McCloy Consulting

SuDS Drainage Strategy

Barrow Blueway Trailhead, Athy, Co. Kildare

M02215-09_DG01 | March 2026

WATER & ENVIRONMENTAL CONSULTANTS

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REVISION HISTORY

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DISTRIBUTION

Recipient	Revision					
	1	2	3	4	5	6
FILE	✓					
Darragh Carey	✓					

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1 INTRODUCTION

1.1 Terms of Reference

This SuDS Drainage Strategy was commissioned by Kildare County Council (the Client) to support a planning application for a proposed trailhead including carpark and access road, in Athy, Co. Kildare. The report should be read in conjunction with the planning application drawings.

1.2 Statement of Authority

McCloy Consulting is an independent environmental and water engineering consultancy specialising in drainage and SuDS design, surface water management plans and flood risk assessment. The practice has extensive experience in design and implementation of surface water management across Ireland and the UK.

1.3 Approach to and Purpose of the Assessment

The following has been considered in developing the SuDS drainage strategy for the site to ensure compliance of all relevant local and national standards:

- Kildare County Council Sustainable Drainage Systems Guidance Document (2024)
- Greater Dublin Regional Code of Practice for Drainage Works V6.0
- CIRIA C753: The SuDS Manual (2015)

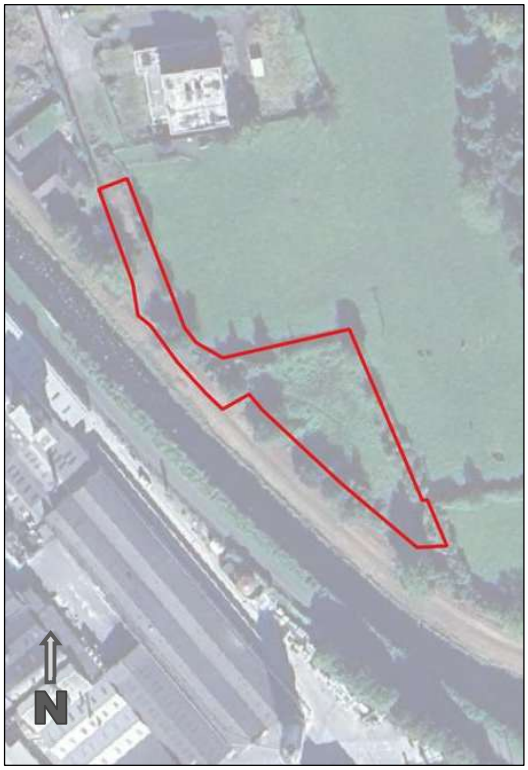
The purpose of the assessment is to demonstrate that the development meets the requirements of local and national standards and provide sufficient information to satisfy the requirements of the statutory authorities involved for the purposes of determining the planning application.

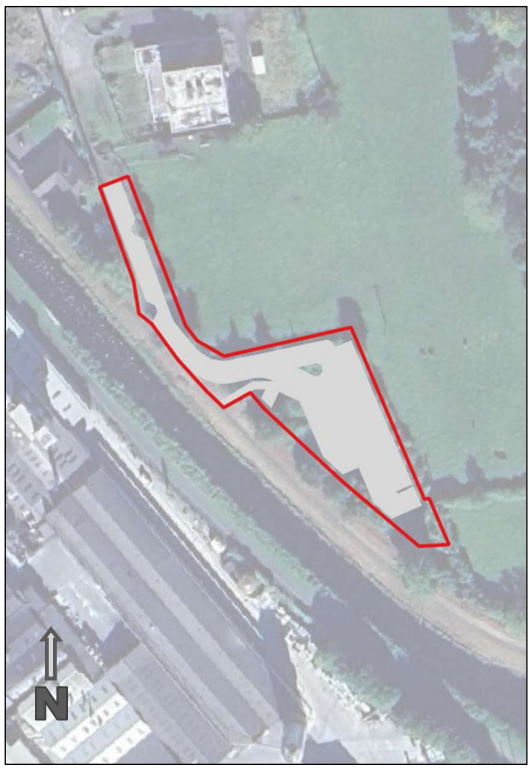
1.4 Proposed Development

The proposals relate to the construction of a new trailhead including a carpark and access road, with associated footpath, seating and landscaping. Site change of use is as shown in Figure 1-1 below, with full proposal drawings included in Appendix A of this report.

