



PROPOSED LARGE SCALE
RESIDENTIAL DEVELOPMENT AT
THE FORMER DELL EMC PREMISES,
INNISHMORE,
BALLINCOLLIG, CORK

INFRASTRUCTURE REPORT

DATE 16/02/2026

REVISION 3

JOB NO. 6709

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PROJECT NAME:

Proposed Large Scale Residential Development at the Former DELL EMC premises, Innishmore, Ballincollig, Cork

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1 Introduction

Denis O'Sullivan & Associates were engaged as Consulting Engineers for a proposed Large Scale Residential Development (LRD) at the former DELL EMC Premises, Innishmore, Ballincollig, Cork.

This Infrastructure Report has been prepared to support a planning application for the proposed construction of 132 residential units on the subject lands. The purpose of this report is to outline the infrastructural provisions associated with the development, including water supply, foul drainage, and surface water management. It sets out how the proposed development will be appropriately serviced in accordance with national and local planning policy, Uisce Éireann requirements, and relevant technical standards.

This report should be read in conjunction with the planning drawings, site layout, and all other supporting documentation submitted as part of the planning application..

1.1 Objectives

Denis O'Sullivan & Associates carried out several site investigations and their findings have been incorporated to deal with solutions to:

- Surface Water Drainage Network
- Foul Drainage Network
- Water Supply

A request for Confirmation of Feasibility was lodged with Uisce Éireann a copy of the response is included in Appendix A of this Report.

1.2 Site Location

The subject site is located at the former Dell EMC facility in Innishmore, Ballincollig, Cork. It lies within the western suburbs of Cork City, approximately 9 km from the city centre. The site is surrounded by established residential estates, including Westcliffe and Innishmore Court, and is within walking distance of Ballincollig Town Centre, which offers a wide range of retail, educational, recreational, and community services. The area is well served by public transport, with regular bus services operating along the corridor. The site can be accessed via Innishmore Road to the east, as well as the existing entrance off Mechterstadt Road to the southwest. It comprises previously developed lands that are served by existing infrastructure, making it suitable for integration into the surrounding urban context.

A snapshot of the application boundary is outlined in Figure 1.1 below.

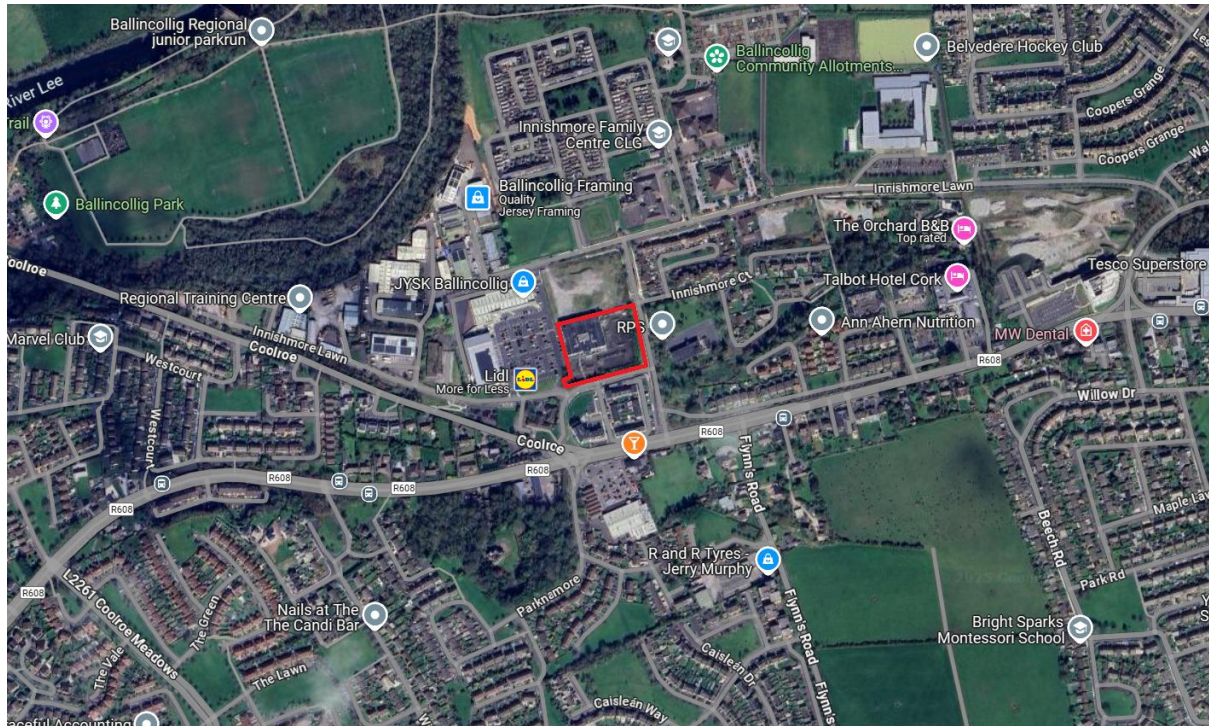


Figure 1-1 Site Location (Google Maps)

1.3 Site Description

The proposed development site comprises the lands formerly occupied by the Dell EMC facility in Innishmore, Ballincollig, Cork. It is a brownfield site, previously developed and currently vacant, with remnants of existing infrastructure and hardstanding areas still present. The site is generally rectangular in shape, with access points from Innishmore Lawn to the east and an existing entrance to the southwest. The topography of the site is relatively flat, with ground levels ranging from approximately 16.14 metres Ordnance Datum (OD) at the southwestern entrance to a low point of 15.50 metres OD towards the northeast corner. The minimal variation in levels supports ease of construction and drainage design. The site is enclosed by mature boundary treatments and benefits from existing connections to public utilities and road infrastructure.



Figure 1-2 - Site Topography

1.4 Site Geology

The site is underlain by made ground, consistent with its previous commercial use. Subsoil conditions are classified as "Made ground" with high permeability characteristics, as indicated by the Subsoil Permeability Code (H). Soil drainage is also noted as "Made," suggesting artificial or disturbed ground conditions. The vulnerability category is classified as "High," reflecting the potential for contaminants to migrate through the subsoil to underlying groundwater.

Hydrogeologically, the site falls under Setting Code 2.m, described as "H Vul: Made ground," with a recharge coefficient of 20% and an average recharge rate of approximately 138.15 mm/year. Effective rainfall in the area is estimated at 690.70 mm/year, with recharge capped at 138.10 mm/year.

The underlying bedrock is part of the Dinantian Mudstones and Sandstones (Cork Group), classified as a Locally Important Aquifer (LI) — bedrock which is moderately productive only in local zones. This geological setting is typical for the Ballincollig area and does not present any significant constraints to development, provided appropriate drainage and foundation design measures are implemented.

1.5 Proposed Development

Castle Peak Properties Ltd intend to apply for planning permission for a Large-Scale Residential Development (LRD) at this c. 1.0 ha site of the former DELL EMC premises, Innishmore, Ballincollig, Cork.

The proposed development will consist of the demolition of the existing former 2 no. storey DELL EMC building (c. 3882 sq m) and ancillary plant area, with associated site clearance works. The proposed development will provide for the 130 no. residential units, arranged in 3 no. blocks in a development ranging in height from 3 to 6 no. storeys.

The development will comprise a mix of 108 no. apartments (total apartment blocks area - c. 10,657 sqm), arranged in 2 no. blocks, providing a unit mix of 52 no. 1-bed and 56 no. 2-bed apartment units. In addition, the proposed development will provide 22 no. duplex units (total duplex block area - c. 2,159 sqm), arranged in 1 no. block, providing a unit mix of 4 no. 1-bed, 9 no. 2-bed, and 9 no. 3 beds.

Vehicular, cyclist and pedestrian access to the proposed development will be via 2 no. entrances from Innishmore Lawn (to the north east) and Mechterstadt Road (to the south west) and the development will include for pedestrian and cyclist permeability. Additionally, pedestrian access points are provided to the west of the subject site and to the south, off Mechterstadt Road.

The development will also include the provision of private, communal and public open space (including all balconies); car parking at ground floor level and undercroft; bicycle parking; internal roads and pathways; bin stores; hard and soft landscaping; boundary treatments; the provision of new surface water and foul drainage pipes and any associated pipe diversion works; retaining walls; changes in level; services provision and related ducting, piping and cabling; electric vehicle charging points; attenuation tanks; SUDS; signage; 1 no. ESB substation; wayfinding structures; public realm works including public lighting; and all site development and excavation works above and below ground. The application contains a statement setting out how the proposal will be consistent with the objectives of the Cork City Development Plan 2022-2028.



Figure 1-3 Proposed Site Layout

2 Surface Water Management

2.1 Surface Water Design

The proposed surface water drainage system has been designed to manage runoff from all hard surfaces within the development, including roadways, roofs, footpaths, and parking areas. The completed development will comprise a mix of hard paving, roofing, and soft landscaping, with the site's relatively flat topography forming a single catchment area. Surface water will be collected via a piped network and discharged through one designated outfall point to the existing stormwater network traversing the site.

To ensure compliance with best practice in sustainable drainage and environmental protection, a comprehensive Stormwater Management Plan has been developed. This plan aims to:

- Manage surface water runoff close to source
- Treat runoff on the surface for a range of contaminants
- Minimise sediment remobilisation and impacts from accidental spills
- Enhance biodiversity and local amenity

The surface water drainage strategy incorporates a range of SuDS (Sustainable Drainage Systems) features, including:

- Permeable paving to promote infiltration and reduce surface runoff
- Bio-retention planting areas to treat and filter runoff while supporting biodiversity

- Full retention petrol/oil interceptors to treat runoff from roadways and parking areas
- Attenuation tanks to store excess runoff and regulate discharge rates
- Hydrobrake flow control devices to restrict discharge to greenfield runoff rates (Q-bar)

Surface water runoff from roofs and paved areas will be directed to the piped network via conventional gullies and downpipes. The runoff will then pass through the attenuation and treatment systems before being discharged to the existing Council stormwater asset via a newly constructed surface water manhole. The design ensures that discharge rates are restricted to pre-development (greenfield) levels, thereby mitigating flood risk and protecting downstream infrastructure.

The SuDS features have been designed not only for hydraulic performance but also to contribute positively to the visual character of the development, enhance local amenity, and support ecological value.

2.2 Surface Water Drainage Network

The surface water drainage network for the proposed development was modelled using the Autodesk InfoDrainage software application. The surface water pipe lengths, slopes, contributing impermeable areas, upstream invert levels, upstream cover levels and pipe diameters were entered into the model using the drawings supplied.

2.3 Design Criteria:

The proposed surface water drains have been designed in accordance with the Greater Dublin Strategic Drainage Study (GDSDS), the Department of the Environment's Recommendations for Site Development Works for Housing Areas, the Department of the Environment's Building Regulations "Technical Guidance Document Part H Drainage and Waste Water Disposal" and BS EN 752: 2008 Drain and Sewer Systems Outside Buildings.

• Return period for pipe work design	2 years
• Return period for attenuation design	100 years
• Soil Type	3
• Allowable Outflow	2.7 l/s
• Time of entry	5 minutes
• M5 – 60	18.8 mm
• Ratio "r"	0.25
• Pipe Friction (Ks)	0.009 mm
• Minimum Velocity (based on pipe flowing full)	1.0 m/s
• Rainfall Runoff from Roads and Footpaths	100%
• Rainfall Runoff from Roofs	80%
• Rainfall Runoff from Driveways	80%
• Rainfall Runoff from Green Areas	20%
• Rainfall Depth Factored for Climate Change (as per GDSDS)	20%

(in accordance with GDSDS Volume 2, Chapter 6, Table 6.2 – see below)

Climate Change Category	Characteristics
River flows	20% increase in flows for all return periods up to 100 years
Sea level	400+mm rise (see Climate Change policy document for sea levels as a function of return period)
Rainfall	10% increase in depth (factor all intensities by 1.1) Modify time series rainfall in accordance with the GDSDS climate change policy document

Table 6.2 *Climate Change Factors to be Applied to Drainage Design*

The global variables required for the model were the M5-60 and Rainfall Ratio. These two factors may be read from maps contained in the Wallingford procedure. They enable the program to calculate the intensity, duration and frequency characteristics of storms.

