

**PROPOSED NEW DEVELOPMENT TO LAND
SOUTH OF AUTUMN GATE,
HOOK LANE
ALDINGBOURNE
WEST SUSSEX
PO20 3TE**

DRAINAGE DESIGN REPORT

For:

RANDMERE LIMITED

Cowan Consultancy Ltd
3 Turnberry House
4400 Parkway
Whiteley
Fareham
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PO15 7FJ

**TB/435050/eg
17 June 2025**

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Landguard Manor Road
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1.0 INTRODUCTION

- 1.1 This report has been prepared by Cowan Consultancy Limited (CCL) for Randmere Limited.
- 1.2 This drainage design report is required, to form part of a Discharge of Condition planning application related to the drainage of the subject site. The report is to demonstrate that the surface water and foul water can be adequately disposed of.

2.0 GEOLOGY OF THE AREA

- 2.1.1 The site lies on OS grid reference (Eastings) 493545 (Northings) 104528 and Site GPS Coordinates 50.832735, -0.67303222.
- 2.1.2 By reference to the British Geological Maps, the site would be expected to lie within a bedrock of the London Clay Formation. Overlain by superficial deposits of River Terrace Deposits – Sand, silt and clay.
- 2.1.3 Borehole logs, which were undertaken for the drainage design at the adjacent Autumn Gate development, confirm that the site is underlain with River Terrace Deposits but did not encounter the London Clay within the borehole depths of 3m. These logs can be seen in Appendix D

3.0 SITE DESCRIPTION

- 3.1.1 The site for the proposed development consists of approximately 0.3219 ha and is considered to be a greenfield development site.
- 3.1.2 The site consists mainly of unkept shrubs and grass with some trees / hedges to the site boundaries.
- 3.1.3 The site is adjoined to the north by the recently built Autumn Gate (Springfields) development with the Westergate development beyond this. To the south, west & east of the site is existing residential properties.

- 3.1.4 The site is relatively flat but with a gradual slope from north west to south east.
- 3.1.5 The proposed access to the site is via the existing Autumn Gate development.
- 3.1.6 The proposed site development consists of a mixture of 2, 3 & 4 bed detached & semi-detached houses, together with associated landscaping, amenity space and parking.

4.0 SURFACE WATER DRAINAGE STRATEGY

4.1 Pre-Development

- 4.2 The site is currently undeveloped land and its previous use is unknown at this stage. It is assumed not to have the benefit of any formal drainage serving the area.
- 4.3 The site slopes generally from north west to south east. Any rainfall which does not naturally permeate into the ground will ultimately discharge off site.
- 4.4 Southern Water sewer record plans indicate that there are no public surface water or combined sewers in the vicinity of the site.

4.5 Post-Development

- 4.6 The site is currently undeveloped and therefore any proposed development will increase the impermeable area, thus increasing surface water runoff rates and volumes of water.
- 4.7 Referencing the infiltration testing and groundwater monitoring data from the adjacent Autumn Gate development site, see Appendix D, it shows that disposing of the surface water via infiltration on site is not feasible. Infiltration testing showed negligible infiltration over the test period and groundwater monitoring showed the highest recorded groundwater level to be 0.22m bgl.
- 4.8 Following the SuDS hierarchy for method of discharge (see below) the appropriate methods applicable to this site are 1 & 4. Rainwater reuse is utilised by the proposed provision of water butts to each property.
 - 1. Rainwater reuse where possible
 - 2. Complete discharge into the ground (infiltration)
 - 3. Hybrid infiltration and restricted discharge to an appropriate water body or surface water sewer
 - 4. Restricted discharge to an appropriate water body

5. Restricted discharge to a surface water sewer
6. Restricted discharge to a combined sewer

- 4.9 There are no surface water bodies directly adjacent to any of the site boundaries, but there is a ditch to the north of the Autumn Gate development.
- 4.10 The development of Autumn Gate which is located to the north of the subject site, utilises a shallow attenuation system for the surface water drainage, which conveys the surface water flows to the north-eastern boundary of the site, where it discharges into a ditch. Via the ditch, the surface water enters the Westergate development surface water drainage system. This was agreed with the Management Company of the Westergate Development and approved by Arun DC as part of the Discharge of Conditions for the Autumn Gate development.
- 4.11 Cowan Consultancy Ltd carried out the drainage design for the Autumn Gate development and, as such, we have been able to use the Flow model to determine that there is additional capacity within the existing system to accommodate the additional flows, whilst negating the need to increase the discharge rate into the ditch. Please see Appendix C for updated Flow calculations that shows that the existing Autumn Gate drainage system can adequately take the additional flow from the new site.
- 4.12 The new site flow calculations in Appendix C show that an additional flow of 0.4l/s is required to be applied to the existing Autumn Gate development
- 4.13 The current day climate change allowances have been applied to the new site flow calculations (45% climate change allowance to the 1-in-100 year storm event).
- 4.14 The existing Autumn Gate surface water drainage calculations have had the climate change allowances kept the same as what was the requirement at the time of the design, which is 40% climate change allowance to the 1-in-100 year storm event.
- 4.15 The discharge rate for the existing Autumn Gate development is set at 1.2 l/s, of which was agreed at the time when this was designed. It is proposed to keep this discharge rate unaltered, meaning that the agreement with the Westergate development Management Company will not be affected, neither will the Ordinary Watercourse Consent approval.
- 4.16 HR Wallingford Greenfield Run-off calculations can be seen in Appendix B. These show that the QBAR for the combined impermeable areas of the Autumn Gate site and the new site, is 1.4 l/s. This is higher than the discharge rate that

has been set, but for the reasons mentioned above the current discharge rate shall not be increased. This means that the proposed design is not increasing discharge from the pre-development run-off rate.

- 4.17 The impermeable surfaces of the new site can be seen in Appendix C, these equate to 0.0763 ha. The impermeable surfaces of the existing Autumn Gate site equate to 0.2003 ha. This gives a total impermeable surface area applied to the HR Wallingford Greenfield Run-off calculations of 0.2766 ha.
- 4.18 It is proposed that the subject site surface water is piped into the Autumn Gate development surface water system. Additional attenuation has been provided within the new development, this has been located at shallow depths underneath the property driveways, with controlled discharge into the Autumn Gate system.
- 4.19 The topography allows for a gravity system to be effective, as shallow attenuation features have been utilised.
- 4.20 A 400mm depth sub-base underneath permeable driveway areas has been designed to attenuate and convey the surface water. Water from roofs is drained to the permeable sub-base via pipework and diffuser units, with a silt trap proceeding each connection into the sub-base. The permeable driveway sub-bases are piped into the Autumn Gate access road permeability attenuation tank via a contraflow orifice control chamber.
- 4.21 As mentioned above, the new site drainage scheme has included a climate change allowance of 45% and a 10% urban creep has been applied to all impermeable areas except the access road.
- 4.22 Percolation testing to BRE 365 and groundwater monitoring data already obtained for the Autumn Gate site will suffice to accompany this drainage design for the new site, see Appendix D
- 4.23 The proposed Drainage Design can be seen in Appendix A

5.0 SUSTAINABLE URBAN DRAINAGE SYSTEMS

- 5.1 SuDS have been incorporated into the design to intercept rainfall and convey the water to the ditch outfall to the north-east of the site.
- 5.2 As well as providing storm water storage, the SuDS features are within the design to ensure the water quality entering the surface water body is acceptable.

5.3 In accordance with section 26.3 of CIRIA C753 recommends the use of simple index approach for assessing the minimum water quality management requirements and this method has been used to assess the suitability of above proposals as follows:

- (i) From table 26.2, residential roads runoff is considered low pollution hazard
- (ii) From table 26.2 the following hazard indices are applicable;
Total suspended solids – 0.5
Metals – 0.4
Hydrocarbons – 0.4
- (iii) From table 26.3, the indicative SuDS mitigation indices for permeable paving is as follows;
Total suspended solids – 0.7
Metals – 0.6
Hydrocarbons – 0.7

5.4 From the above it can be seen that the provision of permeable paving exceeds the pollution mitigation requirements.

6.0 FOUL DRAINAGE STRATEGY

6.1 Pre-Development

6.2 The site is currently undeveloped land and therefore it is unlikely that there will not be any foul drainage system serving the area.

6.3 Southern Water sewer record plans indicate that there is an existing 150mm diameter public foul sewer in Hook Lane. This flows from south to north.

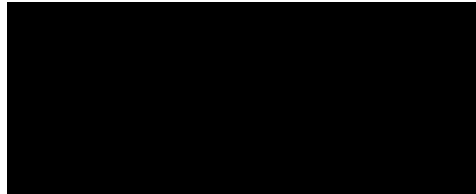
6.4 Post-Development

6.5 The site will require a new foul drainage network.

6.6 The proposed site consists of 5 residential dwellings. Using the recommendations within Sewers for Adoption 7th Edition for an allowance of 4000 litres per unit per day, this will result in a peak flow of 0.23 l/s from the proposed development.

- 6.7 It is proposed that the new development is connected into the Autumn Gate development foul drainage network. However, It will be necessary to confirm with Southern Water that there is sufficient capacity within the system to accommodate the additional flow.
- 6.8 Due to the topography of the site, there is a requirement for Plot 5 to be pumped. This will be a private package pumping station.
- 6.9 The rest of the site can then discharge via a gravity system into the Autumn Gate foul manhole FWMH 9.

Signature..



TIM BUTTON

For and on behalf of Cowan Consultancy Limited

APPENDIX A

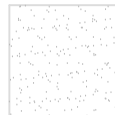
DRAINAGE STRATEGY DRAWING

In preparing the designs illustrated by this drawing we have fulfilled our duties in the role of Designer as defined in the Construction Design and Management Regulations 2015. We have undertaken a full Hazard Identification and Risk Analysis and have designed out any special risks associated with the work, so that as far as possible there are no residual risks.

Where hazards have been identified, the risks from which it has not been possible to eliminate during the design process, these are indicated on the drawing. It will be the responsibility of the Principal Contractor to develop Safe Systems of Work and/or Method Statements to minimise any risks associated with such hazards.

