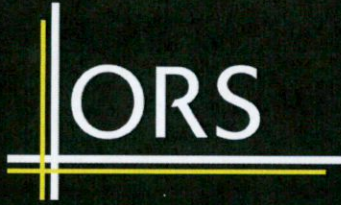


2022

Civil Engineering Planning  
Report



Prepared by: A. Hotta



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## Civil Engineering Planning Report

Kilnamanagh Shopping Centre, Treepark Road / Mayberry Road, Kilnamanagh Dublin 24

### Document Control Sheet

<b>Client:</b>	Dunnes Stores
<b>Document No:</b>	220063-ORS-XX-XX-RP-C-13a-001

Revision	Status	Author:	Reviewed by:	Approved By:	Issue Date
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P02	S2	AH	MH	DMC	21/07/2022

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## 1 Introduction

This report outlines the civil engineering deliverables completed associated with the planning application for a proposed extension of the existing Kilnamanagh Shopping Centre, Treepark Road / Mayberry Road, Kilnamanagh Dublin 24.

The proposed development seeks an extension, change of use and alterations to Kilnamanagh Shopping Centre.

- (a) A two storey extension is proposed along the centre's eastern elevation (total GFA increase of 2,336sqms).
- (b) Change of use of the first-floor retail area (last used by Dunnes Stores as textile sales space) which will be extended and subdivided to provide for two new non-retail, service units. Unit No.1 will extend to c.1,411 sqm for use as a health centre and Unit No. 2 will extend to 790sqms for use as a gym.
- (c) Removal of condition 3 of PA Ref: SD06a/0095 to allow for the increased net sales area. This will allow for the increase in net comparison sales space at ground floor level. New entrance ramp and steps at the north of the extension.
- (d) The southern lobby entrance into Dunnes Stores will be demolished and replaced with a new glazed lobby entrance measuring. New walkway canopy generally on the north and south elevations.
- (e) New ramped access next to existing pedestrian entrance steps on Mayberry Road.
- (f) Reconfigure existing entrance to Treepark Road including revised parking layout generally around the east side of the building to allow for an adjusted, one-way, system around the centre.
- (g) Car parking, as a result of the extension, will be reduced. Four electric vehicle parking spaces. Covered cycle parking.
- (h) New enclosed service yard wall and gates to existing service area on the west side of the centre.
- (i) New signage (including illumination) proposed to elevations including two Totem signs.
- (j) Recladding on elevations.
- (k) Additional landscaping treatment generally around the east side of the centre arising from the amendments to the car park.  
Landscaping works and all drainage works including SUDS measures. All other ancillary works to facilitate the development.

A general outline of the proposed development is provided in Figure 1.1 below.

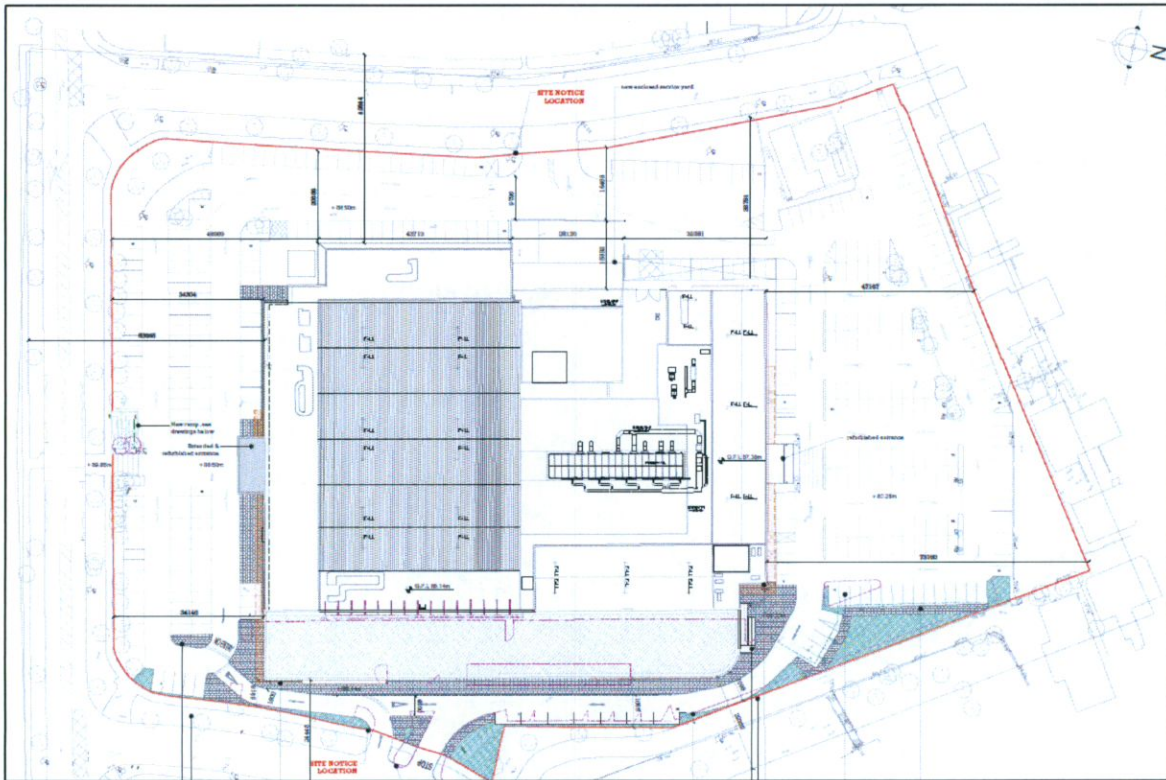


Figure 1.1 – Proposed Architectural Site Layout

## 2 Design Codes & Standards

The civil engineering works presented in this report and the accompanying drawings have been designed in accordance with the following codes of practice and standards:

- “Irish Building Regulations Technical Guidance Documents” Department of the Environment and Local Government
- “Greater Dublin Strategic Drainage Study” published under the National Development Plan
- CIRIA Report “C697 – Sustainable Drainage Systems”
- Irish Water Code of Practices for Water and Wastewater Infrastructure
- EPA - Wastewater Treatment Manuals – Treatment Systems for Small Communities, Business, Leisure Centres and Hotels
- Guidance on the Authorisation of Discharges to Groundwater (EPA, 2011)
- EPA – Groundwater Protection Responses for On-site Wastewater Systems for Single Houses
- EPA - Guidance on the Authorisation of Discharges to Groundwater
- European Communities Environmental Objectives (Surface Water) Regulations, 2009
- DMURS - Design Manual for Urban Roads and Streets.

### 3 Site Location and Description

#### 3.1 General

The site is located on the north side of Mayberry Road, approximately 350m west of the junction of Mayberry Road and Greenhills Road (R819) in Tallaght, Co. Dublin. The site is bound to the south by Mayberry Road, and to the west, north and east by residential developments.

The site itself has been developed as the existing Kilnamanagh Shopping Centre facility. The proposed development consists of the extension of the commercial unit to the east of the site. Existing site accesses to the development are to be retained at the east and west of the site, via Treepark Road.

The total proposed building extension area is 1,411 sqm. An approximate outline of the developed site is indicated in red in Figure 3.1 below.



Figure 3.1 – Site Location (google earth)

This report should be read in conjunction with the following ORS Drawings:

- 220063-ORS-ZZ-00-DR-C-400 Civil Services Layout
- 220063-ORS-ZZ-XX-DR-C-401 Typical Surface Water Manhole Details
- 220063-ORS-ZZ-XX-DR-C-402 Typical Attenuation Tank Details

### 3.2 Site Topography

A topographic survey was carried out on 19th May 2022. The existing building on the site has a floor level of 87.38 m. A GPR survey was carried out on the area of the proposed extension footprint on 14th April 2022 to facilitate the design for planning purposes.

The design intent for the proposed development is to maintain existing levels as much as possible. The proposed levels on the site will allow the development to be serviced with gravity foul and surface water drainage systems.

