.002
1.004

Simulation Settings

Rainfall Methodology	FSR	Analysis Speed	Normal
FSR Region	England and Wales	Skip Steady State	x
M5-60 (mm)	18.800	Drain Down Time (mins)	240
Ratio-R	0.290	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	30	0	0

Node 12 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.04388	Invert Level (m)	124.000	Depth (m)	1.200
Side Inf Coefficient (m/hr)	0.04388	Time to half empty (mins)		Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	6.000	Number Required	1
Porosity	0.95	Pit Length (m)	19.000		

Results for 1 year Critical Storm Duration. Lowest mass balance: 99.87%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	1	11	130.466	0.015	0.7	0.0058	0.0000	OK
15 minute winter	2	11	129.468	0.018	1.4	0.0067	0.0000	OK
15 minute winter	3	11	129.464	0.014	0.7	0.0053	0.0000	OK
15 minute winter	4	11	127.925	0.025	2.8	0.0093	0.0000	OK
15 minute winter	5	10	127.449	0.049	5.8	0.1013	0.0000	OK
15 minute winter	6	11	127.164	0.014	0.7	0.0173	0.0000	OK
15 minute winter	7	10	126.799	0.049	12.1	0.0779	0.0000	OK
15 minute winter	8	10	126.424	0.024	1.2	0.0125	0.0000	OK
15 minute winter	9	11	125.686	0.036	2.3	0.0175	0.0000	OK
15 minute winter	10	10	126.422	0.022	1.2	0.0117	0.0000	OK
15 minute winter	11	11	125.470	0.056	4.4	0.0217	0.0000	OK
720 minute winter	12	525	124.223	-1.002	2.7	24.1093	0.0000	OK
15 minute summer	13	1	125.185	0.000	0.0	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	0.7	0.818	0.051	0.0171	
15 minute winter	2	1.001	4	1.4	1.158	0.069	0.0170	
15 minute winter	3	2.000	4	0.7	0.670	0.041	0.0215	
15 minute winter	4	1.002	7	2.8	1.923	0.124	0.0117	
15 minute winter	5	3.000	7	5.7	1.140	0.225	0.1600	
15 minute winter	6	4.000	7	0.7	0.271	0.018	0.0233	
15 minute winter	7	1.003	12	11.9	2.444	0.216	0.0781	
15 minute winter	8	5.000	9	1.2	0.591	0.124	0.0632	
15 minute winter	9	5.001	11	2.2	0.629	0.278	0.0493	
15 minute winter	10	6.000	11	1.2	0.427	0.109	0.0926	
15 minute winter	11	5.002	12	4.3	1.002	0.545	0.0347	
720 minute winter	12	1.004	13	0.0	0.000	0.000	0.0000	0.0
720 minute winter	12	Infiltration		0.8				

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.87%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	1	10	130.474	0.024	1.7	0.0090	0.0000	OK
15 minute summer	2	10	129.478	0.028	3.4	0.0104	0.0000	OK
15 minute summer	3	10	129.471	0.021	1.7	0.0080	0.0000	OK
15 minute winter	4	10	127.939	0.039	6.7	0.0147	0.0000	OK
15 minute winter	5	10	127.482	0.082	14.2	0.1683	0.0000	OK
15 minute summer	6	10	127.171	0.021	1.7	0.0262	0.0000	OK
15 minute winter	7	10	126.832	0.082	29.3	0.1303	0.0000	OK
15 minute winter	8	10	126.438	0.038	2.9	0.0199	0.0000	OK
15 minute winter	9	11	125.715	0.065	5.4	0.0315	0.0000	OK
15 minute winter	10	10	126.435	0.035	2.9	0.0185	0.0000	OK
15 minute winter	11	12	125.619	0.205	10.7	0.0795	0.0000	SURCHARGED
720 minute winter	12	630	124.609	-0.616	5.5	65.9550	0.0000	OK
15 minute summer	13	1	125.185	0.000	0.0	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 summer	1	1.000	2	1.7	1.058	0.123	0.0318	
15 minute summer	2	1.001	4	3.3	1.466	0.164	0.0321	
15 minute summer	3	2.000	4	1.7	0.844	0.099	0.0405	
15 minute winter	4	1.002	7	6.6	2.424	0.293	0.0219	
15 minute winter	5	3.000	7	14.0	1.425	0.551	0.3143	
15 minute summer	6	4.000	7	1.7	0.322	0.042	0.0444	
15 minute winter	7	1.003	12	29.0	3.051	0.524	0.1518	
15 minute winter	8	5.000	9	2.8	0.744	0.305	0.1285	
15 minute winter	9	5.001	11	5.3	0.745	0.672	0.0923	
15 minute winter	10	6.000	11	2.8	0.501	0.267	0.1648	
15 minute winter	11	5.002	12	9.7	1.236	1.210	0.0618	
720 minute winter	12	1.004	13	0.0	0.000	0.000	0.0000	0.0
720 minute winter	12	Infiltration		0.9				