Figure 1-1 Summary of Land Use Change / Site Properties

Current Site Layout		Proposed Site Layout	
Land Use:	Agricultural	Land Use:	Amenity
Impermeable Area %:	0%	Impermeable Area %:	63%
Total Site Area:	2,213m²	Total Site Area:	2,213m²
Hardstanding Footprint:	0m²	Hardstanding Footprint:	1,396m²
Permeable Footprint:	2,213m²	Permeable Footprint:	817m²





2 DRAINAGE STRATEGY SCREENING

The surface water drainage strategy adopts SuDS principles and ensures that any runoff from new impermeable surfaces shall match a greenfield equivalent rate.

The drainage design is intended to demonstrate how water quantity and quality are dealt with as well as making provision for amenity and biodiversity where practicable. SuDS mechanisms were identified based on the known site constraints.

2.1 Site Setting

Aspects relevant to the drainage design are as follows:

- The total site area is 0.221Ha.
- The site is currently greenfield.
- The surrounding land to the north and east is also greenfield. To the south-west, the site is bounded by by the tow path of the Grand Canal Barrow Line.
- Site topography is generally flat. Levels within the boundary are generally between 54.0 and 55.0mAOD (above Ordnance Datum), with a maximum of approximately 55.5mAOD in the central part of the site adjacent to the canal embankment.

2.2 Existing Hydrology

The extent of the proposed development was reviewed with reference to readily available OPW flood data. The findings are summarised as follows:

- Fluvial flood mapping indicates that the site is unaffected by 10%, 1% and 0.1% AEP fluvial flood extents.
- There is no historical record of flooding within the OPW past flood event records at the site itself. However, the land immediately to the east of the site is shown to have been affected by a historical flood event.

2.3 SuDS Implementation

2.3.1 SuDS Constraints

The following constraints have been identified which shall be considered when undertaking the SuDS Site Audit. These constraints limit the feasibility of SuDS features as part of the development.

Infiltration

GSI data states that the site is underlain by bedrock geology of Limestone, with overlying alluvial deposits. Further data relating to the soils on the site and in the wider area is available from the SIS national soil survey. Soils are largely classified as Elton (1000a) which is characterised as fine, loamy drift with limestones and is considered to have moderate drainage potential.

In order to establish a site-specific infiltration rate, infiltration testing was undertaken in accordance with BRE365. The testing was undertaken by IGSL Ltd in June 2024. Two test pits were excavated, TP01 to 1.8m bgl which encountered gravelly clay over sandy gravel, and TP02 to 2.0m bgl which encountered gravelly sand over clayey sandy gravel. Testing was completed successfully, and the infiltration rates were calculated as 5.83×10^{-6}m/s, and 3.67×10^{-6}m/s respectively.

Existing Use

The site is currently greenfield.

Table 2-1 below has been compiled which details the available SuDS techniques. For each technique, suitability is considered for the site.

Table 2-1 SuDS Site Audit

SuDS Technique	Suitable for Site?	Rationale
Green Roofs	No	No buildings proposed.
Ponds & wetlands	No	Insufficient space available on site.
Bioretention systems / rain planters	Yes	Potential for small scale features to capture and store surface water drainage within site.
Tree pits	Yes	Potential for small scale features to capture and store surface water drainage within site.
Detention basins	Yes	Potential for small scale features to capture and store surface water drainage within site. Preference to use raingardens / planters.
Infiltration systems	Yes	BRE365 testing has been undertaken and found to be feasible.
Permeable pavements	Yes	Potential to attenuate and infiltrate surface water from the proposed car parking area, access road and pathways within the site.
Swales	Yes	Potential to locate a swale along the access road.
Filter strips	Yes	Potential for either swale or filter strip / drain along access road.
Filter drains	Yes	Potential for either swale or filter strip / drain along access road.
Attenuation storage tanks	No	Unsuitable due to preferred use of infiltration. Offers limited water quality / biodiversity benefits.

