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Engineering Services Report

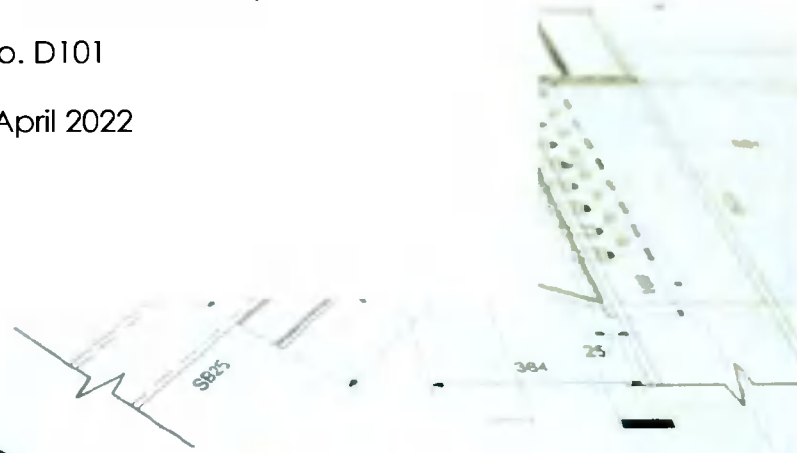
Adamstown– Block A,C & D

County Dublin

Client: Quintain Developments Ireland Ltd

Job No. D101

Date April 2022





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ENGINEERING SERVICES REPORT

ADAMSTOWN- BLOCK A,C & D, COUNTY DUBLIN

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1.0 INTRODUCTION

Cronin & Sutton Consulting Engineers (CS Consulting) have been commissioned by Quintain Developments Ireland Ltd to prepare an Engineering Services Report for a proposed commercial and residential development at Adamstown Block A,C & D.

This report assesses the proposed development under the following headings:

- Foul Drainage Infrastructure;
- Stormwater Drainage Infrastructure;
- Potable Water Infrastructure.

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

- South Dublin County Council Development Plan 2016-2022;
- South Dublin County Council Strategic Flood Risk Assessment, 2016 – 2022;
- South Dublin County Councils SuDs Explanatory, Design and Evaluation Guide, 2022.
- Regional Code of Practice For development works, Version 6;
- Irish Waters Code of Practice for Water Infrastructure;
- Irish Waters Code of Practice for Wastewater Infrastructure;
- Greater Dublin Strategic Drainage Study;
- National Cycle Manual 2011;
- Greater Dublin Area Cycle Network Plan.

The Engineering Services Report is to be read in conjunction with the engineering drawings and documents submitted by CS Consulting and with the various additional information submitted by the other members of the design team.

2.0 SITE LOCATION AND DEVELOPMENT

2.1 Site Location

The proposed development site is located to the north of Adamstown Station, Co. Dublin. The site is located in the administrative jurisdiction of South Dublin County Council and has a total area of approximately 2.43ha.