**Refer to the drainage layout drawing number 220063-ORS-ZZ-00-DR-C-400 for existing site levels.**



## 4 Water and Wastewater Services

### 4.1 Irish Water Correspondence

ORS have liaised with Irish Water in relation to the proposed water supply and wastewater connection for the development. It is proposed that the extension will use the existing connection to the public water supply and foul sewer network to supply the development.

A pre-connection enquiry was lodged on the 1<sup>st</sup> of June 2022 with Irish Water and a confirmation of feasibility letter from Irish Water dated 13<sup>th</sup> June 2022, confirmed that a water and wastewater connections are feasible without any infrastructure upgrade.

A copy of the confirmation of feasibility letter from Irish Water is attached in Appendix A.

Existing water, wastewater and surface water infrastructure maps in the locality of the site have been sourced from South Dublin County Council Water Services Department and are attached in Appendix B.

### 4.2 Water Supply

Irish Water records indicate 150mm uPVC watermain pipes present in Mayberry Road and Treepark Road, respectively, at the south and west of the site. The existing connection to the site appears to be via 2no. 150mm uPVC in the Treepark Road to the west of the site.

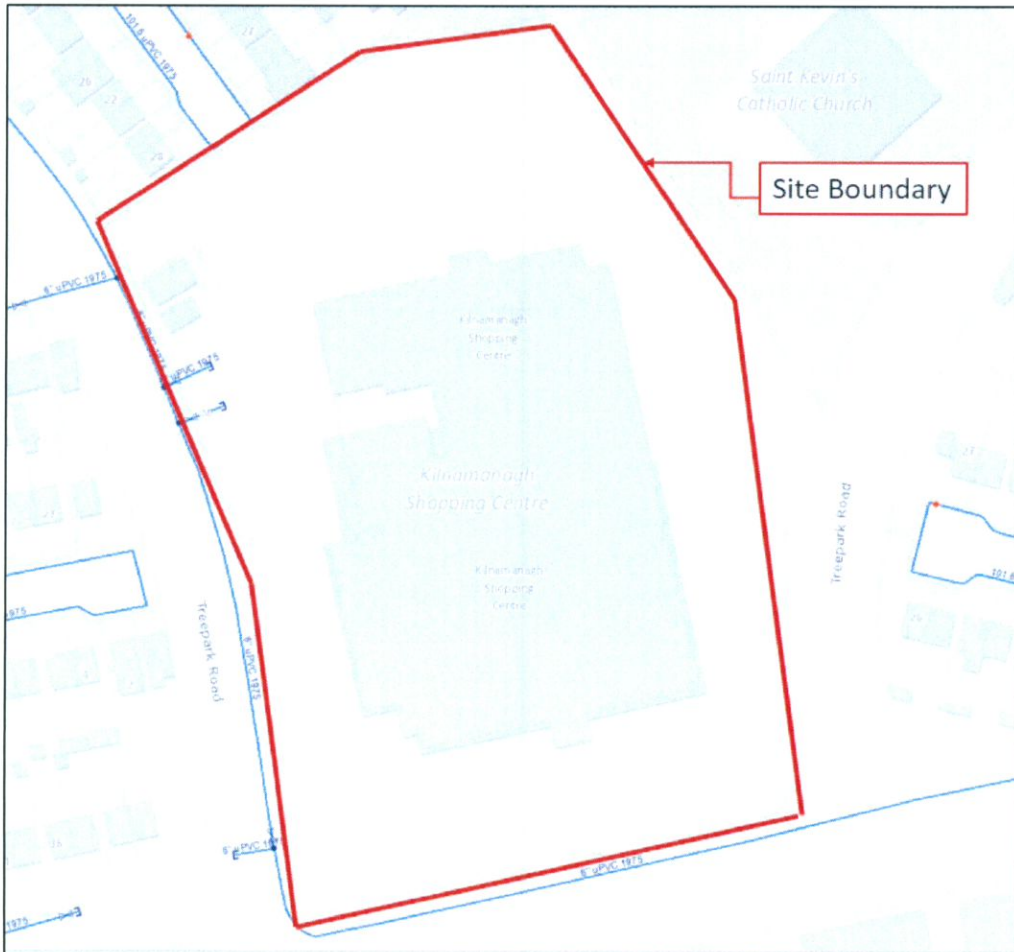


Figure 5.1 – Existing Water Network

According to the GPR survey, part of the existing internal watermain network within the site is located in the proposed building extension footprint area, it is proposed to relocate the existing watermain network around the proposed building extension area and reconnect to the remaining existing internal network. It is also proposed to relocate one hydrant due to the extension building and install a new hydrant on the watermain to the east of the site.

Please refer to Appendix C for the Water Demand Calculation.

**Refer to the GRP Survey for information on the existing drainage on-site and drawing number 220063-ORS-ZZ-00-DR-C-400 for the proposed civil services layout.**

### 4.3 Wastewater Drainage

Irish Water records indicate 225mm wastewater pipes present in Treepark Road and Treepark Drive, respectively, at the west and north of the site. According to the Topographic and GPR

surveys, it appears that the existing sewer network from the site drains to the 225mm wastewater sewer in Treepark Drive to the north of the site.

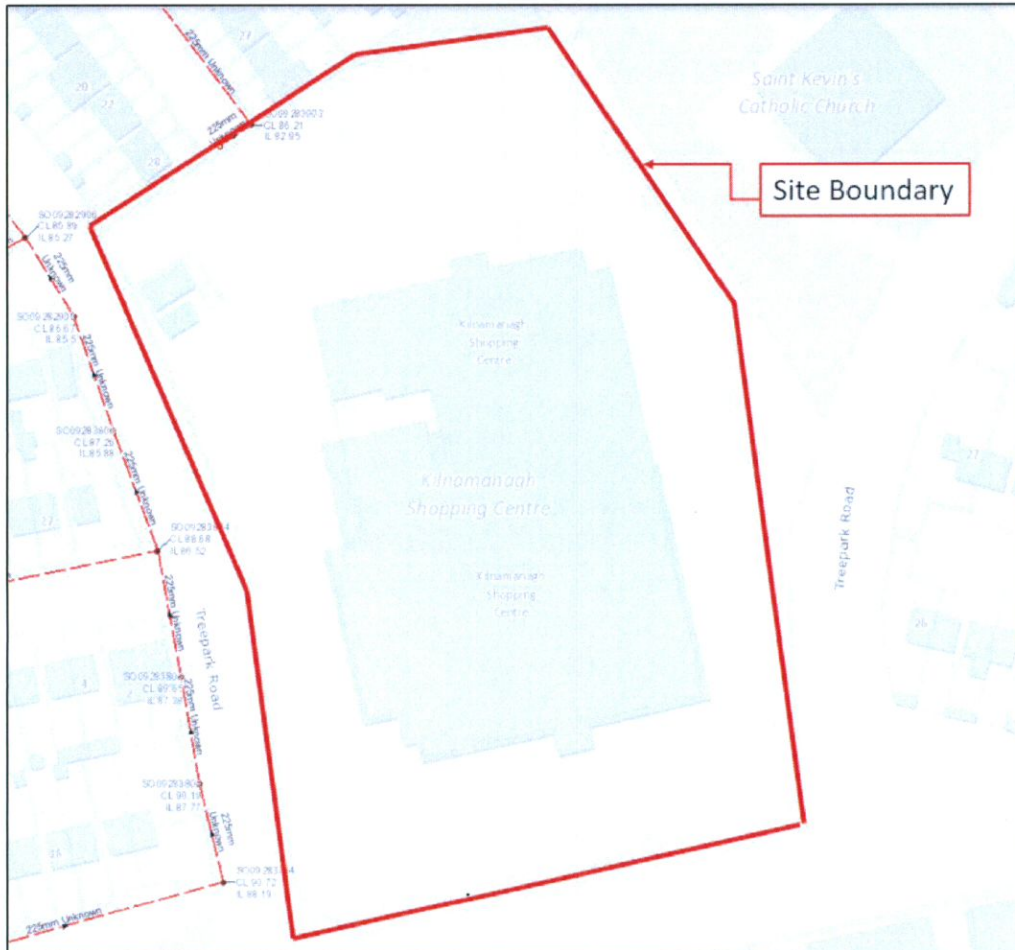


Figure 5.2 – Existing Foul Water Network

It is proposed to maintain the existing connections on-site and the existing connection to the public network in the north of the site. It is proposed to relocate an internal section of the sewer which runs below the proposed building extension. The existing and proposed wastewater will remain flowing by gravity to the public sewer network.