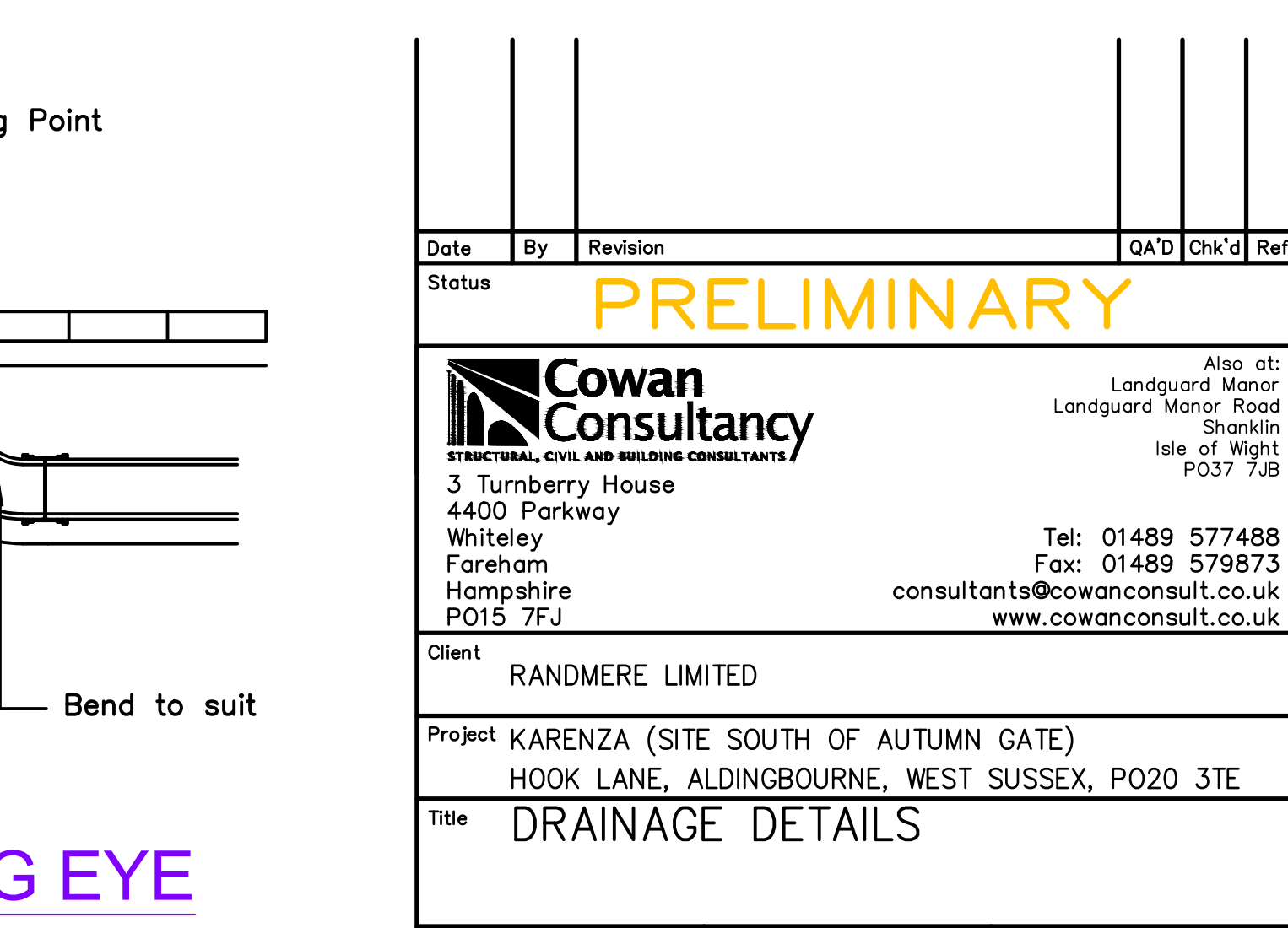
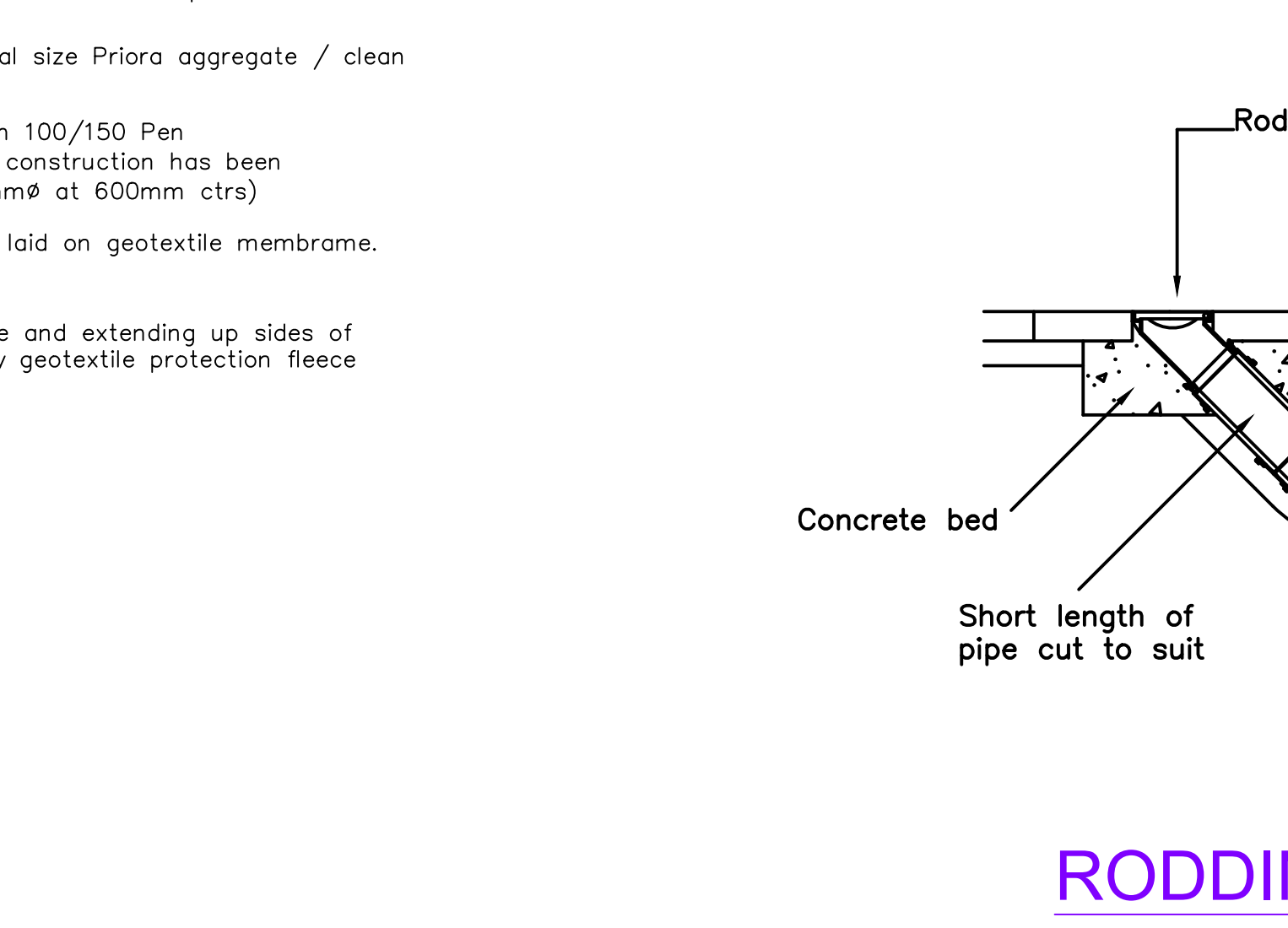
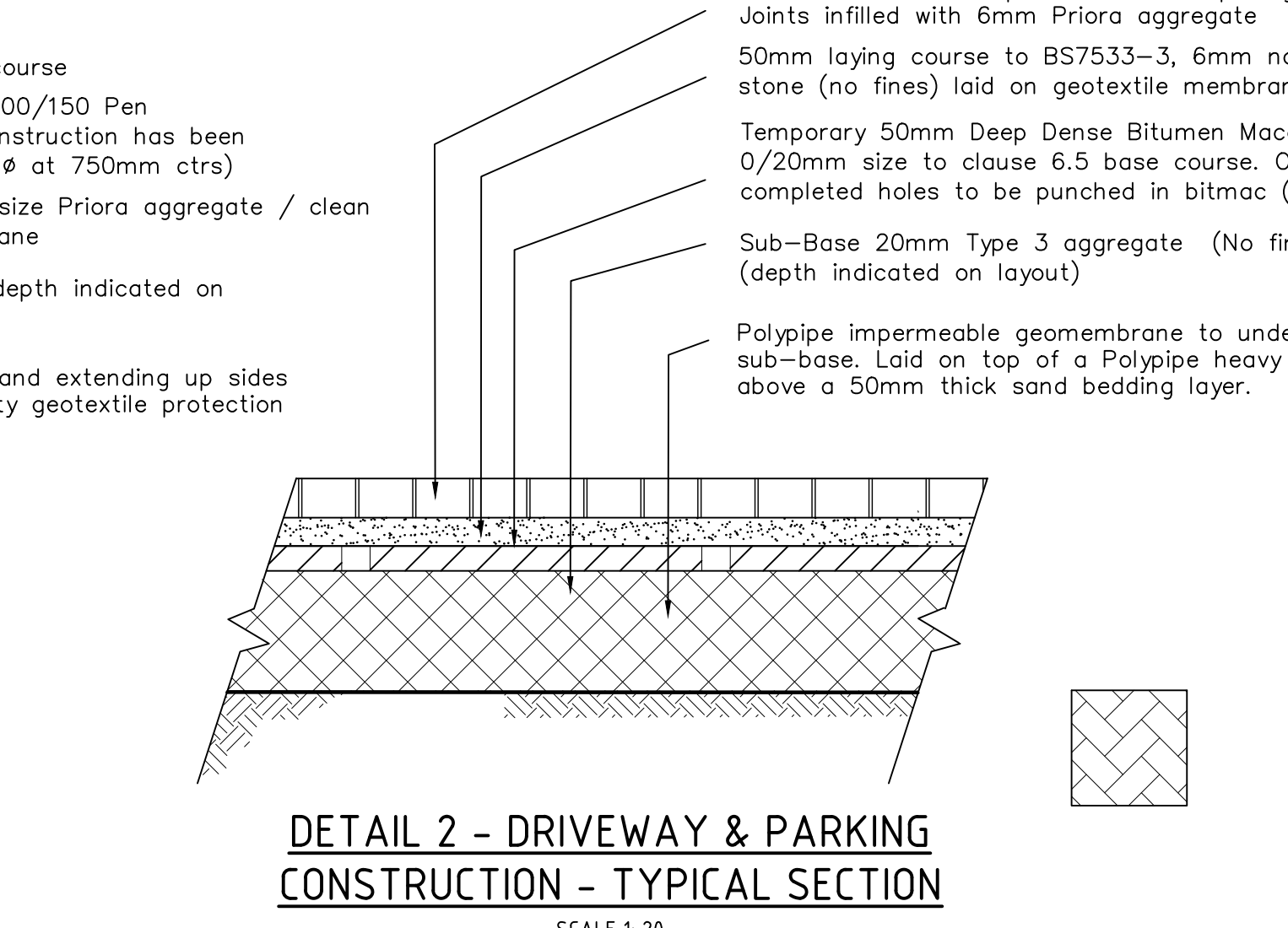
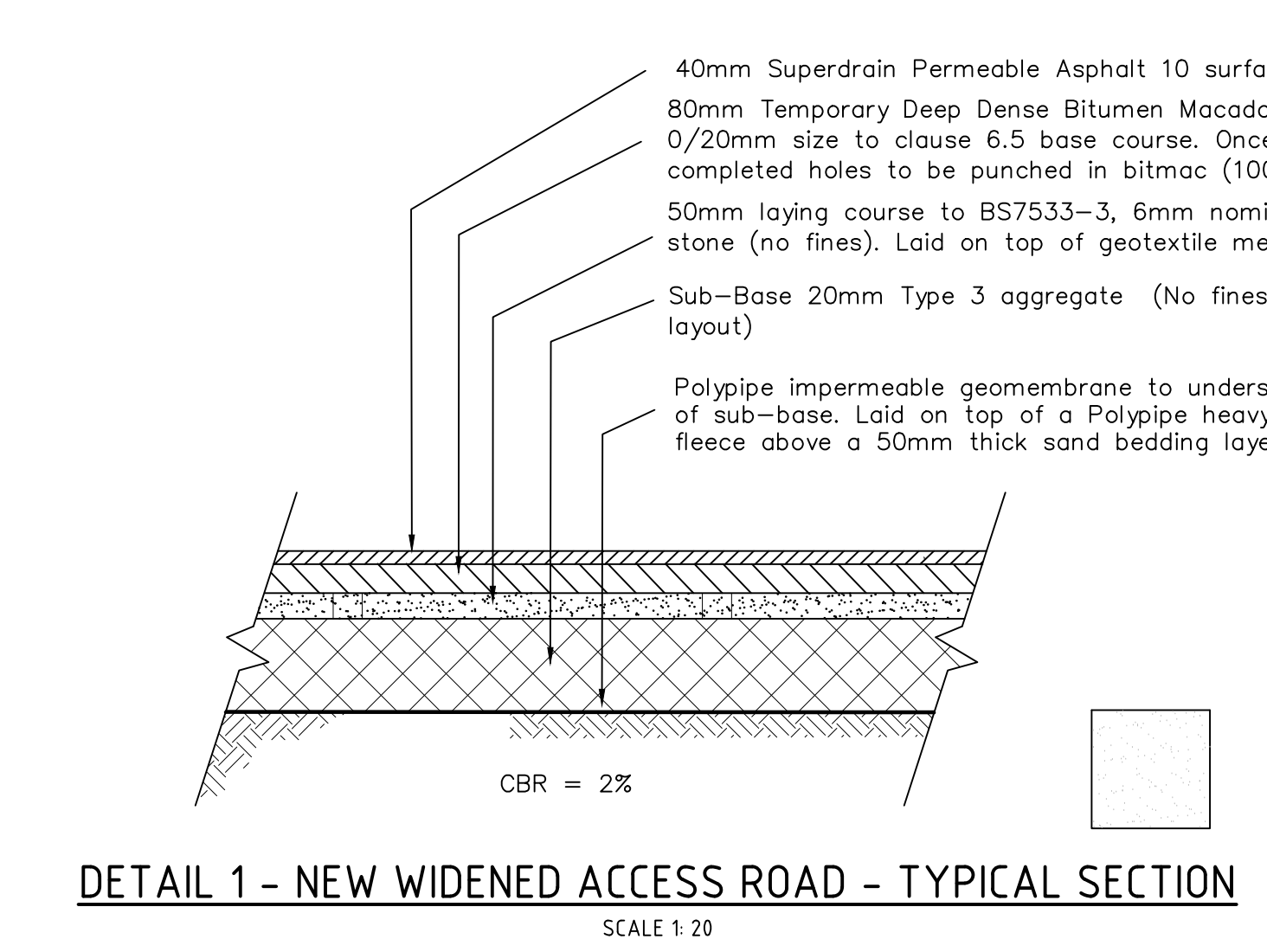
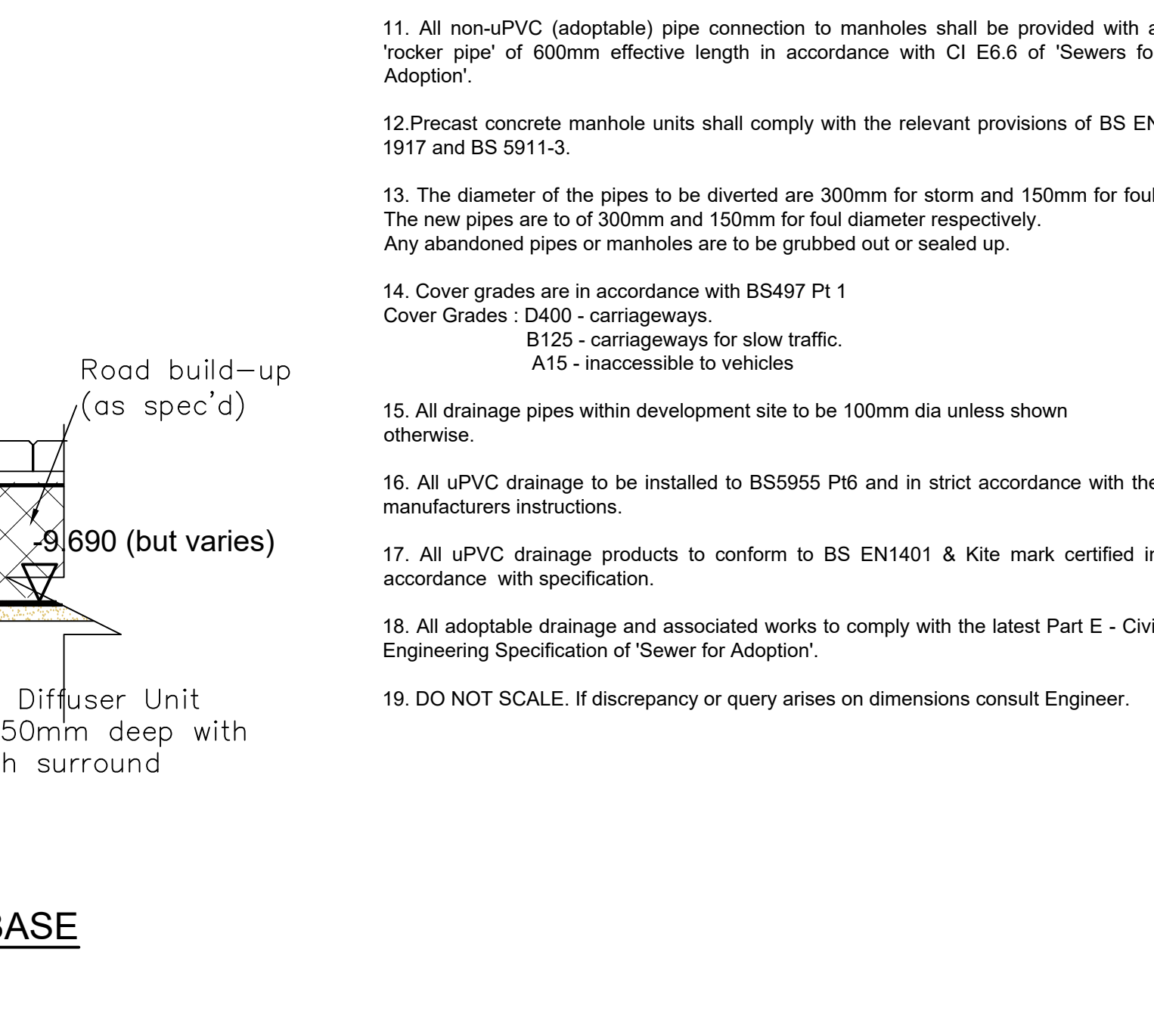
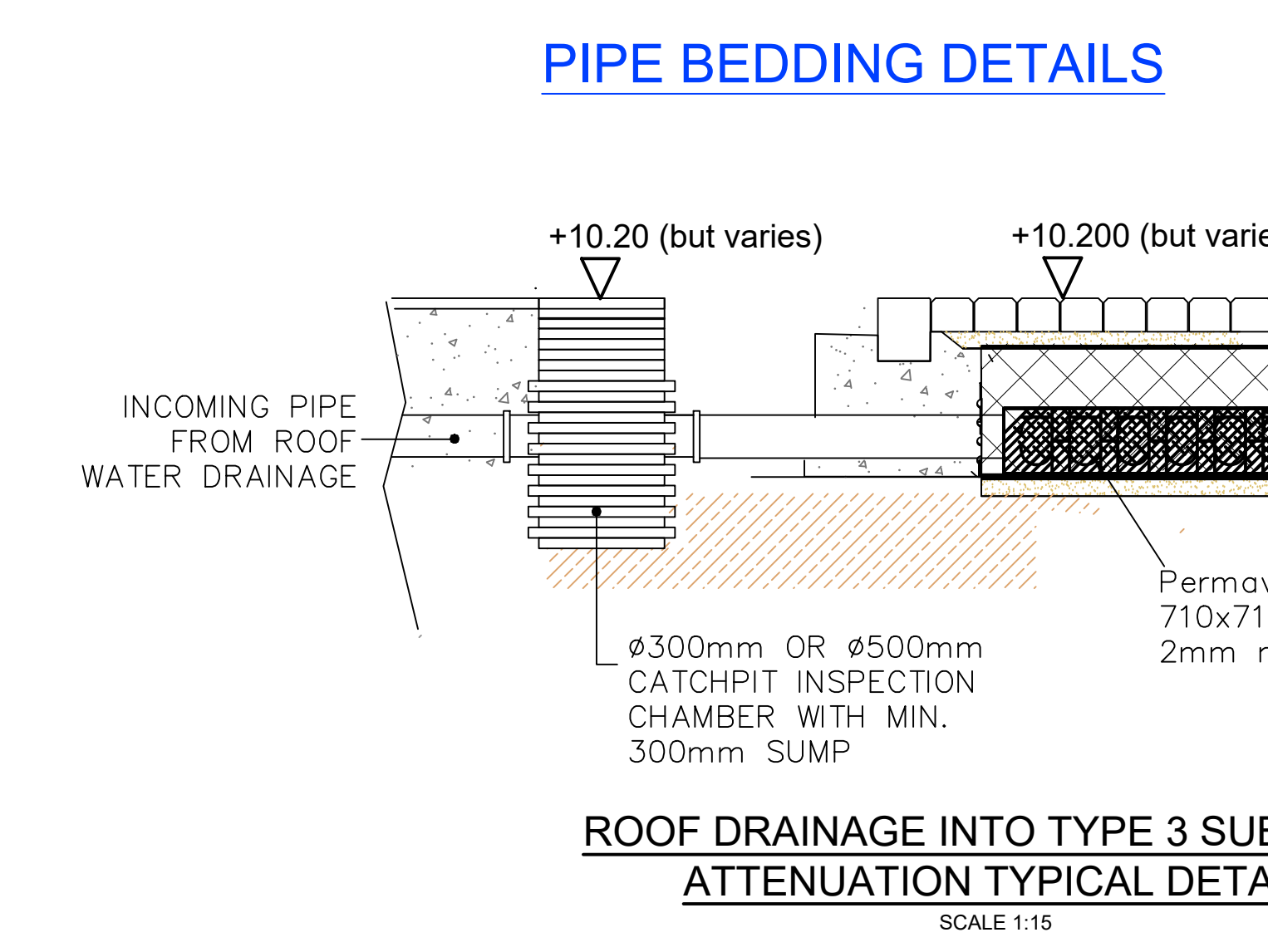
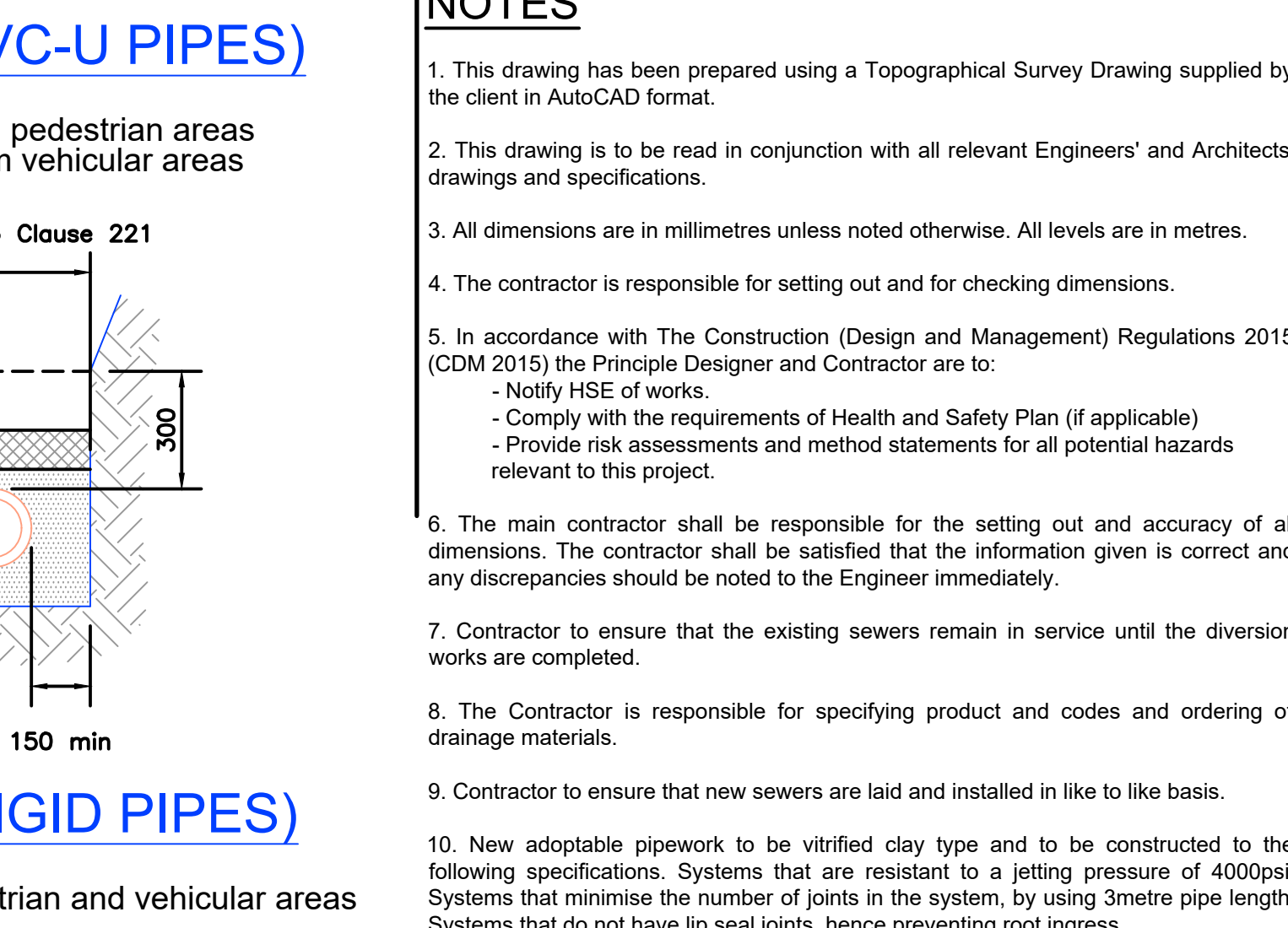
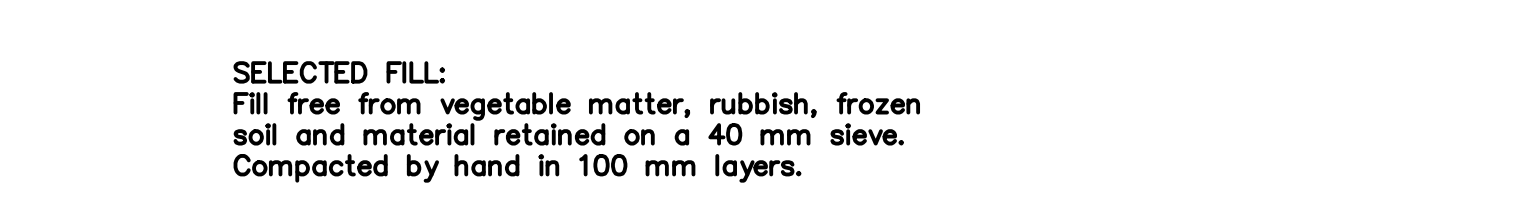
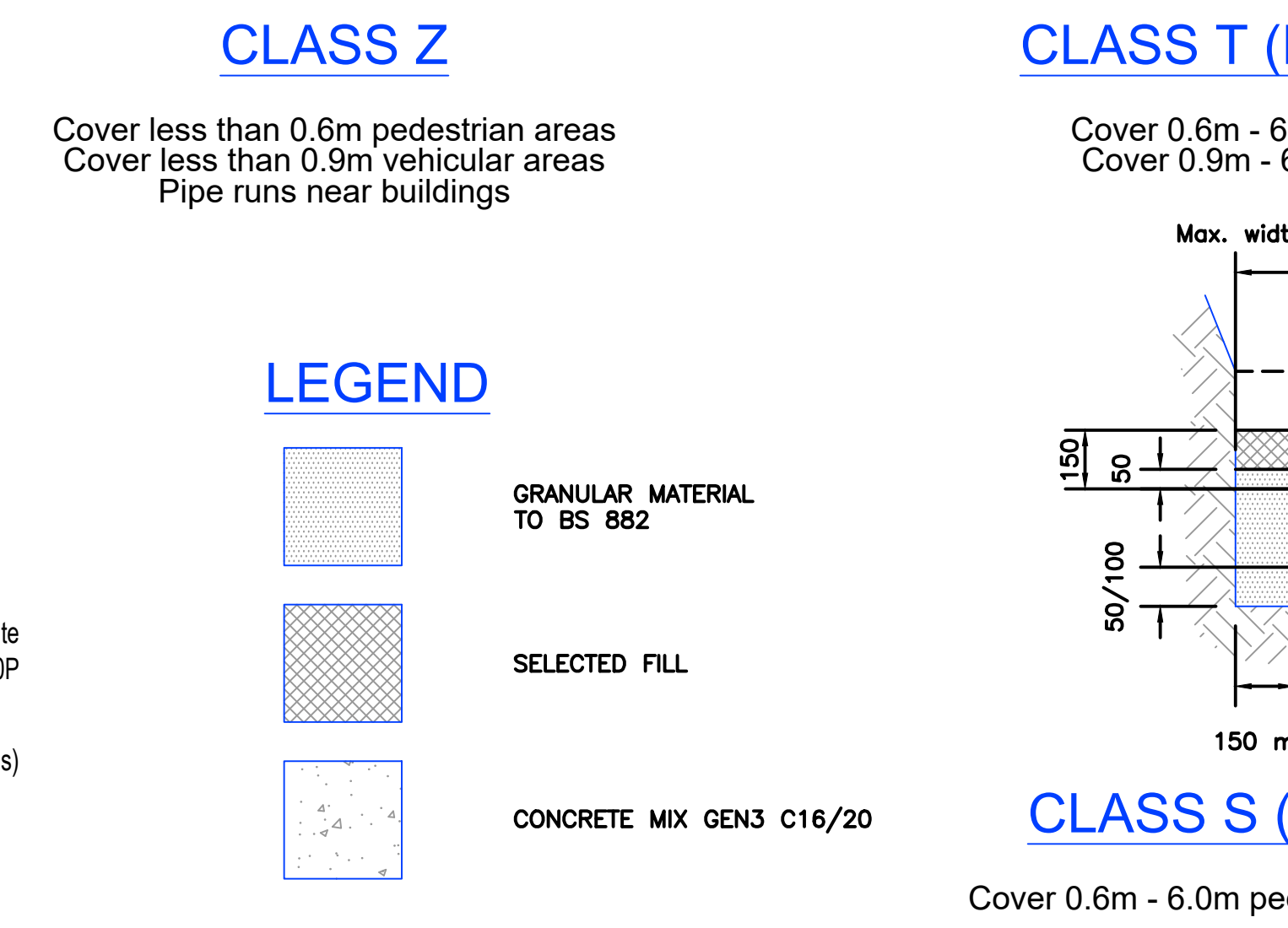
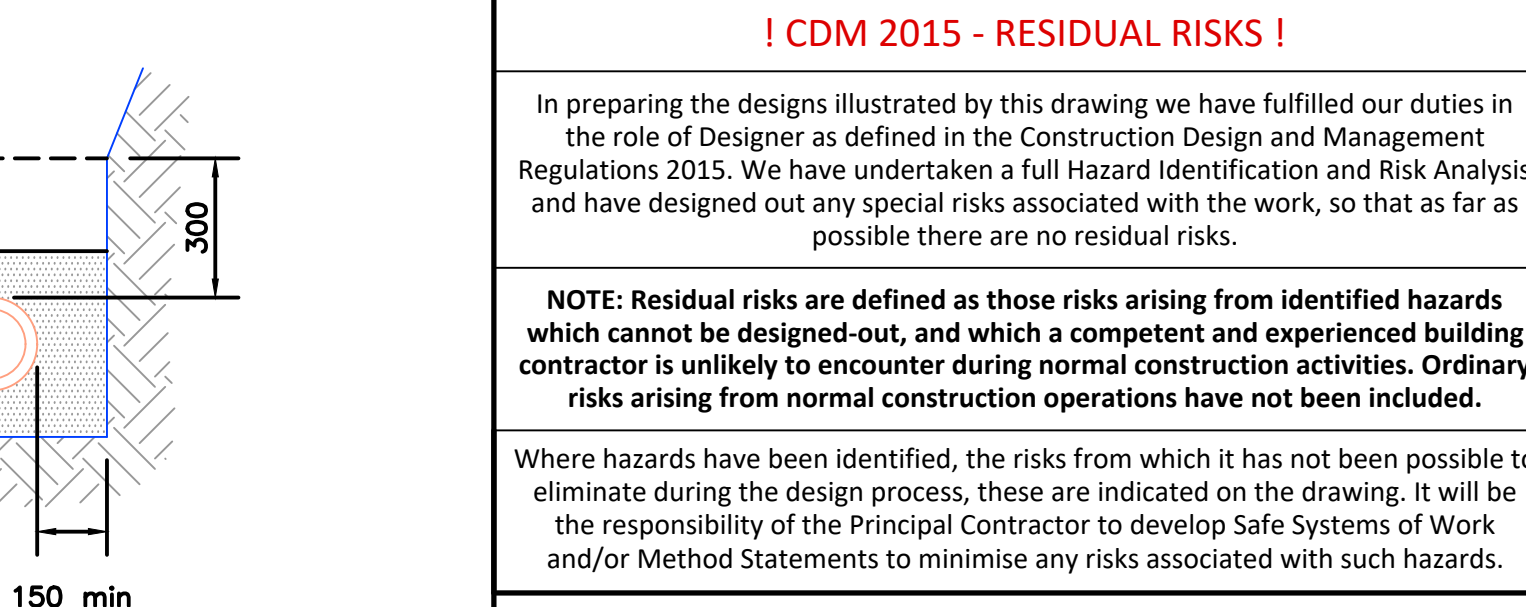
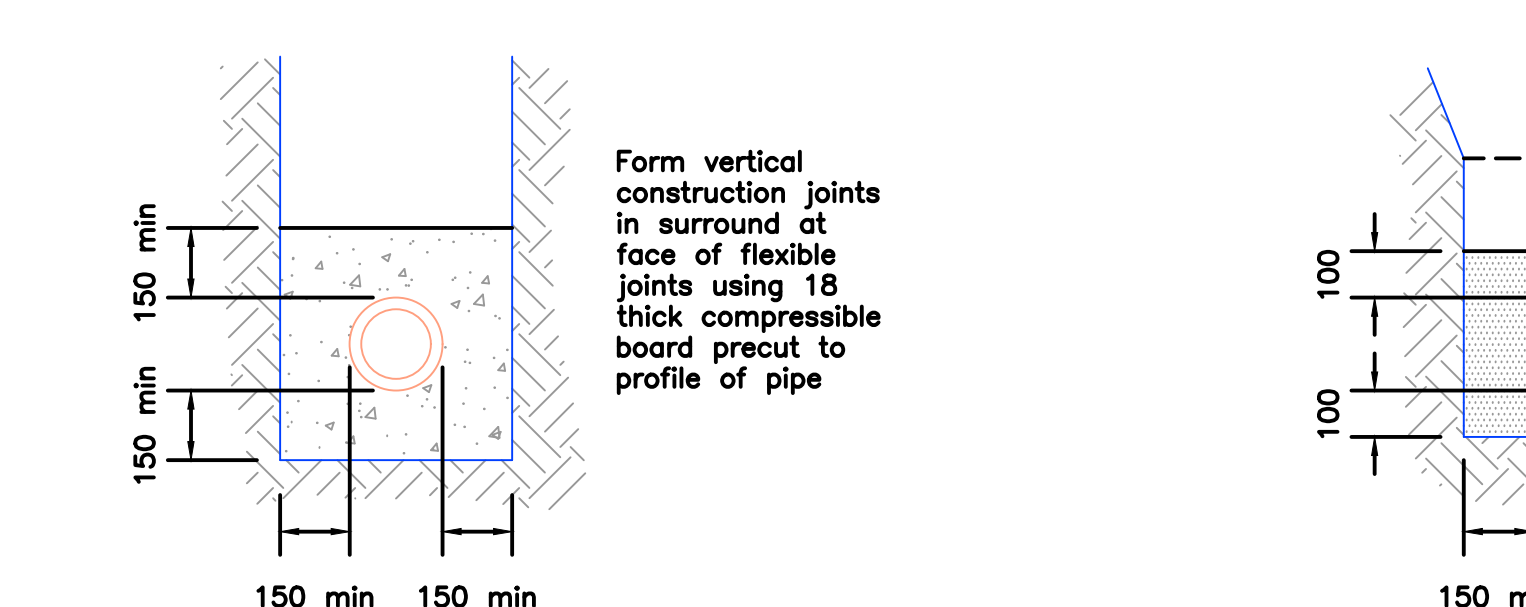
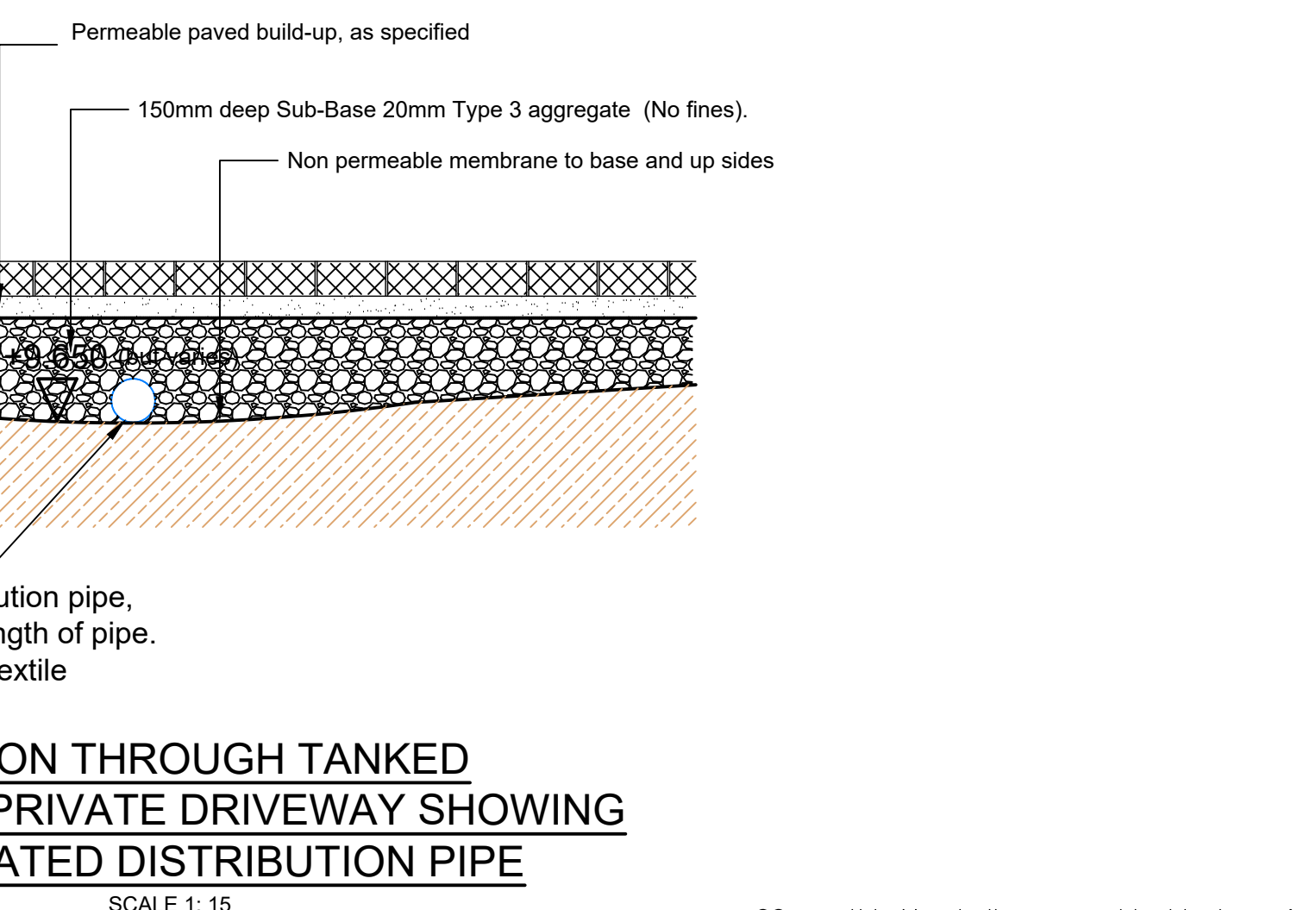
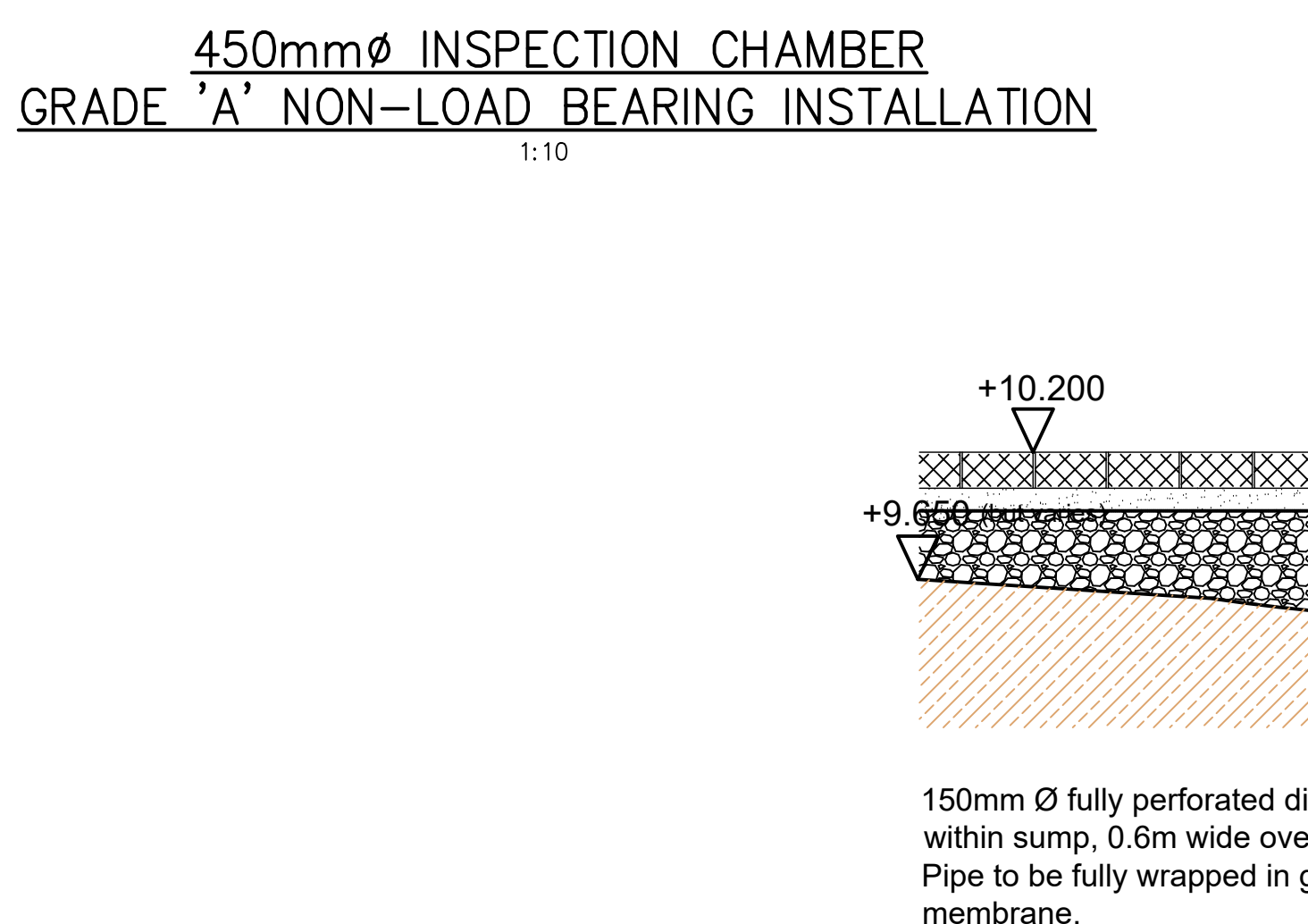
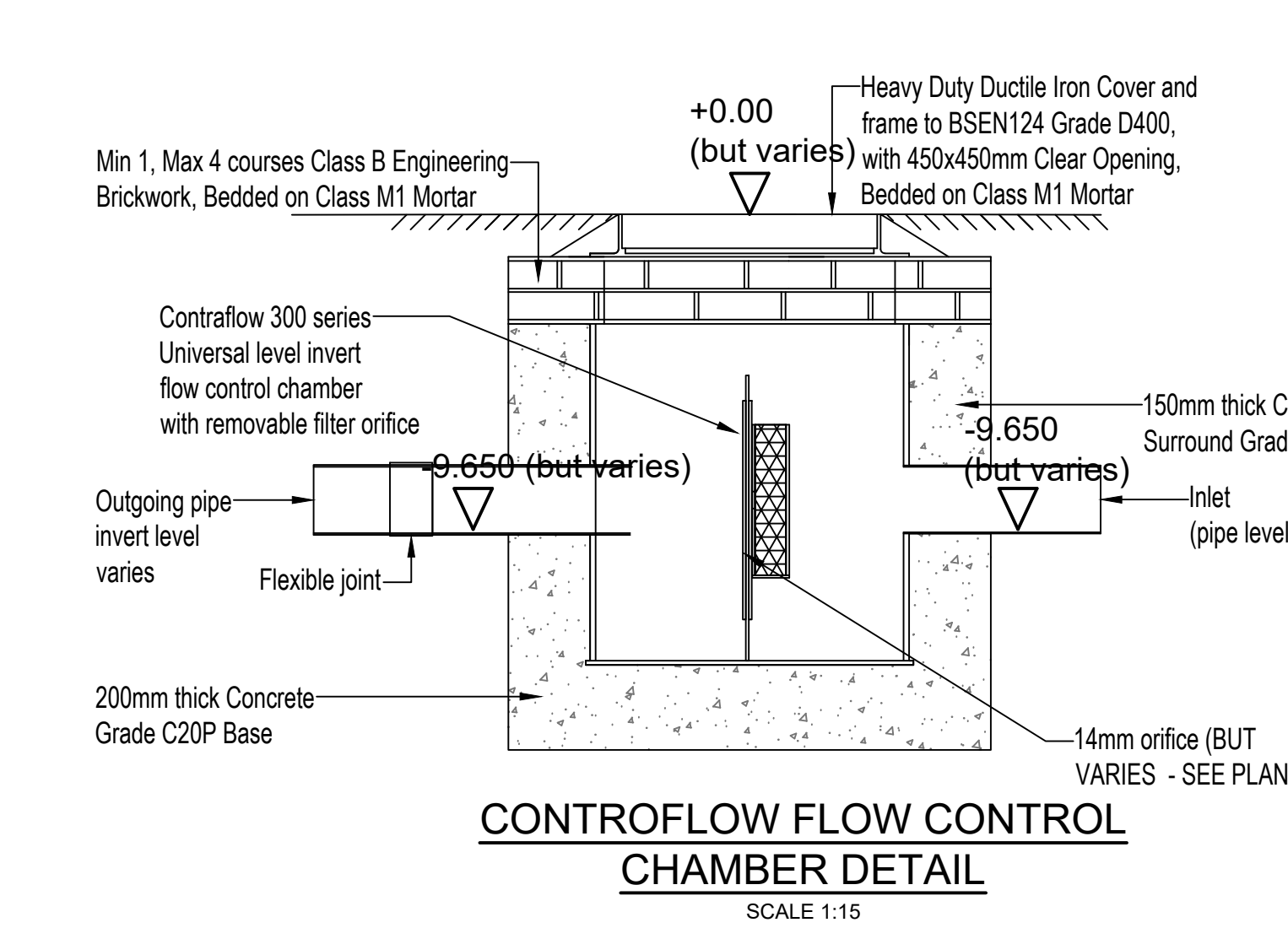
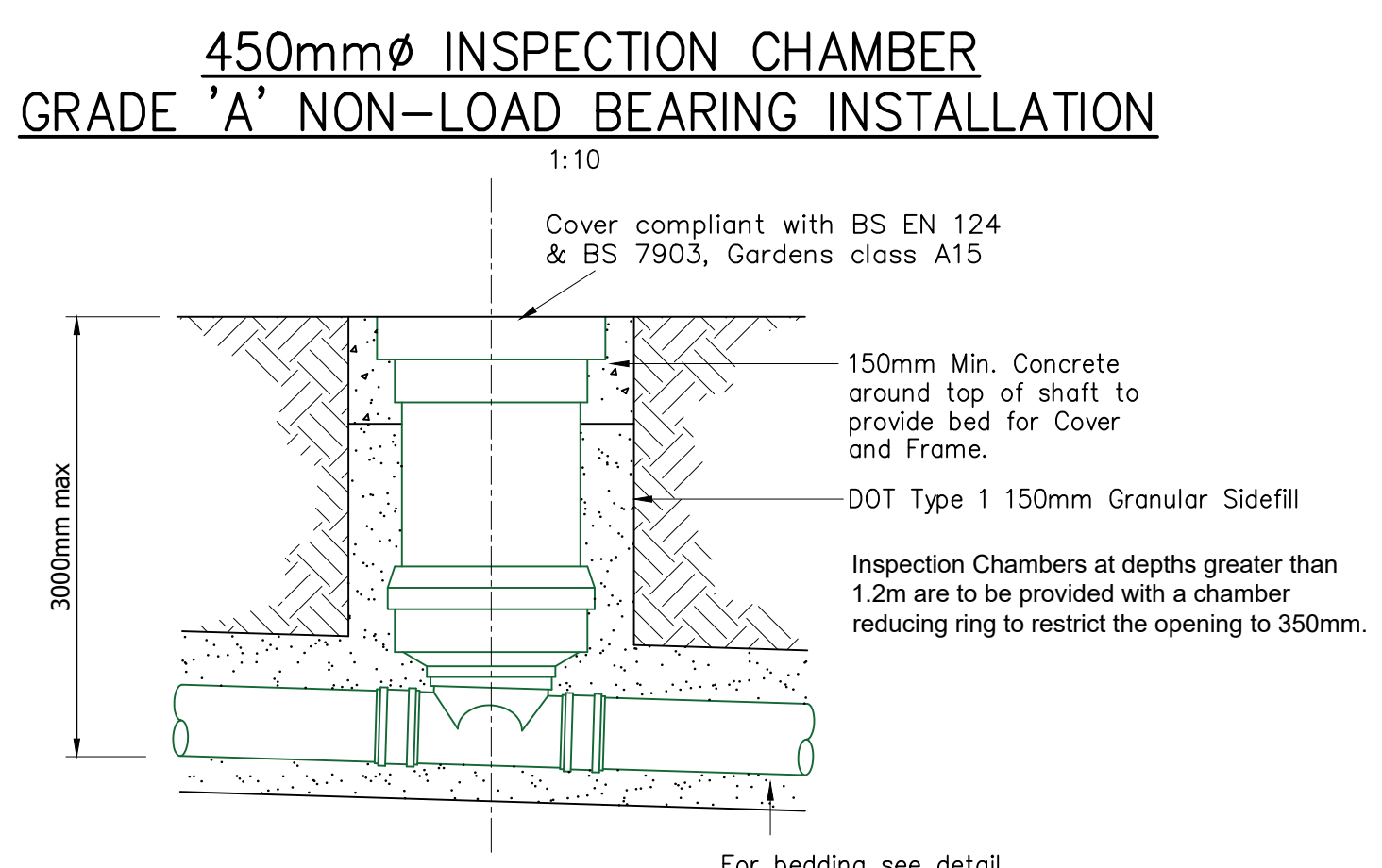
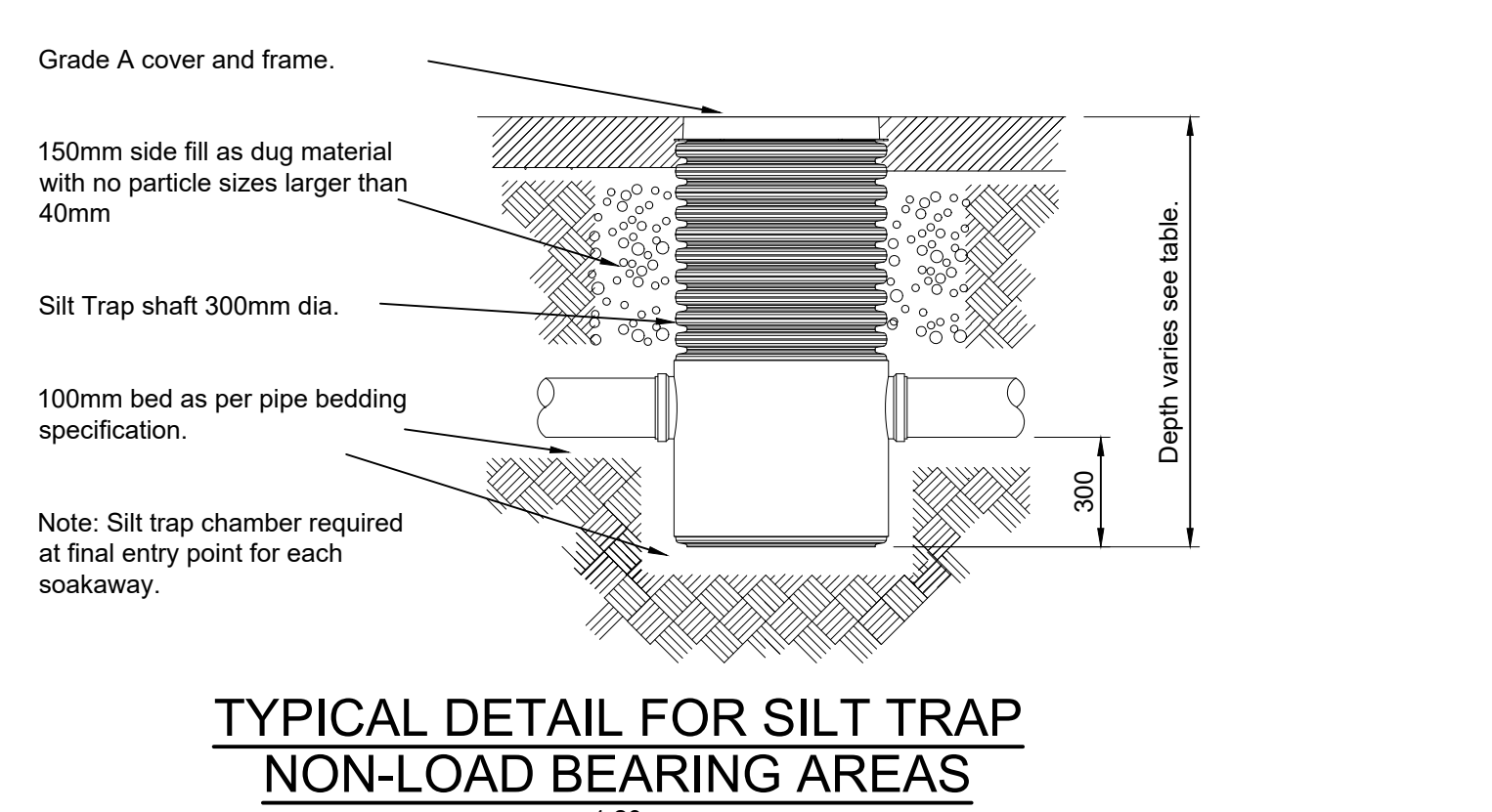
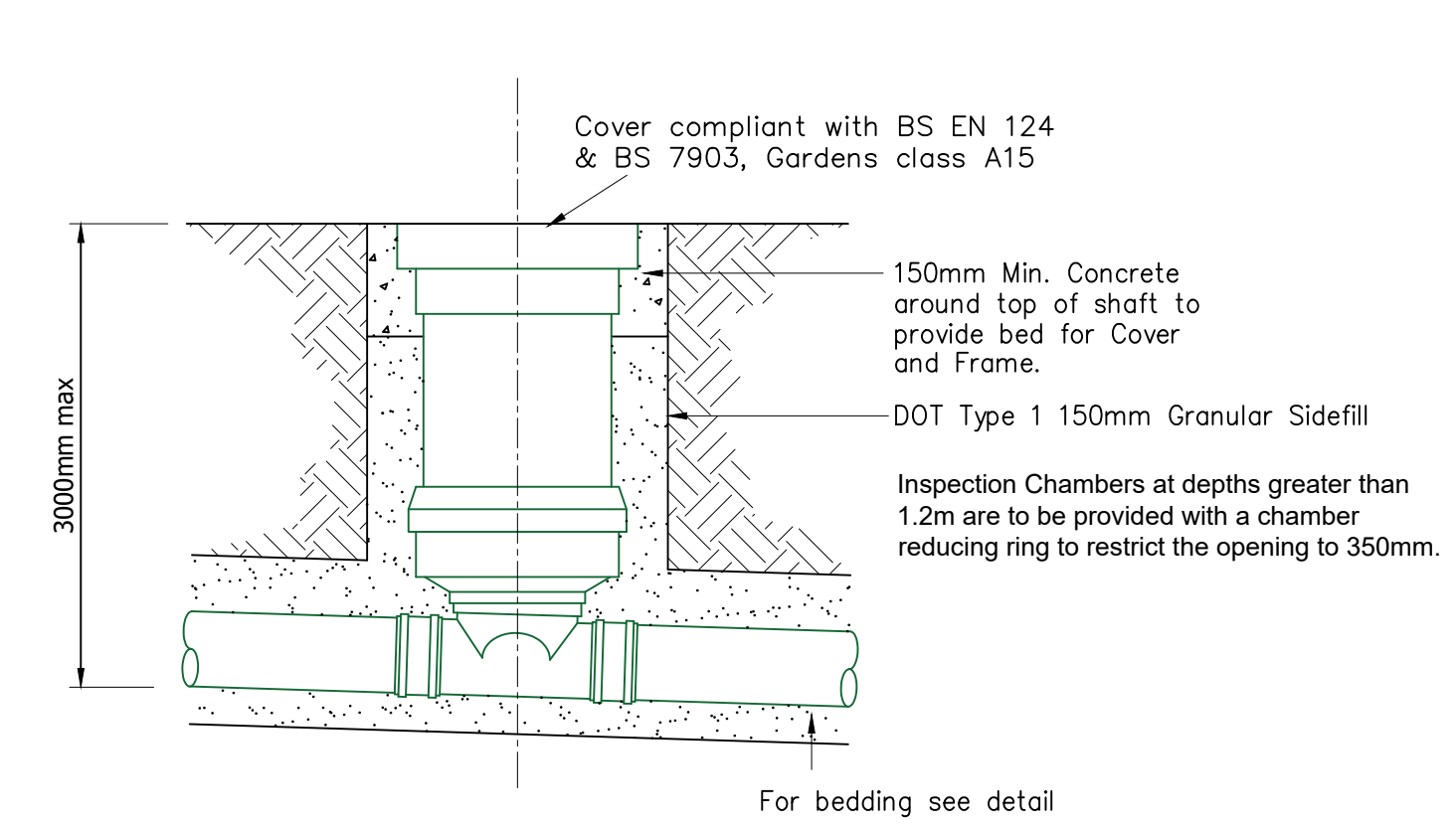
1. This drawing has been prepared using a Topographical Survey Drawing supplied by the client in AutoCAD format.
2. This drawing is to be read in conjunction with all relevant Engineers' and Architects' drawings and specifications.
3. All dimensions are in millimetres unless noted otherwise. All levels are in metres.
4. The contractor is responsible for setting out and for checking dimensions.
5. In accordance with The Construction (Design and Management) Regulations 2015 (CDM 2015) the Principle Designer and Contractor are to:
 - Notify HSE of works.
 - Comply with the requirements of Health and Safety Plan (if applicable)
 - Provide risk assessments and method statements for all potential hazards relevant to this project.
6. The main contractor shall be responsible for the setting out and accuracy of all dimensions. The contractor shall be satisfied that the information given is correct and any discrepancies should be noted to the Engineer immediately.
7. The Contractor is responsible for specifying product and codes and ordering of drainage materials.
8. New adoptable pipework to be vitrified clay type and to be constructed to the following specifications. Systems that are resistant to a jetting pressure of 4000psi. Systems that minimise the number of joints in the system, by using 3metre pipe length. Systems that do not have lip seal joints, hence preventing root ingress.
9. All non-uPVC (adoptable) pipe connection to manholes shall be provided with a 'rocker pipe' of 600mm effective length in accordance with CI E6.6 of 'Sewers for Adoption'.
10. Precast concrete manhole units shall comply with the relevant provisions of BS EN 1917 and BS 5911-3.
11. Cover grades are in accordance with BS497 Pt 1
 - Cover Grades : D400 - carriageways.
 - B125 - carriageways for slow traffic.
 - A15 - inaccessible to vehicles
12. All drainage pipes within development site to be 100mm dia unless shown otherwise.
13. All uPVC drainage to be installed to BS5955 Pt6 and in strict accordance with the manufacturers instructions.
14. All uPVC drainage products to conform to BS EN1401 & Kite mark certified in accordance with specification.
15. All adoptable drainage and associated works to comply with the latest Part E - Civil Engineering Specification of 'Sewer for Adoption'.
16. DO NOT SCALE. If discrepancy or query arises on dimensions consult Engineer.