M5-60 is the rainfall depth based on a 60-minute storm of 5 years return period. Ratio R is the ratio of the 60-minute storm to the 2-day storm for the 5-year return period events. These values are as follows:

- M5-60 = 18.8mm
- Ratio R = 0.25

InfoDrainage generates design storms using the principles set out in the Flood Studies Report (NERC 1975).

A summer rainfall profile was used for the design of the pipework and a winter rainfall profile was used for the design of the storm water attenuation to give the critical design. A summer profile gives higher rainfall intensities and results in higher runoff rates and is used to determine the required capacity of the pipework. A winter rainfall profile gives a flatter more sustained profile and results in higher runoff volumes and is used to determine the attenuation/storage requirements.

The surface water drainage network was assessed for compliance with maximum and minimum velocities, pipe length etc. The network was designed to ensure velocities in the network and pipe gradients did not exceed the maximum velocity of 3.0m/s. The minimum velocity allowed was 0.75m/s.

The design of the drainage network was assessed using events with a range of different durations to determine the critical event for each return period analysed as follows:

- 1 in 2-year return period events were used to ensure that the system did not surcharge;
- 1 in 100 year return period events were used to ensure that flooding did not occur.

The layout of the proposed storm water network is shown on the Proposed Stormwater & Foul Sewer Layout Plan Drawing No. 6709-0020.

2.3.1 Pre-Development Conditions

The catchment area for the runoff of this proposed development is 1 hectare (ha). This is based on a developable area. For this development, the permissible outflow is calculated using the estimation method contained in the Institute of Hydrology Report No. 124: Flood estimation for small catchments.

$$QBAR = 0.00108 \times (AREA)^{0.89} \times (SAAR)^{1.17} \times (SOIL)^{2.17}$$

QBAR = The Mean Annual Peak Flow (Permissible outflow in m³.sec

AREA = Area of the Catchment (site) in km²

SAAR = Standard Annual Average Rainfall

SOIL = Soil index

As the development is smaller than 50 ha, the analysis for determining the permissible outflow uses 50 ha in the formula and linearly interpolates the flow rate value based on the ratio of the development to 50 ha. This is a statistical based method within the Microdrainage Software utilizing the Regional Flood Frequency by Catchment Characteristics to give the Index Flood (QBAR)

Design summary sheets for the QBAR value are contained in Appendix B.

However as requested in the Section 247 meeting the permissible outflow utilised was the calculated 1 in 1 year greenfield run off rate.

The Mean Annual Peak Flow (permissible outflow) was calculated for the particular design development areas.

The allowable runoff estimation method utilises IH 124 and the Soil Index value taken from the InfoDrainage Design Package mapping system gives a Soil Index of 0.3.

2.3.2 Post-Development Conditions

The stormwater management plan adopted for the particular development involves using an attenuation tank/basin located in the green areas within the courtyard. All surface water runoff arising from the paved development will be drained away from the site. The attenuation tanks will be designed for a 100-year storm event. The maximum discharge from the tanks will be limited to calculated permissible runoff (QBAR) for the catchment area and is shown in Table 2-1 below;

Tank Ref	Restricted Outlet
Tank No. 1	2.7 l/s

Table 2-1

Based on the proposed development design there will be reduction in the land surface. Therefore, due to this proposed change a corresponding increase in the peak rate of surface runoff from the site will arise during times of high rainfall.

The flood peak runoff rates from the post-development grassy permeable area (Q_p grass) and the post-development impervious area (Q_p imp.) using the Rational Method (100% impermeability of

hard surfaces) are calculated using InfoDrainage. The Sources Control Module of the InfoDrainage Software was used to design the attenuation tank capacities. This module also provides the critical storm duration for the attenuation tank during the design process.

It should be noted that climate change has been accounted for in the design. As per volume 5 of the GDSDS a factor of 20% has been incorporated into the design.

2.4 Attenuation Tank

2.4.1 Volume of Attenuation

The proposed attenuation system attenuates surface water to restrict the outflow to the equivalent to the 1 in 1 year greenfield run off. This ensures the development will not give rise to any impact downstream of the site

The system will be impermeable reinforced concrete underground tank (tanked) with no infiltration of the runoff to the ground. The design and location of the tank has been carefully considered and will be located under the open space area within the courtyard.

The capacity of the attenuation tanks is designed to cater for the capacity required for a 1 in 100-year ARI event.

2.5 Hydrocarbon Treatment

To ensure protection of downstream watercourses and compliance with environmental standards, a full retention petrol interceptor will be installed as part of the surface water drainage system. This device is designed to remove hydrocarbon pollutants—such as petroleum and diesel—from rainwater runoff, particularly from trafficked areas including roads and parking zones.

Petrol interceptors operate on the principle that hydrocarbons are less dense than water and therefore float on its surface. Contaminated runoff enters the interceptor and is directed into a series of three interconnected chambers. The first chamber allows hydrocarbons and other floating debris to accumulate on the surface, while cleaner water flows beneath the surface through a dip pipe into the second chamber. This process significantly reduces the concentration of hydrocarbons.

Any residual contaminants that pass into the second chamber are further separated before the water enters the third chamber, which is designed to be virtually free of hydrocarbons. The final outlet pipe is also a dip pipe, ensuring that only clean water is discharged from the system. This multi-stage separation process ensures that surface water leaving the site is free from fuel-based pollutants and suitable for discharge to the public stormwater network and the adjoining Douglas River Estuary.

Given that the site comprises a single catchment area, all runoff from trafficked surfaces will be routed through the petrol interceptor prior to entering the attenuation and flow control systems. Hydrocarbon specifications and performance criteria for the interceptor are summarised in Table 2.5 of this report.

Tank Reference	Petrol Interceptor Make & Model	Impermeable Treatment Area (m ²)	Oil Storage (ltrs)	Silt Storage (Ltrs)
Tank No. 1	Kingspan NSBE010	5560	150	1000

Table 2-2 Hydrocarbon Specifications

2.6 Silt Control

The proposed petrol interceptor from Kingsapn also includes a silt storage capacity, see table 2-2 in addition to the oil storage capacity that allow silt to be collected in the interceptor prior to discharge to the proposed attenuation tanks. This silt build-up can then be removed from the tanks. Additional silt storage has been incorporated into the manholes and rain water gullies located around the site.

2.7 Construction & Operational Stage Run-Off

Both construction and operational phase surface-water drainage from the proposed development site will ultimately discharge into the adjacent stormwater network. Where surface-water run-off occurs at the site during the construction phase, it will be managed and controlled prior to discharge into the environment by implementing standard environmental controls. Temporary banks shall be in place to ensure that runoff is directed to a temporary detention pond which shall be provided to reduce the amount of silt in the run-off. The location of these banks and temporary detention ponds will be indicated and confirmed in a Construction Stage Construction & Environmental Management Plan. The development will also include the construction of a gravity surface-water drainage network throughout the site. The surface-water drainage network will include the installation of dedicated attenuation facilities upstream of proposed outfall to the public network and adjoining watercourse, to attenuate discharges to the undeveloped Greenfield run-off rates with the operation of proprietary hydro-brake flow-control devices. The attenuation facility is sized on the basis of a design storm with a 100-year return period and an additional 20% allowance for the effect of climate change.

3 Foul Sewer System

3.1 Foul Sewer Design

A Pre-Connection Enquiry was submitted to Uisce Éireann. The Uisce Éireann Reference Number for this enquiry is CDS24010552. It is proposed to connect to the existing foul sewer on Innishmore lawn. The response to this Enquiry was issued by Uisce Éireann on 03rd April 2025. This confirmed that, subject to a valid connection agreement being put in place, the proposed connection to the Uisce Éireann network could be facilitated.

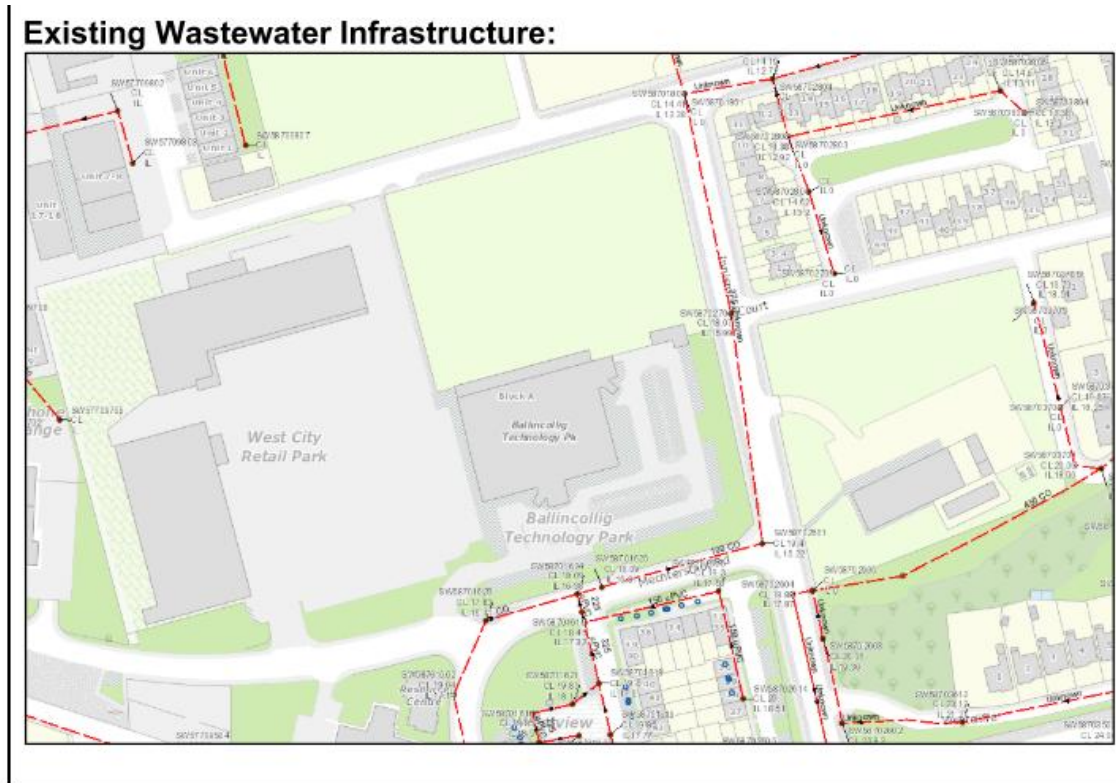


Figure 3-1 Existing Services Layout (Cork City Council)

The foul sewer has been designed using the InfoDrainage package. The foul network design addresses present day design issues and can view velocities at Full Bore, Proportional Depth and 1/3 flow. The model was analysed and amended until the results met with the design criteria specified.

The network has been designed to achieve self-cleansing velocities at 1/3 flow whilst maintaining minimum gradients.