Please refer to Appendix D for the Wastewater Demand Calculation.

**Refer to the GRP Survey for information on the existing drainage on-site and drawing number 220063-ORS-ZZ-00-DR-C-400 for the proposed civil services layout.**

## 5 Surface Water Drainage

Existing water, wastewater and surface water infrastructure maps in the locality of the site have been sourced from South Dublin County Council Water Services Department and are attached in Appendix B.

Guidance for the design of the Surface Water network has been taken from the Greater Dublin Strategic Drainage Study (GSDS) and Sustainable Urban Drainage Systems (SUD's).

### 5.1 Existing Infrastructure

Irish Water records 1050mm concrete storm water pipes present in Mayberry Road and Treepark Road, respectively, at the south and east of the site, and also a 300mm storm water pipe present in Treepark Road, at the west of the site. According to the GPR survey, the existing storm water network from the site drains via a 225mm pipe towards Treepark Road to the east of the site. No attenuation tank was located during the GPR Survey within the site.



Figure 5.3 – Existing Surface Water Network

## 5.2 Internal Surface Water Drainage

### 5.2.1 Drainage Strategy

The proposed building extension will be located on an area of the site which is currently used as carparking and is impermeable. Therefore the proposed building will not increase the impermeable area on the site and in fact through use of SuDS measures including a green roof and attenuation system, the surface water management on the site will be improved as a result of the proposed extension.

The extension building will be served via a proposed below ground gravity pipework within the proposed internal road to the east of the site. The proposed surface water network will be fed via road gullies and rainwater from the building roof via guttering and downpipes. The existing surface water network within the site will remain in place and unchanged with the exception of beneath the footprint of the extension area, which will require a relocation of the below-ground gravity surface water pipe.

The proposed surface water drainage strategy for the development will include an extensive green roof and an attenuation system to cater for roof runoff. Outflow from the attenuation system will be flow controlled to green field runoff rates prior to outfall off site into the existing surface water drainage system in Treepark Road.

Sustainable Urban Drainage Systems (SuDS) will be utilised throughout the site where practical to help mitigate the adverse effects of urban stormwater runoff on the environment by reducing runoff rates, volumes and frequencies and reducing pollutant concentrations in stormwater runoff. SuDS measures which have been incorporated in this scheme include the use of a green roof and attenuation tank.

All surface water pipes have been designed to achieve a minimum self-cleansing velocity of 0.75m/s.

### 5.2.2 Catchments and Attenuation System

Surface water drainage from the proposed extension roof (after an interception from the green roof) will be collected via gutters and downpipes and will be directed via below ground gravity pipe network to an attenuation tank. Only the roof runoff (proposed extension) will be directed into this tank. The attenuation tank has been sized to store the runoff from a 1:100-year storm event of critical duration. An additional storage allowance of 10% for climate change has been incorporated. Please refer to Appendix E for the calculations.

### 5.2.3 Flow Control

A flow control device will be fitted to the outlet manhole from the attenuation tank. This will control the outflow from the tank to greenfield runoff rates (2.0l/sec). These devices will be fitted to a 150mm diameter outlet pipe and will have a pull cord bypass. To allow maintenance, a penstock valve (or similar approved) will be installed on the inlet to the flow control manhole.

## 5.3 Compliance with Sustainable Urban Drainage Systems

To reduce and attenuate the flow, the proposed development has been designed in accordance with the principles of Sustainable Urban Drainage Systems (SUDS) as expressed in the recommendations of the Greater Dublin Strategic Drainage Study (GDSDS).

The GDSDS addresses the issue of sustainability by requiring designs to comply with a set of drainage criteria which aim to minimise the impact of urbanisation by replicating the runoff characteristics of a greenfield site. The criteria provide a consistent approach to addressing both rate and volume of run-off as well as ensuring the environment is protected from the pollution that is washed off roads and buildings.

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

- Interception storage.
- Treatment storage (not required if interception storage is provided).
- Attenuation storage.
- Long term storage (not required if growth factors are not applied to Qbar when designing attenuation storage).

In the case of the subject site, interception storage will be provided, and growth factors will not be applied to the allowable discharge for the 100-year event. This means that both treatment storage and long-term storage (neither of which would be practical on this site) are not required.

Interception storage for the development will be provided by an extensive green roof.

### 5.3.1 Green Roof

An extensive green roof system is being provided on the proposed extension. This will provide ecological, aesthetic and amenity benefits and will help retain rainfall at the source and reduce the volume of runoff and attenuate peak flows. The green roof will absorb the majority of rainfall received during ordinary rainfall events and will contribute to the attenuation of flows for larger events.

### 5.3.2 Attenuation

Attenuation and flow control will be adopted on the site to limit discharge rates from the site in compliance with SuDS. This is described in detail in section 5.2 of this report.

**Refer to the GRP Survey for information on the existing drainage on-site, drawing number 220063-ORS-ZZ-00-DR-C-400 for the proposed civil services layout and 220063-ORS-ZZ-XX-DR-C-401 and 220063-ORS-ZZ-XX-DR-C-402 for details of the proposed surface water drainage for the development.**

## 6 Flood Risk

The Floodinfo.ie website was consulted for high level information on any potential flood risk on the site. No indication of any likely past or future flood incidences was identified in the vicinity of the site. Refer to figure 6.1 below.

The development will present no significant increase in the risk of flooding either within the site or downstream of the site. Surface water runoff from the proposed extension will be limited to the greenfield runoff rate via flow control measures.

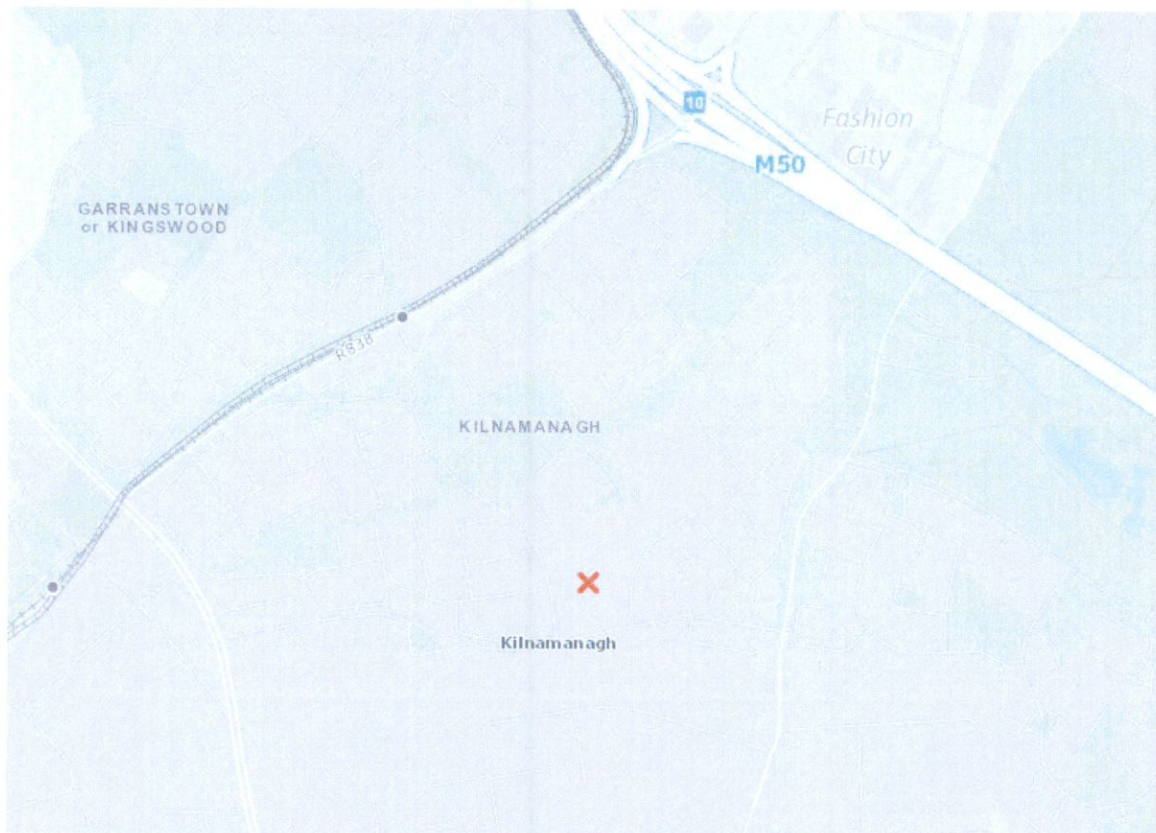
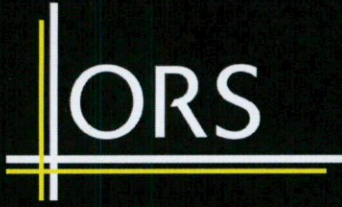


