

TOBIN

An AtkinsRéalis Company

Galway County Council

**18 Additional Units at
Cosmona, Loughrea,
Co. Galway**

Engineering Planning Report



Comhairle Chontae na Gaillimhe
Galway County Council

BUILT ON KNOWLEDGE

Document Control Sheet	
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1. INTRODUCTION

1.1 GENERAL

TOBIN, an AtkinsRéalis Company, have been Galway County Council proposes to carry out the following development.

Galway County Council is applying for part VIII planning permission for construction of a residential project at Cosmona, Loughrea, comprising of 18 no. 3 bedroom houses units, with landscaping and all associated site development works and site services necessary to facilitate the proposed development.

See below Figure 1 for site Location and Figure 2 for Proposed Site Layout.



Figure 1-1 Site Location - Aerial View (Google Maps)

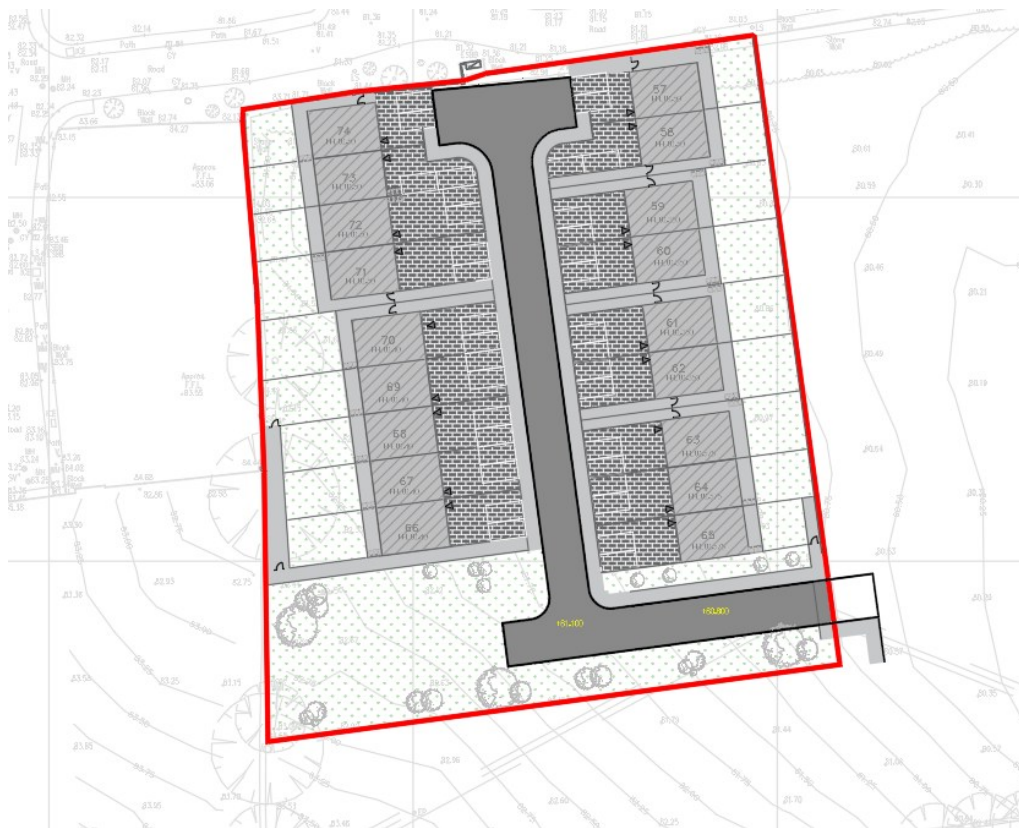


Figure 1-2 Proposed Site Layout

Access to the site is via the Garrai na Móna estate currently under construction which is accessed off the R350.

A burial Ground listed as a protected structure (323-NIAH 3033703) is located to the south of the proposed development. The Hazelwood housing estate is located to the west and north of the site.

TOBIN an AtkinsRéalis Company, are the consultants appointed to provide Civil, Structural and Traffic engineering design services for the planning stage of this project.

1.2 ENGINEERING INFORMATION

As part of the planning submission for the above proposed development, TOBIN, an Atkins Réalis Company have prepared this Engineering Report to address the following design aspects of the proposed development.

- ✓ Storm Water Drainage
- ✓ Waste Water Drainage
- ✓ Water Supply
- ✓ Road Layout
- ✓ Traffic Management

The following drawings are included outlining the design proposals and a Drawing Register is included in **Appendix A**:



- 11942-2100 – Proposed Roads Layout
- 11942-2101 – Swept Path Analysis Sheet 3 of 3
- 11942-2102 – Swept Path Analysis Sheet 2 of 3
- 11942-2103 – Visibility Splays
- 11942-2104 – Proposed Storm Drainage Layout
- 11942-2105 – Proposed Foul Drainage Layout
- 11942-2106 – Proposed Watermain Layout
- 11942-2107 – Standard Watermain Details
- 11942-2108 – Standard Manhole Details 1 of 2
- 11942-2109 – Standard Manhole Details 2 of 2
- 11942-2110 – Standard Pipe Bedding Details
- 11942-2111 – Site Development Details Sheet 1 of 3
- 11942-2112 – Site Development Details Sheet 2 of 3
- 11942-2113 – Infiltration Tank Details



2. SURFACE WATER DRAINAGE

Storm water drainage services for the proposed development are considered to include the following:

- ✓ Storm Water Network for internal roads, footpaths, pedestrian areas, and carpark
- ✓ Storm Water Network for roof runoff from the proposed buildings

The storm water drainage design has been designed to cater for surface water runoff from all hardstanding areas. The storm water drainage services have been designed to take account of the requirements of the Department of Environment “Recommendations for Site Development Works for Housing Areas”, 1998, the “Greater Dublin Strategic Study” and “Sewers for Adoption” published by WRC, UK.

The storm water drainage network was designed using Causeway Flow Design software and the following parameters formed the basis of the design:

- The surface water run-off is calculated using the Modified Rational Method (Wallingford Procedure),

$$Q = 2.78 \times C_v \times C_r \times I \times A$$

Where,	Q	=	rate of run-off, l/s
	C _v	=	Volumetric run-off coefficient
	C _r	=	Routing coefficient
	I	=	Intensity of rainfall, mm/hr
	A	=	Impermeable Area, ha

- A design return period of 1 year has been adopted for the sewer network in accordance with good design practice.
- The rainfall intensity is based on rainfall data for Loughrea
- Minimum self-cleansing velocity of 0.75m/s
- M5-60 = 16.4
- Ratio (R) = 0.272

2.1 PROPOSED STORM DRAINAGE

A dedicated storm water drainage system will be provided to pick up surface water run-off from roofs, carparks and other hardstand areas. Surface water runoff from roads and footpaths throughout the site will be collected by a combination of channel drains and precast concrete gullies with lockable cast iron grating and frame connected to a piped system. The pipe diameter of the new network will range between 225mm and a maximum of 300mm and will be laid at gradients varying between 1/60 and 1/200 given the site area and topography.



Surface water drainage is proposed to discharge to a cellular infiltration tank located in the green area southwest of the site.

Prior to discharge to the Infiltration tank all surface water will pass through a Class 1 petrol interceptor.

SuDS measures such as rain gardens and filter strips will be strategically located throughout the development to aid in the storm water management of the site. These measures will assist in preserving the current greenfield runoff on the site. Refer to drawing 11925–2104 for locations of the proposed SuDS measures.

The storm drainage for the entire development has been designed using the Causeway Flow Design Software in accordance with the Recommendations for Site Development Works for Housing Areas and also some of the recommendations of the Greater Dublin Strategic Drainage Study (GDSDS). The details of the Causeway Flow Outputs for the pipe design and associated long sections are outlined at **Appendix B** of this report. Refer to drawing 11942 – 2104 for details of the proposed storm drainage network.

2.2 SUSTAINABLE URBAN DRAINAGE SYSTEMS

The existing site is currently a greenfield site with no storm drainage or SuDS measures in place.

To limit surface water runoff from the site, the surface water drainage for the proposed development will be designed in accordance with the principles of Sustainable Urban Drainage Systems (SuDS) as embodied in the recommendations of the Greater Dublin Strategic Drainage Study (GDSDS). The GDSDS addresses the issue of sustainability by requiring designs to comply with a set of drainage criteria which aim to minimise the impact of urbanisation by replicating the runoff characteristics of the partly brownfield site.

The requirements of SuDS are typically addressed by provision of the following:

- ✓ Interception storage
- ✓ Treatment storage (not required if interception storage is provided)
- ✓ Attenuation storage
- ✓ Long term storage (if this is not required growth rates should not be applied to Q_{bar})

In the case of the subject site, interception storage can be achieved by implementing filter strips, rain gardens and attenuation storage tanks. Growth factors will be applied to the allowable discharge for the 100-year event. This means that both treatment storage and long-term storage, neither of which would be practical on this site, are not required. All SuDS measures will be designed in accordance with the recommendation set out in the EPA's document entitled "Guidance on Authorisation of Discharges to Groundwater 2011".

2.2.1 Water Quality

Water quality is managed in the form of the proposed petrol interceptors. Since spatial restraints limit the use of nature-based SuDS measures specifically for water treatment, the use of a petrol interceptor has been proposed as a general SuDS measure to meet this requirement. In addition, the drainage kerbs and infiltration trench/swale garden combination allow for isolation of hydrocarbons for nature-based treatment within appropriate green zones.



2.2.2 Water Quantity

The use of filter strips and rain gardens will increase the time to concentration for the network whilst reducing the peak run-off rates. The main drainage system is also designed to achieve the required thresholds in the event of localized exceedance of SuDS measures, or seasonally sensitive capacity reductions, thereby ensuring that greenfield run-off rates are maintained.

2.2.3 Amenity

The proposed filter strips and rain gardens integrate with the broader landscaping strategy to meet this requirement. However, the details of these measures are to be developed during the detailed design stage.

2.2.4 Biodiversity

The landscaping design requires further development in the detailed design stage to accommodate further SuDS measures to leverage opportunities for biodiversity. However, the SuDS measures already proposed support the landscaping measures as might be employed to meet the biodiversity goals of the development.

2.3 SOAKAWAY (BRE 365)

Infiltration testing conducted in October 2022 for the site (**Appendix C**) revealed that at the proposed infiltration tank location designated by IT-03 on the GI Report the infiltration rate was found to be 8.00E-06 m/s.

The infiltration tank has been sized for the site using this infiltration rate and the details of this are contained within **Appendix B**.

2.4 INFILTRATION TANK

It is proposed to install a cellular infiltration tank for the proposed development. This tank is located inside the southwestern boundary of the proposed site.

The cellular storage unit will be sized to attenuate the water generated for the largest storage required over a 48-hour storm period with rainfall depths taken for the 100-year return period + 20% for climate change for sliding durations obtained from Met Eireann.

Outputs, including the storage structure information, from Causeway Flow modelling software can be found in **Appendix B**. The proposed cellular unit locations are shown graphically on the proposed drainage layout drawings and a Typical Soakaway/Attenuation detail drawing accompanies this application.

2.5 PETROL INTERCEPTOR

It is proposed to install a Class 1 Bypass Petrol Interceptor upstream of the connection into the Cellular Attenuation tank. The reasoning for this is that the storm water entering the tank will include run-off from the roadways and parking areas throughout the site and therefore may have hydrocarbons within their flow. These hydrocarbon pollutants require removal and are not



to be discharged back into the environment. The separator has been sized to cater for roads, carparking and footpath areas of the site with an allowance for contributing roof areas.

From the selection tables in the Separator Product Brochure, it is proposed to provide 1 No. Kingspan Klargestar (NSBE010) or similar approved bypass separators to cater for the hydrocarbons which may be present in the storm water.



3. WASTE WATER DRAINAGE

The drainage systems including all pipe sizes and gradients have been designed in accordance with the Uisce Eireann Code of Practice for Wastewater Infrastructure. Refer to Drawing 11942-2105 which outlines the details of the existing and proposed wastewater network.

3.1 EXISTING WASTEWATER DRAINAGE

It is proposed the wastewater generated by the proposed development will tie in with Phase 1 of the housing development and discharge via rising main to the existing Uisce Eireann owned wastewater located underneath the R350 Road.

Refer to Drawing 11942-2105 which outlines the details of the existing wastewater network.

3.2 PROPOSED WASTEWATER DRAINAGE

Wastewater generated from the proposed development will connect to manhole F10 which was constructed in phase 1 of this development which outfalls to an existing Uisce Eireann owned 225mm foul sewer network located adjacent to the east-northern corner of the site on the R350 Road.

Due to site topography and constraints, it will be necessary for the wastewater generated from dwellings to discharge via a gravity foul sewer to a pumping station. The pumping station is located within phase 1 of the development. A rising main, will pump wastewater from the pumping station to the discharge (decompression) manhole to be located at the junction of the Hazelwood Estate prior to flow via gravity to the existing UE foul network.

The pipework for the wastewater drainage system has been designed to provide six times the dry weather flow in accordance with the Uisce Eireann Code of practice and standard details- Appendix B – Gravity Sewer Design Requirements, section 2.2.5 Domestic Wastewater Peaking Factors.

The wastewater drainage services have been designed to take account of the requirements of the Civil Engineering Specification for the Water Industry (CESWI), subject to the particular requirements applied to it by Uisce Eireann, as outlined in the Uisce Eireann Code of Practice for Wastewater Infrastructure. Other design guidelines adhered to include the Department of Environment “Recommendations for Site Development Works for Housing Areas”, 1998, and “Sewers for Adoption” published by WRC, UK.

It is proposed that all pipes will be thermoplastic structured wall pipes with the maximum and minimum pipe sizes being between 150mm and 225mm respectively. The maximum and minimum pipe gradients shall fall between 1/40 and 1/200. All velocities at said gradients will fall within the limits of 0.75m/sec and 3m/sec as set out in Uisce Eireann Code of Practice for Wastewater Infrastructure and “Recommendations for Site Development Works” as published by the Department of Environment.

The pumping station to be constructed as part of Phase 1 has been designed to cater for this phase of the development and the details of this have been reviewed and approved by Uisce Eireann under CDS No. 2500223801.



4. WATER SUPPLY

The proposed watermain layout has been designed in accordance with Uisce Eireann Code of Practice for Watermain Infrastructure UE-CDS-5020-03.

Refer to Drawing 11942-2106 which outlines the details of the existing and proposed water supply network.

4.1 EXISTING WATER SUPPLY INFRASTRUCTURE

According to Uisce Eireann information there is an existing watermain running along the R350 Road located along the eastern site boundary. From this it is proposed to provide a 100mm diameter HDPE SDR17 feed to the site.

4.2 PROPOSED WATER SUPPLY INFRASTRUCTURE

As outlined in Section 4.1, it is proposed to supply water to this development through the existing water supply network in the vicinity of the proposed site.

In accordance with Local authority/Uisce Eireann standards, a water meter and Logging Device (Larson Type) are proposed at the connection into the proposed site. A sluice valve, strainer and 100mm diameter by-pass arrangement are also proposed to allow for possible disconnection of water meters by the Local Authority/ Uisce Eireann.

Hydrants, sluice valves, air valves and scour valves or wash-out hydrants will be positioned within the site as per shown on the layout drawings. All watermains are to be commissioned and pressure tested to Uisce Eireann standards. The typical construction details and the meter details accompany this application as part of the engineering drawings pack.

The “National Guidance Document on the Provision of Water for Fire Fighting”, Water UK, Local Government Association, (3rd Edition, Jan 2007), states that Housing developments with units of detached or semidetached houses of not more than two floors should have a water supply capable of delivering a minimum of eight litres per second through any single hydrant.

A flow test should be undertaken at a hydrant located adjacent to the site to establish the achievable flow.

For firefighting purposes, fire hydrants are to be provided within the site to the spacing required by Part B of the Building Regulations including the requirement that hydrants will be provided such the building is within 46 metres from a hydrant.

Any specific requirements as requested by the local fire authority will be incorporated at the detail design stage.

As part of Phase 1 the infrastructure was designed to cater for Phase 2 of this development and this was captured under CDS No. 2500223801.



5. ROADS LAYOUT

All internal roads have been designed in accordance with the Design Manual for Urban Roads and Streets (DMURS), May 2019 and the Recommendations for Site Development Works for Housing Areas, 1998. Auto track vehicle swept path analysis has been completed for the proposed site layout for a Large Car, a Refuse Truck, Fire Tender and a small tanker to ensure the vehicles can safely manoeuvre around the site. The swept paths are shown on drawings 11942-2101 to 11942-2102.

As previously noted, the existing site is currently a greenfield site and there are no parking or pedestrian provisions within the site. This phase will be accessed via Phase 1 of the Garraí na Móna development.

The proposed maximum speed limit within the development is to be 20km/h, with relevant traffic control measures where suitable. Road widths within the development are to be 6.0m wide and 1.8-2m wide footpaths running adjacent.

Road levels for the site have been derived taking cognisance of the existing topography and ground conditions, combined with allowable road gradients. Road makeup shall be in accordance with Galway City Council Taking In-Charge requirements, shown on the typical site works details drawing that accompany this application. The use of raised junctions/crossings and pedestrian crossing points along with strategically positioned drop kerbs and tactile paving will allow for full linkage for visually impaired and less-able pedestrians. Refer to the DMURS 2019 Statement of Consistency for further details on the road's layout. The shared surface shall be finished in different surface material to differentiate them from vehicle priority roads. All roads will include a 1:40 camber and longitudinal gradients of road sections lie between 1:40 and 1:130 to ensure adequate surface water drainage is achieved.

Lockable gullies are located, at a minimum, every 200m² with local low points allowing for double gullies as per Recommendations for Site Development Works for Housing Areas to ensure surface water drainage will not be blocked.

Required 14m DMURS visibility splays are available at internal junctions within the development at the reduced design speed of 20km/h ('Slow Zone' speed limit) and where traffic calming measure enforce slower speeds.

An independent Road Safety Audit has been carried out on the site and the auditor's report is included as part of this Planning Application.

6. REFERENCES

Uisce Eireann Code of Practice for Wastewater Infrastructure IW-CDS-5030-03, Revision 2, July 2020

Uisce Eireann Code of Practice for Water Infrastructure IW-CDS-5020-03, Revision 2, July 2020

Design Manual for Urban Roads and Streets, Department of Transport, Tourism and Sport/Department of Housing, Planning and Local Government

National Guidance Document on the Provision of Water for Fire Fighting, 3rd Edition, January 2007, Local Government Association/Water UK

Recommendations for Site Development works for Housing Areas, October 1998, Government of Ireland

Public Health and Plumbing Engineering CIBSE Guide G: 2014, Chartered Institute of Building Services Engineers

Traffic Signs Manual, August 2019, Department of Transport, Tourism and Sport

The SuDS Manual C753, 2015, CIRIA

BRE Digest 365, Building Research Establishment

Appendix A DRAWING REGISTER

Document and Drawing Issue Register

Project				
11942-01 - Cosmona additional 18 Units				
PLEASE ACKNOWLEDGE RECEIPT OF DRAWINGS Reasons: AB - As Built, C - For Construction, CM - For Comment, I - For Information, P - Preliminary, P1 - Information, P10 - Handover, P2 - Coordination, P3 - Statutory Submission - Planning Permission, P4 - Statutory Submission - Fire Certificate, P5 - Statutory		ISSUE NO.	1	
		ISSUED BY	SB	
		DAY	1	
		MONTH	9	
		YEAR	26	
		ISSUE REASON	P3	
DRG NO.	DRAWING/DOCUMENT TITLE	SIZE	SCALE	
11942-2100	Proposed Roads Layout	A1	As Drawing	P01
11942-2101	Swept Path Analysis Sheet 1	A1	As Drawing	P01
11942-2102	Swept Path Analysis Sheet 2	A1	As Drawing	P01
11942-2103	Visibility Splays	A1	As Drawing	P01
11942-2104	Proposed Storm Drainage Layout	A1	As Drawing	P01
11942-2105	Proposed Foul Sewer Layout	A1	As Drawing	P01
11942-2106	Proposed Watermain Layout	A1	As Drawing	P01
11942-2107	Standard Watermain Details	A1	As Drawing	P01
11942-2108	Standard Manhole Details Sheet 1 of 2	A1	As Drawing	P01
11942-2109	Standard Manhole Details Sheet 2 of 2	A1	As Drawing	P01
11942-2110	Standard Pipe Bedding Details	A1	As Drawing	P01
11942-2111	Site Development Details Sheet 1 of 2	A1	As Drawing	P01
11942-2112	Site Development Details Sheet 2 of 2	A1	As Drawing	P01
11942-2113	Infiltration Tank Details	A1	As Drawing	P01
DISTRIBUTION				+d - Download and Hardcopy, +h - Email and Hardcopy, cd - CD, d - By Download, e - Email, h - Hardcopy, m - Multiple
Vincent Hannon Architects				
	Peter Lyons			e
ELECTRONIC FORMATS				
	pdf			x
DOCUMENT AND DRAWING ISSUE REGISTER				

Appendix B CAUSEWAY FLOW STORM DRAINAGE MODEL & LONGSECTIONS

Design Settings

Rainfall Methodology	FSR
Return Period (years)	1
Additional Flow (%)	0
FSR Region	Scotland and Ireland
M5-60 (mm)	16.400
Ratio-R	0.271
CV	0.750
Time of Entry (mins)	5.00
Maximum Time of Concentration (mins)	30.00
Maximum Rainfall (mm/hr)	55.0
Minimum Velocity (m/s)	1.00
Connection Type	Level Soffits
Minimum Backdrop Height (m)	0.200
Preferred Cover Depth (m)	1.200
Include Intermediate Ground	✓
Enforce best practice design rules	x

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
S31	0.174	5.00	81.061	1350	561611.562	717259.835	1.689
S30	0.182	5.00	80.837	1350	561615.229	717231.816	1.606
S27	0.035	5.00	80.691	1350	561651.390	717194.990	1.425
S28	0.024	5.00	81.218	1200	561620.509	717191.218	2.108
S29			81.105	1200	561619.366	717199.559	2.037
S32			81.909	1200	561608.945	717198.220	2.894
S33			82.133	1200	561610.072	717189.592	3.161

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	S31	S30	28.258	0.600	79.372	79.231	0.141	200.4	300	5.43	38.8
1.001	S30	S29	32.521	0.600	79.231	79.068	0.163	199.5	300	5.91	37.6
2.000	S27	S28	31.111	0.600	79.266	79.110	0.156	199.4	225	5.56	38.5
2.001	S28	S29	8.420	0.600	79.110	79.068	0.042	200.5	225	5.71	38.1
1.002	S29	S32	10.507	0.600	79.068	79.015	0.053	198.2	300	6.07	37.2
1.003	S32	S33	8.701	0.600	79.015	78.972	0.043	202.3	300	6.20	36.9

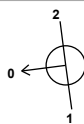
Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	1.107	78.2	18.4	1.389	1.306	0.174	0.0	99	0.909
1.001	1.109	78.4	36.3	1.306	1.737	0.356	0.0	143	1.088
2.000	0.922	36.7	3.7	1.200	1.883	0.035	0.0	48	0.593
2.001	0.920	36.6	6.1	1.883	1.812	0.059	0.0	62	0.685
1.002	1.113	78.7	41.9	1.737	2.594	0.416	0.0	156	1.129
1.003	1.101	77.8	41.5	2.594	2.861	0.416	0.0	156	1.119

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	28.258	200.4	300	Circular	81.061	79.372	1.389	80.837	79.231	1.306
1.001	32.521	199.5	300	Circular	80.837	79.231	1.306	81.105	79.068	1.737
2.000	31.111	199.4	225	Circular	80.691	79.266	1.200	81.218	79.110	1.883
2.001	8.420	200.5	225	Circular	81.218	79.110	1.883	81.105	79.068	1.812
1.002	10.507	198.2	300	Circular	81.105	79.068	1.737	81.909	79.015	2.594
1.003	8.701	202.3	300	Circular	81.909	79.015	2.594	82.133	78.972	2.861

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	S31	1350	Manhole	Adoptable	S30	1350	Manhole	Adoptable
1.001	S30	1350	Manhole	Adoptable	S29	1200	Manhole	Adoptable
2.000	S27	1350	Manhole	Adoptable	S28	1200	Manhole	Adoptable
2.001	S28	1200	Manhole	Adoptable	S29	1200	Manhole	Adoptable
1.002	S29	1200	Manhole	Adoptable	S32	1200	Manhole	Adoptable
1.003	S32	1200	Manhole	Adoptable	S33	1200	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
S31	561611.562	717259.835	81.061	1.689	1350		0	1.000	79.372	300
S30	561615.229	717231.816	80.837	1.606	1350	1 	1	1.000	79.231	300
							0	1.001	79.231	300
S27	561651.390	717194.990	80.691	1.425	1350		0	2.000	79.266	225
S28	561620.509	717191.218	81.218	2.108	1200	0 	1	2.000	79.110	225
							0	2.001	79.110	225
S29	561619.366	717199.559	81.105	2.037	1200	2 	1	2.001	79.068	225
						0 	2	1.001	79.068	300
							0	1.002	79.068	300
S32	561608.945	717198.220	81.909	2.894	1200	1 	1	1.002	79.015	300
							0	1.003	79.015	300
S33	561610.072	717189.592	82.133	3.161	1200	1 	1	1.003	78.972	300