KEY

	Permeable tarmac Access Road Extension areas with Type 3 Sub-base. Impermeable lined (SEE DETAIL 1)
	Paved driveway areas with a Type 3 Sub-base. Impermeable lined (SEE DETAIL 2)
	ACO Multi-Drain M100D 10.0 constant depth (or similar approved) drainage channel laid with no fall (or to follow ground levels adjacent to the building) and incorporating a sump unit with silt bucket at each outlet
	150mm Ø perforated distribution pipe within sump in permeable paved sub-base
	Surface water drainage pipes
	Surface Water Inspection Chamber
	Rodding Eye
	Diffuser Unit
	Foul Drainage Pipe
	Foul IC

1:150

Date	By	Revision					QAD	Chk'd	Ref	
Title			PRELIMINARY							
 Cowan Consultancy STRUCTURAL CIVIL AND BUILDING CONSULTANTS						Also at: Landguard Manor Landguard Manor Road Shanklin Isle of Wight PO37 7JB				
3 Turnberry House 4400 Parkway Whiteley Fareham Hampshire PO15 7FJ						Tel: 01489 577488 Fax: 01489 579873 consultants@cowanconsult.co.uk www.cowanconsult.co.uk				
Client			RANDMERE LIMITED							
Project			KARENZA (SITE SOUTH OF AUTUMN GATE) HOOK LANE, ALDINGBOURNE, WEST SUSSEX, PO20 3TE							
Title			DRAINAGE LAYOUT GA							
Date	JUN 2025		Scale AS SHOWN @ A1			Drg. No.				
Drawn	TB		Chk'd	EG	QA'd	EG	435050-221P			



APPENDIX B

GREENFIELD RUN-OFF RATE CALCULATIONS

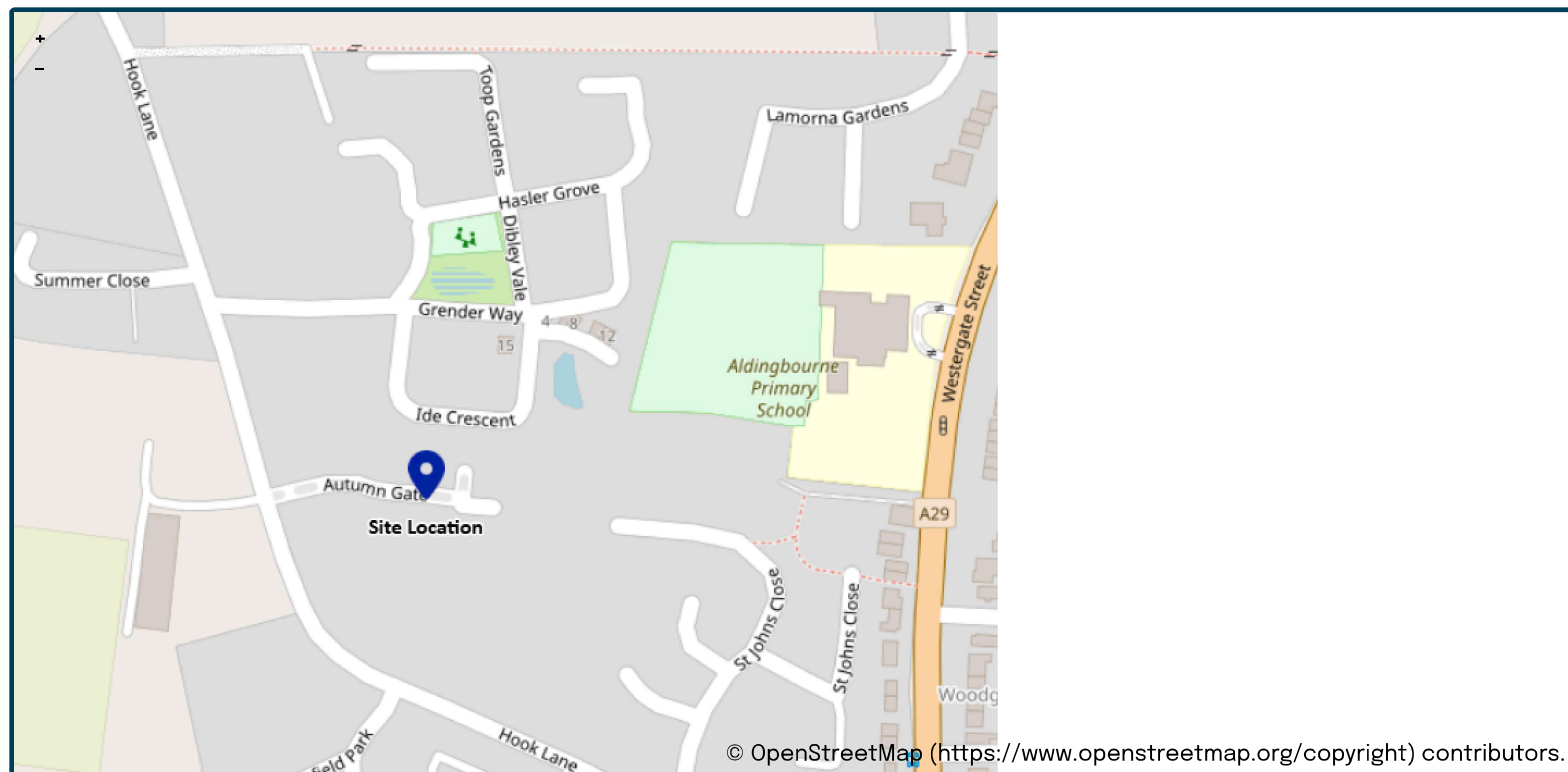
This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Project details

Date	18/06/2025
Calculated by	Tim Button
Reference	Karenza
Model version	2.0.1

Location

Site name	Karenza
Site location	Aldingbourne



Site easting	493546
Site northing	104533

Site details

Total site area (ha)	0.2766	ha
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Greenfield runoff

Method

Method	IH124		
	<u>My value</u>	☐	<u>Map value</u>
SAAR (mm)	749	mm	749
How should SPR be derived?	WRAP soil type		
WRAP soil type	4	☐	2
SPR	0.47		
QBar (IH124) (l/s)	1.4	l/s	

Growth curve factors

	<u>My value</u>	☐	<u>Map value</u>
Hydrological region	7		7
1 year growth factor	0.85		
2 year growth factor	0.88		
10 year growth factor	1.62		
30 year growth factor	2.3		
100 year growth factor	3.19		
200 year growth factor	3.74		

Results

Method	IH124	
Flow rate 1 year (l/s)	1.2	l/s
Flow rate 2 year (l/s)	1.3	l/s
Flow rate 10 years (l/s)	2.3	l/s
Flow rate 30 years (l/s)	3.3	l/s
Flow rate 100 years (l/s)	4.6	l/s
Flow rate 200 years (l/s)	5.4	l/s

Disclaimer

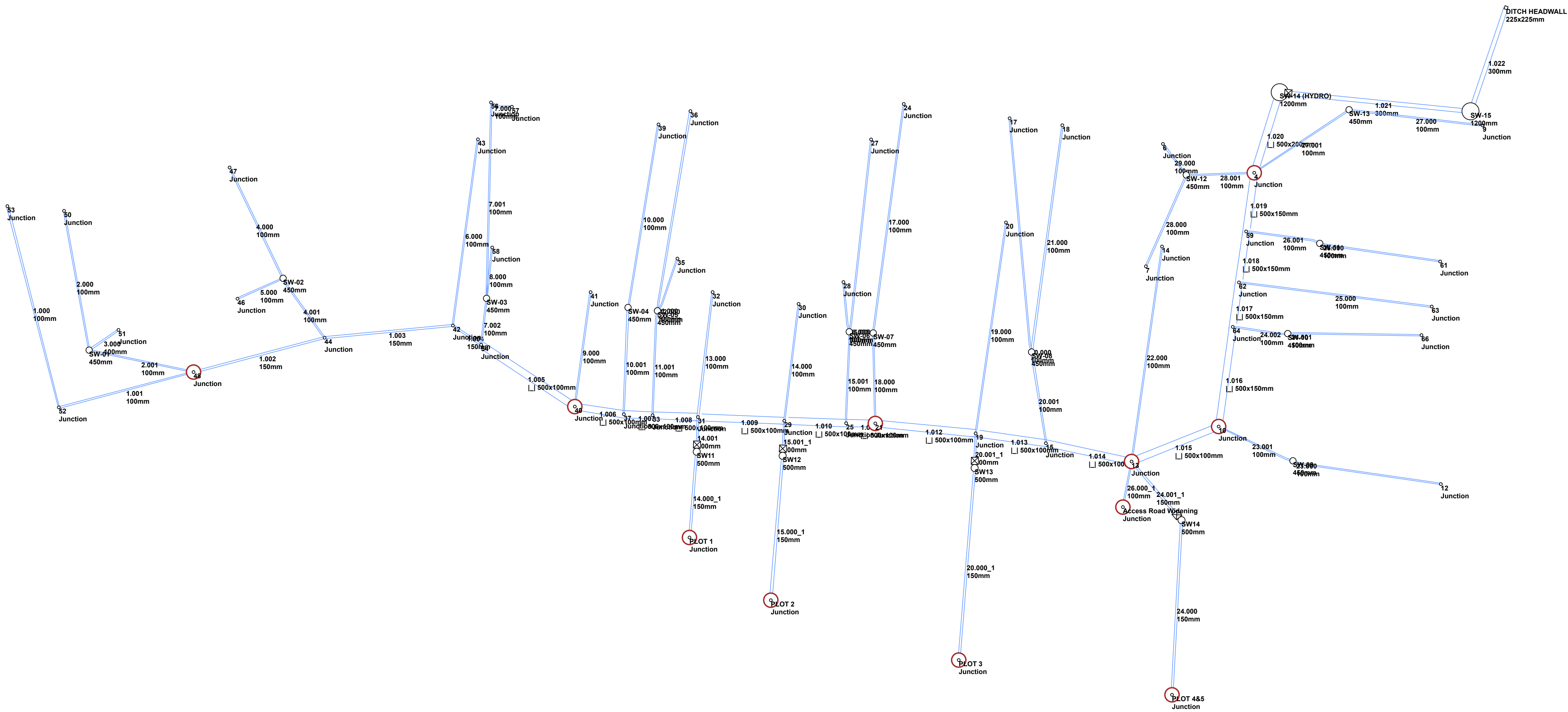
This report was produced using the Greenfield runoff rate estimation tool (2.0.1) developed by HR Wallingford and available at uksuds.com (<https://www.uksuds.com/>). The use of this tool is subject to the UK SuDS terms and conditions and licence agreement, which can both be found at [uksuds.com/terms-conditions](https://www.uksuds.com/terms-conditions) (<https://www.uksuds.com/terms-conditions>). The outputs from this tool have been used to estimate Greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, Centre for Ecology and Hydrology, Wallingford Hydrosolutions or any other organisation for the use of these data in the design or operational characteristics of any drainage scheme.