3.1.1 Development Breakdown

130 No. Dwellings

Section 3.6 of The Irish Water Code of Practice Wastewater Infrastructure states that for the gravity sewers shall be designed to carry a minimum wastewater volume of 6 times the dry weather flow (6DWF) which is to be taken as 450 litres per dwelling

$$\text{Loading} = (130) (450) / (24) (60) (60) = 0.677 \text{ litres/second}$$

$$6\text{DWF} = 4.06 \text{ litres/second}$$

This is based on the unit schedule submitted by the architect. The foul waste within the development will be collected via an internal gravity network and will discharge to the public foul sewer on the Innishmore Lawn.

The foul water network model was built and analysed using the InfoDrainage Software application and was assessed to ensure velocities maintained a self-cleansing velocity. The system will consist of an internal gravity network discharging to the existing Uisce Éireann asset.

All works will be in accordance with Uisce Éireann specifications and requirements.

All works will be in accordance with Uisce Éireann Code of Practice for Wastewater Supply & the Wastewater Infrastructure Standard Details Document Number: IW-CDS-5030-01.

4 Water Supply

As with the drainage network, a Pre-Connection Enquiry was submitted to Uisce Éireann under Reference No. CDS24010552. This confirmed that, subject to a valid connection agreement being put in place, the proposed connection to the Uisce Éireann network could be facilitated.

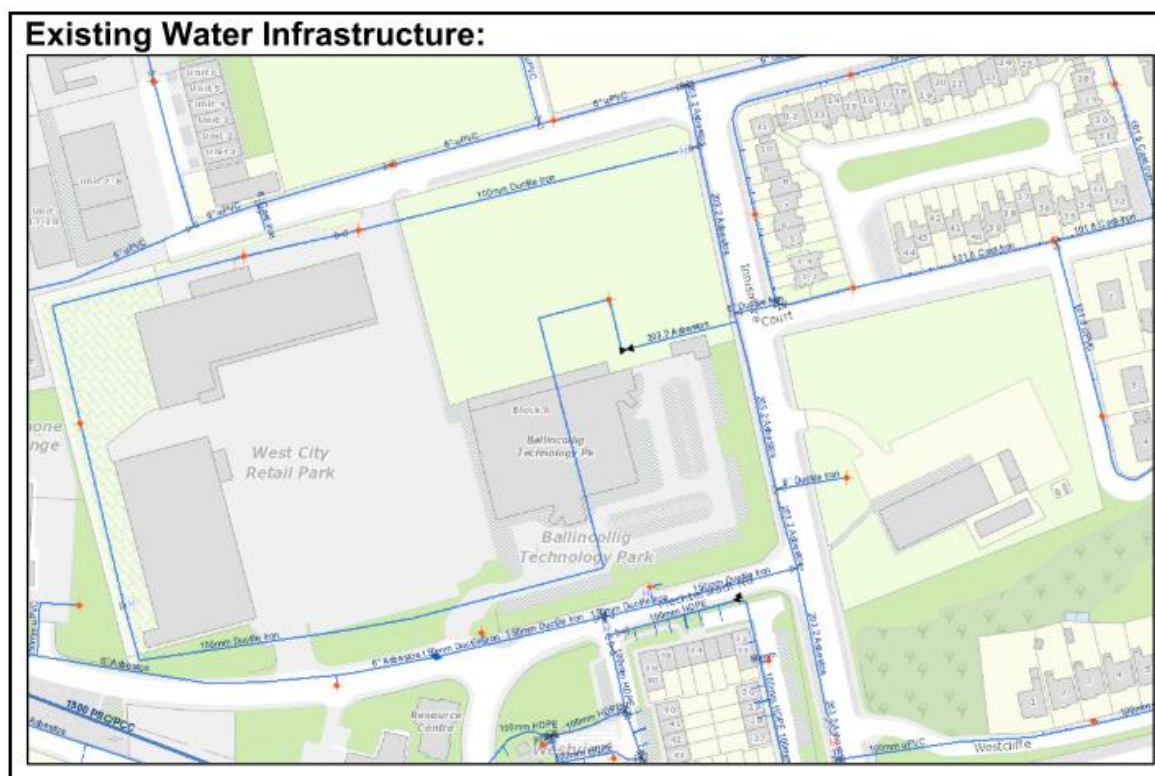


Figure 4-1 Uisce Éireann Utility Network

It is proposed to provide a new 100mm (internal diameter) HDPE connection to the public watermain with associated valves and metering requirements. Internally within the development it is proposed to have a 100mm Ø branches and loops with associated hydrants, valves and metering requirements.

Water distribution supply to each building will be sized to cater for the requirements of those particular uses. Metered connections will be made to the main in accordance with Uisce Éireann specifications and details.

The layout of the proposed watermain network is shown on the Proposed Watermain Layout Plan DOSA Drawing No. 6709-0030.

All works will be in accordance with Uisce Éireann Code of Practice for Water Supply & the Water Infrastructure Standard Details Document Number: IW-CDS-5020-01.

5 Summary of Results

The storm water network was built and analysed using the InfoDrainage Software application and were assessed for a 1 in 2 year storm & 1 in 100 year storm. A summary of the results is shown in Tables 5.1 below and in the InfoDrainage outputs in the Appendices.

The global variables, pipeline and manhole schedules for both the surface water network and foul network were printed and are included in the Appendices. These show the basic pipe details such as pipe length, diameter, roughness coefficient, upstream invert, velocity, etc.

Attenuation Area Reference	Storm Event	Results
Attenuation Tank	1 in 2 year	No surcharge of the stormwater network
	1 in 100 year	Surcharge

Table 5-1 Summary of Surcharge and Flooding

The stormwater system is designed to ensure no surcharge occurs during a 1 in 2-year return period event.

No flooding was predicted to occur for the 1 in 100-year return period event. Surcharging and flood risk occurred for a number of critical storm events but this is allowed and does not compromise the network.

Tank Ref	Restricted Outlet	Storage Type	Capacity (m ³)
Tank No. 1	2.7 l/s	Concrete tank (without infiltration)	350

Table 5-2 Outlet Control, Storage Type & Capacity Summary

The foul water network model was built and analysed using the Micro-drainage Software application and was assessed to ensure velocities maintained a self-cleansing velocity. The system will consist of an internal gravity network discharging to the existing Irish Water asset.

The water supply design and layout has been designed as per Irish Water Design Codes.

Appendix A –Uisce Éireann Confirmation of Feasibility

CONFIRMATION OF FEASIBILITY

Stephen O'Donoghue

Joyce House
Barrack Square
Ballincollig
Co. Cork
P31 KP84

3 April 2025

**Our Ref: CDS24010552 Pre-Connection Enquiry
Inishmore, Ballincollig, Co. Cork**

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

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 Housing Development of 160 unit(s) at Inishmore, Ballincollig, Co. Cork **(the Development)**.

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

- **Water Connection** - Feasible without infrastructure upgrade by Uisce Éireann:

Please note that according to our records there is an existing watermain running through this site (see Section B). It will not be permitted to build over any Uisce Éireann infrastructure. The layout of the development must ensure that this pipe is protected and adequate separation distances are provided between Uisce Éireann infrastructure and any structures on site. Alternatively you may enter into a diversion agreement and divert the pipe to accommodate your development. If you wish to proceed with this option, please make contact with Uisce Éireann Diversions team at Diversions@water.ie. It will be necessary to provide a wayleave over this pipe to the benefit of Uisce Éireann and ensure that it is accessible for maintenance.

- **Wastewater Connection** - Feasible without infrastructure upgrade by Uisce Éireann

Stiúthóirí / 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.

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?

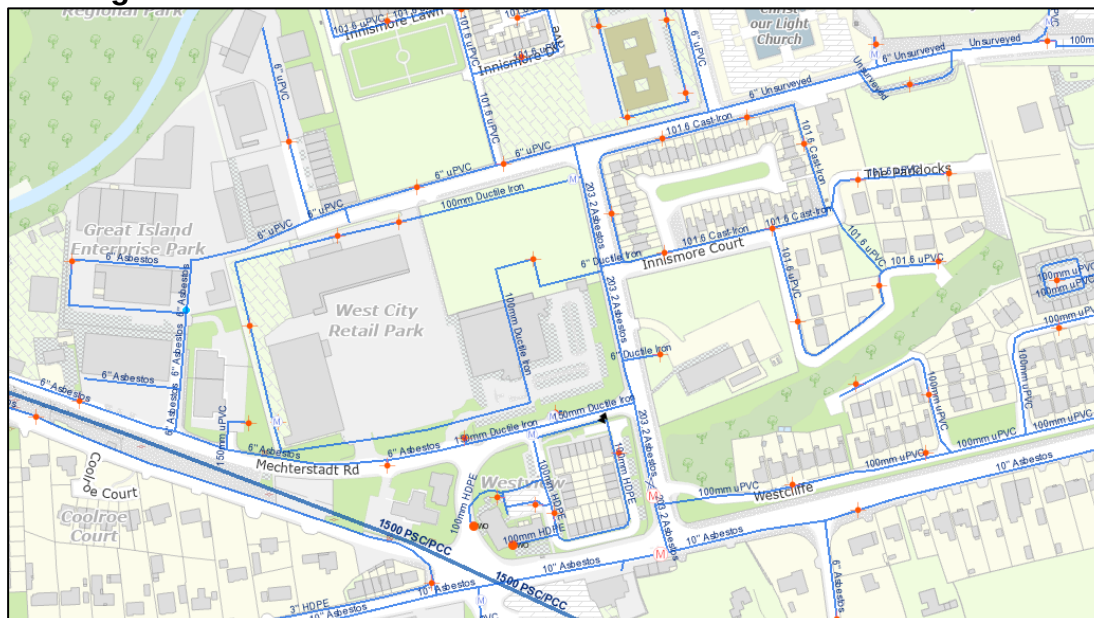
Do you need a contract to connect?	• Yes, a contract is required to connect. This letter does not constitute a contract or an offer in whole or in part to provide a connection to Uisce Éireann's network(s). • Before the Development can connect to Uisce Éireann's network(s), you must submit a connection application <u>and be granted and sign</u> 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 <i>the Uisce Éireann Connections and Developer Services Standard Details and Codes of Practice</i>, 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)

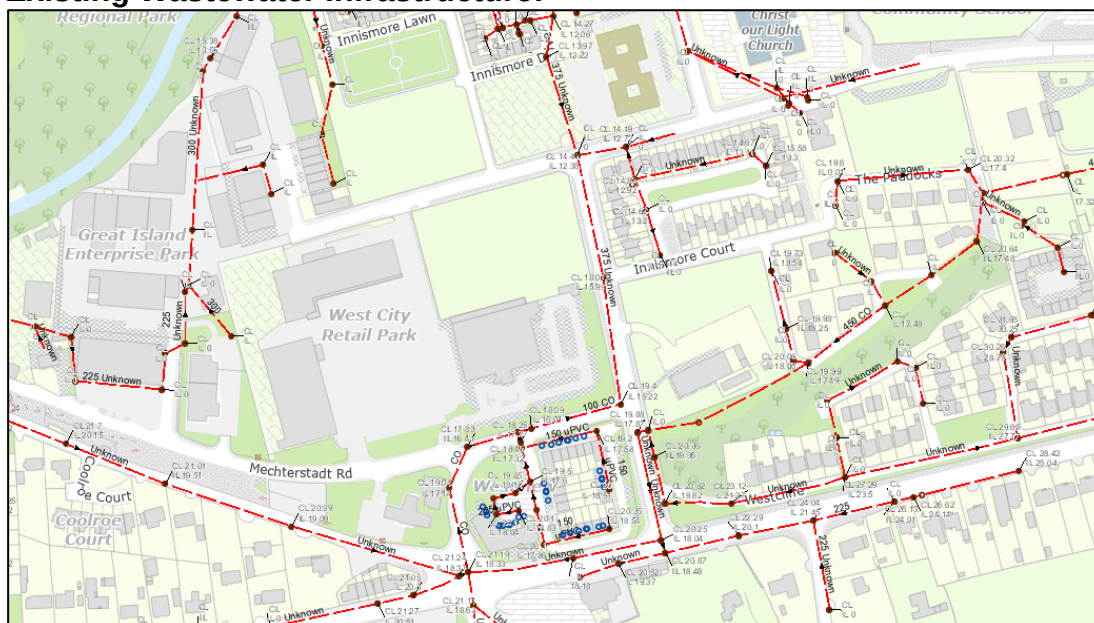
Section B – Details of Uisce Éireann’s Network(s)

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

Existing Water Infrastructure:



Existing Wastewater Infrastructure:



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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.