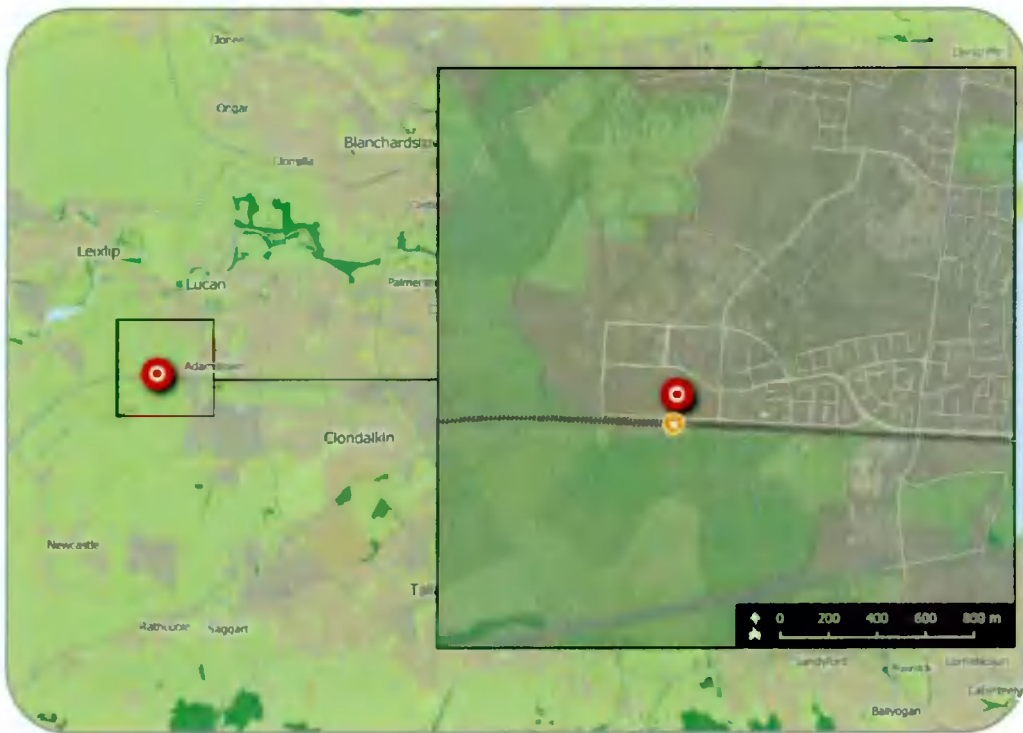


Figure 1 – Location of proposed development site
(map data & imagery: EPA, OSM Contributors, Google)

The location of the proposed development site is shown in Figure 1 above; the indicative extents of the development site are shown in more detail in Figure 2.

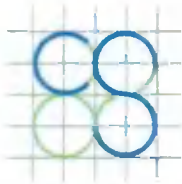
The site is bounded to the north by Adamstown Avenue, to the east by Blocks B & E which are currently being constructed, to the south Adamstown Station Road and to the west by open greenfield landscape.



Figure 2 – Site extents and environs
(map data & imagery: Google)

2.2 Existing Land Use

The subject site is a greenfield in nature and with no previous development on the site. As part of the submission a topographical survey was undertaken to establish the levels on site. The survey indicated a fall cross the site from north to south, with levels in the range of 62.40m AOD to 61.50m AOD. No structures or water courses of note are located on the site. Refer to CS Consulting's drawing **D101/001** for details of the existing topography of the site.



2.3 Proposed Development

The proposed development consists of:

- A development to be constructed in 3no. blocks (known as Block A,C and D) ranging in height from 2 to 9 storeys including an ancillary residents Pavilion Amenity Building.
- 436no. apartments comprising 9no. studio units, 204no. 1-bedroom units, 213no. 2-bedroom units and 10no. 3-bedroom unit.
- Communal open space provided at podium and ground levels
- 220no. car parking spaces are to be provided in a mixture of on-street parking, podium and within the already permitted Block F multi-storey car park.
- The provision of 526no. bicycle parking spaces provided through stacked (416no. spaces) and Sheffield (110no. spaces) bicycle parking spaces.

The development also includes the provision of all ancillary site development and landscape works.

3.0 FOUL DRAINAGE

3.1 Existing Foul Arrangements

Irish Waters drainage records indicate a foul sewer to the south of the subject lands. These foul sewers are 225mm in diameter and have a number of 'spur' connections into the subject lands to allow for connection onto the local network. The provision of these local connections points forms part of the wider infrastructure requirements for the SDZ lands as a whole. See **Appendix A** for Irish Water service records.

3.2 Proposed Outfall

The proposed development will require a complete redevelopment of the subject lands. All foul effluent generated from the proposed development shall be collected in pipes of 225mm diameter and flow under gravity to the existing 225mm diameter foul sewer on Station & Castlegate Hall Road.

3.3 Proposed Effluent Generation

Following Irish Water guidelines, the proposed development will generate the following foul effluent based on 436 No. Units :

- For the residential units:
 - ⇒ 446l/day per apartment (based on 2.7 persons per apartment x 150l/person/day, + a 10% increase factor).
 - ⇒ 446 l/day/apt x 436 units = 194,456 l/day = 194.45m³/day;
 - ⇒ 2.25 l/sec Average flow (1 DWF);
 - ⇒ 13.50 l/sec Peak Flow (6 DWF).

3.4 Proposed Foul Drainage Arrangements

The drainage network for the development will be in accordance with Part H of the Building Regulations and to the requirements and specifications of Irish Water.

As required by Irish Water, who since 2014 are in control of foul drainage services, a pre-connection enquiry, PCE, is required to be submitted for new developments to ensure that current existing infrastructure is available. CS Consulting submitted the PCE to Irish Water and received a response on the 11/09/2019. Further discussions with Irish Water at connection stage will be required to ensure that no local up-grade works are required. Please see **Appendix B** for the Confirmation of Feasibility Letter.

The proposed foul water drainage infrastructure and routing plan is shown on drawing **D101-003** included with this submission.

3.5 Ringsend Wastewater Treatment Plant

All foul effluent from the proposed development ultimately is treated and disposed of at the Regional Wastewater Treatment Plant, WwTP, in Ringsend Dublin. The Ringsend WwTP operates under license from the Environmental Protection Agency, license No. D0034-01. There are scheduled up-grades planned to increase the operation effectiveness of the Ringsend WwTP. Planning for the Ringsend up-grade was granted in 2019 and the works are due for completion by 2024.