A range of SuDS features have been identified as having suitability for integration with the site layout. Section 3.1 details the features which are to be adopted within the design, based on this audit.

3 PROPOSED DRAINAGE STRATEGY

3.1 Proposed Drainage Strategy

The additional hard surfaces would result in an increase in run-off rates from the site left unmitigated, however it is proposed that discharge should be reduced in line with Kildare CC requirements. There is the potential for all additional hard surfaces to be constructed with permeable surfacing. For the access road and car park, it is our understanding that the preference is to use permeable asphalt. Other hard surfaces, including the seating areas and footpath, will also be permeable. For all permeable surfaces, the subbase will act as storage, and surface water will infiltration to ground, recharging groundwater at source.

In section 2.3, options to manage surface water are identified. The following has been brought forward into the strategy design:

i. All hard surfaces, including the access road, car park, seating areas and footpath, will be constructed with permeable surfacing. The permeable subbase will provide attenuation, and surface water will infiltrate to ground.
ii. A swale will be constructed along the access road, providing an element of biodiversity gain.
iii. Two raingardens will be included; one in the middle of the turning circle, and one in the south-eastern corner of the site. These will provide both biodiversity and amenity value.

Refer to Appendix C for the Drainage Layout Plan.

3.2 Flow Control Rates

3.2.1 Local and National Standards

Requirements for defining the control of flow rate and volume from the site which should be considered as part of the design process have been extracted from local planning policy documentation. Based on guidance contained within 'Kildare County Council Sustainable Drainage Systems Guidance Document (2024)', flow rates should be limited to Q_{BAR}, where off-site discharge is proposed. Greenfield calculations are provided below.

3.2.2 Calculation of Existing and Proposed Flow Rates

Table 3-1 shows the post-development (unmitigated) and greenfield flow rates calculated for the additional hard surfacing (1,396m^2). The proposed drainage strategy will be entirely infiltration-based, therefore greenfield rates will not be exceeded as there will be no surface water discharged from site.

Table 3-1 Flow rates applicable to the site

Return period	Proposed unmitigated surface water run-off rates* (l/s)	Greenfield Rate** (l/s)
1 in 2 year	4.90	0.03
1 in 30 year	10.94	0.05
1 in 100 year	14.67	0.05

* Peak (60 minute) Runoff Rates calculated using modified rational method
** Calculated from IoH124

3.3 Attenuation Storage

Hydraulic calculations have been undertaken to support the proposals; these are included in Appendix D. To inform the calculations presented, the following is noted:

- Based on the information determined from desk-based study (refer to section 2.1) attenuation has been provided within the permeable subbase, with surface water infiltrating to the ground below, recharging groundwater at source.
- Additional storage above the design requirement is provided within the raingardens and swale.
- No overtopping / uncontrolled outflow from the drainage network is demonstrated by the hydraulic model, up to a return period of 1 in 100 year + 20% allowance for climate change.

The maximum storage used for the permeable paving subbase is recorded in the results of the hydraulic modelling undertaken in Causeway Flow software.

3.4 Designing for Exceedance

Surface levels of the access road and carpark will be designed to ensure that exceedance flows are conveyed towards the swale, raingardens, and other soft landscaped areas in the event of exceedance of the critical design storm event. A maintenance plan has been developed and shall be implemented to reduce the risk of failure.

3.5 Water Quality Management

Proposals for the site will comprise the construction of a trailhead, including a car park with access road, and amenity space. The new impermeable area is primarily non-residential car parking, which may be classified as follows with reference to the CIRIA SuDS Manual (Document ref C753) Table 26.2:

- Car parking area – the site is subject to non-residential car parking with infrequent change (<300 movements per day). Run-off may be classified as low risk.