Appendix B – Allowable Runoff Value

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 02/10/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Title: UK and Ireland Rural Runoff Calculator	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



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ICP SUDS / IH 124

Details

Method	ICP SUDS
Area (m²)	9550.00
SAAR (mm)	1160.0
Soil	0.3
Region	Ireland South
Urban	0
Return Period (years)	1

Results

Region	QBAR Rural (L/s)	QBAR Urban (L/s)	Q 1 (years) (L/s)	Q 1 (years) (L/s)	Q 30 (years) (L/s)	Q 100 (years) (L/s)
Ireland South	3.1	3.1	2.7	2.7	5.0	5.8

Appendix C – 1 in 1 yr design sheet

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork		Date: 02/10/2025	
		Designed by: A.G.	Checked by: S.O'D.
		Approved By: C.O'S.	
Report Details: Type: Inflows Summary Storm Phase: Storm		Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84	



FSR: 1 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (m²)	Max. Inflow (L/s)	Total Inflow Volume (m³)
C04	FSR: 1 years: +0 %: 15 mins: Winter	624.12	6.1	2.799
C02	FSR: 1 years: +0 %: 15 mins: Winter	750.18	6.7	3.074
C07	FSR: 1 years: +0 %: 15 mins: Winter	343.74	3.0	1.364
C05	FSR: 1 years: +0 %: 15 mins: Winter	962.30	11.1	5.095
C01	FSR: 1 years: +0 %: 15 mins: Winter	468.16	3.1	1.432
C08	FSR: 1 years: +0 %: 15 mins: Winter	876.23	0.8	0.365
C10	FSR: 1 years: +0 %: 15 mins: Winter	1076.97	7.3	3.349
C11	FSR: 1 years: +0 %: 15 mins: Winter	1712.48	10.7	4.934
C06	FSR: 1 years: +0 %: 15 mins: Winter	224.31	0.5	0.254
C03	FSR: 1 years: +0 %: 15 mins: Winter	1171.14	8.1	3.741
C09	FSR: 1 years: +0 %: 15 mins: Winter	1155.24	6.8	3.143
Green Roof	FSR: 1 years: +0 %: 15 mins: Summer	185.21	0.0	0.000

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork		Date: 02/10/2025	
Report Details: Type: Junctions Summary Storm Phase: Storm		Designed by: A.G.	Checked by: S.O'D.
		Approved By: C.O'S.	
		Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84	



FSR: 1 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Elevati on (m)	Invert Elevati on (m)	Max. Elevati on (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
SW.004	FSR: 1 years: +0 %: 15 mins: Winter	16.820	15.440	15.482	0.042	8.1	0.047	0.000	8.0	3.734	OK
SW.006	FSR: 1 years: +0 %: 15 mins: Winter	16.100	14.750	14.908	0.158	30.6	0.178	0.000	28.1	16.258	OK
SW.007	FSR: 1 years: +0 %: 15 mins: Winter	15.980	14.830	14.924	0.094	14.5	0.107	0.000	12.5	7.498	OK
SW.003	FSR: 1 years: +0 %: 1440 mins: Winter	16.250	13.700	14.851	1.151	5.9	1.302	0.000	5.9	199.964	OK
SW.005	FSR: 1 years: +0 %: 15 mins: Winter	16.420	14.920	15.019	0.099	19.0	0.112	0.000	18.1	8.766	OK
SW.002	FSR: 1 years: +0 %: 15 mins: Winter	16.000	14.850	14.955	0.105	17.2	0.118	0.000	15.4	8.287	OK
SW.010	FSR: 1 years: +0 %: 1440 mins: Winter	16.340	14.490	14.525	0.035	2.5	0.040	0.000	2.5	189.718	OK
SW.008	FSR: 1 years: +0 %: 1440 mins: Winter	16.230	14.600	14.851	0.251	5.9	0.284	0.000	5.9	199.627	Surcharged
SW.001	FSR: 1 years: +0 %: 15 mins: Winter	16.000	15.040	15.113	0.073	10.7	0.083	0.000	10.3	4.889	OK
SW.009	FSR: 1 years: +0 %: 1440 mins: Winter	16.500	14.540	14.851	0.311	2.5	0.352	0.000	2.5	189.748	Surcharged
SW.011	FSR: 1 years: +0 %: 1440 mins: Winter	16.900	14.330	14.370	0.040	2.5	0.045	0.000	2.5	189.685	OK
SW.012	FSR: 1 years: +0 %: 240 mins: Winter	16.400	14.200	14.219	0.019	2.5	0.021	0.000	2.5	49.972	OK
Ex.SW.001	FSR: 1 years: +0 %: 15 mins: Summer	18.860	15.650	15.650	0.000	0.0	0.000	0.000	0.0	0.000	OK
EX.SW.002	FSR: 1 years: +0 %: 240 mins: Winter	16.400	13.950	13.968	0.018	2.5	0.000	0.000	2.5	49.972	OK
IC002	FSR: 1 years: +0 %: 15 mins: Winter		15.390	15.450	0.060	9.2			8.3	4.492	OK
IC006	FSR: 1 years: +0 %: 15 mins: Winter		14.825	14.863	0.038	3.0			2.9	1.367	OK
SW.007a	FSR: 1 years: +0 %: 15 mins: Winter	16.100	15.150	15.194	0.044	8.3	0.050	0.000	8.0	4.486	OK
IC001	FSR: 1 years: +0 %: 15 mins: Winter		15.650	15.711	0.061	6.7			6.1	3.076	OK
IC009	FSR: 1 years: +0 %: 15 mins: Winter		14.955	15.011	0.056	6.5			6.3	3.148	OK
SW.002a	FSR: 1 years: +0 %: 15 mins: Winter	16.000	14.980	15.040	0.060	7.3	0.068	0.000	7.0	3.332	OK
IC007	FSR: 1 years: +0 %: 1440 mins: Winter		14.730	14.851	0.121	0.3			0.3	9.255	OK
IC008	FSR: 1 years: +0 %: 15 mins: Winter		15.060	15.120	0.060	6.8			6.5	3.141	OK
SW.003a	FSR: 1 years: +0 %: 15 mins: Winter	16.250	14.785	14.906	0.121	21.6	0.137	0.000	19.5	11.360	OK
IC005	FSR: 1 years: +0 %: 15 mins: Winter		15.300	15.310	0.010	0.5			0.5	0.252	OK
IC004	FSR: 1 years: +0 %: 15 mins: Winter		15.475	15.493	0.018	0.5			0.5	0.253	OK

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 02/10/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Details: Type: Stormwater Controls Summary Storm Phase: Storm	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



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FSR: 1 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
Tank	FSR: 1 years: +0 %: 1440 mins: Winter	14.851	14.851	0.310	0.310	5.9	108.625	0.000	0.000	2.5	189.776	69.025	OK

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork		Date: 02/10/2025	
		Designed by: A.G.	Checked by: S.O'D.
		Approved By: C.O'S.	
Report Details: Type: Connections Summary Storm Phase: Storm		Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84	



FSR: 1 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
P E1-12	FSR: 1 years: +0 %: 15 mins: Summer	Pipe	Ex.SW.001	SW.012	18.860	15.650	0.005	0.000	0.0	0	0.0	OK
P 7-6	FSR: 1 years: +0 %: 15 mins: Winter	Pipe	SW.007	SW.006	15.980	14.924	0.123	7.498	0.6	0.29	12.5	OK
P 3-8	FSR: 1 years: +0 %: 15 mins: Winter	Pipe	SW.003	SW.008	16.250	14.850	0.133	28.139	2.0	0.52	48.6	OK
P 5-6	FSR: 1 years: +0 %: 15 mins: Winter	Pipe	SW.005	SW.006	16.420	15.019	0.126	8.766	0.8	0.4	18.1	OK
P 6-3	FSR: 1 years: +0 %: 15 mins: Winter	Pipe	SW.006	SW.003	16.100	14.908	0.154	16.258	1.0	0.65	28.1	OK
P 10-11	FSR: 1 years: +0 %: 960 mins: Winter	Pipe	SW.010	SW.011	16.340	14.525	0.038	151.366	0.6	0.05	2.5	OK
P 4-5	FSR: 1 years: +0 %: 15 mins: Winter	Pipe	SW.004	SW.005	16.820	15.482	0.066	3.734	0.8	0.08	8.0	OK
P 9-10	FSR: 1 years: +0 %: 1440 mins: Winter	Pipe	SW.009	SW.010	16.500	14.851	0.038	189.737	0.6	0.06	2.5	Surcharged
P 11-12	FSR: 1 years: +0 %: 240 mins: Winter	Pipe	SW.011	SW.012	16.900	14.370	0.029	50.079	0.8	0.06	2.5	OK
P 2-3a	FSR: 1 years: +0 %: 15 mins: Winter	Pipe	SW.002	SW.003a	16.000	14.955	0.113	8.287	0.8	0.34	15.4	OK
P 1-2	FSR: 1 years: +0 %: 15 mins: Winter	Pipe	SW.001	SW.002	16.000	15.113	0.086	4.889	0.7	0.23	10.3	OK
P 12-E2	FSR: 1 years: +0 %: 240 mins: Winter	Pipe	SW.012	EX.SW.002	16.400	14.219	0.019	49.972	0.8	0	2.5	OK
P 8-T	FSR: 1 years: +0 %: 15 mins: Winter	Pipe	SW.008	Tank	16.230	14.726	0.085	28.143	4.3	0.39	48.1	OK
P T-9	FSR: 1 years: +0 %: 360 mins: Winter	Pipe	Tank	SW.009	16.230	14.790	0.225	73.759	0.1	0.16	2.5	Surcharged
P I5-B	FSR: 1 years: +0 %: 15 mins: Winter	Pipe	IC005	SW.007	16.150	15.310	0.042	0.252	0.2	0	0.5	OK
P 7a-7	FSR: 1 years: +0 %: 15 mins: Winter	Pipe	SW.007a	SW.007	16.100	15.194	0.064	4.486	0.9	0.09	8.0	OK
P I1-I2	FSR: 1 years: +0 %: 15 mins: Winter	Pipe	IC001	IC002	16.575	15.711	0.061	3.076	0.7	0.15	6.1	OK
P I9-3a	FSR: 1 years: +0 %: 15 mins: Winter	Pipe	IC009	SW.003a	16.250	15.011	0.089	3.148	0.4	0.14	6.3	OK
P 2a-2	FSR: 1 years: +0 %: 15 mins: Winter	Pipe	SW.002a	SW.002	16.000	15.040	0.080	3.332	0.6	0.15	7.0	OK
P I7-3	FSR: 1 years: +0 %: 30 mins: Winter	Pipe	IC007	SW.003	16.250	14.843	0.128	1.901	0.3	0.04	2.0	OK
P I6-I7	FSR: 1 years: +0 %: 15 mins: Winter	Pipe	IC006	IC007	16.250	14.863	0.079	1.367	0.4	0.06	2.9	OK