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APPENDIX C

DRAINAGE NETWORK CALCULATIONS



Design Settings

Rainfall Methodology	FEH-22	Maximum Time of Concentration (mins)	30.00	Preferred Cover Depth (m)	0.400
Return Period (years)	2	Maximum Rainfall (mm/hr)	50.0	Include Intermediate Ground	✓
Additional Flow (%)	6	Minimum Velocity (m/s)	1.00	Enforce best practice design rules	✓
CV	1.000	Connection Type	Level Inverts		
Time of Entry (mins)	5.00	Minimum Backdrop Height (m)	0.200		

Nodes

Name	Area (ha)	T of E (mins)	Add Inflow (l/s)	Cover Level (m)	Diameter (mm)	Width (mm)	Easting (m)	Northing (m)	Depth (m)
53		5.00		10.400			161026.272	49304.739	0.640
52				10.297			161029.884	49290.595	0.569
51		5.00		10.300			161034.070	49296.038	0.400
50		5.00		10.400			161030.248	49304.407	0.350
SW-01				10.300	450		161032.013	49294.619	0.780
48	0.013	5.00		10.276			161039.342	49293.075	0.569
47		5.00		10.460			161041.870	49307.455	0.460
46		5.00		10.300			161042.428	49298.230	0.350
SW-02				10.270	450		161045.631	49299.665	0.753
44				10.255			161048.544	49295.488	0.569
43		5.00		10.270			161059.309	49309.432	0.575
42				10.235			161057.553	49296.345	0.569
41		5.00		10.216			161067.220	49298.691	0.555
40	0.017	5.00		10.214			161066.110	49290.649	0.570
39		5.00		10.230			161071.986	49310.482	0.250
SW-04				10.216	450		161069.847	49297.610	0.722
37				10.205			161069.553	49290.105	0.569
36		5.00		10.230			161074.227	49311.417	0.250
35		5.00		10.194			161073.315	49301.052	0.300
SW-05				10.216	450		161071.911	49297.381	0.722
33				10.201			161071.569	49290.040	0.569
32		5.00		10.194			161075.785	49298.697	0.550
31				10.194			161074.752	49289.912	0.569
30		5.00		10.183			161081.820	49297.865	0.553

Nodes

Name	Area (ha)	T of E (mins)	Add Inflow (l/s)	Cover Level (m)	Diameter (mm)	Width (mm)	Easting (m)	Northing (m)	Depth (m)
29				10.181			161080.817	49289.651	0.569
28		5.00		10.180			161084.968	49299.402	0.300
27		5.00		10.160			161086.911	49309.428	0.200
SW-06				10.180	450		161085.376	49295.907	0.743
25				10.171			161085.159	49289.476	0.566
24		5.00		10.160			161089.206	49311.922	0.200
SW-07				10.180	450		161087.060	49295.823	0.743
21	0.015	5.00		10.167			161087.209	49289.463	0.569
20		5.00		10.130			161096.381	49303.591	0.515
19				10.123			161094.252	49288.763	0.540
18		5.00		10.110			161100.338	49310.425	0.200
17		5.00		10.130			161096.637	49310.914	0.200
SW-08				10.150	450		161098.181	49294.483	0.737
15				10.112			161099.183	49288.072	0.540
14		5.00		10.125			161107.337	49301.900	0.533
13	0.023	5.00		10.125			161105.198	49286.789	0.567
12		5.00		10.115			161126.912	49285.201	0.265
SW-09				10.115	450		161116.529	49286.837	0.838
10	0.008	5.00		10.110			161111.313	49289.247	0.573
9		5.00		9.950			161129.855	49310.410	0.200
SW-13				10.050	450		161120.470	49311.513	0.767
7		5.00		10.125			161106.203	49300.505	0.300
6		5.00		10.065			161107.404	49309.111	0.300
SW-12				10.065	450		161109.040	49306.931	0.775
4	0.008	5.00		10.065			161113.813	49307.083	0.567
SW-14 (HYDRO)				10.000	1200		161115.601	49312.745	0.806
SW-15				9.950	1200		161128.995	49311.404	0.540
DITCH HEADWALL				9.960	225	225	161131.491	49318.685	0.607
54				10.230			161059.533	49294.998	0.569
SW-03				10.234	450		161059.914	49298.254	0.780
56				10.270			161060.228	49312.027	0.300
57		5.00		10.270			161061.692	49311.725	0.270

Nodes

Name	Area (ha)	T of E (mins)	Add Inflow (l/s)	Cover Level (m)	Diameter (mm)	Width (mm)	Easting (m)	Northing (m)	Depth (m)
58		5.00		10.240			161060.312	49301.831	0.350
59				10.080			161113.241	49302.960	0.573
SW-11				10.085	450		161118.411	49302.118	0.781
61		5.00		10.100			161126.865	49300.847	0.300
62				10.088			161112.736	49299.376	0.573
63		5.00		10.100			161126.272	49297.681	0.548
64				10.094			161112.303	49296.248	0.572
SW-10				10.090	450		161116.164	49295.776	0.775
66		5.00		10.100			161125.552	49295.671	0.300
PLOT 1	0.016	5.00	0.0	10.200			161074.160	49281.446	0.510
PLOT 2	0.019	5.00	0.0	10.200			161079.872	49277.038	0.480
PLOT 3	0.011	5.00	0.0	10.150			161093.066	49272.831	0.480
PLOT 4&5	0.032	5.00		10.200			161108.039	49270.388	0.530
SW11				10.200	500		161074.672	49287.476	0.550
SW12				10.200	500		161080.702	49287.192	0.560
SW13				10.150	500		161094.182	49286.331	0.550
SW14				10.200	500		161108.707	49282.662	0.590
Access Road Widening	0.005	5.00		10.150			161104.591	49283.582	0.580

Links (Results)

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.022	1.351	95.5	45.8	0.240	0.307	0.309	0.0	146	1.337
1.021	1.239	87.6	46.1	0.206	0.240	0.309	0.0	154	1.254
1.020	0.515	51.5	46.6	0.367	0.306	0.309	0.0	186	0.501
1.019	0.836	62.7	43.4	0.423	0.417	0.284	0.0	116	0.750
27.001	0.759	6.0	1.9	0.367	0.460	0.010	0.0	39	0.673
28.001	1.029	8.1	1.3	0.375	0.460	0.007	0.0	28	0.764

Links (Results)

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
28.000	1.416	11.1	0.4	0.200	0.375	0.002	0.0	13	0.656
29.000	1.967	15.4	1.0	0.200	0.375	0.005	0.0	17	1.083
27.000	1.026	8.1	1.9	0.100	0.367	0.010	0.0	33	0.841
1.018	0.845	63.4	43.3	0.423	0.423	0.282	0.0	115	0.755
26.001	1.003	7.9	0.4	0.381	0.465	0.002	0.0	16	0.533
26.000	1.170	9.2	0.4	0.200	0.381	0.002	0.0	14	0.583
1.017	0.846	63.5	42.6	0.422	0.423	0.276	0.0	113	0.752
25.000	0.348	2.7	1.2	0.448	0.465	0.006	0.0	46	0.334
1.016	0.828	62.1	41.9	0.423	0.422	0.271	0.0	114	0.737
24.002	1.142	9.0	1.0	0.375	0.464	0.005	0.0	23	0.761
24.001	1.084	8.5	1.0	0.200	0.375	0.005	0.0	23	0.722
1.015	0.855	42.7	40.1	0.467	0.473	0.257	0.0	96	0.838
23.001	0.570	4.5	1.2	0.438	0.465	0.006	0.0	36	0.484
23.000	1.245	9.8	1.2	0.165	0.438	0.006	0.0	24	0.847
1.014	0.721	36.0	30.1	0.440	0.467	0.191	0.0	89	0.681
22.000	0.357	2.8	1.1	0.433	0.467	0.006	0.0	43	0.334
1.013	0.710	35.5	28.6	0.440	0.440	0.180	0.0	86	0.662
20.001	1.139	8.9	2.1	0.337	0.440	0.011	0.0	33	0.934
21.000	0.852	6.7	0.8	0.100	0.337	0.004	0.0	23	0.567
20.000	0.883	6.9	1.3	0.100	0.337	0.007	0.0	30	0.685
1.012	0.695	34.7	26.1	0.469	0.440	0.163	0.0	82	0.634
19.000	0.349	2.7	1.1	0.415	0.440	0.006	0.0	44	0.330
1.011	0.885	44.3	23.2	0.466	0.469	0.143	0.0	65	0.719
17.000	0.903	7.1	0.8	0.100	0.343	0.004	0.0	23	0.601
18.000	1.142	9.0	0.8	0.343	0.469	0.004	0.0	21	0.713
1.010	0.604	30.2	21.7	0.469	0.466	0.133	0.0	80	0.544
15.001	1.106	8.7	1.9	0.343	0.466	0.010	0.0	32	0.883
16.000	1.561	12.3	0.8	0.200	0.343	0.004	0.0	17	0.858
15.000	0.987	7.8	1.1	0.100	0.343	0.006	0.0	26	0.708
1.009	0.699	34.9	18.3	0.469	0.469	0.112	0.0	64	0.563
14.000	0.352	2.8	0.5	0.453	0.469	0.003	0.0	29	0.268
1.008	0.708	35.4	15.3	0.469	0.469	0.093	0.0	57	0.537

Links (Results)

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
13.000	0.350	2.7	0.6	0.450	0.469	0.003	0.0	31	0.274
1.007	0.672	33.6	13.8	0.469	0.469	0.083	0.0	55	0.498
11.001	1.147	9.0	1.9	0.322	0.469	0.010	0.0	32	0.916
11.000	0.881	6.9	1.1	0.150	0.322	0.006	0.0	28	0.653
12.000	1.231	9.7	0.8	0.200	0.322	0.004	0.0	19	0.733
1.006	0.724	36.2	12.3	0.470	0.469	0.074	0.0	49	0.503
10.001	1.120	8.8	1.7	0.322	0.469	0.009	0.0	30	0.870
10.000	0.920	7.2	1.7	0.150	0.322	0.009	0.0	33	0.754
1.005	0.701	35.0	9.1	0.469	0.470	0.054	0.0	41	0.441
9.000	0.346	2.7	0.5	0.455	0.470	0.003	0.0	30	0.267
1.004	0.453	8.0	7.0	0.419	0.419	0.041	0.0	109	0.510
7.002	1.303	10.2	2.5	0.380	0.469	0.013	0.0	33	1.069
8.000	1.506	11.8	0.6	0.250	0.380	0.003	0.0	15	0.778
7.001	0.966	7.6	1.9	0.200	0.380	0.010	0.0	34	0.801
7.000	1.073	8.4	0.9	0.170	0.200	0.005	0.0	22	0.700
1.003	0.466	8.2	6.4	0.419	0.419	0.038	0.0	100	0.515
6.000	0.354	2.8	0.7	0.475	0.469	0.004	0.0	34	0.293
1.002	0.466	8.2	5.0	0.419	0.419	0.029	0.0	85	0.489
4.001	1.240	9.7	1.7	0.353	0.469	0.009	0.0	29	0.935
4.000	1.124	8.8	1.3	0.360	0.353	0.007	0.0	26	0.806
5.000	1.508	11.8	0.4	0.250	0.353	0.002	0.0	12	0.671
1.001	0.350	2.7	1.9	0.469	0.469	0.010	0.0	61	0.377
2.001	0.947	7.4	1.0	0.380	0.469	0.005	0.0	25	0.667
3.000	1.385	10.9	0.4	0.300	0.380	0.002	0.0	14	0.667
2.000	1.175	9.2	0.6	0.250	0.380	0.003	0.0	17	0.645
1.000	0.354	2.8	2.0	0.540	0.469	0.010	0.0	62	0.384
14.000_1	0.814	14.4	3.1	0.360	0.400	0.016	0.0	47	0.650
14.001	0.779	6.1	3.1	0.450	0.469	0.016	0.0	50	0.781
15.000_1	0.889	15.7	3.6	0.330	0.410	0.019	0.0	49	0.723
15.001_1	0.821	6.4	3.6	0.460	0.469	0.019	0.0	54	0.844

Links (Results)

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
20.000_1	0.719	12.7	2.1	0.330	0.400	0.011	0.0	41	0.533
20.001_1	0.641	5.0	2.1	0.450	0.440	0.011	0.0	45	0.611
24.000	0.698	12.3	6.1	0.380	0.440	0.032	0.0	75	0.697
24.001_1	0.984	17.4	6.1	0.440	0.417	0.032	0.0	61	0.898
26.000_1	0.461	3.6	1.0	0.480	0.467	0.005	0.0	35	0.387

Simulation Settings

Rainfall Methodology	FEH-22	Skip Steady State	✓	2 year (l/s)	0.3	Check Discharge Volume	✓
Summer CV	1.000	Drain Down Time (mins)	240	10 year (l/s)	0.6	100 year +40% 360 minute (m³)	67
Winter CV	1.000	Additional Storage (m³/ha)	0.0	30 year (l/s)	0.9		
Analysis Speed	Detailed	Check Discharge Rate(s)	✓	100 year (l/s)	1.2		

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 %)	Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	10	0	0	30	40	0	0
10	40	0	0	100	45	0	0

Pre-development Discharge Rate

Site Makeup	Greenfield	SPR	0.30	Growth Factor 100 year	3.19	Q 10 year (l/s)	0.6
Greenfield Method	IH124	Region	7	Growth Factor 500 year	4.49	Q 30 year (l/s)	0.9
Positively Drained Area (ha)	0.208	Growth Factor 2 year	0.88	Betterment (%)	6	Q 100 year (l/s)	1.2
SAAR (mm)	749	Growth Factor 10 year	1.62	QBar	0.4	Q 500 year (l/s)	1.7
Soil Index	2	Growth Factor 30 year	2.40	Q 2 year (l/s)	0.3		

Pre-development Discharge Volume

Site Makeup	Greenfield	Soil Index	2	Return Period (years)	100	Betterment (%)	6
Greenfield Method	FSR/FEH	SPR	0.30	Climate Change (%)	40	PR	0.346
Positively Drained Area (ha)	0.208	CWI	112.444	Storm Duration (mins)	360	Runoff Volume (m ³)	67

Node SW-14 (HYDRO) Online Hydro-Brake® Control

Flap Valve	x	Design Flow (l/s)	1.2	Min Outlet Diameter (m)	0.075
Replaces Downstream Link	✓	Objective	(FP) Future proof	Min Node Diameter (mm)	1200
Invert Level (m)	9.494	Sump Available	✓		
Design Depth (m)	0.400	Product Number	CTL-SFP-0058-1200-0400-1200		

Node SW11 Online Orifice Control

Flap Valve	x	Invert Level (m)	9.650	Design Flow (l/s)	2.9	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Design Depth (m)	0.380	Diameter (m)	0.048		

Node SW12 Online Orifice Control

Flap Valve	x	Invert Level (m)	9.640	Design Flow (l/s)	2.5	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Design Depth (m)	0.350	Diameter (m)	0.045		

Node SW13 Online Orifice Control

Flap Valve	x	Invert Level (m)	9.600	Design Flow (l/s)	1.2	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Design Depth (m)	0.350	Diameter (m)	0.031		

Node SW14 Online Orifice Control

Flap Valve	x	Invert Level (m)	9.610	Design Flow (l/s)	2.9	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Design Depth (m)	0.400	Diameter (m)	0.047		

Node 48 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Width (m)	11.400	Depth (m)	0.300
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	9.707	Length (m)	11.400	Inf Depth (m)	0.300
Safety Factor	3.0	Time to half empty (mins)	0	Slope (1:X)	460.0		

Node 21 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Width (m)	12.250	Depth (m)	0.300
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	9.598	Length (m)	12.250	Inf Depth (m)	0.300
Safety Factor	3.0	Time to half empty (mins)	0	Slope (1:X)	460.0		

Node 40 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Width (m)	10.490	Depth (m)	0.300
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	9.644	Length (m)	10.490	Inf Depth (m)	0.300
Safety Factor	3.0	Time to half empty (mins)	0	Slope (1:X)	460.0		

Node 13 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Width (m)	15.090	Depth (m)	0.300
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	9.558	Length (m)	15.090	Inf Depth (m)	0.300
Safety Factor	3.0	Time to half empty (mins)	0	Slope (1:X)	460.0		

Node 10 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Width (m)	8.940	Depth (m)	0.300
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	9.537	Length (m)	8.940	Inf Depth (m)	0.300
Safety Factor	3.0	Time to half empty (mins)		Slope (1:X)	460.0		

Node 4 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Width (m)	8.940	Depth (m)	0.300
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	9.498	Length (m)	8.940	Inf Depth (m)	0.300
Safety Factor	3.0	Time to half empty (mins)		Slope (1:X)	460.0		

Node PLOT 1 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Width (m)	6.630	Depth (m)	0.380
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	9.690	Length (m)	6.630	Inf Depth (m)	
Safety Factor	2.0	Time to half empty (mins)	0	Slope (1:X)	1000.0		

Node PLOT 4&5 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Width (m)	11.091	Depth (m)	0.400
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	9.670	Length (m)	11.091	Inf Depth (m)	
Safety Factor	2.0	Time to half empty (mins)	0	Slope (1:X)	1000.0		

Node Access Road Widening Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Width (m)	7.211	Depth (m)	0.400
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	9.570	Length (m)	7.211	Inf Depth (m)	
Safety Factor	2.0	Time to half empty (mins)	0	Slope (1:X)	1000.0		

Node PLOT 2 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Width (m)	8.124	Depth (m)	0.350
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	9.720	Length (m)	8.124	Inf Depth (m)	
Safety Factor	2.0	Time to half empty (mins)	0	Slope (1:X)	1000.0		

Node PLOT 3 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Width (m)	6.325	Depth (m)	0.350
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	9.670	Length (m)	6.325	Inf Depth (m)	
Safety Factor	2.0	Time to half empty (mins)	0	Slope (1:X)	1000.0		

Approval Settings

Node Size	✓	Maximum Length (m)	100.000	Minimum Cover Depth (m)	0.400
Node Losses	✓	Coordinates	✓	Maximum Cover Depth (m)	3.000
Link Size	✓	Accuracy (m)	1.000	Backdrops	✓
Minimum Diameter (mm)	100	Crossings	✓	Minimum Backdrop Height (m)	0.200
Link Length	✓	Cover Depth	✓	Maximum Backdrop Height (m)	1.500

Approval Settings

Full Bore Velocity	✓	Surcharged Depth	✓	Discharge Rates	✓
Minimum Full Bore Velocity (m/s)	1.000	Return Period (years)	2	2 year (l/s)	0.0
Maximum Full Bore Velocity (m/s)	3.000	Maximum Surcharged Depth (m)	0.100	10 year (l/s)	0.6
Proportional Velocity	✓	Flooding	✓	30 year (l/s)	0.9
Return Period (years)	2	Return Period (years)	100	100 year (l/s)	1.2
Minimum Proportional Velocity (m/s)	0.750	Time to Half Empty	✓	Discharge Volume	✓
Maximum Proportional Velocity (m/s)	3.000	Return Period (years)	2	100 year +45% 360 minute (m³)	60

Rainfall

Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)	Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
2 year +10% CC 15 minute summer	112.801	31.919	2 year +10% CC 1440 minute summer	6.274	1.682
2 year +10% CC 15 minute winter	79.159	31.919	2 year +10% CC 1440 minute winter	4.217	1.682
2 year +10% CC 30 minute summer	73.505	20.799	10 year +40% CC 15 minute summer	319.333	90.360
2 year +10% CC 30 minute winter	51.583	20.799	10 year +40% CC 15 minute winter	224.093	90.360
2 year +10% CC 60 minute summer	49.342	13.040	10 year +40% CC 30 minute summer	207.936	58.839
2 year +10% CC 60 minute winter	32.782	13.040	10 year +40% CC 30 minute winter	145.920	58.839
2 year +10% CC 120 minute summer	35.561	9.398	10 year +40% CC 60 minute summer	139.400	36.839
2 year +10% CC 120 minute winter	23.626	9.398	10 year +40% CC 60 minute winter	92.614	36.839
2 year +10% CC 180 minute summer	29.001	7.463	10 year +40% CC 120 minute summer	88.073	23.275
2 year +10% CC 180 minute winter	18.851	7.463	10 year +40% CC 120 minute winter	58.514	23.275
2 year +10% CC 240 minute summer	23.623	6.243	10 year +40% CC 180 minute summer	67.942	17.484
2 year +10% CC 240 minute winter	15.694	6.243	10 year +40% CC 180 minute winter	44.164	17.484
2 year +10% CC 360 minute summer	18.479	4.755	10 year +40% CC 240 minute summer	53.592	14.163
2 year +10% CC 360 minute winter	12.012	4.755	10 year +40% CC 240 minute winter	35.605	14.163
2 year +10% CC 480 minute summer	14.638	3.868	10 year +40% CC 360 minute summer	40.438	10.406
2 year +10% CC 480 minute winter	9.725	3.868	10 year +40% CC 360 minute winter	26.286	10.406
2 year +10% CC 600 minute summer	11.991	3.280	10 year +40% CC 480 minute summer	31.381	8.293
2 year +10% CC 600 minute winter	8.193	3.280	10 year +40% CC 480 minute winter	20.849	8.293
2 year +10% CC 720 minute summer	10.667	2.859	10 year +40% CC 600 minute summer	25.340	6.931
2 year +10% CC 720 minute winter	7.169	2.859	10 year +40% CC 600 minute winter	17.314	6.931
2 year +10% CC 960 minute summer	8.714	2.295	10 year +40% CC 720 minute summer	22.297	5.976
2 year +10% CC 960 minute winter	5.772	2.295	10 year +40% CC 720 minute winter	14.985	5.976

Rainfall

Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)	Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
10 year +40% CC 960 minute summer	17.912	4.717	30 year +40% CC 1440 minute summer	15.511	4.157
10 year +40% CC 960 minute winter	11.865	4.717	30 year +40% CC 1440 minute winter	10.424	4.157
10 year +40% CC 1440 minute summer	12.606	3.379	100 year +45% CC 15 minute summer	572.156	161.900
10 year +40% CC 1440 minute winter	8.472	3.379	100 year +45% CC 15 minute winter	401.513	161.900
30 year +40% CC 15 minute summer	429.907	121.649	100 year +45% CC 30 minute summer	379.523	107.392
30 year +40% CC 15 minute winter	301.689	121.649	100 year +45% CC 30 minute winter	266.332	107.392
30 year +40% CC 30 minute summer	283.638	80.260	100 year +45% CC 60 minute summer	258.482	68.309
30 year +40% CC 30 minute winter	199.044	80.260	100 year +45% CC 60 minute winter	171.729	68.309
30 year +40% CC 60 minute summer	190.809	50.425	100 year +45% CC 120 minute summer	153.020	40.439
30 year +40% CC 60 minute winter	126.769	50.425	100 year +45% CC 120 minute winter	101.663	40.439
30 year +40% CC 120 minute summer	116.003	30.656	100 year +45% CC 180 minute summer	114.761	29.532
30 year +40% CC 120 minute winter	77.070	30.656	100 year +45% CC 180 minute winter	74.597	29.532
30 year +40% CC 180 minute summer	88.009	22.648	100 year +45% CC 240 minute summer	89.062	23.537
30 year +40% CC 180 minute winter	57.208	22.648	100 year +45% CC 240 minute winter	59.171	23.537
30 year +40% CC 240 minute summer	68.712	18.159	100 year +45% CC 360 minute summer	66.004	16.985
30 year +40% CC 240 minute winter	45.651	18.159	100 year +45% CC 360 minute winter	42.904	16.985
30 year +40% CC 360 minute summer	51.173	13.168	100 year +45% CC 480 minute summer	50.678	13.393
30 year +40% CC 360 minute winter	33.264	13.168	100 year +45% CC 480 minute winter	33.669	13.393
30 year +40% CC 480 minute summer	39.432	10.421	100 year +45% CC 600 minute summer	40.618	11.110
30 year +40% CC 480 minute winter	26.198	10.421	100 year +45% CC 600 minute winter	27.753	11.110
30 year +40% CC 600 minute summer	31.695	8.669	100 year +45% CC 720 minute summer	35.535	9.524
30 year +40% CC 600 minute winter	21.656	8.669	100 year +45% CC 720 minute winter	23.881	9.524
30 year +40% CC 720 minute summer	27.795	7.449	100 year +45% CC 960 minute summer	28.311	7.455
30 year +40% CC 720 minute winter	18.680	7.449	100 year +45% CC 960 minute winter	18.754	7.455
30 year +40% CC 960 minute summer	22.231	5.854	100 year +45% CC 1440 minute summer	19.617	5.258
30 year +40% CC 960 minute winter	14.726	5.854	100 year +45% CC 1440 minute winter	13.184	5.258

