Document Title

Engineering Services Report

Project

Residential Development, Summerhill Road,
Dunboyne, Co. Meath

Client

Solkerry Ventures Ltd



Job No. D144

17 August 2026

CS CONSULTING
Civil, Structural & Traffic Engineering

DOCUMENT STATUS					
File Location: J:\D_JOBS\Job-D144\B_DOCUMENTS\1.0 Planning\Reports\1.0 ESR					
BS 1192	D144-CSC-ZZ-XX-RP-C-0001				
Version	**Purpose of Document**	**Author**	**Reviewed by**	**Approved by**	**Issue Date**
P1	Issued for Planning	LJ	NA	OS	27.03.2026
P2	Issued in Draft	LJ	NA	OS	27.07.2026
P3	Issued in Draft	LJ	NA	OS	14.08.2026
P4	Stage 3 Planning Issue	LJ	NA	OS	17.08.2026

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CS CONSULTING
Civil, Structural & Traffic Engineering

ENGINEERING SERVICES REPORT

RESIDENTIAL DEVELOPMENT, SUMMERHILL ROAD, DUNBOYNE, CO. MEATH

CONTENTS

1.0 INTRODUCTION 1
1.1 Site Location 2
1.2 Existing Site Condition 3
1.3 Description of Proposed Development 3
2.0 SURFACE WATER INFRASTRUCTURE 5
2.1 Existing Surface Water Infrastructure 5
2.2 Site Investigation 5
2.3 Proposed Storm Water Sewer Diversion 6
2.4 Proposed Stormwater Drainage Arrangements 6
2.5 Proposed Sustainable Drainage System (SuDS) Design 10
2.6 Meeting with Meath County Council Drainage Department 16
2.7 SuDS Outline Management Plan 16
2.8 Design Standards 21
3.0 FOUL DRAINAGE INFRASTRUCTURE 22
3.1 Existing Foul Drainage Infrastructure 22
3.2 Foul Effluent Generated by the Proposed Development 22
3.3 Proposed Foul Drainage Arrangements and Outfall 23
3.4 Uisce Éireann Engagement 23
3.5 Design Standards 24
4.0 POTABLE WATER INFRASTRUCTURE 25
4.1 Existing Potable Water Infrastructure 25
4.2 Potable Water Demand 25
4.3 Proposed Water Supply Arrangements 26
4.4 Uisce Éireann Engagement 27
4.5 Design Standards 27
5.0 SITE SPECIFIC FLOOD RISK ASSESSMENT 27
6.0 RESPONSES TO ITEMS RAISED IN MCC LRD OPINION 28
6.1 Items 28

FIGURES

Figure 1 – Location of subject lands 2
Figure 2 – Subject lands extents and environs 3
Figure 3 – Location of Existing Open Channel and Storm pipe 5
Figure 4 – Proposed Storm Water Diversion 6
Figure 5 – Proposed Storm Catchments 8
Figure 6 – Proposed Drainable Areas 12
Figure 7 – Watermain upgrade works by UÉ 26

TABLES

Table 1 – Catchment 1 Runoff Coefficients and Impermeable Areas ---------- 9
Table 2 - Catchment 2 Runoff Coefficients and Impermeable Areas ---------- 9
Table 3 –Treatment Train for Catchment Area 1 ---------- 12
Table 4 – Treatment Train for Catchment Area 2 ---------- 12
Table 5 – Interception Volume provided ---------- 15

APPENDICES

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APPENDIX A UISCE ÉIREANN DRAINAGE RECORDS

APPENDIX B EXTRACT FROM GROUND INVESTIGATION REPORT BY CAUSEWAY GEOTECH LTD

APPENDIX C HR WALLINGFORD ONLINE TOOL RESULTS

APPENDIX D SURFACE WATER NETWORK DETAILS AND DESIGN PARAMETERS

APPENDIX E SURFACE WATER NETWORK ANALYSIS AND MODELLING CALCULATIONS FOR 1:1, 1:30 AND 1:100 YEAR STORM EVENTS

APPENDIX F SIMPLE INDEX APPROACH ANALYSIS

APPENDIX G UISCE ÉIREANN CONFIRMATION OF FEASIBILITY AND STATEMENT OF DESIGN ACCEPTANCE

1.0 INTRODUCTION

Cronin & Sutton Consulting Engineers (CS Consulting) have been commissioned by Solkerry Ventures Limited to prepare an Engineering Services Report to accompany a planning application for a proposed residential development at Summerhill Road, Dunboyne, Co. Meath.

This report details the following aspects of the proposed development:

- Stormwater Drainage Infrastructure
- Foul Drainage Infrastructure
- Potable Water Infrastructure

In preparing this report, CS Consulting has referred to the following:

- Meath County Development Plan 2021–2027;
  (including Strategic Flood Risk Assessment)
- Building Regulations 2010 (Part H)
- Greater Dublin Regional Code of Practice for Drainage Works (Version 6)
- Greater Dublin Strategic Drainage Study (GDSDS) 2005
- Uisce Éireann's Code of Practice for Water Infrastructure (2020)
- Uisce Éireann's Code of Practice for Wastewater Infrastructure (2020)
- Local Authority Drainage Records
- CIRIA C753 – The SuDS Manual

The Engineering Services Report is to be read in conjunction with the engineering drawings and documents submitted by CS Consulting and with all other relevant documentation submitted by other members of the project design team.

1.1 Site Location

The proposed development site is located to the east of the R157 in Dunboyne, Co. Meath. The site is situated adjacent to Dunboyne town centre and comprises approx. 6.76ha. It falls within the administrative jurisdiction of Meath County Council.

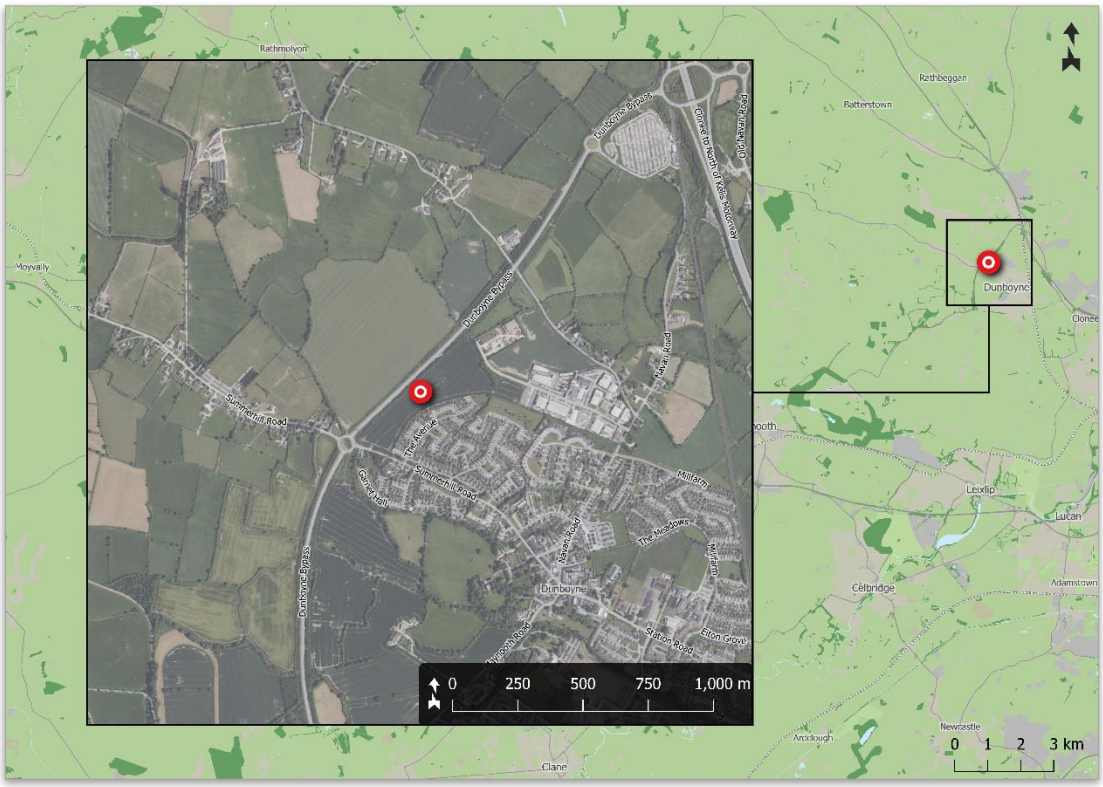


Figure 1 – Location of subject lands
(sources: EPA, OSi, OSM Contributors, Google)

The location of the subject lands is shown in **Figure 1**; their extents and environs are shown in more detail in **Figure 2**.

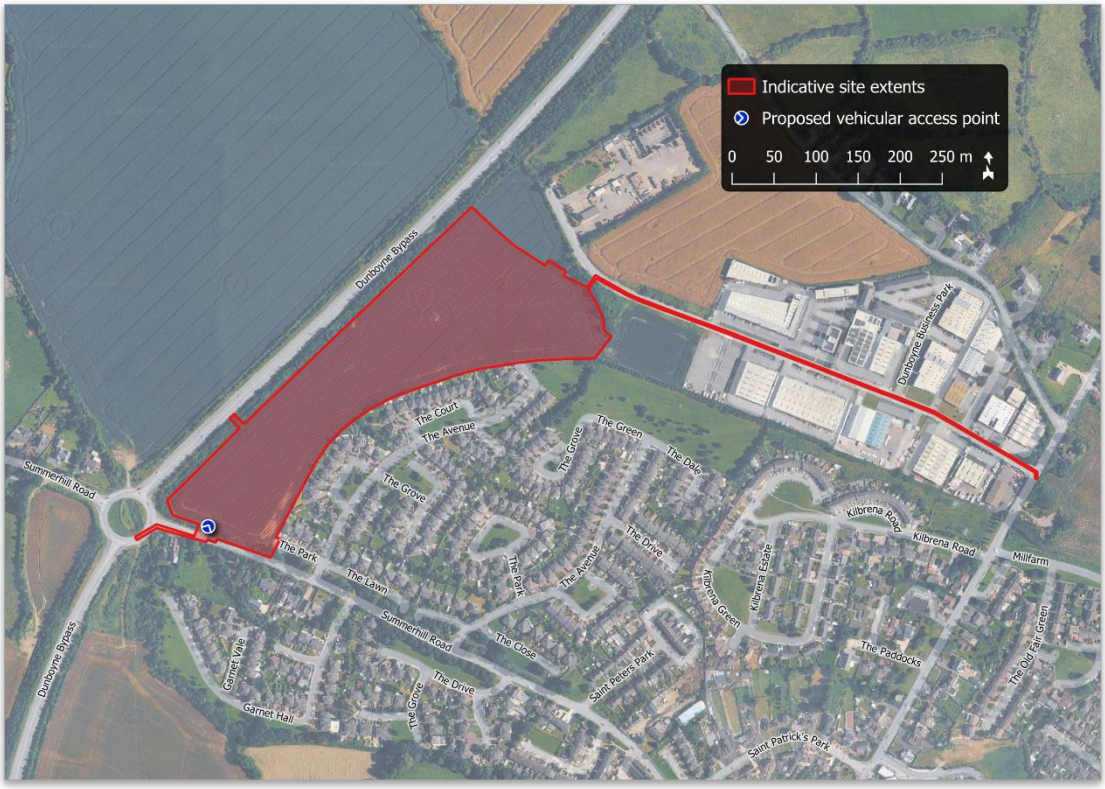


Figure 2 – Subject lands extents and environs
(sources: NTA, GoCar, Toyota, OSi, OSM Contributors, Microsoft)

The proposed development site is bounded to the west by the R157 Regional Road, to the north by Dunboyne Business Park, to the east by an existing residential estate, and to the south by Summerhill Road.

1.2 Existing Site Condition

The site is currently undeveloped greenfield land. The development lands are generally flat, with a gradual fall from south to north of circa. 1m.

1.3 Description of Proposed Development

The proposed development will consist of a Large-Scale Residential Development comprising 248 no. residential units and 1 no. childcare facility with associated car parking, bicycle parking, public open spaces, communal open spaces and all ancillary works.

The development shall comprise;

- Construction of 248 no. residential units as follows:
  - 170 no. 2 storey houses in a mix of terraced, semi-detached and detached unit types consisting of 27 no. 2-bedroom units, 124 no. 3-bedroom units and 19 no. 4-bedroom units. Each house will have an associated rear private garden.

  - 26 no. apartment units in a single 4 storey block consisting of 13 no. 1-bedroom units and 13 no. 2-bedroom apartments. All apartment units will be provided with private open space areas in the form of balconies.
  - 52 no. duplex units in 4 no. 3 storey blocks (A-D) consisting of 26 no. 2-bedroom units and 26 no. 3-bedroom units. All duplex units will be provided with private open space areas in the form of balconies/terraces.
  - Communal open space associated with the proposed apartment / duplex units will be provided in the form of 5 no. landscaped areas located in the vicinity of the units (total approx. 1,340.4 sqm).
- 1 no. childcare facility at ground floor of apartment Block A with dedicated external open space (GFA approx. 285.7 sqm).
- Total provision of 388 no. car parking spaces including 6 no. accessible spaces and 24 no. EV charging spaces (357 no. resident car parking spaces, 18 no. residential visitor car parking spaces and 13 no. car parking spaces dedicated for the creche facility) and a total of 429 no. bicycle parking spaces (319 no. secure resident spaces and 88 no. visitor spaces for the apartment / duplex / mid-terrace units; and 14 no. childcare facility staff spaces and 8 no. childcare facility visitor spaces).
- Landscaped public open space areas including children's play areas totalling approx. 10,775 sqm;
- A new vehicular and pedestrian access point is proposed via a simple priority junction on Summerhill Road (L2228).

All associated site and infrastructural works including a foul pump station with 24hr storage and associated rising main (580m) discharging to an existing foul line at the Navan Road and Dunboyne Business Park Road junction; diversion of an existing 600 mm diameter storm pipe and proposed storm drain outfall to the R157 / Summerhill Road roundabout; internal roads, road markings, homezones, footpaths and cycle infrastructure; provision of 3 no. ESB substations; bin stores and associated bin staging areas; public lighting; all hard and soft landscaping works; natural and formal play equipment; boundary treatment works including retaining walls; green roof; PV panels and all associated site clearance, excavation, landscape and development works.

2.0 SURFACE WATER INFRASTRUCTURE

2.1 Existing Surface Water Infrastructure

A review of Uisce Éireann drainage records indicates existing storm sewer traversing the development site along the southern boundary. There are existing storm sewers currently serving the Grove residential estate.

In addition, there is an existing open channel (TOLKA_020 as per EPA) running along the north-eastern boundary of the development site. There is also an existing open channel running beneath the R157/ Summerhill Road roundabout running southwards in close proximity of the development site.

Refer to **Appendix A** for Uisce Éireann Drainage records.

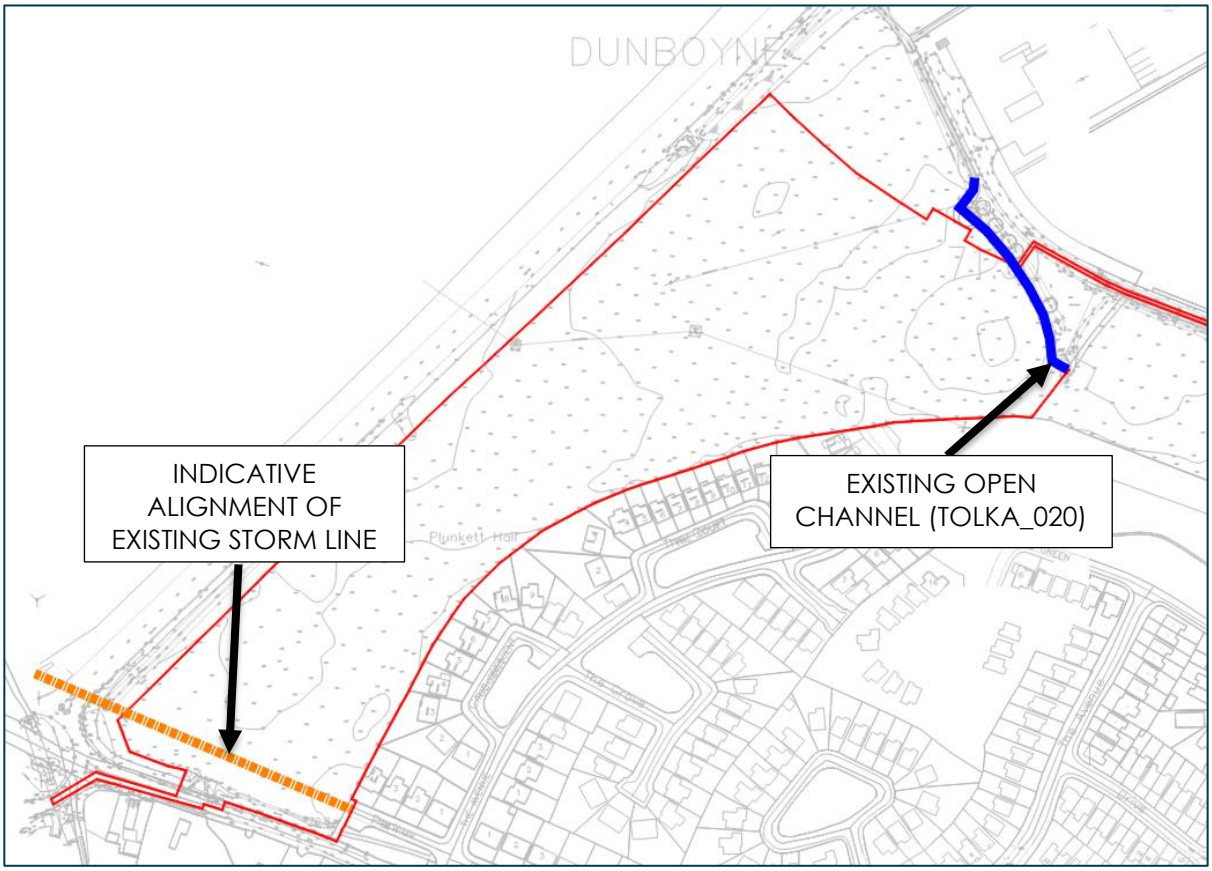


Figure 3 – Location of Existing Open Channel and Storm pipe

2.2 Site Investigation

A Site Investigation was carried out by Causeway Geotech on the proposed development site. Review of site investigation report and available data suggest that the lands have low

permeability and discharge to ground is not an option. Refer to **Appendix B** for relevant sections of the Site Investigation Report.

2.3 Proposed Storm Water Sewer Diversion

As mentioned earlier there is an existing storm sewer traversing the site along the southern boundary. As part of this application, it is proposed to divert this existing storm sewer to exit the development via the proposed access, run westwards along Summerhill Road and discharge into the existing culvert just south of the R157.

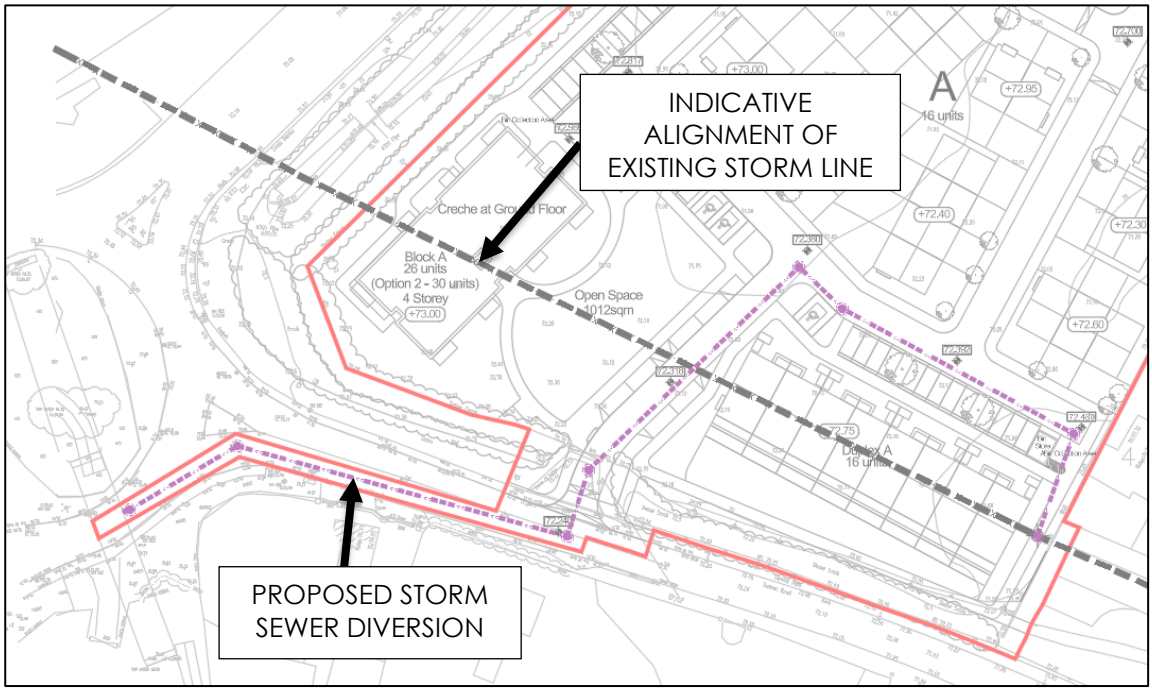


Figure 4 – Proposed Storm Water Diversion

2.4 Proposed Stormwater Drainage Arrangements

2.4.1 Allowable run-off rate and Surface water design

The development is required to retain stormwater volumes predicted to be experienced during extreme rainfall events. This is defined as the volume of storm water generated during a 1-in-100-year storm event, increased by 20% for the predicted effects of climate change.

In accordance with the Greater Dublin Strategic Drainage Study (GDSDS), the proposed development shall restrict the stormwater run-off to greenfield run-off rates or 2.0l/s/ha whichever is greater, unless other requirements are specified by Meath County Council.

The greenfield runoff rate for the proposed development was determined through the HR Wallingford online tool – please refer to **Appendix C**. The calculated Q-Bar value for the overall development site is 14.7 l/sec, considering an overall drainable site area of 6.51ha.

To ensure an accurate calculation of the development's required attenuation storage volume, the following data were obtained from Met Éireann:

a) the SAAR (Standard Annual Average Rainfall) for the area (840mm/year);

b) the sliding duration table for the site, indicating the 1-in-100-year rainwater intensities to be used;

2.4.2 Proposed surface water drainage layout and connection points

The topography of the subject site indicates that the development site is generally flat, albeit falls from south to north. Refer to CS Drawing **D144-CSC-XX-XX-DR-C-0001**. Due to the flat nature of the development site and the invert level of the existing open channel (TOLKA_020) along the northern boundary, the development site has been divided into two principal catchments areas for the collection and disposal of stormwater runoff from impermeable areas:

- Catchment 1 of 1.72ha, highlighted in purple in **Figure 5** below.

  All storm water from this Catchment shall be collected in a designed attenuation tank of total volume approx. 551m^3. All storm water from this catchment shall discharge into the proposed diverted storm sewer as shown in **Figure 4** via an appropriate flow control device. The discharge rate for Catchment 1 shall be limited to 3.81 l/s, calculated as a proportion of this Catchment's area relative to the overall site's drainable area and overall discharge rate of 6.51ha and 14.7 l/s, respectively:

  14.7 l/s x (1.72ha / 6.51ha) = 3.89 l/s

- Catchment 2 of 4.79ha, highlighted in green in **Figure 5** below.

  All storm water from this Catchment shall be collected in 4 no. designed detention basins placed over 2 no. attenuation tanks and shall have a total combined volume of approx. 1698m^3. All storm water from this catchment shall discharge into the existing open channel (TOLKA_020) along the north-eastern boundary of the development site via an appropriate flow control device. The discharge rate for Catchment 2 shall be limited to 10.89 l/s, calculated as a proportion of this

Catchment's area relative to the overall site's drainable area and overall discharge rate of 6.51ha and 14.7 l/s, respectively:

14.7 l/s x (4.79ha / 6.51ha) = 10.81 l/s

Refer to **Figure 5** for Storm Catchment extents and CS Consulting drawings **D144-CSC-XX-XX-DR-C-0004** and **D144-CSC-XX-XX-DR-C-0005** for full details of the development's proposed stormwater drainage arrangements.

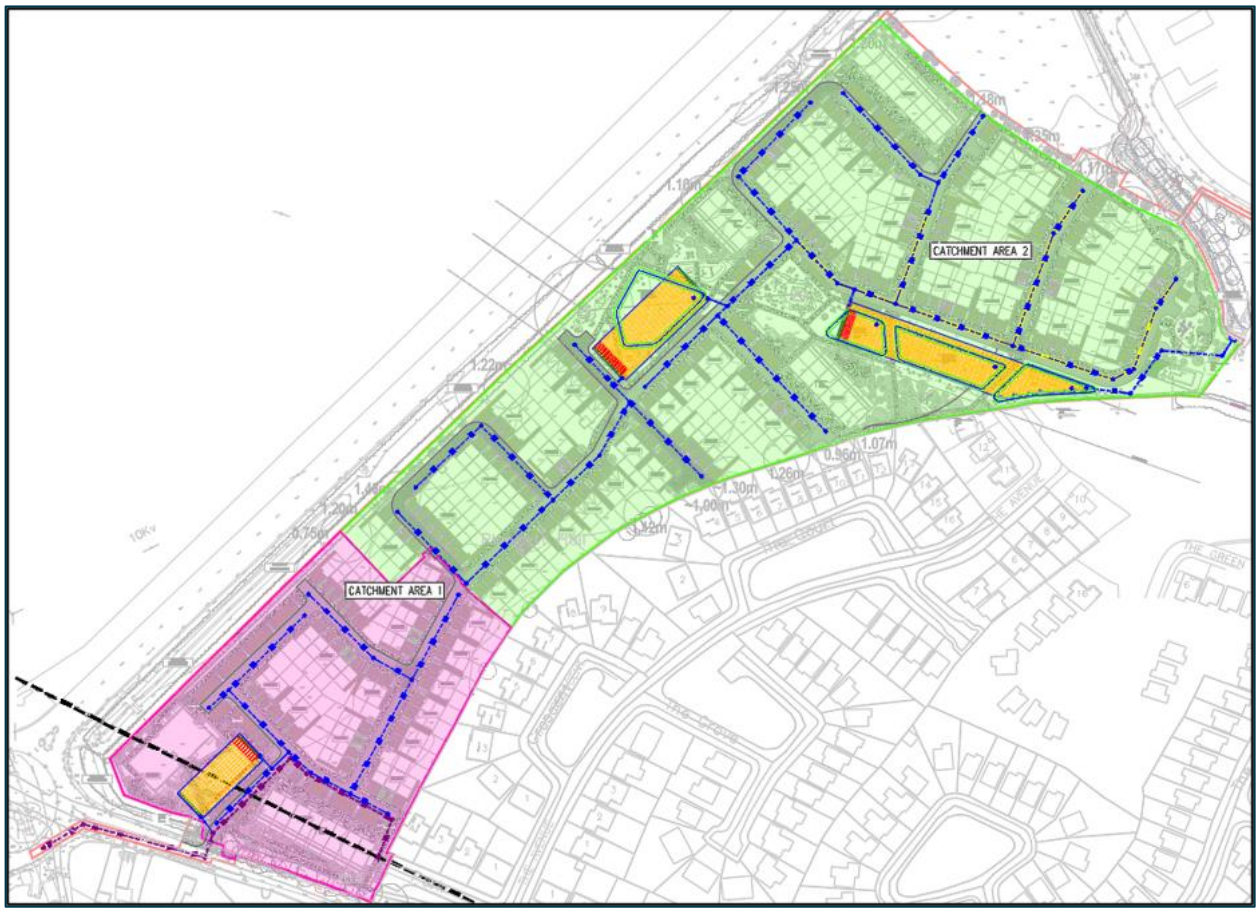


Figure 5 – Proposed Storm Catchments

Refer to **Tables 1 and 2** below for details of the runoff factors and effective impermeable areas respectively for Catchments 1 and 2.

Table 1 – Catchment 1 Runoff Coefficients and Impermeable Areas

Surface Type	Area (m2)	Runoff Coefficient	Impermeable Area (m2)
Roads and Footpaths	3854	90%	3469
Roofs and Plot Curtilages	4173	80%	3338
Soft Landscape Areas	6603	5%	330
Permeable Pavement	2570	50%	1285
TOTAL	**17200**	**-**	**8422**

Table 2 - Catchment 2 Runoff Coefficients and Impermeable Areas

Surface Type	Area (m2)	Runoff Coefficient	Impermeable Area (m2)
Roads and Footpaths	9640	90%	8676
Roofs and Plot Curtilages	10346	80%	8277
Detention Basin	2951	95%	2803
Soft Landscape Areas	18958	5%	948
Permeable Pavement	6005	50%	3003
TOTAL	**47900**	**-**	**23707**

The total effective impermeable area for the overall development site is:

8422 m^2 + 23707 m^2 = 32129 m^2

For each catchment, the surface water runoff shall be collected in separate storm water pipes of size 225mm to 450mm diameter and shall be discharged into attenuation tanks and detention basins placed over attenuation tanks. The attenuated water from each of the tanks and detention basins shall then pass through a petrol interceptor and a hydrobrake (proposed separately for each catchment), before discharging into the proposed diverted storm line for Catchment 1 and into the existing open channel (TOLKA_020) for Catchment 2.

For Catchment 1, it is proposed to backdrop the last pipe immediately downstream of the attenuation tank at approximately 1.2m above the invert level of the diverted storm line. This shall reduce to a minimum the likelihood of surcharge of the proposed storm network for extreme storm events. Likewise, for Catchment 2 it is proposed to outfall the storm above the existing invert level of the open channel (TOLKA_020).

The proposed development's surface water drainage network has been designed through Autodesk's InfoDrainage Design and Modelling Software to cater for the 1-in-100-year storm event, increased by 20% for the predicted effects of climate change. The runoff coefficients outlined in **Tables 1 and 2** above are applied to the respective surface types for an overall effective impermeable area of 3.21ha, with Standard runoff coefficients (Cv) of 1.0 for both

summer and winter applied. Refer to the Surface Water Network Details and Design Parameters in **Appendix D** and to the Analysis and Modelling Results for the 1:1 year storm event, 1:30 year storm event and 1:100-year storm event **in Appendix E.**

Refer to CS Consulting drawing **D144-CSC-XX-XX-DR-C-0004** and **D144-CSC-XX-XX-DR-C-0005** for full details of the development's proposed stormwater drainage arrangements.

2.4.3 Summary of Compliance with Criteria 1-4 of GDSDS

The GDSDS and the Regional Code of Practice for Drainage Works require that a development's stormwater drainage arrangements satisfy four main criteria:

- Criterion 1: River Water Quality Protection – satisfied by treatment of run-off within SuDS features, e.g., Permeable paving, detention basins, etc.
- Criterion 2: River Regime Protection - satisfied by attenuating run-off from the site.
- Criterion 3: Level of Service (flooding) for the site – satisfied by the site being outside the 1000-year coastal and fluvial flood extent areas.
- Criterion 4: River Flood Protection – attenuation and/or long-term storage provided within the SuDS features.