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork		Date: 02/10/2025		
		Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Details: Type: Connections Summary Storm Phase: Storm		Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



P I8-I9	FSR: 1 years: +0 %: 15 mins: Winter	Pipe	IC008	IC009	16.250	15.120	0.058	3.141	0.8	0.14	6.5	OK
P I2-7a	FSR: 1 years: +0 %: 15 mins: Winter	Pipe	IC002	SW.007a	16.100	15.450	0.052	4.492	1.2	0.13	8.3	OK
P 3a-3	FSR: 1 years: +0 %: 15 mins: Winter	Pipe	SW.003a	SW.003	16.250	14.906	0.131	11.360	0.8	0.45	19.5	OK
P I4-I5	FSR: 1 years: +0 %: 15 mins: Winter	Pipe	IC004	IC005	16.250	15.493	0.014	0.253	0.5	0.01	0.5	OK

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 02/10/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Details: Type: Inflows Storm Phase: Storm	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



C04

Type : Catchment Area

Area (m²)	624.119
-----------	---------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	77.14



C02

Type : Catchment Area

Area (m²)	750.184
-----------	---------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	70.58



C07

Type : Catchment Area

Area (m²)	343.737
-----------	---------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	68.32



C05

Type : Catchment Area

Area (m²)	962.297
-----------	---------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	91.26

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 02/10/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Details: Type: Inflows Storm Phase: Storm	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



C01

Type : Catchment Area

Area (m²)	468.157
-----------	---------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	52.63



C08

Type : Catchment Area

Area (m²)	876.233
-----------	---------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	7.21



C10

Type : Catchment Area

Area (m²)	1076.971
-----------	----------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	53.59



C11

Type : Catchment Area

Area (m²)	1712.48
-----------	---------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	49.59

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 02/10/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Details: Type: Inflows Storm Phase: Storm	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



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C06

Type : Catchment Area

Area (m²)	224.313
-----------	---------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	19.47



C03

Type : Catchment Area

Area (m²)	1171.144
-----------	----------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	54.98



C09

Type : Catchment Area

Area (m²)	1155.243
-----------	----------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	46.87



Green Roof

Type : Catchment Area

Area (m²)	185.215
-----------	---------

Dynamic Sizing

Runoff Method	Green Roof
Summer Volumetric Runoff Coefficient	0.750
Winter Volumetric Runoff Coefficient	0.750
Depression Storage (mm)	50
Evapotranspiration (mm/day)	1.0
Decay Coefficiency	0.050
Time Delay (mins)	120

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 02/10/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Details: Type: Junctions Storm Phase: Storm	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



Name	Junction Type	Easting (m)	Northing (m)	Cover Elevation (m)	Depth (m)	Invert Elevation (m)	Sump Depth (m)	Chamber Shape
SW.004	Manhole	558158.097	570795.839	16.820	1.380	15.440	0.000	Circular
SW.006	Manhole	558106.848	570780.125	16.100	1.350	14.750	0.000	Circular
SW.007	Manhole	558090.977	570775.929	15.980	1.150	14.830	0.000	Circular
SW.003	Manhole	558109.729	570769.183	16.250	2.550	13.700	1.000	Circular
SW.005	Manhole	558140.009	570788.533	16.420	1.500	14.920	0.000	Circular
SW.002	Manhole	558117.446	570739.885	16.000	1.150	14.850	0.000	Circular
SW.010	Manhole	558135.825	570785.668	16.340	1.850	14.490	0.000	Circular
SW.008	Manhole	558113.969	570770.291	16.230	1.630	14.600	0.000	Circular
SW.001	Manhole	558153.840	570749.471	16.000	0.960	15.040	0.000	Circular
SW.009	Manhole	558135.862	570776.119	16.500	1.960	14.540	0.000	Circular
SW.011	Manhole	558165.566	570796.892	16.900	2.570	14.330	0.000	Circular
SW.012	Manhole	558162.484	570826.835	16.400	2.200	14.200	0.000	Circular
Ex.SW.001	Manhole	558176.818	570755.881	18.860	3.210	15.650	0.000	Circular
EX.SW.002	Manhole	558160.185	570838.215	16.400	2.450	13.950	0.000	Circular
IC002	Simple Junction	558069.615	570802.416					
IC006	Simple Junction	558109.403	570749.186					
SW.007a	Manhole	558076.046	570776.881	16.100	0.950	15.150	0.000	Circular
IC001	Simple Junction	558136.937	570819.716					
IC009	Simple Junction	558147.073	570761.118					
SW.002a	Manhole	558092.690	570733.365	16.000	1.020	14.980	0.000	Circular
IC007	Simple Junction	558104.416	570767.834					
IC008	Simple Junction	558142.766	570778.579					
SW.003a	Manhole	558114.001	570752.963	16.250	1.465	14.785	0.000	Circular
IC005	Simple Junction	558075.931	570770.164					
IC004	Simple Junction	558084.804	570736.240					

Name	Diameter (m)	Lock	Bend Loss
SW.004	1.200	None	0.00
SW.006	1.200	None	0.00
SW.007	1.200	None	0.00
SW.003	1.200	None	0.00
SW.005	1.200	None	0.00
SW.002	1.200	None	0.00
SW.010	1.200	None	0.00
SW.008	1.200	None	0.00
SW.001	1.200	None	0.00
SW.009	1.200	None	0.00
SW.011	1.200	None	0.00
SW.012	1.200	None	0.00
Ex.SW.001	1.200	None	0.00
EX.SW.002	1.200	None	0.00
IC002			0.00
IC006			0.00
SW.007a	1.200	None	0.00
IC001			0.00
IC009			0.00
SW.002a	1.200	None	0.00
IC007			0.00
IC008			0.00
SW.003a	1.200	None	0.00
IC005			0.00
IC004			0.00

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 02/10/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Details: Type: Junctions Storm Phase: Storm	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		

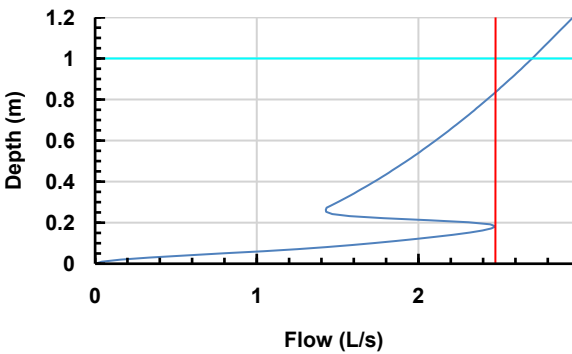


Inlets

Junction	Inlet Name	Incoming Item(s)	Bypass Destination	Capacity Type
SW.004	Inlet (1)	C03	(None)	No Restriction
SW.006	Inlet (1)	P 7-6	(None)	No Restriction
	Inlet (2)	P 5-6	(None)	No Restriction
SW.007	Inlet	C04	(None)	No Restriction
	Inlet (1)	P 7a-7	(None)	No Restriction
	Inlet (3)	P I5-B	(None)	No Restriction
SW.003	Inlet (1)	P 3a-3	(None)	No Restriction
	Inlet (2)	P 6-3	(None)	No Restriction
	Inlet (3)	C08	(None)	No Restriction
	Inlet (5)	P I7-3	(None)	No Restriction
SW.005	Inlet	P 4-5	(None)	No Restriction
	Inlet (2)	C05	(None)	No Restriction
SW.002	Inlet	P 1-2	(None)	No Restriction
	Inlet (3)	P 2a-2	(None)	No Restriction
SW.010	Inlet	P 9-10	(None)	No Restriction
SW.008	Inlet	P 3-8	(None)	No Restriction
SW.001	Inlet	C11	(None)	No Restriction
SW.009	Inlet	P T-9	(None)	No Restriction
SW.011	Inlet	P 10-11	(None)	No Restriction
SW.012	Inlet	P 11-12	(None)	No Restriction
	Inlet (1)	P E1-12	(None)	No Restriction
EX.SW.002	Inlet	P 12-E2	(None)	No Restriction
IC002	Inlet	P I1-I2	(None)	No Restriction
	Inlet (1)	C01	(None)	No Restriction
IC006	Inlet	C07	(None)	No Restriction
SW.007a	Inlet (1)	P I2-7a	(None)	No Restriction
IC001	Inlet	C02	(None)	No Restriction
IC009	Inlet (1)	P I8-I9	(None)	No Restriction
SW.002a	Inlet	C10	(None)	No Restriction
IC007	Inlet (1)	P I6-I7	(None)	No Restriction
IC008	Inlet	C09	(None)	No Restriction
SW.003a	Inlet	P 2-3a	(None)	No Restriction
	Inlet (1)	P I9-3a	(None)	No Restriction
IC005	Inlet	P I4-I5	(None)	No Restriction
IC004	Inlet	C06	(None)	No Restriction
	Inlet (2)	Green Roof	(None)	No Restriction

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork		Date: 02/10/2025		 DENIS O'SULLIVAN & ASSOCIATES CONSULTING ENGINEERS	
		Designed by: A.G.	Checked by: S.O'D.		Approved By: C.O'S.
Report Details: Type: Junctions Storm Phase: Storm		Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84			

Outlets

Junction	Outlet Name	Outgoing Connection	Outlet Type
SW.004	Outlet	P 4-5	Free Discharge
SW.006	Outlet	P 6-3	Free Discharge
SW.007	Outlet	P 7-6	Free Discharge
SW.003	Outlet	P 3-8	Free Discharge
SW.005	Outlet	P 5-6	Free Discharge
SW.002	Outlet	P 2-3a	Free Discharge
SW.010	Outlet	P 10-11	Free Discharge
SW.008	Outlet	P 8-T	Free Discharge
SW.001	Outlet	P 1-2	Free Discharge
SW.009	Outlet	P 9-10	Hydro-Brake®
	Invert Elevation (m)	14.540	
	Design Depth (m)	1.000	
	Design Flow (L/s)	2.7	
	Objective	Minimize Upstream Storage Requirements	
	Application	Surface Water Only	
	Sump Available	☐	
	Unit Reference	CHE-0075-2700-1000-2700	
			
SW.011	Outlet	P 11-12	Free Discharge
SW.012	Outlet	P 12-E2	Free Discharge
Ex.SW.001	Outlet	P E1-12	Free Discharge
IC002	Outlet	P I2-7a	Free Discharge
IC006	Outlet	P I6-I7	Free Discharge
SW.007a	Outlet	P 7a-7	Free Discharge
IC001	Outlet	P I1-I2	Free Discharge
IC009	Outlet	P I9-3a	Free Discharge
SW.002a	Outlet	P 2a-2	Free Discharge
IC007	Outlet	P I7-3	Free Discharge
IC008	Outlet	P I8-I9	Free Discharge
SW.003a	Outlet	P 3a-3	Free Discharge
IC005	Outlet	P I5-B	Free Discharge
IC004	Outlet	P I4-I5	Free Discharge

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 02/10/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Details: Type: Stormwater Controls Storm Phase: Storm	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



Tank

Type : Tank

Dimensions

Exceedance Elevation (m)	16.230
Depth (m)	1.689
Base Elevation (m)	14.541
Freeboard (mm)	0
Initial Depth (m)	0.000
Porosity (%)	100
Average Slope (1:x)	0.00
Total Volume (m³)	350.689

Depth (m)	Area (m²)	Volume (m³)
0.000	350.00	0.000
1.000	350.00	350.000

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	P 8-T
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	P T-9
Outlet Type	Free Discharge