Results for 100 year Critical Storm Duration. Lowest mass balance: 99.87%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	1	10	130.477	0.027	2.2	0.0102	0.0000	OK
15 minute winter	2	10	129.482	0.032	4.4	0.0119	0.0000	OK
15 minute winter	3	10	129.474	0.024	2.2	0.0092	0.0000	OK
15 minute winter	4	10	127.945	0.045	8.7	0.0168	0.0000	OK
15 minute winter	5	10	127.497	0.097	18.4	0.1995	0.0000	OK
15 minute winter	6	10	127.174	0.024	2.2	0.0297	0.0000	OK
15 minute winter	7	10	126.848	0.098	38.0	0.1555	0.0000	OK
15 minute winter	8	10	126.444	0.044	3.7	0.0228	0.0000	OK
15 minute winter	9	12	125.858	0.207	7.0	0.1008	0.0000	SURCHARGED
15 minute winter	10	10	126.440	0.040	3.7	0.0211	0.0000	OK
15 minute winter	11	12	125.715	0.301	12.1	0.1168	0.0000	SURCHARGED
960 minute winter	12	870	124.821	-0.404	5.7	88.9062	0.0000	OK
15 minute summer	13	1	125.185	0.000	0.0	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	2.2	1.140	0.160	0.0383	
15 minute winter	2	1.001	4	4.3	1.589	0.214	0.0385	
15 minute winter	3	2.000	4	2.2	0.913	0.129	0.0485	
15 minute winter	4	1.002	7	8.7	2.531	0.384	0.0284	
15 minute winter	5	3.000	7	18.1	1.498	0.713	0.3868	
15 minute winter	6	4.000	7	2.2	0.335	0.055	0.0559	
15 minute winter	7	1.003	12	37.5	3.220	0.679	0.1864	
15 minute winter	8	5.000	9	3.6	0.764	0.392	0.1776	
15 minute winter	9	5.001	11	5.6	0.755	0.712	0.1095	
15 minute winter	10	6.000	11	3.6	0.578	0.342	0.1726	
15 minute winter	11	5.002	12	11.4	1.451	1.421	0.0620	
960 minute winter	12	1.004	13	0.0	0.000	0.000	0.0000	0.0
960 minute winter	12	Infiltration		0.9				

Results for 100 year +30% CC Critical Storm Duration. Lowest mass balance: 99.87%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	1	10	130.481	0.031	2.9	0.0118	0.0000	OK
15 minute winter	2	10	129.487	0.037	5.8	0.0138	0.0000	OK
15 minute winter	3	10	129.478	0.028	2.9	0.0106	0.0000	OK
15 minute winter	4	10	127.951	0.051	11.5	0.0191	0.0000	OK
15 minute winter	5	10	127.519	0.119	23.9	0.2456	0.0000	OK
15 minute winter	6	10	127.177	0.027	2.9	0.0341	0.0000	OK
15 minute winter	7	10	126.873	0.123	49.5	0.1949	0.0000	OK
15 minute winter	8	10	126.451	0.051	4.9	0.0268	0.0000	OK
15 minute winter	9	12	126.096	0.446	9.2	0.2167	0.0000	FLOOD RISK
15 minute winter	10	10	126.447	0.047	4.9	0.0247	0.0000	OK
15 minute winter	11	12	125.888	0.474	15.1	0.1839	0.0000	SURCHARGED
720 minute winter	12	705	125.146	-0.079	9.0	124.0779	0.0000	OK
15 minute summer	13	1	125.185	0.000	0.0	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	2.9	1.232	0.212	0.0468	
15 minute winter	2	1.001	4	5.8	1.759	0.283	0.0459	
15 minute winter	3	2.000	4	2.9	1.012	0.170	0.0576	
15 minute winter	4	1.002	7	11.5	2.536	0.507	0.0403	
15 minute winter	5	3.000	7	23.5	1.543	0.924	0.4866	
15 minute winter	6	4.000	7	2.9	0.347	0.072	0.0705	
15 minute winter	7	1.003	12	48.8	3.342	0.882	0.2335	
15 minute winter	8	5.000	9	4.8	0.792	0.519	0.1897	
15 minute winter	9	5.001	11	6.9	0.878	0.873	0.1095	
15 minute winter	10	6.000	11	4.8	0.731	0.453	0.1835	
15 minute winter	11	5.002	12	13.9	1.778	1.741	0.0620	
720 minute winter	12	1.004	13	0.0	0.000	0.000	0.0000	0.0
720 minute winter	12	Infiltration		1.0				