Simulation Settings

Rainfall Methodology	FSR	Analysis Speed	Normal
FSR Region	Scotland and Ireland	Skip Steady State	x
M5-60 (mm)	16.400	Drain Down Time (mins)	60
Ratio-R	0.271	Additional Storage (m ³ /ha)	0.0
Summer CV	0.750	Check Discharge Rate(s)	x
Winter CV	0.840	Check Discharge Volume	x

Storm Durations

15	60	180	360	600	960	2160	7200
30	120	240	480	720	1440	4320	10080

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
1	0	0	0
30	10	0	0
100	20	0	0

Node S33 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.02909	Pit Width (m)	12.600
Side Inf Coefficient (m/hr)	0.02909	Pit Length (m)	21.000
Safety Factor	2.0	Depth (m)	1.000
Porosity	0.95	Inf Depth (m)	
Invert Level (m)	78.972	Number Required	1
Time to half empty (mins)	1739		

Node S30 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.02909	Width (m)	10.000
Side Inf Coefficient (m/hr)	0.02909	Length (m)	33.000
Safety Factor	2.0	Slope (1:X)	25.0
Porosity	1.00	Depth (m)	0.300
Invert Level (m)	80.750	Inf Depth (m)	
Time to half empty (mins)			

Node S31 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.02909	Width (m)	16.000
Side Inf Coefficient (m/hr)	0.02909	Length (m)	27.255
Safety Factor	2.0	Slope (1:X)	25.0
Porosity	1.00	Depth (m)	0.300
Invert Level (m)	80.800	Inf Depth (m)	
Time to half empty (mins)			

Rainfall

Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
1 year 15 minute summer	87.451	24.746
1 year 15 minute winter	61.369	24.746
1 year 30 minute summer	60.199	17.034
1 year 30 minute winter	42.245	17.034
1 year 60 minute summer	42.994	11.362
1 year 60 minute winter	28.564	11.362

Rainfall

Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
1 year 120 minute summer	28.202	7.453
1 year 120 minute winter	18.737	7.453
1 year 180 minute summer	22.546	5.802
1 year 180 minute winter	14.656	5.802
1 year 240 minute summer	18.367	4.854
1 year 240 minute winter	12.202	4.854
1 year 360 minute summer	14.650	3.770
1 year 360 minute winter	9.523	3.770
1 year 480 minute summer	11.906	3.146
1 year 480 minute winter	7.910	3.146
1 year 600 minute summer	9.999	2.735
1 year 600 minute winter	6.832	2.735
1 year 720 minute summer	9.102	2.440
1 year 720 minute winter	6.117	2.440
1 year 960 minute summer	7.769	2.046
1 year 960 minute winter	5.146	2.046
1 year 1440 minute summer	5.901	1.582
1 year 1440 minute winter	3.966	1.582
1 year 2160 minute summer	4.420	1.221
1 year 2160 minute winter	3.045	1.221
1 year 4320 minute summer	3.011	0.787
1 year 4320 minute winter	1.983	0.787
1 year 7200 minute summer	2.222	0.567
1 year 7200 minute winter	1.434	0.567
1 year 10080 minute summer	1.791	0.457
1 year 10080 minute winter	1.156	0.457
30 year +10% CC 15 minute summer	213.622	60.448
30 year +10% CC 15 minute winter	149.910	60.448
30 year +10% CC 30 minute summer	147.255	41.668
30 year +10% CC 30 minute winter	103.337	41.668
30 year +10% CC 60 minute summer	103.245	27.285
30 year +10% CC 60 minute winter	68.593	27.285
30 year +10% CC 120 minute summer	65.931	17.424
30 year +10% CC 120 minute winter	43.803	17.424
30 year +10% CC 180 minute summer	51.702	13.305
30 year +10% CC 180 minute winter	33.608	13.305
30 year +10% CC 240 minute summer	41.511	10.970
30 year +10% CC 240 minute winter	27.579	10.970
30 year +10% CC 360 minute summer	32.400	8.338
30 year +10% CC 360 minute winter	21.061	8.338
30 year +10% CC 480 minute summer	25.939	6.855
30 year +10% CC 480 minute winter	17.233	6.855
30 year +10% CC 600 minute summer	21.520	5.886
30 year +10% CC 600 minute winter	14.704	5.886
30 year +10% CC 720 minute summer	19.387	5.196
30 year +10% CC 720 minute winter	13.029	5.196
30 year +10% CC 960 minute summer	16.201	4.266
30 year +10% CC 960 minute winter	10.732	4.266
30 year +10% CC 1440 minute summer	12.053	3.230
30 year +10% CC 1440 minute winter	8.100	3.230
30 year +10% CC 2160 minute summer	8.846	2.445
30 year +10% CC 2160 minute winter	6.095	2.445

Rainfall

Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
30 year +10% CC 4320 minute summer	5.792	1.514
30 year +10% CC 4320 minute winter	3.814	1.514
30 year +10% CC 7200 minute summer	4.164	1.062
30 year +10% CC 7200 minute winter	2.688	1.062
30 year +10% CC 10080 minute summer	3.296	0.841
30 year +10% CC 10080 minute winter	2.127	0.841
100 year +20% CC 15 minute summer	302.050	85.470
100 year +20% CC 15 minute winter	211.965	85.470
100 year +20% CC 30 minute summer	209.679	59.332
100 year +20% CC 30 minute winter	147.143	59.332
100 year +20% CC 60 minute summer	146.367	38.681
100 year +20% CC 60 minute winter	97.243	38.681
100 year +20% CC 120 minute summer	92.702	24.498
100 year +20% CC 120 minute winter	61.589	24.498
100 year +20% CC 180 minute summer	72.242	18.590
100 year +20% CC 180 minute winter	46.959	18.590
100 year +20% CC 240 minute summer	57.742	15.259
100 year +20% CC 240 minute winter	38.362	15.259
100 year +20% CC 360 minute summer	44.754	11.517
100 year +20% CC 360 minute winter	29.091	11.517
100 year +20% CC 480 minute summer	35.644	9.420
100 year +20% CC 480 minute winter	23.681	9.420
100 year +20% CC 600 minute summer	29.449	8.055
100 year +20% CC 600 minute winter	20.121	8.055
100 year +20% CC 720 minute summer	26.439	7.086
100 year +20% CC 720 minute winter	17.769	7.086
100 year +20% CC 960 minute summer	21.975	5.787
100 year +20% CC 960 minute winter	14.557	5.787
100 year +20% CC 1440 minute summer	16.224	4.348
100 year +20% CC 1440 minute winter	10.903	4.348
100 year +20% CC 2160 minute summer	11.814	3.265
100 year +20% CC 2160 minute winter	8.140	3.265
100 year +20% CC 4320 minute summer	7.623	1.993
100 year +20% CC 4320 minute winter	5.020	1.993
100 year +20% CC 7200 minute summer	5.417	1.382
100 year +20% CC 7200 minute winter	3.496	1.382
100 year +20% CC 10080 minute summer	4.254	1.085
100 year +20% CC 10080 minute winter	2.746	1.085

Results for 1 year Critical Storm Duration. Lowest mass balance: 99.79%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S31	10	79.472	0.100	19.5	0.1436	0.0000	OK
15 minute winter	S30	11	79.451	0.220	39.7	0.3155	0.0000	OK
15 minute winter	S27	10	79.437	0.171	10.0	0.2453	0.0000	OK
15 minute winter	S28	10	79.428	0.318	10.8	0.3593	0.0000	SURCHARGED
15 minute winter	S29	10	79.420	0.352	58.1	0.3977	0.0000	SURCHARGED
15 minute winter	S32	10	79.397	0.382	63.4	0.4317	0.0000	SURCHARGED
960 minute winter	S33	750	79.231	0.259	4.9	65.3424	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
15 minute winter	S31	1.000	S30	19.3	0.674	0.246	1.0704
15 minute winter	S31	Infiltration		0.0			
15 minute winter	S30	1.001	S29	46.8	0.822	0.597	2.0473
15 minute winter	S30	Infiltration		0.0			
15 minute winter	S27	2.000	S28	8.3	0.352	0.226	1.1235
15 minute winter	S28	2.001	S29	13.8	0.347	0.377	0.3349
15 minute winter	S29	1.002	S32	63.4	1.047	0.806	0.7399
15 minute winter	S32	1.003	S33	68.1	2.065	0.874	0.3171
960 minute winter	S33	Infiltration		1.1			

Results for 30 year +10% CC Critical Storm Duration. Lowest mass balance: 99.79%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S31	10	80.158	0.786	47.9	1.1249	0.0000	SURCHARGED
15 minute winter	S30	10	80.086	0.855	98.1	1.2234	0.0000	SURCHARGED
15 minute winter	S27	9	79.829	0.563	18.0	0.8062	0.0000	SURCHARGED
15 minute winter	S28	9	79.790	0.680	18.5	0.7694	0.0000	SURCHARGED
15 minute winter	S29	9	79.772	0.704	121.0	0.7957	0.0000	SURCHARGED
1440 minute winter	S32	1350	79.650	0.635	7.3	0.7177	0.0000	SURCHARGED
1440 minute winter	S33	1380	79.649	0.677	7.2	171.0283	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
15 minute winter	S31	1.000	S30	49.2	0.701	0.629	1.9899
15 minute winter	S31	Infiltration		0.0			
15 minute winter	S30	1.001	S29	100.1	1.422	1.277	2.2901
15 minute winter	S30	Infiltration		0.0			
15 minute winter	S27	2.000	S28	-12.5	0.385	-0.342	1.2373
15 minute winter	S28	2.001	S29	20.9	0.526	0.572	0.3349
15 minute winter	S29	1.002	S32	123.4	1.753	1.569	0.7399
1440 minute winter	S32	1.003	S33	7.2	0.670	0.093	0.6127
1440 minute winter	S33	Infiltration		1.3			

Results for 100 year +20% CC Critical Storm Duration. Lowest mass balance: 99.79%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S31	10	80.756	1.384	67.8	1.9800	0.0000	SURCHARGED
15 minute winter	S30	10	80.627	1.396	136.2	1.9975	0.0000	FLOOD RISK
2160 minute winter	S27	2040	80.387	1.121	0.7	1.6035	0.0000	SURCHARGED
2160 minute winter	S28	2040	80.387	1.277	1.1	1.4442	0.0000	SURCHARGED
2160 minute winter	S29	2040	80.386	1.318	7.7	1.4911	0.0000	SURCHARGED
2160 minute winter	S32	2040	80.386	1.371	7.6	1.5510	0.0000	SURCHARGED
2160 minute winter	S33	2040	80.387	1.415	7.7	253.0956	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
15 minute winter	S31	1.000	S30	67.1	0.953	0.858	1.9899
15 minute winter	S31	Infiltration		0.0			
15 minute winter	S30	1.001	S29	136.8	1.942	1.744	2.2901
15 minute winter	S30	Infiltration		0.0			
2160 minute winter	S27	2.000	S28	0.6	0.232	0.017	1.2373
2160 minute winter	S28	2.001	S29	1.2	0.157	0.032	0.3349
2160 minute winter	S29	1.002	S32	7.6	0.463	0.097	0.7399
2160 minute winter	S32	1.003	S33	7.7	0.621	0.099	0.6127
2160 minute winter	S33	Infiltration		1.3			

Results for 1 year 15 minute summer. 75 minute analysis at 1 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	S31	10	79.470	0.098	18.7	0.1403	0.0000	OK
15 minute summer	S30	11	79.447	0.216	37.9	0.3089	0.0000	OK
15 minute summer	S27	10	79.421	0.155	8.8	0.2224	0.0000	OK
15 minute summer	S28	11	79.407	0.297	9.8	0.3357	0.0000	SURCHARGED
15 minute summer	S29	11	79.396	0.328	55.9	0.3709	0.0000	SURCHARGED
15 minute summer	S32	10	79.371	0.356	63.1	0.4022	0.0000	SURCHARGED
15 minute summer	S33	22	79.044	0.072	67.6	18.0974	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
15 minute summer	S31	1.000	S30	18.4	0.691	0.235	1.0444
15 minute summer	S31	Infiltration		0.0			
15 minute summer	S30	1.001	S29	42.9	0.791	0.547	2.0274
15 minute summer	S30	Infiltration		0.0			
15 minute summer	S27	2.000	S28	7.7	0.329	0.211	1.0733
15 minute summer	S28	2.001	S29	13.0	0.348	0.355	0.3349
15 minute summer	S29	1.002	S32	63.1	1.020	0.802	0.7399
15 minute summer	S32	1.003	S33	67.6	2.064	0.868	0.3136
15 minute summer	S33	Infiltration		1.1			

Results for 1 year 15 minute winter. 75 minute analysis at 1 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S31	10	79.472	0.100	19.5	0.1436	0.0000	OK
15 minute winter	S30	11	79.451	0.220	39.7	0.3155	0.0000	OK
15 minute winter	S27	10	79.437	0.171	10.0	0.2453	0.0000	OK
15 minute winter	S28	10	79.428	0.318	10.8	0.3593	0.0000	SURCHARGED
15 minute winter	S29	10	79.420	0.352	58.1	0.3977	0.0000	SURCHARGED
15 minute winter	S32	10	79.397	0.382	63.4	0.4317	0.0000	SURCHARGED
15 minute winter	S33	22	79.053	0.081	68.1	20.4128	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
15 minute winter	S31	1.000	S30	19.3	0.674	0.246	1.0704
15 minute winter	S31	Infiltration		0.0			
15 minute winter	S30	1.001	S29	46.8	0.822	0.597	2.0473
15 minute winter	S30	Infiltration		0.0			
15 minute winter	S27	2.000	S28	8.3	0.352	0.226	1.1235
15 minute winter	S28	2.001	S29	13.8	0.347	0.377	0.3349
15 minute winter	S29	1.002	S32	63.4	1.047	0.806	0.7399
15 minute winter	S32	1.003	S33	68.1	2.065	0.874	0.3171
15 minute winter	S33	Infiltration		1.1			

Results for 1 year 30 minute summer. 90 minute analysis at 1 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	S31	18	79.468	0.096	17.6	0.1368	0.0000	OK
30 minute summer	S30	18	79.378	0.147	36.0	0.2102	0.0000	OK
30 minute summer	S27	18	79.313	0.047	3.6	0.0674	0.0000	OK
30 minute summer	S28	18	79.246	0.136	6.0	0.1534	0.0000	OK
30 minute summer	S29	18	79.244	0.176	41.6	0.1987	0.0000	OK
30 minute summer	S32	12	79.187	0.172	41.8	0.1950	0.0000	OK
30 minute summer	S33	36	79.070	0.098	42.4	24.6992	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
30 minute summer	S31	1.000	S30	17.6	0.660	0.225	0.7573
30 minute summer	S31	Infiltration		0.0			
30 minute summer	S30	1.001	S29	36.0	0.934	0.460	1.2547
30 minute summer	S30	Infiltration		0.0			
30 minute summer	S27	2.000	S28	3.6	0.286	0.098	0.4825
30 minute summer	S28	2.001	S29	6.2	0.249	0.170	0.2453
30 minute summer	S29	1.002	S32	41.8	1.030	0.532	0.4377
30 minute summer	S32	1.003	S33	42.4	1.904	0.544	0.2029
30 minute summer	S33	Infiltration		1.1			

Results for 1 year 30 minute winter. 90 minute analysis at 1 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute winter	S31	18	79.463	0.091	16.0	0.1302	0.0000	OK
30 minute winter	S30	18	79.369	0.138	32.6	0.1979	0.0000	OK
30 minute winter	S27	18	79.311	0.045	3.2	0.0637	0.0000	OK
30 minute winter	S28	18	79.233	0.123	5.4	0.1391	0.0000	OK
30 minute winter	S29	18	79.232	0.164	37.8	0.1850	0.0000	OK
30 minute winter	S32	12	79.219	0.204	37.9	0.2304	0.0000	OK
30 minute winter	S33	36	79.082	0.110	38.2	27.7642	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
30 minute winter	S31	1.000	S30	16.0	0.647	0.204	0.7029
30 minute winter	S31	Infiltration		0.0			
30 minute winter	S30	1.001	S29	32.6	0.918	0.415	1.1543
30 minute winter	S30	Infiltration		0.0			
30 minute winter	S27	2.000	S28	3.2	0.292	0.087	0.4317
30 minute winter	S28	2.001	S29	5.9	0.241	0.160	0.2236
30 minute winter	S29	1.002	S32	37.9	1.023	0.482	0.4610
30 minute winter	S32	1.003	S33	38.2	1.837	0.491	0.2231
30 minute winter	S33	Infiltration		1.1			

Results for 1 year 60 minute summer. 120 minute analysis at 1 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	S31	33	79.457	0.085	14.0	0.1216	0.0000	OK
60 minute summer	S30	33	79.359	0.128	28.6	0.1837	0.0000	OK
60 minute summer	S27	33	79.308	0.042	2.8	0.0597	0.0000	OK
60 minute summer	S28	34	79.218	0.108	4.7	0.1220	0.0000	OK
60 minute summer	S29	34	79.216	0.148	33.0	0.1679	0.0000	OK
60 minute summer	S32	34	79.152	0.137	33.1	0.1552	0.0000	OK
60 minute summer	S33	65	79.099	0.127	33.2	32.0572	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
60 minute summer	S31	1.000	S30	14.0	0.624	0.179	0.6380
60 minute summer	S31	Infiltration		0.0			
60 minute summer	S30	1.001	S29	28.6	0.902	0.365	1.0321
60 minute summer	S30	Infiltration		0.0			
60 minute summer	S27	2.000	S28	2.8	0.318	0.076	0.3702
60 minute summer	S28	2.001	S29	4.7	0.222	0.129	0.1961
60 minute summer	S29	1.002	S32	33.1	1.001	0.421	0.3476
60 minute summer	S32	1.003	S33	33.2	1.660	0.427	0.1935
60 minute summer	S33	Infiltration		1.1			

Results for 1 year 60 minute winter. 120 minute analysis at 1 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute winter	S31	33	79.449	0.077	11.4	0.1096	0.0000	OK
60 minute winter	S30	33	79.345	0.114	23.2	0.1628	0.0000	OK
60 minute winter	S27	34	79.304	0.038	2.3	0.0543	0.0000	OK
60 minute winter	S28	34	79.201	0.091	3.8	0.1024	0.0000	OK
60 minute winter	S29	34	79.199	0.131	26.9	0.1486	0.0000	OK
60 minute winter	S32	12	79.156	0.140	26.9	0.1589	0.0000	OK
60 minute winter	S33	64	79.115	0.143	26.9	36.0856	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
60 minute winter	S31	1.000	S30	11.4	0.594	0.146	0.5458
60 minute winter	S31	Infiltration		0.0			
60 minute winter	S30	1.001	S29	23.2	0.858	0.296	0.8788
60 minute winter	S30	Infiltration		0.0			
60 minute winter	S27	2.000	S28	2.3	0.304	0.063	0.3008
60 minute winter	S28	2.001	S29	3.9	0.248	0.106	0.1641
60 minute winter	S29	1.002	S32	26.9	0.949	0.342	0.2980
60 minute winter	S32	1.003	S33	26.9	1.498	0.346	0.2330
60 minute winter	S33	Infiltration		1.1			

Results for 1 year 120 minute summer. 180 minute analysis at 2 minute timestep. Mass balance: 100.00 %

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
120 minute summer	S31	64	79.443	0.071	9.8	0.1016	0.0000	OK
120 minute summer	S30	64	79.336	0.105	20.0	0.1497	0.0000	OK
120 minute summer	S27	64	79.301	0.035	2.0	0.0507	0.0000	OK
120 minute summer	S28	64	79.190	0.080	3.3	0.0905	0.0000	OK
120 minute summer	S29	64	79.189	0.121	23.3	0.1369	0.0000	OK
120 minute summer	S32	66	79.129	0.114	23.2	0.1294	0.0000	OK
120 minute summer	S33	124	79.129	0.157	23.1	39.7162	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
120 minute summer	S31	1.000	S30	9.8	0.571	0.125	0.4884
120 minute summer	S31	Infiltration		0.0			
120 minute summer	S30	1.001	S29	20.0	0.827	0.255	0.7881
120 minute summer	S30	Infiltration		0.0			
120 minute summer	S27	2.000	S28	2.0	0.311	0.055	0.2587
120 minute summer	S28	2.001	S29	3.3	0.207	0.089	0.1448
120 minute summer	S29	1.002	S32	23.2	0.906	0.295	0.2693
120 minute summer	S32	1.003	S33	23.1	1.225	0.297	0.2697
120 minute summer	S33	Infiltration		1.1			

Results for 1 year 120 minute winter. 180 minute analysis at 2 minute timestep. Mass balance: 99.93%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
120 minute winter	S31	64	79.435	0.063	7.6	0.0895	0.0000	OK
120 minute winter	S30	64	79.322	0.091	15.5	0.1301	0.0000	OK
120 minute winter	S27	66	79.297	0.031	1.5	0.0442	0.0000	OK
120 minute winter	S28	66	79.174	0.064	2.5	0.0729	0.0000	OK
120 minute winter	S29	66	79.174	0.106	18.0	0.1195	0.0000	OK
120 minute winter	S32	122	79.150	0.135	17.9	0.1527	0.0000	OK
120 minute winter	S33	122	79.150	0.178	17.9	44.9710	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
120 minute winter	S31	1.000	S30	7.6	0.535	0.097	0.4044
120 minute winter	S31	Infiltration		0.0			
120 minute winter	S30	1.001	S29	15.5	0.774	0.198	0.6526
120 minute winter	S30	Infiltration		0.0			
120 minute winter	S27	2.000	S28	1.5	0.312	0.041	0.1966
120 minute winter	S28	2.001	S29	2.5	0.209	0.069	0.1165
120 minute winter	S29	1.002	S32	17.9	0.829	0.228	0.2431
120 minute winter	S32	1.003	S33	17.9	1.107	0.230	0.3233
120 minute winter	S33	Infiltration		1.1			

Results for 1 year 180 minute summer. 240 minute analysis at 4 minute timestep. Mass balance: 99.94%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute summer	S31	96	79.435	0.063	7.6	0.0895	0.0000	OK
180 minute summer	S30	96	79.322	0.091	15.6	0.1305	0.0000	OK
180 minute summer	S27	96	79.297	0.031	1.5	0.0442	0.0000	OK
180 minute summer	S28	96	79.175	0.065	2.5	0.0735	0.0000	OK
180 minute summer	S29	96	79.174	0.106	18.1	0.1202	0.0000	OK
180 minute summer	S32	184	79.147	0.132	18.1	0.1495	0.0000	OK
180 minute summer	S33	184	79.147	0.175	18.0	44.2318	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
180 minute summer	S31	1.000	S30	7.6	0.534	0.097	0.4053
180 minute summer	S31	Infiltration		0.0			
180 minute summer	S30	1.001	S29	15.6	0.775	0.199	0.6567
180 minute summer	S30	Infiltration		0.0			
180 minute summer	S27	2.000	S28	1.5	0.297	0.041	0.1983
180 minute summer	S28	2.001	S29	2.5	0.209	0.068	0.1175
180 minute summer	S29	1.002	S32	18.1	0.824	0.230	0.2348
180 minute summer	S32	1.003	S33	18.0	0.981	0.231	0.3158
180 minute summer	S33	Infiltration		1.1			

Results for 1 year 180 minute winter. 240 minute analysis at 4 minute timestep. Mass balance: 99.92%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute winter	S31	96	79.427	0.055	5.9	0.0790	0.0000	OK
180 minute winter	S30	96	79.310	0.079	12.0	0.1132	0.0000	OK
180 minute winter	S27	96	79.294	0.028	1.2	0.0397	0.0000	OK
180 minute winter	S28	180	79.171	0.061	2.0	0.0687	0.0000	OK
180 minute winter	S29	180	79.171	0.103	14.0	0.1161	0.0000	OK
180 minute winter	S32	180	79.171	0.156	14.0	0.1761	0.0000	OK
180 minute winter	S33	180	79.171	0.199	14.0	50.1911	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
180 minute winter	S31	1.000	S30	5.9	0.502	0.075	0.3348
180 minute winter	S31	Infiltration		0.0			
180 minute winter	S30	1.001	S29	12.0	0.723	0.153	0.5418
180 minute winter	S30	Infiltration		0.0			
180 minute winter	S27	2.000	S28	1.2	0.306	0.033	0.1498
180 minute winter	S28	2.001	S29	2.0	0.194	0.055	0.1105
180 minute winter	S29	1.002	S32	14.0	0.752	0.178	0.3059
180 minute winter	S32	1.003	S33	14.0	0.903	0.179	0.3762
180 minute winter	S33	Infiltration		1.1			