Notwithstanding, as part of the review of the pre-connection enquiry to Irish Water a review of the capacity in the plant has been carried out and no capacity issues have been identified. As the subject site is located within an SDZ, the predicated effluent loading from same has been factored not the effluent loading for the plant.

4.0 STORMWATER DRAINAGE

4.1 Existing Storm Water Arrangements

Drainage records provided by Irish Water indicate a number of stormwater sewers to the north and south of the subject lands these range in diameter from 225mm to 600mm. This 600mm diameter stormwater sewer connects into a 1500mm diameter foul sewer located in the extension of Adamstown Way to the northwest of the subject site.

4.2 Adamstown SDZ Planning Scheme 2014 Storm Water Arrangements

The subject site is located in the Adamstown SDZ lands. The Adamstown lands are located within three surface water drainage sub-catchments; these are Tobermaclugg, North East Griffeen Tributary and South East Griffeen Tributary. According to Adamstown SDZ Planning Scheme 2014: Environmental Report, approximately 65% of the SDZ lands drain to the Tobermaclugg Stream, which flows north through the western part of the site and is joined by the Backstown Stream on leaving the SDZ lands and continues along Tubber Lane before draining to the River Liffey to the north.

A storm water culvert and 5,000m³ attenuation pond was constructed in 2011 to manage surface water flow in this area due to the established drainage system was considered insufficient to meet the requirements of the approved Scheme and flood events had occurred in the environs of Tubber Lane.

The culvert takes surface water directly from Adamstown to the attenuation pond, bypassing a section of the Tobermaclugg Stream, with outfall to the River Liffey in the vicinity of Lucan Village. A significant proportion of the surface water drainage infrastructure required under the approved Planning Scheme is now in place. Infrastructure installed to date includes underground attenuation tanks and culverts with a more limited

application of a Sustainable Urban Drainage system (SUDS) approach. The construction of large attenuation area at regional level removes the requirements to develop attenuation areas on the subject lands. See **Appendix A** for Irish Water Records.

4.3 Proposed Storm Water Arrangements

The proposed new storm water drainage arrangements will be designed and carried out in accordance with:

- i) The Greater Dublin Strategic Drainage Study Volume 2,
- ii) The Greater Dublin Regional Code of Practice for Drainage Works,
- iii) BS EN – 752:2008, Drains & Sewer Systems Outside Buildings,
- iv) Part H, Building Drainage of The Building Regulation.

4.4 SDZ Attenuation Arrangements

All stormwater of the proposed development shall be collected in stormwater pipes and flow under gravity to the existing 225mm diameter surface sewer on Station Road and into the new 300mm diameter storm sewer along the proposed new road to the west of the subject lands.

As the site located in the Adamstown SDZ lands, the attenuation volume shall be retained in the surface water drainage sub-catchments areas (Tobermaclugg, North East Griffeen Tributary and South East Griffeen Tributary), provided as part of the *Adamstown SDZ Planning Scheme 2014*. Therefore, the proposed development will not restrict storm water flow generated on site and all storm water attenuation storage requirements are dealt with off site in accordance with the provisions in the SDZ. See CS Consulting Drawing **D101-003** for proposed on site drainage arrangements.

4.5 Proposed Sustainable Urban Drainage System, SuDS.

In accordance with the masterplan for the Adamstown SDZ, the subject lands will not provide onsite attenuation storage as this is to be provided on a regional basis. Notwithstanding, a requirement of the Local Authority is to adopt, where achievable, elements into the design which conform to the general principles of Sustainable Urban Drainage systems. In particular South Dublin County Councils SuDS Explanatory, Design and Evaluation Guide, 2022.

The aim is to increase the overall quality of storm water before it leaves the site and enters the public network. To achieve this a number of SuDS proposals are being implemented.

- i) Local footpaths and hardstanding areas will be directed into tree pits & landscaped areas to allow for local infiltration. The tree pits can retain *interception volumes*, (the first 5 – 10mm of rain) generated on site. This process provides the function of allowing the trees to re-use the rainwater for irrigation purposes reducing the reliance on potable water sources. It also allows for filtering of the rainwater. The proposed tree pits are not lined, allowing for infiltration of storm water not taken up by the planting. When storm water volumes are experienced on site in volumes greater than can be stored or infiltrated into the subsoil, the tree pits have an overflow mechanism to allow the excess storm water to be directed into the main drainage system, which directs all storm water flows into the regional attenuation areas.
- ii) Permeable paving systems will be incorporated into the development. As the proposed carparking bays are located in zones some of which will be taken in charge by the Local Authority and other areas which will remain in private ownership, under the control



of a management company not all the proposed car parking bays will be constructed using permeable paving.