Results for 2 year +10% CC Critical Storm Duration. Lowest mass balance: 95.05%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	53	12	9.797	0.037	0.3	0.0000	0.0000	OK
15 minute summer	1.000:50%	12	9.797	0.053	1.9	0.1150	0.0000	OK
15 minute summer	52	12	9.776	0.048	1.6	0.0000	0.0000	OK
15 minute summer	51	1	9.900	0.000	0.0	0.0000	0.0000	OK
15 minute summer	3.000:50%	11	9.873	0.013	0.4	0.0000	0.0000	OK
15 minute summer	50	1	10.050	0.000	0.0	0.0000	0.0000	OK
15 minute summer	2.000:50%	10	9.952	0.017	0.6	0.0000	0.0000	OK
15 minute summer	SW-01	10	9.845	0.025	1.0	0.0040	0.0000	OK
180 minute summer	48	112	9.742	0.035	2.2	2.7742	0.0000	OK
15 minute summer	47	1	10.000	0.000	0.0	0.0000	0.0000	OK
15 minute summer	4.000:50%	10	9.935	0.026	1.3	0.0373	0.0000	OK
15 minute summer	46	1	9.950	0.000	0.0	0.0000	0.0000	OK
15 minute summer	5.000:50%	11	9.896	0.013	0.4	0.0099	0.0000	OK
15 minute summer	SW-02	11	9.845	0.028	1.6	0.0044	0.0000	OK
30 minute summer	44	20	9.730	0.044	1.6	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	53	1.000	1.000:50%	-0.3	-0.134	-0.092	0.0248	
15 minute summer	53	1.000	52	1.6	0.408	0.578	0.0289	
15 minute summer	52	1.001	48	1.6	0.644	0.582	0.0251	
15 minute summer	51	3.000	3.000:50%	0.0	0.000	0.000	0.0004	
15 minute summer	51	3.000	SW-01	0.4	0.395	0.037	0.0013	
15 minute summer	50	2.000	2.000:50%	0.0	0.000	0.000	0.0022	
15 minute summer	50	2.000	SW-01	0.6	0.506	0.061	0.0060	
15 minute summer	SW-01	2.001	48	1.0	0.759	0.130	0.0102	
180 minute summer	48	1.002	44	1.0	0.301	0.121	0.0337	
15 minute summer	47	4.000	4.000:50%	0.0	0.000	0.000	0.0035	
15 minute summer	47	4.000	SW-02	1.2	0.732	0.141	0.0074	
15 minute summer	46	5.000	5.000:50%	0.0	0.000	0.000	0.0005	
15 minute summer	46	5.000	SW-02	0.4	0.357	0.034	0.0021	
15 minute summer	SW-02	4.001	44	1.6	0.679	0.169	0.0126	
30 minute summer	44	1.003	42	1.6	0.366	0.194	0.0395	

Results for 2 year +10% CC Critical Storm Duration. Lowest mass balance: 95.05%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	43	12	9.714	0.019	0.1	0.0000	0.0000	OK
15 minute summer	6.000:50%	12	9.712	0.032	0.7	0.0000	0.0000	OK
30 minute summer	42	20	9.711	0.045	2.0	0.0000	0.0000	OK
720 minute winter	41	720	9.708	0.047	0.0	0.0000	0.0000	OK
720 minute winter	9.000:50%	720	9.707	0.055	0.1	0.0000	0.0000	OK
720 minute winter	40	720	9.708	0.064	1.4	5.4557	0.0000	OK
15 minute summer	39	1	9.980	0.000	0.0	0.0000	0.0000	OK
15 minute summer	10.000:50%	10	9.922	0.035	1.7	0.0000	0.0000	OK
15 minute summer	SW-04	10	9.825	0.031	1.7	0.0049	0.0000	OK
720 minute winter	37	720	9.708	0.072	1.6	0.0000	0.0000	OK
15 minute summer	36	1	9.980	0.000	0.0	0.0000	0.0000	OK
15 minute summer	11.000:50%	11	9.914	0.027	1.1	0.0000	0.0000	OK
15 minute summer	35	1	9.894	0.000	0.0	0.0000	0.0000	OK
30 minute summer	12.000:50%	18	9.863	0.019	0.7	0.0000	0.0000	OK
15 minute summer	SW-05	10	9.826	0.032	1.8	0.0051	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	43	6.000	6.000:50%	-0.1	-0.109	-0.043	0.0104	
15 minute summer	43	6.000	42	0.5	0.258	0.175	0.0180	
30 minute summer	42	1.004	54	2.0	0.761	0.256	0.0074	
720 minute winter	41	9.000	9.000:50%	0.0	-0.042	0.006	0.0162	
720 minute winter	41	9.000	40	0.1	0.178	0.037	0.0196	
720 minute winter	40	1.006	37	1.4	0.203	0.037	0.1180	
15 minute summer	39	10.000	10.000:50%	0.0	0.000	0.000	0.0079	
15 minute summer	39	10.000	SW-04	1.7	0.745	0.231	0.0146	
15 minute summer	SW-04	10.001	37	1.7	0.893	0.189	0.0148	
720 minute winter	37	1.007	33	1.5	0.214	0.046	0.0743	
15 minute summer	36	11.000	11.000:50%	0.0	0.000	0.000	0.0062	
15 minute summer	36	11.000	SW-05	1.1	0.570	0.159	0.0138	
15 minute summer	35	12.000	12.000:50%	0.0	0.000	0.000	0.0010	
15 minute summer	35	12.000	SW-05	0.7	0.462	0.072	0.0031	
15 minute summer	SW-05	11.001	33	1.8	0.908	0.201	0.0159	

Results for 2 year +10% CC Critical Storm Duration. Lowest mass balance: 95.05%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
720 minute winter	33	720	9.708	0.076	1.7	0.0000	0.0000	OK
720 minute winter	32	720	9.708	0.064	0.0	0.0000	0.0000	OK
720 minute winter	13.000:50%	720	9.707	0.073	0.1	0.2302	0.0000	OK
720 minute winter	31	720	9.708	0.083	2.1	0.0000	0.0000	OK
720 minute winter	30	720	9.708	0.078	0.0	0.0000	0.0000	OK
720 minute winter	14.000:50%	720	9.708	0.087	0.1	0.0000	0.0000	OK
720 minute winter	29	720	9.708	0.096	2.6	0.0000	0.0000	OK
15 minute summer	28	1	9.880	0.000	0.0	0.0000	0.0000	OK
15 minute summer	16.000:50%	11	9.825	0.016	0.7	0.0000	0.0000	OK
15 minute summer	27	1	9.960	0.000	0.0	0.0000	0.0000	OK
15 minute summer	15.000:50%	11	9.874	0.025	1.1	0.0458	0.0000	OK
15 minute summer	SW-06	11	9.768	0.031	1.8	0.0050	0.0000	OK
720 minute winter	25	720	9.708	0.103	2.7	0.0000	0.0000	SURCHARGED
15 minute summer	24	1	9.960	0.000	0.0	0.0000	0.0000	OK
15 minute summer	17.000:50%	11	9.872	0.023	0.8	0.0387	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)
720 minute winter	33	1.008	31	1.7	0.219	0.049	0.1262	
720 minute winter	32	13.000	13.000:50%	0.0	-0.035	-0.008	0.0251	
720 minute winter	32	13.000	31	0.1	0.146	0.036	0.0288	
720 minute winter	31	1.009	29	2.1	0.224	0.060	0.2708	
720 minute winter	30	14.000	14.000:50%	0.0	-0.028	-0.004	0.0284	
720 minute winter	30	14.000	29	0.1	0.097	0.030	0.0309	
720 minute winter	29	1.010	25	2.5	0.246	0.084	0.2156	
15 minute summer	28	16.000	16.000:50%	0.0	0.000	0.000	0.0007	
15 minute summer	28	16.000	SW-06	0.7	0.542	0.057	0.0026	
15 minute summer	27	15.000	15.000:50%	0.0	0.000	0.000	0.0053	
15 minute summer	27	15.000	SW-06	1.1	0.593	0.139	0.0124	
15 minute summer	SW-06	15.001	25	1.8	0.843	0.205	0.0151	
720 minute winter	25	1.011	21	2.7	0.256	0.061	0.1089	
15 minute summer	24	17.000	17.000:50%	0.0	0.000	0.000	0.0056	
15 minute summer	24	17.000	SW-07	0.8	0.628	0.109	0.0100	

Results for 2 year +10% CC Critical Storm Duration. Lowest mass balance: 95.05%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	SW-07	11	9.757	0.020	0.8	0.0031	0.0000	OK
720 minute winter	21	720	9.708	0.110	3.1	13.7152	0.0000	SURCHARGED
720 minute winter	20	705	9.708	0.093	0.0	0.0000	0.0000	OK
720 minute winter	19.000:50%	720	9.708	0.109	0.1	0.0000	0.0000	SURCHARGED
720 minute winter	19	720	9.708	0.125	2.6	0.0000	0.0000	SURCHARGED
15 minute summer	18	1	9.910	0.000	0.0	0.0000	0.0000	OK
15 minute summer	21.000:50%	11	9.833	0.022	0.7	0.0332	0.0000	OK
15 minute summer	17	1	9.930	0.000	0.0	0.0000	0.0000	OK
15 minute summer	20.000:50%	11	9.850	0.028	1.3	0.0593	0.0000	OK
15 minute summer	SW-08	11	9.745	0.032	1.9	0.0052	0.0000	OK
720 minute winter	15	720	9.708	0.136	2.7	0.0000	0.0000	SURCHARGED
720 minute winter	14	720	9.708	0.116	0.0	0.0000	0.0000	SURCHARGED
720 minute winter	22.000:50%	720	9.708	0.133	0.1	0.0000	0.0000	SURCHARGED
720 minute winter	13	720	9.708	0.150	3.6	28.8116	0.0000	SURCHARGED
15 minute summer	12	1	9.850	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	SW-07	18.000	21	0.8	0.618	0.085	0.0101	
720 minute winter	21	1.012	19	2.3	0.234	0.065	0.4148	
720 minute winter	20	19.000	19.000:50%	0.0	-0.023	0.007	0.0577	
720 minute winter	20	19.000	19	0.1	0.175	0.037	0.0586	
720 minute winter	19	1.013	15	2.5	0.226	0.071	0.3242	
15 minute summer	18	21.000	21.000:50%	0.0	0.000	0.000	0.0050	
15 minute summer	18	21.000	SW-08	0.7	0.401	0.102	0.0138	
15 minute summer	17	20.000	20.000:50%	0.0	0.000	0.000	0.0076	
15 minute summer	17	20.000	SW-08	1.2	0.602	0.175	0.0167	
15 minute summer	SW-08	20.001	15	1.9	0.903	0.211	0.0145	
720 minute winter	15	1.014	13	2.7	0.191	0.074	0.4388	
720 minute winter	14	22.000	22.000:50%	0.0	-0.019	0.009	0.0597	
720 minute winter	14	22.000	13	0.1	0.166	0.036	0.0597	
720 minute winter	13	1.015	10	1.2	0.168	0.027	0.5280	
15 minute summer	12	23.000	23.000:50%	0.0	0.000	0.000	0.0035	

Results for 2 year +10% CC Critical Storm Duration. Lowest mass balance: 95.05%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	23.000:50%	11	9.736	0.023	1.1	0.0320	0.0000	OK
720 minute winter	SW-09	705	9.708	0.131	0.1	0.0208	0.0000	SURCHARGED
720 minute winter	10	720	9.708	0.171	1.3	12.0363	0.0000	SURCHARGED
15 minute summer	9	1	9.750	0.000	0.0	0.0000	0.0000	OK
720 minute winter	27.000:50%	720	9.707	0.041	0.2	0.1247	0.0000	OK
720 minute winter	SW-13	720	9.708	0.125	0.2	0.0198	0.0000	SURCHARGED
15 minute summer	7	1	9.825	0.000	0.0	0.0000	0.0000	OK
15 minute summer	28.000:50%	11	9.721	0.013	0.4	0.0109	0.0000	OK
15 minute summer	6	1	9.765	0.000	0.0	0.0000	0.0000	OK
720 minute winter	29.000:50%	720	9.707	0.030	0.2	0.0000	0.0000	OK
720 minute winter	SW-12	720	9.708	0.118	0.2	0.0187	0.0000	SURCHARGED
720 minute winter	4	720	9.708	0.210	1.0	14.9703	0.0000	SURCHARGED
720 minute winter	SW-14 (HYDRO)	720	9.708	0.214	0.2	0.2417	0.0000	OK
720 minute winter	SW-15	720	9.708	0.298	0.1	0.3366	0.0000	OK
15 minute summer	DITCH HEADWALL	1	9.874	0.521	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	12	23.000	SW-09	1.1	0.605	0.112	0.0099	
720 minute winter	SW-09	23.001	10	0.1	0.099	0.024	0.0450	
720 minute winter	10	1.016	64	1.1	0.158	0.017	0.6301	
15 minute summer	9	27.000	27.000:50%	0.0	0.000	0.000	0.0053	
15 minute summer	9	27.000	SW-13	1.7	0.695	0.213	0.0117	
720 minute winter	SW-13	27.001	4	0.2	0.051	0.032	0.0626	
15 minute summer	7	28.000	28.000:50%	0.0	0.000	0.000	0.0010	
15 minute summer	7	28.000	SW-12	0.4	0.355	0.036	0.0041	
15 minute summer	6	29.000	29.000:50%	0.0	0.000	0.000	0.0006	
15 minute summer	6	29.000	SW-12	0.9	0.737	0.058	0.0018	
720 minute winter	SW-12	28.001	4	0.2	0.032	0.025	0.0374	
720 minute winter	4	1.020	SW-14 (HYDRO)	0.2	0.017	0.004	0.6286	
720 minute winter	SW-14 (HYDRO)	Hydro-Brake®	SW-15	0.1				
720 minute winter	SW-15	1.022	DITCH HEADWALL	0.0	0.000	0.000	0.5417	0.0

Results for 2 year +10% CC Critical Storm Duration. Lowest mass balance: 95.05%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
720 minute winter	54	720	9.708	0.047	1.0	0.0000	0.0000	OK
15 minute summer	SW-03	11	9.790	0.036	2.3	0.0057	0.0000	OK
15 minute summer	56	11	9.992	0.022	0.8	0.0000	0.0000	OK
15 minute summer	7.001:50%	11	9.896	0.034	1.7	0.0000	0.0000	OK
15 minute summer	57	11	10.006	0.006	0.0	0.0000	0.0000	OK
15 minute summer	7.000:50%	10	10.006	0.021	0.9	0.0000	0.0000	OK
15 minute summer	58	1	9.890	0.000	0.0	0.0000	0.0000	OK
15 minute summer	8.000:50%	10	9.837	0.015	0.6	0.0000	0.0000	OK
720 minute winter	59	720	9.708	0.201	0.8	0.0000	0.0000	SURCHARGED
720 minute winter	SW-11	720	9.708	0.104	0.0	0.0165	0.0000	SURCHARGED
720 minute winter	26.001:50%	720	9.707	0.148	0.1	0.0000	0.0000	SURCHARGED
15 minute summer	61	1	9.800	0.000	0.0	0.0000	0.0000	OK
15 minute summer	26.000:50%	11	9.716	0.014	0.4	0.0130	0.0000	OK
720 minute winter	62	720	9.708	0.193	0.6	0.0000	0.0000	SURCHARGED
720 minute winter	63	705	9.708	0.156	0.1	0.0000	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	54	1.005	40	1.0	0.174	0.028	0.2177	
15 minute summer	SW-03	7.002	54	2.3	1.146	0.222	0.0066	
15 minute summer	56	7.001	7.001:50%	0.8	0.463	0.110	0.0125	
15 minute summer	56	7.001	SW-03	1.7	0.719	0.228	0.0166	
15 minute summer	57	7.000	7.000:50%	0.0	-0.086	0.005	0.0006	
15 minute summer	57	7.000	56	0.8	0.667	0.099	0.0010	
15 minute summer	58	8.000	8.000:50%	0.0	0.000	0.000	0.0007	
15 minute summer	58	8.000	SW-03	0.6	0.404	0.049	0.0029	
720 minute winter	59	1.019	4	0.6	0.092	0.010	0.4270	
720 minute winter	SW-11	26.001	26.001:50%	0.1	0.024	0.008	0.0206	
720 minute winter	SW-11	26.001	59	0.4	0.079	0.053	0.0206	
15 minute summer	61	26.000	26.000:50%	0.0	0.000	0.000	0.0015	
15 minute summer	61	26.000	SW-11	0.4	0.552	0.043	0.0031	
720 minute winter	62	1.018	59	0.6	0.148	0.010	0.3560	
720 minute winter	63	25.000	25.000:50%	-0.1	-0.023	-0.037	0.0534	

Results for 2 year +10% CC Critical Storm Duration. Lowest mass balance: 95.05%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
720 minute winter	25.000:50%	705	9.707	0.170	0.1	0.0000	0.0000	SURCHARGED
720 minute winter	64	720	9.708	0.186	1.4	0.0000	0.0000	SURCHARGED
720 minute winter	SW-10	720	9.708	0.093	0.5	0.0148	0.0000	OK
720 minute winter	24.002:50%	720	9.707	0.135	0.6	0.8727	0.0000	SURCHARGED
15 minute summer	66	1	9.800	0.000	0.0	0.0000	0.0000	OK
15 minute summer	24.001:50%	11	9.730	0.022	0.9	0.0315	0.0000	OK
30 minute summer	PLOT 1	21	9.742	0.052	2.6	0.6397	0.0000	OK
30 minute summer	PLOT 2	21	9.766	0.046	3.1	0.8139	0.0000	OK
30 minute summer	PLOT 3	22	9.712	0.042	1.8	0.4458	0.0000	OK
120 minute summer	PLOT 4&5	74	9.730	0.060	3.0	1.9999	0.0000	OK
15 minute winter	SW11	15	9.753	0.103	2.5	0.0202	0.0000	SURCHARGED
30 minute summer	SW12	23	9.778	0.138	2.8	0.0270	0.0000	SURCHARGED
30 minute summer	SW13	21	9.716	0.116	1.4	0.0227	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	63	25.000	62	0.1	0.027	0.053	0.0534	
720 minute winter	64	1.017	62	0.6	0.158	0.009	0.2988	
720 minute winter	SW-10	24.002	24.002:50%	-0.4	0.370	-0.048	0.0150	
720 minute winter	SW-10	24.002	64	0.8	0.207	0.089	0.0152	
15 minute summer	66	24.001	24.001:50%	0.0	0.000	0.000	0.0030	
15 minute summer	66	24.001	SW-10	0.9	0.709	0.105	0.0059	
30 minute summer	PLOT 1	14.000_1	SW11	2.4	0.362	0.168	0.0517	
30 minute summer	PLOT 2	15.000_1	SW12	2.8	0.309	0.176	0.1076	
30 minute summer	PLOT 3	20.000_1	SW13	1.4	0.246	0.106	0.1238	
120 minute summer	PLOT 4&5	24.000	SW14	1.5	0.242	0.125	0.1329	
15 minute winter	SW11	Orifice	31	1.4				
30 minute summer	SW12	Orifice	29	1.4				
30 minute summer	SW13	Orifice	19	0.6				

Results for 2 year +10% CC Critical Storm Duration. Lowest mass balance: 95.05%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	SW14	22	9.730	0.120	2.2	0.0235	0.0000	OK
720 minute winter	Access Road Widening	720	9.708	0.138	0.2	2.0428	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)
30 minute summer	SW14	Orifice	13	1.4				
720 minute winter	Access Road Widening	26.000_1	13	-0.1	-0.036	-0.017	0.0255	

Results for 10 year +40% CC Critical Storm Duration. Lowest mass balance: 95.05%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	53	12	9.847	0.087	0.4	0.0000	0.0000	OK
15 minute summer	1.000:50%	12	9.847	0.103	5.5	0.4383	0.0000	SURCHARGED
1440 minute winter	52	1440	9.839	0.111	0.2	0.0000	0.0000	SURCHARGED
15 minute summer	51	1	9.900	0.000	0.0	0.0000	0.0000	OK
15 minute summer	3.000:50%	10	9.884	0.024	1.2	0.0000	0.0000	OK
15 minute summer	50	1	10.050	0.000	0.0	0.0000	0.0000	OK
15 minute summer	2.000:50%	10	9.963	0.028	1.6	0.0000	0.0000	OK
15 minute summer	SW-01	10	9.863	0.043	2.8	0.0069	0.0000	OK
1440 minute winter	48	1440	9.839	0.132	0.9	14.7091	0.0000	OK
15 minute summer	47	1	10.000	0.000	0.0	0.0000	0.0000	OK
15 minute summer	4.000:50%	11	9.956	0.047	3.7	0.1225	0.0000	OK
15 minute summer	46	1	9.950	0.000	0.0	0.0000	0.0000	OK
15 minute summer	5.000:50%	11	9.903	0.020	1.0	0.0241	0.0000	OK
15 minute summer	SW-02	11	9.869	0.052	4.6	0.0082	0.0000	OK
1440 minute winter	44	1440	9.839	0.153	0.8	0.0000	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 summer	53	1.000	1.000:50%	-0.4	-0.136	-0.149	0.0550	
15 minute summer	53	1.000	52	4.3	0.561	1.538	0.0545	
1440 minute winter	52	1.001	48	0.2	0.189	0.073	0.0765	
15 minute summer	51	3.000	3.000:50%	0.0	0.000	0.000	0.0009	
15 minute summer	51	3.000	SW-01	1.2	0.514	0.108	0.0029	
15 minute summer	50	2.000	2.000:50%	0.0	0.000	0.000	0.0045	
15 minute summer	50	2.000	SW-01	1.6	0.632	0.171	0.0125	
15 minute summer	SW-01	2.001	48	2.7	1.032	0.366	0.0239	
1440 minute winter	48	1.002	44	0.6	0.248	0.077	0.1616	
15 minute summer	47	4.000	4.000:50%	0.0	0.000	0.000	0.0079	
15 minute summer	47	4.000	SW-02	3.6	0.921	0.404	0.0167	
15 minute summer	46	5.000	5.000:50%	0.0	0.000	0.000	0.0010	
15 minute summer	46	5.000	SW-02	1.0	0.416	0.084	0.0045	
15 minute summer	SW-02	4.001	44	4.6	0.943	0.469	0.0248	
1440 minute winter	44	1.003	42	0.8	0.282	0.100	0.1593	

Results for 10 year +40% CC Critical Storm Duration. Lowest mass balance: 95.05%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	43	1440	9.839	0.144	0.0	0.0000	0.0000	SURCHARGED
1440 minute winter	6.000:50%	1440	9.838	0.158	0.1	0.0000	0.0000	SURCHARGED
1440 minute winter	42	1440	9.839	0.173	0.9	0.0000	0.0000	SURCHARGED
1440 minute winter	41	1440	9.839	0.178	0.0	0.0000	0.0000	SURCHARGED
1440 minute winter	9.000:50%	1440	9.838	0.186	0.1	0.0000	0.0000	SURCHARGED
1440 minute winter	40	1440	9.839	0.195	1.6	19.1420	0.0000	SURCHARGED
15 minute summer	39	1	9.980	0.000	0.0	0.0000	0.0000	OK
15 minute summer	10.000:50%	10	9.952	0.065	4.7	0.0000	0.0000	OK
15 minute summer	SW-04	10	9.850	0.056	4.6	0.0089	0.0000	OK
1440 minute winter	37	1440	9.839	0.203	1.1	0.0000	0.0000	SURCHARGED
15 minute summer	36	1	9.980	0.000	0.0	0.0000	0.0000	OK
15 minute summer	11.000:50%	10	9.936	0.049	3.1	0.0000	0.0000	OK
15 minute summer	35	1	9.894	0.000	0.0	0.0000	0.0000	OK
15 minute summer	12.000:50%	10	9.880	0.036	2.1	0.0000	0.0000	OK
15 minute summer	SW-05	10	9.853	0.059	5.1	0.0093	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)
1440 minute winter	43	6.000	6.000:50%	0.0	-0.010	0.009	0.0517	
1440 minute winter	43	6.000	42	0.1	0.115	0.036	0.0517	
1440 minute winter	42	1.004	54	0.9	0.573	0.110	0.0422	
1440 minute winter	41	9.000	9.000:50%	0.0	-0.010	0.010	0.0318	
1440 minute winter	41	9.000	40	0.1	0.049	0.032	0.0318	
1440 minute winter	40	1.006	37	1.0	0.172	0.027	0.3462	
15 minute summer	39	10.000	10.000:50%	0.0	0.000	0.000	0.0175	
15 minute summer	39	10.000	SW-04	4.6	0.944	0.643	0.0321	
15 minute summer	SW-04	10.001	37	4.6	1.164	0.525	0.0351	
1440 minute winter	37	1.007	33	1.1	0.175	0.031	0.2064	
15 minute summer	36	11.000	11.000:50%	0.0	0.000	0.000	0.0137	
15 minute summer	36	11.000	SW-05	3.1	0.711	0.444	0.0307	
15 minute summer	35	12.000	12.000:50%	0.0	0.000	0.000	0.0025	
15 minute summer	35	12.000	SW-05	2.1	0.570	0.215	0.0072	
15 minute summer	SW-05	11.001	33	5.1	1.189	0.568	0.0363	