Results for 1 year 240 minute summer. 300 minute analysis at 4 minute timestep. Mass balance: 99.93%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute summer	S31	124	79.431	0.059	6.7	0.0838	0.0000	OK
240 minute summer	S30	124	79.316	0.085	13.6	0.1210	0.0000	OK
240 minute summer	S27	124	79.296	0.030	1.4	0.0425	0.0000	OK
240 minute summer	S28	124	79.167	0.057	2.3	0.0643	0.0000	OK
240 minute summer	S29	124	79.166	0.098	15.7	0.1110	0.0000	OK
240 minute summer	S32	244	79.159	0.144	15.5	0.1625	0.0000	OK
240 minute summer	S33	244	79.159	0.187	15.4	47.1340	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
240 minute summer	S31	1.000	S30	6.6	0.517	0.085	0.3662
240 minute summer	S31	Infiltration		0.0			
240 minute summer	S30	1.001	S29	13.5	0.746	0.172	0.5897
240 minute summer	S30	Infiltration		0.0			
240 minute summer	S27	2.000	S28	1.4	0.298	0.038	0.1703
240 minute summer	S28	2.001	S29	2.2	0.205	0.060	0.1031
240 minute summer	S29	1.002	S32	15.5	0.772	0.197	0.2691
240 minute summer	S32	1.003	S33	15.4	0.824	0.198	0.3454
240 minute summer	S33	Infiltration		1.1			

Results for 1 year 240 minute winter. 300 minute analysis at 4 minute timestep. Mass balance: 99.91%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute winter	S31	124	79.423	0.051	5.0	0.0728	0.0000	OK
240 minute winter	S30	124	79.304	0.073	10.2	0.1039	0.0000	OK
240 minute winter	S27	128	79.292	0.025	1.0	0.0365	0.0000	OK
240 minute winter	S28	236	79.185	0.075	1.7	0.0853	0.0000	OK
240 minute winter	S29	236	79.185	0.117	11.8	0.1328	0.0000	OK
240 minute winter	S32	236	79.185	0.170	11.8	0.1928	0.0000	OK
240 minute winter	S33	240	79.185	0.213	11.8	53.8973	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
240 minute winter	S31	1.000	S30	5.0	0.478	0.064	0.2970
240 minute winter	S31	Infiltration		0.0			
240 minute winter	S30	1.001	S29	10.2	0.693	0.130	0.4774
240 minute winter	S30	Infiltration		0.0			
240 minute winter	S27	2.000	S28	1.0	0.306	0.027	0.1909
240 minute winter	S28	2.001	S29	1.7	0.194	0.047	0.1373
240 minute winter	S29	1.002	S32	11.8	0.707	0.150	0.3512
240 minute winter	S32	1.003	S33	11.8	0.836	0.151	0.4130
240 minute winter	S33	Infiltration		1.1			

Results for 1 year 360 minute summer. 424 minute analysis at 8 minute timestep. Mass balance: 99.93%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute summer	S31	184	79.424	0.052	5.3	0.0748	0.0000	OK
360 minute summer	S30	184	79.306	0.075	10.9	0.1073	0.0000	OK
360 minute summer	S27	184	79.292	0.026	1.1	0.0378	0.0000	OK
360 minute summer	S28	360	79.172	0.062	1.8	0.0700	0.0000	OK
360 minute summer	S29	360	79.172	0.104	12.5	0.1175	0.0000	OK
360 minute summer	S32	360	79.172	0.157	12.3	0.1774	0.0000	OK
360 minute summer	S33	360	79.172	0.200	12.3	50.4681	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
360 minute summer	S31	1.000	S30	5.3	0.484	0.067	0.3099
360 minute summer	S31	Infiltration		0.0			
360 minute summer	S30	1.001	S29	10.8	0.705	0.137	0.4966
360 minute summer	S30	Infiltration		0.0			
360 minute summer	S27	2.000	S28	1.1	0.301	0.029	0.1455
360 minute summer	S28	2.001	S29	1.7	0.197	0.047	0.1127
360 minute summer	S29	1.002	S32	12.3	0.714	0.157	0.3095
360 minute summer	S32	1.003	S33	12.3	0.716	0.158	0.3791
360 minute summer	S33	Infiltration		1.1			

Results for 1 year 360 minute winter. 424 minute analysis at 8 minute timestep. Mass balance: 99.91%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute winter	S31	184	79.417	0.045	3.9	0.0646	0.0000	OK
360 minute winter	S30	184	79.295	0.064	7.9	0.0912	0.0000	OK
360 minute winter	S27	192	79.289	0.023	0.8	0.0328	0.0000	OK
360 minute winter	S28	352	79.203	0.093	1.3	0.1056	0.0000	OK
360 minute winter	S29	352	79.203	0.135	9.2	0.1531	0.0000	OK
360 minute winter	S32	352	79.203	0.188	9.2	0.2130	0.0000	OK
360 minute winter	S33	352	79.203	0.231	9.1	58.4178	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
360 minute winter	S31	1.000	S30	3.9	0.448	0.050	0.2477
360 minute winter	S31	Infiltration		0.0			
360 minute winter	S30	1.001	S29	7.9	0.652	0.100	0.5483
360 minute winter	S30	Infiltration		0.0			
360 minute winter	S27	2.000	S28	0.8	0.307	0.022	0.2496
360 minute winter	S28	2.001	S29	1.3	0.194	0.036	0.1705
360 minute winter	S29	1.002	S32	9.2	0.662	0.117	0.4066
360 minute winter	S32	1.003	S33	9.1	0.765	0.117	0.4562
360 minute winter	S33	Infiltration		1.1			

Results for 1 year 480 minute summer. 544 minute analysis at 8 minute timestep. Mass balance: 99.93%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
480 minute summer	S31	248	79.419	0.047	4.3	0.0677	0.0000	OK
480 minute summer	S30	248	79.298	0.067	8.8	0.0964	0.0000	OK
480 minute summer	S27	248	79.290	0.024	0.9	0.0347	0.0000	OK
480 minute summer	S28	424	79.183	0.073	1.5	0.0826	0.0000	OK
480 minute summer	S29	424	79.183	0.115	10.3	0.1301	0.0000	OK
480 minute summer	S32	424	79.183	0.168	10.3	0.1901	0.0000	OK
480 minute summer	S33	424	79.183	0.211	10.2	53.2871	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
480 minute summer	S31	1.000	S30	4.3	0.459	0.055	0.2671
480 minute summer	S31	Infiltration		0.0			
480 minute summer	S30	1.001	S29	8.8	0.668	0.112	0.4461
480 minute summer	S30	Infiltration		0.0			
480 minute summer	S27	2.000	S28	0.9	0.309	0.025	0.1813
480 minute summer	S28	2.001	S29	1.5	0.197	0.041	0.1329
480 minute summer	S29	1.002	S32	10.3	0.678	0.131	0.3439
480 minute summer	S32	1.003	S33	10.2	0.681	0.131	0.4071
480 minute summer	S33	Infiltration		1.1			

Results for 1 year 480 minute winter. 544 minute analysis at 8 minute timestep. Mass balance: 99.91%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
480 minute winter	S31	248	79.413	0.041	3.2	0.0588	0.0000	OK
480 minute winter	S30	248	79.290	0.059	6.6	0.0841	0.0000	OK
480 minute winter	S27	248	79.288	0.022	0.7	0.0308	0.0000	OK
480 minute winter	S28	456	79.214	0.104	1.1	0.1177	0.0000	OK
480 minute winter	S29	456	79.214	0.146	7.7	0.1652	0.0000	OK
480 minute winter	S32	456	79.214	0.199	7.7	0.2251	0.0000	OK
480 minute winter	S33	464	79.214	0.242	7.6	61.1201	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
480 minute winter	S31	1.000	S30	3.2	0.418	0.041	0.2187
480 minute winter	S31	Infiltration		0.0			
480 minute winter	S30	1.001	S29	6.6	0.636	0.084	0.5985
480 minute winter	S30	Infiltration		0.0			
480 minute winter	S27	2.000	S28	0.7	0.309	0.019	0.2869
480 minute winter	S28	2.001	S29	1.1	0.192	0.030	0.1904
480 minute winter	S29	1.002	S32	7.7	0.633	0.098	0.4396
480 minute winter	S32	1.003	S33	7.6	0.718	0.098	0.4809
480 minute winter	S33	Infiltration		1.1			

Results for 1 year 600 minute summer. 660 minute analysis at 15 minute timestep. Mass balance: 99.93 %

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
600 minute summer	S31	315	79.415	0.043	3.6	0.0622	0.0000	OK
600 minute summer	S30	315	79.293	0.062	7.4	0.0887	0.0000	OK
600 minute summer	S27	315	79.288	0.022	0.7	0.0308	0.0000	OK
600 minute summer	S28	495	79.187	0.077	1.2	0.0869	0.0000	OK
600 minute summer	S29	495	79.187	0.119	8.6	0.1344	0.0000	OK
600 minute summer	S32	495	79.187	0.172	8.6	0.1943	0.0000	OK
600 minute summer	S33	495	79.187	0.215	8.5	54.2390	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
600 minute summer	S31	1.000	S30	3.6	0.435	0.046	0.2367
600 minute summer	S31	Infiltration		0.0			
600 minute summer	S30	1.001	S29	7.4	0.648	0.094	0.4647
600 minute summer	S30	Infiltration		0.0			
600 minute summer	S27	2.000	S28	0.7	0.290	0.019	0.1937
600 minute summer	S28	2.001	S29	1.2	0.189	0.033	0.1399
600 minute summer	S29	1.002	S32	8.6	0.647	0.110	0.3555
600 minute summer	S32	1.003	S33	8.5	0.638	0.109	0.4164
600 minute summer	S33	Infiltration		1.1			

Results for 1 year 600 minute winter. 660 minute analysis at 15 minute timestep. Mass balance: 99.92 %

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
600 minute winter	S31	315	79.411	0.039	2.8	0.0551	0.0000	OK
600 minute winter	S30	315	79.286	0.055	5.7	0.0781	0.0000	OK
600 minute winter	S27	315	79.286	0.020	0.6	0.0287	0.0000	OK
600 minute winter	S28	555	79.221	0.111	1.0	0.1253	0.0000	OK
600 minute winter	S29	555	79.221	0.153	6.7	0.1728	0.0000	OK
600 minute winter	S32	555	79.221	0.206	6.7	0.2327	0.0000	OK
600 minute winter	S33	555	79.221	0.249	6.6	62.8069	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
600 minute winter	S31	1.000	S30	2.8	0.404	0.036	0.1978
600 minute winter	S31	Infiltration		0.0			
600 minute winter	S30	1.001	S29	5.7	0.614	0.073	0.6279
600 minute winter	S30	Infiltration		0.0			
600 minute winter	S27	2.000	S28	0.6	0.287	0.016	0.3102
600 minute winter	S28	2.001	S29	1.0	0.192	0.027	0.2027
600 minute winter	S29	1.002	S32	6.7	0.610	0.085	0.4600
600 minute winter	S32	1.003	S33	6.6	0.689	0.085	0.4958
600 minute winter	S33	Infiltration		1.1			

Results for 1 year 720 minute summer. 780 minute analysis at 15 minute timestep. Mass balance: 99.94 %

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
720 minute summer	S31	375	79.414	0.042	3.3	0.0596	0.0000	OK
720 minute summer	S30	375	79.290	0.059	6.7	0.0847	0.0000	OK
720 minute summer	S27	375	79.288	0.022	0.7	0.0308	0.0000	OK
720 minute summer	S28	555	79.194	0.084	1.1	0.0945	0.0000	OK
720 minute summer	S29	555	79.194	0.126	7.8	0.1420	0.0000	OK
720 minute summer	S32	555	79.194	0.179	7.8	0.2019	0.0000	OK
720 minute summer	S33	555	79.193	0.221	7.7	55.9270	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
720 minute summer	S31	1.000	S30	3.3	0.426	0.042	0.2219
720 minute summer	S31	Infiltration		0.0			
720 minute summer	S30	1.001	S29	6.7	0.638	0.085	0.4959
720 minute summer	S30	Infiltration		0.0			
720 minute summer	S27	2.000	S28	0.7	0.309	0.019	0.2161
720 minute summer	S28	2.001	S29	1.1	0.190	0.030	0.1522
720 minute summer	S29	1.002	S32	7.8	0.632	0.099	0.3763
720 minute summer	S32	1.003	S33	7.7	0.618	0.099	0.4327
720 minute summer	S33	Infiltration		1.1			

Results for 1 year 720 minute winter. 780 minute analysis at 15 minute timestep. Mass balance: 99.92 %

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
720 minute winter	S31	375	79.409	0.037	2.5	0.0522	0.0000	OK
720 minute winter	S30	360	79.283	0.052	5.1	0.0742	0.0000	OK
720 minute winter	S27	345	79.284	0.018	0.5	0.0263	0.0000	OK
720 minute winter	S28	615	79.225	0.115	0.8	0.1297	0.0000	OK
720 minute winter	S29	615	79.225	0.157	5.9	0.1772	0.0000	OK
720 minute winter	S32	615	79.225	0.210	5.9	0.2372	0.0000	OK
720 minute winter	S33	615	79.225	0.253	5.8	63.8037	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
720 minute winter	S31	1.000	S30	2.5	0.392	0.032	0.1831
720 minute winter	S31	Infiltration		0.0			
720 minute winter	S30	1.001	S29	5.1	0.601	0.065	0.6477
720 minute winter	S30	Infiltration		0.0			
720 minute winter	S27	2.000	S28	0.5	0.277	0.014	0.3240
720 minute winter	S28	2.001	S29	0.8	0.177	0.022	0.2099
720 minute winter	S29	1.002	S32	5.9	0.598	0.075	0.4719
720 minute winter	S32	1.003	S33	5.8	0.664	0.075	0.5043
720 minute winter	S33	Infiltration		1.1			

Results for 1 year 960 minute summer. 1020 minute analysis at 15 minute timestep. Mass balance: 99.9 5%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute summer	S31	495	79.411	0.039	2.8	0.0551	0.0000	OK
960 minute summer	S30	495	79.286	0.055	5.7	0.0784	0.0000	OK
960 minute summer	S27	495	79.286	0.020	0.6	0.0287	0.0000	OK
960 minute summer	S28	690	79.197	0.087	1.0	0.0984	0.0000	OK
960 minute summer	S29	690	79.197	0.129	6.7	0.1459	0.0000	OK
960 minute summer	S32	690	79.197	0.182	6.7	0.2058	0.0000	OK
960 minute summer	S33	690	79.197	0.225	6.6	56.8034	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
960 minute summer	S31	1.000	S30	2.8	0.405	0.036	0.1983
960 minute summer	S31	Infiltration		0.0			
960 minute summer	S30	1.001	S29	5.7	0.618	0.073	0.5141
960 minute summer	S30	Infiltration		0.0			
960 minute summer	S27	2.000	S28	0.6	0.287	0.016	0.2279
960 minute summer	S28	2.001	S29	1.0	0.196	0.027	0.1587
960 minute summer	S29	1.002	S32	6.7	0.601	0.085	0.3870
960 minute summer	S32	1.003	S33	6.6	0.601	0.085	0.4411
960 minute summer	S33	Infiltration		1.1			

Results for 1 year 960 minute winter. 1020 minute analysis at 15 minute timestep. Mass balance: 99.9 3%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute winter	S31	495	79.406	0.034	2.1	0.0482	0.0000	OK
960 minute winter	S30	480	79.279	0.048	4.3	0.0680	0.0000	OK
960 minute winter	S27	435	79.283	0.017	0.4	0.0237	0.0000	OK
960 minute winter	S28	750	79.231	0.121	0.7	0.1366	0.0000	OK
960 minute winter	S29	750	79.231	0.163	5.0	0.1841	0.0000	OK
960 minute winter	S32	750	79.231	0.216	5.0	0.2441	0.0000	OK
960 minute winter	S33	750	79.231	0.259	4.9	65.3424	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
960 minute winter	S31	1.000	S30	2.1	0.371	0.027	0.1617
960 minute winter	S31	Infiltration		0.0			
960 minute winter	S30	1.001	S29	4.3	0.572	0.055	0.6788
960 minute winter	S30	Infiltration		0.0			
960 minute winter	S27	2.000	S28	0.4	0.263	0.011	0.3453
960 minute winter	S28	2.001	S29	0.7	0.176	0.019	0.2209
960 minute winter	S29	1.002	S32	5.0	0.567	0.063	0.4901
960 minute winter	S32	1.003	S33	4.9	0.595	0.063	0.5171
960 minute winter	S33	Infiltration		1.1			

Results for 1 year 1440 minute summer. 1500 minute analysis at 30 minute timestep. Mass balance: 99. 97%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute summer	S31	750	79.406	0.034	2.1	0.0482	0.0000	OK
1440 minute summer	S30	720	79.278	0.047	4.3	0.0680	0.0000	OK
1440 minute summer	S27	720	79.283	0.017	0.4	0.0237	0.0000	OK
1440 minute summer	S28	990	79.197	0.087	0.7	0.0988	0.0000	OK
1440 minute summer	S29	990	79.197	0.129	5.0	0.1463	0.0000	OK
1440 minute summer	S32	990	79.197	0.182	5.0	0.2062	0.0000	OK
1440 minute summer	S33	990	79.197	0.225	4.9	56.8989	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
1440 minute summer	S31	1.000	S30	2.1	0.371	0.027	0.1616
1440 minute summer	S31	Infiltration		0.0			
1440 minute summer	S30	1.001	S29	4.3	0.572	0.055	0.5147
1440 minute summer	S30	Infiltration		0.0			
1440 minute summer	S27	2.000	S28	0.4	0.264	0.011	0.2291
1440 minute summer	S28	2.001	S29	0.7	0.170	0.019	0.1594
1440 minute summer	S29	1.002	S32	5.0	0.553	0.063	0.3881
1440 minute summer	S32	1.003	S33	4.9	0.535	0.063	0.4420
1440 minute summer	S33	Infiltration		1.1			

Results for 1 year 1440 minute winter. 1500 minute analysis at 30 minute timestep. Mass balance: 99. 95%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	S31	720	79.402	0.030	1.6	0.0423	0.0000	OK
1440 minute winter	S30	720	79.273	0.042	3.3	0.0596	0.0000	OK
1440 minute winter	S27	660	79.281	0.015	0.3	0.0208	0.0000	OK
1440 minute winter	S28	1080	79.226	0.116	0.5	0.1314	0.0000	OK
1440 minute winter	S29	1080	79.226	0.158	3.8	0.1789	0.0000	OK
1440 minute winter	S32	1080	79.226	0.211	3.7	0.2388	0.0000	OK
1440 minute winter	S33	1080	79.226	0.254	3.7	64.1700	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
1440 minute winter	S31	1.000	S30	1.6	0.346	0.020	0.1338
1440 minute winter	S31	Infiltration		0.0			
1440 minute winter	S30	1.001	S29	3.3	0.526	0.042	0.6538
1440 minute winter	S30	Infiltration		0.0			
1440 minute winter	S27	2.000	S28	0.3	0.232	0.008	0.3291
1440 minute winter	S28	2.001	S29	0.5	0.156	0.014	0.2125
1440 minute winter	S29	1.002	S32	3.7	0.524	0.047	0.4763
1440 minute winter	S32	1.003	S33	3.7	0.549	0.047	0.5074
1440 minute winter	S33	Infiltration		1.1			

Results for 1 year 2160 minute summer. 2220 minute analysis at 60 minute timestep. Mass balance: 100 .00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
2160 minute summer	S31	1140	79.402	0.030	1.6	0.0423	0.0000	OK
2160 minute summer	S30	1080	79.273	0.042	3.3	0.0597	0.0000	OK
2160 minute summer	S27	1080	79.281	0.015	0.3	0.0208	0.0000	OK
2160 minute summer	S28	1440	79.192	0.082	0.5	0.0923	0.0000	OK
2160 minute summer	S29	1440	79.192	0.124	3.8	0.1398	0.0000	OK
2160 minute summer	S32	1440	79.192	0.177	3.8	0.1997	0.0000	OK
2160 minute summer	S33	1440	79.192	0.220	3.7	55.4435	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
2160 minute summer	S31	1.000	S30	1.6	0.342	0.020	0.1338
2160 minute summer	S31	Infiltration		0.0			
2160 minute summer	S30	1.001	S29	3.3	0.531	0.042	0.4880
2160 minute summer	S30	Infiltration		0.0			
2160 minute summer	S27	2.000	S28	0.3	0.232	0.008	0.2096
2160 minute summer	S28	2.001	S29	0.5	0.159	0.014	0.1487
2160 minute summer	S29	1.002	S32	3.8	0.534	0.048	0.3703
2160 minute summer	S32	1.003	S33	3.7	0.504	0.048	0.4280
2160 minute summer	S33	Infiltration		1.1			

Results for 1 year 2160 minute winter. 2220 minute analysis at 60 minute timestep. Mass balance: 100 .00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
2160 minute winter	S31	1080	79.398	0.026	1.2	0.0370	0.0000	OK
2160 minute winter	S30	1140	79.267	0.036	2.5	0.0522	0.0000	OK
2160 minute winter	S27	1140	79.281	0.015	0.3	0.0208	0.0000	OK
2160 minute winter	S28	1560	79.215	0.105	0.5	0.1189	0.0000	OK
2160 minute winter	S29	1560	79.215	0.147	3.0	0.1664	0.0000	OK
2160 minute winter	S32	1560	79.215	0.200	3.0	0.2263	0.0000	OK
2160 minute winter	S33	1560	79.215	0.243	3.0	61.3755	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
2160 minute winter	S31	1.000	S30	1.2	0.317	0.015	0.1098
2160 minute winter	S31	Infiltration		0.0			
2160 minute winter	S30	1.001	S29	2.5	0.483	0.032	0.6018
2160 minute winter	S30	Infiltration		0.0			
2160 minute winter	S27	2.000	S28	0.3	0.232	0.008	0.2904
2160 minute winter	S28	2.001	S29	0.5	0.166	0.014	0.1922
2160 minute winter	S29	1.002	S32	3.0	0.484	0.038	0.4426
2160 minute winter	S32	1.003	S33	3.0	0.513	0.038	0.4832
2160 minute winter	S33	Infiltration		1.1			

Results for 1 year 4320 minute summer. 4380 minute analysis at 60 minute timestep. Mass balance: 100 .00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
4320 minute summer	S31	2220	79.397	0.025	1.1	0.0355	0.0000	OK
4320 minute summer	S30	2220	79.265	0.034	2.2	0.0492	0.0000	OK
4320 minute summer	S27	2040	79.278	0.012	0.2	0.0172	0.0000	OK
4320 minute summer	S28	2640	79.160	0.050	0.3	0.0561	0.0000	OK
4320 minute summer	S29	2640	79.160	0.092	2.5	0.1036	0.0000	OK
4320 minute summer	S32	2640	79.160	0.145	2.5	0.1635	0.0000	OK
4320 minute summer	S33	2640	79.160	0.188	2.5	47.3595	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
4320 minute summer	S31	1.000	S30	1.1	0.308	0.014	0.1016
4320 minute summer	S31	Infiltration		0.0			
4320 minute summer	S30	1.001	S29	2.2	0.474	0.028	0.3357
4320 minute summer	S30	Infiltration		0.0			
4320 minute summer	S27	2.000	S28	0.2	0.213	0.005	0.1084
4320 minute summer	S28	2.001	S29	0.3	0.135	0.008	0.0911
4320 minute summer	S29	1.002	S32	2.5	0.477	0.032	0.2720
4320 minute summer	S32	1.003	S33	2.5	0.431	0.032	0.3477
4320 minute summer	S33	Infiltration		1.1			