2.5 Proposed Sustainable Drainage System (SuDS) Design

Meath County Council's Drainage Division requires that all developments adhere to their policy of implementing Sustainable Drainage Systems (SuDS). SuDS not only entail restricting stormwater discharge during extreme storm events but also to integrate sustainable water management solutions to create safe places. The features proposed shall reduce run-off volumes and pollution concentrations and enhance groundwater recharge and biodiversity.

Refer to CS Consulting drawing no. **D144-CSC-ZZ-XX-DR-C-0012** and **D144-CSC-ZZ-XX-DR-C-0013** for proposed SuDS Layout.

2.5.1 Proposed SuDS Elements

The proposed SuDS features within the subject development shall consist of:

a. Permeable paving for car-parking bays.

b. Detention Basins

c. Tree Pits

2.5.2 Surface Water Treatment

Land use is the primary influencing factor in the quality of urban surface water runoff and can therefore be used to represent the significance of the expected pollutant concentrations generated during rainfall events.

The Simple Index Approach (SIA) described in chapter 26 of C753 -The SuDS Manual will be applied in the stormwater treatment analysis of the proposed development, which is residential in nature. To implement this method effectively, the steps described below will be followed.

- Step 1: Define SuDS Treatment Areas for the proposed development.
- Step 2: Produce a SuDS Treatment Train table with the total areas for each hardstanding and soft landscaping surface type present on the proposed development, outlining the proposed SuDS feature and end recipient for each of the surfaces.
- Step 3: Allocate pollution hazard indices to the development's proposed land use for the following types of pollutants: suspended solids, metals, and hydrocarbons.
- Step 4: Allocate pollution mitigation indices to each proposed SuDS component for the following types of pollutants: suspended solids, metals, and hydrocarbons.
- Step 5: Using the Simple Index Approach, compare the aggregated surface water pollution mitigation indices determined in Step 4 to the pollution hazard indices. determined in Step 3. The aggregated surface water pollution mitigation indices should be greater than the pollution hazard indices.

STEP 1: The proposed SuDS Treatment Areas, which coincide with the previously defined Catchment Areas 1 and 2, are identified in **Figure 6** below. Treatment Area 1 corresponds to all of the purple area defined by Catchment 1 while Treatment Area 2 corresponds to all of the green area defined by Catchment 2.

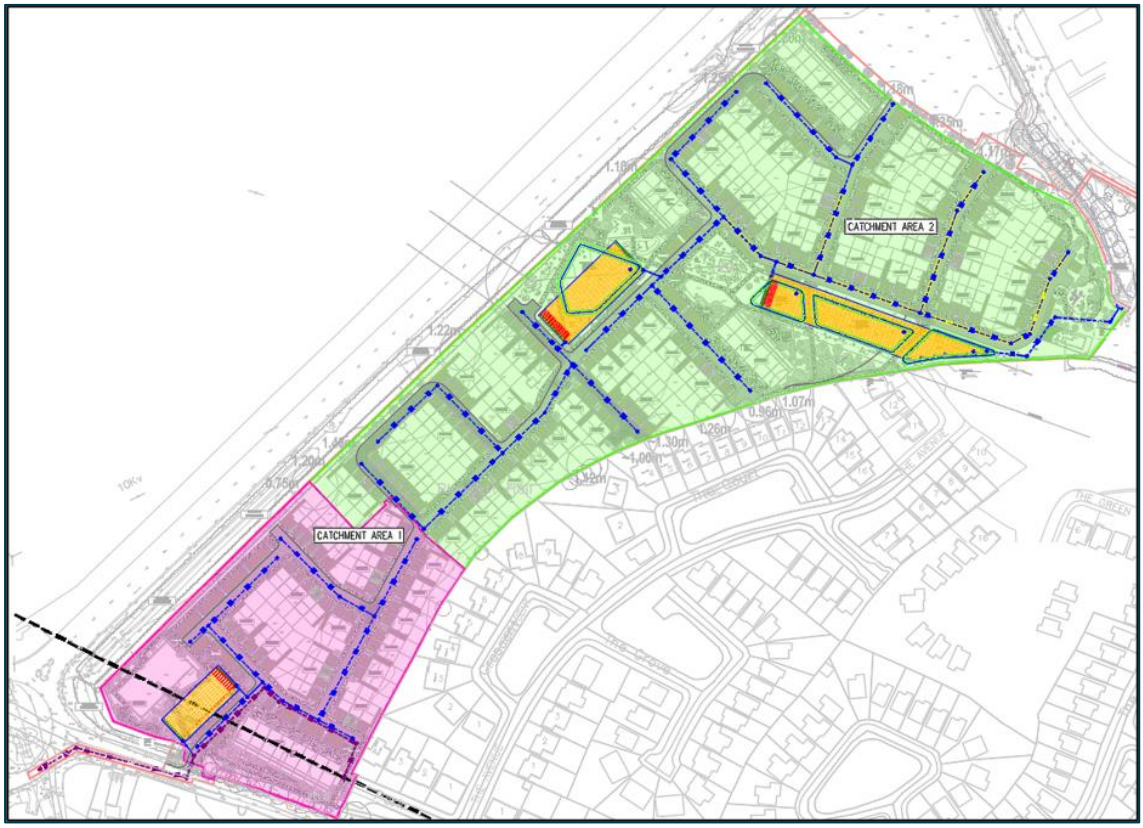


Figure 6 – Proposed Drainable Areas

STEP 2: Tables 3 and 4 below outline the proposed SuDS Treatment Train for each individual surface type present on site.

Table 3 –Treatment Train for Catchment Area 1

Runoff Origin	Area (m2)	SuDS Feature 1	SuDS Feature 2	SuDS Feature 3	End Recipient
Road	2147	Attenuation tank	Petrol Interceptor	-	Storm sewer
Footpath	1707	Attenuation tank	Petrol Interceptor	-	Storm sewer
Roof	4173	Permeable Paving	Attenuation tank	Petrol Interceptor	Storm sewer
Car Parking	2570	Permeable Paving	Attenuation tank	Petrol Interceptor	Storm sewer
Soft Landscape	6603	-	-	-	Ground
TOTAL	**17200**				

Table 4 – Treatment Train for Catchment Area 2

Runoff Origin	Area (m2)	SuDS Feature 1	SuDS Feature 2	SuDS Feature 3	End Recipient
Road	6196	Attenuation tank/ Detention Basin	Petrol Interceptor	-	Stream
Footpath	3444	Attenuation tank/ Detention Basin	Petrol Interceptor	-	Stream
Roof	10346	Permeable Paving	Attenuation tank/ Detention Basin	Petrol Interceptor	Stream
Car Parking	6005	Permeable Paving	Attenuation tank/ Detention Basin	Petrol Interceptor	Stream
Soft Landscape	21909	-	-	-	Ground
TOTAL	**47900**				

STEP 3: The pollution hazard indices for the proposed development, based on a runoff area land use of 'Residential Parking/Roads', are as follows:

Total Suspended Solids	Metals	Hydrocarbons
0.5	0.4	0.4

STEP 4: The pollution mitigation indices for each SuDS component proposed across the Treatment Areas are shown below.

SuDS Component	Total Suspended Solids	Metals	Hydrocarbons
Permeable Paving	0.7	0.6	0.7
Detention Basin	0.5	0.5	0.6
Attenuation Tank Isolator Row	0.8	0.6	0.9

STEP 5: Using the Simple Index Approach, the aggregated surface water pollution mitigation indices are determined based on the selected SuDS Components and compared to the pollution hazard indices.

For SuDS Treatment Area 1, where the active SuDS Components are permeable paving and an attenuation tank, the aggregated surface water pollution mitigation indices add up to 0.95 for Total Suspended Solids, 0.90 for Metals and over 0.95 for Hydrocarbons. As shown previously in Step 3, the pollution hazard indices based on the site-specific land use of 'Residential Parking/Roads' equals 0.5 for Total Suspended Solids and 0.4 for both Metals and Hydrocarbons. Therefore, the proposed SuDS elements in Treatment Area 1 are sufficient to effectively mitigate the surface water pollution risk in this area.

SuDS Treatment Area 2 has active SuDS Components of permeable paving, attenuation tanks and detention basins. In this instance the aggregated surface water pollution mitigation indices add up to over 0.95 for all Total Suspended Solids, Metals and Hydrocarbons. The pollution hazard indices, as mentioned previously, equal 0.5 for Total Suspended Solids and 0.4

for both Metals and Hydrocarbons. Therefore, the proposed SuDS elements in Treatment Area 2 are sufficient to effectively mitigate the surface water pollution risk in this area.

In conclusion and taking all the above into consideration, the proposed development is deemed to adequately deal with surface water pollution risk. Refer to **Appendix F** for summary tables of the Simple Index Approach analysis for each SuDS Treatment Area.

2.5.3 Attenuation Storage

The restriction of post development run-off to greenfield discharge rates is intended to be achieved primarily through the provision of onsite attenuation storage, which shall retain excess runoff during extreme rainfall events and allow this to be discharged at a controlled rate. Refer to chapter 2.4.1 contained in this report for a breakdown of the allowable discharge rates in each Catchment of the proposed development.

As mentioned previously the overall development shall be divided in 2 principal catchment areas. Both catchment areas shall be provided with attenuation systems and shall have a combined volume of 2,249m^3 and shall be discharged via flow-controlled mechanism at a maximum combined rate of 14.7l/s.

Catchment 1

Catchment 1 has an area of circa 1.72ha and the greenfield runoff rate has been established as 3.89 l/s. Attenuation is provided in the form of an attenuation tank located to the south of the apartment block along the southern boundary.

The proposed attenuation tank shall have a total volume of **551m^3** and has been designed to cater for 1-in-100 storm event increased by 20% climate change.

Stormwater from this catchment shall discharge into the diverted storm line via a flow control device, at a maximum rate of 3.89 l/s.

Catchment 2

Catchment 2 has an area of 4.79ha and the greenfield runoff rate has been established as 10.81 l/s. Attenuation storage for Catchment 2 shall be divided onto 2 no. attenuation systems. The overall attenuation volume for Catchment 2 shall equate to a total of **1698m^3**.

The western attenuation system is in the form of a detention basin placed on top of an attenuation tank. The attenuation tank has been designed for 1-in-30-year storm event and the detention basin has been designed for 1-in-100-year storm event increased by 20% climate change. The detention basin shall have a gradient of 1:4 and the maximum water depth within the basin at any time would not exceed 300mm. Land drains shall collect and direct water from west to east. The storm water from this

attenuation system shall then be discharged into the main storm network within the site via a flow-controlled mechanism at a maximum rate of 2.5 l/s. The combined volume of the attenuation tank and the detention basin shall equate to a total of **711m³**.

The eastern attenuation system is in the form of three adjoining detention basins placed on top of an attenuation tank. The attenuation tank has been designed for 1-in-30-year storm event and the detention basin has been designed for 1-in-100-year storm event increased by 20% climate change. The detention basin shall have a gradient of 1:4 and the maximum water depth within the basin at any time would not exceed 300mm. Land drains shall collect and direct water from west to east. The storm water from this attenuation system shall discharge into the existing open channel via a flow-controlled mechanism at a maximum rate of 10.81 l/s. The combined volume of the attenuation tank and the detention pond shall equate to a total of **987m³**.

2.5.4 Interception Storage Calculations

It is proposed to intercept the first 5mm of rainfall on the proposed development's hardstanding areas, as per GDSDS guidelines, as follows:

Overall Site Drainable Area = 65,100m².

Required interception for overall site = 65,100m² x 5mm = 325.50m³.

The interception volume provided within the proposed development is detailed in **Table 5** below:

Table 5 – Interception Volume provided

SuDS Element	Depth (mm/m2)	Area (m²)	Volume (m³)
Permeable Pavement	10	8,575	85.75
Soft Landscaping	10	25,317	253.17
Tree Pits	15	244	3.66
TOTAL	**-**	**15,170**	**342.58**

The total interception storage provided for the overall site is 342.58m³, thereby exceeding the required 326.50m³.

The GDSDS recommends that if the initial runoff from at least 5 mm of rainfall can be intercepted, additional treatment for runoff (treatment volume) is not required. In this development, the stormwater management measures successfully intercept runoff from at least 5 mm of rainfall. The proposed detention basins and attenuation tanks provide further treatment of storm water prior to outfalling to the public network, as detailed in Chapter 2.5.3 of this report.

2.6 Meeting with Meath County Council Drainage Department

CS Consulting met with Mr. Damien O'Brien of Meath County Council Drainage Department to discuss the proposed surface water arrangement, connection points to the existing surface water network and SuDS features proposed on the development site.

The proposed surface water network, its outfalls into the existing open channel (TOLKA_020) and proposed storm sewer diversion, attenuation in the form of detention basins and attenuation tanks and all other SuDS systems outlined previously were agreed in principle with Mr. O'Brien.

2.7 SuDS Outline Management Plan

For the SUDS strategy to work as designed, it is important that the entire drainage system is well maintained. It shall be the responsibility of the site management team to ensure the drainage system is maintained. Maintenance and clearing of gullies, drains and manholes shall ensure adequate performance.

2.7.1 Permeable Paving

Regular inspection and maintenance are important for the effective operation of permeable pavement s. Maintenance responsibility for a permeable pavement and its surrounding area should be placed with an appropriate responsible organisation. Before handing over the pavement to the client, it should be inspected for clogging, litter, weeds and water ponding, and all failures should be rectified.

If the surface has clogged then a more specialist sweeper with water jetting and oscillating and rotating brushes may be required, especially for porous asphalt surfaces, to restore the surface infiltration rate to an acceptable level. The specialist equipment should be adjusted so that it does not strip binder from the aggregate in the asphalt.

For concrete block permeable paving the design life should be no different from standard paving, assuming that an effective maintenance regime is in place to minimise risks of infiltration clogging.

Materials removed from the voids or the layers below the surface may contain heavy metals and hydrocarbons and may need to be disposed of as controlled waste. Sediment testing should be carried out before disposal to confirm its classification and appropriate disposal methods.

Operation & Maintenance Requirements for Permeable pavement s		
Maintenance Schedule	**Required Action**	**Typical Frequency**
Regular Maintenance	Brushing and vacuuming (standard cosmetic sweep over whole surface)	Once a year, after autumn leaf fall, or reduced frequency as required, based on site-specific observations of clogging or manufacturer's recommendations – pay particular attention to areas where water runs onto pervious surface from adjacent impermeable areas as this area is most likely to collect the most sediment
Occasional Maintenance	Stabilise and mow contributing and adjacent areas	As required
	Removal of weeds or management using glyphosate applied directly into the weeds by an applicator rather than spraying	As required – once per year on less frequently used pavements
Remedial Actions	Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50 mm of the level of the paving	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, 48 h after large storms in first six months
	Inspect silt accumulation rates and establish appropriate brushing frequencies	Annually
	Monitor inspection chambers	Annually

2.7.2 Detention Basins

Detention basins will require ongoing regular maintenance to ensure continuing operation to design performance standards.

Maintenance of detention basins is relatively straightforward for landscape contractors, and typically there should only be a small amount of extra work (if any) required for a SuDS detention basin over and above what is necessary for standard public open space.

Maintenance responsibility for a basin should always be placed with an appropriate organisation. Adequate access should be provided to all detention basin areas for inspection and maintenance, including for appropriate equipment and vehicles.

The major maintenance requirement for detention basins is usually mowing. Regular mowing in and around detention basins is only required along maintenance access routes, amenity areas (e.g., footpaths), across any embankment and across the main storage area. The remaining areas can be managed as "meadow" unless additional management is required for landscape/amenity/recreational or aesthetic reasons.

Mowing should ideally retain grass lengths of 75–150 mm across the main "treatment" surface to assist in filtering pollutants and retaining sediments and to reduce the risk of flattening during runoff events. Longer lengths of vegetation may be appropriate, depending on the functionality of the component, and its associated design criteria and are not considered to pose a significant risk to functionality. Shorter lengths may be required when recreational facilities form part of the basin, but in this case the basin will be dealing with exceedance flows only and not treatment.

Grass clippings should be disposed of off-site or outside the detention basin area to remove nutrients and pollutants. Where a detention basin has a small permanent pool at the outlet, its submerged and emergent aquatic vegetation should be managed as for ponds or wetlands. Plant management, to achieve the desired habitat effect, should be clearly specified in a maintenance schedule. All vegetation management activities should take account of the need to maximise biosecurity and prevent the spread of invasive species.

Sediment testing may be required before sediment excavation to determine its classification and appropriate disposal methods. For runoff from busy streets with high vehicle traffic, sediment testing will be essential. In the majority of cases, it will be acceptable to distribute the sediment on-site if there is an appropriate safe and acceptable location to do so.

The following table provides guidance on the type of operational and maintenance requirements that may be appropriate. The list of actions is not exhaustive, and some actions may not always be required.

Operation & Maintenance Requirements for Attenuation Storage Tanks		
Maintenance Schedule	**Required Action**	**Typical Frequency**
Regular Maintenance	Remove litter and debris	Monthly
	Cut grass – for spillways and access routes	Monthly (during growing season), or as required
	Cut grass – meadow grass in and around basin	Half yearly (spring – before nesting season, and autumn)
	Manage other vegetation and remove nuisance plants	Monthly (at start, then as required)
	Inspect inlets, outlets, and overflows for blockages, and clear if required.	Monthly
	Inspect banksides, structures, pipework etc. for evidence of physical damage	Monthly
	Inspect inlets and facility surface for silt accumulation. Establish appropriate silt removal frequencies.	Monthly (for first year), then annually or as required
	Check any penstocks and other mechanical devices	Annually
	Tidy all dead growth before start of growing season	Annually
	Remove sediment from inlets, outlet and forebay	Annually (or as required)
	Manage wetland plants in outlet pool – where provided	Annually (as set out in Chapter 23)
Occasional Maintenance	Reseed areas of poor vegetation growth	As required
	Prune and trim any trees and remove cuttings	Every 2 years, or as required
	Remove sediment from inlets, outlets, forebay and main basin when required.	Every 5 years, or as required (likely to be minimal requirements where effective upstream source control is provided)
Remedial Actions	Repair erosion or other damage by reseeding or re-turfing	As required
	Realignment of riprap	As required
	Repair/rehabilitation of inlets, outlets, and overflows	As required
	Relevel uneven surfaces and reinstate design levels	As required

2.7.3 Tree Pit Systems

Maintenance requirements of trees will be greatest during the first few years, when the tree is becoming established. Early maintenance should involve regular inspection, removal of invasive vegetation and possibly irrigation during long dry periods, particularly in soils with high void ratios. Tree roots need to establish good root–soil contact before they can efficiently extract water from the soil. The expertise of a arboriculturist/landscape architect with local knowledge should be sought regarding appropriate irrigation schedules. Maintenance responsibility for a tree pit or planter should always be placed with an appropriate organisation.

The following table provides guidance on the type of operational and maintenance requirements that may be appropriate. The list of actions is not exhaustive, and some actions may not always be required.

Operation & Maintenance Requirements for Trees		
Maintenance Schedule	**Required Action**	**Typical Frequency**
Regular Maintenance	Remove litter and debris	Monthly (or as required)
	Manage other vegetation and remove nuisance plants	Monthly (at start, then as required)
	Inspect inlets and outlets	Inspect monthly
Occasional Maintenance	Check tree health and manage tree appropriately	Annually
	Remove silt build-up from inlets and surface and replace mulch as necessary	Annually, or as required
	Water	As required (in periods of drought)
Monitoring	Inspect silt accumulation rates and establish appropriate removal frequencies	Half yearly

Sediments excavated from a tree pit or planter that receive runoff from residential or standard road and roof areas are generally not toxic or hazardous material and can therefore be safely disposed of by either land application or landfilling. However, consultation should take place with the environmental regulator to confirm appropriate protocols. Sediment testing may be required before sediment excavation to determine its classification and appropriate disposal methods. For runoff, from busy streets with high vehicle traffic sediment testing will be essential.

Many of the specific maintenance activities for trees can be undertaken as part of a general landscaping or specific tree maintenance contracts.

2.8 Design Standards

The proposed new stormwater drainage infrastructure has been designed and will be constructed in accordance with:

i) The Greater Dublin Strategic Drainage Study (GDSDS), Volume 2

ii) The Greater Dublin Regional Code of Practice for Drainage Works

iii) British Standard BS EN 752:2008 (Drains and Sewer Systems Outside Buildings)

iv) Part H of the Building Regulations (Building Drainage).

v) CIRIA C753 – The SuDS Manual

3.0 FOUL DRAINAGE INFRASTRUCTURE

3.1 Existing Foul Drainage Infrastructure

A review of Uisce Éireann records indicates an existing foul sewer currently serving the existing the Grove residential estate to the east of the development site and an existing 450mm diameter foul sewer located at the Navan Road/ Dunboyne Business Park Road junction approx. 620m north-east of the development site.

A CCTV survey was carried out along Dunboyne Business Park Road. The survey indicates an existing foul sewer running along the Dunboyne Business Park Road.

Refer to **Appendix A** for Uisce Éireann Drainage records.

3.2 Foul Effluent Generated by the Proposed Development

The development will consist of provision of 248no. residential units (including 80no. apartment units) and a creche with a GFA of 285.7sqm (to accommodate 65 children).

3.2.1 Wastewater Effluent Generated by Residential Units

The Uisce Éireann Code of Practice for Wastewater Infrastructure specifies an average wastewater effluent flow rate of 165 litres per person per day for domestic dwellings (150 litres per person per day, plus a 10% allowance for external infiltration) and an average occupancy of 2.7 persons per residential unit. The development's applicable design population is therefore 670 people, and the wastewater effluent to be generated by the proposed residential units may be calculated as:

⇒ 165 l/person/day.

⇒ Dry Weather Flow (DWF)

165 l/day x 670 people = 110,550 l/person/day = 1.2795 l/sec

⇒ Peak Flow (6 times DWF)

6 x 1.2795 l/sec = 7.68 l/sec.

3.2.2 Wastewater Effluent Generated by Crèche

The Uisce Éireann Code of Practice for Wastewater Infrastructure specifies an average wastewater effluent flow rate of 50 litres per child per day for schools without canteen, and 90 litres per staff per day. It is also assumed that a maximum of 65no. children and 15no. staff shall be utilising the facility daily. Therefore, the wastewater effluent generated by crèche of the proposed development may be calculated as;

⇒ 50 l/child/day and 90l/staff/day.

⇒ Dry Weather Flow (DWF)

(50 l/day x 65 children) + (90 l/day x 15 people staff) = 4,600 l/person/day = 0.0532 l/sec

⇒ Peak Flow (6 times DWF)

6 x 0.0532 l/sec = 0.319 l/sec.

3.2.3 Total Wastewater Effluent generated by the proposed development

- Dry Weather Flow = 1.279 + 0.0532 = 1.332 l/sec.
- Peak Flow = 7.68 + 0.3719 = 8.052 l/sec.

3.3 Proposed Foul Drainage Arrangements and Outfall

All foul effluent generated from the proposed development will be collected in separate foul pipes and discharge to a proposed on-site Type 3 foul pump station, designed to provide 24-hour storage capacity as per UÉ Code of Practice. Effluent would then be pumped via an 80mm rising main to the existing 450 mm foul sewer approx. 620m from the development site within the Dunboyne Industrial Estate.

A septicity test was carried out for the 80mm rising main, the test results shows that the 80mm rising main can cater for the proposed development.

Refer to CS Consulting drawing no. **D144-CSC-ZZ-XX-DR-C-0006** and **D144-CSC-ZZ-XX-DR-C-0007** for further details.

3.4 Uisce Éireann Engagement

A Pre-Connection Enquiry (PCE) was submitted to Uisce Éireann for the proposed development. As a response to the PCE, a confirmation of Feasibility (CoF) was issued by Uisce Éireann on September 1st 2025 and it was noted that wastewater connection is feasible subject to upgrades;

'It is the responsibility of the applicant to verify that a gravity connection to the public foul sewer is possible.

Proposed Connection point should be to the existing 450mm Sewer to the Northeast of the site within neighboring industrial estate. See Figure 2 below.

The proposed wastewater connection for this development connects to the Uisce Eireann network via infrastructure that has not been taken in charge by Uisce Eireann (Third Party

Infrastructure). Please be advised that at connection application stage and prior to the commencement of any Self-Lay Works, you have to:

- *Identify and procure transfer to Uisce Eireann of the arterial wastewater Infrastructure within the Third Party Infrastructure.*
- *Demonstrate that the arterial infrastructure are in compliance with requirements of Uisce Eireann Code of Practice and Standard Details and in adequate condition and capacity to cater for the additional water demand.*

Please note that there is a lot of interest in this area from Connection Applications and Pre-Connection Enquiries and limited capacity at the connection point/Network and this will be re-assessed if/when a Connection Application is received. This connection point/Network will be monitored from current on the ground connection applications and this may affect the analysis.

In the case capacity is exceeded due to high growth in the catchment, additional upgrades, such as ground infiltration and/or stormwater reduction works may be required to facilitate development.'

As per the CoF received, it is proposed to collect the foul effluent generated within the site in a foul sewer network that shall then outfall via gravity into a Type 3 foul pumping station at the northeast corner of the site. From here the foul effluent shall discharge via an 80mm rising main into the existing 450mm diameter foul sewer along Dunboyne Business Park. Any Letter of Consent required shall be obtained by the applicant and shall be submitted during the Connection Application stage.

See **Appendix G** of this report for a copy of Confirmation of Feasibility (CoF) and Statement of Design Acceptance (SoDA) issued by Uisce Éireann**.**

3.5 Design Standards

- *Uisce Éireann* Code of Practice for Wastewater Infrastructure
- Part H of the Building Regulations.

4.0 POTABLE WATER INFRASTRUCTURE

4.1 Existing Potable Water Infrastructure

A review of Uisce Éireann records indicates an existing 100mm watermain running along the Summerhill Road to the south of the development site extents, and an existing 100mm watermain running along the Dunboyne Business Park Road to the north of the development site extents. The records also indicate an existing 100mm watermain currently serving the Grove residential estate to the east of the development site extents.

Refer to **Appendix A** for Uisce Éireann Drainage records.

4.2 Potable Water Demand

The development will consist of provision of 248no. residential units (including 78no. apartment units) and a creche with a GFA of 285.7sqm (to accommodate 61 children).

4.2.1 Residential Units Water Demand

Uisce Éireann Code of Practice for Water Infrastructure specifies an average potable water demand of 150 litres per person per day for domestic dwellings, and an average occupancy of 2.7 persons per residential unit. The development's applicable design population is therefore 670 people, and the average potable water demand of the proposed development may be calculated as:

⇒ 150 l/person/day.

⇒ Average water demand

150 l/day x 670 people = 100,500 l/person/day = 1.163 l/sec

⇒ Peak water demand (5 times average water demand)

5 x 1.163 l/sec = 5.815 l/sec.

4.2.2 Crèche Water Demand

The Uisce Éireann Code of Practice for Water Infrastructure does not specify potable water consumption rates for non-domestic uses; therefore, the water demand is assumed to be 50l/person/day for children and 90l/staff/day for staff. Taking into consideration the size of the creche, it is assumed that 61no. children and 15no. staff shall be present daily. Therefore, the potable water demand for the creche may be calculated as:

⇒ 50 l/child/day and 90l/staff/day.

⇒ Average water demand

(50 l/day x 61 children) + (90 l/day x 15 people staff) = 4,400 l/person/day = 0.0509 l/sec

⇒ Peak water demand (5 times average water demand)

5 x 0.0509 l/sec = 0.254 l/sec.

4.2.3 Total Potable Water Demand by the Overall Proposed Development

- Average Demand = 1.163 l/s + 0.0509 l/s = 1.214 l/s
- Peak Demand = 5.815 l/s + 0.254 l/s = 6.070 l/s

4.3 Proposed Water Supply Arrangements

As per the Confirmation of Feasibility received by Uisce Éireann *'Upgrade works are required to increase the capacity of the existing water network. Uisce Eireann currently has a project on our current investment plan which will provide the necessary upgrade and capacity. This upgrade project is scheduled to be completed by Q3 2026 (this may be subject to change) and the proposed connection could be completed as soon as possible after these works. Customer to engage at Connection Application stage. Proposed Connection point will be to the proposed 200mm ID main on the R157 (North end of the Development along the R157) See Figure 1 below.'*

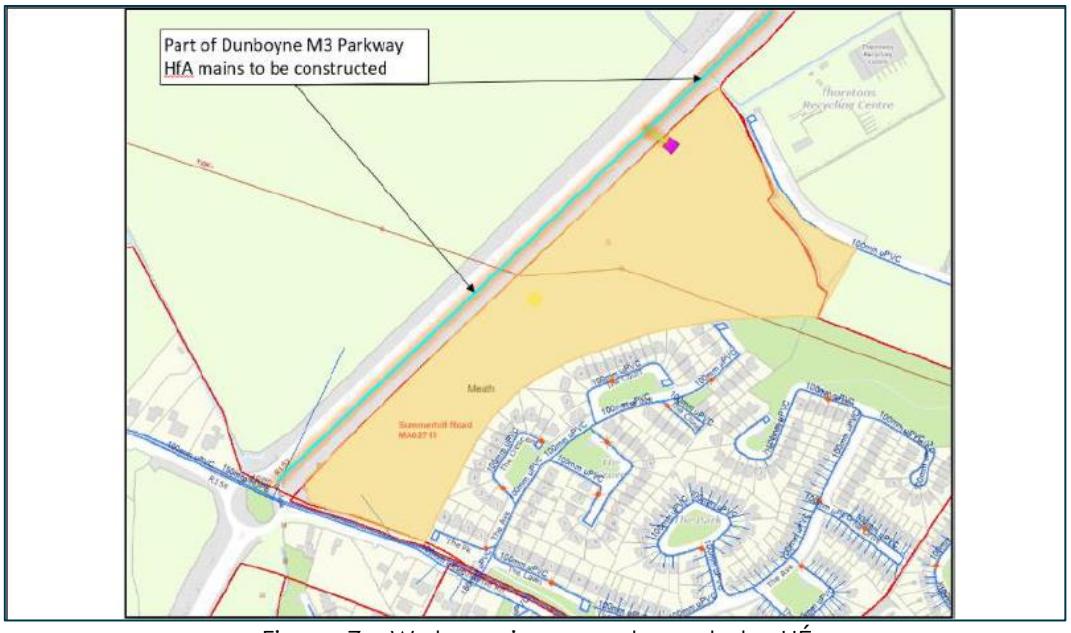


Figure 7 – Watermain upgrade works by UÉ

As per the CoF received by UÉ, it is proposed to connect the watermain to the proposed 200mm ID watermain along R157 to the north of the development site.

Refer to CS Consulting drawing no. **D144-CSC-ZZ-XX-DR-C-0008** and **D144-CSC-ZZ-XX-DR-C-0009** for further details.

4.4 Uisce Éireann Engagement

A Pre-Connection Enquiry (PCE) was submitted to Uisce Éireann for the proposed development. As a response to the PCE, a confirmation of Feasibility (CoF) was issued by Uisce Éireann on September 1st 2025 and it was noted that water connection was feasible subject to works;

'Upgrade works are required to increase the capacity of the existing water network. Uisce Eireann currently has a project on our current investment plan which will provide the necessary upgrade and capacity. This upgrade project is scheduled to be completed by Q3 2026 (this may be subject to change) and the proposed connection could be completed as soon as possible after these works. Customer to engage at Connection Application stage. Proposed Connection point will be to the proposed 200mm ID main on the R157 (North end of the Development along the R157) See Figure 1 below.'