Advanced

Perimeter	Circular
Length (m)	20.000

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 02/10/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Details: Type: Inflow Summary Storm Phase: Storm	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (m²)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analyzed (m²)
C01	IC002		Time of Concentration	468.157	52.63	0	52.63	246.391
C02	IC001		Time of Concentration	750.184	70.58	0	70.58	529.480
C03	SW.004		Time of Concentration	1171.144	54.98	0	54.98	643.895
C04	SW.007		Time of Concentration	624.119	77.14	0	77.14	481.446
C05	SW.005		Time of Concentration	962.297	91.26	0	91.26	878.192
C06	IC004		Time of Concentration	224.313	19.47	0	19.47	43.674
C07	IC006		Time of Concentration	343.737	68.32	0	68.32	234.841
C08	SW.003		Time of Concentration	876.233	7.21	0	7.21	63.176
C09	IC008		Time of Concentration	1155.243	46.87	0	46.87	541.462
C10	SW.002a		Time of Concentration	1076.971	53.59	0	53.59	577.149
C11	SW.001		Time of Concentration	1712.480	49.59	0	49.59	849.219
Green Roof	IC004		Green Roof	185.215		0		185.215
TOTAL		0.0		9550.095				5274.141

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork		Date: 02/10/2025		 DENIS O'SULLIVAN & ASSOCIATES CONSULTING ENGINEERS	
		Designed by: A.G.	Checked by: S.O'D.		Approved By: C.O'S.
Report Details: Type: Network Design Criteria Storm Phase: Storm		Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84			

Flow Options

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

FSR

Type: FSR

Return Period (years)	2.0
Region	Scotland and Ireland
M5-60 (mm)	18.8
Ratio R	0.250

Pipe Options

Lock Slope Options	None
Design Options	Minimize Excavation
Design Level	Level Crowns
Min. Cover Depth (m)	1.200
Min. Slope (1:x)	200.00
Max. Slope (1:x)	13.00
Min. Velocity (m/s)	1.0
Max. Velocity (m/s)	3.0
Use Flow Restriction	☒
Reduce Channel Depths	☒

Manhole Options

Apply Offset	☐
--------------	--------------------------

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 02/10/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Title: Rainfall Analysis Criteria	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



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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
Prefill Manhole Sumps	☐
Perform First Flush Analysis	☐

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 02/10/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Details: Type: Phase Management Storm Phase: Storm	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



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Storm
FSR: 1 years: Increase Rainfall (%): +0: 240 mins: Winter

Tables

Name	Max. Inflow (L/s)	Total Inflow Volume (m³)	Max. Outflow (L/s)	Total Outflow Volume (m³)
EX.SW.002			2.5	49.972
TOTAL	17.3	99.248	2.5	49.972

Appendix D – 1 in 2 yr design sheet

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork		Date: 02/10/2025	
		Designed by: A.G.	Checked by: S.O'D.
		Approved By: C.O'S.	
Report Details: Type: Inflows Summary Storm Phase: Storm		Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84	



FSR: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (m²)	Max. Inflow (L/s)	Total Inflow Volume (m³)
C04	FSR: 2 years: +0 %: 15 mins: Winter	624.12	7.3	3.371
C02	FSR: 2 years: +0 %: 15 mins: Winter	750.18	8.1	3.710
C07	FSR: 2 years: +0 %: 15 mins: Winter	343.74	3.6	1.642
C05	FSR: 2 years: +0 %: 15 mins: Winter	962.30	13.4	6.151
C01	FSR: 2 years: +0 %: 15 mins: Winter	468.16	3.7	1.726
C08	FSR: 2 years: +0 %: 15 mins: Winter	876.23	1.0	0.443
C10	FSR: 2 years: +0 %: 15 mins: Winter	1076.97	8.8	4.039
C11	FSR: 2 years: +0 %: 15 mins: Winter	1712.48	12.9	5.947
C06	FSR: 2 years: +0 %: 15 mins: Winter	224.31	0.7	0.305
C03	FSR: 2 years: +0 %: 15 mins: Winter	1171.14	9.8	4.511
C09	FSR: 2 years: +0 %: 15 mins: Winter	1155.24	8.2	3.793
Green Roof	FSR: 2 years: +0 %: 1440 mins: Summer	185.21	0.0	0.459

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork		Date: 02/10/2025	
Report Details: Type: Junctions Summary Storm Phase: Storm		Designed by: A.G.	Checked by: S.O'D.
		Approved By: C.O'S.	
		Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84	



FSR: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Elevati on (m)	Invert Elevati on (m)	Max. Elevati on (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
SW.004	FSR: 2 years: +0 %: 15 mins: Winter	16.820	15.440	15.486	0.046	9.8	0.052	0.000	9.6	4.504	OK
SW.006	FSR: 2 years: +0 %: 15 mins: Winter	16.100	14.750	14.931	0.181	36.5	0.205	0.000	33.2	19.640	OK
SW.007	FSR: 2 years: +0 %: 15 mins: Winter	15.980	14.830	14.947	0.117	17.6	0.133	0.000	14.6	9.050	OK
SW.003	FSR: 2 years: +0 %: 1440 mins: Winter	16.250	13.700	14.917	1.217	6.8	1.377	0.000	6.8	231.454	OK
SW.005	FSR: 2 years: +0 %: 15 mins: Winter	16.420	14.920	15.031	0.111	23.0	0.125	0.000	21.9	10.584	OK
SW.002	FSR: 2 years: +0 %: 15 mins: Winter	16.000	14.850	14.969	0.119	20.8	0.134	0.000	18.6	9.992	OK
SW.010	FSR: 2 years: +0 %: 240 mins: Summer	16.340	14.490	14.525	0.035	2.5	0.040	0.000	2.5	51.307	OK
SW.008	FSR: 2 years: +0 %: 1440 mins: Winter	16.230	14.600	14.917	0.317	6.8	0.359	0.000	6.7	230.259	Surcharged
SW.001	FSR: 2 years: +0 %: 15 mins: Winter	16.000	15.040	15.120	0.080	12.9	0.091	0.000	12.4	5.900	OK
SW.009	FSR: 2 years: +0 %: 1440 mins: Winter	16.500	14.540	14.917	0.377	2.5	0.426	0.000	2.5	216.997	Surcharged
SW.011	FSR: 2 years: +0 %: 360 mins: Summer	16.900	14.330	14.370	0.040	2.5	0.045	0.000	2.5	68.348	OK
SW.012	FSR: 2 years: +0 %: 120 mins: Winter	16.400	14.200	14.219	0.019	2.5	0.021	0.000	2.5	25.389	OK
Ex.SW.001	FSR: 2 years: +0 %: 15 mins: Summer	18.860	15.650	15.650	0.000	0.0	0.000	0.000	0.0	0.000	OK
EX.SW.002	FSR: 2 years: +0 %: 120 mins: Winter	16.400	13.950	13.968	0.018	2.5	0.000	0.000	2.5	25.389	OK
IC002	FSR: 2 years: +0 %: 15 mins: Winter		15.390	15.456	0.066	11.1			10.1	5.420	OK
IC006	FSR: 2 years: +0 %: 1440 mins: Winter		14.825	14.917	0.092	0.3			0.3	10.837	OK
SW.007a	FSR: 2 years: +0 %: 15 mins: Winter	16.100	15.150	15.199	0.049	10.1	0.056	0.000	9.8	5.414	OK
IC001	FSR: 2 years: +0 %: 15 mins: Winter		15.650	15.718	0.068	8.1			7.4	3.712	OK
IC009	FSR: 2 years: +0 %: 15 mins: Winter		14.955	15.017	0.062	7.9			7.6	3.800	OK
SW.002a	FSR: 2 years: +0 %: 15 mins: Winter	16.000	14.980	15.046	0.066	8.8	0.074	0.000	8.4	4.020	OK
IC007	FSR: 2 years: +0 %: 1440 mins: Winter		14.730	14.917	0.187	0.3			0.3	11.015	OK
IC008	FSR: 2 years: +0 %: 15 mins: Winter		15.060	15.126	0.066	8.2			7.9	3.792	OK
SW.003a	FSR: 2 years: +0 %: 15 mins: Winter	16.250	14.785	14.924	0.139	26.2	0.157	0.000	23.5	13.705	OK
IC005	FSR: 2 years: +0 %: 15 mins: Winter		15.300	15.311	0.011	0.6			0.6	0.303	OK
IC004	FSR: 2 years: +0 %: 15 mins: Winter		15.475	15.495	0.020	0.7			0.6	0.304	OK

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 02/10/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Details: Type: Stormwater Controls Summary Storm Phase: Storm	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



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FSR: 2 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
Tank	FSR: 2 years: +0 %: 1440 mins: Winter	14.917	14.917	0.376	0.376	6.7	131.591	0.000	0.000	2.5	216.550	62.476	OK

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 02/10/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Details: Type: Connections Summary Storm Phase: Storm	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



FSR: 2 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
P E1-12	FSR: 2 years: +0 %: 15 mins: Summer	Pipe	Ex.SW.001	SW.012	18.860	15.650	0.006	0.000	0.0	0	0.0	OK
P 7-6	FSR: 2 years: +0 %: 15 mins: Winter	Pipe	SW.007	SW.006	15.980	14.947	0.147	9.050	0.6	0.33	14.6	OK
P 3-8	FSR: 2 years: +0 %: 15 mins: Winter	Pipe	SW.003	SW.008	16.250	14.870	0.150	34.225	2.0	0.62	57.6	OK
P 5-6	FSR: 2 years: +0 %: 15 mins: Winter	Pipe	SW.005	SW.006	16.420	15.031	0.143	10.584	0.8	0.49	21.9	OK
P 6-3	FSR: 2 years: +0 %: 15 mins: Winter	Pipe	SW.006	SW.003	16.100	14.931	0.176	19.640	1.0	0.77	33.2	OK
P 10-11	FSR: 2 years: +0 %: 240 mins: Summer	Pipe	SW.010	SW.011	16.340	14.525	0.038	51.307	0.6	0.05	2.5	OK
P 4-5	FSR: 2 years: +0 %: 15 mins: Winter	Pipe	SW.004	SW.005	16.820	15.486	0.073	4.504	0.9	0.09	9.6	OK
P 9-10	FSR: 2 years: +0 %: 240 mins: Summer	Pipe	SW.009	SW.010	16.500	14.776	0.038	51.395	0.6	0.06	2.5	Surcharged
P 11-12	FSR: 2 years: +0 %: 360 mins: Summer	Pipe	SW.011	SW.012	16.900	14.370	0.029	68.348	0.8	0.06	2.5	OK
P 2-3a	FSR: 2 years: +0 %: 15 mins: Winter	Pipe	SW.002	SW.003a	16.000	14.969	0.129	9.992	0.8	0.41	18.6	OK
P 1-2	FSR: 2 years: +0 %: 15 mins: Winter	Pipe	SW.001	SW.002	16.000	15.120	0.097	5.900	0.8	0.27	12.4	OK
P 12-E2	FSR: 2 years: +0 %: 120 mins: Winter	Pipe	SW.012	EX.SW.002	16.400	14.219	0.019	25.389	0.8	0	2.5	OK
P 8-T	FSR: 2 years: +0 %: 15 mins: Winter	Pipe	SW.008	Tank	16.230	14.740	0.100	34.206	4.3	0.47	57.1	OK
P T-9	FSR: 2 years: +0 %: 240 mins: Winter	Pipe	Tank	SW.009	16.230	14.819	0.225	44.926	0.1	0.16	2.5	Surcharged
P I5-B	FSR: 2 years: +0 %: 15 mins: Winter	Pipe	IC005	SW.007	16.150	15.311	0.054	0.303	0.1	0	0.6	OK
P 7a-7	FSR: 2 years: +0 %: 15 mins: Winter	Pipe	SW.007a	SW.007	16.100	15.199	0.078	5.414	0.8	0.1	9.8	OK
P I1-I2	FSR: 2 years: +0 %: 15 mins: Winter	Pipe	IC001	IC002	16.575	15.718	0.067	3.712	0.7	0.19	7.4	OK
P I9-3a	FSR: 2 years: +0 %: 15 mins: Winter	Pipe	IC009	SW.003a	16.250	15.017	0.101	3.800	0.4	0.17	7.6	OK
P 2a-2	FSR: 2 years: +0 %: 15 mins: Winter	Pipe	SW.002a	SW.002	16.000	15.046	0.090	4.020	0.6	0.19	8.4	OK
P I7-3	FSR: 2 years: +0 %: 30 mins: Winter	Pipe	IC007	SW.003	16.250	14.864	0.149	2.290	0.3	0.05	2.4	OK
P I6-I7	FSR: 2 years: +0 %: 15 mins: Summer	Pipe	IC006	IC007	16.250	14.868	0.087	1.469	0.4	0.06	2.9	OK