Figure 6.1 – Floodinfo Map – approximate site location marked with red X





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## 7 Health and Safety

ORS understand their health and safety responsibilities as set out in the Health and Safety at Work (Construction) Regulations 2013.



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## Appendix A – Irish Water Correspondence

Anderson Hotta  
 ORS,  
 Block A,  
 Marlinstown Office Park,  
 Mullingar  
 Co. Westmeath  
 N91W5NN

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

Irish Water  
 PO Box 448,  
 South City  
 Delivery Office,  
 Cork City.

[www.water.ie](http://www.water.ie)

13 June 2022

**Re: CDS22004027 pre-connection enquiry - Subject to contract | Contract denied**

**Connection for Business Connection of a 27 unit Office and Gym at Kilnamanagh Shopping Centre, Mayberry Road, Tallaght, Dublin**

Dear Sir/Madam,

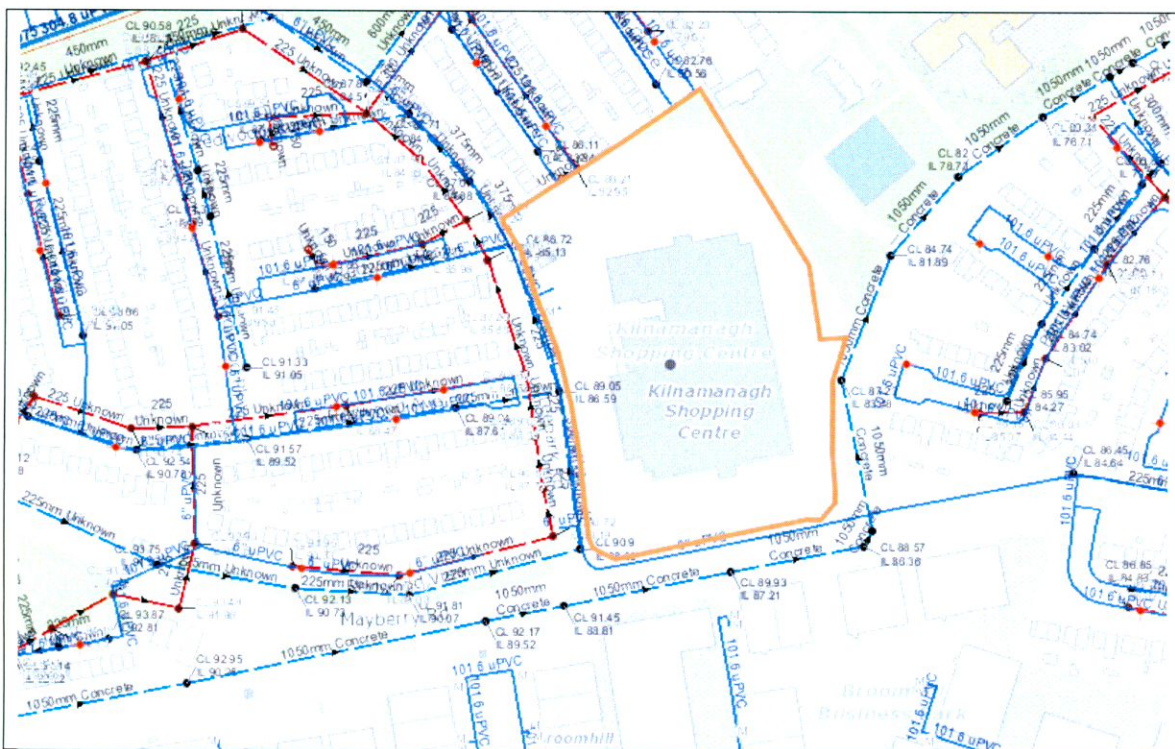
Irish Water has reviewed your pre-connection enquiry in relation to a Water & Wastewater connection at Kilnamanagh Shopping Centre, Mayberry Road, Tallaght, Dublin (the **Premises**). Based upon the details you have provided with your pre-connection enquiry and on our desk top analysis of the capacity currently available in the Irish Water network(s) as assessed by Irish Water, we wish to advise you that your proposed connection to the Irish Water network(s) can be facilitated at this moment in time.

SERVICE	<b>OUTCOME OF PRE-CONNECTION ENQUIRY</b> <u><b>THIS IS NOT A CONNECTION OFFER. YOU MUST APPLY FOR A CONNECTION(S) TO THE IRISH WATER NETWORK(S) IF YOU WISH TO PROCEED.</b></u>
Water Connection	Feasible without infrastructure upgrade by Irish Water
Wastewater Connection	Feasible without infrastructure upgrade by Irish Water
<b>SITE SPECIFIC COMMENTS</b>	
Water Connection	<p>This Confirmation of Feasibility to connect to the Irish Water infrastructure does not extend to your fire flow requirements. Please note that Irish Water cannot guarantee a flow rate to meet fire flow requirements and in order to guarantee a flow to meet the Fire Authority requirements, you should provide adequate fire storage capacity within your development</p> <p>The customer is responsible for obtaining all necessary consents/permissions required to facilitate any connection works to private infrastructure. The status and capacity of the infrastructure should be verified, prior to any physical connection works.</p>
Wastewater Connection	The customer is responsible for obtaining all necessary consents/permissions required to facilitate any connection works to private

infrastructure. The status and capacity of the infrastructure should be verified, prior to any physical connection works.

The design and construction of the Water & Wastewater pipes and related infrastructure to be installed in this development shall comply with the Irish Water Connections and Developer Services Standard Details and Codes of Practice that are available on the Irish Water website. Irish Water reserves the right to supplement these requirements with Codes of Practice and these will be issued with the connection agreement.

The map included below outlines the current Irish Water infrastructure adjacent to your site:



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

Whilst every care has been taken in its compilation Irish Water gives this information as to the position of its underground network as a general guide only on the strict understanding that it is based on the best available information provided by each Local Authority in Ireland to Irish Water. Irish Water can assume no responsibility for and give no guarantees, undertakings or warranties concerning the accuracy, completeness or up to date nature of the information provided and does not accept any liability whatsoever arising from any errors or omissions. This information should not be relied upon in the event of excavations or any other works being carried out in the vicinity of the Irish Water underground network. The onus is on the parties carrying out excavations or any other works to ensure the exact location of the Irish Water underground network 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.

#### General Notes:

- 1) The initial assessment referred to above is carried out taking into account water demand and wastewater discharge volumes and infrastructure details on the date of the assessment. **The availability of capacity may change at any date after this assessment.**

- 2) This feedback does not constitute a contract in whole or in part to provide a connection to any Irish Water infrastructure. All feasibility assessments are subject to the constraints of the Irish Water Capital Investment Plan.
- 3) The feedback provided is subject to a Connection Agreement/contract being signed at a later date.
- 4) A Connection Agreement will be required to commencing the connection works associated with the enquiry this can be applied for at <https://www.water.ie/connections/get-connected/>
- 5) A Connection Agreement cannot be issued until all statutory approvals are successfully in place.
- 6) Irish Water Connection Policy/ Charges can be found at <https://www.water.ie/connections/information/connection-charges/>
- 7) Please note the Confirmation of Feasibility does not extend to your fire flow requirements.
- 8) Irish Water is not responsible for the management or disposal of storm water or ground waters. You are advised to contact the relevant Local Authority to discuss the management or disposal of proposed storm water or ground water discharges
- 9) To access Irish Water Maps email [datarequests@water.ie](mailto:datarequests@water.ie)
- 10) All works to the Irish Water infrastructure, including works in the Public Space, shall have to be carried out by Irish Water.