- iii) It is proposed to install 'downstream defenders' to aid in the removal of debris material from the proposed developments storm water system prior to storm water entering the local network. The downstream defender also has the ability to retain any hydrocarbons which are carried into the unit via storm water, this removed the need for a separate oil separator. See **Appendix E** for details of same.

In addition to the measures noted above, the schemes landscape architects, have developed a number of systems to capture low intensity rainwater and direct it into landscaping areas. These are to include:

- Attenuating tree pits, (mentioned above),
- Surface swales,
- Street level opening to plant into attenuation tree pit via permeable surfacing.

Refer to documentation and drawings submitted by the landscape architect for further details & South Dublin County Councils SuDs Explanatory, Design and Evaluation Guide, 2022.

4.6 South Dublin County Council

South Dublin County Council requires their guidelines for new developments to be adhered to regarding run-off coefficients and attenuation systems. As the proposed development falls under the direction of the Adamstown SDZ not all of the standard requirements are applicable. See **Appendix D**

for a copy of the Councils document, the various sections are answered below.

- i) *Separated drainage systems, noted refer to drainage layout drawings.*
- ii) *Plans & Cross sections to be submitted, noted refer to drawings.*
- iii) *Required technical information pertaining to, a) site areas b) SAAR, c) SPR, & surfaces breakdown, noted refer to **Appendix B**.*
 - a) The SAAR (Standard Annual Average Rainfall) for the area: 920mm/year.
 - b) The sliding duration table for the site indicating the 1:100 year rainwater intensities to be used.
 - c) Soil type value obtained from the Flood Studies Report, (for the subject lands this has been established as soil type 2).

Runoff coefficients have been applied as follows:

Structure Type	Area Ha (Hectares)	Runoff Coefficient
Buildings	0.706	1.0
Roads	0.470	0.8
Paths to SUDs	0.980	0.5
Podium	0.274	0.5
Total	2.43	

For the purposes of the network design and the attenuation calculations the percentages for hard standing and non-hardstand run off rates have been established below.

- 80% runoff from hard standing surfaces,
 - 20% runoff from non-hard standing.
- iv) *Separation distances to be maintained between structures and sewers, **noted refer to planning drawings.***
- v) *Minimum depth to services, noted refer to drainage layout drawings.*
- vi) *Location of manholes to be in public areas, **noted refer to drainage layout drawings.***
- vii) *Development to comply with Building Regulations Part H, **noted.***
- viii) *Soakaways to conform to BRE Digest 365, noted, **not required for this development.***
- ix) *Sustainable urban drainage systems, SuDs to be included, see section 3.4.*
- X) *Attenuation Systems to be included, **where applicable, noted, however in accordance with the SDZ not required.***
- xi) *Attenuation systems requirements, **noted, however, not required under the SDZ.***
- xii) *Acceptable attenuation tank types, **not required under the SDZ.***
- xiii) *Surface water runoff rates to greenfield rates, as per GDSDS, **noted, but not required under the SDZ.***

- xiv) *Sites location relative to 1-in-1000 year flood level, **noted, refer to the schemes site specific flood risk assessment, submitted under a separate cover by CS Consulting.***
- xv) *Buildings set back, 10m, from the edge of water course, **noted, not pertinent for this scheme.***

5.0 POTABLE WATER

5.1 Existing Potable Water System

Records obtained from Irish Water indicate public watermains adjacent to the development site on Adamstown Avenue and Adamstown Park. See **Appendix A**.

5.2 Proposed Potable Water System

Based on Irish Water guidelines, the proposed development will have the following water demand:

- For the residential units:
 - ⇒ 405l/day per apartment (based on 2.7 persons per apartment x 150l/person/day).
 - ⇒ 405 l/day/apt x 436 units = 176,580 l/day = 176.58 m³/day;
 - ⇒ 2.04 l/s Average water demand;
 - ⇒ 10.21 l/s Peak water demand (5 times average water demand).

As required by Irish Water, who since 2014 are in control of water services, a pre-connection enquiry, PCE, is required to be submitted for new developments to ensure that current existing infrastructure is available. CS Consulting submitted the PCE to Irish Water and received a response on the 11/09/2019. Please see **Appendix C** for the Confirmation of Feasibility Letter.

The proposed watermain infrastructure and routing plan is shown on Drawing **D101-204** included with this submission.