Results for 10 year +40% CC Critical Storm Duration. Lowest mass balance: 95.05%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	33	1440	9.839	0.207	1.3	0.0000	0.0000	SURCHARGED
1440 minute winter	32	1440	9.839	0.195	0.0	0.0000	0.0000	SURCHARGED
1440 minute winter	13.000:50%	1440	9.838	0.204	0.1	1.8359	0.0000	SURCHARGED
1440 minute winter	31	1440	9.839	0.214	1.5	0.0000	0.0000	SURCHARGED
1440 minute winter	30	1440	9.838	0.208	0.0	0.0000	0.0000	SURCHARGED
1440 minute winter	14.000:50%	1440	9.839	0.218	0.1	0.0000	0.0000	SURCHARGED
1440 minute winter	29	1440	9.839	0.227	1.8	0.0000	0.0000	SURCHARGED
15 minute summer	28	1	9.880	0.000	0.0	0.0000	0.0000	OK
15 minute summer	16.000:50%	10	9.838	0.030	2.1	0.0000	0.0000	OK
15 minute summer	27	1	9.960	0.000	0.0	0.0000	0.0000	OK
15 minute summer	15.000:50%	11	9.892	0.044	3.1	0.1428	0.0000	OK
1440 minute winter	SW-06	1440	9.839	0.102	0.2	0.0161	0.0000	SURCHARGED
1440 minute winter	25	1440	9.839	0.234	2.0	0.0000	0.0000	SURCHARGED
15 minute summer	24	1	9.960	0.000	0.0	0.0000	0.0000	OK
15 minute summer	17.000:50%	11	9.888	0.040	2.3	0.1183	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)
1440 minute winter	33	1.008	31	1.2	0.193	0.035	0.3347	
1440 minute winter	32	13.000	13.000:50%	0.0	-0.035	0.006	0.0346	
1440 minute winter	32	13.000	31	0.1	0.035	0.026	0.0346	
1440 minute winter	31	1.009	29	1.5	0.177	0.042	0.6682	
1440 minute winter	30	14.000	14.000:50%	0.0	-0.030	-0.012	0.0324	
1440 minute winter	30	14.000	29	0.1	-0.019	0.032	0.0324	
1440 minute winter	29	1.010	25	1.8	0.200	0.059	0.5001	
15 minute summer	28	16.000	16.000:50%	0.0	0.000	0.000	0.0017	
15 minute summer	28	16.000	SW-06	2.1	0.656	0.170	0.0058	
15 minute summer	27	15.000	15.000:50%	0.0	0.000	0.000	0.0112	
15 minute summer	27	15.000	SW-06	3.0	0.743	0.381	0.0273	
1440 minute winter	SW-06	15.001	25	0.2	0.324	0.023	0.0504	
1440 minute winter	25	1.011	21	2.0	0.206	0.044	0.2431	
15 minute summer	24	17.000	17.000:50%	0.0	0.000	0.000	0.0119	
15 minute summer	24	17.000	SW-07	2.2	0.828	0.305	0.0212	

Results for 10 year +40% CC Critical Storm Duration. Lowest mass balance: 95.05%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	SW-07	1440	9.839	0.102	0.1	0.0161	0.0000	SURCHARGED
1440 minute winter	21	1440	9.839	0.241	2.4	32.3828	0.0000	SURCHARGED
1440 minute winter	20	1440	9.839	0.224	0.0	0.0000	0.0000	SURCHARGED
1440 minute winter	19.000:50%	1440	9.839	0.240	0.1	0.0000	0.0000	SURCHARGED
1440 minute winter	19	1440	9.839	0.256	1.4	0.0000	0.0000	SURCHARGED
15 minute summer	18	1	9.910	0.000	0.0	0.0000	0.0000	OK
15 minute summer	21.000:50%	11	9.849	0.037	2.1	0.1026	0.0000	OK
15 minute summer	17	1	9.930	0.000	0.0	0.0000	0.0000	OK
15 minute summer	20.000:50%	11	9.873	0.051	3.7	0.1996	0.0000	OK
1440 minute winter	SW-08	1440	9.839	0.126	0.3	0.0200	0.0000	SURCHARGED
1440 minute winter	15	1440	9.839	0.267	1.7	0.0000	0.0000	SURCHARGED
1440 minute winter	14	1440	9.839	0.247	0.0	0.0000	0.0000	SURCHARGED
1440 minute winter	22.000:50%	1440	9.839	0.264	0.1	0.0000	0.0000	SURCHARGED
1440 minute winter	13	1440	9.839	0.281	2.7	57.1411	0.0000	SURCHARGED
15 minute summer	12	1	9.850	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)
1440 minute winter	SW-07	18.000	21	0.1	0.122	0.011	0.0498	
1440 minute winter	21	1.012	19	1.2	0.158	0.035	0.8783	
1440 minute winter	20	19.000	19.000:50%	0.0	-0.011	0.010	0.0586	
1440 minute winter	20	19.000	19	0.1	0.131	0.035	0.0586	
1440 minute winter	19	1.013	15	1.4	0.155	0.039	0.6502	
15 minute summer	18	21.000	21.000:50%	0.0	0.000	0.000	0.0106	
15 minute summer	18	21.000	SW-08	2.0	0.524	0.295	0.0303	
15 minute summer	17	20.000	20.000:50%	0.0	0.000	0.000	0.0167	
15 minute summer	17	20.000	SW-08	3.4	0.763	0.492	0.0369	
1440 minute winter	SW-08	20.001	15	0.3	0.150	0.034	0.0508	
1440 minute winter	15	1.014	13	1.7	0.141	0.046	0.8416	
1440 minute winter	14	22.000	22.000:50%	0.0	-0.009	-0.013	0.0597	
1440 minute winter	14	22.000	13	0.1	0.038	0.037	0.0597	
1440 minute winter	13	1.015	10	0.8	0.171	0.019	0.9596	
15 minute summer	12	23.000	23.000:50%	0.0	0.000	0.000	0.0075	

Results for 10 year +40% CC Critical Storm Duration. Lowest mass balance: 95.05%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	23.000:50%	1440	9.838	0.125	0.1	0.9700	0.0000	SURCHARGED
1440 minute winter	SW-09	1440	9.839	0.262	0.1	0.0416	0.0000	SURCHARGED
1440 minute winter	10	1440	9.839	0.302	1.1	21.8413	0.0000	SURCHARGED
1440 minute winter	9	1440	9.839	0.089	0.0	0.0000	0.0000	OK
1440 minute winter	27.000:50%	1440	9.838	0.172	0.2	2.2063	0.0000	SURCHARGED
1440 minute winter	SW-13	1440	9.839	0.256	0.2	0.0407	0.0000	SURCHARGED
1440 minute winter	7	1440	9.838	0.013	0.0	0.0000	0.0000	OK
1440 minute winter	28.000:50%	1440	9.838	0.131	0.1	1.1025	0.0000	SURCHARGED
1440 minute winter	6	1440	9.839	0.074	0.0	0.0000	0.0000	OK
1440 minute winter	29.000:50%	1440	9.838	0.161	0.1	0.0000	0.0000	SURCHARGED
1440 minute winter	SW-12	1440	9.839	0.249	1.4	0.0396	0.0000	SURCHARGED
1440 minute winter	4	1440	9.839	0.341	0.9	21.8413	0.0000	SURCHARGED
1440 minute winter	SW-14 (HYDRO)	1440	9.839	0.345	0.2	0.3898	0.0000	FLOOD RISK
1440 minute winter	SW-15	1440	9.839	0.429	0.1	0.4848	0.0000	FLOOD RISK
15 minute summer	DITCH HEADWALL	1	9.874	0.521	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	12	23.000	SW-09	3.1	0.764	0.320	0.0219	
1440 minute winter	SW-09	23.001	10	0.1	0.032	0.021	0.0450	
1440 minute winter	10	1.016	64	0.6	0.153	0.010	1.0931	
1440 minute winter	9	27.000	27.000:50%	0.0	0.003	0.003	0.0358	
1440 minute winter	9	27.000	SW-13	0.2	0.318	0.025	0.0370	
1440 minute winter	SW-13	27.001	4	0.2	0.030	0.032	0.0626	
1440 minute winter	7	28.000	28.000:50%	0.0	0.002	0.001	0.0148	
1440 minute winter	7	28.000	SW-12	0.1	0.018	0.008	0.0275	
1440 minute winter	6	29.000	29.000:50%	0.0	-0.006	-0.003	0.0096	
1440 minute winter	6	29.000	SW-12	1.2	0.211	0.076	0.0107	
1440 minute winter	SW-12	28.001	4	-0.2	-0.023	-0.022	0.0374	
1440 minute winter	4	1.020	SW-14 (HYDRO)	0.2	0.032	0.004	1.0174	
1440 minute winter	SW-14 (HYDRO)	Hydro-Brake®	SW-15	0.1				
1440 minute winter	SW-15	1.022	DITCH HEADWALL	0.0	0.000	0.000	0.5420	0.0

Results for 10 year +40% CC Critical Storm Duration. Lowest mass balance: 95.05%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	54	1440	9.839	0.178	1.2	0.0000	0.0000	SURCHARGED
1440 minute winter	SW-03	1440	9.839	0.085	0.3	0.0135	0.0000	OK
15 minute summer	56	11	10.009	0.039	2.5	0.0000	0.0000	OK
15 minute summer	7.001:50%	10	9.927	0.065	5.0	0.0000	0.0000	OK
15 minute summer	57	10	10.023	0.023	0.2	0.0000	0.0000	OK
15 minute summer	7.000:50%	10	10.023	0.038	2.5	0.0000	0.0000	OK
15 minute summer	58	1	9.890	0.000	0.0	0.0000	0.0000	OK
15 minute summer	8.000:50%	10	9.847	0.025	1.6	0.0000	0.0000	OK
1440 minute winter	59	1440	9.839	0.332	0.6	0.0000	0.0000	SURCHARGED
1440 minute winter	SW-11	1440	9.839	0.235	0.1	0.0373	0.0000	SURCHARGED
1440 minute winter	26.001:50%	1440	9.838	0.279	0.1	0.0000	0.0000	SURCHARGED
1440 minute winter	61	1440	9.839	0.039	0.0	0.0000	0.0000	OK
1440 minute winter	26.000:50%	1440	9.839	0.137	0.1	1.1931	0.0000	SURCHARGED
1440 minute winter	62	1440	9.839	0.324	0.6	0.0000	0.0000	SURCHARGED
1440 minute winter	63	1440	9.838	0.286	0.1	0.0000	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)
1440 minute winter	54	1.005	40	1.2	0.153	0.033	0.7338	
1440 minute winter	SW-03	7.002	54	0.3	0.644	0.029	0.0244	
15 minute summer	56	7.001	7.001:50%	2.4	0.595	0.322	0.0282	
15 minute summer	56	7.001	SW-03	5.0	0.906	0.657	0.0379	
15 minute summer	57	7.000	7.000:50%	0.2	0.173	0.025	0.0016	
15 minute summer	57	7.000	56	2.5	0.892	0.292	0.0021	
15 minute summer	58	8.000	8.000:50%	0.0	0.000	0.000	0.0014	
15 minute summer	58	8.000	SW-03	1.6	0.496	0.134	0.0064	
1440 minute winter	59	1.019	4	0.5	0.073	0.009	0.6996	
1440 minute winter	SW-11	26.001	26.001:50%	-0.1	-0.009	-0.008	0.0206	
1440 minute winter	SW-11	26.001	59	-0.1	-0.009	-0.008	0.0206	
1440 minute winter	61	26.000	26.000:50%	0.0	-0.006	-0.004	0.0227	
1440 minute winter	61	26.000	SW-11	-0.1	-0.007	-0.006	0.0334	
1440 minute winter	62	1.018	59	0.6	0.123	0.009	0.5930	
1440 minute winter	63	25.000	25.000:50%	0.1	0.009	0.027	0.0534	

Results for 10 year +40% CC Critical Storm Duration. Lowest mass balance: 95.05%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	25.000:50%	1440	9.838	0.300	0.2	0.0000	0.0000	SURCHARGED
1440 minute winter	64	1440	9.839	0.317	0.6	0.0000	0.0000	SURCHARGED
1440 minute winter	SW-10	1440	9.839	0.224	0.4	0.0356	0.0000	SURCHARGED
1440 minute winter	24.002:50%	1440	9.838	0.266	0.1	3.3926	0.0000	SURCHARGED
1440 minute winter	66	1440	9.839	0.039	0.0	0.0000	0.0000	OK
1440 minute winter	24.001:50%	1440	9.838	0.131	0.1	1.1030	0.0000	SURCHARGED
30 minute summer	PLOT 1	23	9.876	0.186	7.5	2.4046	0.0000	SURCHARGED
30 minute summer	PLOT 2	25	9.886	0.166	8.9	3.1675	0.0000	SURCHARGED
1440 minute winter	PLOT 3	1440	9.839	0.169	0.3	1.9106	0.0000	SURCHARGED
120 minute summer	PLOT 4&5	82	9.870	0.200	7.5	7.1410	0.0000	SURCHARGED
30 minute summer	SW11	23	9.875	0.225	2.8	0.0441	0.0000	SURCHARGED
30 minute summer	SW12	24	9.885	0.245	2.6	0.0479	0.0000	SURCHARGED
1440 minute winter	SW13	1440	9.839	0.239	0.2	0.0468	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)
1440 minute winter	63	25.000	62	0.1	-0.022	0.034	0.0534	
1440 minute winter	64	1.017	62	0.6	0.154	0.009	0.5056	
1440 minute winter	SW-10	24.002	24.002:50%	-0.3	-0.087	-0.036	0.0152	
1440 minute winter	SW-10	24.002	64	0.3	0.044	0.029	0.0152	
1440 minute winter	66	24.001	24.001:50%	0.0	-0.005	-0.003	0.0249	
1440 minute winter	66	24.001	SW-10	0.1	0.369	0.012	0.0367	
30 minute summer	PLOT 1	14.000_1	SW11	2.8	0.334	0.191	0.1065	
30 minute summer	PLOT 2	15.000_1	SW12	2.6	0.344	0.167	0.1794	
1440 minute winter	PLOT 3	20.000_1	SW13	0.2	0.144	0.016	0.2385	
120 minute summer	PLOT 4&5	24.000	SW14	1.9	0.254	0.153	0.2164	
30 minute summer	SW11	Orifice	31	2.0				
30 minute summer	SW12	Orifice	29	1.9				
1440 minute winter	SW13	Orifice	19	0.2				

Results for 10 year +40% CC Critical Storm Duration. Lowest mass balance: 95.05%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
120 minute summer	SW14	82	9.869	0.259	1.9	0.0507	0.0000	SURCHARGED
1440 minute winter	Access Road Widening	1440	9.839	0.269	0.1	4.0555	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)
120 minute summer	SW14	Orifice	13	1.8				
1440 minute winter	Access Road Widening	26.000_1	13	-0.1	-0.066	-0.023	0.0255	

Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 95.05%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	53	1410	9.909	0.149	0.0	0.0000	0.0000	SURCHARGED
1440 minute winter	1.000:50%	1410	9.909	0.165	0.3	1.1306	0.0000	SURCHARGED
1440 minute winter	52	1410	9.909	0.181	0.3	0.0000	0.0000	SURCHARGED
1440 minute winter	51	1410	9.910	0.010	0.0	0.0000	0.0000	OK
1440 minute winter	3.000:50%	1410	9.910	0.050	0.1	0.0000	0.0000	OK
15 minute summer	50	1	10.050	0.000	0.0	0.0000	0.0000	OK
15 minute summer	2.000:50%	10	9.967	0.032	2.1	0.0000	0.0000	OK
1440 minute winter	SW-01	1410	9.910	0.090	0.2	0.0142	0.0000	OK
1440 minute winter	48	1410	9.909	0.202	1.2	23.4382	0.0000	SURCHARGED
15 minute summer	47	1	10.000	0.000	0.0	0.0000	0.0000	OK
15 minute summer	4.000:50%	11	9.965	0.057	4.9	0.1772	0.0000	OK
15 minute summer	46	1	9.950	0.000	0.0	0.0000	0.0000	OK
1440 minute winter	5.000:50%	1410	9.909	0.025	0.1	0.0403	0.0000	OK
1440 minute winter	SW-02	1410	9.909	0.092	0.3	0.0147	0.0000	OK
1440 minute winter	44	1410	9.909	0.223	1.0	0.0000	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)
1440 minute winter	53	1.000	1.000:50%	0.0	-0.009	-0.009	0.0571	
1440 minute winter	53	1.000	52	0.3	0.235	0.108	0.0571	
1440 minute winter	52	1.001	48	0.3	0.198	0.109	0.0765	
1440 minute winter	51	3.000	3.000:50%	0.0	0.008	0.001	0.0027	
1440 minute winter	51	3.000	SW-01	0.1	0.284	0.009	0.0070	
15 minute summer	50	2.000	2.000:50%	0.0	0.000	0.000	0.0054	
15 minute summer	50	2.000	SW-01	2.1	0.679	0.225	0.0153	
1440 minute winter	SW-01	2.001	48	0.2	0.190	0.027	0.0570	
1440 minute winter	48	1.002	44	0.7	0.245	0.083	0.1675	
15 minute summer	47	4.000	4.000:50%	0.0	0.000	0.000	0.0099	
15 minute summer	47	4.000	SW-02	4.7	0.962	0.535	0.0212	
15 minute summer	46	5.000	5.000:50%	0.0	0.000	0.000	0.0012	
15 minute summer	46	5.000	SW-02	1.4	0.436	0.114	0.0057	
1440 minute winter	SW-02	4.001	44	0.3	0.199	0.031	0.0392	
1440 minute winter	44	1.003	42	1.0	0.288	0.117	0.1593	

Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 95.05%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	43	1410	9.910	0.215	0.0	0.0000	0.0000	SURCHARGED
1440 minute winter	6.000:50%	1380	9.909	0.229	0.1	0.0000	0.0000	SURCHARGED
1440 minute winter	42	1410	9.909	0.243	1.0	0.0000	0.0000	SURCHARGED
1440 minute winter	41	1410	9.909	0.248	0.0	0.0000	0.0000	SURCHARGED
1440 minute winter	9.000:50%	1410	9.909	0.256	0.1	0.0000	0.0000	SURCHARGED
1440 minute winter	40	1410	9.909	0.265	1.8	26.5361	0.0000	SURCHARGED
15 minute summer	39	1	9.980	0.000	0.0	0.0000	0.0000	OK
15 minute summer	10.000:50%	10	9.968	0.081	6.3	0.0000	0.0000	OK
1440 minute winter	SW-04	1410	9.909	0.115	0.3	0.0184	0.0000	SURCHARGED
1440 minute winter	37	1410	9.909	0.273	1.0	0.0000	0.0000	SURCHARGED
15 minute summer	36	1	9.980	0.000	0.0	0.0000	0.0000	OK
15 minute summer	11.000:50%	10	9.948	0.061	4.2	0.0000	0.0000	OK
1440 minute winter	35	1410	9.910	0.016	0.0	0.0000	0.0000	OK
1440 minute winter	12.000:50%	1410	9.909	0.065	0.3	0.0000	0.0000	OK
1440 minute winter	SW-05	1410	9.909	0.115	0.5	0.0183	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)
1440 minute winter	43	6.000	6.000:50%	0.0	-0.012	0.016	0.0517	
1440 minute winter	43	6.000	42	0.1	0.112	0.044	0.0517	
1440 minute winter	42	1.004	54	1.0	0.579	0.127	0.0422	
1440 minute winter	41	9.000	9.000:50%	0.0	-0.014	-0.011	0.0318	
1440 minute winter	41	9.000	40	0.1	0.064	0.032	0.0318	
1440 minute winter	40	1.006	37	0.9	0.177	0.026	0.4695	
15 minute summer	39	10.000	10.000:50%	0.0	0.000	0.000	0.0223	
15 minute summer	39	10.000	SW-04	6.2	0.992	0.859	0.0406	
1440 minute winter	SW-04	10.001	37	0.3	0.421	0.034	0.0588	
1440 minute winter	37	1.007	33	1.0	0.169	0.030	0.2777	
15 minute summer	36	11.000	11.000:50%	0.0	0.000	0.000	0.0177	
15 minute summer	36	11.000	SW-05	4.1	0.748	0.599	0.0393	
1440 minute winter	35	12.000	12.000:50%	0.0	0.011	0.003	0.0061	
1440 minute winter	35	12.000	SW-05	0.4	0.299	0.042	0.0131	
1440 minute winter	SW-05	11.001	33	0.3	0.460	0.033	0.0575	

Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 95.05%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	33	1410	9.909	0.277	1.2	0.0000	0.0000	SURCHARGED
1440 minute winter	32	1380	9.909	0.265	0.0	0.0000	0.0000	SURCHARGED
1440 minute winter	13.000:50%	1410	9.909	0.274	0.1	3.3404	0.0000	SURCHARGED
1440 minute winter	31	1410	9.909	0.284	1.5	0.0000	0.0000	SURCHARGED
1440 minute winter	30	1410	9.909	0.279	0.0	0.0000	0.0000	SURCHARGED
1440 minute winter	14.000:50%	1380	9.909	0.288	0.1	0.0000	0.0000	SURCHARGED
1440 minute winter	29	1410	9.909	0.297	1.9	0.0000	0.0000	SURCHARGED
1440 minute winter	28	1410	9.909	0.029	0.0	0.0000	0.0000	OK
1440 minute winter	16.000:50%	1410	9.909	0.100	0.5	0.0000	0.0000	SURCHARGED
15 minute summer	27	1	9.960	0.000	0.0	0.0000	0.0000	OK
1440 minute winter	15.000:50%	1410	9.909	0.060	0.2	0.2753	0.0000	OK
1440 minute winter	SW-06	1410	9.909	0.172	0.3	0.0274	0.0000	SURCHARGED
1440 minute winter	25	1410	9.909	0.304	2.1	0.0000	0.0000	SURCHARGED
15 minute summer	24	1	9.960	0.000	0.0	0.0000	0.0000	OK
1440 minute winter	17.000:50%	1410	9.909	0.060	0.1	0.2738	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)
1440 minute winter	33	1.008	31	1.2	0.184	0.034	0.4474	
1440 minute winter	32	13.000	13.000:50%	0.0	-0.010	-0.011	0.0346	
1440 minute winter	32	13.000	31	-0.1	0.046	-0.041	0.0346	
1440 minute winter	31	1.009	29	1.5	0.176	0.042	0.8828	
1440 minute winter	30	14.000	14.000:50%	0.0	-0.020	-0.008	0.0324	
1440 minute winter	30	14.000	29	0.1	0.019	0.037	0.0324	
1440 minute winter	29	1.010	25	1.9	0.185	0.061	0.6537	
1440 minute winter	28	16.000	16.000:50%	0.0	-0.008	-0.003	0.0086	
1440 minute winter	28	16.000	SW-06	-0.4	0.313	-0.034	0.0138	
15 minute summer	27	15.000	15.000:50%	0.0	0.000	0.000	0.0142	
15 minute summer	27	15.000	SW-06	3.9	0.770	0.505	0.0347	
1440 minute winter	SW-06	15.001	25	0.3	0.310	0.035	0.0504	
1440 minute winter	25	1.011	21	2.1	0.196	0.048	0.3155	
15 minute summer	24	17.000	17.000:50%	0.0	0.000	0.000	0.0146	
15 minute summer	24	17.000	SW-07	2.9	0.885	0.404	0.0263	

Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 95.05%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	SW-07	1410	9.909	0.172	0.1	0.0274	0.0000	SURCHARGED
1440 minute winter	21	1410	9.909	0.311	2.6	40.9158	0.0000	SURCHARGED
1440 minute winter	20	1410	9.909	0.294	0.0	0.0000	0.0000	SURCHARGED
1440 minute winter	19.000:50%	1410	9.909	0.310	0.2	0.0000	0.0000	SURCHARGED
1440 minute winter	19	1410	9.909	0.326	1.5	0.0000	0.0000	SURCHARGED
15 minute summer	18	1	9.910	0.000	0.0	0.0000	0.0000	OK
1440 minute winter	21.000:50%	1410	9.909	0.097	0.1	0.7283	0.0000	OK
15 minute summer	17	1	9.930	0.000	0.0	0.0000	0.0000	OK
1440 minute winter	20.000:50%	1410	9.909	0.087	0.2	0.5866	0.0000	OK
1440 minute winter	SW-08	1410	9.909	0.196	0.3	0.0312	0.0000	SURCHARGED
1440 minute winter	15	1410	9.909	0.337	1.7	0.0000	0.0000	SURCHARGED
1440 minute winter	14	1410	9.910	0.318	0.0	0.0000	0.0000	SURCHARGED
1440 minute winter	22.000:50%	1410	9.909	0.334	0.2	0.0000	0.0000	SURCHARGED
1440 minute winter	13	1410	9.909	0.351	2.9	61.4374	0.0000	SURCHARGED
1440 minute winter	12	1410	9.909	0.059	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)
1440 minute winter	SW-07	18.000	21	0.1	0.087	0.011	0.0498	
1440 minute winter	21	1.012	19	1.2	0.158	0.036	1.1283	
1440 minute winter	20	19.000	19.000:50%	0.0	-0.013	-0.013	0.0586	
1440 minute winter	20	19.000	19	0.2	0.090	0.067	0.0586	
1440 minute winter	19	1.013	15	1.4	0.169	0.040	0.8261	
15 minute summer	18	21.000	21.000:50%	0.0	0.000	0.000	0.0132	
15 minute summer	18	21.000	SW-08	2.6	0.561	0.395	0.0378	
15 minute summer	17	20.000	20.000:50%	0.0	0.000	0.000	0.0209	
15 minute summer	17	20.000	SW-08	4.5	0.795	0.642	0.0462	
1440 minute winter	SW-08	20.001	15	0.3	0.098	0.034	0.0508	
1440 minute winter	15	1.014	13	1.7	0.157	0.047	1.0589	
1440 minute winter	14	22.000	22.000:50%	0.0	-0.010	-0.011	0.0597	
1440 minute winter	14	22.000	13	0.2	0.027	0.065	0.0597	
1440 minute winter	13	1.015	10	0.9	0.192	0.022	1.1925	
1440 minute winter	12	23.000	23.000:50%	0.0	-0.005	-0.003	0.0333	

Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 95.05%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	23.000:50%	1410	9.909	0.195	0.2	2.3803	0.0000	SURCHARGED
1440 minute winter	SW-09	1410	9.909	0.332	0.2	0.0528	0.0000	SURCHARGED
1440 minute winter	10	1410	9.909	0.372	1.1	21.8413	0.0000	SURCHARGED
1440 minute winter	9	1410	9.909	0.159	0.0	0.0000	0.0000	FLOOD RISK
1440 minute winter	27.000:50%	1410	9.909	0.242	0.3	4.3968	0.0000	SURCHARGED
1440 minute winter	SW-13	1410	9.909	0.326	0.2	0.0519	0.0000	FLOOD RISK
1440 minute winter	7	1380	9.909	0.084	0.0	0.0000	0.0000	OK
1440 minute winter	28.000:50%	1410	9.909	0.201	0.1	2.6173	0.0000	SURCHARGED
1440 minute winter	6	1410	9.909	0.144	0.0	0.0000	0.0000	FLOOD RISK
1440 minute winter	29.000:50%	1410	9.909	0.231	0.1	0.0000	0.0000	SURCHARGED
1440 minute winter	SW-12	1410	9.909	0.319	0.7	0.0508	0.0000	FLOOD RISK
1440 minute winter	4	1410	9.909	0.411	0.9	21.8413	0.0000	FLOOD RISK
1440 minute winter	SW-14 (HYDRO)	1410	9.909	0.415	0.5	0.4697	0.0000	FLOOD RISK
1440 minute summer	SW-15	1530	9.874	0.464	0.3	0.5248	0.0000	FLOOD RISK
15 minute summer	DITCH HEADWALL	1	9.874	0.521	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)
1440 minute winter	12	23.000	SW-09	0.2	0.092	0.020	0.0412	
1440 minute winter	SW-09	23.001	10	0.2	0.024	0.042	0.0450	
1440 minute winter	10	1.016	64	0.8	0.161	0.013	1.3430	
1440 minute winter	9	27.000	27.000:50%	0.0	-0.005	-0.003	0.0370	
1440 minute winter	9	27.000	SW-13	0.2	0.318	0.027	0.0370	
1440 minute winter	SW-13	27.001	4	0.2	0.056	0.034	0.0626	
1440 minute winter	7	28.000	28.000:50%	0.0	-0.004	-0.002	0.0261	
1440 minute winter	7	28.000	SW-12	0.2	0.033	0.014	0.0275	
1440 minute winter	6	29.000	29.000:50%	0.0	0.005	0.002	0.0107	
1440 minute winter	6	29.000	SW-12	0.6	0.110	0.037	0.0107	
1440 minute winter	SW-12	28.001	4	0.1	0.016	0.014	0.0374	
1440 minute winter	4	1.020	SW-14 (HYDRO)	0.5	0.032	0.009	1.2273	
1440 minute winter	SW-14 (HYDRO)	Hydro-Brake®	SW-15	0.5				
1440 minute summer	SW-15	1.022	DITCH HEADWALL	0.3	0.004	0.003	0.5420	8.0

Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 95.05%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	54	1410	9.909	0.248	1.3	0.0000	0.0000	SURCHARGED
1440 minute winter	SW-03	1380	9.909	0.155	0.7	0.0247	0.0000	SURCHARGED
15 minute summer	56	10	10.016	0.046	3.3	0.0000	0.0000	OK
15 minute summer	7.001:50%	11	9.946	0.084	6.8	0.0000	0.0000	OK
15 minute summer	57	10	10.030	0.030	0.2	0.0000	0.0000	OK
15 minute summer	7.000:50%	10	10.030	0.045	3.4	0.0000	0.0000	OK
1440 minute winter	58	1380	9.910	0.020	0.0	0.0000	0.0000	OK
1440 minute winter	8.000:50%	1380	9.909	0.087	0.1	0.0000	0.0000	OK
1440 minute winter	59	1410	9.909	0.402	0.8	0.0000	0.0000	FLOOD RISK
1440 minute winter	SW-11	1410	9.909	0.305	0.1	0.0486	0.0000	FLOOD RISK
1440 minute winter	26.001:50%	1410	9.909	0.349	0.1	0.0000	0.0000	SURCHARGED
1440 minute winter	61	1410	9.909	0.109	0.0	0.0000	0.0000	FLOOD RISK
1440 minute winter	26.000:50%	1410	9.909	0.207	0.1	2.7487	0.0000	SURCHARGED
1440 minute winter	62	1410	9.909	0.394	0.8	0.0000	0.0000	FLOOD RISK
1440 minute winter	63	1380	9.909	0.357	0.0	0.0000	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)
1440 minute winter	54	1.005	40	1.3	0.152	0.037	1.0127	
1440 minute winter	SW-03	7.002	54	0.3	0.646	0.029	0.0256	
15 minute summer	56	7.001	7.001:50%	3.3	0.614	0.434	0.0363	
15 minute summer	56	7.001	SW-03	6.7	0.946	0.881	0.0488	
15 minute summer	57	7.000	7.000:50%	0.2	-0.127	0.023	0.0021	
15 minute summer	57	7.000	56	3.3	0.965	0.396	0.0027	
1440 minute winter	58	8.000	8.000:50%	0.0	0.016	0.004	0.0075	
1440 minute winter	58	8.000	SW-03	0.5	0.278	0.043	0.0136	
1440 minute winter	59	1.019	4	0.7	0.082	0.012	0.8467	
1440 minute winter	SW-11	26.001	26.001:50%	-0.1	-0.017	-0.017	0.0206	
1440 minute winter	SW-11	26.001	59	-0.1	-0.018	-0.018	0.0206	
1440 minute winter	61	26.000	26.000:50%	0.0	-0.004	-0.003	0.0334	
1440 minute winter	61	26.000	SW-11	-0.1	-0.016	-0.013	0.0334	
1440 minute winter	62	1.018	59	0.8	0.126	0.012	0.7208	
1440 minute winter	63	25.000	25.000:50%	0.1	-0.010	0.020	0.0534	

Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 95.05%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	25.000:50%	1410	9.909	0.371	0.2	0.0000	0.0000	SURCHARGED
1440 minute winter	64	1410	9.909	0.387	0.8	0.0000	0.0000	FLOOD RISK
1440 minute winter	SW-10	1410	9.909	0.294	0.4	0.0468	0.0000	FLOOD RISK
1440 minute winter	24.002:50%	1410	9.909	0.336	0.4	5.4406	0.0000	SURCHARGED
1440 minute winter	66	1410	9.909	0.109	0.0	0.0000	0.0000	FLOOD RISK
1440 minute winter	24.001:50%	1410	9.909	0.201	0.1	2.6201	0.0000	SURCHARGED
30 minute summer	PLOT 1	24	9.962	0.272	10.2	3.5452	0.0000	SURCHARGED
60 minute summer	PLOT 2	43	9.967	0.247	9.0	4.7724	0.0000	SURCHARGED
60 minute summer	PLOT 3	47	9.923	0.253	5.2	2.9050	0.0000	SURCHARGED
60 minute winter	PLOT 4&5	52	9.955	0.285	11.0	10.2608	0.0000	SURCHARGED
30 minute summer	SW11	24	9.961	0.311	3.7	0.0610	0.0000	SURCHARGED
60 minute summer	SW12	43	9.966	0.326	2.4	0.0639	0.0000	SURCHARGED
60 minute summer	SW13	47	9.923	0.323	1.3	0.0633	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)
1440 minute winter	63	25.000	62	0.2	0.023	0.067	0.0534	
1440 minute winter	64	1.017	62	0.8	0.162	0.012	0.6172	
1440 minute winter	SW-10	24.002	24.002:50%	0.4	0.150	0.042	0.0152	
1440 minute winter	SW-10	24.002	64	-0.2	-0.025	-0.022	0.0152	
1440 minute winter	66	24.001	24.001:50%	0.0	0.004	0.004	0.0367	
1440 minute winter	66	24.001	SW-10	0.1	0.369	0.012	0.0367	
30 minute summer	PLOT 1	14.000_1	SW11	3.7	0.357	0.256	0.1065	
60 minute summer	PLOT 2	15.000_1	SW12	2.4	0.327	0.150	0.1794	
60 minute summer	PLOT 3	20.000_1	SW13	1.3	0.278	0.103	0.2385	
60 minute winter	PLOT 4&5	24.000	SW14	2.3	0.295	0.186	0.2164	
30 minute summer	SW11	Orifice	31	2.4				
60 minute summer	SW12	Orifice	29	2.1				
60 minute summer	SW13	Orifice	19	0.9				

Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 95.05%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute winter	SW14	52	9.953	0.343	2.3	0.0672	0.0000	SURCHARGED
1440 minute winter	Access Road Widening	1410	9.909	0.339	0.2	5.1510	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)
60 minute winter	SW14	Orifice	13	2.2				
1440 minute winter	Access Road Widening	26.000_1	13	-0.1	-0.065	-0.022	0.0255	

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 95.05%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute winter	53	930	9.993	0.233	0.0	0.0000	0.0000	SURCHARGED
960 minute winter	1.000:50%	930	9.993	0.249	0.5	2.5664	0.0000	SURCHARGED
960 minute winter	52	930	9.993	0.265	0.5	0.0000	0.0000	SURCHARGED
960 minute winter	51	930	9.993	0.093	0.9	0.0000	0.0000	OK
960 minute winter	3.000:50%	930	9.993	0.133	1.3	0.0000	0.0000	SURCHARGED
15 minute summer	50	1	10.050	0.000	0.0	0.0000	0.0000	OK
960 minute winter	2.000:50%	945	9.993	0.058	0.2	0.0000	0.0000	OK
960 minute winter	SW-01	930	9.993	0.173	0.7	0.0276	0.0000	SURCHARGED
960 minute winter	48	930	9.993	0.286	2.1	33.7869	0.0000	SURCHARGED
15 minute summer	47	1	10.000	0.000	0.0	0.0000	0.0000	OK
960 minute winter	4.000:50%	930	9.993	0.084	0.4	0.3867	0.0000	OK
960 minute winter	46	930	9.993	0.043	0.0	0.0000	0.0000	OK
960 minute winter	5.000:50%	930	9.993	0.109	0.2	0.7428	0.0000	SURCHARGED
960 minute winter	SW-02	930	9.993	0.176	0.5	0.0280	0.0000	SURCHARGED
960 minute winter	44	930	9.993	0.307	1.3	0.0000	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)
960 minute winter	53	1.000	1.000:50%	0.0	-0.015	0.009	0.0571	
960 minute winter	53	1.000	52	0.5	0.272	0.180	0.0571	
960 minute winter	52	1.001	48	0.5	0.225	0.182	0.0765	
960 minute winter	51	3.000	3.000:50%	-0.9	0.223	-0.087	0.0096	
960 minute winter	51	3.000	SW-01	-0.9	0.284	-0.081	0.0098	
15 minute summer	50	2.000	2.000:50%	0.0	0.000	0.000	0.0069	
15 minute summer	50	2.000	SW-01	2.9	0.745	0.310	0.0191	
960 minute winter	SW-01	2.001	48	0.5	0.202	0.062	0.0586	
960 minute winter	48	1.002	44	-1.2	0.266	-0.144	0.1675	
15 minute summer	47	4.000	4.000:50%	0.0	0.000	0.000	0.0126	
15 minute summer	47	4.000	SW-02	6.1	0.981	0.695	0.0270	
960 minute winter	46	5.000	5.000:50%	0.0	-0.006	-0.003	0.0097	
960 minute winter	46	5.000	SW-02	0.2	0.272	0.017	0.0137	
960 minute winter	SW-02	4.001	44	0.5	0.240	0.051	0.0399	
960 minute winter	44	1.003	42	1.3	0.341	0.159	0.1593	

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 95.05%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute winter	43	930	9.993	0.298	0.0	0.0000	0.0000	SURCHARGED
960 minute winter	6.000:50%	930	9.993	0.312	0.2	0.0000	0.0000	SURCHARGED
960 minute winter	42	930	9.993	0.327	1.4	0.0000	0.0000	SURCHARGED
960 minute winter	41	930	9.993	0.332	0.0	0.0000	0.0000	SURCHARGED
960 minute winter	9.000:50%	930	9.993	0.340	0.1	0.0000	0.0000	SURCHARGED
960 minute winter	40	930	9.993	0.349	2.6	30.2126	0.0000	SURCHARGED
15 minute summer	39	11	10.023	0.043	0.5	0.0000	0.0000	OK
15 minute summer	10.000:50%	11	10.023	0.136	8.4	0.0000	0.0000	SURCHARGED
960 minute winter	SW-04	930	9.993	0.199	0.5	0.0317	0.0000	SURCHARGED
960 minute winter	37	930	9.993	0.357	1.6	0.0000	0.0000	SURCHARGED
960 minute winter	36	945	9.993	0.013	0.0	0.0000	0.0000	OK
960 minute winter	11.000:50%	930	9.993	0.106	0.3	0.0000	0.0000	SURCHARGED
960 minute winter	35	930	9.993	0.099	0.0	0.0000	0.0000	OK
960 minute winter	12.000:50%	930	9.993	0.149	0.8	0.0000	0.0000	SURCHARGED
960 minute winter	SW-05	930	9.993	0.199	0.6	0.0317	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)
960 minute winter	43	6.000	6.000:50%	0.0	-0.012	0.013	0.0517	
960 minute winter	43	6.000	42	0.2	0.118	0.069	0.0517	
960 minute winter	42	1.004	54	1.4	0.678	0.170	0.0422	
960 minute winter	41	9.000	9.000:50%	0.0	-0.042	0.015	0.0318	
960 minute winter	41	9.000	40	0.1	0.163	0.037	0.0318	
960 minute winter	40	1.006	37	-1.7	0.184	-0.046	0.6156	
15 minute summer	39	10.000	10.000:50%	-0.5	-0.105	-0.064	0.0361	
15 minute summer	39	10.000	SW-04	7.8	1.012	1.086	0.0484	
960 minute winter	SW-04	10.001	37	0.5	0.477	0.057	0.0588	
960 minute winter	37	1.007	33	1.4	0.193	0.041	0.3622	
960 minute winter	36	11.000	11.000:50%	0.0	-0.007	-0.005	0.0300	
960 minute winter	36	11.000	SW-05	0.3	0.404	0.043	0.0557	
960 minute winter	35	12.000	12.000:50%	0.0	-0.007	-0.005	0.0154	
960 minute winter	35	12.000	SW-05	-0.6	0.368	-0.062	0.0154	
960 minute winter	SW-05	11.001	33	0.6	0.446	0.062	0.0575	

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 95.05%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute winter	33	930	9.993	0.361	1.8	0.0000	0.0000	SURCHARGED
960 minute winter	32	930	9.993	0.349	0.0	0.0000	0.0000	SURCHARGED
960 minute winter	13.000:50%	930	9.993	0.358	0.4	5.7046	0.0000	SURCHARGED
960 minute winter	31	930	9.993	0.368	2.2	0.0000	0.0000	SURCHARGED
960 minute winter	30	915	9.993	0.363	0.2	0.0000	0.0000	FLOOD RISK
960 minute winter	14.000:50%	915	9.993	0.372	0.1	0.0000	0.0000	SURCHARGED
960 minute winter	29	930	9.993	0.381	2.7	0.0000	0.0000	FLOOD RISK
960 minute winter	28	915	9.993	0.113	0.0	0.0000	0.0000	FLOOD RISK
960 minute winter	16.000:50%	930	9.992	0.184	0.3	0.0000	0.0000	SURCHARGED
960 minute winter	27	930	9.993	0.033	0.0	0.0000	0.0000	OK
960 minute winter	15.000:50%	930	9.993	0.144	0.3	1.5958	0.0000	SURCHARGED
960 minute winter	SW-06	930	9.993	0.256	1.1	0.0407	0.0000	FLOOD RISK
960 minute winter	25	930	9.993	0.388	3.1	0.0000	0.0000	FLOOD RISK
960 minute winter	24	930	9.993	0.033	0.0	0.0000	0.0000	OK
960 minute winter	17.000:50%	930	9.993	0.144	0.2	1.5958	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)
960 minute winter	33	1.008	31	1.7	0.200	0.049	0.5809	
960 minute winter	32	13.000	13.000:50%	0.0	-0.036	-0.010	0.0346	
960 minute winter	32	13.000	31	-0.3	0.121	-0.100	0.0346	
960 minute winter	31	1.009	29	2.1	0.181	0.059	1.1372	
960 minute winter	30	14.000	14.000:50%	-0.2	-0.033	-0.066	0.0324	
960 minute winter	30	14.000	29	0.2	0.036	0.065	0.0324	
960 minute winter	29	1.010	25	2.7	0.204	0.088	0.8357	
960 minute winter	28	16.000	16.000:50%	0.0	-0.005	-0.003	0.0138	
960 minute winter	28	16.000	SW-06	0.8	0.387	0.069	0.0138	
960 minute winter	27	15.000	15.000:50%	0.0	0.004	-0.003	0.0343	
960 minute winter	27	15.000	SW-06	0.3	0.413	0.039	0.0532	
960 minute winter	SW-06	15.001	25	0.5	0.322	0.060	0.0504	
960 minute winter	25	1.011	21	3.1	0.217	0.070	0.4014	
960 minute winter	24	17.000	17.000:50%	0.0	0.004	0.003	0.0410	
960 minute winter	24	17.000	SW-07	0.2	0.421	0.029	0.0635	

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 95.05%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute winter	SW-07	930	9.993	0.256	0.2	0.0407	0.0000	FLOOD RISK
960 minute winter	21	930	9.993	0.395	4.0	40.9158	0.0000	FLOOD RISK
960 minute winter	20	930	9.993	0.378	0.0	0.0000	0.0000	FLOOD RISK
960 minute winter	19.000:50%	930	9.993	0.394	0.3	0.0000	0.0000	SURCHARGED
960 minute winter	19	930	9.993	0.410	2.2	0.0000	0.0000	FLOOD RISK
960 minute winter	18	930	9.993	0.083	0.0	0.0000	0.0000	OK
960 minute winter	21.000:50%	930	9.993	0.181	0.2	2.5506	0.0000	SURCHARGED
960 minute winter	17	930	9.993	0.063	0.0	0.0000	0.0000	OK
960 minute winter	20.000:50%	930	9.993	0.171	0.4	2.2748	0.0000	SURCHARGED
960 minute winter	SW-08	930	9.993	0.280	0.6	0.0445	0.0000	FLOOD RISK
960 minute winter	15	930	9.993	0.421	2.6	0.0000	0.0000	FLOOD RISK
960 minute winter	14	945	9.993	0.401	0.0	0.0000	0.0000	FLOOD RISK
960 minute winter	22.000:50%	930	9.993	0.418	0.3	0.0000	0.0000	SURCHARGED
960 minute winter	13	930	9.993	0.435	4.8	61.4374	0.0000	FLOOD RISK
960 minute winter	12	930	9.993	0.143	0.0	0.0000	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)
960 minute winter	SW-07	18.000	21	0.2	0.124	0.022	0.0498	
960 minute winter	21	1.012	19	1.8	0.197	0.050	1.4248	
960 minute winter	20	19.000	19.000:50%	0.0	-0.013	0.013	0.0586	
960 minute winter	20	19.000	19	0.3	0.174	0.100	0.0586	
960 minute winter	19	1.013	15	2.2	0.217	0.061	1.0346	
960 minute winter	18	21.000	21.000:50%	0.0	-0.005	0.004	0.0594	
960 minute winter	18	21.000	SW-08	0.2	0.301	0.030	0.0629	
960 minute winter	17	20.000	20.000:50%	0.0	-0.004	-0.003	0.0537	
960 minute winter	17	20.000	SW-08	0.4	0.403	0.058	0.0646	
960 minute winter	SW-08	20.001	15	0.6	0.334	0.065	0.0508	
960 minute winter	15	1.014	13	2.6	0.216	0.072	1.3164	
960 minute winter	14	22.000	22.000:50%	0.0	-0.012	-0.013	0.0597	
960 minute winter	14	22.000	13	0.3	0.166	0.097	0.0597	
960 minute winter	13	1.015	10	2.1	0.234	0.049	1.4685	
960 minute winter	12	23.000	23.000:50%	0.0	-0.005	-0.002	0.0412	

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 95.05%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute winter	23.000:50%	930	9.993	0.279	0.4	4.8571	0.0000	SURCHARGED
960 minute winter	SW-09	930	9.993	0.416	0.3	0.0662	0.0000	FLOOD RISK
960 minute winter	10	930	9.993	0.456	2.4	21.8413	0.0000	FLOOD RISK
360 minute summer	9	360	9.950	0.200	0.1	0.0000	0.0000	FLOOD RISK
960 minute winter	27.000:50%	930	9.993	0.326	0.6	7.9631	0.0000	SURCHARGED
960 minute winter	SW-13	930	9.993	0.410	0.3	0.0652	0.0000	FLOOD RISK
960 minute winter	7	930	9.993	0.168	0.0	0.0000	0.0000	FLOOD RISK
960 minute winter	28.000:50%	930	9.993	0.285	0.4	5.2518	0.0000	SURCHARGED
960 minute winter	6	930	9.993	0.228	0.0	0.0000	0.0000	FLOOD RISK
960 minute winter	29.000:50%	930	9.993	0.315	0.4	0.0000	0.0000	SURCHARGED
960 minute winter	SW-12	930	9.993	0.403	1.4	0.0641	0.0000	FLOOD RISK
960 minute winter	4	930	9.993	0.495	1.6	21.8413	0.0000	FLOOD RISK
960 minute winter	SW-14 (HYDRO)	930	9.993	0.499	1.2	0.5644	0.0000	FLOOD RISK
480 minute summer	SW-15	320	9.874	0.464	1.2	0.5249	0.0000	FLOOD RISK
15 minute summer	DITCH HEADWALL	1	9.874	0.521	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)
960 minute winter	12	23.000	SW-09	0.3	0.302	0.030	0.0412	
960 minute winter	SW-09	23.001	10	0.3	0.242	0.063	0.0450	
960 minute winter	10	1.016	64	2.0	0.208	0.033	1.6392	
360 minute summer	9	27.000	27.000:50%	-0.1	-0.015	-0.009	0.0370	
360 minute summer	9	27.000	SW-13	1.0	0.390	0.122	0.0370	
960 minute winter	SW-13	27.001	4	-0.3	0.283	-0.051	0.0626	
960 minute winter	7	28.000	28.000:50%	0.0	-0.004	-0.003	0.0275	
960 minute winter	7	28.000	SW-12	-0.3	-0.045	-0.031	0.0275	
960 minute winter	6	29.000	29.000:50%	0.0	-0.004	-0.002	0.0107	
960 minute winter	6	29.000	SW-12	1.1	0.194	0.074	0.0107	
960 minute winter	SW-12	28.001	4	0.3	0.036	0.035	0.0374	
960 minute winter	4	1.020	SW-14 (HYDRO)	1.2	0.021	0.024	1.4759	
960 minute winter	SW-14 (HYDRO)	Hydro-Brake®	SW-15	1.2				
480 minute summer	SW-15	1.022	DITCH HEADWALL	1.2	0.017	0.013	0.5420	26.1

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 95.05%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute winter	54	930	9.993	0.332	1.9	0.0000	0.0000	SURCHARGED
960 minute winter	SW-03	930	9.993	0.239	0.8	0.0380	0.0000	SURCHARGED
15 minute summer	56	12	10.063	0.093	4.1	0.0000	0.0000	OK
15 minute summer	7.001:50%	11	10.039	0.177	8.4	0.0000	0.0000	SURCHARGED
15 minute summer	57	12	10.062	0.062	0.3	0.0000	0.0000	OK
15 minute summer	7.000:50%	12	10.062	0.077	4.5	0.0000	0.0000	OK
960 minute winter	58	930	9.993	0.103	0.1	0.0000	0.0000	SURCHARGED
960 minute winter	8.000:50%	930	9.993	0.171	0.2	0.0000	0.0000	SURCHARGED
960 minute winter	59	930	9.993	0.486	1.7	0.0000	0.0000	FLOOD RISK
960 minute winter	SW-11	930	9.993	0.389	0.4	0.0619	0.0000	FLOOD RISK
960 minute winter	26.001:50%	930	9.993	0.433	0.4	0.0000	0.0000	SURCHARGED
960 minute winter	61	930	9.993	0.193	0.0	0.0000	0.0000	FLOOD RISK
960 minute winter	26.000:50%	930	9.993	0.291	0.4	5.4200	0.0000	SURCHARGED
960 minute winter	62	930	9.993	0.478	1.7	0.0000	0.0000	FLOOD RISK
960 minute winter	63	930	9.993	0.441	0.1	0.0000	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)
960 minute winter	54	1.005	40	1.8	0.167	0.052	1.3430	
960 minute winter	SW-03	7.002	54	0.7	0.655	0.066	0.0256	
15 minute summer	56	7.001	7.001:50%	4.4	0.599	0.574	0.0531	
15 minute summer	56	7.001	SW-03	7.8	0.992	1.023	0.0539	
15 minute summer	57	7.000	7.000:50%	0.5	0.285	0.062	0.0045	
15 minute summer	57	7.000	56	4.1	1.026	0.484	0.0054	
960 minute winter	58	8.000	8.000:50%	-0.1	-0.011	-0.004	0.0141	
960 minute winter	58	8.000	SW-03	0.4	0.278	0.035	0.0141	
960 minute winter	59	1.019	4	1.4	0.113	0.023	1.0210	
960 minute winter	SW-11	26.001	26.001:50%	-0.4	-0.046	-0.046	0.0206	
960 minute winter	SW-11	26.001	59	-0.4	-0.051	-0.050	0.0206	
960 minute winter	61	26.000	26.000:50%	0.0	-0.008	-0.004	0.0334	
960 minute winter	61	26.000	SW-11	-0.3	-0.044	-0.037	0.0334	
960 minute winter	62	1.018	59	1.7	0.169	0.026	0.8724	
960 minute winter	63	25.000	25.000:50%	-0.1	-0.037	-0.041	0.0534	

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 95.05%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute winter	25.000:50%	930	9.993	0.455	0.3	0.0000	0.0000	SURCHARGED
960 minute winter	64	930	9.993	0.471	2.0	0.0000	0.0000	FLOOD RISK
960 minute winter	SW-10	930	9.993	0.378	0.5	0.0601	0.0000	FLOOD RISK
960 minute winter	24.002:50%	930	9.993	0.420	0.8	8.4884	0.0000	SURCHARGED
960 minute winter	66	930	9.993	0.193	0.0	0.0000	0.0000	FLOOD RISK
960 minute winter	24.001:50%	930	9.993	0.285	0.4	5.2506	0.0000	SURCHARGED
60 minute summer	PLOT 1	41	10.164	0.474	10.3	4.9718	0.0000	FLOOD RISK
60 minute summer	PLOT 2	44	10.180	0.460	12.2	6.8084	0.0000	FLOOD RISK
60 minute winter	PLOT 3	49	10.135	0.465	5.1	4.0639	0.0000	FLOOD RISK
60 minute winter	PLOT 4&5	51	10.179	0.509	14.9	14.5168	0.0000	FLOOD RISK
60 minute summer	SW11	41	10.162	0.512	4.5	0.1004	0.0000	FLOOD RISK
60 minute summer	SW12	44	10.178	0.538	4.2	0.1055	0.0000	FLOOD RISK
60 minute winter	SW13	49	10.135	0.535	1.8	0.1048	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)
960 minute winter	63	25.000	62	0.3	0.184	0.111	0.0534	
960 minute winter	64	1.017	62	1.6	0.193	0.025	0.7494	
960 minute winter	SW-10	24.002	24.002:50%	0.5	0.126	0.060	0.0152	
960 minute winter	SW-10	24.002	64	-0.8	-0.102	-0.089	0.0152	
960 minute winter	66	24.001	24.001:50%	0.0	-0.004	-0.002	0.0367	
960 minute winter	66	24.001	SW-10	-0.2	0.369	-0.027	0.0367	
60 minute summer	PLOT 1	14.000_1	SW11	4.5	0.339	0.310	0.1065	
60 minute summer	PLOT 2	15.000_1	SW12	4.2	0.351	0.269	0.1794	
60 minute winter	PLOT 3	20.000_1	SW13	1.8	0.309	0.139	0.2385	
60 minute winter	PLOT 4&5	24.000	SW14	3.3	0.315	0.265	0.2164	
60 minute summer	SW11	Orifice	31	3.1				
60 minute summer	SW12	Orifice	29	2.7				
60 minute winter	SW13	Orifice	19	1.2				

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 95.05%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute winter	SW14	51	10.175	0.565	3.3	0.1108	0.0000	FLOOD RISK
960 minute winter	Access Road Widening	930	9.993	0.423	0.5	6.1028	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)
60 minute winter	SW14	Orifice	13	2.9				
960 minute winter	Access Road Widening	26.000_1	13	-0.3	-0.128	-0.093	0.0255	

APPENDIX D

INFILTRATION & GROUNDWATER MONITORING

Figure 2. Trial Hole Location Plan



Soakaway Calculations

Soakaway Test No.	TPSK1B (test 1)
Contract:	Hook Lane
Contract No.	17894

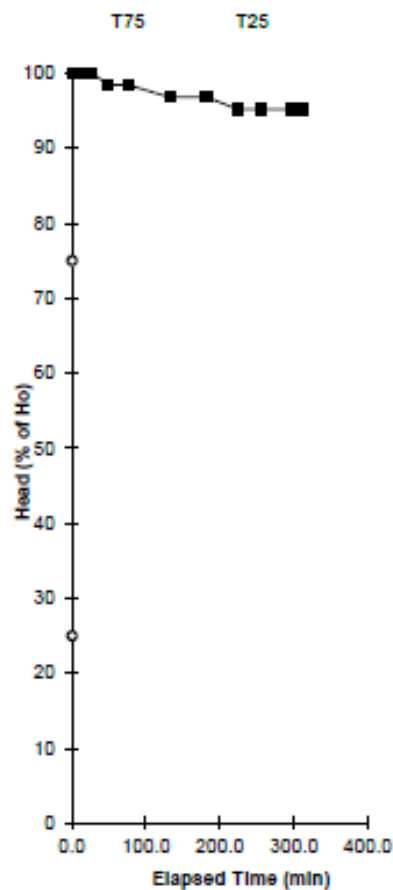
Field Test

Trial Pit Log (include details of groundwater):
See trial Pit record

Depth of Pit	1.39 m
Width of Pit	0.60 m
Length of Pit	0.90 m
Depth of Pit Soaked	0.62 m
ap50	1.47 m ²
Vp75-25	0.1674 m ³
t75-25	0.0 mlin
water used	0.3348 m ³
f	N/A m/sec.