If you have any further questions, please contact Kevin McManmon from the design team at [kmcmannon@water.ie](mailto:kmcmannon@water.ie) For further information, visit [www.water.ie/connections](http://www.water.ie/connections).

Yours sincerely,



**Yvonne Harris**

**Head of Customer Operations**



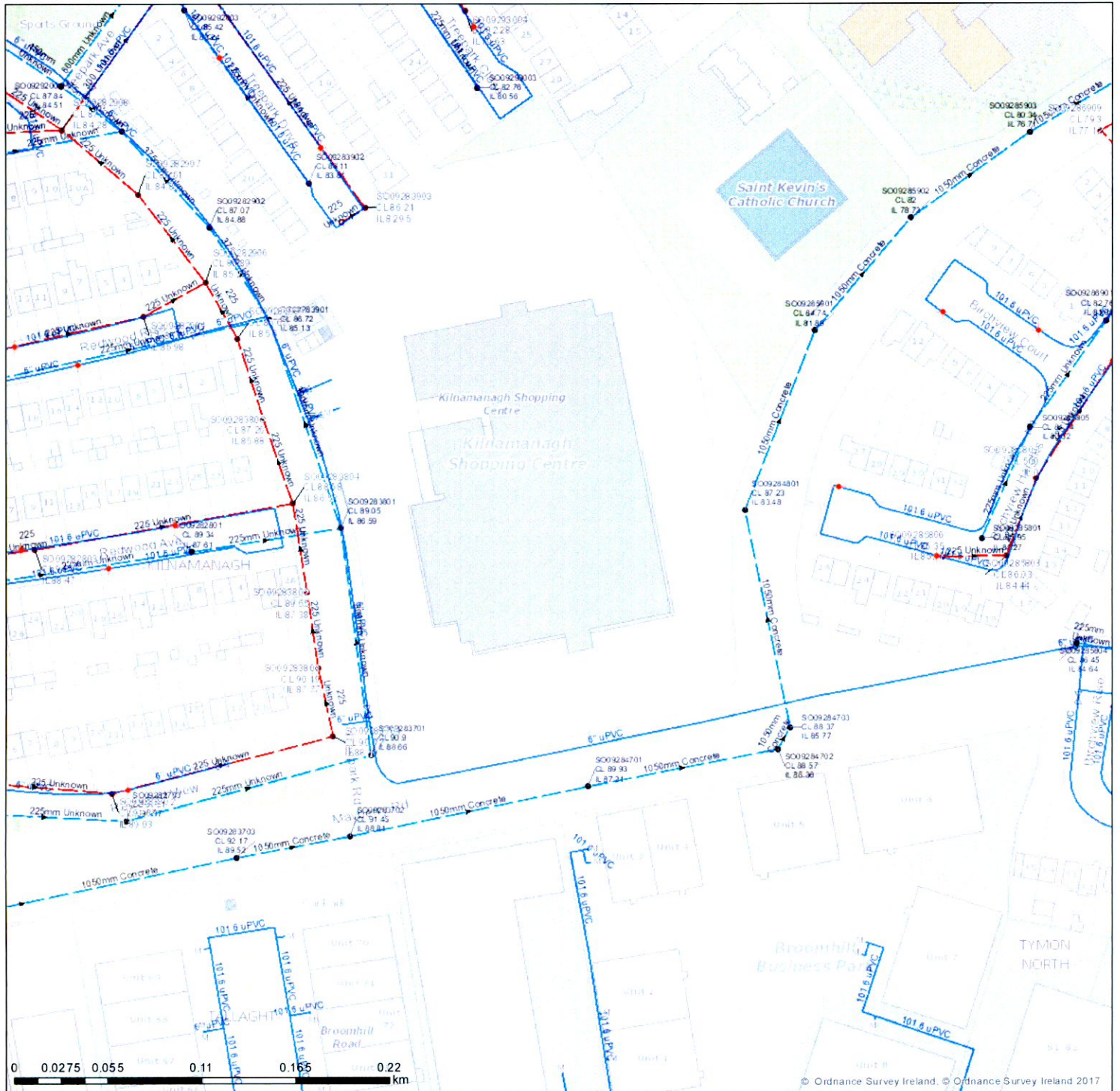
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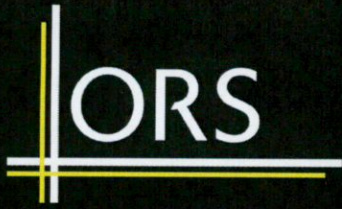
## Appendix B – Existing Services Infrastructure Maps

# Irish Water Web Map



Print Date: 23/05/2022

Printed by: Irish Water



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## Appendix C – Water Demand Calculations



**PROPOSED WATER DEMAND CALCULATIONS**

ORS Ref:

**220063****CLIENT:  
PROJECT DESCRIPTION:  
DRAWING REFERENCE:****Dunnes Stores  
Dunnes Stores Kilnamanagh, Tallaght  
220063-ORS-ZZ-00-DR-C-400**

<i>Unit Type:</i>	<i>Number of:</i>	<i>Flow (l/day/person):</i>	<i>Persons per Unit:</i>	<i>Total Flow (l/day)</i>
Consultation Rooms	21	50	3	3150
Gym	1	50	270	13500
Offices	6	90	3	1620
<b>Consultation Rooms</b>				
	<i>Total Flow (l/day):</i>	18270	<i>Total Flow (m<sup>3</sup>/day):</i>	18.27
	<i>Average Hour Water Demand</i>	0.21	<i>l/s</i>	
	<i>Peak Hour Water Demand (Average Hour Water Demand x 5)</i>	1.06	<i>l/s</i>	



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## Appendix D – Wastewater Demand Calculations



**PROPOSED FOUL SEWER DESIGN CALCULATIONS**

ORS Ref:

220063

CLIENT: **Dunnes Stores**  
 PROJECT DESCRIPTION: **Dunnes Stores Kilnamanagh, Tallaght**  
 DRAWING REFERENCE: **220063-ORS-ZZ-00-DR-C-400**

Unit Type:	Number of:	Flow (l/day/person):	BOD (g/day/person)	Persons	Total Flow (l/day)	BOD (g/day/person)	P.E.
Consultation Rooms	21	50	60	63	3150	3780	63
Gym	1	50	60	270	13500	16200	270
Offices	6	90	60	18	1620	1080	18
<b>Total Consultation Rooms</b>					<b>18270</b>	<b>21060</b>	<b>351</b>
					<b>Commercial Total Flow per day</b>	<b>18270.00</b>	<b>litres/day</b>
					<b>Commercial Dry Weather Flow (DWF)</b>	<b>0.21</b>	<b>litres/second</b>
					<b>Peak Dry Weather Flow</b>	<b>0.95</b>	<b>l/s @ 4.5 x DWF</b>



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## Appendix E – Surface Water Drainage Calculations

# ATTENUATION CALCULATIONS



ORS Ref.  
220063

**CLIENT:** Dunnes Stores  
**PROJECT DESCRIPTION:** Dunnes Stores Kilnamanagh, Tallaght  
**DRAWING REFERENCE:** 220063-ORS-ZZ-00-DR-C-400