Results for 1 year 4320 minute winter. 4380 minute analysis at 60 minute timestep. Mass balance: 100 .00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
4320 minute winter	S31	2100	79.393	0.021	0.8	0.0307	0.0000	OK
4320 minute winter	S30	2100	79.261	0.030	1.6	0.0422	0.0000	OK
4320 minute winter	S27	2100	79.278	0.012	0.2	0.0172	0.0000	OK
4320 minute winter	S28	2820	79.148	0.038	0.3	0.0434	0.0000	OK
4320 minute winter	S29	2820	79.148	0.080	1.9	0.0909	0.0000	OK
4320 minute winter	S32	2820	79.148	0.133	1.9	0.1508	0.0000	OK
4320 minute winter	S33	2820	79.148	0.176	1.9	44.5118	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
4320 minute winter	S31	1.000	S30	0.8	0.280	0.010	0.0814
4320 minute winter	S31	Infiltration		0.0			
4320 minute winter	S30	1.001	S29	1.6	0.424	0.020	0.2859
4320 minute winter	S30	Infiltration		0.0			
4320 minute winter	S27	2.000	S28	0.2	0.213	0.005	0.0773
4320 minute winter	S28	2.001	S29	0.3	0.139	0.008	0.0723
4320 minute winter	S29	1.002	S32	1.9	0.441	0.024	0.2384
4320 minute winter	S32	1.003	S33	1.9	0.435	0.024	0.3187
4320 minute winter	S33	Infiltration		1.1			

Results for 1 year 7200 minute summer. 7260 minute analysis at 60 minute timestep. Mass balance: 100 .00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
7200 minute summer	S31	3600	79.393	0.021	0.8	0.0307	0.0000	OK
7200 minute summer	S30	3600	79.261	0.030	1.6	0.0422	0.0000	OK
7200 minute summer	S27	3600	79.278	0.012	0.2	0.0172	0.0000	OK
7200 minute summer	S28	3600	79.125	0.015	0.3	0.0165	0.0000	OK
7200 minute summer	S29	4140	79.113	0.045	1.9	0.0507	0.0000	OK
7200 minute summer	S32	4140	79.113	0.098	1.9	0.1106	0.0000	OK
7200 minute summer	S33	4140	79.113	0.141	1.9	35.5348	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
7200 minute summer	S31	1.000	S30	0.8	0.280	0.010	0.0814
7200 minute summer	S31	Infiltration		0.0			
7200 minute summer	S30	1.001	S29	1.6	0.423	0.020	0.1466
7200 minute summer	S30	Infiltration		0.0			
7200 minute summer	S27	2.000	S28	0.2	0.213	0.005	0.0292
7200 minute summer	S28	2.001	S29	0.3	0.139	0.008	0.0270
7200 minute summer	S29	1.002	S32	1.9	0.441	0.024	0.1391
7200 minute summer	S32	1.003	S33	1.9	0.431	0.024	0.2277
7200 minute summer	S33	Infiltration		1.1			

Results for 1 year 7200 minute winter. 7260 minute analysis at 60 minute timestep. Mass balance: 100 .00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
7200 minute winter	S31	3480	79.391	0.019	0.6	0.0269	0.0000	OK
7200 minute winter	S30	3480	79.257	0.026	1.2	0.0369	0.0000	OK
7200 minute winter	S27	2400	79.275	0.009	0.1	0.0126	0.0000	OK
7200 minute winter	S28	2820	79.122	0.012	0.2	0.0136	0.0000	OK
7200 minute winter	S29	3480	79.096	0.028	1.4	0.0320	0.0000	OK
7200 minute winter	S32	4320	79.080	0.065	1.4	0.0735	0.0000	OK
7200 minute winter	S33	4320	79.080	0.108	1.4	27.2557	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
7200 minute winter	S31	1.000	S30	0.6	0.256	0.008	0.0666
7200 minute winter	S31	Infiltration		0.0			
7200 minute winter	S30	1.001	S29	1.2	0.392	0.015	0.1016
7200 minute winter	S30	Infiltration		0.0			
7200 minute winter	S27	2.000	S28	0.1	0.202	0.003	0.0203
7200 minute winter	S28	2.001	S29	0.2	0.138	0.005	0.0155
7200 minute winter	S29	1.002	S32	1.4	0.425	0.018	0.0733
7200 minute winter	S32	1.003	S33	1.4	0.435	0.018	0.1480
7200 minute winter	S33	Infiltration		1.1			

Results for 1 year 10080 minute summer. 10140 minute analysis at 60 minute timestep. Mass balance: 1 00.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
10080 minute summer	S31	5100	79.392	0.020	0.7	0.0289	0.0000	OK
10080 minute summer	S30	5100	79.259	0.028	1.4	0.0397	0.0000	OK
10080 minute summer	S27	4080	79.275	0.009	0.1	0.0126	0.0000	OK
10080 minute summer	S28	4440	79.122	0.012	0.2	0.0136	0.0000	OK
10080 minute summer	S29	5040	79.098	0.030	1.6	0.0341	0.0000	OK
10080 minute summer	S32	5580	79.075	0.060	1.6	0.0680	0.0000	OK
10080 minute summer	S33	5580	79.075	0.103	1.6	26.0129	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
10080 minute summer	S31	1.000	S30	0.7	0.268	0.009	0.0742
10080 minute summer	S31	Infiltration		0.0			
10080 minute summer	S30	1.001	S29	1.4	0.412	0.018	0.1122
10080 minute summer	S30	Infiltration		0.0			
10080 minute summer	S27	2.000	S28	0.1	0.202	0.003	0.0203
10080 minute summer	S28	2.001	S29	0.2	0.138	0.005	0.0167
10080 minute summer	S29	1.002	S32	1.6	0.441	0.020	0.0677
10080 minute summer	S32	1.003	S33	1.6	0.431	0.020	0.1367
10080 minute summer	S33	Infiltration		1.1			

Results for 1 year 10080 minute winter. 10140 minute analysis at 60 minute timestep. Mass balance: 1 00.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
10080 minute winter	S31	4860	79.389	0.017	0.5	0.0246	0.0000	OK
10080 minute winter	S30	4860	79.255	0.024	1.0	0.0339	0.0000	OK
10080 minute winter	S27	3660	79.275	0.009	0.1	0.0126	0.0000	OK
10080 minute winter	S28	4320	79.122	0.012	0.2	0.0136	0.0000	OK
10080 minute winter	S29	4860	79.094	0.026	1.2	0.0297	0.0000	OK
10080 minute winter	S32	4860	79.041	0.026	1.2	0.0293	0.0000	OK
10080 minute winter	S33	5460	79.037	0.065	1.2	16.3395	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
10080 minute winter	S31	1.000	S30	0.5	0.244	0.006	0.0588
10080 minute winter	S31	Infiltration		0.0			
10080 minute winter	S30	1.001	S29	1.0	0.360	0.013	0.0903
10080 minute winter	S30	Infiltration		0.0			
10080 minute winter	S27	2.000	S28	0.1	0.202	0.003	0.0203
10080 minute winter	S28	2.001	S29	0.2	0.135	0.005	0.0143
10080 minute winter	S29	1.002	S32	1.2	0.406	0.015	0.0310
10080 minute winter	S32	1.003	S33	1.2	0.424	0.015	0.0605
10080 minute winter	S33	Infiltration		1.1			

Results for 30 year +10% CC 15 minute summer. 75 minute analysis at 1 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	S31	10	80.094	0.722	45.6	1.0331	0.0000	SURCHARGED
15 minute summer	S30	10	80.032	0.801	92.7	1.1461	0.0000	SURCHARGED
15 minute summer	S27	10	79.783	0.517	9.3	0.7391	0.0000	SURCHARGED
15 minute summer	S28	10	79.773	0.663	18.0	0.7499	0.0000	SURCHARGED
15 minute summer	S29	10	79.756	0.688	116.6	0.7776	0.0000	SURCHARGED
15 minute summer	S32	9	79.596	0.581	119.1	0.6567	0.0000	SURCHARGED
15 minute summer	S33	20	79.149	0.177	122.6	44.6800	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
15 minute summer	S31	1.000	S30	47.2	0.728	0.603	1.9899
15 minute summer	S31	Infiltration		0.0			
15 minute summer	S30	1.001	S29	96.2	1.366	1.227	2.2901
15 minute summer	S30	Infiltration		0.0			
15 minute summer	S27	2.000	S28	12.1	0.372	0.329	1.2373
15 minute summer	S28	2.001	S29	20.4	0.514	0.559	0.3349
15 minute summer	S29	1.002	S32	119.1	1.691	1.514	0.7399
15 minute summer	S32	1.003	S33	122.6	2.459	1.575	0.3935
15 minute summer	S33	Infiltration		1.1			

Results for 30 year +10% CC 15 minute winter. 75 minute analysis at 1 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S31	10	80.158	0.786	47.9	1.1249	0.0000	SURCHARGED
15 minute winter	S30	10	80.086	0.855	98.1	1.2234	0.0000	SURCHARGED
15 minute winter	S27	9	79.829	0.563	18.0	0.8062	0.0000	SURCHARGED
15 minute winter	S28	9	79.790	0.680	18.5	0.7694	0.0000	SURCHARGED
15 minute winter	S29	9	79.772	0.704	121.0	0.7957	0.0000	SURCHARGED
15 minute winter	S32	9	79.641	0.626	123.4	0.7081	0.0000	SURCHARGED
15 minute winter	S33	22	79.170	0.198	126.6	49.8988	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
15 minute winter	S31	1.000	S30	49.2	0.701	0.629	1.9899
15 minute winter	S31	Infiltration		0.0			
15 minute winter	S30	1.001	S29	100.1	1.422	1.277	2.2901
15 minute winter	S30	Infiltration		0.0			
15 minute winter	S27	2.000	S28	-12.5	0.385	-0.342	1.2373
15 minute winter	S28	2.001	S29	20.9	0.526	0.572	0.3349
15 minute winter	S29	1.002	S32	123.4	1.753	1.569	0.7399
15 minute winter	S32	1.003	S33	126.6	2.580	1.626	0.4156
15 minute winter	S33	Infiltration		1.1			

Results for 30 year +10% CC 30 minute summer. 90 minute analysis at 1 minute timestep. Mass balance: 99.88%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	S31	19	79.673	0.301	43.2	0.4305	0.0000	SURCHARGED
30 minute summer	S30	19	79.629	0.398	82.8	0.5694	0.0000	SURCHARGED
30 minute summer	S27	19	79.429	0.163	8.8	0.2330	0.0000	OK
30 minute summer	S28	19	79.417	0.307	13.8	0.3468	0.0000	SURCHARGED
30 minute summer	S29	19	79.407	0.339	96.2	0.3837	0.0000	SURCHARGED
30 minute summer	S32	19	79.272	0.257	96.5	0.2908	0.0000	OK
30 minute summer	S33	36	79.212	0.240	96.8	60.6923	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
30 minute summer	S31	1.000	S30	40.9	0.747	0.523	1.9893
30 minute summer	S31	Infiltration		0.0			
30 minute summer	S30	1.001	S29	83.4	1.184	1.063	2.2901
30 minute summer	S30	Infiltration		0.0			
30 minute summer	S27	2.000	S28	9.3	0.345	0.253	1.0972
30 minute summer	S28	2.001	S29	15.0	0.377	0.410	0.3349
30 minute summer	S29	1.002	S32	96.5	1.378	1.227	0.7077
30 minute summer	S32	1.003	S33	96.8	2.192	1.243	0.4770
30 minute summer	S33	Infiltration		1.1			

Results for 30 year +10% CC 30 minute winter. 90 minute analysis at 1 minute timestep. Mass balance: 99.87%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute winter	S31	19	79.582	0.210	39.0	0.3007	0.0000	OK
30 minute winter	S30	19	79.557	0.326	78.0	0.4661	0.0000	SURCHARGED
30 minute winter	S27	19	79.387	0.121	7.9	0.1726	0.0000	OK
30 minute winter	S28	19	79.382	0.272	12.8	0.3082	0.0000	SURCHARGED
30 minute winter	S29	19	79.375	0.307	87.8	0.3478	0.0000	SURCHARGED
30 minute winter	S32	10	79.300	0.285	87.7	0.3222	0.0000	OK
30 minute winter	S33	36	79.241	0.269	87.5	67.9659	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
30 minute winter	S31	1.000	S30	37.4	0.746	0.478	1.7397
30 minute winter	S31	Infiltration		0.0			
30 minute winter	S30	1.001	S29	75.5	1.085	0.963	2.2901
30 minute winter	S30	Infiltration		0.0			
30 minute winter	S27	2.000	S28	7.5	0.349	0.203	0.9557
30 minute winter	S28	2.001	S29	12.6	0.317	0.345	0.3349
30 minute winter	S29	1.002	S32	87.7	1.298	1.115	0.6916
30 minute winter	S32	1.003	S33	87.5	2.123	1.124	0.5377
30 minute winter	S33	Infiltration		1.1			

Results for 30 year +10% CC 60 minute summer. 120 minute analysis at 1 minute timestep. Mass balance : 99.92%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	S31	33	79.509	0.137	33.7	0.1957	0.0000	OK
60 minute summer	S30	33	79.471	0.240	68.7	0.3434	0.0000	OK
60 minute summer	S27	34	79.353	0.087	6.8	0.1247	0.0000	OK
60 minute summer	S28	34	79.349	0.239	10.8	0.2700	0.0000	SURCHARGED
60 minute summer	S29	34	79.343	0.275	78.0	0.3109	0.0000	OK
60 minute summer	S32	65	79.280	0.265	78.1	0.2999	0.0000	OK
60 minute summer	S33	64	79.280	0.308	77.9	77.8743	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
60 minute summer	S31	1.000	S30	33.6	0.740	0.429	1.2952
60 minute summer	S31	Infiltration		0.0			
60 minute summer	S30	1.001	S29	68.3	1.071	0.871	2.0690
60 minute summer	S30	Infiltration		0.0			
60 minute summer	S27	2.000	S28	6.6	0.301	0.181	0.8394
60 minute summer	S28	2.001	S29	11.1	0.317	0.304	0.3349
60 minute summer	S29	1.002	S32	78.1	1.244	0.993	0.6615
60 minute summer	S32	1.003	S33	77.9	1.777	1.000	0.5930
60 minute summer	S33	Infiltration		1.2			

Results for 30 year +10% CC 60 minute winter. 120 minute analysis at 1 minute timestep. Mass balance : 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute winter	S31	33	79.493	0.121	27.3	0.1729	0.0000	OK
60 minute winter	S30	33	79.429	0.198	55.7	0.2838	0.0000	OK
60 minute winter	S27	33	79.324	0.058	5.5	0.0836	0.0000	OK
60 minute winter	S28	65	79.316	0.206	9.2	0.2330	0.0000	OK
60 minute winter	S29	65	79.316	0.248	64.5	0.2803	0.0000	OK
60 minute winter	S32	64	79.316	0.301	64.0	0.3404	0.0000	SURCHARGED
60 minute winter	S33	64	79.316	0.344	63.6	86.9006	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
60 minute winter	S31	1.000	S30	27.3	0.718	0.349	1.0732
60 minute winter	S31	Infiltration		0.0			
60 minute winter	S30	1.001	S29	55.7	1.026	0.710	1.7734
60 minute winter	S30	Infiltration		0.0			
60 minute winter	S27	2.000	S28	5.5	0.324	0.150	0.7067
60 minute winter	S28	2.001	S29	8.9	0.267	0.245	0.3279
60 minute winter	S29	1.002	S32	64.0	1.154	0.814	0.6968
60 minute winter	S32	1.003	S33	63.6	1.615	0.817	0.6126
60 minute winter	S33	Infiltration		1.2			

Results for 30 year +10% CC 120 minute summer. 180 minute analysis at 2 minute timestep. Mass balance: 99.96

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
120 minute summer	S31	64	79.482	0.110	22.9	0.1572	0.0000	OK
120 minute summer	S30	64	79.405	0.174	46.8	0.2484	0.0000	OK
120 minute summer	S27	124	79.351	0.085	4.6	0.1217	0.0000	OK
120 minute summer	S28	124	79.351	0.241	7.7	0.2725	0.0000	SURCHARGED
120 minute summer	S29	124	79.351	0.283	54.3	0.3200	0.0000	OK
120 minute summer	S32	124	79.351	0.336	53.9	0.3800	0.0000	SURCHARGED
120 minute summer	S33	126	79.351	0.379	53.5	95.7068	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
120 minute summer	S31	1.000	S30	22.9	0.700	0.293	0.9267
120 minute summer	S31	Infiltration		0.0			
120 minute summer	S30	1.001	S29	46.9	0.978	0.598	1.5765
120 minute summer	S30	Infiltration		0.0			
120 minute summer	S27	2.000	S28	4.6	0.307	0.125	0.8323
120 minute summer	S28	2.001	S29	7.4	0.275	0.203	0.3349
120 minute summer	S29	1.002	S32	53.9	1.027	0.685	0.7317
120 minute summer	S32	1.003	S33	53.5	1.165	0.687	0.6127
120 minute summer	S33	Infiltration		1.2			

Results for 30 year +10% CC 120 minute winter. 180 minute analysis at 2 minute timestep. Mass balance: 99.86%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
120 minute winter	S31	64	79.468	0.096	17.7	0.1373	0.0000	OK
120 minute winter	S30	124	79.399	0.168	36.1	0.2403	0.0000	OK
120 minute winter	S27	124	79.399	0.133	3.6	0.1899	0.0000	OK
120 minute winter	S28	124	79.399	0.289	6.0	0.3267	0.0000	SURCHARGED
120 minute winter	S29	124	79.399	0.331	42.0	0.3742	0.0000	SURCHARGED
120 minute winter	S32	124	79.399	0.384	41.7	0.4341	0.0000	SURCHARGED
120 minute winter	S33	122	79.399	0.427	41.3	107.8025	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
120 minute winter	S31	1.000	S30	17.7	0.672	0.226	0.7501
120 minute winter	S31	Infiltration		0.0			
120 minute winter	S30	1.001	S29	36.2	0.909	0.461	1.8047
120 minute winter	S30	Infiltration		0.0			
120 minute winter	S27	2.000	S28	3.6	0.303	0.098	0.9975
120 minute winter	S28	2.001	S29	5.8	0.233	0.158	0.3349
120 minute winter	S29	1.002	S32	41.7	0.934	0.530	0.7399
120 minute winter	S32	1.003	S33	41.3	1.230	0.530	0.6127
120 minute winter	S33	Infiltration		1.2			

Results for 30 year +10% CC 180 minute summer. 240 minute analysis at 4 minute timestep. Mass balance: 99.8%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute summer	S31	96	79.467	0.095	17.5	0.1365	0.0000	OK
180 minute summer	S30	184	79.395	0.164	35.8	0.2343	0.0000	OK
180 minute summer	S27	184	79.395	0.129	3.6	0.1846	0.0000	OK
180 minute summer	S28	184	79.395	0.285	6.0	0.3223	0.0000	SURCHARGED
180 minute summer	S29	184	79.395	0.327	41.6	0.3698	0.0000	SURCHARGED
180 minute summer	S32	184	79.395	0.380	41.3	0.4297	0.0000	SURCHARGED
180 minute summer	S33	184	79.395	0.423	40.9	106.7945	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
180 minute summer	S31	1.000	S30	17.5	0.669	0.224	0.7422
180 minute summer	S31	Infiltration		0.0			
180 minute summer	S30	1.001	S29	35.9	0.908	0.458	1.7842
180 minute summer	S30	Infiltration		0.0			
180 minute summer	S27	2.000	S28	3.6	0.298	0.098	0.9848
180 minute summer	S28	2.001	S29	5.8	0.193	0.158	0.3349
180 minute summer	S29	1.002	S32	41.3	0.885	0.525	0.7399
180 minute summer	S32	1.003	S33	40.9	1.027	0.525	0.6127
180 minute summer	S33	Infiltration		1.2			

Results for 30 year +10% CC 180 minute winter. 240 minute analysis at 4 minute timestep. Mass balance: 99.79%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute winter	S31	96	79.455	0.083	13.5	0.1194	0.0000	OK
180 minute winter	S30	184	79.449	0.218	27.6	0.3116	0.0000	OK
180 minute winter	S27	184	79.449	0.183	2.7	0.2618	0.0000	OK
180 minute winter	S28	184	79.449	0.339	4.5	0.3834	0.0000	SURCHARGED
180 minute winter	S29	184	79.449	0.381	31.7	0.4309	0.0000	SURCHARGED
180 minute winter	S32	184	79.449	0.434	31.1	0.4909	0.0000	SURCHARGED
180 minute winter	S33	184	79.449	0.477	30.7	120.4581	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
180 minute winter	S31	1.000	S30	13.5	0.636	0.173	0.9741
180 minute winter	S31	Infiltration		0.0			
180 minute winter	S30	1.001	S29	27.6	0.843	0.352	2.0359
180 minute winter	S30	Infiltration		0.0			
180 minute winter	S27	2.000	S28	2.7	0.306	0.074	1.1567
180 minute winter	S28	2.001	S29	4.1	0.183	0.113	0.3349
180 minute winter	S29	1.002	S32	31.1	0.819	0.396	0.7399
180 minute winter	S32	1.003	S33	30.7	1.105	0.394	0.6127
180 minute winter	S33	Infiltration		1.2			

Results for 30 year +10% CC 240 minute summer. 300 minute analysis at 4 minute timestep. Mass balance: 99.82

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute summer	S31	124	79.460	0.088	15.1	0.1261	0.0000	OK
240 minute summer	S30	244	79.427	0.196	30.7	0.2802	0.0000	OK
240 minute summer	S27	244	79.427	0.161	3.1	0.2301	0.0000	OK
240 minute summer	S28	244	79.427	0.317	5.2	0.3583	0.0000	SURCHARGED
240 minute summer	S29	244	79.427	0.359	35.3	0.4059	0.0000	SURCHARGED
240 minute summer	S32	244	79.427	0.412	34.7	0.4658	0.0000	SURCHARGED
240 minute summer	S33	244	79.427	0.455	34.2	114.8466	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
240 minute summer	S31	1.000	S30	15.0	0.651	0.192	0.8118
240 minute summer	S31	Infiltration		0.0			
240 minute summer	S30	1.001	S29	30.6	0.860	0.390	1.9369
240 minute summer	S30	Infiltration		0.0			
240 minute summer	S27	2.000	S28	3.1	0.302	0.084	1.0910
240 minute summer	S28	2.001	S29	4.7	0.191	0.130	0.3349
240 minute summer	S29	1.002	S32	34.7	0.803	0.441	0.7399
240 minute summer	S32	1.003	S33	34.2	0.962	0.440	0.6127
240 minute summer	S33	Infiltration		1.2			

Results for 30 year +10% CC 240 minute winter. 300 minute analysis at 4 minute timestep. Mass balance: 99.79%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute winter	S31	240	79.487	0.115	11.2	0.1644	0.0000	OK
240 minute winter	S30	240	79.487	0.256	22.9	0.3663	0.0000	OK
240 minute winter	S27	240	79.487	0.221	2.3	0.3163	0.0000	OK
240 minute winter	S28	240	79.487	0.377	3.8	0.4265	0.0000	SURCHARGED
240 minute winter	S29	240	79.487	0.419	26.2	0.4740	0.0000	SURCHARGED
240 minute winter	S32	240	79.487	0.472	25.4	0.5340	0.0000	SURCHARGED
240 minute winter	S33	240	79.487	0.515	25.1	130.0803	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
240 minute winter	S31	1.000	S30	11.2	0.605	0.143	1.2551
240 minute winter	S31	Infiltration		0.0			
240 minute winter	S30	1.001	S29	22.9	0.796	0.292	2.1862
240 minute winter	S30	Infiltration		0.0			
240 minute winter	S27	2.000	S28	2.3	0.295	0.062	1.2344
240 minute winter	S28	2.001	S29	3.4	0.179	0.092	0.3349
240 minute winter	S29	1.002	S32	25.4	0.760	0.323	0.7399
240 minute winter	S32	1.003	S33	25.1	1.040	0.322	0.6127
240 minute winter	S33	Infiltration		1.2			

Results for 30 year +10% CC 360 minute summer. 424 minute analysis at 8 minute timestep. Mass balance: 99.8%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute summer	S31	360	79.469	0.097	11.8	0.1383	0.0000	OK
360 minute summer	S30	360	79.469	0.238	24.0	0.3400	0.0000	OK
360 minute summer	S27	360	79.469	0.203	2.4	0.2899	0.0000	OK
360 minute summer	S28	360	79.469	0.359	4.0	0.4055	0.0000	SURCHARGED
360 minute summer	S29	360	79.469	0.401	27.3	0.4530	0.0000	SURCHARGED
360 minute summer	S32	360	79.468	0.453	26.5	0.5129	0.0000	SURCHARGED
360 minute summer	S33	360	79.468	0.496	26.1	125.3474	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
360 minute summer	S31	1.000	S30	11.7	0.614	0.150	1.1226
360 minute summer	S31	Infiltration		0.0			
360 minute summer	S30	1.001	S29	23.8	0.773	0.304	2.1183
360 minute summer	S30	Infiltration		0.0			
360 minute summer	S27	2.000	S28	2.4	0.298	0.065	1.2047
360 minute summer	S28	2.001	S29	3.4	0.191	0.094	0.3349
360 minute summer	S29	1.002	S32	26.5	0.704	0.337	0.7399
360 minute summer	S32	1.003	S33	26.1	0.880	0.336	0.6127
360 minute summer	S33	Infiltration		1.2			