Table 3-2 assesses the risk posed by run-off observed on site. The assessment proves that water quality can be addressed by the site drainage strategy proposed.

Table 3-2 SuDS Mitigation Index and Pollution Hazard Indices for runoff for car parking

Pollutant	Source Hazard Index	Permeable paving	Total Mitigation Index	Sufficient?
TSS	0.5	0.7	0.7	Yes
Metals	0.4	0.6	0.6	Yes
Hydrocarbons	0.4	0.7	0.7	Yes

3.6 Maintenance Requirements

A management and maintenance plan has been developed for drainage features located within the site. Ongoing inspection and maintenance shall be the responsibility of a management team.

The plan details the maintenance required and the expected frequency of action. The maintenance plan has been developed taking into account the recommendations of C753 – The SuDS Manual.

Table 3-3 Management and Maintenance Plan of SuDS Features

Permeable Paving		
Maintenance Schedule	Required Action	Typical Frequency
Regular Maintenance	Brushing (standard cosmetic sweep over whole surface).	Once per year, after autumn leaf fall, or reduced frequency as required, based on site-specific observations of clogging or manufacturers recommendation- pay particular attention to areas where water runs onto pervious surface from adjacent impermeable areas as this area is most likely to collect most sediment.
Occasional Maintenance	Stabilise and mow contributing and adjacent areas.	As required
	Removal of weeds or management using glyphospate applied directly into the weeds by an applicator rather than spraying.	As required once per year on less frequently used pavements.
Remedial Action	Remediation of any landscaping which, through vegetation maintenance, causes soil to spill from the rain planter to the permeable pavement.	As required
	Remedial work to any depressions, rutting and cracked or broken blocks considered detrimental to the structural performance or a hazard to users, and replace lost jointing material.	As required
	Rehabilitation of surface and upper substructure by remedial sweeping.	Every 10 to 15 years or as required (if infiltration performance is reduced due to significant clogging).
Monitoring	Initial inspection.	Monthly for three months after installation.
	Inspect for evidence of poor operation and/or weed growth- if required, take remedial action.	Three- monthly, 48hours after large storms for first six months.
	Inspect silt accumulation rates and establish appropriate brushing frequency.	Annually

	Monitor inspection chambers.	Annually

Raingardens and Swales		
Maintenance Schedule	Required Action	Typical Frequency
Regular inspections	Inspect filtration surfaces for silting / ponding. Record dewatering time and assess standing water levels in any underdrain to determine if maintenance is necessary.	Quarterly
	Check operation of underdrains by inspection of flows after rain.	Annually
	Assess plants for disease infection, poor growth, invasive species etc and replace as necessary.	Quarterly
	Inspect inlets and outlets for blockage.	Quarterly
Regular Maintenance	Remove litter, surface debris and weeds.	Quarterly
	Replace any plants to maintain density.	As required
Occasional Maintenance	Infill any holes / scour in filter medium. Improve erosion protection if required.	As required
	Repair minor accumulations of silt by raking away surface mulch, scarifying surface of medium and replacing mulch.	As required
Remedial actions	Remove and replace filter medium and vegetation above.	As required but likely to be >20 years.

Appendix A

Planning Drawings

Private Access Maintained.

Existing Link from Green Alley to River Barrow Maintained for Pedestrian and Cycle Traffic Via Shared Space.

5.00m Wide Shared Space for Vehicle, Pedestrian and Cyclist Access to Trailhead. Shared Surface Carriageway Proposed Due to Low-Traffic Volume Anticipated. To be Upgraded Further Under Cluid Housing Development if Required.

Site Boundary for Cluid Housing Development Granted under Planning No. 22985.

Vegetation Clearance Required to Facilitate Entrance Road.

Grass Build-Outs and Narrowing of Road Width to Slow Vehicles on Shared Space.