M560 (mm) 14.50 M52d (mm) 52.40 M560/M52d 0.28 LOCATION Casement SAAR (mm) 754.2

Duration	RETURN PERIOD (Years)						
	0.5	1	2	5	10	30	100
15 (mins)	6.10	7.20	11.00	14.00	17.50	19.90	28.90
30 (mins)	8.00	9.40	14.10	17.80	22.20	25.20	36.10
1 (hour)	10.40	12.10	18.00	22.70	28.20	31.80	45.20
2 (hours)	13.50	15.70	23.10	29.00	35.70	40.20	56.50
4 (hours)	17.60	20.40	29.70	37.00	45.20	50.70	70.70
6 (hours)	20.50	23.70	34.30	42.60	51.90	58.10	80.60
12 (hours)	26.80	30.80	44.00	54.30	65.80	73.40	100.70
1 (day)	34.90	39.90	56.50	69.20	83.40	92.70	126.00
2 (day)	42.70	48.40	66.60	80.20	95.30	105.00	139.30

Return Period (Years)	30	2.00	0.14	2.00	0.14	0.09	0.09
Allowable Outflow (l/s/ha)	3.60	7.20	14.40	28.80	43.20	86.40	172.80
Total Extension Roof Area (ha)	1.80	3.60	7.20	14.40	28.80	43.20	86.40
Total Allowable outfall (l/s)	3.24	6.48	12.96	25.92	39.36	59.04	118.08
Total Green Roof Area (ha)	1.80	3.60	7.20	14.40	28.80	43.20	86.40
Runoff 60% Green Roof (ha)	1.08	2.16	4.32	8.64	17.28	25.92	51.84
Total Contributing Area (ha)	2.88	5.76	11.52	23.04	46.08	69.12	138.24
Total Storage (m <sup>3</sup> )	15	18	20	20	14	6	-24
Total Storage (m <sup>3</sup> ) incl. 10% Climate Change allowance	15	18	20	20	14	6	-24

Duration (hours)	0.25	0.5	1	2	4	6	12	24	48
Duration (mins)	15	30	60	120	240	360	720	1440	2880
Rainfall (mm)	19.90	25.20	31.80	40.20	50.70	58.10	73.40	92.70	105.00
Rainfall (m <sup>3</sup> /ha)	199	252	318	402	507	581	734	927	1050
Total Contribut. Area (ha)	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Proposed Run-off (m <sup>3</sup> )	17	21	27	34	43	50	63	79	89
Allowable Outflow (m <sup>3</sup> )	1.80	3.60	7.20	14.40	28.80	43.20	86.40	172.80	345.60
Storage (m <sup>3</sup> )	15	18	20	20	14	6	-24	-94	-256



## ATTENUATION CALCULATIONS

ORS Ref.

220063

**CLIENT:** Dunnes Stores  
**PROJECT DESCRIPTION:** Dunnes Stores Kilnamanagh, Tallaght  
**DRAWING REFERENCE:** 220063-ORS-ZZ-00-DR-C-400

M560 (mm)	14.50	M52d (mm)	52.40	M560/M52d	0.28	LOCATION	Casement	SAAR (mm)	754.2
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Duration	RETURN PERIOD (Years)									
	0.5	1	2	5	10	20	30	100		
15 (mins)	4.10	6.10	7.20	11.00	14.00	17.50	19.90	28.90		
30 (mins)	5.50	8.00	9.40	14.10	17.80	22.20	25.20	36.10		
1 (hour)	7.20	10.40	12.10	18.00	22.70	28.20	31.80	45.20		
2 (hours)	9.40	13.50	15.70	23.10	29.00	35.70	40.20	56.50		
4 (hours)	12.40	17.60	20.40	29.70	37.00	45.20	50.70	70.70		
6 (hours)	14.60	20.50	23.70	34.30	42.60	51.90	58.10	80.60		
12 (hours)	19.20	26.80	30.80	44.00	54.30	65.80	73.40	100.70		
1 (day)	25.30	34.90	39.90	56.50	69.20	83.40	92.70	126.00		
2 (day)	31.70	42.70	48.40	66.60	80.20	95.30	105.00	139.30		

Return Period (Years)	100	2.00	0.14					Storage (m <sup>3</sup> )	
Allowable Outflow (l/s/ha)	100	2.00	0.14						
Total Extension Roof Area (ha)									
Total Allowable outfall (l/s)	2.00								
Total Green Roof Area (ha)	0.14								
Runoff 60% Green Roof (ha)	0.09								
Total Contributing Area (ha)	0.09								
Duration (hours)	0.25	0.5	1	2	5	10	20	30	100
Duration (mins)	15	30	60	120	240	360	720	1440	2880
Rainfall (mm)	28.90	36.10	45.20	56.50	70.70	80.60	100.70	126.00	139.30
Rainfall (m <sup>3</sup> /ha)	289	361	452	565	707	806	1007	1260	1393
Total Contribut. Area (ha)	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Proposed Run-off (m <sup>3</sup> )	25	31	39	48	60	69	86	107	119
Allowable Outflow (m <sup>3</sup> )	1.80	3.60	7.20	14.40	28.80	43.20	86.40	172.80	345.60
Storage (m <sup>3</sup> )	23	27	31	34	31	25	-1	-65	-227

Total Storage (m <sup>3</sup> )	34
Total Storage (m3) incl. 10% Climate Change allowance	37



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## Appendix F – Typical Attenuation Tank

PROJECT INFORMATION	
ENGINEERED PRODUCT MANAGER	
ADS SALES REP	
PROJECT NO.	



220063 DS KILNAMANAGH  
DUBLIN, IRELAND

### SC-310 STORMTECH CHAMBER SPECIFICATIONS

- CHAMBERS SHALL BE STORMTECH SC-310.
- CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE OR POLYETHYLENE COPOLYMERS.
- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2922 (POLETHYLENE) OR ASTM F2418 (POLYPROPYLENE), "STANDARD SPECIFICATION FOR CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE, WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
- THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS, AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT, AND MULTIPLE VEHICLE PRESENCES.
- CHAMBERS SHALL BE DESIGNED, TESTED, AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER, 2) MAXIMUM PERMANENT (75-YR) COVER LOAD, AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
- REQUIREMENTS FOR HANDLING AND INSTALLATION:
  - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
  - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
  - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 400 LBS/FT<sup>3</sup>. THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLOURS.
- ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
  - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
  - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD. THE MINIMUM REQUIRED BY ASTM F2787, AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
  - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2922 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
- CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

### IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF THE SC-310 SYSTEM

- STORMTECH SC-310 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
- STORMTECH SC-310 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
- CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
  - STONESHOOTER LOCATED OFF THE CHAMBER BED.
  - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUB-GRADE.
  - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
- THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
- JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
- MAINTAIN MINIMUM - 6" (150 mm) SPACING BETWEEN THE CHAMBER ROWS.
- EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE 3/4-2" (20-50 mm).
- THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
- ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUB-SURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

### NOTES FOR CONSTRUCTION EQUIPMENT

- STORMTECH SC-310 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
- THE USE OF CONSTRUCTION EQUIPMENT OVER SC-310 & SC-740 CHAMBERS IS LIMITED:
  - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
  - NO RUBBER Tired LOADERS, DUMP TRUCKS, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
  - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
- FULL 36" (900 mm) OF STABILISED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING. USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO THE CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-888-492-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

ISOLATOR ROW PLUS COMPONENTS SHOWN ON THIS DESIGN MAY NOT BE AVAILABLE IN THE SPECIFIED PROJECT REGION. PLEASE CONTACT YOUR LOCAL ADS REPRESENTATIVE OR E-MAIL ADSINTERNATIONAL@ADS-PIPE.COM FOR FURTHER INFORMATION