As per the CoF received by UÉ, it is proposed to connect the watermain to the proposed 200mm ID watermain along R157 to the north of the development site.

See **Appendix G** of this report for a copy of Confirmation of Feasibility (CoF) and Statement of Design Acceptance (SoDA) issued by Uisce Éireann.

4.5 Design Standards

- Uisce Éireann Code of Practice for Water Infrastructure
- Part H of the Building Regulations.

5.0 SITE SPECIFIC FLOOD RISK ASSESSMENT

A Site-Specific Flood Risk Assessment was carried out by Tetra Tech and shall accompany the Planning documentation under separate cover.

6.0 RESPONSES TO ITEMS RAISED IN MCC LRD OPINION

Following an LRD Consultation Meeting with Meath County Council on 23/04/2026 for the proposed development, MCC issued a Notice of LRD Opinion. Outlined below are the Opinion items relevant to Engineering Services and how each item has been addressed in our design:

6.1 Items

6.1.1 Item 1

"Ongoing Liaison

Meeting held on 20/03/2026 with CS Consulting but no correspondence since – the Applicant shall liaise with MCC's Environment (Flooding/Surface Water) Department on an ongoing basis."

Response to Item 1

There have been ongoing talks with Mr. Damien O'Brien in MCC Drainage Department at Planning Stage 1 and Stage 2 regarding the proposed surface water drainage design. Mr. O'Brien agreed in principle with the proposed design. Additionally, following the Opinion Meeting Mr. O'Brien was engaged regarding the Flooding Assessment on site, to which it was agreed that a Site-Specific Flood Risk Assessment was to be carried out by specialist consultants Tetra Tech.

6.1.2 Item 2

"Riparian Strips

Riparian strips/access for maintenance along existing drainage channels to be agreed."

Response to Item 2

Riparian strips adjacent to existing drainage channels have been made clear of any development. Only the necessary stormwater pipes cross into the buffer zones of the riparian strips in order to discharge stormwater from site to the existing drainage channels.

6.1.3 Item 3

"Site Investigation Report

Site Investigation report to be submitted to MCC for review."

Response to Item 3

The Site Investigation Report carried out by Causeway Geotech will be issued to MCC as part of the Planning documentation.

6.1.4 Item 4

"Surface Water Outfall

Existing surface water outfall to South has not been confirmed; needs to be located and surveyed and diversion route agreed with Area Engineer."

Response to Item 4

A survey of the existing open channel and culvert has been carried out as part of an SSFRA by Tetra Tech. Please refer to Tetra Tech's SSFRA for the confirmed survey levels. These levels have been incorporated into our stormwater drainage design.

6.1.5 Item 5

"Surface Water System Design

Proposed Surface Water system design to be agreed with MCC: Attenuation details to be confirmed; Petrol interceptor locations to be agreed; sections of pipeline with reduced cover to be reviewed; functionality of green areas not to be impacted by proposed basin; more SUDs features required to be submitted."

Response to Item 5

The proposed surface water systems including attenuation tanks, detention basins and stormwater pipe network have been agreed in principle with MCC. The proposed basins have been designed to have a maximum water depth of 300mm and minimum side gradients of 1:4 as per MCC Drainage Department guidelines, so as not to impact the functionality of green areas. Tree Pit systems have been incorporated into the SuDS design.

6.1.6 Item 6

"SuDS Coordination

Coordination with landscape architect required on proposed SuDS features; assist in developing any green areas as much as possible with regards Nature based solutions, SuDS, Biodiversity."

Response to Item 6

All proposed SuDS features on site have been coordinated with landscape architect.

6.1.7 Item 7

"GDSDS Volume 2 Compliance

All work shall comply fully with the Greater Dublin Strategic Drainage Study (GDSDS) Regional Drainage Policies Volume 2, for New Developments."

Response to Item 7

All of the proposed surface water drainage has been designed in accordance with the Greater Dublin Strategic Drainage Study (GDSDS).

6.1.8 Item 8

"Code of Practice Volume 6

All work shall comply fully with the Greater Dublin Regional Code of Practice for Drainage Works Volume 6."

Response to Item 8

All of the proposed surface water drainage has been designed in accordance with the Greater Dublin Regional Code of Practice for Drainage Works.

6.1.9 Item 9

"Statement of Design Acceptance

A Statement of Design Acceptance shall be obtained from Uisce Éireann and included with full LRD application."

Response to Item 9

A Statement of Design Acceptance (SoDA) has been issued by Uisce Éireann, please refer to **Appendix G**.

APPENDIX A
UISCE ÉIREANN DRAINAGE RECORDS

Uisce Éireann
Irish Water



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DUNBOYNE
R156
R157
110Kv
Dunboyne Business Park
Kilbrena Green
Kilbrena
Summerhill Road
Court Hill Drive
Saint Patrick's Park
Naval Rd
225mm uPVC
225mm Concrete
Unknown
© Tailte Éireann

Legend

Sewer Gravity Mains (Irish Water owned)

Liquid Type

- Foul

Sewer Manholes

Manhole Type

- Standard
- Pump station

0 40 80 160 m

Coordinate System: TM65 Irish Grid
Projection: Transverse Mercator

Scale @ A3:	1:4,900
Drawing No.:	IW-AGG-2018-000
Drawn By:	JJ
Checked By:	<Add Name>
Approved By:	<Add Name>
Drawn Date	12/11/2025
Checked Date:	<dd/mm/yyyy>
Approved Date:	<dd/mm/yyyy>

DRAFT

N

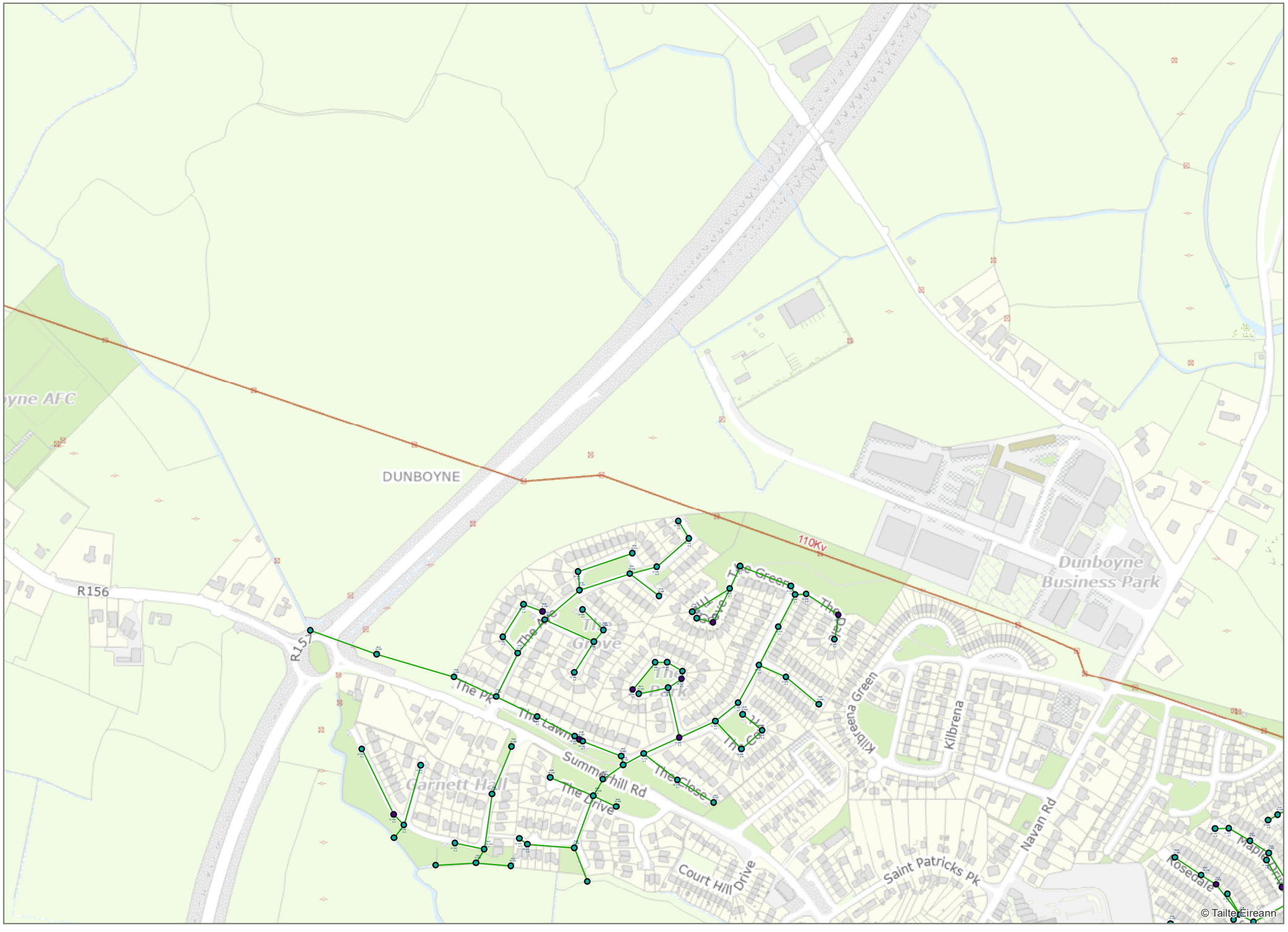
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Sewer Network





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Legend

- GISDB.IWGIS.StormwaterNet_Junct...
- Storm Manholes
- Storm Discharge Points
- GISDB.IWGIS.swGravityMain

0 40 80 160 m

Coordinate System: TM65 Irish Grid
Projection: Transverse Mercator

Scale @ A3:	**1:4,900**
Drawing No.:	**IW-AGG-2018-000**
Drawn By:	**JJ**
Checked By:	**<Add Name>**
Approved By:	**<Add Name>**
Drawn Date	**12/11/2025**
Checked Date:	**<dd/mm/yyyy>**
Approved Date:	**<dd/mm/yyyy>**

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Sewer Network

Uisce Éireann
Irish Water



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DUNBOYNE

R156

110Kv

150mm HDPE 2005

100mm uPVC 0

100mm uPVC

100mm uPVC 2000

100mm uPVC 1999

100mm uPVC 1998

100mm uPVC 1975

100mm uPVC 2001

100mm uPVC 1995

100mm Cast-Iron 0

150mm PE 2019

125mm PE 2019

Unsurveyed

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Legend

Water Hydrants
- Fire Hydrant

Reservoir
- Potable

Water Network Structures
- Water Network Structures

Abstraction Point
- Abstraction Point

Water Fittings
- Cap
- Other Fitting

Water Mains(Irish Water Owned)
- Potable Water

Water Lateral Lines
- Irish Water

0 40 80 160 m

Coordinate System: TM65 Irish Grid
Projection: Transverse Mercator

Scale @ A3:	**1:4,900**
Drawing No.:	**IW-AGG-2018-000**
Drawn By:	**JJ**
Checked By:	**<Add Name>**
Approved By:	**<Add Name>**
Drawn Date	**12/11/2025**
Checked Date:	**<dd/mm/yyyy>**
Approved Date:	**<dd/mm/yyyy>**

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Water Network

APPENDIX B

EXTRACT FROM GROUND INVESTIGATION REPORT BY CAUSEWAY GEOTECH LTD

CAUSEWAY GEOTECH







26-0556

SUMMERHILL ROAD, DUNBOYNE GROUND INVESTIGATION REPORT

Client:
D/RES PROPERTIES

Date:
MAY 2026

Status:
INTERIM

CAUSEWAY GEOTECH LTD
8 Drumahiskey Road, Ballymoney
Co. Antrim, Northern Ireland, BT53 7QL

+44 (0)28 2766 6640
info@causewaygeotech.com
www.causewaygeotech.com

DOCUMENT CONTROL SHEET 1

METHODS OF DESCRIBING SOILS AND ROCKS 1

1 AUTHORITY 2

2 PURPOSE, RATIONALE & SCOPE OF THE INVESTIGATION 2

3 DESCRIPTION OF SITE 2

4 SITE OPERATIONS 3

4.1 SUMMARY OF SITE WORKS 3
4.2 BOREHOLES 3
4.3 STANDARD PENETRATION TESTS 3
4.4 STANDPIPE INSTALLATION 3
4.5 SLIT TRENCHES 4
4.6 TRIAL PITS 4
4.7 INFILTRATION TESTS 4
4.8 SURVEYING 4
4.9 GROUNDWATER AND GROUND GAS MONITORING 4

5 GROUND CONDITIONS 5

5.1 GENERAL GEOLOGY OF THE AREA 5
5.2 GROUND TYPES ENCOUNTERED DURING INVESTIGATION OF THE SITE 5
5.3 GROUNDWATER & GROUND GAS 5

6 REFERENCES 6

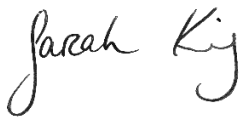
LIST OF TABLES

Table 1: Summary of surrounding land uses 2

APPENDICES

APPENDIX A – SITE AND EXPLORATORY HOLE LOCATION PLANS
APPENDIX B – BOREHOLE LOGS
APPENDIX C – SLIT TRENCH LOGS AND DRAWINGS
APPENDIX D – SLIT TRENCH PHOTOS
APPENDIX E – TRIAL PIT LOGS
APPENDIX F – TRIAL PIT PHOTOGRAPHS
APPENDIX G – INFILTRATION TEST RESULTS
APPENDIX H – GROUNDWATER & GAS MONITORING RECORDS
APPENDIX I – SPT HAMMER ENERGY MEASUREMENT REPORT

DOCUMENT CONTROL SHEET

REPORT NO:		**26-0556**			
PROJECT TITLE:		**SUMMERHILL ROAD, DUNBOYNE**			
CLIENT:		**D/RES PROPERTIES**			
REVISION:	**A00**	**STATUS**	**INTERIM**	**ISSUE DATE**	**29/05/2026**
PREPARED BY:		**REVIEWED BY:**		**APPROVED BY:**	
					
Sarah King BA (Mod), MSc		John Duggan BSc PGeo EurGeol		John Duggan BSc PGeo EurGeol	

This report presents a factual account of the ground investigation in accordance with the Specification and Related Documents for Ground Investigation in Ireland 2nd Edition, published by Engineers Ireland (2016).

METHODS OF DESCRIBING SOILS AND ROCKS

Soil and rock descriptions are based on the guidance in BS5930:2015+A1:2020, The Code of Practice for Ground Investigation.

Abbreviations used on exploratory hole logs	
U	Nominal 100mm diameter undisturbed open tube sample (thick walled sampler).
UT	Nominal 100mm diameter undisturbed open tube sample (thin walled sampler).
P	Nominal 100mm diameter undisturbed piston sample.
B	Bulk disturbed sample.
LB	Large bulk disturbed sample.
SB	Sonic bulk disturbed sample.
D	Small disturbed sample.
C	Core sub-sample (displayed in the Field Records column on the logs).
L	Liner sample from dynamic sampled borehole.
W	Water sample.
ES / EW	Soil sample for environmental testing / Water sample for environmental testing.
SPT (s)	Standard penetration test using a split spoon sampler (small disturbed sample obtained).
SPT (c)	Standard penetration test using 60 degree solid cone.
(x,x/x,x,x,x)	Blows per increment during the standard penetration test. The initial two values relate to the seating drive (150mm) and the remaining four to the 75mm increments of the test length.
(Y for Z/ Y for Z)	Incomplete standard penetration test where the full test length was not achieved. The blows 'X' represent the total blows for the given seating or test length 'Z' (mm).
N=X	SPT blow count 'N' given by the summation of the blows 'X' required to drive the full test length (300mm).
HVP / HVR	Uncorrected in situ hand shear vane test. Peak (HVP) and remoulded (HVR) results presented in kPa. Vane calibration factor has been applied, but no correction made for soil type.
c_{fv} / c_{rv}	Borehole shear vane test. Undisturbed (c_{fv}) and remoulded (c_{rv}) shear strengths presented in kPa.
Soil consistency description	In cohesive soils, where samples are disturbed and there are no suitable laboratory tests, N values may be used to indicate consistency on borehole logs – a median relationship of Nx5=Cu is used (as set out in Stroud & Butler 1975).
dd-mm-yyyy	Date at the end and start of shifts, shown at the relevant borehole depth. Corresponding casing and water depths shown in the adjacent columns.
▽	Water strike: initial depth of strike.
▼	Water strike: depth water rose to.
Abbreviations relating to rock core – reference Clause 36.4.4 of BS 5930: 2015+A1:2020	
TCR (%)	Total Core Recovery: Ratio of rock/soil core recovered (both solid and non-intact) to the total length of core run.
SCR (%)	Solid Core Recovery: Ratio of solid core to the total length of core run. Solid core has a full diameter, uninterrupted by natural discontinuities, but not necessarily a full circumference and is measured along the core axis between natural fractures.
RQD (%)	Rock Quality Designation: Ratio of total length of solid core pieces greater than 100mm to the total length of core run.
FI	Fracture Index: Number of natural discontinuities per metre over an indicated length of core of similar intensity of fracturing.
NI	Non Intact: Used where the rock material was recovered fragmented, for example as fine to coarse gravel size particles.
AZCL	Assessed zone of core loss: The estimated depth range where core was not recovered.
DIF	Drilling induced fracture: A fracture of non-geological origin brought about by the rock coring.
(xxx/xxx/xxx)	Spacing between discontinuities (minimum/average/maximum) measured in millimetres.

1 AUTHORITY

On the instructions of D/RES Properties, (the "Client"), a ground investigation was undertaken at the site to provide geotechnical information for input to the design and construction of a proposed residential development.

This report details the work carried out both on site; containing a description of the site, the works undertaken, and the exploratory hole logs.

All information given in this report is based upon the ground conditions encountered during the ground investigation works, and on the results of the field tests performed. However, there may be conditions at the site that have not been taken into account, such as unpredictable soil strata, contaminant concentrations, and water conditions between or below exploratory holes. It should be noted that groundwater levels usually vary due to seasonal and/or other effects and may at times differ to those recorded during the investigation. No responsibility can be taken for conditions not encountered through the scope of work commissioned, for example between exploratory hole points, or beneath the termination depths achieved.

This report was prepared by Causeway Geotech Ltd for the use of the Client in response to a particular set of instructions. Any other parties using the information contained in this report do so at their own risk and any duty of care to those parties is excluded.

2 PURPOSE, RATIONALE & SCOPE OF THE INVESTIGATION

The purpose of this investigation is to assess the ground conditions and to allow an evaluation of the geotechnical issues with the current site and proposed development.

The rationale has been determined by the Client, with the extent of the investigation including boreholes, trial pits, slit trenches, soil sampling, groundwater and ground gas monitoring, in-situ testing, and the preparation of a factual account of the ground investigation findings.

3 DESCRIPTION OF SITE

The works area is located at coordinates 700609, 742711 (Irish Transverse Mercator) within a field off Summerhill Road, Dunboyne, Co. Meath. The site location is presented in Appendix A and a summary of the surrounding land uses is provided in Table 1.

Table 1: Summary of surrounding land uses

Location	Description
North	R157, agricultural land.
East	Dunboyne business park, Navan Road, agricultural land.
South	Plunkett Hall residential estate, Summerhill Road, residential properties, Garnett Hall residential estate, agricultural land.
West	R157, agricultural land, residential properties, R156.

4 SITE OPERATIONS

4.1 SUMMARY OF SITE WORKS

Site operations, which were conducted between 29/04/2026 and 24/05/2026, with ongoing monitoring planned, comprised:

- three rotary drilled boreholes
- a standpipe installation in one borehole
- four machine-dug trial pits
- two slit trenches by a combination of hand digging and mechanical excavation
- in-situ testing, including:
    - Standard Penetration Tests
    - four infiltration tests
- GPS survey of all completed locations
- groundwater and ground gas monitoring

The exploratory holes and in-situ tests were located as instructed by the Client, as will be shown on the exploratory hole location plan in Appendix A.

4.2 BOREHOLES

Three boreholes (BH01-03) were put to their completion by rotary drilling techniques only. The boreholes were completed using a Comacchio 602 tracked rotary drilling rig.

Hand dug inspection pits were carried out between ground level and 1.20m depth to ensure boreholes were put down at locations clear of services or subsurface obstructions.

Symmetrix-cased full hole rotary percussive drilling techniques were employed to advance the boreholes to their completion depths. SPTs were carried out at standard intervals throughout the overburden, with small and bulk disturbed samples obtained where possible through the soil strata.

Appendix B presents the borehole logs.

4.3 STANDARD PENETRATION TESTS

Standard penetration tests were carried out in accordance with BS EN 22476-3:2005+A1:2011 (BSI, 2011) at standard depth intervals using the split spoon sampler ($SPT_{(s)}$). The penetrations are stated for those tests for which the full 150mm seating drive or 300mm test drive was not possible.

The N-values provided on the borehole logs are uncorrected and no allowance has been made for energy ratio corrections. The SPT hammer energy measurement report is provided in Appendix I.

4.4 STANDPIPE INSTALLATION

A groundwater monitoring standpipe was installed in borehole BH03.

Details of the installation, including the depth range of the response zone, are provided in Appendix B on the individual borehole log.

4.5 SLIT TRENCHES

Two slit trenches (ST01-02) were excavated by a combination of hand digging and mechanical excavation using a compact 3t tracked excavator fitted with a 300mm wide toothless bucket, to locate and identify buried services at the site.

Drawing of the trenches and the locations of services encountered during excavation are shown along with the slit trench logs in Appendix C, with photographs presented in Appendix D.

4.6 TRIAL PITS

Four trial pits (SA01-04) were excavated using an 3t tracked excavator fitted with a 300mm wide bucket, to depths of 1.50m. These trial pits were excavated to allow completion of infiltration test.

Disturbed (bulk bag) samples were taken at standard depth intervals and at change of strata.

Any water strikes encountered during excavation were recorded and the stability of the trial pit walls was noted on completion.

Appendix E presents the trial pit logs with photographs of the pits and arisings provided in Appendix F.

4.7 INFILTRATION TESTS

Four infiltration/soakaway tests (SA01-04) were carried out in accordance with DG 365 Soakaway Design (BRE, 2016). The absence of the outflow from the pits precluded calculation of infiltration coefficients.

Appendix G presents the results and analysis of the infiltration tests.

4.8 SURVEYING

The as-built exploratory hole positions will be surveyed following completion of site operations by a Site Engineer from Causeway Geotech. Surveying will be carried out using an Emlid Reach GPS system employing VRS and real time kinetic (RTK) techniques.

The plan coordinates (Irish Transverse Mercator) and ground elevation (mOD Malin) at each location will be recorded on the individual exploratory hole logs. The exploratory hole location plan presented in Appendix A will show these as-built positions.

4.9 GROUNDWATER AND GROUND GAS MONITORING

Following completion of site works, six monthly rounds of groundwater and ground gas monitoring will be conducted. Groundwater monitoring will be carried out using a water interface probe. Ground gas measurements will be carried out using a GA5000 gas meter.

The monitoring records will be presented in Appendix H.

5 GROUND CONDITIONS

5.1 GENERAL GEOLOGY OF THE AREA

Published geological mapping from the online Geological Survey Ireland spatial resources database indicate the superficial deposits underlying the site comprise of tills derived from limestones. These deposits are shown to be underlain by dark limestone & shale of the Lucan Formation.

5.2 GROUND TYPES ENCOUNTERED DURING INVESTIGATION OF THE SITE

A summary of the ground types encountered in the exploratory holes is listed below, in approximate stratigraphic order:

- **Topsoil:** encountered in 350-450mm thickness across the site.
- **Glacial Till:** sandy gravelly clay, occasionally with low to medium cobble and boulder content, typically soft or firm in upper horizons, becoming stiff or very stiff with increasing depth.

Further details of these ground types, including their specific depths and descriptions, can be found on the individual exploratory hole logs accompanying this report.

5.3 GROUNDWATER & GROUND GAS

Groundwater was not noted during drilling at any of the exploratory hole locations. However, it should be noted that the casing used in supporting the borehole walls during drilling may have sealed out any groundwater strikes and the possibility of encountering groundwater during excavation works should not be ruled out.

It should be noted that any groundwater strikes within bedrock may have been masked by the fluid used as the drilling flush medium.

Seasonal variation in groundwater levels should also be factored into design considerations.

A groundwater monitoring standpipe was installed in borehole BH03. The results of subsequent groundwater monitoring, as well as results of gas monitoring, will be presented in Appendix H.

Continued monitoring of the installed standpipe will give an indication of the seasonal variation in groundwater level which should be factored into design considerations.

6 REFERENCES

British Research Establishment (BRE). (2016) DG 365 Soakaway Design

British Standards Institute (BSI). (2007) BS EN 1997-2:2007: Eurocode 7 – Geotechnical Design – Part 2: Ground investigation and testing.

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British Standards Institute (BSI). (2018a) BS EN ISO 14688-1:2018: Geotechnical investigation and testing. Identification and classification of soil. Part 1 Identification and description.

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British Standards Institute (BSI). (2020) BS5930:2015+A1:2020: Code of practice for ground investigations.

Construction Industry Research and Information Association (CIRIA). (2015) Report C753 – The SUDS Manual.

Geotechnical Society of Ireland. (2016) Specification and Related Documents for Ground Investigation in Ireland. 2nd Edition. Engineers Ireland.

Geological Survey Ireland (GSI). Geological Survey Ireland spatial resources database. Available at: https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=a30af518e87a4c0ab2fbde2aaac3c228

APPENDIX A – SITE AND EXPLORATORY HOLE LOCATION PLANS





Legend Key

Project No.	26-0556
Client	D/RES Properties
Client's Rep	N/A

Site Location Plan

Summerhill Road, Dunboyne

CAUSEWAY GEOTECH

Last Revision	29/05/2026
Scale	1:15000



Legend Key

- Locations By Type - RO
- Locations By Type - TP

Note: Exploratory Hole location is approximate and generated from logging software

Project No.	26-0556
Client	D/RES Properties
Client's Rep	N/A

Exploratory Hole Location Plan

Summerhill Road, Dunboyne

CAUSEWAY GEOTECH

Last Revision	29/05/2026
Scale	1:2500

APPENDIX G – INFILTRATION TEST RESULTS



Soakaway Infiltration Test

Project No.: 26-0556
Site: Summerhil Road, Dunboyne
Test Location: SA01
Test Date: 30 April 2026

	width (m)	length (m)
test pit top dimensions	0.35	1.40
test pit base dimensions	0.30	0.60
test pit depth (m)	1.50	

Analysis using method as described in BRE DG 365 (2016) and CIRIA Report C753-The SUDS Manual (2015)

depth to groundwater before adding water (m) = DRY

Time (mins)	Depth to water surface (m)	Head of water in pit (m)
0	0.43	1.07
1	0.43	1.07
2	0.44	1.06
3	0.44	1.06
4	0.45	1.05
5	0.45	1.05
10	0.45	1.05
20	0.45	1.05
30	0.45	1.05
60	0.46	1.04
120	0.47	1.03

RESULTS (FROM GRAPH BELOW)

Test start

75% head of water at 0.80 m
depth to water surface (target) 0.70 m
time to reach target depth not reached

Test end

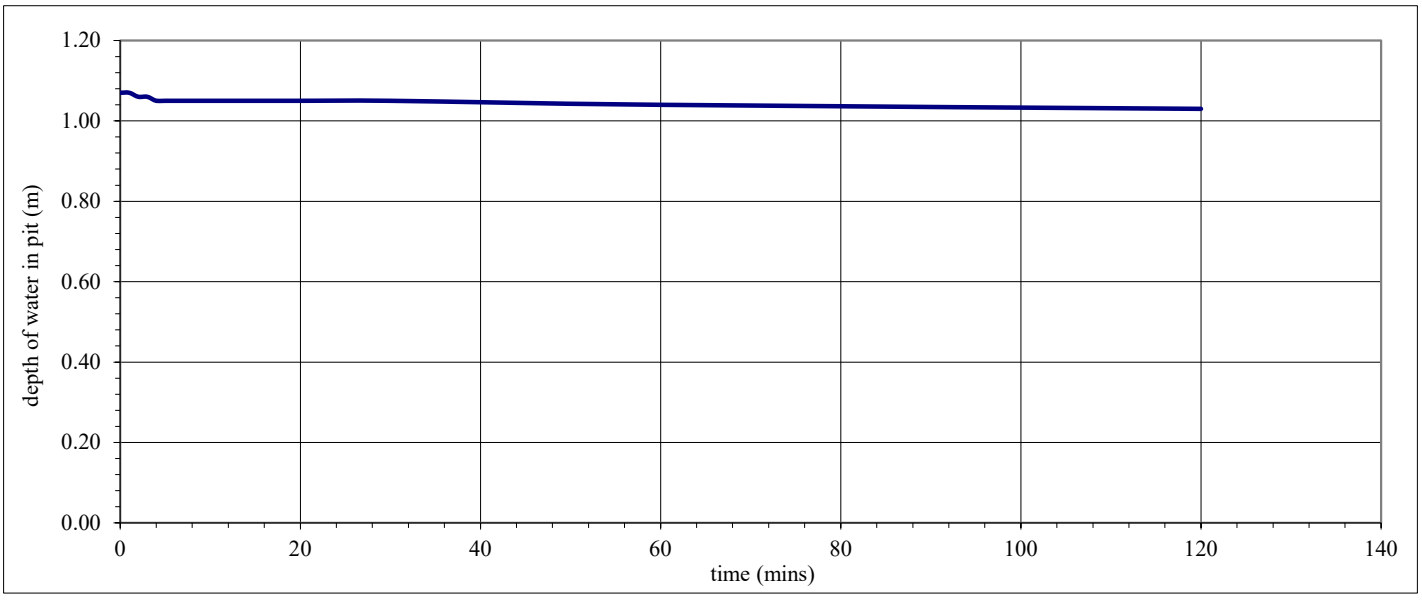
25% head of water at 0.27 m
depth to water surface (target) 1.23 m
time to reach target depth not reached

soil infiltration rate $f = \frac{V_{p75-25}}{a_{s50} \; x \; t_{p75-25}}$

Infiltration rate (f) is very low

TARGET DEPTHS AND CALCULATED VALUES

Time (mins)	Depth to water surface (m)	Head of water in pit (m)	Time elapsed, t_{p75-25} (mins)	Volume of water lost, V_{p75-25} (m^3)	Area of walls and base at 50% drop, a_{s50} (m^2)	Soil infiltration rate, f (m/min)	Soil infiltration rate, f (m/h)



Soakaway Infiltration Test

Project No.: 26-0556
Site: Summerhill Road, Dunboyne
Test Location: SA02
Test Date: 30 April 2026

	width (m)	length (m)
test pit top dimensions	0.35	1.10
test pit base dimensions	0.30	0.40
test pit depth (m)	1.50	

Analysis using method as described in BRE DG 365 (2016) and CIRIA Report C753-The SUDS Manual (2015)

depth to groundwater before adding water (m) = DRY

Time (mins)	Depth to water surface (m)	Head of water in pit (m)
0	0.43	1.07
1	0.44	1.06
2	0.45	1.05
3	0.45	1.05
4	0.45	1.05
5	0.45	1.05
10	0.45	1.05
20	0.45	1.05
30	0.45	1.05
60	0.45	1.05
120	0.46	1.04