Results for 30 year +10% CC 360 minute winter. 424 minute analysis at 8 minute timestep. Mass balance: 99.82%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute winter	S31	360	79.539	0.167	8.6	0.2386	0.0000	OK
360 minute winter	S30	360	79.539	0.308	17.5	0.4407	0.0000	SURCHARGED
360 minute winter	S27	360	79.541	0.275	1.7	0.3939	0.0000	SURCHARGED
360 minute winter	S28	360	79.539	0.429	2.9	0.4855	0.0000	SURCHARGED
360 minute winter	S29	360	79.539	0.471	20.0	0.5328	0.0000	SURCHARGED
360 minute winter	S32	360	79.539	0.524	19.4	0.5926	0.0000	SURCHARGED
360 minute winter	S33	360	79.539	0.567	19.2	143.1070	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
360 minute winter	S31	1.000	S30	8.6	0.563	0.110	1.5632
360 minute winter	S31	Infiltration		0.0			
360 minute winter	S30	1.001	S29	17.5	0.733	0.223	2.2901
360 minute winter	S30	Infiltration		0.0			
360 minute winter	S27	2.000	S28	1.7	0.303	0.046	1.2373
360 minute winter	S28	2.001	S29	2.5	0.184	0.069	0.3349
360 minute winter	S29	1.002	S32	19.4	0.687	0.247	0.7399
360 minute winter	S32	1.003	S33	19.2	0.950	0.246	0.6127
360 minute winter	S33	Infiltration		1.2			

Results for 30 year +10% CC 480 minute summer. 544 minute analysis at 8 minute timestep. Mass balance: 99.81

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
480 minute summer	S31	480	79.497	0.125	9.4	0.1784	0.0000	OK
480 minute summer	S30	480	79.497	0.266	19.2	0.3801	0.0000	OK
480 minute summer	S27	488	79.497	0.231	1.9	0.3302	0.0000	SURCHARGED
480 minute summer	S28	480	79.497	0.387	3.2	0.4372	0.0000	SURCHARGED
480 minute summer	S29	480	79.497	0.429	22.0	0.4847	0.0000	SURCHARGED
480 minute summer	S32	480	79.497	0.482	21.4	0.5446	0.0000	SURCHARGED
480 minute summer	S33	480	79.496	0.524	21.1	132.4290	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
480 minute summer	S31	1.000	S30	9.4	0.576	0.120	1.3230
480 minute summer	S31	Infiltration		0.0			
480 minute summer	S30	1.001	S29	19.2	0.721	0.245	2.2178
480 minute summer	S30	Infiltration		0.0			
480 minute summer	S27	2.000	S28	1.9	0.288	0.052	1.2373
480 minute summer	S28	2.001	S29	2.8	0.180	0.076	0.3349
480 minute summer	S29	1.002	S32	21.4	0.647	0.272	0.7399
480 minute summer	S32	1.003	S33	21.1	0.825	0.271	0.6127
480 minute summer	S33	Infiltration		1.2			

Results for 30 year +10% CC 480 minute winter. 544 minute analysis at 8 minute timestep. Mass balance: 99.82%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
480 minute winter	S31	472	79.575	0.203	7.0	0.2908	0.0000	OK
480 minute winter	S30	472	79.575	0.344	14.3	0.4927	0.0000	SURCHARGED
480 minute winter	S27	472	79.575	0.309	1.4	0.4427	0.0000	SURCHARGED
480 minute winter	S28	472	79.576	0.466	2.4	0.5265	0.0000	SURCHARGED
480 minute winter	S29	472	79.575	0.507	16.4	0.5735	0.0000	SURCHARGED
480 minute winter	S32	472	79.575	0.560	15.9	0.6333	0.0000	SURCHARGED
480 minute winter	S33	472	79.575	0.603	15.7	152.3773	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
480 minute winter	S31	1.000	S30	7.0	0.530	0.089	1.7127
480 minute winter	S31	Infiltration		0.0			
480 minute winter	S30	1.001	S29	14.3	0.688	0.182	2.2901
480 minute winter	S30	Infiltration		0.0			
480 minute winter	S27	2.000	S28	1.4	0.296	0.038	1.2373
480 minute winter	S28	2.001	S29	2.1	0.184	0.057	0.3349
480 minute winter	S29	1.002	S32	15.9	0.642	0.202	0.7399
480 minute winter	S32	1.003	S33	15.7	0.873	0.202	0.6127
480 minute winter	S33	Infiltration		1.2			

Results for 30 year +10% CC 600 minute summer. 660 minute analysis at 15 minute timestep. Mass balance: 99.8

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
600 minute summer	S31	600	79.514	0.142	7.8	0.2033	0.0000	OK
600 minute summer	S30	600	79.514	0.283	16.0	0.4051	0.0000	OK
600 minute summer	S27	600	79.514	0.248	1.6	0.3555	0.0000	SURCHARGED
600 minute summer	S28	600	79.514	0.404	2.7	0.4568	0.0000	SURCHARGED
600 minute summer	S29	600	79.514	0.446	18.4	0.5050	0.0000	SURCHARGED
600 minute summer	S32	600	79.514	0.499	17.9	0.5644	0.0000	SURCHARGED
600 minute summer	S33	600	79.514	0.542	17.7	136.8818	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
600 minute summer	S31	1.000	S30	7.8	0.546	0.100	1.4372
600 minute summer	S31	Infiltration		0.0			
600 minute summer	S30	1.001	S29	16.0	0.688	0.204	2.2651
600 minute summer	S30	Infiltration		0.0			
600 minute summer	S27	2.000	S28	1.6	0.290	0.044	1.2373
600 minute summer	S28	2.001	S29	2.4	0.179	0.065	0.3349
600 minute summer	S29	1.002	S32	17.9	0.611	0.227	0.7399
600 minute summer	S32	1.003	S33	17.7	0.776	0.227	0.6127
600 minute summer	S33	Infiltration		1.2			

Results for 30 year +10% CC 600 minute winter. 660 minute analysis at 15 minute timestep. Mass balance: 99.82

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
600 minute winter	S31	600	79.599	0.227	6.0	0.3246	0.0000	OK
600 minute winter	S30	600	79.598	0.367	12.2	0.5245	0.0000	SURCHARGED
600 minute winter	S27	600	79.598	0.332	1.2	0.4746	0.0000	SURCHARGED
600 minute winter	S28	600	79.597	0.487	2.0	0.5512	0.0000	SURCHARGED
600 minute winter	S29	600	79.597	0.529	13.9	0.5984	0.0000	SURCHARGED
600 minute winter	S32	600	79.597	0.582	13.5	0.6580	0.0000	SURCHARGED
600 minute winter	S33	585	79.597	0.625	13.4	157.8036	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
600 minute winter	S31	1.000	S30	6.0	0.508	0.077	1.8024
600 minute winter	S31	Infiltration		0.0			
600 minute winter	S30	1.001	S29	12.2	0.661	0.155	2.2901
600 minute winter	S30	Infiltration		0.0			
600 minute winter	S27	2.000	S28	1.2	0.299	0.033	1.2373
600 minute winter	S28	2.001	S29	1.7	0.192	0.048	0.3349
600 minute winter	S29	1.002	S32	13.5	0.615	0.172	0.7399
600 minute winter	S32	1.003	S33	13.4	0.829	0.172	0.6127
600 minute winter	S33	Infiltration		1.2			

Results for 30 year +10% CC 720 minute summer. 780 minute analysis at 15 minute timestep. Mass balance: 99.8

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
720 minute summer	S31	720	79.529	0.157	7.0	0.2248	0.0000	OK
720 minute summer	S30	720	79.529	0.298	14.3	0.4265	0.0000	OK
720 minute summer	S27	720	79.529	0.263	1.4	0.3766	0.0000	SURCHARGED
720 minute summer	S28	720	79.529	0.419	2.4	0.4737	0.0000	SURCHARGED
720 minute summer	S29	720	79.530	0.462	16.3	0.5220	0.0000	SURCHARGED
720 minute summer	S32	720	79.529	0.514	15.8	0.5814	0.0000	SURCHARGED
720 minute summer	S33	720	79.529	0.557	15.6	140.6970	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
720 minute summer	S31	1.000	S30	7.0	0.530	0.089	1.5214
720 minute summer	S31	Infiltration		0.0			
720 minute summer	S30	1.001	S29	14.3	0.664	0.182	2.2888
720 minute summer	S30	Infiltration		0.0			
720 minute summer	S27	2.000	S28	1.4	0.307	0.038	1.2373
720 minute summer	S28	2.001	S29	2.1	0.186	0.057	0.3349
720 minute summer	S29	1.002	S32	15.8	0.589	0.201	0.7399
720 minute summer	S32	1.003	S33	15.6	0.748	0.200	0.6127
720 minute summer	S33	Infiltration		1.2			

Results for 30 year +10% CC 720 minute winter. 780 minute analysis at 15 minute timestep. Mass balance: 99.83

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
720 minute winter	S31	720	79.616	0.244	5.3	0.3494	0.0000	OK
720 minute winter	S30	720	79.616	0.385	10.8	0.5505	0.0000	SURCHARGED
720 minute winter	S27	705	79.615	0.349	1.1	0.4999	0.0000	SURCHARGED
720 minute winter	S28	705	79.616	0.506	1.7	0.5718	0.0000	SURCHARGED
720 minute winter	S29	705	79.615	0.547	12.3	0.6189	0.0000	SURCHARGED
720 minute winter	S32	705	79.616	0.601	12.0	0.6798	0.0000	SURCHARGED
720 minute winter	S33	705	79.616	0.644	11.9	162.5533	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
720 minute winter	S31	1.000	S30	5.3	0.489	0.068	1.8626
720 minute winter	S31	Infiltration		0.0			
720 minute winter	S30	1.001	S29	10.8	0.640	0.137	2.2901
720 minute winter	S30	Infiltration		0.0			
720 minute winter	S27	2.000	S28	1.0	0.289	0.027	1.2373
720 minute winter	S28	2.001	S29	1.5	0.182	0.041	0.3349
720 minute winter	S29	1.002	S32	12.0	0.601	0.153	0.7399
720 minute winter	S32	1.003	S33	11.9	0.789	0.153	0.6127
720 minute winter	S33	Infiltration		1.2			

Results for 30 year +10% CC 960 minute summer. 1020 minute analysis at 15 minute timestep. Mass balance: 99

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute summer	S31	930	79.543	0.171	5.9	0.2449	0.0000	OK
960 minute summer	S30	930	79.543	0.312	12.0	0.4466	0.0000	SURCHARGED
960 minute summer	S27	930	79.543	0.277	1.2	0.3967	0.0000	SURCHARGED
960 minute summer	S28	930	79.543	0.433	2.0	0.4895	0.0000	SURCHARGED
960 minute summer	S29	930	79.544	0.476	13.7	0.5379	0.0000	SURCHARGED
960 minute summer	S32	930	79.543	0.528	13.3	0.5972	0.0000	SURCHARGED
960 minute summer	S33	930	79.543	0.571	13.2	144.2492	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
960 minute summer	S31	1.000	S30	5.9	0.505	0.075	1.5815
960 minute summer	S31	Infiltration		0.0			
960 minute summer	S30	1.001	S29	12.0	0.625	0.153	2.2901
960 minute summer	S30	Infiltration		0.0			
960 minute summer	S27	2.000	S28	1.2	0.299	0.033	1.2373
960 minute summer	S28	2.001	S29	1.7	0.191	0.048	0.3349
960 minute summer	S29	1.002	S32	13.3	0.553	0.169	0.7399
960 minute summer	S32	1.003	S33	13.2	0.698	0.169	0.6127
960 minute summer	S33	Infiltration		1.2			

Results for 30 year +10% CC 960 minute winter. 1020 minute analysis at 15 minute timestep. Mass balance: 99.8

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute winter	S31	945	79.642	0.270	4.4	0.3871	0.0000	OK
960 minute winter	S30	945	79.642	0.411	9.0	0.5886	0.0000	SURCHARGED
960 minute winter	S27	945	79.641	0.375	0.9	0.5369	0.0000	SURCHARGED
960 minute winter	S28	945	79.642	0.532	1.5	0.6013	0.0000	SURCHARGED
960 minute winter	S29	945	79.641	0.573	10.0	0.6483	0.0000	SURCHARGED
960 minute winter	S32	930	79.642	0.627	9.7	0.7086	0.0000	SURCHARGED
960 minute winter	S33	930	79.641	0.669	9.7	168.9802	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
960 minute winter	S31	1.000	S30	4.4	0.462	0.056	1.9398
960 minute winter	S31	Infiltration		0.0			
960 minute winter	S30	1.001	S29	8.7	0.605	0.111	2.2901
960 minute winter	S30	Infiltration		0.0			
960 minute winter	S27	2.000	S28	0.9	0.286	0.024	1.2373
960 minute winter	S28	2.001	S29	1.3	0.187	0.036	0.3349
960 minute winter	S29	1.002	S32	9.7	0.566	0.124	0.7399
960 minute winter	S32	1.003	S33	9.7	0.738	0.124	0.6127
960 minute winter	S33	Infiltration		1.3			

Results for 30 year +10% CC 1440 minute summer. 1500 minute analysis at 30 minute timestep. Mass balance: 9

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute summer	S31	1290	79.551	0.179	4.4	0.2561	0.0000	OK
1440 minute summer	S30	1290	79.550	0.319	9.0	0.4560	0.0000	SURCHARGED
1440 minute summer	S27	1200	79.548	0.282	0.9	0.4037	0.0000	SURCHARGED
1440 minute summer	S28	1290	79.548	0.438	1.5	0.4959	0.0000	SURCHARGED
1440 minute summer	S29	1290	79.548	0.480	10.3	0.5429	0.0000	SURCHARGED
1440 minute summer	S32	1290	79.548	0.533	10.0	0.6032	0.0000	SURCHARGED
1440 minute summer	S33	1200	79.548	0.576	9.9	145.4953	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
1440 minute summer	S31	1.000	S30	4.4	0.463	0.056	1.6141
1440 minute summer	S31	Infiltration		0.0			
1440 minute summer	S30	1.001	S29	9.0	0.587	0.114	2.2901
1440 minute summer	S30	Infiltration		0.0			
1440 minute summer	S27	2.000	S28	0.9	0.277	0.024	1.2373
1440 minute summer	S28	2.001	S29	1.3	0.173	0.036	0.3349
1440 minute summer	S29	1.002	S32	10.0	0.523	0.127	0.7399
1440 minute summer	S32	1.003	S33	9.9	0.669	0.127	0.6127
1440 minute summer	S33	Infiltration		1.2			

Results for 30 year +10% CC 1440 minute winter. 1500 minute analysis at 30 minute timestep. Mass balance: 99.

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	S31	1410	79.650	0.278	3.3	0.3978	0.0000	OK
1440 minute winter	S30	1410	79.650	0.419	6.7	0.5997	0.0000	SURCHARGED
1440 minute winter	S27	1350	79.649	0.383	0.7	0.5483	0.0000	SURCHARGED
1440 minute winter	S28	1350	79.649	0.539	1.0	0.6097	0.0000	SURCHARGED
1440 minute winter	S29	1350	79.649	0.581	7.4	0.6569	0.0000	SURCHARGED
1440 minute winter	S32	1350	79.650	0.635	7.3	0.7177	0.0000	SURCHARGED
1440 minute winter	S33	1380	79.649	0.677	7.2	171.0283	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
1440 minute winter	S31	1.000	S30	3.3	0.423	0.042	1.9575
1440 minute winter	S31	Infiltration		0.0			
1440 minute winter	S30	1.001	S29	6.5	0.554	0.083	2.2901
1440 minute winter	S30	Infiltration		0.0			
1440 minute winter	S27	2.000	S28	0.6	0.249	0.016	1.2373
1440 minute winter	S28	2.001	S29	0.9	0.176	0.026	0.3349
1440 minute winter	S29	1.002	S32	7.3	0.524	0.092	0.7399
1440 minute winter	S32	1.003	S33	7.2	0.670	0.093	0.6127
1440 minute winter	S33	Infiltration		1.3			

Results for 30 year +10% CC 2160 minute summer. 2220 minute analysis at 60 minute timestep. Mass balance: 9

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
2160 minute summer	S31	1620	79.552	0.180	3.2	0.2572	0.0000	OK
2160 minute summer	S30	1620	79.552	0.321	6.6	0.4589	0.0000	SURCHARGED
2160 minute summer	S27	1620	79.552	0.286	0.7	0.4089	0.0000	SURCHARGED
2160 minute summer	S28	1620	79.551	0.441	1.1	0.4992	0.0000	SURCHARGED
2160 minute summer	S29	1620	79.552	0.484	7.5	0.5475	0.0000	SURCHARGED
2160 minute summer	S32	1620	79.552	0.537	7.3	0.6070	0.0000	SURCHARGED
2160 minute summer	S33	1620	79.552	0.580	7.3	146.4164	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
2160 minute summer	S31	1.000	S30	3.2	0.420	0.041	1.6173
2160 minute summer	S31	Infiltration		0.0			
2160 minute summer	S30	1.001	S29	6.6	0.525	0.084	2.2901
2160 minute summer	S30	Infiltration		0.0			
2160 minute summer	S27	2.000	S28	0.7	0.250	0.019	1.2373
2160 minute summer	S28	2.001	S29	1.0	0.161	0.026	0.3349
2160 minute summer	S29	1.002	S32	7.3	0.486	0.093	0.7399
2160 minute summer	S32	1.003	S33	7.3	0.540	0.093	0.6127
2160 minute summer	S33	Infiltration		1.2			

Results for 30 year +10% CC 2160 minute winter. 2220 minute analysis at 60 minute timestep. Mass balance: 99.

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
2160 minute winter	S31	1800	79.652	0.280	2.5	0.4011	0.0000	OK
2160 minute winter	S30	1800	79.650	0.419	5.1	0.5998	0.0000	SURCHARGED
2160 minute winter	S27	1800	79.651	0.385	0.5	0.5509	0.0000	SURCHARGED
2160 minute winter	S28	1800	79.650	0.539	0.8	0.6102	0.0000	SURCHARGED
2160 minute winter	S29	1800	79.649	0.581	5.6	0.6573	0.0000	SURCHARGED
2160 minute winter	S32	1740	79.649	0.634	5.5	0.7171	0.0000	SURCHARGED
2160 minute winter	S33	1740	79.649	0.677	5.5	170.9608	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
2160 minute winter	S31	1.000	S30	2.5	0.382	0.032	1.9624
2160 minute winter	S31	Infiltration		0.0			
2160 minute winter	S30	1.001	S29	4.9	0.523	0.063	2.2901
2160 minute winter	S30	Infiltration		0.0			
2160 minute winter	S27	2.000	S28	0.5	0.232	0.014	1.2373
2160 minute winter	S28	2.001	S29	0.8	0.161	0.021	0.3349
2160 minute winter	S29	1.002	S32	5.5	0.477	0.071	0.7399
2160 minute winter	S32	1.003	S33	5.5	0.590	0.071	0.6127
2160 minute winter	S33	Infiltration		1.3			

Results for 30 year +10% CC 4320 minute summer. 4380 minute analysis at 60 minute timestep. Mass balance: 1

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
4320 minute summer	S31	2940	79.522	0.150	2.1	0.2153	0.0000	OK
4320 minute summer	S30	2880	79.523	0.292	4.3	0.4173	0.0000	OK
4320 minute summer	S27	2880	79.521	0.255	0.4	0.3649	0.0000	SURCHARGED
4320 minute summer	S28	2880	79.521	0.411	0.7	0.4654	0.0000	SURCHARGED
4320 minute summer	S29	2880	79.522	0.454	4.9	0.5131	0.0000	SURCHARGED
4320 minute summer	S32	2880	79.521	0.506	4.8	0.5726	0.0000	SURCHARGED
4320 minute summer	S33	2880	79.521	0.549	4.8	138.6027	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
4320 minute summer	S31	1.000	S30	2.1	0.371	0.027	1.4847
4320 minute summer	S31	Infiltration		0.0			
4320 minute summer	S30	1.001	S29	4.3	0.490	0.055	2.2813
4320 minute summer	S30	Infiltration		0.0			
4320 minute summer	S27	2.000	S28	0.4	0.232	0.011	1.2373
4320 minute summer	S28	2.001	S29	0.6	0.164	0.017	0.3349
4320 minute summer	S29	1.002	S32	4.8	0.470	0.061	0.7399
4320 minute summer	S32	1.003	S33	4.8	0.495	0.061	0.6127
4320 minute summer	S33	Infiltration		1.2			

Results for 30 year +10% CC 4320 minute winter. 4380 minute analysis at 60 minute timestep. Mass balance: 99.

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
4320 minute winter	S31	3120	79.590	0.218	1.6	0.3119	0.0000	OK
4320 minute winter	S30	3120	79.590	0.359	3.2	0.5137	0.0000	SURCHARGED
4320 minute winter	S27	3120	79.590	0.324	0.3	0.4636	0.0000	SURCHARGED
4320 minute winter	S28	3120	79.590	0.480	0.5	0.5430	0.0000	SURCHARGED
4320 minute winter	S29	3120	79.590	0.522	3.6	0.5898	0.0000	SURCHARGED
4320 minute winter	S32	3120	79.590	0.575	3.5	0.6503	0.0000	SURCHARGED
4320 minute winter	S33	3120	79.590	0.618	3.5	156.0723	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
4320 minute winter	S31	1.000	S30	1.6	0.339	0.020	1.7697
4320 minute winter	S31	Infiltration		0.0			
4320 minute winter	S30	1.001	S29	3.1	0.474	0.040	2.2901
4320 minute winter	S30	Infiltration		0.0			
4320 minute winter	S27	2.000	S28	0.3	0.213	0.009	1.2373
4320 minute winter	S28	2.001	S29	0.5	0.147	0.013	0.3349
4320 minute winter	S29	1.002	S32	3.5	0.463	0.044	0.7399
4320 minute winter	S32	1.003	S33	3.5	0.491	0.045	0.6127
4320 minute winter	S33	Infiltration		1.2			

Results for 30 year +10% CC 7200 minute summer. 7260 minute analysis at 60 minute timestep. Mass balance: 1

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
7200 minute summer	S31	4500	79.458	0.086	1.5	0.1226	0.0000	OK
7200 minute summer	S30	4500	79.458	0.227	3.1	0.3244	0.0000	OK
7200 minute summer	S27	4500	79.458	0.192	0.3	0.2743	0.0000	OK
7200 minute summer	S28	4500	79.458	0.348	0.5	0.3932	0.0000	SURCHARGED
7200 minute summer	S29	4500	79.458	0.390	3.6	0.4407	0.0000	SURCHARGED
7200 minute summer	S32	4500	79.458	0.443	3.5	0.5006	0.0000	SURCHARGED
7200 minute summer	S33	4500	79.458	0.486	3.5	122.6222	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
7200 minute summer	S31	1.000	S30	1.5	0.335	0.019	1.0412
7200 minute summer	S31	Infiltration		0.0			
7200 minute summer	S30	1.001	S29	3.1	0.458	0.040	2.0738
7200 minute summer	S30	Infiltration		0.0			
7200 minute summer	S27	2.000	S28	0.3	0.213	0.008	1.1794
7200 minute summer	S28	2.001	S29	0.5	0.136	0.013	0.3349
7200 minute summer	S29	1.002	S32	3.5	0.460	0.044	0.7399
7200 minute summer	S32	1.003	S33	3.5	0.431	0.044	0.6127
7200 minute summer	S33	Infiltration		1.2			

Results for 30 year +10% CC 7200 minute winter. 7260 minute analysis at 60 minute timestep. Mass balance: 10%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
7200 minute winter	S31	4800	79.462	0.090	1.1	0.1290	0.0000	OK
7200 minute winter	S30	4800	79.462	0.231	2.2	0.3307	0.0000	OK
7200 minute winter	S27	4800	79.462	0.196	0.2	0.2806	0.0000	OK
7200 minute winter	S28	4800	79.462	0.352	0.3	0.3982	0.0000	SURCHARGED
7200 minute winter	S29	4800	79.462	0.394	2.5	0.4457	0.0000	SURCHARGED
7200 minute winter	S32	4800	79.462	0.447	2.4	0.5056	0.0000	SURCHARGED
7200 minute winter	S33	4800	79.462	0.490	2.4	123.7415	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
7200 minute winter	S31	1.000	S30	1.1	0.308	0.014	1.0743
7200 minute winter	S31	Infiltration		0.0			
7200 minute winter	S30	1.001	S29	2.2	0.434	0.028	2.0923
7200 minute winter	S30	Infiltration		0.0			
7200 minute winter	S27	2.000	S28	0.2	0.213	0.005	1.1902
7200 minute winter	S28	2.001	S29	0.3	0.139	0.008	0.3349
7200 minute winter	S29	1.002	S32	2.4	0.441	0.031	0.7399
7200 minute winter	S32	1.003	S33	2.4	0.435	0.031	0.6127
7200 minute winter	S33	Infiltration		1.2			