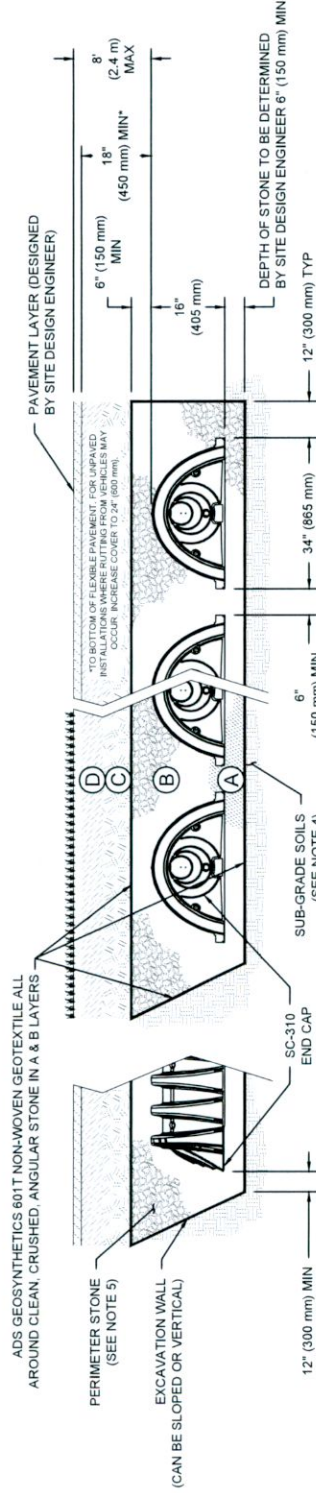


## ACCEPTABLE FILL MATERIALS: STORMTECH SC-310 CHAMBER SYSTEMS

MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUB-BASE MAY BE PART OF THE 'D' LAYER.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE (B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUB-BASE MAY BE A PART OF THE 'C' LAYER.	AASHTO M145 <sup>1</sup> A-1, A-2.4, A-3  OR AASHTO M43 <sup>1</sup> 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs. (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs. (89 kN).
B	EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE (A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE  AASHTO M43 <sup>1</sup> 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUB-GRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE  AASHTO M43 <sup>1</sup> 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. <sup>2,3</sup>

**PLEASE NOTE:**

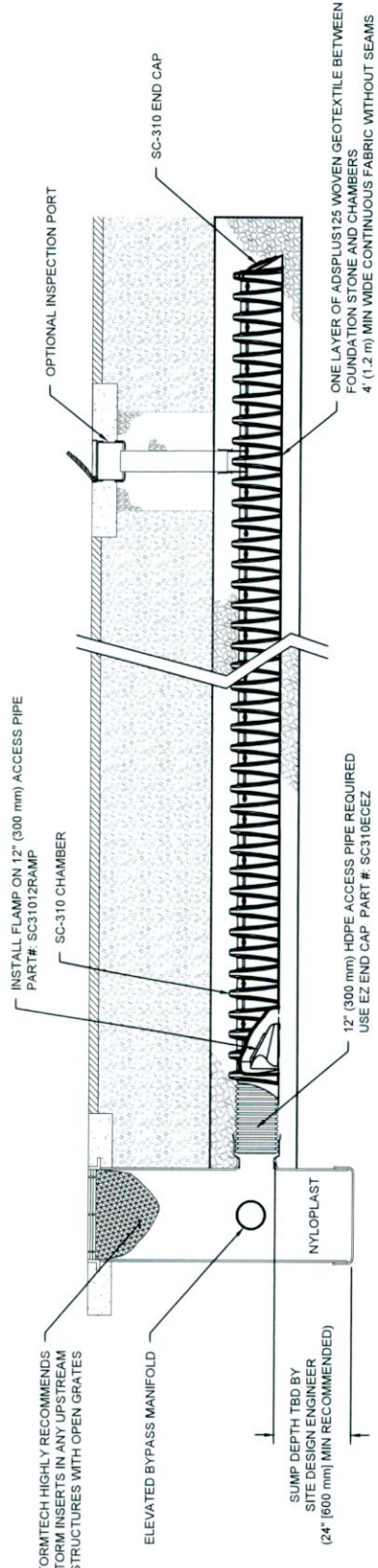
- THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
- STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
- WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
- ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUB-BASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



**NOTES:**

- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2922 (POLYETHYLENE) OR ASTM F2418 (POLYPROPYLENE). \*STANDARD SPECIFICATION FOR CORRUGATED WALL STORMWATER COLLECTION CHAMBERS\*.
- SC-310 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 \*STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS\*.
- THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUB-GRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
- PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
  - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
  - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
  - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 400 LBS/FT<sup>2</sup>. THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23°), AND c) CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLOURS.

<b>StormTech</b> 4640 RUE MAN BLVD HILLIARD, OH 43026 1-800-733-7473	Chamber System 888-892-2694   WWW.STORMTECH.COM	220063 DS KILNAMANAGH DUBLIN, IRELAND DRAWN: MH CHECKED: N/A PROJECT # DESCRIPTION DATE DRW CHK
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**SC-310 ISOLATOR ROW PLUS DETAIL**  
NTS

**ISOLATOR ROW PLUS COMPONENTS SHOWN ON THIS DESIGN MAY NOT BE AVAILABLE IN THE SPECIFIED PROJECT REGION. PLEASE CONTACT YOUR LOCAL ADS REPRESENTATIVE OR E-MAIL ADSINTERNATIONAL@ADS-PIPE.COM FOR FURTHER INFORMATION**

**INSPECTION & MAINTENANCE**

- STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
  - A. INSPECTION PORTS (IF PRESENT)
    - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
    - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
    - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
    - A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
    - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
  - B. ALL ISOLATOR PLUS ROWS
    - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
    - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
      - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
      - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
    - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
  - A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45° (1.1 m) OR MORE IS PREFERRED
  - B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
  - C. VACUUM STRUCTURE SUMP AS REQUIRED
- STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.
- STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

**NOTES**

- 1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH-WATER ELEVATIONS.
- 2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

STORMTECH HIGHLY RECOMMENDS FLEXSTORM INSERTS IN ANY UPSTREAM STRUCTURES WITH OPEN GRATES

ELEVATED BYPASS MANIFOLD

SUMP DEPTH TBD BY SITE DESIGN ENGINEER (24" (600 mm) MIN RECOMMENDED)

NYLOPLAST

INSTALL FLAMP ON 12" (300 mm) ACCESS PIPE PART#: SC31012RAMP

SC-310 CHAMBER

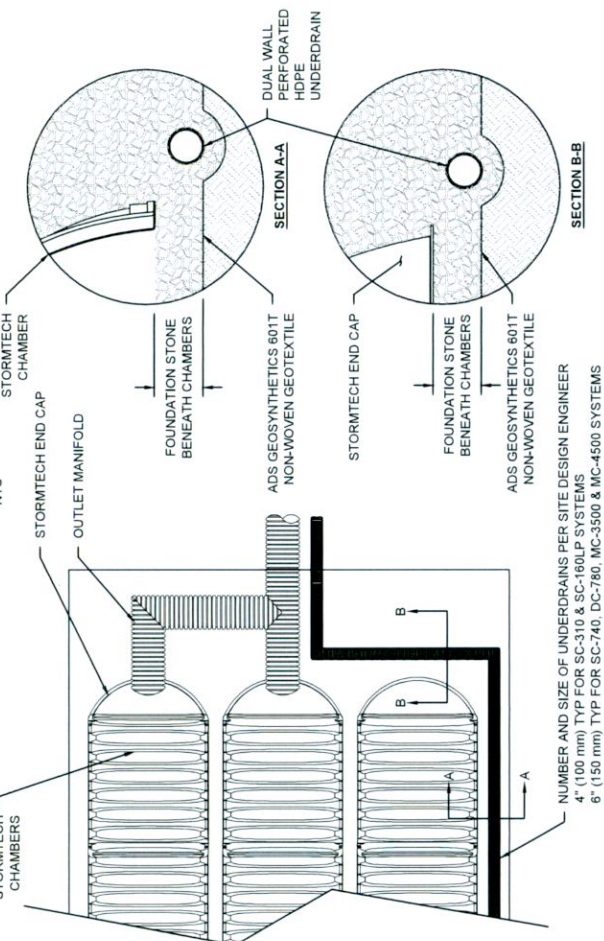
12" (300 mm) HDPE ACCESS PIPE REQUIRED USE EZ END CAP PART#: SC310ECEZ

ONE LAYER OF ADSPLUS125 WOVEN GEOTEXTILE BETWEEN FOUNDATION STONE AND CHAMBERS 4" (1.2 m) MIN WIDE CONTINUOUS FABRIC WITHOUT SEAMS