RESULTS (FROM GRAPH BELOW)

Test start

75% head of water at 0.80 m
depth to water surface (target) 0.70 m
time to reach target depth not reached

Test end

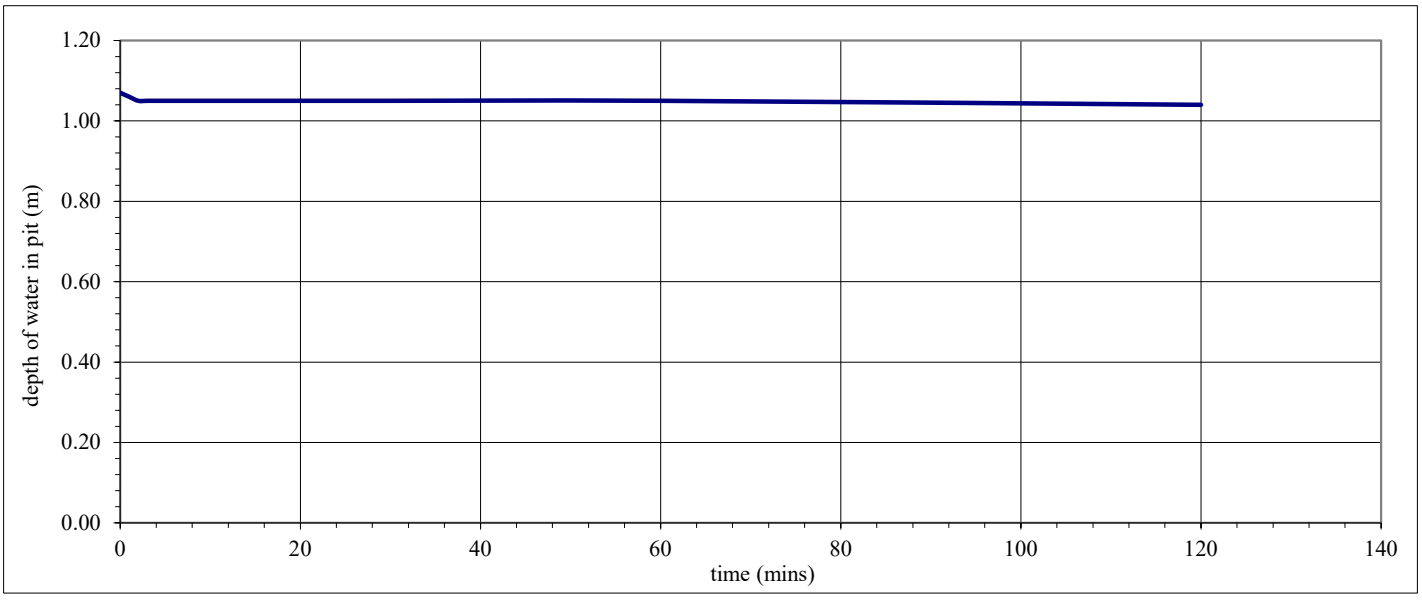
25% head of water at 0.27 m
depth to water surface (target) 1.23 m
time to reach target depth not reached

soil infiltration rate $f = \frac{V_{p75-25}}{a_{s50} \; x \; t_{p75-25}}$

Infiltration rate (f) is very low

TARGET DEPTHS AND CALCULATED VALUES

Time (mins)	Depth to water surface (m)	Head of water in pit (m)	Time elapsed, t_{p75-25} (mins)	Volume of water lost, V_{p75-25} (m^3)	Area of walls and base at 50% drop, a_{s50} (m^2)	Soil infiltration rate, f (m/min)	Soil infiltration rate, f (m/h)



Soakaway Infiltration Test

Project No.: 26-0556
Site: Summerhill Road, Dunboyne
Test Location: SA03
Test Date: 30 April 2026

	width (m)	length (m)
test pit top dimensions	0.35	1.40
test pit base dimensions	0.30	0.60
test pit depth (m)	1.50	

Analysis using method as described in BRE DG 365 (2016) and CIRIA Report C753-The SUDS Manual (2015)

depth to groundwater before adding water (m) = 1.40

Time (mins)	Depth to water surface (m)	Head of water in pit (m)
0	0.39	1.01
1	0.40	1.00
2	0.41	0.99
3	0.41	0.99
4	0.41	0.99
5	0.41	0.99
10	0.41	0.99
20	0.42	0.98
30	0.42	0.98
60	0.43	0.97
120	0.45	0.95

RESULTS (FROM GRAPH BELOW)

Test start

75% head of water at 0.76 m
depth to water surface (target) 0.64 m
time to reach target depth not reached

Test end

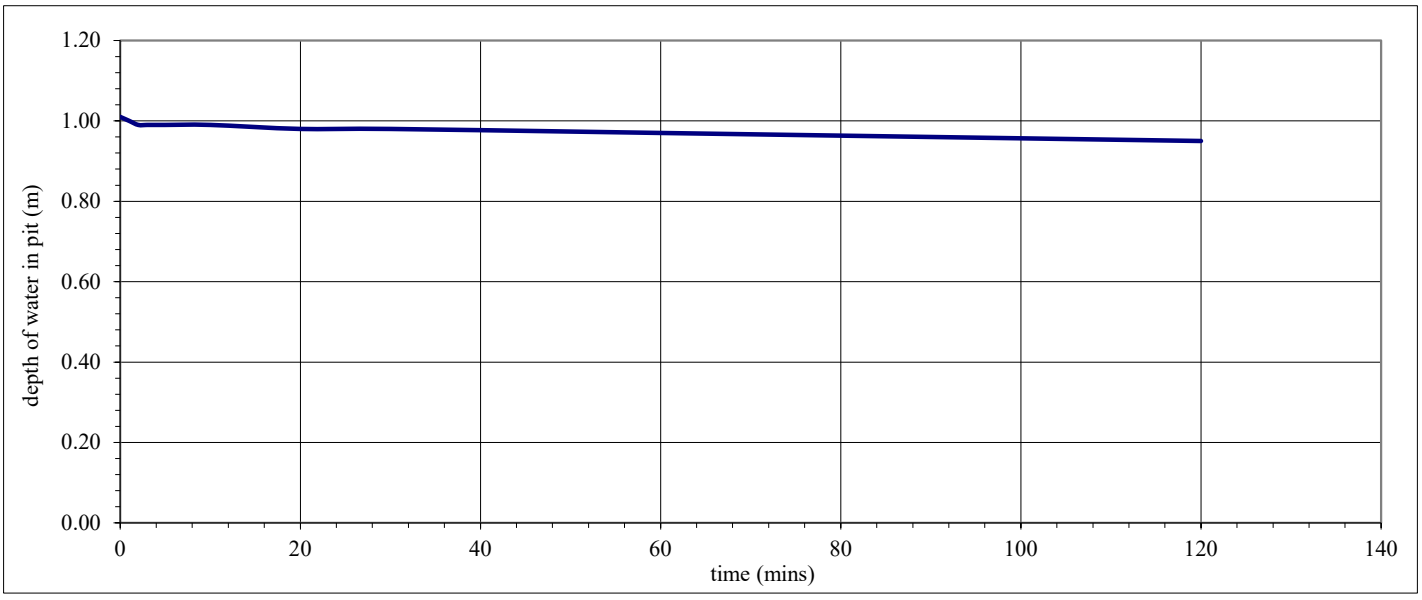
25% head of water at 0.25 m
depth to water surface (target) 1.15 m
time to reach target depth not reached

soil infiltration rate $f = \frac{V_{p75-25}}{a_{s50} \times t_{p75-25}}$

Infiltration rate (f) is very low

TARGET DEPTHS AND CALCULATED VALUES

Time (mins)	Depth to water surface (m)	Head of water in pit (m)	Time elapsed, t_{p75-25} (mins)	Volume of water lost, V_{p75-25} (m^3)	Area of walls and base at 50% drop, a_{s50} (m^2)	Soil infiltration rate, f (m/min)	Soil infiltration rate, f (m/h)



Soakaway Infiltration Test

Project No.: 26-0556
Site: Summerhill Road, Dunboyne
Test Location: SA04
Test Date: 30 April 2026

	width (m)	length (m)
test pit top dimensions	0.35	1.30
test pit base dimensions	0.30	0.50
test pit depth (m)	1.50	

Analysis using method as described in BRE DG 365 (2016) and CIRIA Report C753-The SUDS Manual (2015)

depth to groundwater before adding water (m) = 1.40

Time (mins)	Depth to water surface (m)	Head of water in pit (m)
0	0.35	1.05
1	0.37	1.03
2	0.38	1.02
3	0.40	1.00
4	0.41	0.99
5	0.42	0.98
6	0.42	0.98
8	0.44	0.96
10	0.46	0.94
15	0.50	0.90
20	0.53	0.87
30	0.60	0.80
40	0.65	0.75
50	0.71	0.69
60	0.75	0.65
90	0.87	0.53
120	0.94	0.46

RESULTS (FROM GRAPH BELOW)

Test start

75% head of water at 0.79 m
depth to water surface (target) 0.61 m
time to reach target depth 31.0 mins

Test end

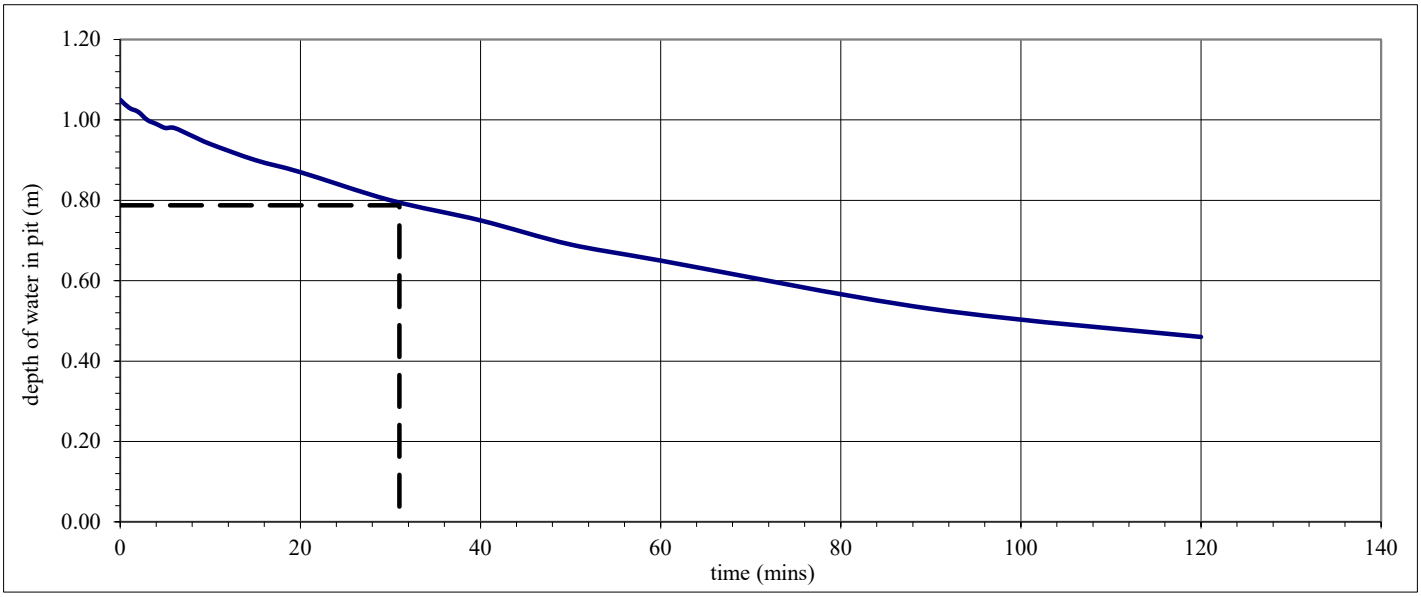
25% head of water at 0.26 m
depth to water surface (target) 1.14 m
time to reach target depth not reached

soil infiltration rate $f = \frac{V_{p75-25}}{a_{s50} \times t_{p75-25}}$

Infiltration rate (f) is very low

TARGET DEPTHS AND CALCULATED VALUES

Time (mins)	Depth to water surface (m)	Head of water in pit (m)	Time elapsed, t_{p75-25} (mins)	Volume of water lost, V_{p75-25} (m^3)	Area of walls and base at 50% drop, a_{s50} (m^2)	Soil infiltration rate, f (m/min)	Soil infiltration rate, f (m/h)
31	0.61	0.79	N/A				



APPENDIX C

HR WALLINGFORD ONLINE TOOL RESULTS

Greenfield runoff rate estimation tool

www.uksuds.com | Greenfield runoff rate estimation tool (https://www.uksuds.com/)

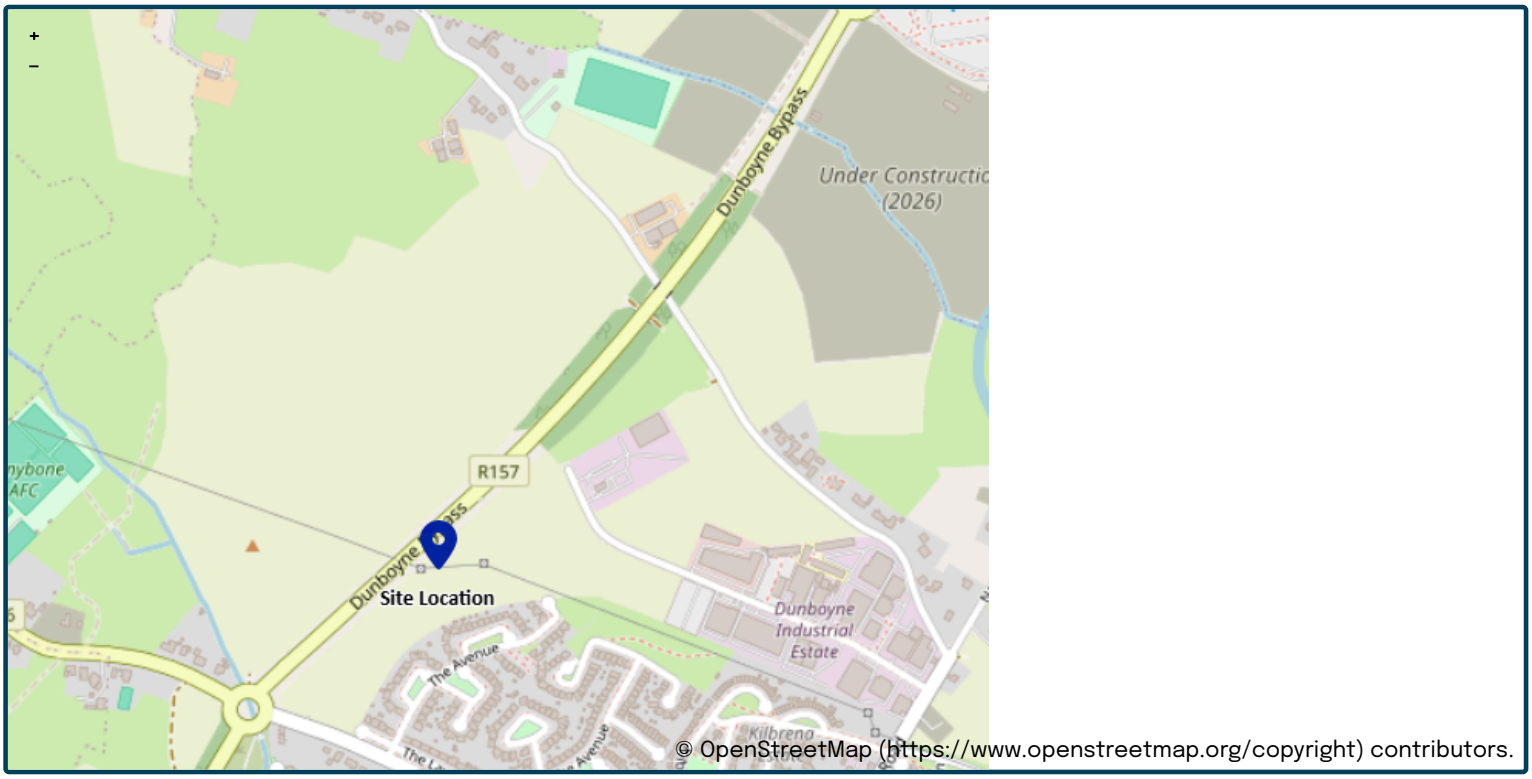
This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015).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

Project details

Date	28/07/2026
Calculated by	AC
Reference	D144
Model version	2.2.3

Location

Site name	Dunboyne
Site location	County Meath



Site easting (Irish Grid)	300837
Site northing (Irish Grid)	242840
Site easting (Irish Transverse Mercator)	700766
Site northing (Irish Transverse Mercator)	742865

Site details

Total site area (ha)	6.51 ha

Greenfield runoff

Method

Method	IH124

IH124

	My value		Map value
SAAR (mm)	840.1 mm		818
How should SPR be derived?	WRAP soil type		
WRAP soil type	2		2
SPR	0.3		
QBar (IH124) (l/s)	14.7 l/s		

Growth curve factors

	My value		Map value
Hydrological region	12		12
1 year growth factor	0.85		
2 year growth factor	0.95		
10 year growth factor	1.72		
30 year growth factor	2.13		
100 year growth factor	2.61		
200 year growth factor	2.86		

Results

Method	IH124
Flow rate 1 year (l/s)	12.5 l/s
Flow rate 2 year (l/s)	13.9 l/s
Flow rate 10 years (l/s)	25.3 l/s
Flow rate 30 years (l/s)	31.3 l/s
Flow rate 100 years (l/s)	38.3 l/s
Flow rate 200 years (l/s)	42.0 l/s

Please note runoff estimation is subject to significant uncertainty. Results are therefore normally reported to only 1 decimal place. Where 2 decimal places are provided, this does not indicate accuracy to this level, it has been adopted to prevent 'zero' figures from being reported. Outputs less than 0.01 l/s are reported as 0.01 l/s.

Disclaimer

This report was produced using the Greenfield runoff rate estimation tool (2.2.3) developed by HR Wallingford and available at uksuds.com (https://www.uksuds.com/). The use of this tool is subject to the UK SuDS terms and conditions and licence agreement, which can both be found at uksuds.com/terms-conditions (https://www.uksuds.com/terms-conditions). The outputs from this tool have been used to estimate Greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, Centre for Ecology and Hydrology, Wallingford Hydrosolutions or any other organisation for the use of these data in the design or operational characteristics of any drainage scheme.

APPENDIX D

SURFACE WATER NETWORK DETAILS AND DESIGN PARAMETERS

Project:	Date:		
D144 Residential Development Summerhill Road, Dunboyne	14/08/2026 Designed by: AC	Checked by: NA	Approved By:
Report Details: Type: Network Design Criteria Storm Phase: Surface Water	Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street Dublin 2, D02 E267		

CS CONSULTING
Civil, Structural & Traffic Engineering

Flow Options

Peak Flow Calculation	Rational Method
Min. Time of Entry (mins)	5
Max. Travel Time (mins)	30

FSR

Type: FSR

Return Period (years)	100.0
Region	Scotland and Ireland
M5-60 (mm)	15.5
Ratio R	0.277

Pipe Options

Lock Slope Options	None
Design Options	Minimize Excavation
Design Level	Level Crowns
Min. Cover Depth (m)	1.200
Min. Slope (1:x)	500.00
Max. Slope (1:x)	20.00
Min. Backdrop (m)	0.600
Max. Backdrop (m)	2.000
Use Flow Restriction	☐
Reduce Channel Depths	☐

Project:	Date:		
D144 Residential Development Summerhill Road, Dunboyne	14/08/2026 Designed by: AC	Checked by: NA	Approved By:
Report Details: Type: Network Design Criteria Storm Phase: Surface Water	Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street Dublin 2, D02 E267		

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Flow Options

Peak Flow Calculation	Rational Method
Min. Time of Entry (mins)	5
Max. Travel Time (mins)	30

FSR

Type: FSR

Return Period (years)	100.0
Region	Scotland and Ireland
M5-60 (mm)	15.5
Ratio R	0.277

Pipe Options

Lock Slope Options	None
Design Options	Minimize Excavation
Design Level	Level Crowns
Min. Cover Depth (m)	1.200
Min. Slope (1:x)	500.00
Max. Slope (1:x)	20.00
Min. Backdrop (m)	0.600
Max. Backdrop (m)	2.000
Use Flow Restriction	☐
Reduce Channel Depths	☐

Project:	Date:		
D144 Residential Development Summerhill Road, Dunboyne	14/08/2026 Designed by: AC	Checked by: NA	Approved By:
Report Details: Type: Junctions Storm Phase: Surface Water	Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street Dublin 2, D02 E267		

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Name	Junction Type	Easting (m)	Northing (m)	Cover Elevation (m)	Depth (m)	Invert Elevation (m)	Chamber Shape	Diameter (m)
SWMH20	Manhole	700649.250	742807.194	73.456	1.656	71.800	Circular	1.200
SWMH21	Manhole	700681.237	742773.996	73.402	1.852	71.550	Circular	1.200
SWMH22	Manhole	700721.569	742812.804	73.033	1.838	71.195	Circular	1.200
SWMH25	Manhole	700742.894	742833.858	72.804	1.759	71.045	Circular	1.200
SWMH28	Manhole	700749.143	742866.947	72.482	1.757	70.725	Circular	1.200
SWMH26	Manhole	700757.309	742858.448	72.561	1.736	70.825	Circular	1.200
SWMH30	Manhole	700798.154	742898.683	72.425	1.800	70.625	Circular	1.200
SWMH33	Manhole	700834.867	742933.775	71.929	1.584	70.345	Circular	1.200
SWMH36	Manhole	700854.063	742913.753	71.654	1.420	70.234	Circular	1.200
SWMH37	Manhole	700861.970	742910.928	71.559	1.434	70.125	Circular	1.200
SWMH4	Manhole	700637.953	742739.192	72.800	1.527	71.273	Circular	1.200
SWMH51	Manhole	700990.438	742862.347	72.100	2.084	70.016	Circular	1.200
SWMH52	Manhole	701004.956	742882.357	71.800	1.908	69.892	Circular	1.200
SWMH53	Manhole	701033.210	742879.959	71.500	1.750	69.750	Circular	1.200
Catchment 2 Outfall	Manhole	701037.756	742887.060	71.600	1.900	69.700	Circular	1.200
SWMH23	Manhole	700657.702	742818.703	73.406	1.656	71.750	Circular	1.200
SWMH24	Manhole	700688.219	742847.352	73.265	1.765	71.500	Circular	1.200
SWMH27	Manhole	700790.781	742823.823	72.634	1.484	71.150	Circular	1.200
SWMH29	Manhole	700731.687	742885.161	72.475	1.465	71.010	Circular	1.200
SWMH31	Manhole	700848.632	742844.755	72.495	1.425	71.070	Circular	1.200
SWMH34	Manhole	700841.444	742997.933	72.590	1.590	71.000	Circular	1.200
SWMH35	Manhole	700808.511	742963.544	72.385	1.685	70.700	Circular	1.200
SWMH38	Manhole	701011.674	742915.732	72.117	1.067	71.050	Circular	1.200
SWMH39	Manhole	701002.321	742902.145	72.279	1.314	70.965	Circular	1.200
SWMH40	Manhole	700991.962	742873.758	72.115	1.346	70.769	Circular	1.200
SWMH41	Manhole	700982.305	742869.005	72.016	1.296	70.720	Circular	1.200
SWMH42	Manhole	700935.740	742884.575	71.676	1.236	70.440	Circular	1.200
SWMH45	Manhole	700881.046	742904.114	71.534	1.329	70.205	Circular	1.200
SWMH43	Manhole	700968.222	742956.801	72.088	1.153	70.935	Circular	1.200
SWMH44	Manhole	700954.643	742936.896	72.024	1.284	70.740	Circular	1.200
SWMH46	Manhole	700856.832	743002.220	72.373	1.472	70.901	Circular	1.200
SWMH47	Manhole	700892.646	742964.254	72.266	1.625	70.641	Circular	1.200
SWMH48	Manhole	700900.975	742960.456	72.233	1.713	70.520	Circular	1.200
SWMH49	Manhole	700921.804	742991.531	72.141	1.401	70.740	Circular	1.200
SWMH1	Manhole	700677.622	742768.771	73.441	1.441	72.000	Circular	1.200
SWMH2	Manhole	700655.925	742729.212	72.660	1.565	71.095	Circular	1.200
SWMH5	Manhole	700627.296	742676.050	72.384	1.662	70.722	Circular	1.200
SWMH7	Manhole	700608.940	742685.846	72.391	1.773	70.618	Circular	1.200
SWMH8	Manhole	700598.612	742695.432	72.380	1.833	70.547	Circular	1.200
SWMH12	Manhole	700590.765	742687.809	72.347	1.957	70.390	Circular	1.200
NSMH5	Manhole	700563.341	742657.745	72.300	2.000	70.300	Circular	1.350
SWMH3	Manhole	700607.810	742769.017	73.000	1.515	71.485	Circular	1.200
SWMH9	Manhole	700606.066	742759.160	72.800	1.500	71.300	Circular	1.200
SWMH10	Manhole	700570.663	742724.282	72.786	1.734	71.052	Circular	1.200
SWMH6	Manhole	700644.715	742666.741	72.453	1.482	70.971	Circular	1.200
SWMH11	Manhole	700561.506	742716.014	72.918	1.518	71.400	Circular	1.200
SWMH13	Manhole	700565.036	742662.388	72.315	1.425	70.890	Circular	1.200
SWMH32	Manhole	700764.526	742865.584	72.446	1.446	71.000	Circular	1.200
SWMH55	Manhole	700802.774	742903.098	72.651	2.056	70.595	Circular	1.200
SWMH54	Manhole	700746.420	742842.480	72.750	1.752	70.998	Circular	1.200

Project:	Date:		
D144 Residential Development Summerhill Road, Dunboyne	14/08/2026 Designed by: AC	Checked by: NA	Approved By:
Report Details: Type: Junctions Storm Phase: Surface Water	Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street Dublin 2, D02 E267		

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Name	Lock	Bend Loss
SWMH20	None	0.00
SWMH21	None	0.00
SWMH22	None	0.00
SWMH25	None	0.00
SWMH28	None	0.00
SWMH26	None	0.00
SWMH30	None	0.00
SWMH33	None	0.00
SWMH36	None	0.00
SWMH37	None	0.00
SWMH4	None	0.00
SWMH51	None	0.00
SWMH52	None	0.00
SWMH53	None	0.00
Catchment 2 Outfall	None	0.00
SWMH23	None	0.00
SWMH24	None	0.00
SWMH27	None	0.00
SWMH29	None	0.00
SWMH31	None	0.00
SWMH34	None	0.00
SWMH35	None	0.00
SWMH38	None	0.00
SWMH39	None	0.00
SWMH40	None	0.00
SWMH41	None	0.00
SWMH42	None	0.00
SWMH45	None	0.00
SWMH43	None	0.00
SWMH44	None	0.00
SWMH46	None	0.00
SWMH47	None	0.00
SWMH48	None	0.00
SWMH49	None	0.00
SWMH1	None	0.00
SWMH2	None	0.00
SWMH5	None	0.00
SWMH7	None	0.00
SWMH8	None	0.00
SWMH12	None	0.00
NSMH5	None	0.00
SWMH3	None	0.00
SWMH9	None	0.00
SWMH10	None	0.00
SWMH6	None	0.00
SWMH11	None	0.00
SWMH13	None	0.00
SWMH32	None	0.00
SWMH55	None	0.00
SWMH54	None	0.00

Project:	Date:		
D144 Residential Development Summerhill Road, Dunboyne	14/08/2026 Designed by: AC	Checked by: NA	Approved By:
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Outlets

Junction	Outlet Name	Outgoing Connection	Outlet Type
SWMH20	Outlet	S10.000	Free Discharge
SWMH21	Outlet	S10.001	Free Discharge
SWMH22	Outlet	S10.002	Free Discharge
SWMH25	Outlet	S10.003A	Free Discharge
SWMH28	Outlet	S10.005	Free Discharge
SWMH26	Outlet (1)	S10.004	Free Discharge
SWMH30	Outlet	S10.007	Free Discharge
SWMH33	Outlet	S10.009	Free Discharge
SWMH36	Outlet	S10.010	Free Discharge
SWMH37	Outlet	S10.011	Free Discharge
SWMH4	Outlet	S2.001	Free Discharge
SWMH51	Outlet	S10.013	Free Discharge
SWMH52	Outlet	S10.014	Free Discharge
SWMH53	Outlet	S10.015	Free Discharge
SWMH23	Outlet	S11.000	Free Discharge
SWMH24	Outlet	S11.001	Free Discharge
SWMH27	Outlet	S12.000	Free Discharge
SWMH29	Outlet	S13.000	Free Discharge
SWMH31	Outlet	S15.000	Free Discharge
SWMH34	Outlet	S17.000	Free Discharge
SWMH35	Outlet	S17.001	Free Discharge
SWMH38	Outlet	S18.000	Free Discharge
SWMH39	Outlet	S18.001	Free Discharge
SWMH40	Outlet	S18.002	Free Discharge
SWMH41	Outlet	S18.003	Free Discharge
SWMH42	Outlet	S18.004	Free Discharge
SWMH45	Outlet	S18.005	Free Discharge
SWMH43	Outlet	S19.000	Free Discharge
SWMH44	Outlet	S19.001	Free Discharge
SWMH46	Outlet	S20.000	Free Discharge
SWMH47	Outlet	S20.001	Free Discharge
SWMH48	Outlet	S20.002	Free Discharge
SWMH49	Outlet	S21.000	Free Discharge
SWMH1	Outlet	S1.000	Free Discharge
SWMH2	Outlet	S1.001	Free Discharge
SWMH5	Outlet	S1.002	Free Discharge
SWMH7	Outlet	S1.003	Free Discharge
SWMH8	Outlet	S1.004	Free Discharge
SWMH12	Outlet	S1.005	Free Discharge
SWMH3	Outlet	S2.000	Free Discharge
SWMH9	Outlet	S4.000	Free Discharge
SWMH10	Outlet	S4.001	Free Discharge
SWMH6	Outlet	S3.000	Free Discharge
SWMH11	Outlet	S5.000	Free Discharge
SWMH13	Outlet	S6.000	Free Discharge
SWMH32	Outlet	S16.000	Free Discharge
SWMH55	Outlet	S10.008	Free Discharge
SWMH54	Outlet	S10.003B	Free Discharge

Project:	Date:		
D144 Residential Development Summerhill Road, Dunboyne	14/08/2026		
	Designed by: AC	Checked by: NA	Approved By:
Report Details: Type: Stormwater Controls Storm Phase: Surface Water	Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street Dublin 2, D02 E267		

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Catchment 1 Tank

Type : Tank

Dimensions

Exceedance Elevation (m)	72.300
Depth (m)	1.950
Base Elevation (m)	70.350
Freeboard (mm)	0
Initial Depth (m)	0.000
Porosity (%)	56.4
Average Slope (1:x)	0.00
Total Volume (m³)	551.459