Appendix A:
Irish Water Service Records

- Legend**
- Pump Stations
 - Irish Water
 - Private
 - Irish Water
 - Non IW
 - Gravelly Combined
 - Gravelly - Foul
 - Gravelly - Overflow
 - Gravelly - Unknown
 - Pumping - Combined
 - Pumping - Foul
 - Pumping - Overflow
 - Pumping - Unknown
 - Siphon - Combined
 - Siphon - Foul
 - Siphon - Overflow
 - Overflow
 - Gravelly Combined
 - Gravelly - Foul
 - Gravelly - Overflow
 - Gravelly - Unknown
 - Pumping - Combined
 - Pumping - Foul
 - Pumping - Overflow
 - Pumping - Unknown
 - Siphon - Combined
 - Siphon - Foul
 - Siphon - Overflow
 - Overflow
 - Surface Gravelly Mains
 - Surface Gravelly Mains Private
 - Surface Water Pressurised Mains
 - Surface Water Pressurised Mains Private

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2. Whilst every care has been taken in the preparation of these drawings, the information is to be taken as a general guide only and is not to be relied upon for any specific project. The Local Authority in which the project is located shall be responsible for and give no guarantee, indemnity or warranty concerning the accuracy, completeness or reliability of the information provided and does not accept any liability whatsoever arising from any use of the drawings.

This information should not be relied upon in the event of excavations or any other works which may affect the underground network. The only person responsible for the safety of any excavation or other works is the person carrying out the excavation or other works. The Irish Water underground network is identified prior to excavations or any other works. The presence of any other underground network is not guaranteed but their presence should be anticipated.

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2013

Appendix B:

Irish Water Confirmation of Feasibility Letter



Gessica Silva
CS Consulting
19-22 Dame Street
Dublin 2
Dublin, Ireland D02E267

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

11 September 2019

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

Dear Gessica Silva,

www.water.ie

**Re: Connection Reference No CDS19005537 pre-connection enquiry -
Subject to contract | Contract denied**

Connection for Mixed Use Development of 930 units at Lands At Adamstown, Adamstown Avenue, Co.Dublin.

Irish Water has reviewed your pre-connection enquiry in relation to water and wastewater connections at Lands At Adamstown, Adamstown Avenue, Co.Dublin.

Based upon the details that you have provided with your pre-connection enquiry and on the capacity currently available in the networks, as assessed by Irish Water, we wish to advise you that, subject to a valid connection agreement being put in place, your proposed connection to the Irish Water networks can be facilitated.

Water:

- The infrastructure has to be designed and constructed as per Adamstown Water Supply Scheme - PH McCarthy Rev D Report and completed in conjunction with adjacent developments. The Developer should fund all mains shown to East, West, North & South of the site boundary as per the Report and must design own internal network.
- This Confirmation of Feasibility to connect to the Irish Water infrastructure also does not extend to your fire flow requirements. Please note that Irish Water can not 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.

Wastewater:

- All wastewater from the Development has to be directed towards existing 600 mm concrete sewer - Tobermaclugg Pumping Station. Upgrade of 225 mm sewers adjacent to the site may be required subject to proposed wastewater network layout and load allocations. Should you wish to progress with the connection, the upgrade works fee will be calculated in a connection offer for the Development.

There are Irish Water infrastructures within and in close proximity of the site boundaries (please find attached Irish Water GIS record of the area as a general guide only) The Developer will be required to survey the site to determine the exact location of the infrastructure. Any trial investigations should be carried out with the agreement and in the presence of the Local Authority Inspector.

Stiúrthóirí / Directors: Cathal Marley (Chairman), Eamon Gallen, Brendan Murphy, Michael G. O'Sullivan

Oifig Chláraithe / Registered Office: Teach Colvill, 24-26 Sráid Thalbóid, Baile Átha Cliath 1, D01 NP86 / Colvill House, 24-26 Talbot Street, Dublin 1, D01 NP86

Is cuideachta ghníomhaíochta ainmnithe atá faoi theorainn scaireanna é Uisce Éireann / Irish Water is a designated activity company, limited by shares.

Uimhir Chláraithe in Éirinn / Registered in Ireland No.: 530363

010 400 0000

010 400 0000

You are advised that structures or works over or in close proximity to Irish Water infrastructure that will inhibit access for maintenance or endanger structural or functional integrity of the infrastructure are not allowed. Separation distances between the Irish Water infrastructure and proposed structures, other services, trees, etc. have to be in accordance with the Irish Water Codes of Practice and Standard Details.

Diversion of the infrastructure may be required subject to layout proposal of the development and separation distances. The diversion will be subject to customer entering diversion agreement with Irish Water. A wayleave in favour of Irish Water, will be required over the Infrastructure that is not located within the Public Space. For design submissions and queries related to diversion please contact IW Diversion Team via email address diversions@water.ie For further information related to diversion please visit www.water.ie/connections/developer-services/diversions

Strategic Housing Development

Irish Water notes that the scale of this development dictates that it is subject to the Strategic Housing Development planning process. Therefore:

A. In advance of submitting your full application to An Bord Pleanála for assessment, you must have reviewed this development with Irish Water and received a Statement of Design Acceptance in relation to the layout of water and wastewater services.