Field Data

Depth to Water (m)	Elapsed Time (min)	Head of Water (% of Ho)	Head of Water (m)
0.77	0	100	0.62
0.77	1.1	100	0.62
0.77	2.6	100	0.62
0.77	9.9	100	0.62
0.77	21.3	100	0.62
0.77	27.1	100	0.62
0.78	49.3	98	0.61
0.78	76.0	98	0.61
0.79	132.2	97	0.60
0.79	181.8	97	0.60
0.8	224.6	95	0.59
0.80	256.7	95	0.59
0.8	296.7	95	0.59
0.80	311.9	95	0.59



T75	0.000	75
T25	0.000	25
T75-25	0.000	Derived from Best Fit

Comments

Negligible infiltration over the test period of 312 minutes.

SOILS LIMITED

Newton House, Cross Road, Tadworth
Surrey, KT20 6SR

Telephone: 01737 814 221
Facsimile: 01737 812 667

Soakaway Calculations

Soakaway Test No.	TPSK1B (test 1)
Contract:	Hook Lane
Contract No.	17894

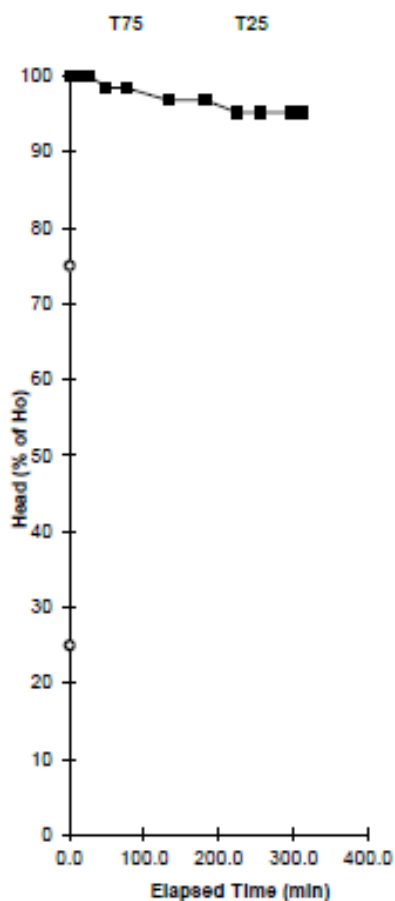
Field Test

Trial Pit Log (include details of groundwater):
See trial Pit record

Depth of Pit	1.39 m
Width of Pit	0.60 m
Length of Pit	0.90 m
Depth of Pit Soaked	0.62 m
ap50	1.47 m ²
Vp75-25	0.1674 m ³
c75-25	0.0 min
water used	0.3348 m ³
f	N/A m/sec.

Field Data

Depth to	Elapsed	Head of	Head of
Water	Time	Water	Water
(m)	(min)	(% of Ho)	(m)
0.77	0	100	0.62
0.77	1.1	100	0.62
0.77	2.6	100	0.62
0.77	9.9	100	0.62
0.77	21.3	100	0.62
0.77	27.1	100	0.62
0.78	49.3	98	0.61
0.78	76.0	98	0.61
0.79	132.2	97	0.60
0.79	181.8	97	0.60
0.8	224.6	95	0.59
0.80	256.7	95	0.59
0.8	296.7	95	0.59
0.80	311.9	95	0.59



T75	0.000	75
T25	0.000	25
T75-25	0.000	Derived from Best Fit

Comments

Negligible infiltration over the test period of 312 minutes.

SOILS LIMITED

Newton House, Cross Road, Tadworth
Surrey, KT20 6JR

Telephone: 01737 814 221
Facsimile: 01737 812 667

Groundwater Monitoring Letter Report

CLIENT	Imperial Homes Southern
SITE ADDRESS	Springfield, Hook Avenue, Aldingbourne PO20 3TE
REPORT REFERENCE	GWPR4064
ENGINEER	Emily Murray, Ground and Water Limited.
INVESTIGATION LOCATIONS	Site works were undertaken on 21 st January 2021 and comprised the drilling of 3No. Windowless Sampler Boreholes to 3.00m bgl. 3No. combined Groundwater and Ground-gas monitoring standpipes were installed to depths of between 1.50 – 2.00m bgl. Prior to installation and due to the stability of the well, the boreholes collapsed to between 1.50 – 2.00m bgl, therefore this was the maximum depth of installation.

Combined Ground-gas and Groundwater Monitoring Well Construction				
Trial Hole	Depth of Installation (m bgl)	Thickness of slotted piping with gravel filter pack (m)	Depth of plain piping with bentonite seal (m bgl)	Piping internal diameter (mm)
WS1	2.00	1.00	1.00	50
WS2	1.80	0.80	1.00	50
WS3	1.50	0.50	1.00	50

A trial hole location plan can be viewed within Figure 1.

GROUND CONDITIONS ENCOUNTERED

Summary of Strata Encountered			
Strata	Depth Top (m bgl)	Depth Base (m bgl)	Thickness (m)
TOPSOIL (WS1 and WS3): Brown clayey fine to medium SAND.	GL	0.20	0.20
MADE GROUND (ALL TRIAL HOLES): Light brown to brown slightly gravelly sandy CLAY. Sand was fine to coarse. Gravel was sub-angular to sub-rounded, fine to medium, flint, chalk and brick.	GL – 0.20	0.50 – 1.00	0.30 – 1.00
RIVER TERRACE DEPOSITS – UNDIFFERENTIATED) (ALL TRIAL HOLES) (COHESIVE): Generally comprised of a brown and orangish brown slightly gravelly sandy silty CLAY. Sand was fine to coarse. Gravel was sub-angular, fine to medium, flint.	0.60 - 1.00	1.80 – 2.00	1.00 – 1.20
RIVER TERRACE DEPOSITS – UNDIFFERENTIATED) (ALL TRIAL HOLES) (GRANULAR): Generally comprised a brown clayey fine to medium SAND to a fine SAND.	0.50 – 2.00	0.60 – 3.00	>0.10 – >1.00

Full trial hole logs can be viewed within Appendix B.

ROOTS

A tabulated summary of the roots noted can be seen below:

Depth of Root Penetrated Soils Observed Within Trial Holes (m bgl)		
Trial Hole	Fresh Roots	Rootlets/Decayed roots
WS1	1.00	-
WS2	1.50	-
WS3	0.50	0.80

It must be noted that the chance of determining actual depth of root penetration through a narrow diameter borehole is low. It should be noted that roots may be found to greater depths at other locations on the site, particularly close to trees and/or trees that have been removed both within the site and its close environs.

GROUNDWATER

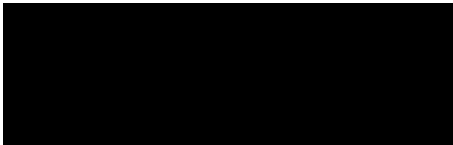
Groundwater strikes were encountered at 1.50m bgl within WS1 and WS3 and at 2.00m within WS2. It should be noted that groundwater strikes may have been obstructed by the drilling process.

4No. return groundwater monitoring visits were undertaken in January – March 2021. A tabulated summary can be seen tabulated below:

Depth of Groundwater Strikes/Standing Groundwater Within Trial Holes			
Trial Hole	Date	Depth of Groundwater (m bgl)	Depth of Standpipe (m bgl)
WS1	30/01/2021	0.24	1.97
	13/02/2021	1.00	1.78 (silted base)
	27/02/2021	1.15	1.76 (silted base)
	13/03/2021	0.89	1.73 (silted base)
WS2	30/01/2021	0.22	1.80
	13/02/2021	0.78	1.52 (silted base)
	27/02/2021	0.96	1.52 (silted base)
	13/03/2021	1.03	1.54 (silted base)
WS3	30/01/2021	0.24	1.45
	13/02/2021	0.65	1.40 (silted base)
	27/02/2021	0.82	1.41 (silted base)
	13/03/2021	0.74	1.40 (silted base)

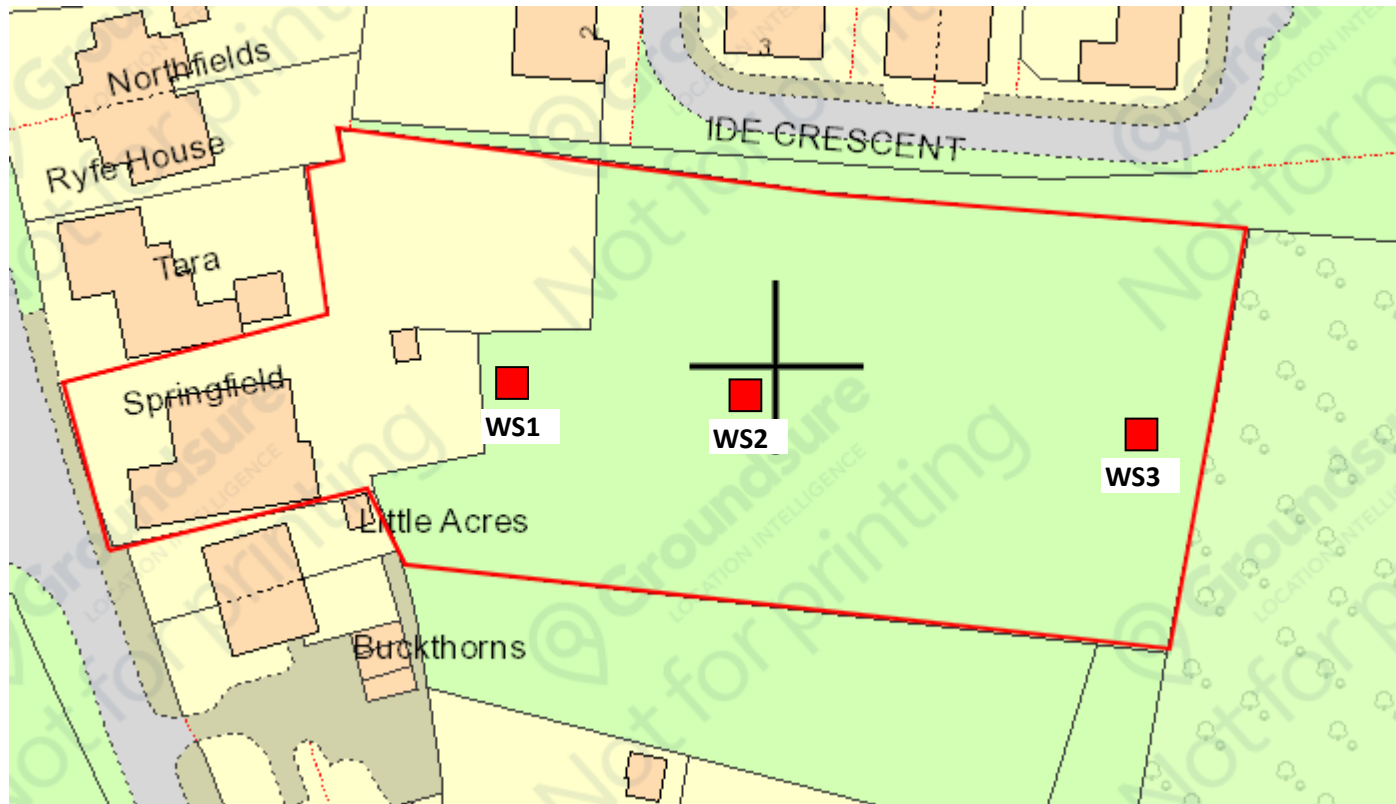
Please feel free to contact us should you have any queries regarding the information enclosed within this letter report.

Yours sincerely,



Emily Murray MSc.,
Geotechnical and Geo-environmental Engineer
For and on behalf of Ground and Water Limited

Figure 1 Trial Hole Location Plan
Appendix A Conditions and Limitations
Appendix B Trial Hole Logs



Not To Scale

Project:

Springfields, Hook Avenue, Aldingbourne PO20 3TE

Client:

Imperial Homes Southern

Date:

March 2021

Trial Hole Location Plan

Ref:

GWPR4064

Figure 1



APPENDIX A

Conditions and Limitations

The ground is a product of continuing natural and artificial processes. As a result, the ground will exhibit a variety of characteristics that vary from place to place across a site, and also with time. Whilst a ground investigation will mitigate to a greater or lesser degree against the resulting risk from variation, the risks cannot be eliminated.

The report has been prepared on the basis of information, data and materials which were available at the time of writing. Accordingly, any conclusions, opinions or judgements made in the report should not be regarded as definitive or relied upon to the exclusion of other information, opinions and judgements.

The investigation, interpretations, and recommendations given in this report were prepared for the sole benefit of the client in accordance with their brief; as such these do not necessarily address all aspects of ground behaviour at the site. No liability is accepted for any reliance placed on it by others unless specifically agreed in writing.

Any decisions made by you, or by any organisation, agency or person who has read, received or been provided with information contained in the report ("you" or "the Recipient") are decisions of the Recipient and we will not make, or be deemed to make, any decisions on behalf of any Recipient. We will not be liable for the consequences of any such decisions.

Current regulations and good practice were used in the preparation of this report. An appropriately qualified person must review the recommendations given in this report at the time of preparation of the scheme design to ensure that any recommendations given remain valid in light of changes in regulation and practice, or additional information obtained regarding the site.

Any Recipient must consider any other factors apart from the Report of which they and their experts and advisers are or should be aware. The information, data, conclusions, opinions and judgements set out in the report may relate to certain contexts and may not be suitable in other contexts. It is your responsibility to ensure that you do not use the information we provide in the wrong context.

This report is based on readily available geological records, the recorded physical investigation, the strata observed in the works, together with the results of completed site and laboratory tests. Whilst skill and care has been taken to interpret these conditions likely between or below investigation points, the possibility of other characteristics not revealed cannot be discounted, for which no liability can be accepted. The impact of our assessment on other aspects of the development required evaluation by other involved parties.

The opinions expressed cannot be absolute due to the limitations of time and resources within the context of the agreed brief and the possibility of unrecorded previous in ground activities. The ground conditions have been sampled or monitored in recorded locations and tests for some of the more common chemicals generally expected. Other concentrations of types of chemicals may exist. It was not part of the scope of this report to comment on environment/contaminated land considerations.

The conclusions and recommendations relate to Springfield, Hook Avenue, Aldingbourne PO20 3TE.

Trial hole is a generic term used to describe a method of direct investigation. The term trial pit, borehole or window sampler borehole implies the specific technique used to produce a trial hole.

The depth to roots and/or of desiccation may vary from that found during the investigation. The client is responsible for establishing the depth to roots and/or of desiccation on a plot-by-plot basis prior to the construction of foundations. Where trees are mentioned in the text this means existing trees, recently removed trees (approximately 15 years to full recovery on cohesive soils) and those planned as part of the site landscaping.

Ownership of copyright of all printed material including reports, laboratory test results, trial pit and borehole log sheets, including drillers log sheets, remain with Ground and Water Limited. Licence is for the sole use of the client and may not be assigned, transferred or given to a third party.

Only our client may rely on this report and should this report or any information contained in it be provided to any third party we accept no responsibility to the third party for the contents of this report save to the extent expressly outlined by us in writing in a reliance letter addressed from us to the third party.

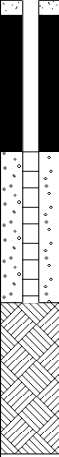
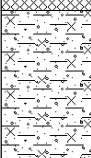
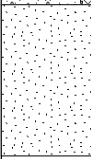
Recipients are not permitted to publish this report outside of their organisation without our express written consent.

APPENDIX B
Trial Hole Logs



Percussion Drilling Log

Project Name: Springfield		Client: Imperial Homes Southern		Date: 21/01/2021	
Location: Hook Avenue, Aldingbourne PO20 3TE		Contractor:			
Project No. : GWPR4064		Crew Name:		Drilling Equipment:	
Borehole Number WS1	Hole Type WLS	Level	Logged By EM	Scale 1:50	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	D	N=4 (1,1/1,1,1,1)	0.20			TOPSOIL: Brown clayey, fine to medium, SAND.	
		0.50	D					MADE GROUND: Light brown to brown slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is sub-angular to sub-rounded, fine to medium, flint (50%) and brick (50%).	
		0.80	D						
		1.00	D		1.00				
		1.00	SPT	N=7 (1,1/2,1,2,2)				Brown and orangish brown slightly gravelly sandy silty CLAY. Sand is fine to medium. Gravel is sub-angular, fine to medium flint. (RIVER TERRACE DEPOSITS - UNDIFFERENTIATED)	1
		1.50	D						
		2.00	D		2.00				
		2.00	SPT					Brown fine SAND. (RIVER TERRACE DEPOSITS - UNDIFFERENTIATED)	2
		2.50	D						
		3.00	D		3.00			End of Borehole at 3.000m	3
									4
									5
									6
									7
									8
									9
									10

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks
Roots noted to 1.00m bgl. Groundwater encountered at 1.50m bgl rising to 1.30m bgl.





Date: 21/01/2021

Contractor:

Drilling Equipment:

Page Number
Sheet 1 of 1[illegible]

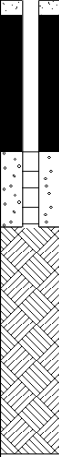
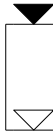
Roots noted to 1.50m bgl. Groundwater was encountered at 2.00m bgl rising to 0.70m bgl.





Percussion Drilling Log

Project Name: Springfield		Client: Imperial Homes Southern		Date: 21/01/2021	
Location: Hook Avenue, Aldingbourne PO20 3TE		Contractor:			
Project No. : GWPR4064		Crew Name:		Drilling Equipment:	
Borehole Number WS3	Hole Type WLS	Level		Logged By EM	Scale 1:50
				Page Number Sheet 1 of 1	

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	D	N=5 (1,1/2,1,1,1)	0.20			TOPSOIL: Brown clayey fine to medium SAND.	
		0.50	D		0.50			MADE GROUND: Light brown to brown slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is sub-angular to sub-rounded, fine to medium, flint (50%) and chalk (50%).	
		0.80	D		0.60			Brown clayey fine to medium SAND. (RIVER TERRACE DEPOSITS - UNDIFFERENTIATED)	1
		1.00	D					Brown and orangish brown slightly gravelly silty CLAY. Sand is fine to medium. Gravel is sub-angular, fine to medium, flint. (RIVER TERRACE DEPOSITS - UNDIFFERENTIATED)	
		1.00	SPT						
		2.00	D	N=6 (1,1/2,2,1,1)	1.80			Brown fine SAND. (RIVER TERRACE DEPOSITS - UNDIFFERENTIATED)	2
		2.00	SPT						
		2.50	D						
		3.00	D		3.00				3
								End of Borehole at 3.000m	
									4
									5
									6
									7
									8
									9
									10

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks Large roots noted to 0.50m bgl. Decayed roots at 0.80m bgl. Groundwater encountered to 1.50m bgl rising to 0.80m bgl. No sample recovery at 1.50m bgl.										
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APPENDIX E

EXCEEDANCE FLOW & OVERLAND FLOW ROUTES LAYOUT

! CDM 2015 - RESIDUAL RISKS !

In preparing the designs illustrated by this drawing we have fulfilled our duties in the role of Designer as defined in the Construction Design and Management Regulations 2015. We have undertaken a full Hazard Identification and Risk Analysis and have designed out any special risks associated with the work, so that as far as possible there are no residual risks.

NOTE: Residual risks are defined as those risks arising from identified hazards which cannot be designed-out, and which a competent and experienced building contractor is unlikely to encounter during normal construction activities. Ordinary risks arising from normal construction operations have not been included.

Where hazards have been identified, the risks from which it has not been possible to eliminate during the design process, these are indicated on the drawing. It will be the responsibility of the Principal Contractor to develop Safe Systems of Work and/or Method Statements to minimise any risks associated with such hazards.

NOTES

- This drawing has been prepared using a Topographical Survey Drawing supplied by the client in AutoCAD format.
- This drawing is to be read in conjunction with all relevant Engineers' and Architects' drawings and specifications.
- All dimensions are in millimetres unless noted otherwise. All levels are in metres.
- The contractor is responsible for setting out and for checking dimensions.
- In accordance with The Construction (Design and Management) Regulations 2015 (CDM 2015) the Principle Designer and Contractor are to:
 - Notify HSE of works.
 - Comply with the requirements of Health and Safety Plan (if applicable)
 - Provide risk assessments and method statements for all potential hazards relevant to this project.
- The main contractor shall be responsible for the setting out and accuracy of all dimensions. The contractor shall be satisfied that the information given is correct and any discrepancies should be noted to the Engineer immediately.
- The Contractor is responsible for specifying product and codes and ordering of drainage materials.
- New adoptable pipework to be vitrified clay type and to be constructed to the following specifications. Systems that are resistant to a jetting pressure of 4000psi. Systems that minimise the number of joints in the system, by using 3metre pipe length. Systems that do not have lip seal joints, hence preventing root ingress.
- All non-uPVC (adoptable) pipe connection to manholes shall be provided with a 'rocker pipe' of 600mm effective length in accordance with CI E6.6 of 'Sewers for Adoption'.
- Precast concrete manhole units shall comply with the relevant provisions of BS EN 1917 and BS 5911-3.
- Cover grades are in accordance with BS497 Pt 1
Cover Grades : D400 - carriageways.
B125 - carriageways for slow traffic.
A15 - inaccessible to vehicles
- All drainage pipes within development site to be 100mm dia unless shown otherwise.
- All uPVC drainage to be installed to BS5955 P16 and in strict accordance with the manufacturers instructions.
- All uPVC drainage products to conform to BS EN1401 & Kite mark certified in accordance with specification.
- All adoptable drainage and associated works to comply with the latest Part E - Civil Engineering Specification of 'Sewer for Adoption'.
- DO NOT SCALE. If discrepancy or query arises on dimensions consult Engineer.

KEY

-  EXISTING OVERLAND FLOW ROUTES
-  EXCEEDANCE FLOW ROUTES

EXCEEDANCE FLOW AND OVERLAND FLOW ROUTES LAYOUT

1:125

Date	By	Revision	QA'D	Chk'd	Ref
Status PRELIMINARY					
Cowan Consultancy STRUCTURAL, CIVIL AND BUILDING CONSULTANTS 3 Turnberry House 4400 Parkway Whiteley Fareham Hampshire PO15 7FJ Also at: Landguard Manor Landguard Manor Road Shanklin Isle of Wight PO37 7JB Tel: 01489 577488 Fax: 01489 579873 consultants@cowanconsult.co.uk www.cowanconsult.co.uk					
Client RANDMERE LIMITED					
Project KARENZA (SITE SOUTH OF AUTUMN GATE) HOOK LANE, ALDINGBOURNE, WEST SUSSEX, PO20 3TE					
Title EXCEEDENCE FLOW & OVERLAND FLOW ROUTES					
Date	JUN 2025	Scale	AS SHOWN	@ A1	Drg. No.
Drawn	TB	Chk'd	EG	QA'D EG	435050-230P