Depth (m)	Area (m²)	Volume (m³)
0.000	723.482	0.000
1.350	723.482	550.859

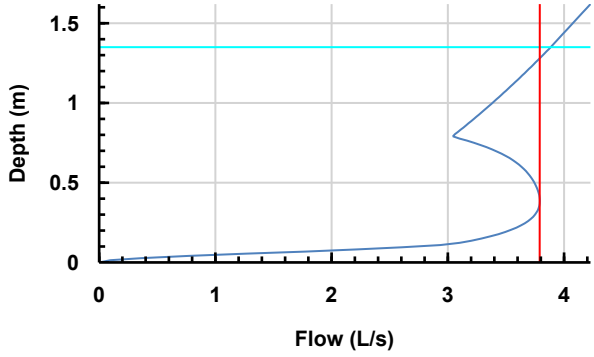
Outlets

Outlet

Outgoing Connection	S1.006
Outlet Type	Hydro-Brake®

Invert Elevation (m)	70.350
Design Depth (m)	1.350
Design Flow (L/s)	3.89
Objective	Minimize Upstream Storage Requirements
Application	Surface Water Only
Sump Available	☑

Unit Reference	SHE-0088-3890-1350-3890



Advanced

Perimeter	Rectangular
Length (m)	44.115

Project:	Date:		
D144 Residential Development Summerhill Road, Dunboyne	14/08/2026 Designed by: AC	Checked by: NA	Approved By:
Report Details: Type: Stormwater Controls Storm Phase: Surface Water	Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street Dublin 2, D02 E267		

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Catchment 2 Tank 1

Type : Tank

Dimensions

Exceedance Elevation (m)	72.300
Depth (m)	1.625
Base Elevation (m)	70.675
Freeboard (mm)	0
Initial Depth (m)	0.000
Porosity (%)	56.3
Average Slope (1:x)	0.00
Total Volume (m³)	468.981

Depth (m)	Area (m²)	Volume (m³)
0.000	1179.249	0.000
0.705	1179.249	468.061

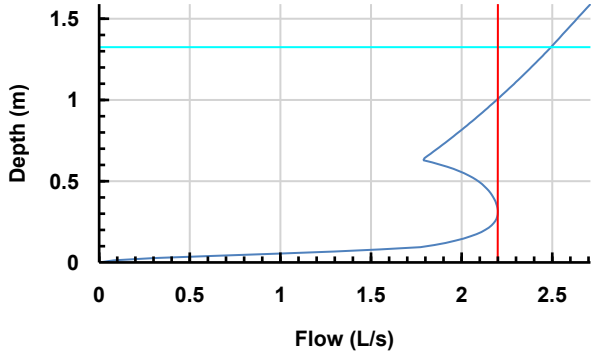
Outlets

Outlet

Outgoing Connection	S10.006
Outlet Type	Hydro-Brake®

Invert Elevation (m)	70.675
Design Depth (m)	1.325
Design Flow (L/s)	2.5
Objective	Minimize Upstream Storage Requirements
Application	Surface Water Only
Sump Available	☑

Unit Reference	SHE-0070-2500-1325-2500



Advanced

Perimeter	Rectangular
Length (m)	59.199

Project:	Date:		
D144 Residential Development Summerhill Road, Dunboyne	14/08/2026 Designed by: AC	Checked by: NA	Approved By:
Report Details: Type: Stormwater Controls Storm Phase: Surface Water	Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street Dublin 2, D02 E267		

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Catchment 2 Tank 2

Type : Tank

Dimensions

Exceedance Elevation (m)	72.000
Depth (m)	1.900
Base Elevation (m)	70.100
Freeboard (mm)	0
Initial Depth (m)	0.000
Porosity (%)	53.7
Average Slope (1:x)	0.00
Total Volume (m³)	609.975

Depth (m)	Area (m²)	Volume (m³)
0.000	1889.121	0.000
0.600	1889.121	608.675

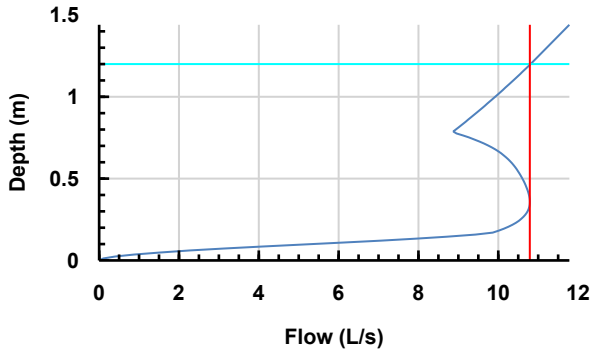
Outlets

Outlet

Outgoing Connection	S10.012
Outlet Type	Hydro-Brake®

Invert Elevation (m)	70.100
Design Depth (m)	1.200
Design Flow (L/s)	10.81
Objective	Minimize Upstream Storage Requirements
Application	Surface Water Only
Sump Available	☑

Unit Reference	SHE-0148-1081-1200-1081



Advanced

Perimeter	Rectangular
Length (m)	119.423

Project:	Date:		
D144 Residential Development Summerhill Road, Dunboyne	14/08/2026		
	Designed by: AC	Checked by: NA	Approved By:
Report Details: Type: Stormwater Controls Storm Phase: Surface Water	Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street Dublin 2, D02 E267		

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Catchment 2 Basin 2B

Type : Pond

Dimensions

Exceedance Elevation (m)	71.450
Depth (m)	0.450
Base Elevation (m)	71.000
Freeboard (mm)	150
Initial Depth (m)	0.000
Porosity (%)	100
Average Slope (1:x)	5.524
Total Volume (m³)	182.563

Depth (m)	Area (m²)	Volume (m³)
0.000	537.570	0.000
0.450	761.275	290.784

Outlets

Outlet

Outgoing Connection	Basin 2B Open Grated MH
Outlet Type	Free Discharge

Advanced

Perimeter	Circular
Length (m)	55.407
Friction Scheme	Manning's n
n	0.001

Project:	Date:		
D144 Residential Development Summerhill Road, Dunboyne	14/08/2026		
	Designed by: AC	Checked by: NA	Approved By:
Report Details: Type: Stormwater Controls Storm Phase: Surface Water	Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street Dublin 2, D02 E267		

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Catchment 2 Basin 2A

Type : Pond

Dimensions

Exceedance Elevation (m)	71.450
Depth (m)	0.450
Base Elevation (m)	71.000
Freeboard (mm)	150
Initial Depth (m)	0.000
Porosity (%)	100
Average Slope (1:x)	4.565
Total Volume (m³)	95.381

Depth (m)	Area (m²)	Volume (m³)
0.000	275.670	0.000
0.450	409.839	153.245

Outlets

Outlet

Outgoing Connection	Basin 2A Open Grated MH
Outlet Type	Free Discharge

Advanced

Perimeter	Circular
Length (m)	30.227
Friction Scheme	Manning's n
n	0.001

Project:	Date:		
D144 Residential Development Summerhill Road, Dunboyne	14/08/2026		
	Designed by: AC	Checked by: NA	Approved By:
Report Details: Type: Stormwater Controls Storm Phase: Surface Water	Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street Dublin 2, D02 E267		

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Catchment 2 Basin 2C

Type : Pond

Dimensions

Exceedance Elevation (m)	71.450
Depth (m)	0.450
Base Elevation (m)	71.000
Freeboard (mm)	150
Initial Depth (m)	0.000
Porosity (%)	100
Average Slope (1:x)	6.08
Total Volume (m³)	102.521

Depth (m)	Area (m²)	Volume (m³)
0.000	283.790	0.000
0.450	470.698	167.996

Outlets

Outlet

Outgoing Connection	Basin 2C Open Grated MH
Outlet Type	Free Discharge

Advanced

Perimeter	Circular
Length (m)	48.183
Friction Scheme	Manning's n
n	0.001

Project:	Date:		
D144 Residential Development Summerhill Road, Dunboyne	14/08/2026 Designed by: AC	Checked by: NA	Approved By:
Report Details: Type: Stormwater Controls Storm Phase: Surface Water	Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street Dublin 2, D02 E267		

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Catchment 2 Basin 1

Type : Pond

Dimensions

Exceedance Elevation (m)	72.300
Depth (m)	0.600
Base Elevation (m)	71.700
Freeboard (mm)	300
Initial Depth (m)	0.000
Porosity (%)	100
Average Slope (1:x)	4.448
Total Volume (m³)	243.553

Depth (m)	Area (m²)	Volume (m³)
0.000	745.40	0.000
0.600	1026.10	529.212

Outlets

Outlet

Outgoing Connection	Basin 1 Open Grated MH
Outlet Type	Free Discharge

Advanced

Perimeter	Circular
Length (m)	46.123
Friction Scheme	Manning's n
n	0.001

Project:	Date:		
D144 Residential Development Summerhill Road, Dunboyne	14/08/2026 Designed by: AC	Checked by: NA	Approved By:
Report Details: Type: Connections Storm Phase: Surface Water	Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street Dublin 2, D02 E267		

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Name	Length (m)	Connection Type	Slope (1:x)	Manning's n	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Upstream Cover Elevation (m)	Upstream Invert Elevation (m)
S10.000	46.100	Pipe	184.401		0.6	225	73.456	71.800
S10.001	55.970	Pipe	199.894		0.6	225	73.402	71.550
S10.002	29.968	Pipe	199.784		0.6	300	73.033	71.195
S10.003A	9.315	Pipe	200.000		0.6	300	72.804	71.045
S10.006	9.851	Pipe	123.134		0.6	300	72.300	70.675
S16.000	47.185	Pipe	157.283		0.6	225	72.446	71.000
S10.007	6.390	Pipe	228.221		0.6	300	72.425	70.625
S10.009	27.737	Pipe	249.880		0.6	375	71.929	70.345
S10.010	8.397	Pipe	246.965		0.6	375	71.654	70.234
S10.011	7.862	Pipe	314.476		0.6	450	71.559	70.125
S10.013	24.722	Pipe	199.375		0.6	225	72.100	70.016
S10.014	28.356	Pipe	199.687		0.6	225	71.800	69.892
S10.015	8.432	Pipe	168.640		0.6	225	71.500	69.750
S11.000	41.857	Pipe	167.429		0.6	225	73.406	71.750
S11.001	48.019	Pipe	171.497		0.6	225	73.265	71.550
S12.000	48.159	Pipe	192.634		0.6	225	72.634	71.150
S13.000	25.228	Pipe	186.876		0.6	225	72.475	71.010
S15.000	73.866	Pipe	199.638		0.6	225	72.495	71.070
S17.000	47.616	Pipe	158.719		0.6	225	72.590	71.000
S17.001	39.760	Pipe	193.951		0.6	225	72.385	70.700
S18.000	16.495	Pipe	194.061		0.6	300	72.117	71.050
S18.001	30.218	Pipe	250.000		0.6	300	72.279	70.965
S18.002	10.763	Pipe	219.656		0.6	375	72.115	70.769
S18.003	49.100	Pipe	239.510		0.6	375	72.016	70.720
S18.004	58.079	Pipe	247.146		0.6	450	71.676	70.440
S18.005	20.256	Pipe	253.202		0.6	450	71.534	70.205
S19.000	24.095	Pipe	200.793		0.6	300	72.088	70.935
S19.001	55.631	Pipe	247.249		0.6	375	72.024	70.740
S20.000	52.193	Pipe	200.742		0.6	300	72.373	70.901
S20.001	9.153	Pipe	198.988		0.6	300	72.266	70.641
S20.002	59.763	Pipe	249.012		0.6	375	72.233	70.520
S21.000	37.410	Pipe	257.998		0.6	300	72.141	70.740
S1.000	45.118	Pipe	54.359		0.6	225	73.441	72.000
S1.001	60.381	Pipe	201.270		0.6	300	72.660	71.095
S1.002	20.806	Pipe	200.062		0.6	375	72.384	70.722
S1.003	14.090	Pipe	198.456		0.6	375	72.391	70.618
S1.004	10.940	Pipe	133.420		0.6	375	72.380	70.547
S1.005	7.623	Pipe	190.582		0.6	450	72.347	70.390
S2.000	42.405	Pipe	200.022		0.6	225	73.000	71.485
S4.000	49.697	Pipe	200.393		0.6	225	72.800	71.300
S4.001	40.168	Pipe	115.426		0.6	225	72.786	71.052
S3.000	19.750	Pipe	199.497		0.6	225	72.453	70.971
S5.000	12.338	Pipe	35.454		0.6	225	72.918	71.400
S6.000	36.169	Pipe	131.524		0.6	225	72.315	70.890
S1.006	8.381	Pipe	167.610		0.6	225	72.300	70.350
Basin 2B Open Grated MH	9.691	Pipe	10.767		0.6	450	71.450	71.000
Basin 2A Open Grated MH	15.182	Pipe	16.869		0.6	450	71.450	71.000
S2.001	20.556	Pipe	199.577		0.6	225	72.800	71.273
S10.004	11.786	Pipe	117.860		0.6	375	72.561	70.825
S10.005	6.726	Pipe	134.527		0.6	375	72.482	70.725
Basin 2C Open Grated MH	16.787	Pipe	18.652		0.6	450	71.450	71.000
S10.012	20.239	Pipe	240.941		0.6	225	72.000	70.100
S10.008	44.396	Pipe	250.828		0.6	300	72.651	70.597
Basin 1 Open Grated MH	9.330	Pipe	9.103		0.6	450	72.300	71.700
S10.003B	19.327	Pipe	197.216		0.6	300	72.750	70.998

Project:	Date:		
D144 Residential Development Summerhill Road, Dunboyne	14/08/2026 Designed by: AC	Checked by: NA	Approved By:
Report Details: Type: Connections Storm Phase: Surface Water	Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street Dublin 2, D02 E267		

CS CONSULTING
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Name	Downstream Cover Elevation (m)	Downstream Invert Elevation (m)	Part Family	Lock	Flow Restriction (L/s)	Culvert Type	Culvert Entrance	Wall Thickness (mm)
S10.000	73.402	71.550		Elevations		(None)	(None)	0
S10.001	73.033	71.270		Elevations		(None)	(None)	0
S10.002	72.804	71.045		None		(None)	(None)	0
S10.003A	72.750	70.998		Elevations		(None)	(None)	0
S10.006	72.651	70.595		Elevations	2.50	(None)	(None)	0
S16.000	72.425	70.700		Elevations		(None)	(None)	0
S10.007	72.651	70.597		Elevations		(None)	(None)	0
S10.009	71.654	70.234		None		(None)	(None)	0
S10.010	71.559	70.200		Elevations		(None)	(None)	0
S10.011	72.000	70.100		None		(None)	(None)	0
S10.013	71.800	69.892		None		(None)	(None)	0
S10.014	71.500	69.750		None		(None)	(None)	0
S10.015	71.600	69.700		None		(None)	(None)	0
S11.000	73.265	71.500		None		(None)	(None)	0
S11.001	73.033	71.270		Elevations		(None)	(None)	0
S12.000	72.561	70.900		Elevations		(None)	(None)	0
S13.000	72.482	70.875		Elevations		(None)	(None)	0
S15.000	72.425	70.700		Elevations		(None)	(None)	0
S17.000	72.385	70.700		None		(None)	(None)	0
S17.001	71.929	70.495		Elevations		(None)	(None)	0
S18.000	72.279	70.965		None		(None)	(None)	0
S18.001	72.115	70.844		Elevations		(None)	(None)	0
S18.002	72.016	70.720		None		(None)	(None)	0
S18.003	71.676	70.515		Elevations		(None)	(None)	0
S18.004	71.534	70.205		None		(None)	(None)	0
S18.005	71.559	70.125		None		(None)	(None)	0
S19.000	72.024	70.815		Elevations		(None)	(None)	0
S19.001	71.676	70.515		Elevations		(None)	(None)	0
S20.000	72.266	70.641		None		(None)	(None)	0
S20.001	72.233	70.595		Elevations		(None)	(None)	0
S20.002	71.534	70.280		Elevations		(None)	(None)	0
S21.000	72.233	70.595		Elevations		(None)	(None)	0
S1.000	72.660	71.170		Elevations		(None)	(None)	0
S1.001	72.384	70.795		Elevations		(None)	(None)	0
S1.002	72.391	70.618		None		(None)	(None)	0
S1.003	72.380	70.547		None		(None)	(None)	0
S1.004	72.347	70.465		Elevations		(None)	(None)	0
S1.005	72.400	70.350		None		(None)	(None)	0
S2.000	72.800	71.273		None		(None)	(None)	0
S4.000	72.786	71.052		None		(None)	(None)	0
S4.001	72.380	70.704		Elevations		(None)	(None)	0
S3.000	72.384	70.872		Elevations		(None)	(None)	0
S5.000	72.786	71.052		None		(None)	(None)	0
S6.000	72.347	70.615		Elevations		(None)	(None)	0
S1.006	72.300	70.300		Elevations	3.89	(None)	(None)	0
Basin 2B Open Grated MH	72.000	70.100		None		(None)	(None)	0
Basin 2A Open Grated MH	72.000	70.100		None		(None)	(None)	0
S2.001	72.660	71.170		Elevations		(None)	(None)	0
S10.004	72.482	70.725		None		(None)	(None)	0
S10.005	72.300	70.675		None		(None)	(None)	0
Basin 2C Open Grated MH	72.000	70.100		None		(None)	(None)	0
S10.012	72.100	70.016		None	10.81	(None)	(None)	0
S10.008	71.929	70.420		Elevations		(None)	(None)	0
Basin 1 Open Grated MH	72.300	70.675		None		(None)	(None)	0
S10.003B	72.561	70.900		Elevations		(None)	(None)	0

Project:	Date:		
D144 Residential Development Summerhill Road, Dunboyne	14/08/2026		
	Designed by:	Checked by:	Approved By:
	AC	NA	
Report Details: Type: Connections Storm Phase: Surface Water	Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street Dublin 2, D02 E267		

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Name	Material	Trench Width (mm)	Bedding Material	Surrounding Material
S10.000		0		
S10.001		0		
S10.002		0		
S10.003A		0		
S10.006		0		
S16.000		0		
S10.007		0		
S10.009		0		
S10.010		0		
S10.011		0		
S10.013		0		
S10.014		0		
S10.015		0		
S11.000		0		
S11.001		0		
S12.000		0		
S13.000		0		
S15.000		0		
S17.000		0		
S17.001		0		
S18.000		0		
S18.001		0		
S18.002		0		
S18.003		0		
S18.004		0		
S18.005		0		
S19.000		0		
S19.001		0		
S20.000		0		
S20.001		0		
S20.002		0		
S21.000		0		
S1.000		0		
S1.001		0		
S1.002		0		
S1.003		0		
S1.004		0		
S1.005		0		
S2.000		0		
S4.000		0		
S4.001		0		
S3.000		0		
S5.000		0		
S6.000		0		
S1.006		0		
Basin 2B Open Grated MH		0		
Basin 2A Open Grated MH		0		
S2.001		0		
S10.004		0		
S10.005		0		
Basin 2C Open Grated MH		0		
S10.012		0		
S10.008		0		
Basin 1 Open Grated MH		0		
S10.003B		0		

Project:	Date:		
D144 Residential Development Summerhill Road, Dunboyne	14/08/2026 Designed by: AC	Checked by: NA	Approved By:
Report Details: Type: Inflow Summary Storm Phase: Surface Water	Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street Dublin 2, D02 E267		

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Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (ha)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analyzed (ha)
Catchment 2 Basin 1	Catchment 2 Basin 1		Time of Concentration	0.126	95	0	95	0.120
Catchment 2 Basin 2A	Catchment 2 Basin 2A		Time of Concentration	0.041	95	0	95	0.039
Catchment 2 Basin 2B	Catchment 2 Basin 2B		Time of Concentration	0.076	95	0	95	0.072
Catchment 2 Basin 2C	Catchment 2 Basin 2C		Time of Concentration	0.047	95	0	95	0.045
Green Area	SWMH12		Time of Concentration	0.070	5	0	5	0.004
Green Area (1)	SWMH13		Time of Concentration	0.155	5	0	5	0.008
Green Area (2)	SWMH9		Time of Concentration	0.104	5	0	5	0.005
Green Area (3)	SWMH2		Time of Concentration	0.057	5	0	5	0.003
Green Area (4)	SWMH1		Time of Concentration	0.039	5	0	5	0.002
Green Area (5)	SWMH1		Time of Concentration	0.056	5	0	5	0.003
Green Area (6)	SWMH20		Time of Concentration	0.029	5	0	5	0.001
Green Area (7)	SWMH23		Time of Concentration	0.064	5	0	5	0.003
Green Area (8)	SWMH25		Time of Concentration	0.076	5	0	5	0.004
Green Area (9)	SWMH24		Time of Concentration	0.009	5	0	5	0.000
Green Area (10)	SWMH1		Time of Concentration	0.025	5	0	5	0.001
Green Area (11)	SWMH27		Time of Concentration	0.018	5	0	5	0.001
Green Area (12)	SWMH21		Time of Concentration	0.048	5	0	5	0.002
Green Area (13)	SWMH25		Time of Concentration	0.035	5	0	5	0.002
Green Area (14)	SWMH27		Time of Concentration	0.005	5	0	5	0.000
Green Area (15)	SWMH30		Time of Concentration	0.230	5	0	5	0.012
Green Area (16)	SWMH36		Time of Concentration	0.136	5	0	5	0.007
Green Area (17)	SWMH35		Time of Concentration	0.040	5	0	5	0.002
Green Area (18)	SWMH30		Time of Concentration	0.014	5	0	5	0.001
Green Area (19)	SWMH39		Time of Concentration	0.158	5	0	5	0.008
Green Area (20)			Time of Concentration	0.005	5	0	5	0.000
Green Area (21)	SWMH31		Time of Concentration	0.058	5	0	5	0.003
Green Area (22)	SWMH27		Time of Concentration	0.039	5	0	5	0.002
Green Area (23)	SWMH30		Time of Concentration	0.038	5	0	5	0.002
Green Area (24)	SWMH34		Time of Concentration	0.031	5	0	5	0.002
Green Area (25)	SWMH33		Time of Concentration	0.028	5	0	5	0.001
Green Area (26)	SWMH33		Time of Concentration	0.022	5	0	5	0.001
Green Area (27)	SWMH47		Time of Concentration	0.036	5	0	5	0.002
Green Area (28)	SWMH45		Time of Concentration	0.014	5	0	5	0.001
Green Area (29)	SWMH48		Time of Concentration	0.003	5	0	5	0.000
Green Area (30)	SWMH48		Time of Concentration	0.033	5	0	5	0.002
Green Area (31)	SWMH48		Time of Concentration	0.027	5	0	5	0.001
Green Area (32)	SWMH44		Time of Concentration	0.015	5	0	5	0.001
Green Area (33)	SWMH45		Time of Concentration	0.015	5	0	5	0.001
Green Area (34)	SWMH44		Time of Concentration	0.023	5	0	5	0.001

Green Area (35)	SWMH43		Time of Concentration	0.021	5	0	5	0.001
Green Area (36)	SWMH43		Time of Concentration	0.025	5	0	5	0.001
Green Area (37)	SWMH38		Time of Concentration	0.021	5	0	5	0.001
Green Area (38)	SWMH44		Time of Concentration	0.023	5	0	5	0.001
Green Area (39)	SWMH40		Time of Concentration	0.036	5	0	5	0.002
Green Area (40)	SWMH44		Time of Concentration	0.016	5	0	5	0.001
Green Area (41)	SWMH37		Time of Concentration	0.029	5	0	5	0.001
Green Area (42)	SWMH36		Time of Concentration	0.010	5	0	5	0.001
Green Area (43)	SWMH48		Time of Concentration	0.019	5	0	5	0.001
Green Area (44)	SWMH49		Time of Concentration	0.079	5	0	5	0.004
Green Area (45)			Time of Concentration	0.007	5	0	5	0.000
Green Area (46)	SWMH7		Time of Concentration	0.003	5	0	5	0.000
Green Area (47)	SWMH29		Time of Concentration	0.010	5	0	5	0.001
Green Area (48)	SWMH35		Time of Concentration	0.017	5	0	5	0.001
Green Area (49)	SWMH43		Time of Concentration	0.013	5	0	5	0.001
Green Area (50)	SWMH35		Time of Concentration	0.026	5	0	5	0.001
Green Area (51)	SWMH9		Time of Concentration	0.046	5	0	5	0.002
Green Area (52)	SWMH3		Time of Concentration	0.028	5	0	5	0.001
Green Area (53)	SWMH20		Time of Concentration	0.022	5	0	5	0.001
Green Area (54)	SWMH20		Time of Concentration	0.009	5	0	5	0.000
Green Area (55)	SWMH24		Time of Concentration	0.006	5	0	5	0.000
Green Area (56)	SWMH23		Time of Concentration	0.034	5	0	5	0.002
Green Area (57)	SWMH34		Time of Concentration	0.026	5	0	5	0.001
Green Area (58)	SWMH29		Time of Concentration	0.015	5	0	5	0.001
Green Area (59)	Catchment 1 Tank		Time of Concentration	0.126	5	0	5	0.006
Green Area (60)	SWMH27		Time of Concentration	0.008	5	0	5	0.000
Green Area (61)	SWMH25		Time of Concentration	0.011	5	0	5	0.001
Green Area (62)	SWMH27		Time of Concentration	0.009	5	0	5	0.000
Green Area (63)	SWMH4		Time of Concentration	0.012	5	0	5	0.001
Green Area (64)	SWMH45		Time of Concentration	0.010	5	0	5	0.001
Green Area (65)	SWMH1		Time of Concentration	0.006	5	0	5	0.000
Green Area (66)	SWMH47		Time of Concentration	0.005	5	0	5	0.000
Green Area (67)	SWMH43		Time of Concentration	0.009	5	0	5	0.000
Green Area (68)	SWMH31		Time of Concentration	0.023	5	0	5	0.001
Green Area (69)	Catchment 2 Basin 2B		Time of Concentration	0.074	5	0	5	0.004
Green Area (70)	Catchment 2 Basin 2C		Time of Concentration	0.041	5	0	5	0.002
Permeable Pavement	SWMH11		Time of Concentration	0.007	50	0	50	0.004
Permeable Pavement (1)	SWMH10		Time of Concentration	0.015	50	0	50	0.007
Permeable Pavement (2)	SWMH5		Time of Concentration	0.022	50	0	50	0.011
Permeable Pavement (3)	SWMH13		Time of Concentration	0.003	50	0	50	0.002
Permeable Pavement (4)	SWMH30		Time of Concentration	0.005	50	0	50	0.002

Permeable Pavement (5)	SWMH30		Time of Concentration	0.010	50	0	50	0.005
Permeable Pavement (6)	SWMH31		Time of Concentration	0.033	50	0	50	0.017
Permeable Pavement (7)	SWMH30		Time of Concentration	0.007	50	0	50	0.004
Permeable Pavement (8)	SWMH33		Time of Concentration	0.007	50	0	50	0.004
Permeable Pavement (9)	SWMH36		Time of Concentration	0.006	50	0	50	0.003
Permeable Pavement (10)	SWMH46		Time of Concentration	0.009	50	0	50	0.005
Permeable Pavement (11)	SWMH46		Time of Concentration	0.009	50	0	50	0.005
Permeable Pavement (12)	SWMH47		Time of Concentration	0.009	50	0	50	0.005
Permeable Pavement (13)	SWMH49		Time of Concentration	0.005	50	0	50	0.002
Permeable Pavement (14)	SWMH49		Time of Concentration	0.007	50	0	50	0.003
Permeable Pavement (15)	SWMH43		Time of Concentration	0.006	50	0	50	0.003
Permeable Pavement (16)	SWMH38		Time of Concentration	0.003	50	0	50	0.001
Permeable Pavement (17)	SWMH5		Time of Concentration	0.015	50	0	50	0.007
Permeable Pavement (18)	SWMH10		Time of Concentration	0.014	50	0	50	0.007
Permeable Pavement (19)	SWMH3		Time of Concentration	0.012	50	0	50	0.006
Permeable Pavement (20)	SWMH3		Time of Concentration	0.015	50	0	50	0.007
Permeable Pavement (21)	SWMH13		Time of Concentration	0.003	50	0	50	0.002
Permeable Pavement (22)	SWMH2		Time of Concentration	0.012	50	0	50	0.006
Permeable Pavement (23)	SWMH6		Time of Concentration	0.009	50	0	50	0.004
Permeable Pavement (24)	SWMH1		Time of Concentration	0.017	50	0	50	0.008
Permeable Pavement (25)	SWMH20		Time of Concentration	0.009	50	0	50	0.004
Permeable Pavement (26)	SWMH20		Time of Concentration	0.016	50	0	50	0.008
Permeable Pavement (27)	SWMH1		Time of Concentration	0.018	50	0	50	0.009
Permeable Pavement (28)	SWMH22		Time of Concentration	0.032	50	0	50	0.016
Permeable Pavement (29)	SWMH24		Time of Concentration	0.012	50	0	50	0.006
Permeable Pavement (30)	SWMH24		Time of Concentration	0.012	50	0	50	0.006
Permeable Pavement (31)	SWMH27		Time of Concentration	0.009	50	0	50	0.005
Permeable Pavement (32)	SWMH29		Time of Concentration	0.013	50	0	50	0.006
Permeable Pavement (33)	SWMH26		Time of Concentration	0.016	50	0	50	0.008
Permeable Pavement (34)	SWMH27		Time of Concentration	0.011	50	0	50	0.005
Permeable Pavement (35)	SWMH31		Time of Concentration	0.012	50	0	50	0.006
Permeable Pavement (36)	SWMH35		Time of Concentration	0.022	50	0	50	0.011
Permeable Pavement (37)	SWMH37		Time of Concentration	0.008	50	0	50	0.004
Permeable Pavement (38)	SWMH42		Time of Concentration	0.016	50	0	50	0.008
Permeable Pavement (39)	SWMH41		Time of Concentration	0.009	50	0	50	0.004
Permeable Pavement (40)	SWMH43		Time of Concentration	0.012	50	0	50	0.006
Permeable Pavement (41)	SWMH44		Time of Concentration	0.006	50	0	50	0.003
Permeable Pavement (42)	SWMH39		Time of Concentration	0.016	50	0	50	0.008
Permeable Pavement (43)	SWMH38		Time of Concentration	0.009	50	0	50	0.005
Permeable Pavement (44)	SWMH44		Time of Concentration	0.005	50	0	50	0.003
Permeable Pavement (45)	SWMH44		Time of Concentration	0.007	50	0	50	0.003