The Integration and Feasibility of this Typical Detail will be Reviewed during the Detailed Design Stage as a suitable Sustainable Drainage System (SuDS).

RUS 050

14no. Standard Bike Parking Spaces, 2no. Accessible Spaces and 3no. Bike Storage/Lockers to be Provided.

Rain Garden Traffic Island with Line-Marked Overrun Area.

YIELD

RUS 026

Colour Contrast Surfacing and Line Markings to Highlight Shared Space to All Users on Approach.

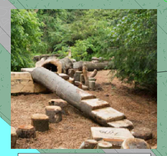
NO ENTRY

Access Control Barrier at Car Park Entrance and Timber Post and Rail Fence to Site Boundary.

Public Lighting Proposed at Crossing Point, Solar Units to be Considered at Detailed Design Stage.

RUS 058

Link to Existing Footway along the River Barrow.



Proposed Trailhead Play Area or Similar Approved.

Reverse Parking to be Enforced Via Appropriate Signage to Improve Pedestrian Visibility.

2no. Accessibility Spaces to be Provided.

Permeable Pavement/Porous Asphalt as part of SuDS Measures.

15no. Standard Parking Spaces to be Provided.

Existing Historic Stone Wall along Eastern Boundary to be Structurally Inspected, and Repaired & Repointed if Required, Prior to Construction. Stone Wall to be Protected During the Construction Phase and a Min. 1m Grass Buffer to be Provided.

SuDS Basin/Storage Measure, to be Completed During Detailed Design Stage.

Legend

- Roadway
- Porous Asphalt
- Colour Contrast Surfacing
- Buff Tactile Paving
- Permeable Pavement
- Unbound Path
- Wildflower Grass
- Extent of SuDS Area
- Grand Canal
- Existing Canal Verge
- Existing Canal Tow Path
- Access Control Barrier
- Timber Post & Rail Fencing
- Standard Kerb
- Transition Kerb
- Dropped Kerb
- Flush Kerb
- Pedestrian Bollard
- Retained Trees
- Proposed Planting
- Site Boundary
- Trailhead Facilities
  1. Bins
  2. Information Signage
  3. Seating
  4. Picnic Benches
  5. Play Area
  6. Bike Parking
  7. Bike Storage/Lockers

Notes

1. Proposed works to existing utilities are subject to agreement with providers.
2. SuDS measures to be fully developed at the detailed design stage.
3. Public lighting layout to be fully developed at the detailed design stage. At minimum, pedestrian crossing points will be lit for safety.
4. Planting plan to be fully developed at the detailed design stage.

0m 2m 4m 6m 8m 10m 12m 14m 16m 18m 20m

Scale 1:200

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Rev.	Description	App By	Date
A	ISSUE FOR DISCUSSION	BDH	07.10.24
B	ISSUE FOR PLANNING	BDH	21.10.24
C	ISSUE FOR PLANNING	BDH	14.05.25
D	ISSUE FOR PLANNING	BB	09.01.26

PROJECT: **BARROW BLUEWAY**

CLIENT: Comhairle Contae Chill Dara, Kildare County Council

SHEET: **ATHY TRAILHEAD - SITE LAYOUT (SHEET 1 OF 2)**

Date: 07.10.24

Project number: P20-249

Scale (@ A1-): 1:200

Drawn by: CS

Drawing Number: P20-249-0100-CP01

Rev: D

Checked by: BB

O:\ACAD\2021\P20-249\P20-249-0100-CP01

Thursday 8 January 2026

Appendix B

Run-off Rate Calculations

Project	Athy Trailhead
Ref	M02215-09
Date	20.11.2025

Purpose

To estimate the change in runoff rate on a greenfield (undeveloped) site caused by a proposed development, by comparison of IH-124 greenfield runoff rates and Modified Rational Method for developed runoff rates