B. You are advised that this correspondence does not constitute an offer in whole or in part to provide a connection to any Irish Water infrastructure and is provided subject to a connection agreement being signed and appropriate connection fee paid at a later date.

A connection agreement can be applied for by completing the connection application form available at www.water.ie/connections. Irish Water'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.

If you have any further questions, please contact Marina Zivanovic Byrne from the design team on 01 89 25991 or email mzbyrne@water.ie. For further information, visit www.water.ie/connections.

Yours sincerely,



Maria O'Dwyer

Connections and Developer Services



EXCELLENCE

2011

Appendix C:

Downstream Defender Specification

Downstream Defender®

High-Level Treatment in a Small Footprint

Product Profile

The Downstream Defender® is an advanced vortex separator used to treat stormwater runoff in pretreatment or stand-alone applications. Its unique flow-modifying internal components distinguish the Downstream Defender® from conventional and simple swirl separators that typically bypass untreated peak flows to prevent washout of captured pollutants. Its wide treatment flow range, low headloss, small footprint and low-profile make it a compact and economical solution for capturing nonpoint source pollution.

Components

- | | |
|------------------------------------|--------------------------|
| 1. Inlet to Precast Vortex Chamber | 4. Outlet Pipe |
| 2. Cylindrical Baffle | 5. Sediment Storage Sump |
| 3. Center Shaft | 6. Access Lid |

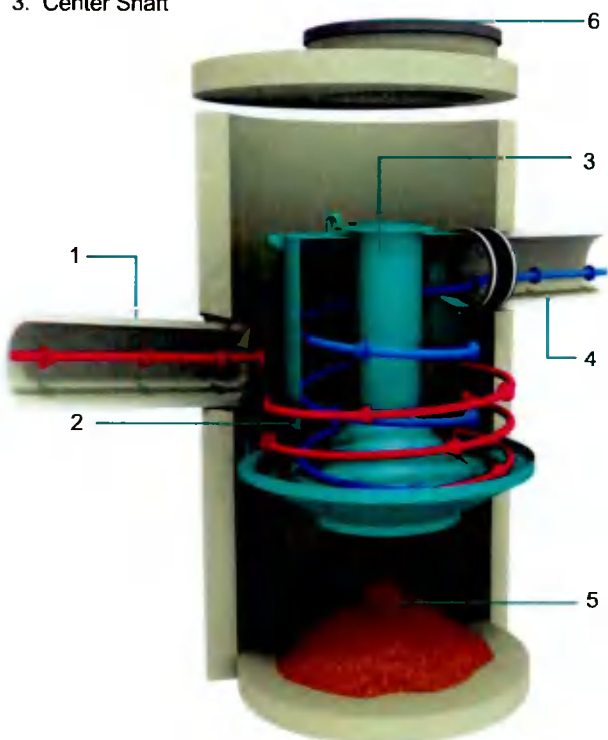


Fig.1 The Downstream Defender® has internal components designed to maximize pollutant capture and minimize pollutant washout.

Applications

- Removal of total suspended solids (TSS), floatable trash and petroleum products from stormwater runoff
- New construction or redevelopment of commercial and residential sites
- Pollutant hotspots such as maintenance yards, parking lots, gas stations, streets, highways, airports and transportation hubs
- Site constrained LID or green infrastructure based developments
- LEED® development projects

Advantages

- Special internal components maximize pollutant capture and minimize footprint, headloss and washout
- Captures and retains a wide range of TSS particles
- High peak treatment flow rates
- Treats the entire storm with no washout or untreated bypass flows
- Low maintenance requirements - no dredging required, and no screens or media to block
- Variable inlet/outlet angles for ease of site layout

How it Works

Advanced hydrodynamic vortex separation is a complex hydraulic process that augments gravity separation with low-energy rotary forces. The flow modifying internal components used in the Downstream Defender® harness the energy from vortex flow and maximize the time for separation to occur while deflecting high scour velocities (**Fig.1**).

Polluted stormwater is introduced tangentially into the side of the precast vortex chamber to establish rotational flow. A cylindrical baffle with an inner center shaft creates an outer (**magenta arrow**) and inner (**blue arrow**) spiraling column of flow and ensures maximum residence time for pollutant travel between the inlet and outlet.

Oil, trash and other floating pollutants are captured and stored on the surface of the outer spiraling column. Low energy vortex motion directs sediment into the protected sump region. Only after following a long three-dimensional flow path is the treated stormwater discharged from the outlet pipe. Maintenance ports at ground level provide access for easy inspection and clean-out.

Downstream Defender®

Drainage Profile

The Downstream Defender® is designed with a submerged tangential inlet to minimize turbulence within the device. Turbulence increases system headlosses and reduces performance by keeping pollutant particles in suspension.