Permeable Pavement (46)	SWMH48		Time of Concentration	0.011	50	0	50	0.006
Permeable Pavement (47)	SWMH49		Time of Concentration	0.004	50	0	50	0.002
Permeable Pavement (48)	SWMH46		Time of Concentration	0.014	50	0	50	0.007
Permeable Pavement (49)	SWMH48		Time of Concentration	0.012	50	0	50	0.006
Permeable Pavement (50)	SWMH4		Time of Concentration	0.005	50	0	50	0.002
Permeable Pavement (51)	SWMH22		Time of Concentration	0.011	50	0	50	0.006
Permeable Pavement (52)	SWMH42		Time of Concentration	0.005	50	0	50	0.002
Permeable Pavement (53)	SWMH10		Time of Concentration	0.037	50	0	50	0.019
Permeable Pavement (54)	SWMH13		Time of Concentration	0.003	50	0	50	0.002
Permeable Pavement (55)	SWMH7		Time of Concentration	0.003	50	0	50	0.001
Road & Footpaths	SWMH13		Time of Concentration	0.047	90	0	90	0.042
Road & Footpaths (1)	SWMH12		Time of Concentration	0.005	90	0	90	0.004
Road & Footpaths (2)	SWMH10		Time of Concentration	0.013	90	0	90	0.012
Road & Footpaths (3)	SWMH9		Time of Concentration	0.043	90	0	90	0.039
Road & Footpaths (4)	SWMH8		Time of Concentration	0.027	90	0	90	0.024
Road & Footpaths (5)	SWMH7		Time of Concentration	0.007	90	0	90	0.006
Road & Footpaths (6)	SWMH6		Time of Concentration	0.021	90	0	90	0.018
Road & Footpaths (7)	SWMH5		Time of Concentration	0.017	90	0	90	0.016
Road & Footpaths (8)	SWMH3		Time of Concentration	0.053	90	0	90	0.047
Road & Footpaths (9)	SWMH5		Time of Concentration	0.044	90	0	90	0.040
Road & Footpaths (10)	SWMH1		Time of Concentration	0.060	90	0	90	0.054
Road & Footpaths (11)	SWMH20		Time of Concentration	0.031	90	0	90	0.028
Road & Footpaths (12)	SWMH21		Time of Concentration	0.053	90	0	90	0.048
Road & Footpaths (13)	SWMH23		Time of Concentration	0.033	90	0	90	0.030
Road & Footpaths (14)	SWMH24		Time of Concentration	0.027	90	0	90	0.025
Road & Footpaths (15)	SWMH22		Time of Concentration	0.032	90	0	90	0.029
Road & Footpaths (16)	SWMH25		Time of Concentration	0.023	90	0	90	0.021
Road & Footpaths (17)	SWMH29		Time of Concentration	0.029	90	0	90	0.026
Road & Footpaths (18)	SWMH26		Time of Concentration	0.043	90	0	90	0.038
Road & Footpaths (19)	SWMH31		Time of Concentration	0.069	90	0	90	0.062
Road & Footpaths (20)	SWMH35		Time of Concentration	0.039	90	0	90	0.035
Road & Footpaths (21)	SWMH34		Time of Concentration	0.037	90	0	90	0.033
Road & Footpaths (22)	SWMH47		Time of Concentration	0.039	90	0	90	0.035
Road & Footpaths (23)	SWMH47		Time of Concentration	0.007	90	0	90	0.007
Road & Footpaths (24)	SWMH37		Time of Concentration	0.018	90	0	90	0.016
Road & Footpaths (25)	SWMH36		Time of Concentration	0.021	90	0	90	0.019
Road & Footpaths (26)	SWMH48		Time of Concentration	0.050	90	0	90	0.045
Road & Footpaths (27)	SWMH48		Time of Concentration	0.032	90	0	90	0.029
Road & Footpaths (28)	SWMH49		Time of Concentration	0.022	90	0	90	0.020
Road & Footpaths (29)	SWMH43		Time of Concentration	0.030	90	0	90	0.027
Road & Footpaths (30)	SWMH44		Time of Concentration	0.050	90	0	90	0.045

Road & Footpaths (31)	SWMH39		Time of Concentration	0.023	90	0	90	0.021
Road & Footpaths (32)	SWMH39		Time of Concentration	0.022	90	0	90	0.020
Road & Footpaths (33)	SWMH41		Time of Concentration	0.007	90	0	90	0.007
Road & Footpaths (34)	SWMH41		Time of Concentration	0.035	90	0	90	0.032
Road & Footpaths (35)	SWMH42		Time of Concentration	0.047	90	0	90	0.043
Road & Footpaths (36)	SWMH11		Time of Concentration	0.008	90	0	90	0.007
Road & Footpaths (37)	SWMH27		Time of Concentration	0.037	90	0	90	0.034
Road & Footpaths (38)	SWMH30		Time of Concentration	0.038	90	0	90	0.034
Road & Footpaths (39)	SWMH6		Time of Concentration	0.025	90	0	90	0.022
Roofs and curtilage	SWMH10		Time of Concentration	0.037	80	0	80	0.030
Roofs and curtilage (1)	SWMH11		Time of Concentration	0.068	80	0	80	0.055
Roofs and curtilage (2)	SWMH2		Time of Concentration	0.029	80	0	80	0.023
Roofs and curtilage (3)	SWMH6		Time of Concentration	0.020	80	0	80	0.016
Roofs and curtilage (4)	SWMH3		Time of Concentration	0.035	80	0	80	0.028
Roofs and curtilage (5)	SWMH2		Time of Concentration	0.014	80	0	80	0.012
Roofs and curtilage (6)	SWMH2		Time of Concentration	0.016	80	0	80	0.013
Roofs and curtilage (7)	SWMH2		Time of Concentration	0.015	80	0	80	0.012
Roofs and curtilage (8)	SWMH2		Time of Concentration	0.013	80	0	80	0.010
Roofs and curtilage (9)	SWMH1		Time of Concentration	0.022	80	0	80	0.018
Roofs and curtilage (10)	SWMH3		Time of Concentration	0.037	80	0	80	0.030
Roofs and curtilage (11)	SWMH20		Time of Concentration	0.029	80	0	80	0.023
Roofs and curtilage (12)	SWMH20		Time of Concentration	0.042	80	0	80	0.034
Roofs and curtilage (13)	SWMH1		Time of Concentration	0.030	80	0	80	0.024
Roofs and curtilage (14)	SWMH21		Time of Concentration	0.059	80	0	80	0.047
Roofs and curtilage (15)	SWMH25		Time of Concentration	0.038	80	0	80	0.030
Roofs and curtilage (16)	SWMH27		Time of Concentration	0.014	80	0	80	0.012
Roofs and curtilage (17)	SWMH22		Time of Concentration	0.022	80	0	80	0.018
Roofs and curtilage (18)	SWMH29		Time of Concentration	0.049	80	0	80	0.039
Roofs and curtilage (19)	SWMH26		Time of Concentration	0.046	80	0	80	0.037
Roofs and curtilage (20)	SWMH31		Time of Concentration	0.043	80	0	80	0.035
Roofs and curtilage (21)	SWMH27		Time of Concentration	0.031	80	0	80	0.025
Roofs and curtilage (22)	SWMH31		Time of Concentration	0.067	80	0	80	0.054
Roofs and curtilage (23)	SWMH35		Time of Concentration	0.052	80	0	80	0.041
Roofs and curtilage (24)	SWMH33		Time of Concentration	0.003	80	0	80	0.002
Roofs and curtilage (25)	SWMH46		Time of Concentration	0.061	80	0	80	0.048
Roofs and curtilage (26)	SWMH35		Time of Concentration	0.065	80	0	80	0.052
Roofs and curtilage (27)	SWMH47		Time of Concentration	0.030	80	0	80	0.024
Roofs and curtilage (28)	SWMH46		Time of Concentration	0.095	80	0	80	0.076
Roofs and curtilage (29)	SWMH46		Time of Concentration	0.002	80	0	80	0.001
Roofs and curtilage (30)	SWMH40		Time of Concentration	0.018	80	0	80	0.014
Roofs and curtilage (31)	SWMH43		Time of Concentration	0.053	80	0	80	0.043

Roofs and curtilage (32)	SWMH48		Time of Concentration	0.013	80	0	80	0.010
Roofs and curtilage (33)	SWMH44		Time of Concentration	0.015	80	0	80	0.012
Roofs and curtilage (34)	SWMH44		Time of Concentration	0.021	80	0	80	0.017
Roofs and curtilage (35)	SWMH42		Time of Concentration	0.052	80	0	80	0.041
Roofs and curtilage (36)	SWMH37		Time of Concentration	0.029	80	0	80	0.023
Roofs and curtilage (37)	SWMH41		Time of Concentration	0.031	80	0	80	0.025
Roofs and curtilage (38)	SWMH39		Time of Concentration	0.032	80	0	80	0.026
Roofs and curtilage (39)	SWMH38		Time of Concentration	0.030	80	0	80	0.024
Roofs and curtilage (40)	SWMH43		Time of Concentration	0.038	80	0	80	0.030
Roofs and curtilage (41)	SWMH44		Time of Concentration	0.021	80	0	80	0.017
Roofs and curtilage (42)	SWMH48		Time of Concentration	0.030	80	0	80	0.024
Roofs and curtilage (43)	SWMH6		Time of Concentration	0.111	80	0	80	0.089
Roofs and curtilage (44)	SWMH24		Time of Concentration	0.045	80	0	80	0.036
Roofs and curtilage (45)	SWMH24		Time of Concentration	0.028	80	0	80	0.022
Roofs and curtilage (46)	SWMH27		Time of Concentration	0.014	80	0	80	0.011
Roofs and curtilage (47)	SWMH1		Time of Concentration	0.022	80	0	80	0.018
TOTAL		**0.0**		**6.507**				**3.213**

APPENDIX E

SURFACE WATER NETWORK ANALYSIS AND MODELLING CALCULATIONS FOR 1:1, 1:30 AND 1:100 YEAR STORM EVENTS

Project:	Date:		
D144 Residential Development Summerhill Road, Dunboyne	14/08/2026 Designed by: AC	Checked by: NA	Approved By:
Report Title: Rainfall Analysis Criteria	Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street Dublin 2, D02 E267		

CS CONSULTING
Civil, Structural & Traffic Engineering

Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Default
Urban Creep	Apply Global Value
Urban Creep Global Value (%)	0
Junction Flood Risk Margin (mm)	300
Perform First Flush Analysis	☐

Rainfall

FSR

Type: FSR

Region	Scotland and Ireland
M5-60 (mm)	15.5
Ratio R	0.277
Summer	☑
Winter	☑

Return Period

Return Period (years)	Increase Rainfall (%)
1.0	20.000
30.0	0.000
100.0	20.000

Storm Durations

Duration (mins)	Run Time (mins)
15	30
30	60
60	120
120	240
180	360
240	480
360	720
480	960
600	1200
720	1440
960	1920
1440	2880
2160	4320
2880	5760

Project:	Date:		
D144 Residential Development Summerhill Road, Dunboyne	14/08/2026 Designed by: AC	Checked by: NA	Approved By:
Report Details: Type: Junctions Summary Storm Phase: Surface Water	Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street Dublin 2, D02 E267		

CS CONSULTING
Civil, Structural & Traffic Engineering

FSR: 1 years: Increase Rainfall (%): +20: Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Elevation (m)	Invert Elevation (m)	Max. Elevation (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
SWMH20	FSR: 1 years: +20 %: 15 mins: Summer	73.456	71.800	71.899	0.099	16.3	0.112	0.000	15.3	7.071	OK
SWMH21	FSR: 1 years: +20 %: 15 mins: Summer	73.402	71.550	71.694	0.144	31.1	0.163	0.000	24.9	13.861	OK
SWMH22	FSR: 1 years: +20 %: 15 mins: Summer	73.033	71.195	71.384	0.189	54.2	0.214	0.000	49.5	27.551	OK
SWMH25	FSR: 1 years: +20 %: 15 mins: Summer	72.804	71.045	71.260	0.215	58.7	0.243	0.000	55.0	31.521	OK
SWMH28	FSR: 1 years: +20 %: 2880 mins: Summer	72.482	70.725	71.038	0.313	8.6	0.354	0.000	8.6	377.722	OK
SWMH26	FSR: 1 years: +20 %: 2880 mins: Summer	72.561	70.825	71.038	0.213	7.7	0.241	0.000	7.7	338.929	OK
SWMH30	FSR: 1 years: +20 %: 15 mins: Summer	72.425	70.625	70.777	0.152	33.0	0.171	0.000	30.9	16.398	OK
SWMH33	FSR: 1 years: +20 %: 15 mins: Summer	71.929	70.345	70.521	0.176	50.9	0.199	0.000	48.2	30.121	OK
SWMH36	FSR: 1 years: +20 %: 1440 mins: Summer	71.654	70.234	70.456	0.222	10.7	0.251	0.000	10.6	478.595	OK
SWMH37	FSR: 1 years: +20 %: 1440 mins: Summer	71.559	70.125	70.456	0.331	27.8	0.374	0.000	27.6	864.676	OK
SWMH4	FSR: 1 years: +20 %: 15 mins: Summer	72.800	71.273	71.386	0.113	18.8	0.128	0.000	16.5	8.626	OK
SWMH51	FSR: 1 years: +20 %: 1440 mins: Summer	72.100	70.016	70.102	0.086	10.6	0.097	0.000	10.6	839.444	OK
SWMH52	FSR: 1 years: +20 %: 1440 mins: Summer	71.800	69.892	69.978	0.086	10.6	0.097	0.000	10.6	839.302	OK
SWMH53	FSR: 1 years: +20 %: 1440 mins: Summer	71.500	69.750	69.835	0.085	10.6	0.096	0.000	10.6	839.193	OK
Catchment 2 Outfall	FSR: 1 years: +20 %: 1440 mins: Summer	71.600	69.700	69.779	0.079	10.6	0.000	0.000	10.6	839.193	OK
SWMH23	FSR: 1 years: +20 %: 15 mins: Summer	73.406	71.750	71.803	0.053	5.6	0.060	0.000	5.2	2.430	OK
SWMH24	FSR: 1 years: +20 %: 15 mins: Summer	73.265	71.500	71.662	0.162	20.7	0.183	0.000	18.2	8.818	OK
SWMH27	FSR: 1 years: +20 %: 15 mins: Summer	72.634	71.150	71.249	0.099	15.5	0.111	0.000	14.8	6.564	OK
SWMH29	FSR: 1 years: +20 %: 15 mins: Summer	72.475	71.010	71.096	0.086	11.8	0.098	0.000	10.9	5.098	OK
SWMH31	FSR: 1 years: +20 %: 15 mins: Summer	72.495	71.070	71.208	0.138	28.6	0.156	0.000	23.5	12.373	OK
SWMH34	FSR: 1 years: +20 %: 15 mins: Summer	72.590	71.000	71.054	0.054	5.9	0.061	0.000	5.4	2.545	OK
SWMH35	FSR: 1 years: +20 %: 15 mins: Summer	72.385	70.700	70.841	0.141	28.7	0.159	0.000	24.2	12.616	OK
SWMH38	FSR: 1 years: +20 %: 15 mins: Summer	72.117	71.050	71.099	0.049	5.1	0.056	0.000	4.9	2.208	OK
SWMH39	FSR: 1 years: +20 %: 15 mins: Summer	72.279	70.965	71.068	0.103	18.2	0.116	0.000	16.2	7.947	OK
SWMH40	FSR: 1 years: +20 %: 15 mins: Summer	72.115	70.769	70.874	0.105	18.8	0.118	0.000	18.2	9.079	OK
SWMH41	FSR: 1 years: +20 %: 15 mins: Summer	72.016	70.720	70.837	0.117	29.2	0.132	0.000	24.8	13.801	OK
SWMH42	FSR: 1 years: +20 %: 15 mins: Summer	71.676	70.440	70.612	0.172	69.2	0.195	0.000	64.5	35.580	OK
SWMH45	FSR: 1 years: +20 %: 30 mins: Summer	71.534	70.205	70.473	0.268	98.2	0.303	0.000	97.5	84.639	OK
SWMH43	FSR: 1 years: +20 %: 15 mins: Summer	72.088	70.935	71.035	0.100	18.2	0.113	0.000	17.0	7.917	OK
SWMH44	FSR: 1 years: +20 %: 15 mins: Summer	72.024	70.740	70.868	0.128	33.7	0.144	0.000	29.1	15.130	OK
SWMH46	FSR: 1 years: +20 %: 15 mins: Summer	72.373	70.901	71.009	0.108	23.1	0.122	0.000	21.7	10.022	OK
SWMH47	FSR: 1 years: +20 %: 15 mins: Summer	72.266	70.641	70.784	0.143	33.4	0.161	0.000	30.4	15.053	OK
SWMH48	FSR: 1 years: +20 %: 15 mins: Summer	72.233	70.520	70.692	0.172	55.2	0.194	0.000	50.1	25.267	OK
SWMH49	FSR: 1 years: +20 %: 15 mins: Summer	72.141	70.740	70.792	0.052	5.1	0.059	0.000	4.7	2.184	OK
SWMH1	FSR: 1 years: +20 %: 15 mins: Summer	73.441	72.000	72.087	0.087	22.3	0.099	0.000	21.7	9.537	OK

SWMH2	FSR: 1 years: +20 %: 15 mins: Summer	72.660	71.095	71.262	0.167	50.9	0.189	0.000	42.5	23.668	OK
SWMH5	FSR: 1 years: +20 %: 15 mins: Summer	72.384	70.722	70.945	0.223	77.3	0.252	0.000	74.9	39.359	OK
SWMH7	FSR: 1 years: +20 %: 15 mins: Summer	72.391	70.618	70.845	0.227	76.2	0.257	0.000	72.3	39.866	OK
SWMH8	FSR: 1 years: +20 %: 1440 mins: Summer	72.380	70.547	70.810	0.263	14.9	0.297	0.000	14.8	327.654	OK
SWMH12	FSR: 1 years: +20 %: 1440 mins: Summer	72.347	70.390	70.809	0.419	16.0	0.474	0.000	15.8	353.904	OK
NSMH5	FSR: 1 years: +20 %: 480 mins: Summer	72.300	70.300	70.346	0.046	3.8	0.000	0.000	3.8	171.155	OK
SWMH3	FSR: 1 years: +20 %: 15 mins: Summer	73.000	71.485	71.603	0.118	19.5	0.133	0.000	18.3	8.461	OK
SWMH9	FSR: 1 years: +20 %: 15 mins: Summer	72.800	71.300	71.365	0.065	7.5	0.073	0.000	6.9	3.240	OK
SWMH10	FSR: 1 years: +20 %: 15 mins: Summer	72.786	71.052	71.174	0.122	29.4	0.138	0.000	25.3	13.054	OK
SWMH6	FSR: 1 years: +20 %: 15 mins: Summer	72.453	70.971	71.110	0.139	24.3	0.157	0.000	22.9	10.533	OK
SWMH11	FSR: 1 years: +20 %: 15 mins: Summer	72.918	71.400	71.452	0.052	10.7	0.059	0.000	10.5	4.636	OK
SWMH13	FSR: 1 years: +20 %: 15 mins: Summer	72.315	70.890	70.956	0.066	8.9	0.075	0.000	8.0	3.859	OK
SWMH32	FSR: 1 years: +20 %: 15 mins: Summer	72.446	71.000	71.000	0.000	0.0	0.000	0.000	0.0	0.000	OK
SWMH55	FSR: 1 years: +20 %: 15 mins: Summer	72.651	70.595	70.729	0.134	30.9	0.152	0.000	25.4	17.175	OK
SWMH54	FSR: 1 years: +20 %: 15 mins: Summer	72.750	70.998	71.192	0.194	55.0	0.219	0.000	51.0	31.458	OK

Project:	Date:		
D144 Residential Development Summerhill Road, Dunboyne	14/08/2026 Designed by: AC	Checked by: NA	Approved By:
Report Details: Type: Junctions Summary Storm Phase: Surface Water	Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street Dublin 2, D02 E267		

FSR: 30 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Elevation (m)	Invert Elevation (m)	Max. Elevation (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
SWMH20	FSR: 30 years: +0 %: 15 mins: Summer	73.456	71.800	72.033	0.233	30.1	0.263	0.000	13.1	13.042	Surcharged
SWMH21	FSR: 30 years: +0 %: 15 mins: Summer	73.402	71.550	72.007	0.457	42.4	0.517	0.000	40.2	25.227	Surcharged
SWMH22	FSR: 30 years: +0 %: 15 mins: Summer	73.033	71.195	71.641	0.446	86.1	0.504	0.000	83.5	51.271	Surcharged
SWMH25	FSR: 30 years: +0 %: 15 mins: Summer	72.804	71.045	71.446	0.401	100.6	0.454	0.000	97.5	58.652	Surcharged
SWMH28	FSR: 30 years: +0 %: 2880 mins: Summer	72.482	70.725	71.299	0.574	12.8	0.650	0.000	12.7	571.531	Surcharged
SWMH26	FSR: 30 years: +0 %: 2880 mins: Summer	72.561	70.825	71.300	0.475	11.7	0.537	0.000	11.5	513.010	Surcharged
SWMH30	FSR: 30 years: +0 %: 15 mins: Summer	72.425	70.625	70.850	0.225	59.2	0.255	0.000	55.5	30.452	OK
SWMH33	FSR: 30 years: +0 %: 1440 mins: Summer	71.929	70.345	70.692	0.347	14.9	0.392	0.000	14.6	589.906	OK
SWMH36	FSR: 30 years: +0 %: 1440 mins: Summer	71.654	70.234	70.691	0.457	15.5	0.517	0.000	15.3	608.924	Surcharged
SWMH37	FSR: 30 years: +0 %: 1440 mins: Summer	71.559	70.125	70.691	0.566	41.9	0.640	0.000	41.6	1214.548	Surcharged
SWMH4	FSR: 30 years: +0 %: 15 mins: Summer	72.800	71.273	71.454	0.181	34.7	0.205	0.000	31.0	15.951	OK
SWMH51	FSR: 30 years: +0 %: 180 mins: Summer	72.100	70.016	70.103	0.087	10.8	0.098	0.000	10.8	177.754	OK
SWMH52	FSR: 30 years: +0 %: 180 mins: Summer	71.800	69.892	69.978	0.086	10.8	0.098	0.000	10.8	177.289	OK
SWMH53	FSR: 30 years: +0 %: 180 mins: Summer	71.500	69.750	69.836	0.086	10.8	0.097	0.000	10.8	176.939	OK
Catchment 2 Outfall	FSR: 30 years: +0 %: 180 mins: Summer	71.600	69.700	69.779	0.079	10.8	0.000	0.000	10.8	176.939	OK
SWMH23	FSR: 30 years: +0 %: 15 mins: Summer	73.406	71.750	71.824	0.074	10.3	0.083	0.000	9.7	4.517	OK
SWMH24	FSR: 30 years: +0 %: 15 mins: Summer	73.265	71.500	71.744	0.244	38.4	0.276	0.000	25.3	16.515	OK
SWMH27	FSR: 30 years: +0 %: 2880 mins: Summer	72.634	71.150	71.300	0.150	1.8	0.169	0.000	1.8	76.981	OK
SWMH29	FSR: 30 years: +0 %: 2880 mins: Summer	72.475	71.010	71.299	0.289	1.3	0.327	0.000	1.3	58.638	Surcharged
SWMH31	FSR: 30 years: +0 %: 15 mins: Summer	72.495	71.070	71.333	0.263	52.9	0.297	0.000	41.5	22.933	Surcharged
SWMH34	FSR: 30 years: +0 %: 15 mins: Summer	72.590	71.000	71.074	0.074	10.8	0.084	0.000	10.2	4.701	OK
SWMH35	FSR: 30 years: +0 %: 15 mins: Summer	72.385	70.700	70.964	0.264	53.3	0.299	0.000	43.0	23.020	Surcharged
SWMH38	FSR: 30 years: +0 %: 15 mins: Summer	72.117	71.050	71.128	0.078	9.4	0.088	0.000	8.6	4.094	OK
SWMH39	FSR: 30 years: +0 %: 15 mins: Summer	72.279	70.965	71.111	0.146	33.2	0.165	0.000	30.0	14.734	OK
SWMH40	FSR: 30 years: +0 %: 15 mins: Summer	72.115	70.769	70.924	0.155	34.9	0.175	0.000	34.0	16.836	OK
SWMH41	FSR: 30 years: +0 %: 15 mins: Summer	72.016	70.720	70.893	0.173	54.4	0.196	0.000	50.9	25.235	OK
SWMH42	FSR: 30 years: +0 %: 30 mins: Summer	71.676	70.440	70.695	0.255	105.4	0.289	0.000	103.5	90.942	OK
SWMH45	FSR: 30 years: +0 %: 1440 mins: Summer	71.534	70.205	70.691	0.486	26.3	0.550	0.000	25.3	577.045	Surcharged
SWMH43	FSR: 30 years: +0 %: 15 mins: Summer	72.088	70.935	71.078	0.143	33.7	0.161	0.000	31.8	14.621	OK
SWMH44	FSR: 30 years: +0 %: 15 mins: Summer	72.024	70.740	70.930	0.190	62.7	0.214	0.000	57.1	27.154	OK
SWMH46	FSR: 30 years: +0 %: 15 mins: Summer	72.373	70.901	71.054	0.153	42.7	0.173	0.000	40.5	18.539	OK
SWMH47	FSR: 30 years: +0 %: 15 mins: Summer	72.266	70.641	70.855	0.214	62.1	0.242	0.000	57.3	27.797	OK
SWMH48	FSR: 30 years: +0 %: 15 mins: Summer	72.233	70.520	70.768	0.248	103.4	0.281	0.000	93.8	47.169	OK
SWMH49	FSR: 30 years: +0 %: 15 mins: Summer	72.141	70.740	70.811	0.071	9.4	0.080	0.000	8.8	4.069	OK
SWMH1	FSR: 30 years: +0 %: 15 mins: Summer	73.441	72.000	72.122	0.122	41.3	0.138	0.000	40.1	17.665	OK

SWMH2	FSR: 30 years: +0 %: 15 mins: Summer	72.660	71.095	71.390	0.295	94.7	0.334	0.000	75.8	43.923	OK
SWMH5	FSR: 30 years: +0 %: 1440 mins: Summer	72.384	70.722	71.175	0.453	16.8	0.512	0.000	16.6	370.242	Surcharged
SWMH7	FSR: 30 years: +0 %: 1440 mins: Summer	72.391	70.618	71.175	0.557	16.9	0.630	0.000	16.5	375.361	Surcharged
SWMH8	FSR: 30 years: +0 %: 1440 mins: Summer	72.380	70.547	71.175	0.628	22.8	0.710	0.000	22.3	514.047	Surcharged
SWMH12	FSR: 30 years: +0 %: 1440 mins: Summer	72.347	70.390	71.175	0.785	24.2	0.888	0.000	24.0	555.295	Surcharged
NSMH5	FSR: 30 years: +0 %: 180 mins: Summer	72.300	70.300	70.346	0.046	3.8	0.000	0.000	3.8	66.475	OK
SWMH3	FSR: 30 years: +0 %: 15 mins: Summer	73.000	71.485	71.668	0.183	36.0	0.207	0.000	33.8	15.584	OK
SWMH9	FSR: 30 years: +0 %: 15 mins: Summer	72.800	71.300	71.391	0.091	13.8	0.103	0.000	12.9	5.990	OK
SWMH10	FSR: 30 years: +0 %: 15 mins: Summer	72.786	71.052	71.254	0.202	54.7	0.228	0.000	48.2	23.823	OK
SWMH6	FSR: 30 years: +0 %: 15 mins: Summer	72.453	70.971	71.266	0.295	44.9	0.334	0.000	38.7	19.205	Surcharged
SWMH11	FSR: 30 years: +0 %: 15 mins: Summer	72.918	71.400	71.471	0.071	19.7	0.080	0.000	19.5	8.578	OK
SWMH13	FSR: 30 years: +0 %: 1440 mins: Summer	72.315	70.890	71.175	0.285	1.6	0.322	0.000	1.6	36.122	Surcharged
SWMH32	FSR: 30 years: +0 %: 15 mins: Summer	72.446	71.000	71.000	0.000	0.0	0.000	0.000	0.0	0.000	OK
SWMH55	FSR: 30 years: +0 %: 15 mins: Summer	72.651	70.595	70.795	0.200	55.5	0.226	0.000	49.3	31.878	OK
SWMH54	FSR: 30 years: +0 %: 15 mins: Summer	72.750	70.998	71.330	0.332	97.5	0.376	0.000	92.4	58.604	Surcharged

Project:	Date:		
D144 Residential Development Summerhill Road, Dunboyne	14/08/2026 Designed by: AC	Checked by: NA	Approved By:
Report Details: Type: Junctions Summary Storm Phase: Surface Water	Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street Dublin 2, D02 E267		



FSR: 100 years: Increase Rainfall (%): +20: Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Elevation (m)	Invert Elevation (m)	Max. Elevation (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
SWMH20	FSR: 100 years: +20 %: 15 mins: Summer	73.456	71.800	73.318	1.518	46.7	1.717	0.000	31.6	20.254	Flood Risk
SWMH21	FSR: 100 years: +20 %: 15 mins: Summer	73.402	71.550	73.149	1.599	77.1	1.808	0.000	62.2	39.365	Flood Risk
SWMH22	FSR: 100 years: +20 %: 15 mins: Summer	73.033	71.195	72.357	1.162	130.5	1.314	0.000	120.4	79.799	Surcharged
SWMH25	FSR: 100 years: +20 %: 2880 mins: Winter	72.804	71.045	71.973	0.928	8.0	1.050	0.000	7.9	546.491	Surcharged
SWMH28	FSR: 100 years: +20 %: 2880 mins: Winter	72.482	70.725	71.973	1.248	12.0	1.412	0.000	17.0	838.622	Surcharged
SWMH26	FSR: 100 years: +20 %: 2880 mins: Winter	72.561	70.825	71.972	1.147	10.8	1.297	0.000	10.8	758.124	Surcharged
SWMH30	FSR: 100 years: +20 %: 2160 mins: Summer	72.425	70.625	71.285	0.660	9.2	0.747	0.000	10.6	277.639	Surcharged
SWMH33	FSR: 100 years: +20 %: 2160 mins: Summer	71.929	70.345	71.285	0.940	18.4	1.064	0.000	21.1	945.129	Surcharged
SWMH36	FSR: 100 years: +20 %: 1440 mins: Summer	71.654	70.234	71.289	1.055	21.4	1.193	0.000	23.5	756.706	Surcharged
SWMH37	FSR: 100 years: +20 %: 2160 mins: Summer	71.559	70.125	71.286	1.161	50.7	1.313	0.000	97.1	1999.238	Flood Risk
SWMH4	FSR: 100 years: +20 %: 15 mins: Summer	72.800	71.273	72.413	1.140	44.8	1.289	0.000	35.9	24.844	Surcharged
SWMH51	FSR: 100 years: +20 %: 60 mins: Summer	72.100	70.016	70.103	0.087	10.8	0.098	0.000	10.8	57.454	OK
SWMH52	FSR: 100 years: +20 %: 60 mins: Summer	71.800	69.892	69.978	0.086	10.8	0.098	0.000	10.8	56.986	OK
SWMH53	FSR: 100 years: +20 %: 60 mins: Summer	71.500	69.750	69.836	0.086	10.8	0.097	0.000	10.8	56.631	OK
Catchment 2 Outfall	FSR: 100 years: +20 %: 60 mins: Summer	71.600	69.700	69.779	0.079	10.8	0.000	0.000	10.8	56.631	OK
SWMH23	FSR: 100 years: +20 %: 30 mins: Summer	73.406	71.750	72.658	0.908	11.2	1.027	0.000	10.2	9.875	Surcharged
SWMH24	FSR: 100 years: +20 %: 30 mins: Summer	73.265	71.500	72.640	1.140	41.2	1.289	0.000	40.1	36.356	Surcharged
SWMH27	FSR: 100 years: +20 %: 2880 mins: Winter	72.634	71.150	71.973	0.823	1.7	0.931	0.000	1.9	115.428	Surcharged
SWMH29	FSR: 100 years: +20 %: 2880 mins: Winter	72.475	71.010	71.973	0.963	1.6	1.089	0.000	2.0	87.514	Surcharged
SWMH31	FSR: 100 years: +20 %: 15 mins: Summer	72.495	71.070	72.428	1.358	82.3	1.536	0.000	70.3	34.223	Flood Risk
SWMH34	FSR: 100 years: +20 %: 15 mins: Summer	72.590	71.000	71.567	0.567	16.9	0.642	0.000	7.8	7.406	Surcharged
SWMH35	FSR: 100 years: +20 %: 15 mins: Summer	72.385	70.700	71.560	0.860	74.9	0.973	0.000	67.8	35.764	Surcharged
SWMH38	FSR: 100 years: +20 %: 2160 mins: Summer	72.117	71.050	71.284	0.234	2.1	0.265	0.000	2.4	42.213	OK
SWMH39	FSR: 100 years: +20 %: 2160 mins: Summer	72.279	70.965	71.284	0.319	4.1	0.360	0.000	7.2	143.395	Surcharged
SWMH40	FSR: 100 years: +20 %: 2160 mins: Summer	72.115	70.769	71.284	0.515	7.5	0.582	0.000	7.7	167.737	Surcharged
SWMH41	FSR: 100 years: +20 %: 2160 mins: Summer	72.016	70.720	71.284	0.564	9.2	0.637	0.000	10.1	245.906	Surcharged
SWMH42	FSR: 100 years: +20 %: 2160 mins: Summer	71.676	70.440	71.284	0.844	26.2	0.955	0.000	24.2	593.034	Surcharged
SWMH45	FSR: 100 years: +20 %: 1440 mins: Summer	71.534	70.205	71.287	1.082	38.5	1.224	0.000	46.4	895.761	Flood Risk
SWMH43	FSR: 100 years: +20 %: 2160 mins: Summer	72.088	70.935	71.284	0.349	3.7	0.395	0.000	6.1	126.945	Surcharged
SWMH44	FSR: 100 years: +20 %: 2160 mins: Summer	72.024	70.740	71.284	0.544	9.2	0.616	0.000	13.2	244.526	Surcharged
SWMH46	FSR: 100 years: +20 %: 1440 mins: Summer	72.373	70.901	71.285	0.384	6.3	0.434	0.000	8.1	144.201	Surcharged
SWMH47	FSR: 100 years: +20 %: 2160 mins: Summer	72.266	70.641	71.284	0.643	13.7	0.727	0.000	15.0	248.338	Surcharged
SWMH48	FSR: 100 years: +20 %: 2160 mins: Summer	72.233	70.520	71.284	0.764	20.4	0.864	0.000	20.6	430.939	Surcharged
SWMH49	FSR: 100 years: +20 %: 2160 mins: Summer	72.141	70.740	71.286	0.546	3.8	0.617	0.000	2.9	42.810	Surcharged
SWMH1	FSR: 100 years: +20 %: 15 mins: Summer	73.441	72.000	72.769	0.769	64.2	0.870	0.000	50.4	27.486	Surcharged