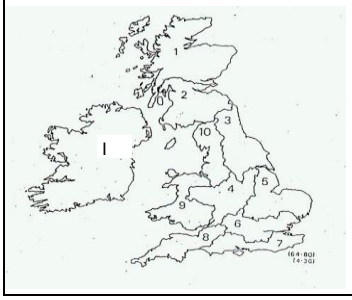
Inputs

Length (m)	140	m	From Survey
Total Site Area (m2)	2213	m2	From Survey
Total Site Area (ha)	0.221	ha	Calculated
Max Height	55.00	mOD	From Survey
Min Height	54.00	mOD	From Survey
SAAR	782	mm	from HR Wallingford Surface Water Storage Volume Estimation T
SAAR4170	782	mm	from HR Wallingford Surface Water Storage Volume Estimation T
UCWI		mm	From Figure 4.4, CIRIA C697
SOIL	1		From WRAP Maps
M5-60	15.9	mm	From FSU Portal
M5-2D	48.4	mm	From FSU Portal

Effective Proposed Site Areas		**TOTAL**	
Roof (@95% PR)	0.00	0.0	m^2
Paving and Road areas (90% PR)	1396.00	1256.4	m^2
		1256.4	m^2
	or	**0.126**	ha

IoH124Parameters

Region: 1



Modified Rational Method Parameters		
DeltaH	1.000	m
Slope (%)	0.71	%
Te (mins)	15.74	mins
ARF	0.993	n/a
SOIL	0.15	n/a
DEEPSTOR	0.83	n/a
PIMP	56.774	%
PR	30.12	%
Cv	1.00	n/a
Cr	1.3	n/a
Wallingford Ratio r	0.3	n/a

Summary of Results - Peak (1-hr) Runoff Rates

Results relate to area subject to development (change of surface) only

Return Period	Existing Scenario (lps)	posed Scenario (1-hr)	*Increase (lps)*	Increase (%)
1 in 2 year	0.03	4.90	*4.88*	17409%
1 in 30 year	0.05	10.94	*10.90*	23724%
1 in 100 year	0.05	14.67	*14.61*	26617%

By	Checked	Revision	Reason for Change	Date

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QBAR (rural) = 0.00108 x (Area)0.89 x (SAAR)1.17 x (Soil)2.17

Area	0.00027	**Km2**
SAAR	782	**mm**
Soil Index	0.15	
Qbar(Rural)	2.8E-05	**m3/s**
Qbar 30	4.6E-05	**m3/s**
Qbar 100	5.5E-05	**m3/s**

Appendix C

SuDS Drainage Strategy Layout Plan

PROPOSED DRAINAGE LAYOUT

SCALE 1:200

NOTES

1. ALL DIMENSIONS IN METRES (UNLESS SHOWN OTHERWISE) AND ALL LEVELS IN METRES TO ORDNACE SURVEY BENCHMARK.
2. THIS DRAWING SHALL NOT BE USED FOR CONSTRUCTION PURPOSES.
3. THIS DRAWING IS NOT TO BE SCALED FROM.
4. THIS DRAWING SHALL BE REVIEWED IN CONJUNCTION WITH ALL RELEVANT ARCHITECTURAL DRAWINGS.
5. THE CONTRACTOR IS TO CONFIRM ACCURACY OF EXISTING SURVEY, AND LINES AND LEVELS OF EXISTING SERVICES INDICATED.
6. THE CONTRACTOR IS TO LIAISE WITH ALL STATUTORY UNDERTAKERS IN REGARD TO LOCATING ALL EXISTING SERVICES WITHIN AND ADJACENT TO THE SITE OF THE WORKS. NO EXCAVATION IS TO COMMENCE UNTIL ALL EXISTING SERVICES HAVE BEEN LOCATED, MARKED ON SITE AND PROTECTED TO THE SATISFACTION OF THE RELEVANT AUTHORITY.
7. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS PERTAINING TO THE WORKS.