The inlet elevation of the Downstream Defender® is located one inlet pipe diameter lower than the elevation of the outlet invert (Fig.2). This arrangement ensures that influent flows are introduced to the treatment chamber quiescently below the water surface elevation, minimizing turbulence.

The unique flow-modifying internal components also minimize hydraulic losses. There are no internal weirs or orifices: large clear openings ensure low headloss at peak flow rates with little risk of blockages that cause upstream flooding.

Sizing & Design

The Downstream Defender® can be used to meet a wide range of stormwater treatment objectives. It is available in 5 precast models that fit easily into the drainage network (Table 1). Selection and layout of the appropriate Downstream Defender® model depends on site hydraulics, site constraints and local regulations. Both online (Fig.3a) and offline (Fig.3b) configurations are common.

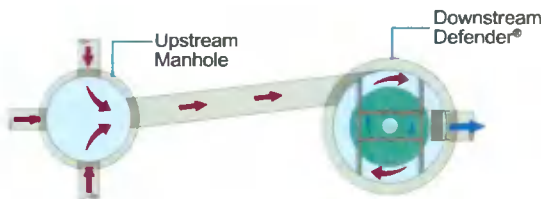


Fig.3a The Downstream Defender® in an online configuration.

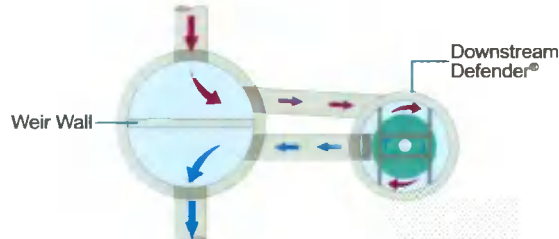


Fig.3b The Downstream Defender® in an offline configuration.

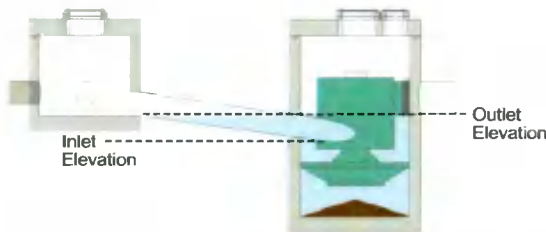


Fig.2 The Downstream Defender® has a submerged inlet that reduces headloss and improves efficiency of pollutant capture.



Free Stormwater Sizing Tool

This simple online tool will recommend the best separator, model size and online/offline arrangement based on site-specific data entered by the user.

Go to hydro-int.com/sizing to access the tool.

Call 1 (800) 848-2706 to schedule an inspection and cleanout or learn more at hydro-int.com/service



Table 1. Downstream Defender® Design Chart.

Model Number and Diameter		Peak Treatment Flow Rate		Maximum Pipe Diameter		Oil Storage Capacity		Sediment Storage Capacity		Minimum Distance from Outlet Invert to Top of Rim		Standard Height from Outlet Invert to Sump Floor	
(ft)	(m)	(cfs)	(L/s)	(in)	(mm)	(gal)	(L)	(yd³)	(m³)	(ft)	(m)	(ft)	(m)
4	1.2	3.0	85	12	300	70	265	0.70	0.53	2.8	0.85	4.1	1.25
6	1.8	8.0	227	18	450	216	818	2.10	1.61	3.2	0.98	5.9	1.80
8	2.4	15.0	425	24	600	540	2,044	4.65	3.56	4.2	1.28	7.7	2.35
10	3.0	25.0	708	30	750	1,050	3,975	8.70	6.65	5.0	1.52	9.4	2.85
12*	3.7	38.0	1,076	36	900	1,770	6,700	14.70	11.24	5.6	1.71	11.2	3.41

*Not available in all areas. Contact Hydro International for details.

Hydro International, 94 Hutchins Drive, Portland, ME 04102
 Tel: (207) 756-6200 Fax: (207) 756-6212
 Email: stormwaterinquiry@hydro-int.com Web: www.hydro-int.com

Stormwater Solutions
hydro-int.com/dsdefender

DDSS1604



CR CONSULTING

1991-2000

Appendix D:

South Dublin County Council Code of Practice

6

SDCC Greater Dublin Regional Drainage Code of Practice Pre Planning Guidance

The guiding documents are the Greater Dublin Strategic Drainage Study (GDSDS) and the Greater Dublin Regional Code of Practice for Drainage Works (C of P), available at <http://www.sdcc.ie/sites/default/files/publications/greater-dublin-regional-code-of-practice-for-drainage-works.pdf>

Maps of the mains foul and surface water drainage networks may be obtained, if available, for required locations in South Dublin County Council by emailing: servicemaps@sdublincoco.ie