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork				Date: 02/10/2025				 DENIS O'SULLIVAN & ASSOCIATES CONSULTING ENGINEERS					
				Designed by: A.G.		Checked by: S.O'D.						Approved By: C.O'S.	
Report Details: Type: Connections Summary Storm Phase: Storm				Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84									

P I8-I9	FSR: 2 years: +0 %: 15 mins: Winter	Pipe	IC008	IC009	16.250	15.126	0.064	3.792	0.8	0.17	7.9	OK
P I2-7a	FSR: 2 years: +0 %: 15 mins: Winter	Pipe	IC002	SW.007a	16.100	15.456	0.058	5.420	1.3	0.16	10.1	OK
P 3a-3	FSR: 2 years: +0 %: 15 mins: Winter	Pipe	SW.003a	SW.003	16.250	14.924	0.150	13.705	0.8	0.54	23.5	OK
P I4-I5	FSR: 2 years: +0 %: 15 mins: Winter	Pipe	IC004	IC005	16.250	15.495	0.015	0.304	0.5	0.01	0.6	OK

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 02/10/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Details: Type: Inflows Storm Phase: Storm	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



C04

Type : Catchment Area

Area (m²)	624.119
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Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	77.14



C02

Type : Catchment Area

Area (m²)	750.184
-----------	---------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	70.58



C07

Type : Catchment Area

Area (m²)	343.737
-----------	---------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	68.32



C05

Type : Catchment Area

Area (m²)	962.297
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Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	91.26

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 02/10/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Details: Type: Inflows Storm Phase: Storm	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



C01

Type : Catchment Area

Area (m²)	468.157
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Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	52.63



C08

Type : Catchment Area

Area (m²)	876.233
-----------	---------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	7.21



C10

Type : Catchment Area

Area (m²)	1076.971
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Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	53.59



C11

Type : Catchment Area

Area (m²)	1712.48
-----------	---------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	49.59

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 02/10/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Details: Type: Inflows Storm Phase: Storm	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



C06

Type : Catchment Area

Area (m²)	224.313
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Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	19.47



C03

Type : Catchment Area

Area (m²)	1171.144
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Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	54.98



C09

Type : Catchment Area

Area (m²)	1155.243
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Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	46.87



Green Roof

Type : Catchment Area

Area (m²)	185.215
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Dynamic Sizing

Runoff Method	Green Roof
Summer Volumetric Runoff	0.750
Coefficient	
Winter Volumetric Runoff	0.750
Coefficient	
Depression Storage (mm)	50
Evapotranspiration (mm/day)	1.0
Decay Coefficiency	0.050
Time Delay (mins)	120

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 02/10/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Details: Type: Junctions Storm Phase: Storm	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



Name	Junction Type	Easting (m)	Northing (m)	Cover Elevation (m)	Depth (m)	Invert Elevation (m)	Sump Depth (m)	Chamber Shape
SW.004	Manhole	558158.097	570795.839	16.820	1.380	15.440	0.000	Circular
SW.006	Manhole	558106.848	570780.125	16.100	1.350	14.750	0.000	Circular
SW.007	Manhole	558090.977	570775.929	15.980	1.150	14.830	0.000	Circular
SW.003	Manhole	558109.729	570769.183	16.250	2.550	13.700	1.000	Circular
SW.005	Manhole	558140.009	570788.533	16.420	1.500	14.920	0.000	Circular
SW.002	Manhole	558117.446	570739.885	16.000	1.150	14.850	0.000	Circular
SW.010	Manhole	558135.825	570785.668	16.340	1.850	14.490	0.000	Circular
SW.008	Manhole	558113.969	570770.291	16.230	1.630	14.600	0.000	Circular
SW.001	Manhole	558153.840	570749.471	16.000	0.960	15.040	0.000	Circular
SW.009	Manhole	558135.862	570776.119	16.500	1.960	14.540	0.000	Circular
SW.011	Manhole	558165.566	570796.892	16.900	2.570	14.330	0.000	Circular
SW.012	Manhole	558162.484	570826.835	16.400	2.200	14.200	0.000	Circular
Ex.SW.001	Manhole	558176.818	570755.881	18.860	3.210	15.650	0.000	Circular
EX.SW.002	Manhole	558160.185	570838.215	16.400	2.450	13.950	0.000	Circular
IC002	Simple Junction	558069.615	570802.416					
IC006	Simple Junction	558109.403	570749.186					
SW.007a	Manhole	558076.046	570776.881	16.100	0.950	15.150	0.000	Circular
IC001	Simple Junction	558136.937	570819.716					
IC009	Simple Junction	558147.073	570761.118					
SW.002a	Manhole	558092.690	570733.365	16.000	1.020	14.980	0.000	Circular
IC007	Simple Junction	558104.416	570767.834					
IC008	Simple Junction	558142.766	570778.579					
SW.003a	Manhole	558114.001	570752.963	16.250	1.465	14.785	0.000	Circular
IC005	Simple Junction	558075.931	570770.164					
IC004	Simple Junction	558084.804	570736.240					

Name	Diameter (m)	Lock	Bend Loss
SW.004	1.200	None	0.00
SW.006	1.200	None	0.00
SW.007	1.200	None	0.00
SW.003	1.200	None	0.00
SW.005	1.200	None	0.00
SW.002	1.200	None	0.00
SW.010	1.200	None	0.00
SW.008	1.200	None	0.00
SW.001	1.200	None	0.00
SW.009	1.200	None	0.00
SW.011	1.200	None	0.00
SW.012	1.200	None	0.00
Ex.SW.001	1.200	None	0.00
EX.SW.002	1.200	None	0.00
IC002			0.00
IC006			0.00
SW.007a	1.200	None	0.00
IC001			0.00
IC009			0.00
SW.002a	1.200	None	0.00
IC007			0.00
IC008			0.00
SW.003a	1.200	None	0.00
IC005			0.00
IC004			0.00

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 02/10/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Details: Type: Junctions Storm Phase: Storm	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		

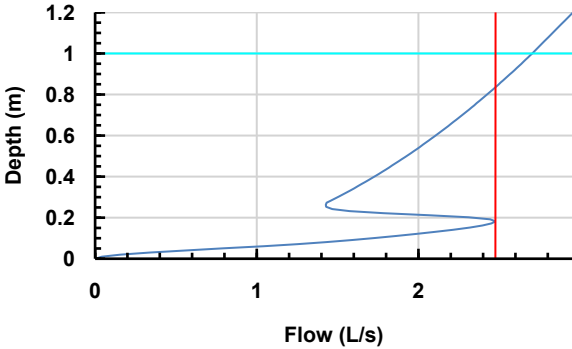


Inlets

Junction	Inlet Name	Incoming Item(s)	Bypass Destination	Capacity Type
SW.004	Inlet (1)	C03	(None)	No Restriction
SW.006	Inlet (1)	P 7-6	(None)	No Restriction
	Inlet (2)	P 5-6	(None)	No Restriction
SW.007	Inlet	C04	(None)	No Restriction
	Inlet (1)	P 7a-7	(None)	No Restriction
	Inlet (3)	P I5-B	(None)	No Restriction
SW.003	Inlet (1)	P 3a-3	(None)	No Restriction
	Inlet (2)	P 6-3	(None)	No Restriction
	Inlet (3)	C08	(None)	No Restriction
	Inlet (5)	P I7-3	(None)	No Restriction
SW.005	Inlet	P 4-5	(None)	No Restriction
	Inlet (2)	C05	(None)	No Restriction
SW.002	Inlet	P 1-2	(None)	No Restriction
	Inlet (3)	P 2a-2	(None)	No Restriction
SW.010	Inlet	P 9-10	(None)	No Restriction
SW.008	Inlet	P 3-8	(None)	No Restriction
SW.001	Inlet	C11	(None)	No Restriction
SW.009	Inlet	P T-9	(None)	No Restriction
SW.011	Inlet	P 10-11	(None)	No Restriction
SW.012	Inlet	P 11-12	(None)	No Restriction
	Inlet (1)	P E1-12	(None)	No Restriction
EX.SW.002	Inlet	P 12-E2	(None)	No Restriction
IC002	Inlet	P I1-I2	(None)	No Restriction
	Inlet (1)	C01	(None)	No Restriction
IC006	Inlet	C07	(None)	No Restriction
SW.007a	Inlet (1)	P I2-7a	(None)	No Restriction
IC001	Inlet	C02	(None)	No Restriction
IC009	Inlet (1)	P I8-I9	(None)	No Restriction
SW.002a	Inlet	C10	(None)	No Restriction
IC007	Inlet (1)	P I6-I7	(None)	No Restriction
IC008	Inlet	C09	(None)	No Restriction
SW.003a	Inlet	P 2-3a	(None)	No Restriction
	Inlet (1)	P I9-3a	(None)	No Restriction
IC005	Inlet	P I4-I5	(None)	No Restriction
IC004	Inlet	C06	(None)	No Restriction
	Inlet (2)	Green Roof	(None)	No Restriction

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork		Date: 02/10/2025		 DENIS O'SULLIVAN & ASSOCIATES CONSULTING ENGINEERS
Report Details: Type: Junctions Storm Phase: Storm		Designed by: A.G.	Checked by: S.O'D.	
		Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		

Outlets

Junction	Outlet Name	Outgoing Connection	Outlet Type
SW.004	Outlet	P 4-5	Free Discharge
SW.006	Outlet	P 6-3	Free Discharge
SW.007	Outlet	P 7-6	Free Discharge
SW.003	Outlet	P 3-8	Free Discharge
SW.005	Outlet	P 5-6	Free Discharge
SW.002	Outlet	P 2-3a	Free Discharge
SW.010	Outlet	P 10-11	Free Discharge
SW.008	Outlet	P 8-T	Free Discharge
SW.001	Outlet	P 1-2	Free Discharge
SW.009	Outlet	P 9-10	Hydro-Brake®
	Invert Elevation (m)	14.540	
	Design Depth (m)	1.000	
	Design Flow (L/s)	2.7	
	Objective	Minimize Upstream Storage Requirements	
	Application	Surface Water Only	
	Sump Available	☐	
	Unit Reference	CHE-0075-2700-1000-2700	
			