Results for 30 year +10% CC 10080 minute summer. 10140 minute analysis at 60 minute timestep. Mass balance

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
10080 minute summer	S31	5040	79.398	0.026	1.2	0.0370	0.0000	OK
10080 minute summer	S30	6120	79.381	0.150	2.4	0.2149	0.0000	OK
10080 minute summer	S27	6120	79.381	0.115	0.2	0.1648	0.0000	OK
10080 minute summer	S28	6120	79.381	0.271	0.4	0.3067	0.0000	SURCHARGED
10080 minute summer	S29	6120	79.381	0.313	2.8	0.3542	0.0000	SURCHARGED
10080 minute summer	S32	6120	79.381	0.366	2.7	0.4141	0.0000	SURCHARGED
10080 minute summer	S33	6120	79.381	0.409	2.7	103.3026	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
10080 minute summer	S31	1.000	S30	1.2	0.317	0.015	0.5208
10080 minute summer	S31	Infiltration		0.0			
10080 minute summer	S30	1.001	S29	2.4	0.442	0.031	1.7185
10080 minute summer	S30	Infiltration		0.0			
10080 minute summer	S27	2.000	S28	0.2	0.213	0.005	0.9365
10080 minute summer	S28	2.001	S29	0.4	0.139	0.010	0.3349
10080 minute summer	S29	1.002	S32	2.7	0.441	0.035	0.7399
10080 minute summer	S32	1.003	S33	2.7	0.431	0.035	0.6127
10080 minute summer	S33	Infiltration		1.2			

Results for 30 year +10% CC 10080 minute winter. 10140 minute analysis at 60 minute timestep. Mass balance:

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
10080 minute winter	S31	4980	79.395	0.023	0.9	0.0323	0.0000	OK
10080 minute winter	S30	6540	79.374	0.143	1.8	0.2046	0.0000	OK
10080 minute winter	S27	6540	79.374	0.108	0.2	0.1545	0.0000	OK
10080 minute winter	S28	6540	79.374	0.264	0.3	0.2986	0.0000	SURCHARGED
10080 minute winter	S29	6540	79.374	0.306	2.1	0.3461	0.0000	SURCHARGED
10080 minute winter	S32	6540	79.374	0.359	2.1	0.4060	0.0000	SURCHARGED
10080 minute winter	S33	6540	79.374	0.402	2.0	101.4906	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
10080 minute winter	S31	1.000	S30	0.9	0.291	0.012	0.4905
10080 minute winter	S31	Infiltration		0.0			
10080 minute winter	S30	1.001	S29	1.8	0.422	0.023	1.6836
10080 minute winter	S30	Infiltration		0.0			
10080 minute winter	S27	2.000	S28	0.2	0.213	0.005	0.9114
10080 minute winter	S28	2.001	S29	0.3	0.141	0.008	0.3349
10080 minute winter	S29	1.002	S32	2.1	0.425	0.026	0.7399
10080 minute winter	S32	1.003	S33	2.0	0.435	0.026	0.6127
10080 minute winter	S33	Infiltration		1.2			

Results for 100 year +20% CC 15 minute summer. 75 minute analysis at 1 minute timestep. Mass balance : 100.00

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	S31	10	80.662	1.290	64.5	1.8458	0.0000	SURCHARGED
15 minute summer	S30	10	80.546	1.315	129.4	1.8816	0.0000	FLOOD RISK
15 minute summer	S27	10	80.060	0.794	13.1	1.1369	0.0000	SURCHARGED
15 minute summer	S28	10	80.032	0.922	23.1	1.0428	0.0000	SURCHARGED
15 minute summer	S29	10	80.006	0.938	156.3	1.0611	0.0000	SURCHARGED
15 minute summer	S32	9	79.743	0.728	158.0	0.8232	0.0000	SURCHARGED
15 minute summer	S33	21	79.220	0.248	160.6	62.6254	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
15 minute summer	S31	1.000	S30	64.5	0.916	0.824	1.9899
15 minute summer	S31	Infiltration		0.0			
15 minute summer	S30	1.001	S29	131.4	1.867	1.676	2.2901
15 minute summer	S30	Infiltration		0.0			
15 minute summer	S27	2.000	S28	14.9	0.375	0.407	1.2373
15 minute summer	S28	2.001	S29	25.4	0.638	0.694	0.3349
15 minute summer	S29	1.002	S32	158.0	2.244	2.009	0.7399
15 minute summer	S32	1.003	S33	160.6	3.055	2.063	0.5055
15 minute summer	S33	Infiltration		1.1			

Results for 100 year +20% CC 15 minute winter. 75 minute analysis at 1 minute timestep. Mass balance : 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S31	10	80.756	1.384	67.8	1.9800	0.0000	SURCHARGED
15 minute winter	S30	10	80.627	1.396	136.2	1.9975	0.0000	FLOOD RISK
15 minute winter	S27	10	80.085	0.819	13.8	1.1723	0.0000	SURCHARGED
15 minute winter	S28	10	80.056	0.946	23.7	1.0697	0.0000	SURCHARGED
15 minute winter	S29	10	80.028	0.960	162.1	1.0857	0.0000	SURCHARGED
15 minute winter	S32	8	79.762	0.747	163.7	0.8443	0.0000	SURCHARGED
15 minute winter	S33	22	79.249	0.277	165.8	70.0546	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
15 minute winter	S31	1.000	S30	67.1	0.953	0.858	1.9899
15 minute winter	S31	Infiltration		0.0			
15 minute winter	S30	1.001	S29	136.8	1.942	1.744	2.2901
15 minute winter	S30	Infiltration		0.0			
15 minute winter	S27	2.000	S28	15.1	0.380	0.412	1.2373
15 minute winter	S28	2.001	S29	25.7	0.645	0.702	0.3349
15 minute winter	S29	1.002	S32	163.7	2.325	2.081	0.7399
15 minute winter	S32	1.003	S33	165.8	3.098	2.130	0.5629
15 minute winter	S33	Infiltration		1.1			

Results for 100 year +20% CC 30 minute summer. 90 minute analysis at 1 minute timestep. Mass balance : 99.94%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	S31	18	80.280	0.908	61.5	1.3000	0.0000	SURCHARGED
30 minute summer	S30	18	80.177	0.946	123.3	1.3543	0.0000	SURCHARGED
30 minute summer	S27	19	79.753	0.487	12.5	0.6963	0.0000	SURCHARGED
30 minute summer	S28	19	79.732	0.622	19.6	0.7033	0.0000	SURCHARGED
30 minute summer	S29	19	79.712	0.644	139.0	0.7278	0.0000	SURCHARGED
30 minute summer	S32	19	79.440	0.425	139.5	0.4805	0.0000	SURCHARGED
30 minute summer	S33	35	79.311	0.339	139.7	85.6930	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
30 minute summer	S31	1.000	S30	59.2	0.841	0.757	1.9899
30 minute summer	S31	Infiltration		0.0			
30 minute summer	S30	1.001	S29	121.0	1.719	1.543	2.2901
30 minute summer	S30	Infiltration		0.0			
30 minute summer	S27	2.000	S28	12.2	0.355	0.333	1.2373
30 minute summer	S28	2.001	S29	20.7	0.520	0.565	0.3349
30 minute summer	S29	1.002	S32	139.5	1.981	1.773	0.7399
30 minute summer	S32	1.003	S33	139.7	2.274	1.795	0.6120
30 minute summer	S33	Infiltration		1.2			

Results for 100 year +20% CC 30 minute winter. 90 minute analysis at 1 minute timestep. Mass balance : 99.92%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute winter	S31	18	80.107	0.735	55.6	1.0525	0.0000	SURCHARGED
30 minute winter	S30	18	80.021	0.790	112.3	1.1307	0.0000	SURCHARGED
30 minute winter	S27	19	79.664	0.398	11.3	0.5690	0.0000	SURCHARGED
30 minute winter	S28	19	79.647	0.537	18.0	0.6072	0.0000	SURCHARGED
30 minute winter	S29	19	79.631	0.563	128.2	0.6362	0.0000	SURCHARGED
30 minute winter	S32	20	79.404	0.389	128.0	0.4397	0.0000	SURCHARGED
30 minute winter	S33	34	79.353	0.381	127.9	96.0879	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
30 minute winter	S31	1.000	S30	54.3	0.771	0.694	1.9899
30 minute winter	S31	Infiltration		0.0			
30 minute winter	S30	1.001	S29	111.0	1.577	1.416	2.2901
30 minute winter	S30	Infiltration		0.0			
30 minute winter	S27	2.000	S28	10.9	0.364	0.298	1.2373
30 minute winter	S28	2.001	S29	18.2	0.457	0.497	0.3349
30 minute winter	S29	1.002	S32	128.0	1.817	1.627	0.7399
30 minute winter	S32	1.003	S33	127.9	2.150	1.642	0.6127
30 minute winter	S33	Infiltration		1.2			

Results for 100 year +20% CC 60 minute summer. 120 minute analysis at 1 minute timestep. Mass balance: 99.84

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	S31	34	79.876	0.504	47.8	0.7210	0.0000	SURCHARGED
60 minute summer	S30	34	79.816	0.585	95.7	0.8371	0.0000	SURCHARGED
60 minute summer	S27	34	79.558	0.292	9.7	0.4173	0.0000	SURCHARGED
60 minute summer	S28	34	79.546	0.436	15.6	0.4928	0.0000	SURCHARGED
60 minute summer	S29	34	79.534	0.466	108.6	0.5272	0.0000	SURCHARGED
60 minute summer	S32	64	79.407	0.392	108.5	0.4439	0.0000	SURCHARGED
60 minute summer	S33	65	79.408	0.436	108.3	110.0545	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
60 minute summer	S31	1.000	S30	45.9	0.747	0.587	1.9899
60 minute summer	S31	Infiltration		0.0			
60 minute summer	S30	1.001	S29	93.8	1.332	1.196	2.2901
60 minute summer	S30	Infiltration		0.0			
60 minute summer	S27	2.000	S28	9.2	0.334	0.251	1.2373
60 minute summer	S28	2.001	S29	15.4	0.388	0.422	0.3349
60 minute summer	S29	1.002	S32	108.5	1.541	1.379	0.7399
60 minute summer	S32	1.003	S33	108.3	1.756	1.391	0.6127
60 minute summer	S33	Infiltration		1.2			

Results for 100 year +20% CC 60 minute winter. 120 minute analysis at 1 minute timestep. Mass balance: 99.83%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute winter	S31	35	79.660	0.288	38.6	0.4119	0.0000	OK
60 minute winter	S30	35	79.623	0.392	76.4	0.5616	0.0000	SURCHARGED
60 minute winter	S27	36	79.461	0.195	7.8	0.2796	0.0000	OK
60 minute winter	S28	65	79.460	0.350	12.3	0.3960	0.0000	SURCHARGED
60 minute winter	S29	65	79.460	0.392	86.6	0.4434	0.0000	SURCHARGED
60 minute winter	S32	64	79.460	0.445	86.3	0.5036	0.0000	SURCHARGED
60 minute winter	S33	63	79.460	0.488	85.9	123.3413	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
60 minute winter	S31	1.000	S30	36.8	0.737	0.471	1.9766
60 minute winter	S31	Infiltration		0.0			
60 minute winter	S30	1.001	S29	75.9	1.077	0.968	2.2901
60 minute winter	S30	Infiltration		0.0			
60 minute winter	S27	2.000	S28	7.1	0.345	0.194	1.1884
60 minute winter	S28	2.001	S29	11.6	0.292	0.318	0.3349
60 minute winter	S29	1.002	S32	86.3	1.225	1.096	0.7399
60 minute winter	S32	1.003	S33	85.9	1.663	1.104	0.6127
60 minute winter	S33	Infiltration		1.2			

Results for 100 year +20% CC 120 minute summer. 180 minute analysis at 2 minute timestep. Mass balance: 99.8

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
120 minute summer	S31	128	79.510	0.138	32.2	0.1981	0.0000	OK
120 minute summer	S30	128	79.511	0.280	65.6	0.4003	0.0000	OK
120 minute summer	S27	126	79.511	0.245	6.5	0.3505	0.0000	SURCHARGED
120 minute summer	S28	124	79.511	0.401	9.9	0.4530	0.0000	SURCHARGED
120 minute summer	S29	128	79.511	0.443	73.1	0.5014	0.0000	SURCHARGED
120 minute summer	S32	126	79.511	0.496	72.6	0.5610	0.0000	SURCHARGED
120 minute summer	S33	126	79.511	0.539	72.3	135.9747	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
120 minute summer	S31	1.000	S30	32.0	0.729	0.410	1.4149
120 minute summer	S31	Infiltration		0.0			
120 minute summer	S30	1.001	S29	63.7	1.001	0.813	2.2570
120 minute summer	S30	Infiltration		0.0			
120 minute summer	S27	2.000	S28	5.8	0.299	0.158	1.2373
120 minute summer	S28	2.001	S29	9.4	0.244	0.257	0.3349
120 minute summer	S29	1.002	S32	72.6	1.045	0.923	0.7399
120 minute summer	S32	1.003	S33	72.3	1.313	0.928	0.6127
120 minute summer	S33	Infiltration		1.2			

Results for 100 year +20% CC 120 minute winter. 180 minute analysis at 2 minute timestep. Mass balance: 99.83

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
120 minute winter	S31	124	79.580	0.208	24.9	0.2980	0.0000	OK
120 minute winter	S30	124	79.580	0.349	50.8	0.4991	0.0000	SURCHARGED
120 minute winter	S27	124	79.580	0.314	5.0	0.4499	0.0000	SURCHARGED
120 minute winter	S28	124	79.580	0.470	8.2	0.5320	0.0000	SURCHARGED
120 minute winter	S29	124	79.582	0.514	57.1	0.5809	0.0000	SURCHARGED
120 minute winter	S32	126	79.580	0.565	56.0	0.6386	0.0000	SURCHARGED
120 minute winter	S33	124	79.580	0.608	55.5	153.5357	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
120 minute winter	S31	1.000	S30	24.9	0.713	0.318	1.7324
120 minute winter	S31	Infiltration		0.0			
120 minute winter	S30	1.001	S29	50.4	0.945	0.642	2.2901
120 minute winter	S30	Infiltration		0.0			
120 minute winter	S27	2.000	S28	4.9	0.285	0.132	1.2373
120 minute winter	S28	2.001	S29	7.5	0.251	0.205	0.3349
120 minute winter	S29	1.002	S32	56.0	0.954	0.713	0.7399
120 minute winter	S32	1.003	S33	55.5	1.419	0.713	0.6127
120 minute winter	S33	Infiltration		1.2			

Results for 100 year +20% CC 180 minute summer. 240 minute analysis at 4 minute timestep. Mass balance: 99.8

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute summer	S31	188	79.576	0.204	24.5	0.2916	0.0000	OK
180 minute summer	S30	188	79.574	0.343	50.0	0.4912	0.0000	SURCHARGED
180 minute summer	S27	184	79.574	0.308	5.0	0.4404	0.0000	SURCHARGED
180 minute summer	S28	188	79.575	0.465	8.2	0.5261	0.0000	SURCHARGED
180 minute summer	S29	188	79.575	0.507	56.0	0.5738	0.0000	SURCHARGED
180 minute summer	S32	188	79.575	0.560	54.6	0.6336	0.0000	SURCHARGED
180 minute summer	S33	184	79.574	0.602	53.9	152.0688	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
180 minute summer	S31	1.000	S30	24.5	0.716	0.313	1.7148
180 minute summer	S31	Infiltration		0.0			
180 minute summer	S30	1.001	S29	48.8	0.924	0.623	2.2901
180 minute summer	S30	Infiltration		0.0			
180 minute summer	S27	2.000	S28	4.9	0.306	0.134	1.2373
180 minute summer	S28	2.001	S29	7.2	0.227	0.197	0.3349
180 minute summer	S29	1.002	S32	54.6	0.876	0.694	0.7399
180 minute summer	S32	1.003	S33	53.9	1.153	0.692	0.6127
180 minute summer	S33	Infiltration		1.2			

Results for 100 year +20% CC 180 minute winter. 240 minute analysis at 4 minute timestep. Mass balance: 99.83

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute winter	S31	184	79.655	0.282	18.9	0.4042	0.0000	OK
180 minute winter	S30	184	79.655	0.424	38.6	0.6065	0.0000	SURCHARGED
180 minute winter	S27	184	79.655	0.389	3.8	0.5569	0.0000	SURCHARGED
180 minute winter	S28	188	79.656	0.546	6.2	0.6173	0.0000	SURCHARGED
180 minute winter	S29	188	79.656	0.588	43.0	0.6648	0.0000	SURCHARGED
180 minute winter	S32	184	79.655	0.640	41.6	0.7236	0.0000	SURCHARGED
180 minute winter	S33	184	79.655	0.683	41.3	172.4990	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
180 minute winter	S31	1.000	S30	18.9	0.696	0.242	1.9670
180 minute winter	S31	Infiltration		0.0			
180 minute winter	S30	1.001	S29	38.4	0.872	0.489	2.2901
180 minute winter	S30	Infiltration		0.0			
180 minute winter	S27	2.000	S28	3.7	0.303	0.100	1.2373
180 minute winter	S28	2.001	S29	5.4	0.194	0.147	0.3349
180 minute winter	S29	1.002	S32	41.6	0.832	0.529	0.7399
180 minute winter	S32	1.003	S33	41.3	1.215	0.530	0.6127
180 minute winter	S33	Infiltration		1.3			

Results for 100 year +20% CC 240 minute summer. 300 minute analysis at 4 minute timestep. Mass balance: 99.8

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute summer	S31	248	79.622	0.250	21.0	0.3572	0.0000	OK
240 minute summer	S30	248	79.623	0.392	42.8	0.5606	0.0000	SURCHARGED
240 minute summer	S27	244	79.622	0.356	4.3	0.5092	0.0000	SURCHARGED
240 minute summer	S28	248	79.622	0.512	6.6	0.5793	0.0000	SURCHARGED
240 minute summer	S29	248	79.624	0.556	47.2	0.6288	0.0000	SURCHARGED
240 minute summer	S32	244	79.622	0.607	45.9	0.6865	0.0000	SURCHARGED
240 minute summer	S33	244	79.622	0.650	45.7	164.1936	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
240 minute summer	S31	1.000	S30	20.9	0.702	0.267	1.8799
240 minute summer	S31	Infiltration		0.0			
240 minute summer	S30	1.001	S29	41.8	0.861	0.534	2.2901
240 minute summer	S30	Infiltration		0.0			
240 minute summer	S27	2.000	S28	3.9	0.298	0.107	1.2373
240 minute summer	S28	2.001	S29	5.7	0.239	0.156	0.3349
240 minute summer	S29	1.002	S32	45.9	0.780	0.584	0.7399
240 minute summer	S32	1.003	S33	45.7	1.125	0.587	0.6127
240 minute summer	S33	Infiltration		1.2			

Results for 100 year +20% CC 240 minute winter. 300 minute analysis at 4 minute timestep. Mass balance: 99.85

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute winter	S31	240	79.710	0.338	15.6	0.4840	0.0000	SURCHARGED
240 minute winter	S30	244	79.711	0.480	31.9	0.6864	0.0000	SURCHARGED
240 minute winter	S27	244	79.711	0.445	3.2	0.6367	0.0000	SURCHARGED
240 minute winter	S28	244	79.711	0.601	5.0	0.6799	0.0000	SURCHARGED
240 minute winter	S29	244	79.711	0.643	35.4	0.7267	0.0000	SURCHARGED
240 minute winter	S32	244	79.711	0.696	34.5	0.7870	0.0000	SURCHARGED
240 minute winter	S33	244	79.711	0.739	34.4	186.5246	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
240 minute winter	S31	1.000	S30	15.6	0.659	0.199	1.9899
240 minute winter	S31	Infiltration		0.0			
240 minute winter	S30	1.001	S29	31.3	0.816	0.400	2.2901
240 minute winter	S30	Infiltration		0.0			
240 minute winter	S27	2.000	S28	3.0	0.306	0.081	1.2373
240 minute winter	S28	2.001	S29	4.4	0.191	0.120	0.3349
240 minute winter	S29	1.002	S32	34.5	0.762	0.439	0.7399
240 minute winter	S32	1.003	S33	34.4	1.134	0.441	0.6127
240 minute winter	S33	Infiltration		1.3			

Results for 100 year +20% CC 360 minute summer. 424 minute analysis at 8 minute timestep. Mass balance: 99.8

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute summer	S31	368	79.687	0.315	16.3	0.4507	0.0000	SURCHARGED
360 minute summer	S30	368	79.687	0.456	33.2	0.6526	0.0000	SURCHARGED
360 minute summer	S27	368	79.687	0.421	3.3	0.6025	0.0000	SURCHARGED
360 minute summer	S28	368	79.687	0.577	4.8	0.6522	0.0000	SURCHARGED
360 minute summer	S29	368	79.687	0.619	35.6	0.6998	0.0000	SURCHARGED
360 minute summer	S32	368	79.687	0.672	34.9	0.7597	0.0000	SURCHARGED
360 minute summer	S33	368	79.687	0.715	34.7	180.4202	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
360 minute summer	S31	1.000	S30	16.2	0.644	0.207	1.9899
360 minute summer	S31	Infiltration		0.0			
360 minute summer	S30	1.001	S29	31.5	0.762	0.402	2.2901
360 minute summer	S30	Infiltration		0.0			
360 minute summer	S27	2.000	S28	2.9	0.295	0.078	1.2373
360 minute summer	S28	2.001	S29	4.1	0.182	0.113	0.3349
360 minute summer	S29	1.002	S32	34.9	0.658	0.443	0.7399
360 minute summer	S32	1.003	S33	34.7	0.970	0.446	0.6127
360 minute summer	S33	Infiltration		1.3			

Results for 100 year +20% CC 360 minute winter. 424 minute analysis at 8 minute timestep. Mass balance: 99.86

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute winter	S31	360	79.787	0.415	11.8	0.5936	0.0000	SURCHARGED
360 minute winter	S30	360	79.787	0.556	24.1	0.7952	0.0000	SURCHARGED
360 minute winter	S27	360	79.788	0.522	2.4	0.7471	0.0000	SURCHARGED
360 minute winter	S28	360	79.787	0.677	3.6	0.7659	0.0000	SURCHARGED
360 minute winter	S29	368	79.788	0.720	26.4	0.8140	0.0000	SURCHARGED
360 minute winter	S32	360	79.786	0.771	26.1	0.8721	0.0000	SURCHARGED
360 minute winter	S33	360	79.787	0.815	26.0	205.7409	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
360 minute winter	S31	1.000	S30	11.8	0.601	0.151	1.9899
360 minute winter	S31	Infiltration		0.0			
360 minute winter	S30	1.001	S29	23.0	0.738	0.294	2.2901
360 minute winter	S30	Infiltration		0.0			
360 minute winter	S27	2.000	S28	2.1	0.289	0.057	1.2373
360 minute winter	S28	2.001	S29	3.4	0.182	0.094	0.3349
360 minute winter	S29	1.002	S32	26.1	0.677	0.331	0.7399
360 minute winter	S32	1.003	S33	26.0	1.016	0.333	0.6127
360 minute winter	S33	Infiltration		1.3			

Results for 100 year +20% CC 480 minute summer. 544 minute analysis at 8 minute timestep. Mass balance: 99.8

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
480 minute summer	S31	488	79.733	0.361	13.0	0.5168	0.0000	SURCHARGED
480 minute summer	S30	480	79.732	0.501	26.5	0.7173	0.0000	SURCHARGED
480 minute summer	S27	488	79.733	0.467	2.6	0.6677	0.0000	SURCHARGED
480 minute summer	S28	480	79.732	0.622	3.9	0.7038	0.0000	SURCHARGED
480 minute summer	S29	480	79.732	0.664	29.1	0.7507	0.0000	SURCHARGED
480 minute summer	S32	480	79.732	0.717	28.7	0.8107	0.0000	SURCHARGED
480 minute summer	S33	488	79.732	0.760	28.6	191.9417	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
480 minute summer	S31	1.000	S30	13.0	0.605	0.166	1.9899
480 minute summer	S31	Infiltration		0.0			
480 minute summer	S30	1.001	S29	25.4	0.707	0.324	2.2901
480 minute summer	S30	Infiltration		0.0			
480 minute summer	S27	2.000	S28	2.3	0.298	0.062	1.2373
480 minute summer	S28	2.001	S29	3.7	0.190	0.100	0.3349
480 minute summer	S29	1.002	S32	28.7	0.607	0.365	0.7399
480 minute summer	S32	1.003	S33	28.6	0.913	0.368	0.6127
480 minute summer	S33	Infiltration		1.3			