1. Foul and surface water systems to be designed to discharge to separate pipe networks.
2. Fully detailed drawings showing plan and cross-sectional views of surface and foul networks shall be submitted.
3. The following details shall be submitted as part of surface water drainage calculations:
 - Total Site Area
 - Standard Average Annual Rainfall (SAAR)
 - Standard Percentage Run off value (SPR)
 - A breakdown of surface types, surface areas and surface run off coefficients. (See example of table below)

Structure Type	Area Ha (Hectares)	Runoff Coefficients
Buildings		
Green Roofs (if any)		
Roads		
Pathways		
Permeable Paving		
Grass		
Total		

4. A clear distance of 3m separation required between public sewers and all proposed structures. This clear distance will be increased if the sewer is greater than 3m deep or greater than 375mm in diameter (C of P section 6). Cross-section drawings shall be submitted where the proposed development is in close proximity to a public sewer or any drain with the potential to be taken in charge.
5. The recommended minimum depth of cover over a mains pipeline is 1.2m (C of P 11.8.2). Any utility crossing a sewer is to have a minimum clear distance of 300mm (C of P 3.13).
6. Manholes shall be located in public pavements, roads or public open spaces (C of P 9.9).
7. Developments must comply with the Building Regulations 2010 Part H.

8. Soakaways may be used for the disposal of surface water, and must comply with the BRE Digest 365. Submitted soakaway design details shall include infiltration test results. The design shall be certified to BRE Digest 365 standard by a suitably qualified person. Only clean, uncontaminated surface water shall be discharged to soakaways. The soakaway shall be located fully within the curtilage of the property and shall be:
- (i) at least 5m from any buildings, public sewers, road boundary or structures
 - (ii) generally, not within 3m of the boundary of the adjoining site
 - (iii) not in such a position that the ground below foundations is likely to be adversely affected.
 - (iv) 10m from any sewage treatment percolation area and from any watercourse / flood plain.
 - (v) Soakaways to include an overflow connection to a public surface water sewer where possible.
9. Sustainable Drainage Systems (SuDS) are a mandatory requirement for all new developments including domestic extensions and side garden developments (GDSDS chapter 4). Drainage designs shall incorporate SuDS features into drainage designs such as but not limited to the following: Green Roofs, Infiltration systems, Filter Drains/Strips, Tree pits, Swales, Ponds/Wetlands, Detention basins, Bio Retention systems, Pervious pavement, Rain Gardens, Channel Rills, Rainwater harvesting systems.
10. In the event where SuDS features are not sufficient to attenuate surface water, traditional attenuation systems may be accepted as an alternative means to attenuate water. A strong justification will need to be made in this case.
11. Surface Water Attenuation systems generally must satisfy the following requirements:
- (i) Must be at least 5m from any buildings, public sewers, road boundary or structures
 - (ii) Must generally not be within 3m of the boundary of the adjoining site
 - (iii) Must not in such a position that the ground below foundations is likely to be adversely affected.
 - (iv) Must be at least 10m from any sewage treatment percolation area and from any watercourse / flood plain.
12. Where underground attenuation systems are proposed in areas with the potential to be taken in charge by the Local Authority, South Dublin County Council will only accept **Arch Type** attenuation systems.
13. The surface water run-off from the site shall be limited to greenfield runoff and details shall be provided on how surface water up to and including the 1:100 (1%) year critical storm with climate change allowance will be dealt with on site in accordance with the GDSDS. The applicant shall also demonstrate that there will be no reduction in the quality of the surface water.
14. Where sites are located within the 1 in 1000 (0.1%) year flood extent of the OPW's CFRAM maps, the applicant shall submit details of the measures and design features to prevent/mitigate the risk of flooding to the proposed development and to adjoining lands. Compensation storage shall be provided where development is on the flood plain. Finished floor levels shall be at least 0.5m above the highest flood level occurrence at that location.
15. Buildings must be set back at least 10 metres from the top bank edge of any watercourse.

Flood Risk

1. Flood risk must be assessed and commented on for all sites. Submissions must comply with OPW Guidelines for Planning Authorities, available at:
<https://www.opw.ie/media/Planning%20System%20and%20Flood%20Risk%20Management%20Guidelines.pdf>

Water Supply

2. Submissions must comply with Irish Water's Standard Details and Code of Practice requirements available at:
<https://www.water.ie/connections/developer-services/>

Foul Water

3. Submissions must comply with Irish Water's Standard Details and Code of Practice requirements available at:
<https://www.water.ie/connections/developer-services/>

Anyone seeking pre-planning information on drainage prior to the submission of a planning application can e-mail a query to the following address: **servicemaps@sdublincoco.ie**.



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