LEGEND

- PROPOSED PERMEABLE ASPHALT
- OTHER PERMEABLE SURFACING
- PROPOSED SWALE
- PROPOSED RAINGARDEN

ISSUE	DRN	APP	DATE	NOTES / DESCRIPTION
1.0	OFK	PD	09/03/2026	ISSUED WITH SuDS REPORT

STATUS: PLANNING

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PROJECT: ATHY TRAILHEAD
CO. KILDARE

CLIENT: KILDARE COUNTY COUNCIL

DRAWING TITLE: SURFACE WATER DRAINAGE LAYOUT PLAN

SCALE	ORIGINAL SIZE
1:200	A1

DRAWN	CHECKED	DATE
OFK	PD	09/03/2026

PROJECT No.	DRAWING No.	ISSUE NO.
M02215-09	DWG_101	1.0

Appendix D

Hydraulic Model Result Report

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	100	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	20	Minimum Velocity (m/s)	1.00
FSR Region	Scotland and Ireland	Connection Type	Level Soffits
M5-60 (mm)	15.900	Minimum Backdrop Height (m)	0.200
Ratio-R	0.300	Preferred Cover Depth (m)	1.200
CV	0.950	Include Intermediate Ground	✓
Time of Entry (mins)	5.00	Enforce best practice design rules	✓

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
1	0.113	5.00	55.430	1200	-19.298	59.463	1.130
2			54.790	1200	101.680	59.061	0.530

Simulation Settings

Rainfall Methodology	FSR	Analysis Speed	Normal
Rainfall Events	Singular	Skip Steady State	x
FSR Region	Scotland and Ireland	Drain Down Time (mins)	240
M5-60 (mm)	15.900	Additional Storage (m³/ha)	20.0
Ratio-R	0.300	Starting Level (m)	
Summer CV	0.950	Check Discharge Rate(s)	x
Winter CV	0.950	Check Discharge Volume	x

Storm Durations

15	30	60	120	180	240	360	480	600	720	960	1440

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0
10	0	0	0
30	0	0	0
50	0	0	0
100	0	0	0

Node 2 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.01320	Invert Level (m)	54.210	Slope (1:X)	9999.0
Side Inf Coefficient (m/hr)	0.01320	Time to half empty (mins)	309	Depth (m)	0.450
Safety Factor	2.0	Width (m)	10.000	Inf Depth (m)	
Porosity	0.25	Length (m)	113.000		

Results for 2 year Critical Storm Duration. Lowest 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	1	10	54.428	0.128	18.5	0.3995	0.0000	OK
180 minute summer	2	120	54.257	-0.003	7.0	11.6323	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 summer	1	1.000	2	18.2	0.851	0.556	0.2142
180 minute summer	2	Infiltration		2.0			

Results for 10 year Critical Storm Duration. Lowest 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	1	10	54.462	0.162	26.8	0.5060	0.0000	OK
240 minute summer	2	160	54.278	0.018	8.4	17.4847	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 summer	1	1.000	2	26.4	0.950	0.807	0.2775
240 minute summer	2	Infiltration		2.1			

Results for 30 year Critical Storm Duration. Lowest 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	1	10	54.492	0.192	34.0	0.6011	0.0000	OK
240 minute summer	2	168	54.299	0.039	10.5	23.4700	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 summer	1	1.000	2	33.4	1.023	1.021	0.3243
240 minute summer	2	Infiltration		2.1			

Results for 50 year Critical Storm Duration. Lowest 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	1	10	54.511	0.211	38.0	0.6612	0.0000	OK
240 minute summer	2	172	54.311	0.051	11.6	26.8722	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 summer	1	1.000	2	37.2	1.059	1.138	0.3463
240 minute summer	2	Infiltration		2.1			

Results for 100 year Critical Storm Duration. Lowest 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	1	10	54.547	0.247	44.1	0.7745	0.0000	SURCHARGED
240 minute summer	2	180	54.329	0.069	13.4	32.0526	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 summer	1	1.000	2	43.3	1.120	1.325	0.3637
240 minute summer	2	Infiltration		2.1			