SWMH2	FSR: 100 years: +20 %: 15 mins: Summer	72.660	71.095	72.314	1.219	120.3	1.379	0.000	108.6	68.375	Surcharged
SWMH5	FSR: 100 years: +20 %: 1440 mins: Winter	72.384	70.722	71.703	0.981	16.0	1.110	0.000	15.6	547.086	Surcharged
SWMH7	FSR: 100 years: +20 %: 1440 mins: Winter	72.391	70.618	71.703	1.085	15.8	1.227	0.000	15.8	552.403	Surcharged
SWMH8	FSR: 100 years: +20 %: 1440 mins: Winter	72.380	70.547	71.703	1.156	21.7	1.307	0.000	21.5	755.724	Surcharged
SWMH12	FSR: 100 years: +20 %: 1440 mins: Winter	72.347	70.390	71.703	1.313	23.2	1.485	0.000	23.1	813.933	Surcharged
NSMH5	FSR: 100 years: +20 %: 1440 mins: Winter	72.300	70.300	70.347	0.047	3.8	0.000	0.000	3.8	551.554	OK
SWMH3	FSR: 100 years: +20 %: 15 mins: Summer	73.000	71.485	72.717	1.232	55.9	1.393	0.000	43.4	24.203	Flood Risk
SWMH9	FSR: 100 years: +20 %: 15 mins: Summer	72.800	71.300	71.833	0.533	21.5	0.603	0.000	17.3	9.394	Surcharged
SWMH10	FSR: 100 years: +20 %: 15 mins: Summer	72.786	71.052	71.796	0.744	71.2	0.841	0.000	61.0	37.079	Surcharged
SWMH6	FSR: 100 years: +20 %: 15 mins: Summer	72.453	70.971	72.005	1.034	69.8	1.169	0.000	61.9	29.930	Surcharged
SWMH11	FSR: 100 years: +20 %: 15 mins: Summer	72.918	71.400	71.827	0.427	30.7	0.483	0.000	19.2	13.301	Surcharged
SWMH13	FSR: 100 years: +20 %: 1440 mins: Winter	72.315	70.890	71.703	0.813	1.6	0.919	0.000	1.5	53.374	Surcharged
SWMH32	FSR: 100 years: +20 %: 2160 mins: Summer	72.446	71.000	71.286	0.286	2.2	0.323	0.000	2.0	10.924	Surcharged
SWMH55	FSR: 100 years: +20 %: 2160 mins: Summer	72.651	70.595	71.285	0.690	12.1	0.780	0.000	11.7	739.027	Surcharged
SWMH54	FSR: 100 years: +20 %: 2880 mins: Winter	72.750	70.998	71.973	0.975	7.9	1.102	0.000	7.8	545.787	Surcharged

Project:	Date:		
D144 Residential Development Summerhill Road, Dunboyne	14/08/2026 Designed by: AC	Checked by: NA	Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Surface Water	Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street Dublin 2, D02 E267		

FSR: 1 years: Increase Rainfall (%): +20: Critical Storm Per Item: Rank By: Max. Avg. Depth

Stormwater Control	Storm Event	Max. US Elevation (m)	Max. DS Elevation (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)	Status
Catchment 1 Tank	FSR: 1 years: +20 %: 1440 mins: Summer	70.809	70.809	0.459	0.459	15.9	187.451	0.000	0.000	3.8	345.507	66.008	OK
Catchment 2 Tank 1	FSR: 1 years: +20 %: 2880 mins: Summer	71.038	71.038	0.363	0.363	9.9	241.096	0.000	0.000	2.2	426.185	48.592	OK
Catchment 2 Tank 2	FSR: 1 years: +20 %: 1440 mins: Summer	70.455	70.455	0.355	0.355	30.3	360.477	0.000	0.000	10.6	839.620	40.903	OK
Catchment 2 Basin 2B	FSR: 1 years: +20 %: 180 mins: Summer	71.015	71.015	0.015	0.015	5.0	7.971	0.000	0.000	2.4	13.187	95.634	OK
Catchment 2 Basin 2A	FSR: 1 years: +20 %: 120 mins: Summer	71.013	71.013	0.013	0.013	3.1	3.628	0.000	0.000	1.5	5.654	96.196	OK
Catchment 2 Basin 2C	FSR: 1 years: +20 %: 120 mins: Summer	71.015	71.015	0.015	0.015	3.7	4.278	0.000	0.000	1.8	6.878	95.828	OK
Catchment 2 Basin 1	FSR: 1 years: +20 %: 180 mins: Summer	71.717	71.717	0.017	0.017	7.8	12.922	0.000	0.000	3.7	20.551	94.694	OK

Project:	Date:		
D144 Residential Development Summerhill Road, Dunboyne	14/08/2026 Designed by: AC	Checked by: NA	Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Surface Water	Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street Dublin 2, D02 E267		

CS CONSULTING
Civil, Structural & Traffic Engineering

FSR: 30 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Avg. Depth

Stormwater Control	Storm Event	Max. US Elevation (m)	Max. DS Elevation (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)	Status
Catchment 1 Tank	FSR: 30 years: +0 %: 1440 mins: Summer	71.175	71.175	0.825	0.825	24.1	336.566	0.000	0.000	3.8	517.281	38.968	OK
Catchment 2 Tank 1	FSR: 30 years: +0 %: 2880 mins: Summer	71.299	71.299	0.624	0.624	14.8	414.602	0.000	0.000	2.2	610.614	11.595	OK
Catchment 2 Tank 2	FSR: 30 years: +0 %: 1440 mins: Summer	70.691	70.691	0.591	0.591	45.9	599.690	0.000	0.000	10.8	1205.749	1.686	OK
Catchment 2 Basin 2B	FSR: 30 years: +0 %: 120 mins: Summer	71.022	71.022	0.022	0.022	10.8	11.908	0.000	0.000	5.7	20.232	93.477	OK
Catchment 2 Basin 2A	FSR: 30 years: +0 %: 60 mins: Summer	71.019	71.020	0.019	0.020	7.3	5.433	0.000	0.000	3.5	7.527	94.303	OK
Catchment 2 Basin 2C	FSR: 30 years: +0 %: 60 mins: Summer	71.022	71.022	0.022	0.022	8.8	6.416	0.000	0.000	4.4	9.153	93.742	OK
Catchment 2 Basin 1	FSR: 30 years: +0 %: 120 mins: Summer	71.726	71.726	0.026	0.026	17.0	19.342	0.000	0.000	8.6	31.376	92.058	OK

Project:	Date:		
D144 Residential Development Summerhill Road, Dunboyne	14/08/2026 Designed by: AC	Checked by: NA	Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Surface Water	Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street Dublin 2, D02 E267		

CS CONSULTING
Civil, Structural & Traffic Engineering

FSR: 100 years: Increase Rainfall (%): +20: Critical Storm Per Item: Rank By: Max. Avg. Depth

Stormwater Control	Storm Event	Max. US Elevation (m)	Max. DS Elevation (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)	Status
Catchment 1 Tank	FSR: 100 years: +20 %: 1440 mins: Winter	71.703	71.703	1.353	1.353	23.3	551.002	0.000	0.000	3.8	551.611	0.083	OK
Catchment 2 Tank 1	FSR: 100 years: +20 %: 2880 mins: Winter	71.974	71.974	1.299	1.299	17.0	468.624	0.000	0.000	2.4	805.114	0.076	OK
Catchment 2 Tank 2	FSR: 100 years: +20 %: 720 mins: Winter	71.387	71.387	1.287	1.287	84.7	609.389	0.000	0.000	10.8	980.910	0.096	OK
Catchment 2 Basin 2B	FSR: 100 years: +20 %: 2160 mins: Summer	71.283	71.283	0.283	0.283	34.8	171.035	0.000	0.000	14.6	216.490	6.315	OK
Catchment 2 Basin 2A	FSR: 100 years: +20 %: 2160 mins: Summer	71.283	71.283	0.283	0.283	25.7	89.249	0.000	0.000	9.4	117.992	6.429	OK
Catchment 2 Basin 2C	FSR: 100 years: +20 %: 2160 mins: Summer	71.283	71.283	0.283	0.283	23.5	95.730	0.000	0.000	7.6	129.335	6.624	OK
Catchment 2 Basin 1	FSR: 100 years: +20 %: 2880 mins: Winter	71.972	71.972	0.272	0.272	15.4	219.121	0.000	0.000	3.5	301.711	10.032	OK

Project:	Date:		
D144 Residential Development Summerhill Road, Dunboyne	14/08/2026		
	Designed by:	Checked by:	Approved By:
	AC	NA	
Report Details: Type: Connections Summary Storm Phase: Surface Water	Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street Dublin 2, D02 E267		

CS CONSULTING
Civil, Structural & Traffic Engineering

FSR: 1 years: Increase Rainfall (%): +20: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Elevation (m)	Max. US Water Elevation (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
S10.000	FSR: 1 years: +20 %: 15 mins: Summer	Pipe	SWMH20	SWMH21	73.456	71.899	0.122	7.071	0.7	0.4	15.3	OK
S10.001	FSR: 1 years: +20 %: 15 mins: Summer	Pipe	SWMH21	SWMH22	73.402	71.694	0.138	13.861	1.0	0.68	24.9	OK
S10.002	FSR: 1 years: +20 %: 15 mins: Summer	Pipe	SWMH22	SWMH25	73.033	71.384	0.202	27.551	1.0	0.63	49.5	OK
S10.003A	FSR: 1 years: +20 %: 15 mins: Summer	Pipe	SWMH25	SWMH54	72.804	71.260	0.204	31.521	1.1	0.7	55.0	OK
S10.006	FSR: 1 years: +20 %: 1440 mins: Winter	Pipe	Catchment 2 Tank 1	SWMH55	72.300	71.014	0.043	290.805	0.5	0.02	2.2	Surcharged
S16.000	FSR: 1 years: +20 %: 15 mins: Summer	Pipe	SWMH32	SWMH30	72.446	71.000	0.038	0.000	0.0	0	0.0	OK
S10.007	FSR: 1 years: +20 %: 15 mins: Summer	Pipe	SWMH30	SWMH55	72.425	70.777	0.143	16.398	0.9	0.42	30.9	OK
S10.009	FSR: 1 years: +20 %: 15 mins: Summer	Pipe	SWMH33	SWMH36	71.929	70.521	0.190	30.121	0.9	0.38	48.2	OK
S10.010	FSR: 1 years: +20 %: 30 mins: Summer	Pipe	SWMH36	SWMH37	71.654	70.446	0.216	46.449	0.8	0.4	50.1	OK
S10.011	FSR: 1 years: +20 %: 30 mins: Summer	Pipe	SWMH37	Catchment 2 Tank 2	71.559	70.420	0.179	134.815	2.6	0.8	145.1	OK
S10.013	FSR: 1 years: +20 %: 1440 mins: Summer	Pipe	SWMH51	SWMH52	72.100	70.102	0.086	839.444	0.8	0.29	10.6	OK
S10.014	FSR: 1 years: +20 %: 1440 mins: Summer	Pipe	SWMH52	SWMH53	71.800	69.978	0.085	839.302	0.8	0.29	10.6	OK
S10.015	FSR: 1 years: +20 %: 1440 mins: Summer	Pipe	SWMH53	Catchment 2 Outfall	71.500	69.835	0.082	839.193	0.8	0.27	10.6	OK
S11.000	FSR: 1 years: +20 %: 15 mins: Summer	Pipe	SWMH23	SWMH24	73.406	71.803	0.107	2.430	0.3	0.13	5.2	OK
S11.001	FSR: 1 years: +20 %: 15 mins: Summer	Pipe	SWMH24	SWMH22	73.265	71.662	0.113	8.818	0.9	0.46	18.2	OK
S12.000	FSR: 1 years: +20 %: 15 mins: Summer	Pipe	SWMH27	SWMH26	72.634	71.249	0.109	6.564	0.8	0.4	14.8	OK
S13.000	FSR: 1 years: +20 %: 15 mins: Summer	Pipe	SWMH29	SWMH28	72.475	71.096	0.084	5.098	0.8	0.29	10.9	OK
S15.000	FSR: 1 years: +20 %: 15 mins: Summer	Pipe	SWMH31	SWMH30	72.495	71.208	0.133	12.373	1.0	0.64	23.5	OK
S17.000	FSR: 1 years: +20 %: 15 mins: Summer	Pipe	SWMH34	SWMH35	72.590	71.054	0.097	2.545	0.3	0.13	5.4	OK
S17.001	FSR: 1 years: +20 %: 15 mins: Summer	Pipe	SWMH35	SWMH33	72.385	70.841	0.135	12.616	1.0	0.65	24.2	OK
S18.000	FSR: 1 years: +20 %: 15 mins: Summer	Pipe	SWMH38	SWMH39	72.117	71.099	0.076	2.208	0.3	0.06	4.9	OK
S18.001	FSR: 1 years: +20 %: 15 mins: Summer	Pipe	SWMH39	SWMH40	72.279	71.068	0.099	7.947	0.8	0.23	16.2	OK
S18.002	FSR: 1 years: +20 %: 15 mins: Summer	Pipe	SWMH40	SWMH41	72.115	70.874	0.111	9.079	0.7	0.14	18.2	OK

S18.003	FSR: 1 years: +20 %: 15 mins: Summer	Pipe	SWMH41	SWMH42	72.016	70.837	0.114	13.801	0.9	0.19	24.8	OK
S18.004	FSR: 1 years: +20 %: 15 mins: Summer	Pipe	SWMH42	SWMH45	71.676	70.612	0.215	35.580	0.9	0.31	64.5	OK
S18.005	FSR: 1 years: +20 %: 30 mins: Summer	Pipe	SWMH45	SWMH37	71.534	70.473	0.281	84.639	0.9	0.48	97.5	OK
S19.000	FSR: 1 years: +20 %: 15 mins: Summer	Pipe	SWMH43	SWMH44	72.088	71.035	0.097	7.917	0.9	0.22	17.0	OK
S19.001	FSR: 1 years: +20 %: 15 mins: Summer	Pipe	SWMH44	SWMH42	72.024	70.868	0.125	15.130	0.9	0.23	29.1	OK
S20.000	FSR: 1 years: +20 %: 15 mins: Summer	Pipe	SWMH46	SWMH47	72.373	71.009	0.125	10.022	0.8	0.28	21.7	OK
S20.001	FSR: 1 years: +20 %: 15 mins: Summer	Pipe	SWMH47	SWMH48	72.266	70.784	0.136	15.053	1.0	0.39	30.4	OK
S20.002	FSR: 1 years: +20 %: 15 mins: Summer	Pipe	SWMH48	SWMH45	72.233	70.692	0.178	25.267	1.0	0.4	50.1	OK
S21.000	FSR: 1 years: +20 %: 15 mins: Summer	Pipe	SWMH49	SWMH48	72.141	70.792	0.074	2.184	0.4	0.07	4.7	OK
S1.000	FSR: 1 years: +20 %: 15 mins: Summer	Pipe	SWMH1	SWMH2	73.441	72.087	0.090	9.537	1.5	0.31	21.7	OK
S1.001	FSR: 1 years: +20 %: 15 mins: Summer	Pipe	SWMH2	SWMH5	72.660	71.262	0.162	23.668	1.1	0.54	42.5	OK
S1.002	FSR: 1 years: +20 %: 15 mins: Summer	Pipe	SWMH5	SWMH7	72.384	70.945	0.225	39.359	1.1	0.53	74.9	OK
S1.003	FSR: 1 years: +20 %: 15 mins: Summer	Pipe	SWMH7	SWMH8	72.391	70.845	0.229	39.866	1.0	0.51	72.3	OK
S1.004	FSR: 1 years: +20 %: 15 mins: Summer	Pipe	SWMH8	SWMH12	72.380	70.778	0.216	54.582	1.5	0.56	97.6	OK
S1.005	FSR: 1 years: +20 %: 15 mins: Summer	Pipe	SWMH12	Catchment 1 Tank	72.347	70.602	0.138	58.826	2.9	0.45	105.8	OK
S2.000	FSR: 1 years: +20 %: 15 mins: Summer	Pipe	SWMH3	SWMH4	73.000	71.603	0.115	8.461	0.9	0.5	18.3	OK
S4.000	FSR: 1 years: +20 %: 15 mins: Summer	Pipe	SWMH9	SWMH10	72.800	71.365	0.093	3.240	0.4	0.19	6.9	OK
S4.001	FSR: 1 years: +20 %: 15 mins: Summer	Pipe	SWMH10	SWMH8	72.786	71.174	0.118	13.054	1.2	0.52	25.3	OK
S3.000	FSR: 1 years: +20 %: 15 mins: Summer	Pipe	SWMH6	SWMH5	72.453	71.110	0.132	10.533	0.9	0.62	22.9	OK
S5.000	FSR: 1 years: +20 %: 15 mins: Summer	Pipe	SWMH11	SWMH10	72.918	71.452	0.087	4.636	0.7	0.12	10.5	OK
S6.000	FSR: 1 years: +20 %: 15 mins: Summer	Pipe	SWMH13	SWMH12	72.315	70.956	0.065	3.859	0.8	0.18	8.0	OK
S1.006	FSR: 1 years: +20 %: 480 mins: Summer	Pipe	Catchment 1 Tank	NSMH5	72.300	70.764	0.048	171.155	0.6	0.09	3.8	Surcharged
Basin 2B Open Grated MH	FSR: 1 years: +20 %: 180 mins: Summer	Pipe	Catchment 2 Basin 2B	Catchment 2 Tank 2	71.450	71.015	0.128	13.187	0.1	0	2.4	OK
Basin 2A Open Grated MH	FSR: 1 years: +20 %: 120 mins: Summer	Pipe	Catchment 2 Basin 2A	Catchment 2 Tank 2	71.450	71.013	0.114	5.654	0.1	0	1.5	OK
S2.001	FSR: 1 years: +20 %: 15 mins: Summer	Pipe	SWMH4	SWMH2	72.800	71.386	0.109	8.626	0.9	0.45	16.5	OK
S10.004	FSR: 1 years: +20 %: 15 mins: Summer	Pipe	SWMH26	SWMH28	72.561	71.020	0.190	44.011	1.3	0.41	75.6	OK
S10.005	FSR: 1 years: +20 %: 15 mins: Summer	Pipe	SWMH28	Catchment 2 Tank 1	72.482	70.910	0.103	49.058	3.4	0.49	84.8	OK

Project:	Date:		
D144 Residential Development Summerhill Road, Dunboyne	14/08/2026 Designed by: AC	Checked by: NA	Approved By:
Report Details: Type: Connections Summary Storm Phase: Surface Water	Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street Dublin 2, D02 E267		

Basin 2C Open Grated MH	FSR: 1 years: +20 %: 120 mins: Summer	Pipe	Catchment 2 Basin 2C	Catchment 2 Tank 2	71.450	71.015	0.115	6.878	0.1	0	1.8	OK
S10.012	FSR: 1 years: +20 %: 1440 mins: Summer	Pipe	Catchment 2 Tank 2	SWMH51	72.000	70.455	0.088	839.571	0.7	0.32	10.6	Surcharged
S10.008	FSR: 1 years: +20 %: 30 mins: Summer	Pipe	SWMH55	SWMH33	72.651	70.729	0.127	25.651	0.9	0.37	26.1	OK
Basin 1 Open Grated MH	FSR: 1 years: +20 %: 180 mins: Summer	Pipe	Catchment 2 Basin 1	Catchment 2 Tank 1	72.300	71.717	0.110	20.551	0.2	0	3.7	OK
S10.003B	FSR: 1 years: +20 %: 15 mins: Summer	Pipe	SWMH54	SWMH26	72.750	71.192	0.184	31.458	1.1	0.65	51.0	OK

Project:	Date:		
D144 Residential Development Summerhill Road, Dunboyne	14/08/2026 Designed by: AC	Checked by: NA	Approved By:
Report Details: Type: Connections Summary Storm Phase: Surface Water	Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street Dublin 2, D02 E267		



FSR: 30 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Elevation (m)	Max. US Water Elevation (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
S10.000	FSR: 30 years: +0 %: 30 mins: Summer	Pipe	SWMH20	SWMH21	73.456	71.987	0.225	17.962	0.7	0.51	19.6	OK
S10.001	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	SWMH21	SWMH22	73.402	72.007	0.225	25.227	1.0	1.1	40.2	Surcharged
S10.002	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	SWMH22	SWMH25	73.033	71.641	0.300	51.271	1.2	1.07	83.5	Surcharged
S10.003A	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	SWMH25	SWMH54	72.804	71.446	0.300	58.652	1.4	1.25	97.5	Surcharged
S10.006	FSR: 30 years: +0 %: 180 mins: Summer	Pipe	Catchment 2 Tank 1	SWMH55	72.300	71.057	0.102	37.772	0.5	0.02	2.2	Surcharged
S16.000	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	SWMH32	SWMH30	72.446	71.000	0.075	0.000	0.0	0	0.0	OK
S10.007	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	SWMH30	SWMH55	72.425	70.850	0.212	30.452	1.0	0.76	55.5	OK
S10.009	FSR: 30 years: +0 %: 30 mins: Summer	Pipe	SWMH33	SWMH36	71.929	70.637	0.318	79.842	0.9	0.68	86.1	OK
S10.010	FSR: 30 years: +0 %: 30 mins: Summer	Pipe	SWMH36	SWMH37	71.654	70.578	0.339	84.403	0.9	0.72	90.9	OK
S10.011	FSR: 30 years: +0 %: 30 mins: Winter	Pipe	SWMH37	Catchment 2 Tank 2	71.559	70.521	0.258	246.694	3.4	1.76	319.7	OK
S10.013	FSR: 30 years: +0 %: 180 mins: Summer	Pipe	SWMH51	SWMH52	72.100	70.103	0.086	177.754	0.8	0.29	10.8	OK
S10.014	FSR: 30 years: +0 %: 180 mins: Summer	Pipe	SWMH52	SWMH53	71.800	69.978	0.086	177.289	0.8	0.29	10.8	OK
S10.015	FSR: 30 years: +0 %: 180 mins: Summer	Pipe	SWMH53	Catchment 2 Outfall	71.500	69.836	0.082	176.939	0.8	0.27	10.8	OK
S11.000	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	SWMH23	SWMH24	73.406	71.824	0.159	4.512	0.3	0.24	9.7	OK
S11.001	FSR: 30 years: +0 %: 15 mins: Winter	Pipe	SWMH24	SWMH22	73.265	71.719	0.225	16.505	0.7	0.68	27.0	OK
S12.000	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	SWMH27	SWMH26	72.634	71.293	0.185	12.244	0.8	0.73	27.1	OK
S13.000	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	SWMH29	SWMH28	72.475	71.137	0.127	9.254	0.9	0.55	20.8	OK
S15.000	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	SWMH31	SWMH30	72.495	71.333	0.217	22.933	1.1	1.13	41.5	Surcharged
S17.000	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	SWMH34	SWMH35	72.590	71.074	0.169	4.701	0.3	0.25	10.2	OK
S17.001	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	SWMH35	SWMH33	72.385	70.964	0.219	23.020	1.1	1.16	43.0	Surcharged
S18.000	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	SWMH38	SWMH39	72.117	71.128	0.112	4.094	0.4	0.11	8.6	OK
S18.001	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	SWMH39	SWMH40	72.279	71.111	0.139	14.734	0.9	0.43	30.0	OK
S18.002	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	SWMH40	SWMH41	72.115	70.924	0.164	16.836	0.7	0.25	34.0	OK

S18.003	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	SWMH41	SWMH42	72.016	70.893	0.175	25.235	1.0	0.4	50.9	OK
S18.004	FSR: 30 years: +0 %: 15 mins: Winter	Pipe	SWMH42	SWMH45	71.676	70.684	0.330	65.775	0.9	0.54	110.8	OK
S18.005	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	SWMH45	SWMH37	71.534	70.636	0.425	113.079	1.2	0.9	182.2	OK
S19.000	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	SWMH43	SWMH44	72.088	71.078	0.137	14.621	1.0	0.41	31.8	OK
S19.001	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	SWMH44	SWMH42	72.024	70.930	0.183	27.154	1.1	0.45	57.1	OK
S20.000	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	SWMH46	SWMH47	72.373	71.054	0.184	18.539	0.9	0.52	40.5	OK
S20.001	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	SWMH47	SWMH48	72.266	70.855	0.200	27.797	1.1	0.73	57.3	OK
S20.002	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	SWMH48	SWMH45	72.233	70.768	0.302	47.169	1.0	0.74	93.8	OK
S21.000	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	SWMH49	SWMH48	72.141	70.811	0.122	4.069	0.4	0.13	8.8	OK
S1.000	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	SWMH1	SWMH2	73.441	72.122	0.171	17.665	1.2	0.57	40.1	OK
S1.001	FSR: 30 years: +0 %: 15 mins: Winter	Pipe	SWMH2	SWMH5	72.660	71.365	0.279	43.838	1.2	1.01	78.9	OK
S1.002	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	SWMH5	SWMH7	72.384	71.132	0.375	73.071	1.2	0.91	127.8	Surcharged
S1.003	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	SWMH7	SWMH8	72.391	71.013	0.375	74.076	1.1	0.88	124.8	Surcharged
S1.004	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	SWMH8	SWMH12	72.380	70.926	0.339	100.936	1.6	0.99	170.8	Surcharged
S1.005	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	SWMH12	Catchment 1 Tank	72.347	70.695	0.240	108.585	2.9	0.8	186.7	OK
S2.000	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	SWMH3	SWMH4	73.000	71.668	0.182	15.584	1.0	0.92	33.8	OK
S4.000	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	SWMH9	SWMH10	72.800	71.391	0.146	5.990	0.5	0.35	12.9	OK
S4.001	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	SWMH10	SWMH8	72.786	71.254	0.212	23.823	1.2	1	48.2	OK
S3.000	FSR: 30 years: +0 %: 15 mins: Winter	Pipe	SWMH6	SWMH5	72.453	71.206	0.223	19.254	1.0	1.07	39.2	Surcharged
S5.000	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	SWMH11	SWMH10	72.918	71.471	0.136	8.578	0.8	0.22	19.5	OK
S6.000	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	SWMH13	SWMH12	72.315	70.983	0.091	7.005	1.0	0.33	15.1	OK
S1.006	FSR: 30 years: +0 %: 180 mins: Summer	Pipe	Catchment 1 Tank	NSMH5	72.300	70.968	0.048	66.475	0.6	0.09	3.8	Surcharged
Basin 2B Open Grated MH	FSR: 30 years: +0 %: 120 mins: Summer	Pipe	Catchment 2 Basin 2B	Catchment 2 Tank 2	71.450	71.022	0.204	20.232	0.1	0.01	5.7	OK
Basin 2A Open Grated MH	FSR: 30 years: +0 %: 60 mins: Summer	Pipe	Catchment 2 Basin 2A	Catchment 2 Tank 2	71.450	71.020	0.164	7.527	0.1	0	3.5	OK
S2.001	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	SWMH4	SWMH2	72.800	71.454	0.201	15.951	0.9	0.84	31.0	OK
S10.004	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	SWMH26	SWMH28	72.561	71.128	0.290	81.850	1.5	0.75	138.2	OK
S10.005	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	SWMH28	Catchment 2 Tank 1	72.482	71.001	0.162	90.987	3.4	0.89	153.1	OK

Project:	Date:		
D144 Residential Development Summerhill Road, Dunboyne	14/08/2026 Designed by: AC	Checked by: NA	Approved By:
Report Details: Type: Connections Summary Storm Phase: Surface Water	Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street Dublin 2, D02 E267		

Basin 2C Open Grated MH	FSR: 30 years: +0 %: 60 mins: Summer	Pipe	Catchment 2 Basin 2C	Catchment 2 Tank 2	71.450	71.022	0.164	9.153	0.2	0.01	4.4	OK
S10.012	FSR: 30 years: +0 %: 360 mins: Summer	Pipe	Catchment 2 Tank 2	SWMH51	72.000	70.612	0.089	367.037	0.7	0.32	10.8	Surcharged
S10.008	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	SWMH55	SWMH33	72.651	70.795	0.199	31.295	1.0	0.71	49.3	OK
Basin 1 Open Grated MH	FSR: 30 years: +0 %: 120 mins: Summer	Pipe	Catchment 2 Basin 1	Catchment 2 Tank 1	72.300	71.726	0.175	31.376	0.3	0.01	8.6	OK
S10.003B	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	SWMH54	SWMH26	72.750	71.330	0.284	58.604	1.3	1.17	92.4	Surcharged