OPTIONAL INSPECTION PORT

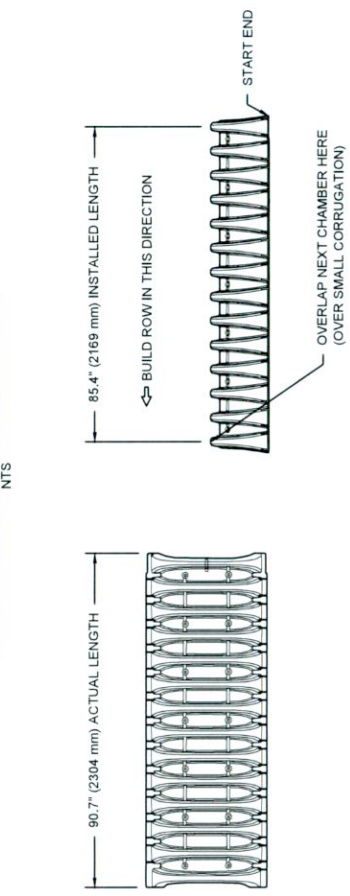
SC-310 END CAP

**UNDERDRAIN DETAIL**



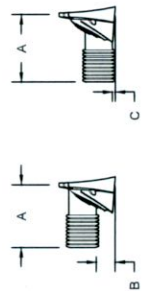
NUMBER AND SIZE OF UNDERDRAINS PER SITE DESIGN ENGINEER  
 4" (100 mm) TYP FOR SC-310 & SC-160LP SYSTEMS  
 6" (150 mm) TYP FOR SC-740, DC-780, MC-3500 & MC-4500 SYSTEMS

**SC-310 TECHNICAL SPECIFICATION**



**NOMINAL CHAMBER SPECIFICATIONS**  
 SIZE (W X H X INSTALLED LENGTH) 34.0" X 16.0" X 85.4"  
 CHAMBER STORAGE 14.7 CUBIC FEET  
 MINIMUM INSTALLED STORAGE\* 31.0 CUBIC FEET  
 WEIGHT 35.0 lbs.

\*ASSUMES 6" (152 mm) ABOVE, BELOW, AND BETWEEN CHAMBERS



PRE-FAB STUBS AT BOTTOM OF END CAP WITH FLAMP END WITH "BR"  
 PRE-FAB STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"  
 PRE-CORED END CAPS END WITH "PC"

PART #	STUB	A	B	C
SC310EPE06T / SC310EPE06TPC	6" (150 mm)	9.6" (244 mm)	5.8" (147 mm)	---
SC310EPE06B / SC310EPE06BPC	8" (200 mm)	11.9" (302 mm)	3.5" (89 mm)	0.5" (13 mm)
SC310EPE08T / SC310EPE08TPC	10" (250 mm)	12.7" (323 mm)	1.4" (36 mm)	0.6" (15 mm)
SC310EPE10T / SC310EPE10TPC	12" (300 mm)	13.5" (343 mm)	---	0.7" (18 mm)
SC310EPE10B / SC310EPE10BPC	---	---	---	0.9" (23 mm)

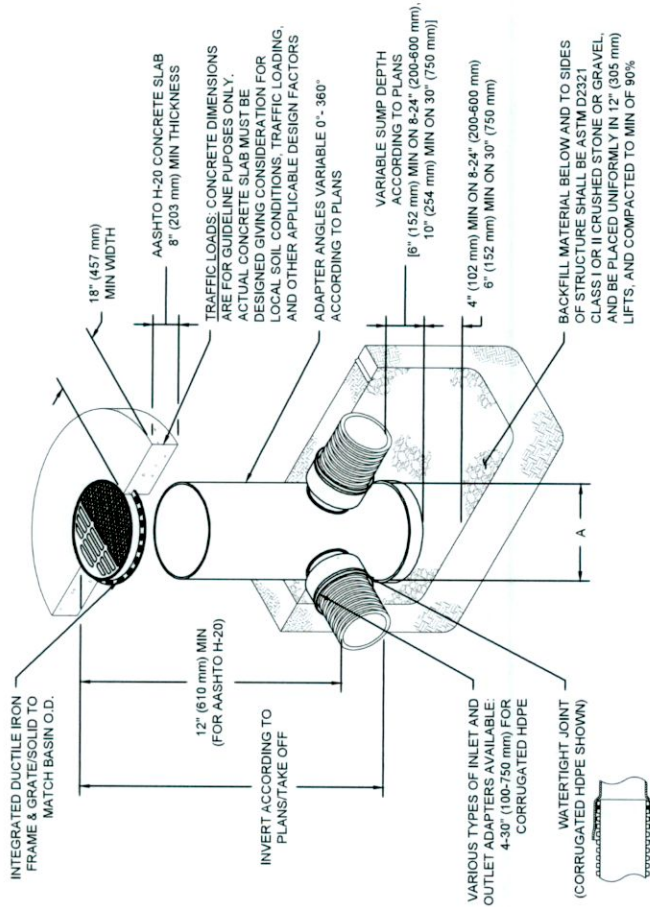
ALL STUBS, EXCEPT FOR THE SC310ECEZ ARE PLACED AT BOTTOM OF END CAP SUCH THAT THE OUTSIDE DIAMETER OF THE STUB IS FLUSH WITH THE BOTTOM OF THE END CAP. FOR ADDITIONAL INFORMATION CONTACT STORMTECH AT 1-888-892-2694.

\* FOR THE SC310ECEZ THE 12" (300 mm) STUB LIES BELOW THE BOTTOM OF THE END CAP APPROXIMATELY 0.25" (6 mm). BACKFILL MATERIAL SHOULD BE REMOVED FROM BELOW THE N-12 STUB SO THAT THE FITTING SITS LEVEL.

NOTE: ALL DIMENSIONS ARE NOMINAL

# NYLOPLAST DRAIN BASIN

NTS



## NOTES

- 8-30" (200-750 mm) GRATES/SOLID COVERS SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05
- 12-30" (300-750 mm) FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05
- DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS
- DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS & HANCOR DUAL WALL) & SDR 35 PVC
- FOR COMPLETE DESIGN AND PRODUCT INFORMATION: [WWW.NYLOPLAST-US.COM](http://WWW.NYLOPLAST-US.COM)
- TO ORDER CALL: **800-821-8710**

A	PART #	GRATE/SOLID COVER OPTIONS	
		STANDARD LIGHT DUTY	SOLID LIGHT DUTY
8" (200 mm)	2808AG	PEDESTRIAN LIGHT DUTY	SOLID LIGHT DUTY
10" (250 mm)	2810AG	PEDESTRIAN LIGHT DUTY	SOLID LIGHT DUTY
12" (300 mm)	2812AG	PEDESTRIAN AASHTO H-10	SOLID AASHTO H-20
15" (375 mm)	2815AG	PEDESTRIAN AASHTO H-10	SOLID AASHTO H-20
18" (450 mm)	2818AG	PEDESTRIAN AASHTO H-10	SOLID AASHTO H-20
24" (600 mm)	2824AG	PEDESTRIAN AASHTO H-10	SOLID AASHTO H-20
30" (750 mm)	2830AG	PEDESTRIAN AASHTO H-20	SOLID AASHTO H-20

**ADS**  
4640 TRUEMAN BLVD  
HILLIARD, OH 43026  
1-800-733-7473

**Nyloplast**<sup>®</sup>

770-932-2443 | [WWW.NYLOPLAST-US.COM](http://WWW.NYLOPLAST-US.COM)

DATE	DRW	CHK	DESCRIPTION

PROJECT # \_\_\_\_\_  
DATE: \_\_\_\_\_  
DRAWN: MH  
CHECKED: N/A  
DUBLIN, IRELAND  
220063 DS KILNAMAGH

THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO ADS UNDER THE DIRECTION OF THE SITE DESIGN ENGINEER TO ENSURE THAT THE PRODUCT(S) DEPICTED AND ALL ASSOCIATED DETAILS MEET ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS AND PROJECT REQUIREMENTS. THE RESPONSIBILITY OF THE SITE DESIGN ENGINEER TO ENSURE THAT THE PRODUCT(S) DEPICTED AND ALL ASSOCIATED DETAILS MEET ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS AND PROJECT REQUIREMENTS.