Results for 100 year +20% CC 480 minute winter. 544 minute analysis at 8 minute timestep. Mass balance: 99.87

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
480 minute winter	S31	472	79.841	0.469	9.6	0.6713	0.0000	SURCHARGED
480 minute winter	S30	472	79.841	0.610	19.7	0.8732	0.0000	SURCHARGED
480 minute winter	S27	472	79.841	0.575	2.0	0.8232	0.0000	SURCHARGED
480 minute winter	S28	472	79.841	0.731	3.0	0.8273	0.0000	SURCHARGED
480 minute winter	S29	472	79.841	0.773	21.6	0.8740	0.0000	SURCHARGED
480 minute winter	S32	472	79.842	0.827	21.4	0.9348	0.0000	SURCHARGED
480 minute winter	S33	480	79.841	0.869	21.3	219.5221	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
480 minute winter	S31	1.000	S30	9.6	0.561	0.123	1.9899
480 minute winter	S31	Infiltration		0.0			
480 minute winter	S30	1.001	S29	18.9	0.692	0.241	2.2901
480 minute winter	S30	Infiltration		0.0			
480 minute winter	S27	2.000	S28	1.7	0.307	0.047	1.2373
480 minute winter	S28	2.001	S29	2.9	0.186	0.080	0.3349
480 minute winter	S29	1.002	S32	21.4	0.631	0.272	0.7399
480 minute winter	S32	1.003	S33	21.3	0.948	0.274	0.6127
480 minute winter	S33	Infiltration		1.3			

Results for 100 year +20% CC 600 minute summer. 660 minute analysis at 15 minute timestep. Mass balance: 99

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
600 minute summer	S31	600	79.759	0.387	10.7	0.5533	0.0000	SURCHARGED
600 minute summer	S30	600	79.759	0.528	21.9	0.7550	0.0000	SURCHARGED
600 minute summer	S27	600	79.758	0.492	2.2	0.7048	0.0000	SURCHARGED
600 minute summer	S28	600	79.759	0.649	3.3	0.7336	0.0000	SURCHARGED
600 minute summer	S29	615	79.759	0.691	24.2	0.7810	0.0000	SURCHARGED
600 minute summer	S32	600	79.759	0.744	24.0	0.8412	0.0000	SURCHARGED
600 minute summer	S33	600	79.759	0.787	23.9	198.6082	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
600 minute summer	S31	1.000	S30	10.7	0.561	0.137	1.9899
600 minute summer	S31	Infiltration		0.0			
600 minute summer	S30	1.001	S29	21.0	0.664	0.268	2.2901
600 minute summer	S30	Infiltration		0.0			
600 minute summer	S27	2.000	S28	1.8	0.287	0.050	1.2373
600 minute summer	S28	2.001	S29	3.1	0.181	0.086	0.3349
600 minute summer	S29	1.002	S32	24.0	0.586	0.304	0.7399
600 minute summer	S32	1.003	S33	23.9	0.861	0.306	0.6127
600 minute summer	S33	Infiltration		1.3			

Results for 100 year +20% CC 600 minute winter. 660 minute analysis at 15 minute timestep. Mass balance: 99.8

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
600 minute winter	S31	585	79.881	0.509	8.2	0.7291	0.0000	SURCHARGED
600 minute winter	S30	585	79.881	0.650	16.7	0.9308	0.0000	SURCHARGED
600 minute winter	S27	585	79.881	0.615	1.7	0.8806	0.0000	SURCHARGED
600 minute winter	S28	585	79.882	0.772	2.6	0.8727	0.0000	SURCHARGED
600 minute winter	S29	600	79.882	0.814	18.4	0.9202	0.0000	SURCHARGED
600 minute winter	S32	600	79.882	0.867	18.2	0.9800	0.0000	SURCHARGED
600 minute winter	S33	600	79.882	0.910	18.1	229.7829	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
600 minute winter	S31	1.000	S30	8.2	0.532	0.105	1.9899
600 minute winter	S31	Infiltration		0.0			
600 minute winter	S30	1.001	S29	16.0	0.661	0.204	2.2901
600 minute winter	S30	Infiltration		0.0			
600 minute winter	S27	2.000	S28	1.5	0.299	0.042	1.2373
600 minute winter	S28	2.001	S29	2.5	0.198	0.070	0.3349
600 minute winter	S29	1.002	S32	18.2	0.604	0.231	0.7399
600 minute winter	S32	1.003	S33	18.1	0.903	0.233	0.6127
600 minute winter	S33	Infiltration		1.3			

Results for 100 year +20% CC 720 minute summer. 780 minute analysis at 15 minute timestep. Mass balance: 99

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
720 minute summer	S31	720	79.782	0.410	9.6	0.5872	0.0000	SURCHARGED
720 minute summer	S30	720	79.782	0.551	19.5	0.7889	0.0000	SURCHARGED
720 minute summer	S27	720	79.782	0.516	1.9	0.7390	0.0000	SURCHARGED
720 minute summer	S28	720	79.782	0.672	2.9	0.7605	0.0000	SURCHARGED
720 minute summer	S29	735	79.782	0.714	21.5	0.8076	0.0000	SURCHARGED
720 minute summer	S32	720	79.783	0.768	21.3	0.8681	0.0000	SURCHARGED
720 minute summer	S33	720	79.782	0.810	21.3	204.6128	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
720 minute summer	S31	1.000	S30	9.6	0.551	0.122	1.9899
720 minute summer	S31	Infiltration		0.0			
720 minute summer	S30	1.001	S29	18.8	0.638	0.239	2.2901
720 minute summer	S30	Infiltration		0.0			
720 minute summer	S27	2.000	S28	1.6	0.298	0.044	1.2373
720 minute summer	S28	2.001	S29	2.8	0.193	0.075	0.3349
720 minute summer	S29	1.002	S32	21.3	0.558	0.271	0.7399
720 minute summer	S32	1.003	S33	21.3	0.833	0.273	0.6127
720 minute summer	S33	Infiltration		1.3			

Results for 100 year +20% CC 720 minute winter. 780 minute analysis at 15 minute timestep. Mass balance: 99.8

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
720 minute winter	S31	705	79.911	0.539	7.2	0.7708	0.0000	SURCHARGED
720 minute winter	S30	705	79.911	0.680	14.4	0.9730	0.0000	SURCHARGED
720 minute winter	S27	705	79.911	0.645	1.5	0.9224	0.0000	SURCHARGED
720 minute winter	S28	705	79.911	0.801	2.4	0.9063	0.0000	SURCHARGED
720 minute winter	S29	705	79.912	0.844	16.2	0.9541	0.0000	SURCHARGED
720 minute winter	S32	705	79.911	0.896	16.1	1.0132	0.0000	SURCHARGED
720 minute winter	S33	705	79.911	0.939	16.0	237.0180	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
720 minute winter	S31	1.000	S30	7.0	0.506	0.089	1.9899
720 minute winter	S31	Infiltration		0.0			
720 minute winter	S30	1.001	S29	14.0	0.638	0.179	2.2901
720 minute winter	S30	Infiltration		0.0			
720 minute winter	S27	2.000	S28	1.4	0.286	0.038	1.2373
720 minute winter	S28	2.001	S29	2.3	0.182	0.063	0.3349
720 minute winter	S29	1.002	S32	16.1	0.575	0.205	0.7399
720 minute winter	S32	1.003	S33	16.0	0.852	0.206	0.6127
720 minute winter	S33	Infiltration		1.3			

Results for 100 year +20% CC 960 minute summer. 1020 minute analysis at 15 minute timestep. Mass balance: 9

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute summer	S31	960	79.812	0.440	8.0	0.6302	0.0000	SURCHARGED
960 minute summer	S30	960	79.812	0.581	16.3	0.8318	0.0000	SURCHARGED
960 minute summer	S27	960	79.812	0.546	1.6	0.7819	0.0000	SURCHARGED
960 minute summer	S28	960	79.812	0.702	2.5	0.7940	0.0000	SURCHARGED
960 minute summer	S29	960	79.813	0.745	17.8	0.8423	0.0000	SURCHARGED
960 minute summer	S32	960	79.812	0.797	17.6	0.9017	0.0000	SURCHARGED
960 minute summer	S33	960	79.812	0.840	17.5	212.2094	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
960 minute summer	S31	1.000	S30	8.0	0.510	0.102	1.9899
960 minute summer	S31	Infiltration		0.0			
960 minute summer	S30	1.001	S29	15.6	0.599	0.199	2.2901
960 minute summer	S30	Infiltration		0.0			
960 minute summer	S27	2.000	S28	1.4	0.287	0.037	1.2373
960 minute summer	S28	2.001	S29	2.3	0.184	0.064	0.3349
960 minute summer	S29	1.002	S32	17.6	0.525	0.224	0.7399
960 minute summer	S32	1.003	S33	17.5	0.766	0.225	0.6127
960 minute summer	S33	Infiltration		1.3			

Results for 100 year +20% CC 960 minute winter. 1020 minute analysis at 15 minute timestep. Mass balance: 99.

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute winter	S31	945	79.948	0.576	5.9	0.8247	0.0000	SURCHARGED
960 minute winter	S30	945	79.948	0.717	11.8	1.0267	0.0000	SURCHARGED
960 minute winter	S27	945	79.948	0.682	1.2	0.9766	0.0000	SURCHARGED
960 minute winter	S28	945	79.949	0.839	1.9	0.9484	0.0000	SURCHARGED
960 minute winter	S29	945	79.948	0.880	13.6	0.9953	0.0000	SURCHARGED
960 minute winter	S32	945	79.949	0.934	13.3	1.0558	0.0000	SURCHARGED
960 minute winter	S33	945	79.948	0.976	13.4	246.4627	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
960 minute winter	S31	1.000	S30	5.8	0.481	0.074	1.9899
960 minute winter	S31	Infiltration		0.0			
960 minute winter	S30	1.001	S29	11.5	0.601	0.147	2.2901
960 minute winter	S30	Infiltration		0.0			
960 minute winter	S27	2.000	S28	1.1	0.287	0.031	1.2373
960 minute winter	S28	2.001	S29	2.1	0.182	0.058	0.3349
960 minute winter	S29	1.002	S32	13.3	0.544	0.169	0.7399
960 minute winter	S32	1.003	S33	13.4	0.772	0.173	0.6127
960 minute winter	S33	Infiltration		1.3			

Results for 100 year +20% CC 1440 minute summer. 1500 minute analysis at 30 minute timestep. Mass balance:

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute summer	S31	1440	79.833	0.461	5.9	0.6593	0.0000	SURCHARGED
1440 minute summer	S30	1380	79.833	0.602	12.0	0.8610	0.0000	SURCHARGED
1440 minute summer	S27	1380	79.833	0.567	1.2	0.8109	0.0000	SURCHARGED
1440 minute summer	S28	1380	79.833	0.723	1.9	0.8174	0.0000	SURCHARGED
1440 minute summer	S29	1380	79.832	0.764	13.2	0.8643	0.0000	SURCHARGED
1440 minute summer	S32	1380	79.833	0.818	13.1	0.9249	0.0000	SURCHARGED
1440 minute summer	S33	1380	79.833	0.861	13.0	217.3451	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
1440 minute summer	S31	1.000	S30	5.9	0.455	0.075	1.9899
1440 minute summer	S31	Infiltration		0.0			
1440 minute summer	S30	1.001	S29	11.5	0.543	0.147	2.2901
1440 minute summer	S30	Infiltration		0.0			
1440 minute summer	S27	2.000	S28	1.1	0.264	0.030	1.2373
1440 minute summer	S28	2.001	S29	1.8	0.165	0.050	0.3349
1440 minute summer	S29	1.002	S32	13.1	0.484	0.166	0.7399
1440 minute summer	S32	1.003	S33	13.0	0.715	0.167	0.6127
1440 minute summer	S33	Infiltration		1.3			

Results for 100 year +20% CC 1440 minute winter. 1500 minute analysis at 30 minute timestep. Mass balance: 9'

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	S31	1380	80.333	0.961	4.4	1.3755	0.0000	SURCHARGED
1440 minute winter	S30	1380	80.333	1.102	8.8	1.5768	0.0000	SURCHARGED
1440 minute winter	S27	1380	80.333	1.067	0.9	1.5270	0.0000	SURCHARGED
1440 minute winter	S28	1380	80.333	1.223	1.4	1.3834	0.0000	SURCHARGED
1440 minute winter	S29	1380	80.333	1.265	10.4	1.4307	0.0000	SURCHARGED
1440 minute winter	S32	1380	80.334	1.319	9.8	1.4913	0.0000	SURCHARGED
1440 minute winter	S33	1380	80.333	1.361	10.3	253.0354	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
1440 minute winter	S31	1.000	S30	4.3	0.424	0.055	1.9899
1440 minute winter	S31	Infiltration		0.0			
1440 minute winter	S30	1.001	S29	8.7	0.554	0.112	2.2901
1440 minute winter	S30	Infiltration		0.0			
1440 minute winter	S27	2.000	S28	0.8	0.249	0.023	1.2373
1440 minute winter	S28	2.001	S29	1.6	0.176	0.044	0.3349
1440 minute winter	S29	1.002	S32	9.8	0.492	0.125	0.7399
1440 minute winter	S32	1.003	S33	10.3	0.683	0.132	0.6127
1440 minute winter	S33	Infiltration		1.3			

Results for 100 year +20% CC 2160 minute summer. 2220 minute analysis at 60 minute timestep. Mass balance:

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
2160 minute summer	S31	1800	79.846	0.474	4.3	0.6781	0.0000	SURCHARGED
2160 minute summer	S30	1800	79.846	0.615	8.8	0.8800	0.0000	SURCHARGED
2160 minute summer	S27	1800	79.846	0.580	0.9	0.8300	0.0000	SURCHARGED
2160 minute summer	S28	1740	79.846	0.736	1.5	0.8325	0.0000	SURCHARGED
2160 minute summer	S29	1860	79.846	0.778	9.8	0.8798	0.0000	SURCHARGED
2160 minute summer	S32	1740	79.846	0.831	9.8	0.9395	0.0000	SURCHARGED
2160 minute summer	S33	1740	79.846	0.874	9.7	220.6725	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
2160 minute summer	S31	1.000	S30	4.3	0.431	0.055	1.9899
2160 minute summer	S31	Infiltration		0.0			
2160 minute summer	S30	1.001	S29	8.5	0.515	0.108	2.2901
2160 minute summer	S30	Infiltration		0.0			
2160 minute summer	S27	2.000	S28	0.9	0.232	0.023	1.2373
2160 minute summer	S28	2.001	S29	1.4	0.155	0.039	0.3349
2160 minute summer	S29	1.002	S32	9.8	0.463	0.124	0.7399
2160 minute summer	S32	1.003	S33	9.7	0.566	0.125	0.6127
2160 minute summer	S33	Infiltration		1.3			

Results for 100 year +20% CC 2160 minute winter. 2220 minute analysis at 60 minute timestep. Mass balance: 9'

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
2160 minute winter	S31	2040	80.387	1.015	3.3	1.4519	0.0000	SURCHARGED
2160 minute winter	S30	2040	80.386	1.155	6.7	1.6534	0.0000	SURCHARGED
2160 minute winter	S27	2040	80.387	1.121	0.7	1.6035	0.0000	SURCHARGED
2160 minute winter	S28	2040	80.387	1.277	1.1	1.4442	0.0000	SURCHARGED
2160 minute winter	S29	2040	80.386	1.318	7.7	1.4911	0.0000	SURCHARGED
2160 minute winter	S32	2040	80.386	1.371	7.6	1.5510	0.0000	SURCHARGED
2160 minute winter	S33	2040	80.387	1.415	7.7	253.0956	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
2160 minute winter	S31	1.000	S30	3.2	0.392	0.040	1.9899
2160 minute winter	S31	Infiltration		0.0			
2160 minute winter	S30	1.001	S29	6.6	0.509	0.084	2.2901
2160 minute winter	S30	Infiltration		0.0			
2160 minute winter	S27	2.000	S28	0.6	0.232	0.017	1.2373
2160 minute winter	S28	2.001	S29	1.2	0.157	0.032	0.3349
2160 minute winter	S29	1.002	S32	7.6	0.463	0.097	0.7399
2160 minute winter	S32	1.003	S33	7.7	0.621	0.099	0.6127
2160 minute winter	S33	Infiltration		1.3			

Results for 100 year +20% CC 4320 minute summer. 4380 minute analysis at 60 minute timestep. Mass balance:

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
4320 minute summer	S31	3120	79.802	0.430	2.8	0.6158	0.0000	SURCHARGED
4320 minute summer	S30	3060	79.802	0.571	5.7	0.8177	0.0000	SURCHARGED
4320 minute summer	S27	3060	79.802	0.536	0.6	0.7675	0.0000	SURCHARGED
4320 minute summer	S28	3060	79.802	0.692	0.9	0.7832	0.0000	SURCHARGED
4320 minute summer	S29	3060	79.801	0.733	6.4	0.8294	0.0000	SURCHARGED
4320 minute summer	S32	3000	79.802	0.787	6.3	0.8899	0.0000	SURCHARGED
4320 minute summer	S33	3000	79.801	0.829	6.3	209.3779	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
4320 minute summer	S31	1.000	S30	2.8	0.377	0.036	1.9899
4320 minute summer	S31	Infiltration		0.0			
4320 minute summer	S30	1.001	S29	5.5	0.490	0.070	2.2901
4320 minute summer	S30	Infiltration		0.0			
4320 minute summer	S27	2.000	S28	0.5	0.232	0.015	1.2373
4320 minute summer	S28	2.001	S29	1.0	0.164	0.028	0.3349
4320 minute summer	S29	1.002	S32	6.3	0.470	0.080	0.7399
4320 minute summer	S32	1.003	S33	6.3	0.495	0.080	0.6127
4320 minute summer	S33	Infiltration		1.3			

Results for 100 year +20% CC 4320 minute winter. 4380 minute analysis at 60 minute timestep. Mass balance: 9'

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
4320 minute winter	S31	3300	79.930	0.558	2.0	0.7983	0.0000	SURCHARGED
4320 minute winter	S30	3300	79.929	0.698	4.0	0.9992	0.0000	SURCHARGED
4320 minute winter	S27	3300	79.929	0.663	0.4	0.9492	0.0000	SURCHARGED
4320 minute winter	S28	3300	79.929	0.819	0.7	0.9263	0.0000	SURCHARGED
4320 minute winter	S29	3300	79.928	0.860	4.9	0.9723	0.0000	SURCHARGED
4320 minute winter	S32	3300	79.928	0.913	4.5	1.0325	0.0000	SURCHARGED
4320 minute winter	S33	3240	79.927	0.955	4.8	241.2488	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
4320 minute winter	S31	1.000	S30	1.9	0.352	0.025	1.9899
4320 minute winter	S31	Infiltration		0.0			
4320 minute winter	S30	1.001	S29	4.1	0.474	0.052	2.2901
4320 minute winter	S30	Infiltration		0.0			
4320 minute winter	S27	2.000	S28	0.4	0.213	0.011	1.2373
4320 minute winter	S28	2.001	S29	0.9	0.147	0.026	0.3349
4320 minute winter	S29	1.002	S32	4.5	0.449	0.058	0.7399
4320 minute winter	S32	1.003	S33	4.8	0.495	0.062	0.6127
4320 minute winter	S33	Infiltration		1.3			

Results for 100 year +20% CC 7200 minute summer. 7260 minute analysis at 60 minute timestep. Mass balance:

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
7200 minute summer	S31	4620	79.726	0.354	2.0	0.5064	0.0000	SURCHARGED
7200 minute summer	S30	4620	79.726	0.495	4.1	0.7082	0.0000	SURCHARGED
7200 minute summer	S27	4620	79.726	0.460	0.4	0.6581	0.0000	SURCHARGED
7200 minute summer	S28	4620	79.726	0.616	0.6	0.6967	0.0000	SURCHARGED
7200 minute summer	S29	4620	79.726	0.658	4.6	0.7437	0.0000	SURCHARGED
7200 minute summer	S32	4620	79.726	0.711	4.5	0.8037	0.0000	SURCHARGED
7200 minute summer	S33	4620	79.726	0.754	4.5	190.3886	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
7200 minute summer	S31	1.000	S30	2.0	0.342	0.026	1.9899
7200 minute summer	S31	Infiltration		0.0			
7200 minute summer	S30	1.001	S29	4.0	0.458	0.051	2.2901
7200 minute summer	S30	Infiltration		0.0			
7200 minute summer	S27	2.000	S28	0.4	0.213	0.010	1.2373
7200 minute summer	S28	2.001	S29	0.6	0.135	0.018	0.3349
7200 minute summer	S29	1.002	S32	4.5	0.461	0.057	0.7399
7200 minute summer	S32	1.003	S33	4.5	0.495	0.058	0.6127
7200 minute summer	S33	Infiltration		1.3			

Results for 100 year +20% CC 7200 minute winter. 7260 minute analysis at 60 minute timestep. Mass balance: 9'

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
7200 minute winter	S31	5040	79.810	0.438	1.4	0.6275	0.0000	SURCHARGED
7200 minute winter	S30	5040	79.810	0.579	2.9	0.8292	0.0000	SURCHARGED
7200 minute winter	S27	5040	79.810	0.544	0.3	0.7791	0.0000	SURCHARGED
7200 minute winter	S28	5040	79.811	0.701	0.5	0.7923	0.0000	SURCHARGED
7200 minute winter	S29	5040	79.810	0.742	3.3	0.8392	0.0000	SURCHARGED
7200 minute winter	S32	5040	79.811	0.796	3.3	0.8997	0.0000	SURCHARGED
7200 minute winter	S33	5040	79.811	0.839	3.2	211.7458	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
7200 minute winter	S31	1.000	S30	1.4	0.325	0.018	1.9899
7200 minute winter	S31	Infiltration		0.0			
7200 minute winter	S30	1.001	S29	2.8	0.451	0.036	2.2901
7200 minute winter	S30	Infiltration		0.0			
7200 minute winter	S27	2.000	S28	0.3	0.213	0.009	1.2373
7200 minute winter	S28	2.001	S29	0.6	0.138	0.016	0.3349
7200 minute winter	S29	1.002	S32	3.3	0.441	0.042	0.7399
7200 minute winter	S32	1.003	S33	3.2	0.435	0.042	0.6127
7200 minute winter	S33	Infiltration		1.3			

Results for 100 year +20% CC 10080 minute summer. 10140 minute analysis at 60 minute timestep. Mass balance

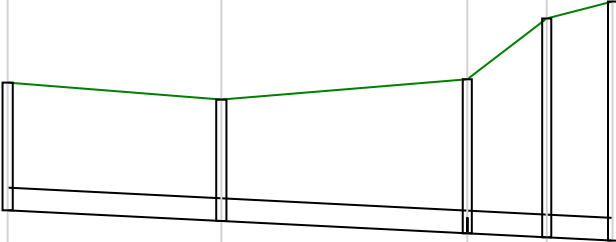
Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
10080 minute summer	S31	6300	79.653	0.280	1.5	0.4014	0.0000	OK
10080 minute summer	S30	6300	79.651	0.420	3.1	0.6007	0.0000	SURCHARGED
10080 minute summer	S27	6300	79.651	0.385	0.3	0.5503	0.0000	SURCHARGED
10080 minute summer	S28	6300	79.649	0.539	0.5	0.6095	0.0000	SURCHARGED
10080 minute summer	S29	6300	79.650	0.582	3.5	0.6582	0.0000	SURCHARGED
10080 minute summer	S32	6360	79.648	0.633	3.4	0.7161	0.0000	SURCHARGED
10080 minute summer	S33	6240	79.648	0.676	3.4	170.7112	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
10080 minute summer	S31	1.000	S30	1.5	0.325	0.019	1.9628
10080 minute summer	S31	Infiltration		0.0			
10080 minute summer	S30	1.001	S29	3.0	0.442	0.038	2.2901
10080 minute summer	S30	Infiltration		0.0			
10080 minute summer	S27	2.000	S28	0.4	0.213	0.010	1.2373
10080 minute summer	S28	2.001	S29	0.7	0.141	0.020	0.3349
10080 minute summer	S29	1.002	S32	3.4	0.441	0.044	0.7399
10080 minute summer	S32	1.003	S33	3.4	0.431	0.044	0.6127
10080 minute summer	S33	Infiltration		1.3			