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FSR: 100 years: Increase Rainfall (%): +20: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Elevation (m)	Max. US Water Elevation (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
S10.000	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SWMH20	SWMH21	73.456	73.318	0.225	20.254	0.8	0.83	31.6	Flood Risk
S10.001	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SWMH21	SWMH22	73.402	73.149	0.225	39.365	1.6	1.7	62.2	Flood Risk
S10.002	FSR: 100 years: +20 %: 30 mins: Summer	Pipe	SWMH22	SWMH25	73.033	72.351	0.300	111.111	1.7	1.57	123.2	Surcharged
S10.003A	FSR: 100 years: +20 %: 30 mins: Summer	Pipe	SWMH25	SWMH54	72.804	71.929	0.300	127.104	2.0	1.8	141.1	Surcharged
S10.006	FSR: 100 years: +20 %: 960 mins: Summer	Pipe	Catchment 2 Tank 1	SWMH55	72.300	71.877	0.300	202.422	0.5	0.05	5.0	Surcharged
S16.000	FSR: 100 years: +20 %: 240 mins: Summer	Pipe	SWMH32	SWMH30	72.446	71.120	0.225	0.000	0.1	0.07	2.8	OK
S10.007	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SWMH30	SWMH55	72.425	71.067	0.300	46.857	1.1	1.1	80.4	Surcharged
S10.009	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SWMH33	SWMH36	71.929	70.818	0.375	85.202	1.2	1.04	131.3	Surcharged
S10.010	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SWMH36	SWMH37	71.654	70.655	0.375	90.141	1.3	1.13	142.9	Surcharged
S10.011	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SWMH37	Catchment 2 Tank 2	71.559	70.557	0.314	272.034	4.6	2.32	420.4	OK
S10.013	FSR: 100 years: +20 %: 60 mins: Summer	Pipe	SWMH51	SWMH52	72.100	70.103	0.086	57.454	0.8	0.29	10.8	OK
S10.014	FSR: 100 years: +20 %: 60 mins: Summer	Pipe	SWMH52	SWMH53	71.800	69.978	0.086	56.986	0.8	0.29	10.8	OK
S10.015	FSR: 100 years: +20 %: 60 mins: Summer	Pipe	SWMH53	Catchment 2 Outfall	71.500	69.836	0.082	56.631	0.8	0.27	10.8	OK
S11.000	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	SWMH23	SWMH24	73.406	72.517	0.225	7.035	0.3	0.33	13.1	Surcharged
S11.001	FSR: 100 years: +20 %: 30 mins: Summer	Pipe	SWMH24	SWMH22	73.265	72.640	0.225	36.206	1.0	1.01	40.1	Surcharged
S12.000	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SWMH27	SWMH26	72.634	71.651	0.225	19.014	1.0	1.08	40.4	Surcharged
S13.000	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SWMH29	SWMH28	72.475	71.189	0.191	14.358	0.9	0.83	31.3	OK
S15.000	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SWMH31	SWMH30	72.495	72.428	0.225	34.223	1.8	1.92	70.3	Flood Risk
S17.000	FSR: 100 years: +20 %: 30 mins: Summer	Pipe	SWMH34	SWMH35	72.590	71.380	0.225	10.158	0.3	0.27	11.3	Surcharged
S17.001	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SWMH35	SWMH33	72.385	71.560	0.225	35.711	1.7	1.82	67.8	Surcharged
S18.000	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SWMH38	SWMH39	72.117	71.173	0.158	6.355	0.4	0.17	13.4	OK
S18.001	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SWMH39	SWMH40	72.279	71.159	0.181	22.525	1.1	0.67	47.0	OK
S18.002	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	SWMH40	SWMH41	72.115	70.965	0.210	26.090	0.8	0.37	50.0	OK

Project:	Date:		
D144 Residential Development Summerhill Road, Dunboyne	14/08/2026 Designed by: AC	Checked by: NA	Approved By:
Report Details: Type: Connections Summary Storm Phase: Surface Water	Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street Dublin 2, D02 E267		

S18.003	FSR: 100 years: +20 %: 30 mins: Summer	Pipe	SWMH41	SWMH42	72.016	71.000	0.360	54.982	1.0	0.45	58.2	OK
S18.004	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SWMH42	SWMH45	71.676	70.962	0.450	102.333	1.0	0.77	157.3	Surcharged
S18.005	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SWMH45	SWMH37	71.534	70.785	0.450	174.388	1.7	1.33	268.6	Surcharged
S19.000	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SWMH43	SWMH44	72.088	71.126	0.189	22.366	1.1	0.64	50.1	OK
S19.001	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	SWMH44	SWMH42	72.024	70.975	0.326	42.499	0.8	0.61	77.6	OK
S20.000	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	SWMH46	SWMH47	72.373	71.106	0.300	28.758	0.7	0.66	51.8	OK
S20.001	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	SWMH47	SWMH48	72.266	71.044	0.300	43.193	1.1	1.01	79.5	Surcharged
S20.002	FSR: 100 years: +20 %: 30 mins: Summer	Pipe	SWMH48	SWMH45	72.233	71.022	0.375	102.958	1.0	0.9	113.7	Surcharged
S21.000	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SWMH49	SWMH48	72.141	71.067	0.300	6.372	0.4	0.21	14.4	Surcharged
S1.000	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SWMH1	SWMH2	73.441	72.769	0.225	27.486	1.3	0.71	50.4	Surcharged
S1.001	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SWMH2	SWMH5	72.660	72.314	0.300	68.375	1.5	1.39	108.6	Surcharged
S1.002	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SWMH5	SWMH7	72.384	71.681	0.375	113.570	1.8	1.4	197.8	Surcharged
S1.003	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SWMH7	SWMH8	72.391	71.392	0.375	114.452	1.8	1.39	197.0	Surcharged
S1.004	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SWMH8	SWMH12	72.380	71.171	0.375	155.263	2.4	1.54	265.8	Surcharged
S1.005	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SWMH12	Catchment 1 Tank	72.347	70.788	0.382	166.559	3.3	1.36	317.1	OK
S2.000	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SWMH3	SWMH4	73.000	72.717	0.225	24.203	1.1	1.19	43.4	Flood Risk
S4.000	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	SWMH9	SWMH10	72.800	71.772	0.225	9.379	0.4	0.47	17.3	Surcharged
S4.001	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SWMH10	SWMH8	72.786	71.796	0.225	37.079	1.5	1.26	61.0	Surcharged
S3.000	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SWMH6	SWMH5	72.453	72.005	0.225	29.930	1.6	1.69	61.9	Surcharged
S5.000	FSR: 100 years: +20 %: 30 mins: Summer	Pipe	SWMH11	SWMH10	72.918	71.712	0.225	18.463	0.7	0.24	21.1	Surcharged
S6.000	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SWMH13	SWMH12	72.315	71.009	0.146	10.823	0.9	0.55	24.8	OK
S1.006	FSR: 100 years: +20 %: 1440 mins: Winter	Pipe	Catchment 1 Tank	NSMH5	72.300	71.703	0.048	551.554	0.6	0.1	3.8	Surcharged
Basin 2B Open Grated MH	FSR: 100 years: +20 %: 180 mins: Winter	Pipe	Catchment 2 Basin 2B	Catchment 2 Tank 2	71.450	71.071	0.450	31.324	0.1	0.02	18.0	OK
Basin 2A Open Grated MH	FSR: 100 years: +20 %: 720 mins: Summer	Pipe	Catchment 2 Basin 2A	Catchment 2 Tank 2	71.450	71.252	0.450	31.118	0.1	0.02	19.5	OK
S2.001	FSR: 100 years: +20 %: 30 mins: Summer	Pipe	SWMH4	SWMH2	72.800	72.264	0.225	34.471	1.0	1.06	38.7	Surcharged
S10.004	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SWMH26	SWMH28	72.561	71.321	0.375	127.241	1.9	1.14	209.9	Surcharged
S10.005	FSR: 100 years: +20 %: 30 mins: Summer	Pipe	SWMH28	Catchment 2 Tank 1	72.482	71.075	0.296	195.100	3.1	1.33	228.7	OK

Basin 2C Open Grated MH	FSR: 100 years: +20 %: 960 mins: Summer	Pipe	Catchment 2 Basin 2C	Catchment 2 Tank 2	71.450	71.267	0.450	40.857	0.1	0.03	22.7	OK
S10.012	FSR: 100 years: +20 %: 360 mins: Winter	Pipe	Catchment 2 Tank 2	SWMH51	72.000	71.194	0.089	351.076	0.7	0.32	10.8	Surcharged
S10.008	FSR: 100 years: +20 %: 30 mins: Summer	Pipe	SWMH55	SWMH33	72.651	71.020	0.300	68.561	1.0	0.99	69.0	Surcharged
Basin 1 Open Grated MH	FSR: 100 years: +20 %: 60 mins: Summer	Pipe	Catchment 2 Basin 1	Catchment 2 Tank 1	72.300	71.735	0.219	36.051	0.4	0.02	16.5	OK
S10.003B	FSR: 100 years: +20 %: 30 mins: Summer	Pipe	SWMH54	SWMH26	72.750	71.688	0.300	126.969	2.0	1.78	140.7	Surcharged

APPENDIX F

SIMPLE INDEX APPROACH ANALYSIS

D144 - Summerhill Road, Dunboyne
SuDS Treatment Area 1

SUMMARY TABLE		DESIGN CONDITIONS			
		1	2	3	4
Land Use Type	Other	Where indices are approved by the environmental regulator as part of the required risk assessment process, these should be entered in the 'User Defined Indices' row below. If indices are not considered appropriate, the risk assessment should use alternative measures of pollution hazard for the site.	In Scotland and Northern Ireland, the environmental regulator should be consulted as part of the licensing process required for High Risk sites. In England and Wales, the environmental regulator should be consulted prior to design (for pre-permitting advice) to determine the most appropriate design approach and requirements for risk assessment.		
Pollution Hazard Level					
Pollution Hazard Indices					
TSS	0				
Metals	0				
Hydrocarbons	0				
SuDS components proposed		SuDS components can only be assumed to deliver these indices if they follow design guidance with respect to hydraulics and treatment set out in the relevant technical component chapters of the SuDS Manual. See also checklists in Appendix B			
Component 1	Pervious pavement (where the pavement is not designed as an infiltration component)				
Component 2	Proprietary treatment system	Detailed assessment of performance of designed component in reducing inflow concentrations of each pollutant type required as evidence of adopted indices. Enter indices approved by the environmental regulator in appropriate 'User Defined Indices' row below	SEPA only considers proprietary treatment systems as appropriate in exceptional circumstances where other types of SuDS component are not practicable. Proprietary treatment systems may also be considered appropriate for existing sites that are causing pollution where there is a requirement to retrofit treatment. WAT-RM-08 (SEPA, 2014) also provides a flow chart with a summary of checks on suitability of a proprietary system	See Chapter 15 Proprietary treatment systems for approaches to demonstrate product performance. Note: a British Water/Environment Agency assessment Code of Practice is currently under development that will allow manufacturers to complete an agreed test protocol for systems intended to treat contaminated surface water runoff. Full details can be found at: http://www.britishwater.co.uk/Publications/codes-of-practise.aspx.	
Component 3	None				
SuDS Pollution Mitigation Indices					
TSS	>0.95				
Metals	0.9				
Hydrocarbons	>0.95				
Groundwater protection type	None				
Groundwater protection Pollution Mitigation Indices					
TSS	0				
Metals	0				
Hydrocarbons	0				
Combined Pollution Mitigation Indices		Reference to local planning documents should also be made to identify any additional protection required for sites due to habitat conservation (see Chapter 7 The SuDS design process). The implications of developments on or within close proximity to an area with an environmental designation, such as a Site of Special Scientific Interest (SSSI), should be considered via consultation with relevant conservation bodies such as Natural England			
TSS	>0.95				
Metals	0.9				
Hydrocarbons	>0.95				
Acceptability of Pollution Mitigation					
TSS	Sufficient				
Metals	Sufficient				
Hydrocarbons	Sufficient				

D144 - Summerhill Road, Dunboyne
SuDS Treatment Area 2

SUMMARY TABLE		DESIGN CONDITIONS			
		1	*2*	*3*	*4*
Land Use Type	Other	Where indices are approved by the environmental regulator as part of the required risk assessment process, these should be entered in the 'User Defined Indices' row below. If indices are not considered appropriate, the risk assessment should use alternative measures of pollution hazard for the site.	In Scotland and Northern Ireland, the environmental regulator should be consulted as part of the licensing process required for High Risk sites. In England and Wales, the environmental regulator should be consulted prior to design (for pre-permitting advice) to determine the most appropriate design approach and requirements for risk assessment.		
Pollution Hazard Level					
Pollution Hazard Indices					
TSS	0				
Metals	0				
Hydrocarbons	0				
SuDS components proposed					
Component 1	Pervious pavement (where the pavement is not designed as an infiltration component)	SuDS components can only be assumed to deliver these indices if they follow design guidance with respect to hydraulics and treatment set out in the relevant technical component chapters of the SuDS Manual. See also checklists in Appendix B			
Component 2	Proprietary treatment system	Detailed assessment of performance of designed component in reducing inflow concentrations of each pollutant type required as evidence of adopted indices. Enter indices approved by the environmental regulator in appropriate 'User Defined Indices' row below	SEPA only considers proprietary treatment systems as appropriate in exceptional circumstances where other types of SuDS component are not practicable. Proprietary treatment systems may also be considered appropriate for existing sites that are causing pollution where there is a requirement to retrofit treatment. WAT-RM-08 (SEPA, 2014) also provides a flow chart with a summary of checks on suitability of a proprietary system	See Chapter 15 Proprietary treatment systems for approaches to demonstrate product performance. Note: a British Water/Environment Agency assessment Code of Practice is currently under development that will allow manufacturers to complete an agreed test protocol for systems intended to treat contaminated surface water runoff. Full details can be found at: http://www.britishwater.co.uk/Publications/codes-of-practise.aspx.	
Component 3	Detention basin	SuDS components can only be assumed to deliver these indices if they follow design guidance with respect to hydraulics and treatment set out in the relevant technical component chapters of the SuDS Manual. See also checklists in Appendix B			
SuDS Pollution Mitigation Indices					
TSS	>0.95				
Metals	>0.95				
Hydrocarbons	>0.95				
Groundwater protection type	None				
Groundwater protection Pollution Mitigation Indices					
TSS	0				
Metals	0				
Hydrocarbons	0				
Combined Pollution Mitigation Indices					
TSS	>0.95	Reference to local planning documents should also be made to identify any additional protection required for sites due to habitat conservation (see Chapter 7 The SuDS design process). The implications of developments on or within close proximity to an area with an environmental designation, such as a Site of Special Scientific Interest (SSSI), should be considered via consultation with relevant conservation bodies such as Natural England			
Metals	>0.95				
Hydrocarbons	>0.95				
Acceptability of Pollution Mitigation					
TSS	Sufficient				
Metals	Sufficient				
Hydrocarbons	Sufficient				

APPENDIX G
UISCE ÉIREANN CONFIRMATION OF FEASIBILITY AND STATEMENT OF DESIGN ACCEPTANCE

CONFIRMATION OF FEASIBILITY

Andrew Monahan

Warrington House
Mount Street Crescent
Dublin 2
Dublin
D02R256

Uisce Éireann
Bosca OP 448
Oifig Sheachadta na
Cathrach Theas
Cathair Chorcaí

Uisce Éireann
PO Box 448
South City
Delivery Office
Cork City

www.water.ie

1 September 2025

Our Ref: CDS25002288 Pre-Connection Enquiry
Site At, Summerhill Road, Dunboyne, Meath

Dear Applicant/Agent,

We have completed the review of the Pre-Connection Enquiry.

Uisce Éireann has reviewed the pre-connection enquiry in relation to a Water & Wastewater connection for a Multi/Mixed Use Development of 361 unit(s) at Site At, Summerhill Road, Dunboyne, Meath, (the **Development)**.

Based upon the details provided we can advise the following regarding connecting to the networks;

• **Water Connection**	-	Feasible Subject to upgrades
	-	Upgrade works are required to increase the capacity of the existing water network. Uisce Eireann currently has a project on our current investment plan which will provide the necessary upgrade and capacity. This upgrade project is scheduled to be completed by Q3 2026 (this may be subject to change) and the proposed connection could be completed as soon as possible after these works. Customer to engage at Connection Application stage. Proposed Connection point will be to the proposed 200mm ID main on the R157

Stiúrthóirí / Directors: Niall Gleeson (POF / CEO), Jerry Grant (Cathaoirleach / Chairperson), Gerard Britchfield, Liz Joyce, Michael Nolan, Patricia King, Eileen Maher, Cathy Mannion, Paul Reid, Michael Walsh.
Oifig Chláraithe / Registered Office: Teach Colvill, 24-26 Sráid Thalbóid, Baile Átha Cliath 1, D01 NP86 / Colvill House, 24-26 Talbot Street, Dublin, Ireland D01NP86
Is cuideachta ghníomhaíochta ainmnithe atá faoi theorainn scaireanna é Uisce Éireann / Uisce Éireann is a designated activity company, limited by shares.
Cláraithe in Éirinn Uimh.: 530363 / Registered in Ireland No.: 530363.

(North end of the Development along the R157) See Figure 1 below.

- **Wastewater Connection** - Feasible Subject to upgrades
  - It is the responsibility of the applicant to verify that a gravity connection to the public foul sewer is possible.

  Proposed Connection point should be to the existing 450mm Sewer to the Northeast of the site within neighboring industrial estate. See Figure 2 below

  The proposed wastewater connection for this development connects to the Uisce Eireann network via infrastructure that has not been taken in charge by Uisce Eireann (Third Party Infrastructure). Please be advised that at connection application stage and prior to the commencement of any Self-Lay Works, you have to:
  • Identify and procure transfer to Uisce Eireann of the arterial wastewater Infrastructure within the Third Party Infrastructure.
  • Demonstrate that the arterial infrastructure are in compliance with requirements of Uisce Eireann Code of Practice and Standard Details and in adequate condition and capacity to cater for the additional water demand.

  Please note that there is a lot of interest in this area from Connection Applications and Pre-Connection Enquiries and limited capacity at the connection point/Network and this will be re-assessed if/when a Connection Application is received. This connection point/Network will be monitored from current on the ground connection applications and this may affect the analysis.

  In the case capacity is exceeded due to high growth in the catchment, additional upgrades, such as ground infiltration and/or stormwater reduction works may be required to facilitate development.

This letter does not constitute an offer, in whole or in part, to provide a connection to any Uisce Éireann infrastructure. Before the Development can be connected to our network(s) you must submit a connection application and be granted and sign a connection agreement with Uisce Éireann.

As the network capacity changes constantly, this review is only valid at the time of its completion. As soon as planning permission has been granted for the Development, a completed connection application should be submitted. The connection application is available at www.water.ie/connections/get-connected/

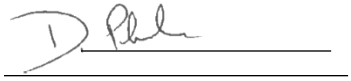
Where can you find more information?

- **Section A -** What is important to know?
- **Section B -** Details of Uisce Éireann's Network(s)

This letter is issued to provide information about the current feasibility of the proposed connection(s) to Uisce Éireann's network(s). This is not a connection offer and capacity in Uisce Éireann's network(s) may only be secured by entering into a connection agreement with Uisce Éireann.

For any further information, visit **www.water.ie/connections**, **email newconnections@water.ie** or contact 1800 278 278**.**

Yours sincerely,



Dermot Phelan
Connections Delivery Manager

Section A - What is important to know?

What is important to know?	Why is this important?
Do you need a contract to connect?	• Yes, a contract is required to connect. This letter does not constitute a contract or an offer in whole or in part to provide a connection to Uisce Éireann's network(s). • Before the Development can connect to Uisce Éireann's network(s), you must submit a connection application and be granted and sign a connection agreement with Uisce Éireann.
When should I submit a Connection Application?	• A connection application should only be submitted after planning permission has been granted.
Where can I find information on connection charges?	• Uisce Éireann connection charges can be found at: https://www.water.ie/connections/information/charges/
Who will carry out the connection work?	• All works to Uisce Éireann's network(s), including works in the public space, must be carried out by Uisce Éireann*. *Where a Developer has been granted specific permission and has been issued a connection offer for Self-Lay in the Public Road/Area, they may complete the relevant connection works
Fire flow Requirements	• The Confirmation of Feasibility does not extend to fire flow requirements for the Development. Fire flow requirements are a matter for the Developer to determine. • **What to do?** - Contact the relevant Local Fire Authority
Plan for disposal of storm water	• The Confirmation of Feasibility does not extend to the management or disposal of storm water or ground waters. • **What to do?** - Contact the relevant Local Authority to discuss the management or disposal of proposed storm water or ground water discharges.
Where do I find details of Uisce Éireann's network(s)?	• Requests for maps showing Uisce Éireann's network(s) can be submitted to: datarequests@water.ie

What are the design requirements for the connection(s)?	• The design and construction of the Water & Wastewater pipes and related infrastructure to be installed in this Development shall comply with ***the Uisce Éireann Connections and Developer Services Standard Details and Codes of Practice,*** available at www.water.ie/connections
Trade Effluent Licensing	• Any person discharging trade effluent** to a sewer, must have a Trade Effluent Licence issued pursuant to section 16 of the Local Government (Water Pollution) Act, 1977 (as amended). • More information and an application form for a Trade Effluent License can be found at the following link: https://www.water.ie/business/trade-effluent/about/ **trade effluent is defined in the Local Government (Water Pollution) Act, 1977 (as amended)

Section B – Details of Uisce Éireann's Network(s)

The map included below outlines the current Uisce Éireann infrastructure adjacent the Development: To access Uisce Éireann Maps email datarequests@water.ie

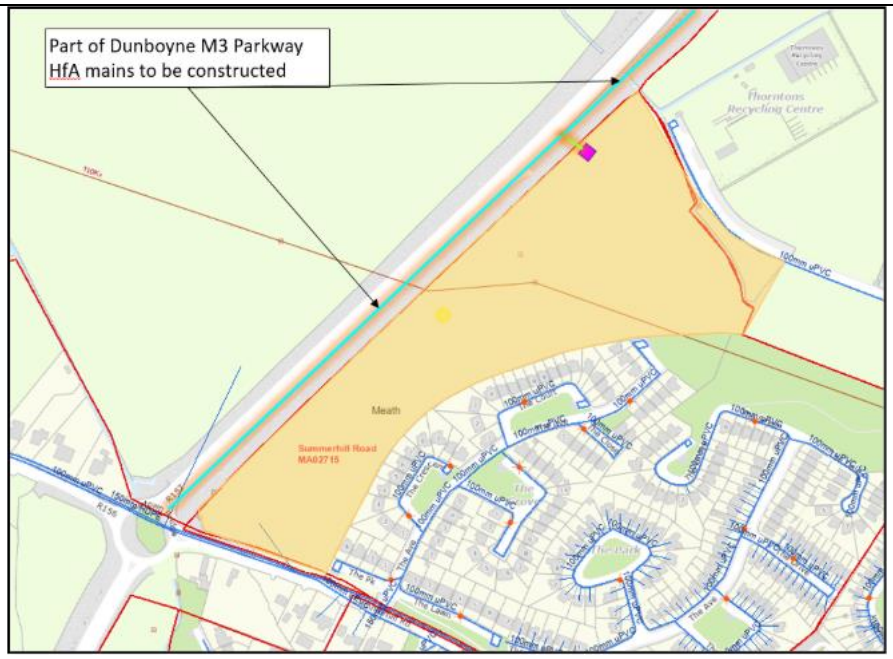


Figure 1 - Water Connection Point

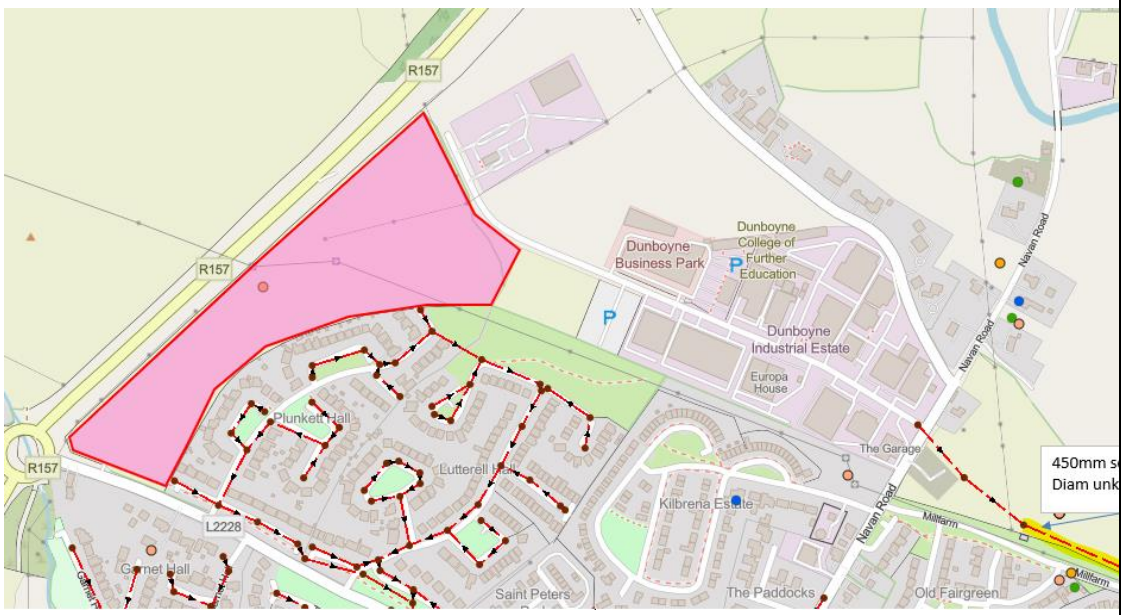


Figure 2 - Wastewater Connection Point

Reproduced from the Ordnance Survey of Ireland by Permission of the Government. License No. 3-3-34

Note: The information provided on the included maps as to the position of Uisce Éireann's underground network(s) is provided as a general guide only.

The information is based on the best available information provided by each Local Authority in Ireland to Uisce Éireann.

Whilst every care has been taken in respect of the information on Uisce Éireann's network(s), Uisce Éireann assumes no responsibility for and gives no guarantees, undertakings or warranties concerning the accuracy, completeness or up to date nature of the information provided, nor does it accept any liability whatsoever arising from or out of any errors or omissions. This information should not be solely relied upon in the event of excavations or any other works being carried out in the vicinity of Uisce Éireann's underground network(s). The onus is on the parties carrying out excavations or any other works to ensure the exact location of Uisce Éireann's underground network(s) is identified prior to excavations or any other works being carried out. Service connection pipes are not generally shown but their presence should be anticipated.

Andrew Monahan
Dres Properties Limited
36-42 Donnybrook Road
Dublin
D04WN59

Uisce Éireann
Bosca OP 448
Oifig Sheachadta na
Cathrach Theas
Cathair Chorcaí

Uisce Éireann
PO Box 448
South City
Delivery Office
Cork City

www.water.ie

13 August 2026

Re: Design Submission for Site At, Summerhill Road, Dunboyne, Meath (the "Development")
(the "Design Submission") / Connection Reference No: CDS25002288

Dear Andrew Monahan,

Many thanks for your recent Design Submission.

We have reviewed your proposal for the connection(s) at the Development. Based on the information provided, which included the documents outlined in Appendix A to this letter, Uisce Éireann has no objection to your proposals.

This letter does not constitute an offer, in whole or in part, to provide a connection to any Uisce Éireann infrastructure. Before you can connect to our network you must sign a connection agreement with Uisce Éireann. This can be applied for by completing the connection application form at www.water.ie/connections. Uisce Éireann's current charges for water and wastewater connections are set out in the Water Charges Plan as approved by the Commission for Regulation of Utilities (CRU)(https://www.cru.ie/document_group/irish-waters-water-charges-plan-2018/).

You the Customer (including any designers/contractors or other related parties appointed by you) is entirely responsible for the design and construction of all water and/or wastewater infrastructure within the Development which is necessary to facilitate connection(s) from the boundary of the Development to Uisce Éireann's network(s) (the "**Self-Lay Works**"), as reflected in your Design Submission. Acceptance of the Design Submission by Uisce Éireann does not, in any way, render Uisce Éireann liable for any elements of the design and/or construction of the Self-Lay Works.

If you have any further questions, please contact your Uisce Éireann representative:
Name: Antonio Garzón Mielgo
Email: antonio.garzonmielgo@water.ie

Yours sincerely,

Dermot Phelan

Dermot Phelan
Connections and Developer Services

Stiúrthóirí / Directors: Jerry Grant (Cathaoirleach / Chairperson), Niall Gleeson (POF / CEO), Douglas Millican, Michael Nolan, Patricia King, Eileen Maher, Cathy Mannion, Michael Walsh, Rena O'Sullivan and Orlagh Nevin.
Oifig Chláraithe / Registered Office: Teach Colvill, 24-26 Sráid Thalbóid, Baile Átha Cliath 1, D01 NP86 / Colvill House, 24-26 Talbot Street, Dublin, Ireland D01NP86
Is cuideachta ghníomhaíochta ainmnithe atá faoi theorainn scaireanna é Uisce Éireann / Uisce Éireann is a designated activity company, limited by shares. Cláraithe in Éirinn Uimh.: 530363 / Registered in Ireland No.: 530363.

Appendix A

Document Title & Revision

- D144-CSC-XX-XX-DR-C-0008_Proposed Watermain Layout-Sheet 1 of 2 Rev P02
- D144-CSC-XX-XX-DR-C-0009_Proposed Watermain Layout-Sheet 2 of 2 Rev P02
- D144-CSC-XX-XX-DR-C-0006_Proposed Foul Drainage Layout-Sheet 1 of 2 Rev P02
- D144-CSC-XX-XX-DR-C-0007_Proposed Foul Drainage Layout-Sheet 2 of 2 Rev P02
- D144-CSC-XX-XX-DR-C-0023_Foul Drainage Longsections-Sheet 1
- D144-CSC-XX-XX-DR-C-0024_Foul Drainage Longsections-Sheet 2
- D144-CSC-XX-XX-DR-C-0025_Foul Drainage Longsections-Sheet 3

Additional Comments

The design submission will be subject to further technical review at connection application stage.

Uisce Éireann cannot guarantee that its Network in any location will have the capacity to deliver a particular flow rate and associated residual pressure to meet the requirements of the relevant Fire Authority, see Section 1.17 of Water Code of Practice.

This Statement of Design Acceptance does not extend to proposed pump station and rising main arrangements. The pump station and rising main will be vested at connection application stage.

*For further information, visit **www.water.ie/connections***

Notwithstanding any matters listed above, the Customer (including any appointed designers/contractors, etc.) is entirely responsible for the design and construction of the Self-Lay Works. Acceptance of the Design Submission by Uisce Éireann will not, in any way, render Uisce Éireann liable for any elements of the design and/or construction of the Self-Lay Works.