Results for 100 year +20% CC 10080 minute winter. 10140 minute analysis at 60 minute timestep. Mass balance

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
10080 minute winter	S31	6780	79.675	0.303	1.1	0.4334	0.0000	SURCHARGED
10080 minute winter	S30	6780	79.674	0.443	2.3	0.6333	0.0000	SURCHARGED
10080 minute winter	S27	6780	79.674	0.408	0.2	0.5842	0.0000	SURCHARGED
10080 minute winter	S28	6780	79.672	0.562	0.6	0.6358	0.0000	SURCHARGED
10080 minute winter	S29	6780	79.673	0.605	2.6	0.6841	0.0000	SURCHARGED
10080 minute winter	S32	6720	79.671	0.656	2.6	0.7419	0.0000	SURCHARGED
10080 minute winter	S33	6720	79.671	0.699	2.6	176.4242	0.0000	OK

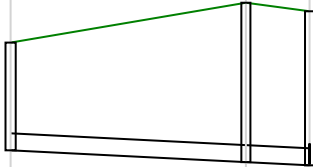
Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
10080 minute winter	S31	1.000	S30	1.1	0.300	0.014	1.9898
10080 minute winter	S31	Infiltration		0.0			
10080 minute winter	S30	1.001	S29	2.2	0.423	0.029	2.2901
10080 minute winter	S30	Infiltration		0.0			
10080 minute winter	S27	2.000	S28	0.6	0.213	0.015	1.2373
10080 minute winter	S28	2.001	S29	0.6	0.141	0.017	0.3349
10080 minute winter	S29	1.002	S32	2.6	0.430	0.033	0.7399
10080 minute winter	S32	1.003	S33	2.6	0.435	0.033	0.6127
10080 minute winter	S33	Infiltration		1.3			

Node Name	S31	S30	S29	S32	S33
A4 drawing Hor Scale 1000 Ver Scale 100 Datum (m) 75.000					
Link Name	1.000	1.001	1.002	1.003	
Section Type	300mm	300mm	300mr	300mr	
Slope (1:X)	200.4	199.5	198.2	202.3	
Cover Level (m)	81.061	80.837	81.105	81.909	82.133
Invert Level (m)	79.372	79.231 79.231	79.068 79.068 79.015	79.015 78.972	
Length (m)	28.258	32.521	10.507	8.701	



TOBIN
Fairgreen House
Fairgreen Road

File: 11942 - Cosmona Phase 2 Planning.p
Network:
SB
02/09/2026

Node Name	S27	S28	S29
 A4 drawing Hor Scale 1000 Ver Scale 100 Datum (m) 75.000			
Link Name	2.000	2.001	
Section Type	225mm	225mm	
Slope (1:X)	199.4	200.5	
Cover Level (m)	80.691	81.218	81.105
Invert Level (m)	79.266	79.110 79.110 79.068	
Length (m)	31.111	8.420	

Appendix C INFILTRATION TEST RESULTS



GROUND INVESTIGATIONS IRELAND
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Ground Investigations Ireland

Cosmona Loughrea

Galway County Council

Ground Investigation Report

October 2022





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DOCUMENT CONTROL SHEET

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Engineer	Roughan O'Donovan Consulting Engineers
Client	Galway County Council
Project No	11806-04-22
Document Title	Ground Investigation Report

Rev.	Status	Author(s)	Reviewed By	Approved By	Office of Origin	Issue Date
A	Final	J Cashen	C Finnerty	F McNamara	Dublin	24 October 2022

Ground Investigations Ireland Ltd. present the results of the fieldworks and laboratory testing in accordance with the specification and related documents provided by or on behalf of the client. The possibility of variation in the ground and/or groundwater conditions between or below exploratory locations or due to the investigation techniques employed must be taken into account when this report and the appendices inform designs or decisions where such variation may be considered relevant. Ground and/or groundwater conditions may vary due to seasonal, man-made or other activities not apparent during the fieldworks and no responsibility can be taken for such variation. The data presented and the recommendations included in this report and associated appendices are intended for the use of the client and the client's geotechnical representative only and any duty of care to others is excluded unless approved in writing.



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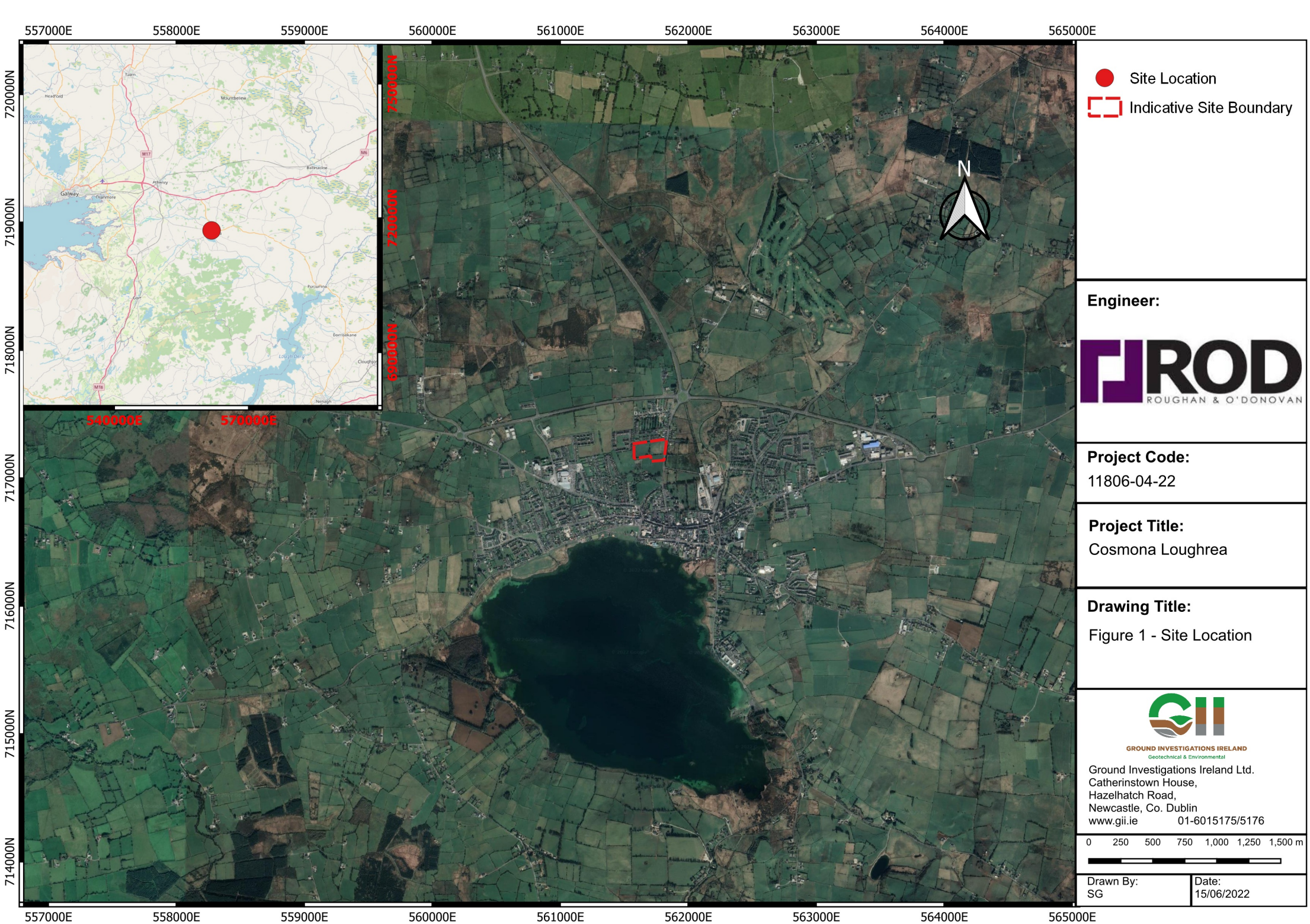
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- Indicative Site Boundary
- Trial Pit
- Soakaway
- Borehole
- Dynamic Probe
- Plate Test

Engineer:



Project Code:

11806-04-22

Project Title:

Cosmona Loughrea

Drawing Title:

Figure 2 - SI Locations



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0 10 20 30 40 50 m

Drawn By:
SG

Date:
15/06/2022

APPENDIX 3 – Soakaway Testing Records





Site	Cosmona Loughrea
-------------	------------------

**Trial Pit
Number
IT-01A**

Dimensions
3.20m X 1.10m X 1.70m

Ground Level (mOD)	79.13
--------------------	-------

Client	Galway County Council
---------------	-----------------------

Job Number	11806-04-22
------------	-------------

Method : Trial Pit

Location	561797.3 E 717251.8 N
-----------------	-----------------------

Dates	17/05/2022
--------------	------------

Engineer
Roughan O'Donovan

Sheet
1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
						TOPSOIL		
				78.83	0.30 (0.30)	MADE GROUND: Light grey mottled brown slightly sandy slightly gravelly Clay with rare fragments of plastic, red brick, ceramic and newspaper		
				78.13	1.00 (0.70)	Firm light grey mottled brown slightly sandy slightly gravelly CLAY with occasional cobbles		
				77.43	1.70	Complete at 1.70m		

Plan

Remarks

No groundwater encountered
Trial pit stable
Soakaway test carried out in trial pit
Trial pit backfilled upon completion

Scale (approx)

1:25

Logged By

CMP

Figure No.

11806-04-22.IT-01



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Site
Cosmona Loughrea

Trial Pit Number
IT-02

Machine : 8 Tonne Tracked Excavator Method : Trial Pit	Dimensions 3.30m X 1.10m X 1.50m	Ground Level (mOD) 80.24	Client Galway County Council	Job Number 11806-04-22
	Location 561693.2 E 717229.4 N	Dates 16/05/2022	Engineer Roughan O'Donovan	Sheet 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.60-1.00	ES			79.64	0.60 (0.10)	TOPSOIL		
				79.54	0.70	MADE GROUND: Brown slightly sandy slightly gravelly Clay with occasional cobbles and boulders and rare fragments of ceramic		
1.00-1.50	ES			79.24	1.00	MADE GROUND: Light greyish brown slightly sandy slightly gravelly Clay with occasional cobbles and rare fragments of ceramic		
					(0.50)	Firm light grey mottled brown slightly sandy slightly gravelly CLAY with occasional cobbles and boulders		
				78.74	1.50	Complete at 1.50m		

Plan	Remarks No groundwater encountered Trial pit stable Soakaway test carried out in trial pit Trial pit backfilled upon completion							
Scale (approx) 1:25						Logged By CMP	Figure No. 11806-04-22.IT-02	



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Site
Cosmona Loughrea

Trial Pit
Number
IT-03

Machine : 8 Tonne Tracked Excavator		Dimensions 3.60m X 1.10m X 1.50m		Ground Level (mOD) 82.26		Client Galway County Council		Job Number 11806-04-22	
Method : Trial Pit		Location 561600.8 E 717194.1 N		Dates 16/05/2022		Engineer Roughan O'Donovan		Sheet 1/1	

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.30-1.00	ES			81.96	(0.30)	TOPSOIL		
					0.30	MADE GROUND: Brown slightly sandy slightly gravelly Clay with rare fragments of ceramic		
1.00-1.50	ES			81.26	(0.70)			
					1.00	Firm greyish brown slightly sandy slightly gravelly CLAY with occasional cobbles and boulders		
					(0.50)			
				80.76	1.50	Obstruction: possible bedrock or boulders		
						Complete at 1.50m		

Plan					Remarks			
.	.	.	.	.	No groundwater encountered Trial pit stable Soakaway test carried out in trial pit Trial pit backfilled upon completion			
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.	.	.	.	.				
					Scale (approx)		Logged By	Figure No.
					1:25		CMP	11806-04-22.IT-03



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Site
Cosmona Loughrea

Trial Pit Number
IT-04

Machine : 8 Tonne Tracked Excavator Method : Trial Pit	Dimensions 3.40m X 1.10m X 1.60m	Ground Level (mOD) 78.99	Client Galway County Council	Job Number 11806-04-22
	Location 561747.9 E 717188.3 N	Dates 16/05/2022	Engineer Roughan O'Donovan	Sheet 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.45-1.00	ES			78.54	(0.45)	TOPSOIL		
					0.45	MADE GROUND: Light grey mottled brown slightly sandy slightly gravelly Clay with rare fragments of ceramic and shell		
1.00-1.60	ES			77.99	1.00	Firm greyish brown slightly sandy slightly gravelly CLAY with rare fragments of ceramic shell and boulders		
					(0.60)			
					1.60	Complete at 1.60m		

Plan 	Remarks No groundwater encountered Trial pit stable Soakaway test carried out in trial pit Trial pit backfilled upon completion		
	Scale (approx) 1:25	Logged By CMP	Figure No. 11806-04-22.IT-04



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IT-01A

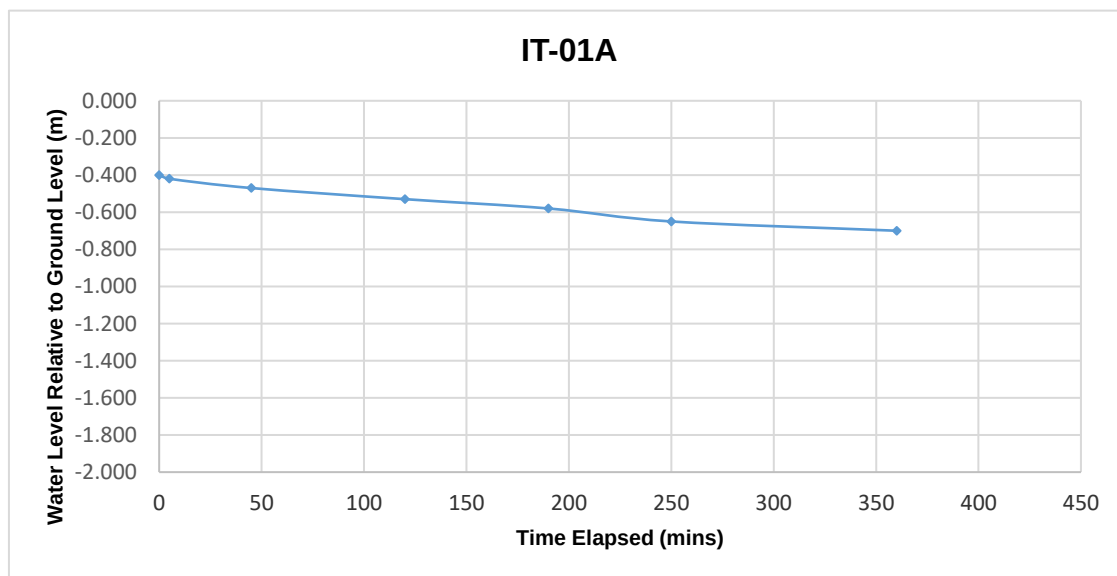
Soakaway Test to BRE Digest 365

Trial Pit Dimensions: 2.30m x 1.00m 1.70m (L x W x D)

Date	Time	Water level (m bgl)
16/05/2022	0	-0.400
16/05/2022	5	-0.420
16/05/2022	45	-0.470
16/05/2022	120	-0.530
16/05/2022	190	-0.580
16/05/2022	250	-0.650
16/05/2022	360	-0.700

***Soakaway failed - Pit backfilled**

Start depth	Depth of Pit	Diff	75% full	25%full
0.40	1.700	1.300	0.725	1.375





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IT-02

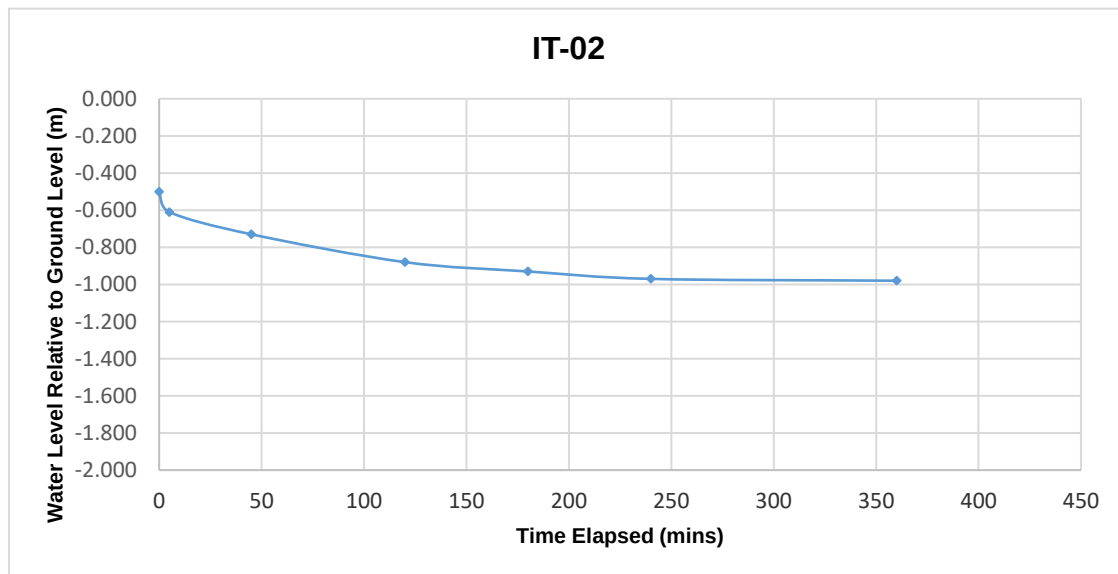
Soakaway Test to BRE Digest 365

Trial Pit Dimensions: 3.30m x 1.10m 1.50m (L x W x D)

Date	Time	Water level (m bgl)
16/05/2022	0	-0.500
16/05/2022	5	-0.610
16/05/2022	45	-0.730
16/05/2022	120	-0.880
16/05/2022	180	-0.930
16/05/2022	240	-0.970
16/05/2022	360	-0.980

***Soakaway failed - Pit backfilled**

Start depth	Depth of Pit	Diff	75% full	25%full
0.50	1.500	1.000	0.75	1.25





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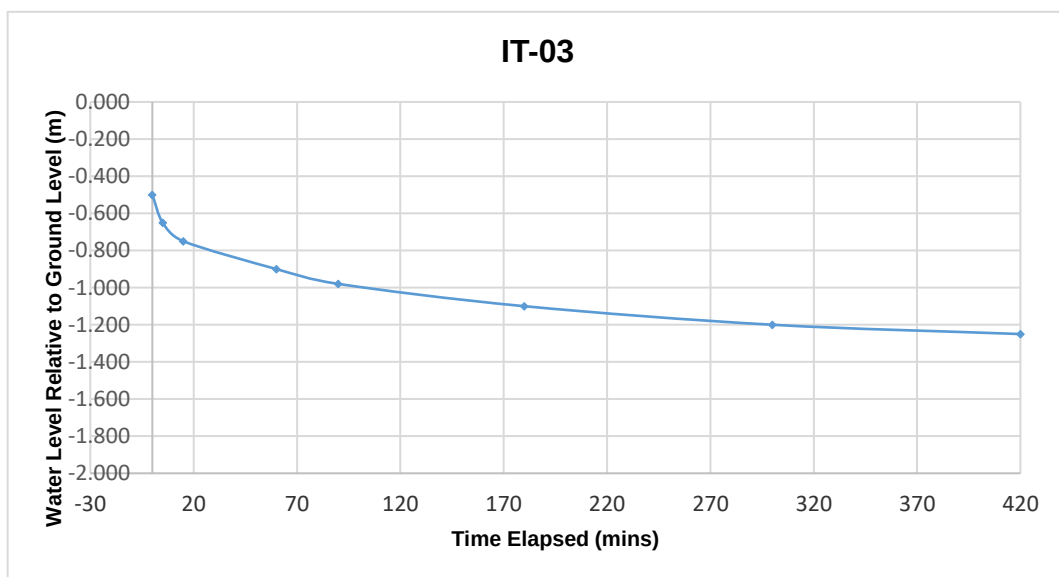
Tel: 01 601 5175 / 5176
Email: info@gii.ie
Web: www.gii.ie

IT-03

Soakaway Test to BRE Digest 365

Trial Pit Dimensions: 3.60m x 1.10m 1.50m (L x W x D)

Date	Time	Water level (m bgl)			
16/05/2022	0	-0.500			
16/05/2022	5	-0.650			
16/05/2022	15	-0.750			
16/05/2022	60	-0.900			
16/05/2022	90	-0.980			
16/05/2022	180	-1.100			
16/05/2022	300	-1.200			
16/05/2022	420	-1.250	*data extrapolated		
			*pit filled once		
			*possible bedrock at base of pit		
Start depth 0.50	Depth of Pit 1.500	Diff 1.000	75% full 0.75	25%full 1.25	
Length of pit (m) 1.500	Width of pit (m) 1.100		75-25Ht (m) 0.500	Vp75-25 (m3) 0.83	
Tp75-25 (from graph) (s)	24240		50% Eff Depth 0.500	ap50 (m2) 4.25	
f =	8.008E-06	m/s			





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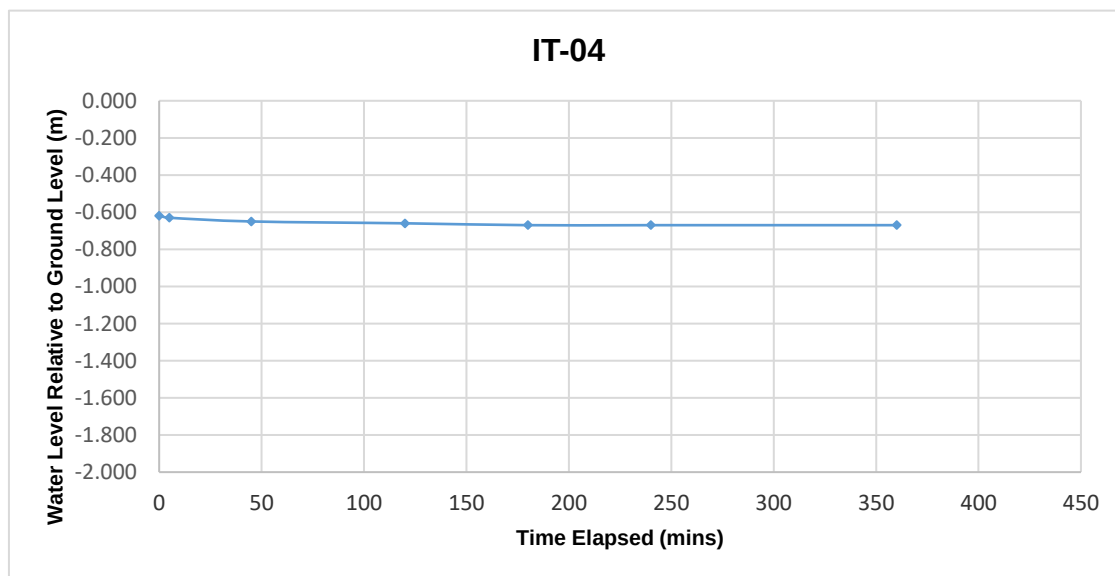
Soakaway Test to BRE Digest 365

Trial Pit Dimensions: 3.40m x 1.10m 1.60m (L x W x D)

Date	Time	Water level (m bgl)
16/05/2022	0	-0.620
16/05/2022	5	-0.630
16/05/2022	45	-0.650
16/05/2022	120	-0.660
16/05/2022	180	-0.670
16/05/2022	240	-0.670
16/05/2022	360	-0.670

*Soakaway failed - Pit backfilled

Start depth	Depth of Pit	Diff	75% full	25%full
0.50	1.600	1.100	0.775	1.325



Cosmona Loughrea – Soakaway Photographs

IT-01



IT-01



Cosmona Loughrea – Soakaway Photographs

IT-01



IT-01



Cosmona Loughrea – Soakaway Photographs

IT-01A



IT-01A



Cosmona Loughrea – Soakaway Photographs

IT-01A



IT-01A



Cosmona Loughrea – Soakaway Photographs

IT-01A



IT-01A



Cosmona Loughrea – Soakaway Photographs

IT-02



IT-02



Cosmona Loughrea – Soakaway Photographs

IT-02



IT-02



Cosmona Loughrea – Soakaway Photographs

IT-02



IT-02



Cosmona Loughrea – Soakaway Photographs

IT-03



IT-03



Cosmona Loughrea – Soakaway Photographs

IT-03



IT-03



Cosmona Loughrea – Soakaway Photographs

IT-03



Cosmona Loughrea – Soakaway Photographs

IT-04



IT-04



Cosmona Loughrea – Soakaway Photographs

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IT-04



Cosmona Loughrea – Soakaway Photographs

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IT-04