SW.011	Outlet	P 11-12	Free Discharge
SW.012	Outlet	P 12-E2	Free Discharge
Ex.SW.001	Outlet	P E1-12	Free Discharge
IC002	Outlet	P I2-7a	Free Discharge
IC006	Outlet	P I6-I7	Free Discharge
SW.007a	Outlet	P 7a-7	Free Discharge
IC001	Outlet	P I1-I2	Free Discharge
IC009	Outlet	P I9-3a	Free Discharge
SW.002a	Outlet	P 2a-2	Free Discharge
IC007	Outlet	P I7-3	Free Discharge
IC008	Outlet	P I8-I9	Free Discharge
SW.003a	Outlet	P 3a-3	Free Discharge
IC005	Outlet	P I5-B	Free Discharge
IC004	Outlet	P I4-I5	Free Discharge

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 02/10/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Details: Type: Stormwater Controls Storm Phase: Storm	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



Tank

Type : Tank

Dimensions

Exceedance Elevation (m)	16.230
Depth (m)	1.689
Base Elevation (m)	14.541
Freeboard (mm)	0
Initial Depth (m)	0.000
Porosity (%)	100
Average Slope (1:x)	0.00
Total Volume (m³)	350.689

Depth (m)	Area (m²)	Volume (m³)
0.000	350.00	0.000
1.000	350.00	350.000

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	P 8-T
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	P T-9
Outlet Type	Free Discharge

Advanced

Perimeter	Circular
Length (m)	20.000

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 02/10/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Details: Type: Inflow Summary Storm Phase: Storm	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (m²)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analyzed (m²)
C01	IC002		Time of Concentration	468.157	52.63	0	52.63	246.391
C02	IC001		Time of Concentration	750.184	70.58	0	70.58	529.480
C03	SW.004		Time of Concentration	1171.144	54.98	0	54.98	643.895
C04	SW.007		Time of Concentration	624.119	77.14	0	77.14	481.446
C05	SW.005		Time of Concentration	962.297	91.26	0	91.26	878.192
C06	IC004		Time of Concentration	224.313	19.47	0	19.47	43.674
C07	IC006		Time of Concentration	343.737	68.32	0	68.32	234.841
C08	SW.003		Time of Concentration	876.233	7.21	0	7.21	63.176
C09	IC008		Time of Concentration	1155.243	46.87	0	46.87	541.462
C10	SW.002a		Time of Concentration	1076.971	53.59	0	53.59	577.149
C11	SW.001		Time of Concentration	1712.480	49.59	0	49.59	849.219
Green Roof	IC004		Green Roof	185.215		0		185.215
TOTAL		0.0		9550.095				5274.141

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork		Date: 02/10/2025		 DENIS O'SULLIVAN & ASSOCIATES CONSULTING ENGINEERS	
		Designed by: A.G.	Checked by: S.O'D.		Approved By: C.O'S.
Report Details: Type: Network Design Criteria Storm Phase: Storm		Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84			

Flow Options

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

FSR

Type: FSR

Return Period (years)	2.0
Region	Scotland and Ireland
M5-60 (mm)	18.8
Ratio R	0.250

Pipe Options

Lock Slope Options	None
Design Options	Minimize Excavation
Design Level	Level Crowns
Min. Cover Depth (m)	1.200
Min. Slope (1:x)	200.00
Max. Slope (1:x)	13.00
Min. Velocity (m/s)	1.0
Max. Velocity (m/s)	3.0
Use Flow Restriction	☒
Reduce Channel Depths	☒

Manhole Options

Apply Offset	☐
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Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 02/10/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Title: Rainfall Analysis Criteria	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



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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
Prefill Manhole Sumps	☐
Perform First Flush Analysis	☐

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 02/10/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Details: Type: Phase Management Storm Phase: Storm	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



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Storm
FSR: 2 years: Increase Rainfall (%): +0: 120 mins: Winter

Tables

Name	Max. Inflow (L/s)	Total Inflow Volume (m³)	Max. Outflow (L/s)	Total Outflow Volume (m³)
EX.SW.002			2.5	25.389
TOTAL	30.3	88.578	2.5	25.389

Appendix E – 1 in 30 yr design sheet

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork		Date: 02/10/2025	
		Designed by: A.G.	Checked by: S.O'D.
		Approved By: C.O'S.	
Report Details: Type: Inflows Summary Storm Phase: Storm		Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84	



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

Inflow	Storm Event	Inflow Area (m²)	Max. Inflow (L/s)	Total Inflow Volume (m³)
C04	FSR: 30 years: +0 %: 15 mins: Winter	624.12	13.5	6.228
C02	FSR: 30 years: +0 %: 15 mins: Winter	750.18	14.9	6.845
C07	FSR: 30 years: +0 %: 15 mins: Winter	343.74	6.6	3.033
C05	FSR: 30 years: +0 %: 15 mins: Winter	962.30	24.6	11.357
C01	FSR: 30 years: +0 %: 15 mins: Winter	468.16	6.9	3.186
C08	FSR: 30 years: +0 %: 15 mins: Winter	876.23	1.8	0.817
C10	FSR: 30 years: +0 %: 15 mins: Winter	1076.97	16.2	7.461
C11	FSR: 30 years: +0 %: 15 mins: Winter	1712.48	23.8	10.983
C06	FSR: 30 years: +0 %: 15 mins: Winter	224.31	1.2	0.566
C03	FSR: 30 years: +0 %: 15 mins: Winter	1171.14	18.1	8.330
C09	FSR: 30 years: +0 %: 15 mins: Winter	1155.24	15.2	7.000
Green Roof	FSR: 30 years: +0 %: 960 mins: Summer	185.21	0.4	3.369

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 02/10/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Details: Type: Junctions Summary Storm Phase: Storm	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



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
SW.004	FSR: 30 years: +0 %: 15 mins: Winter	16.820	15.440	15.503	0.063	18.1	0.071	0.000	17.8	8.310	OK
SW.006	FSR: 30 years: +0 %: 1440 mins: Winter	16.100	14.750	15.190	0.440	5.7	0.498	0.000	5.6	205.464	Surcharged
SW.007	FSR: 30 years: +0 %: 30 mins: Winter	15.980	14.830	15.204	0.374	24.5	0.423	0.000	23.9	23.343	Surcharged
SW.003	FSR: 30 years: +0 %: 1440 mins: Winter	16.250	13.700	15.189	1.489	9.8	1.685	0.000	9.8	366.417	Surcharged
SW.005	FSR: 30 years: +0 %: 15 mins: Winter	16.420	14.920	15.279	0.359	42.5	0.407	0.000	32.9	19.549	Surcharged
SW.002	FSR: 30 years: +0 %: 1440 mins: Winter	16.000	14.850	15.190	0.340	3.0	0.384	0.000	2.9	101.786	Surcharged
SW.010	FSR: 30 years: +0 %: 1440 mins: Summer	16.340	14.490	14.525	0.035	2.5	0.040	0.000	2.5	275.594	OK
SW.008	FSR: 30 years: +0 %: 1440 mins: Winter	16.230	14.600	15.190	0.590	9.8	0.667	0.000	9.7	365.961	Surcharged
SW.001	FSR: 30 years: +0 %: 1440 mins: Winter	16.000	15.040	15.190	0.150	1.8	0.169	0.000	1.8	60.498	OK
SW.009	FSR: 30 years: +0 %: 1440 mins: Winter	16.500	14.540	15.189	0.649	2.5	0.734	0.000	2.5	281.323	Surcharged
SW.011	FSR: 30 years: +0 %: 1440 mins: Summer	16.900	14.330	14.370	0.040	2.5	0.045	0.000	2.5	275.438	OK
SW.012	FSR: 30 years: +0 %: 1440 mins: Summer	16.400	14.200	14.219	0.019	2.5	0.021	0.000	2.5	275.327	OK
Ex.SW.001	FSR: 30 years: +0 %: 15 mins: Summer	18.860	15.650	15.650	0.000	0.0	0.000	0.000	0.0	0.000	OK
EX.SW.002	FSR: 30 years: +0 %: 1440 mins: Summer	16.400	13.950	13.968	0.018	2.5	0.000	0.000	2.5	275.327	OK
IC002	FSR: 30 years: +0 %: 15 mins: Winter		15.390	15.483	0.093	20.7			19.1	10.014	OK
IC006	FSR: 30 years: +0 %: 1440 mins: Winter		14.825	15.190	0.365	0.5			0.5	17.580	Surcharged
SW.007a	FSR: 30 years: +0 %: 30 mins: Winter	16.100	15.150	15.219	0.069	15.2	0.078	0.000	14.3	13.923	OK
IC001	FSR: 30 years: +0 %: 15 mins: Winter		15.650	15.745	0.095	14.9			13.8	6.848	OK
IC009	FSR: 30 years: +0 %: 1440 mins: Winter		14.955	15.190	0.235	1.1			1.1	38.667	Surcharged
SW.002a	FSR: 30 years: +0 %: 1440 mins: Winter	16.000	14.980	15.190	0.210	1.2	0.237	0.000	1.2	41.087	OK
IC007	FSR: 30 years: +0 %: 1440 mins: Winter		14.730	15.190	0.460	0.5			0.7	16.414	Surcharged
IC008	FSR: 30 years: +0 %: 1440 mins: Winter		15.060	15.190	0.130	1.1			1.1	38.551	OK
SW.003a	FSR: 30 years: +0 %: 1440 mins: Winter	16.250	14.785	15.190	0.405	4.0	0.458	0.000	3.8	139.812	Surcharged
IC005	FSR: 30 years: +0 %: 15 mins: Winter		15.300	15.315	0.015	1.1			1.1	0.564	OK
IC004	FSR: 30 years: +0 %: 15 mins: Winter		15.475	15.502	0.027	1.2			1.1	0.565	OK

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 02/10/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Details: Type: Stormwater Controls Summary Storm Phase: Storm	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



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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
Tank	FSR: 30 years: +0 %: 1440 mins: Winter	15.189	15.189	0.648	0.648	9.7	226.892	0.000	0.000	2.5	282.224	35.301	OK

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 02/10/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Details: Type: Connections Summary Storm Phase: Storm	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



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
P E1-12	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	Ex.SW.001	SW.012	18.860	15.650	0.009	0.000	0.0	0	0.0	OK
P 7-6	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	SW.007	SW.006	15.980	15.117	0.225	14.966	0.6	0.55	24.3	Surcharged
P 3-8	FSR: 30 years: +0 %: 30 mins: Winter	Pipe	SW.003	SW.008	16.250	15.055	0.225	89.655	2.3	0.99	91.6	Surcharged
P 5-6	FSR: 30 years: +0 %: 15 mins: Winter	Pipe	SW.005	SW.006	16.420	15.279	0.225	19.549	0.8	0.73	32.9	Surcharged
P 6-3	FSR: 30 years: +0 %: 30 mins: Winter	Pipe	SW.006	SW.003	16.100	15.173	0.225	50.525	1.3	1.23	53.0	Surcharged
P 10-11	FSR: 30 years: +0 %: 1440 mins: Summer	Pipe	SW.010	SW.011	16.340	14.525	0.038	275.594	0.6	0.05	2.5	OK
P 4-5	FSR: 30 years: +0 %: 15 mins: Winter	Pipe	SW.004	SW.005	16.820	15.503	0.206	8.310	0.7	0.17	17.8	OK
P 9-10	FSR: 30 years: +0 %: 1440 mins: Summer	Pipe	SW.009	SW.010	16.500	15.113	0.038	275.680	0.6	0.06	2.5	Surcharged
P 11-12	FSR: 30 years: +0 %: 1440 mins: Summer	Pipe	SW.011	SW.012	16.900	14.370	0.029	275.438	0.8	0.06	2.5	OK
P 2-3a	FSR: 30 years: +0 %: 30 mins: Winter	Pipe	SW.002	SW.003a	16.000	15.144	0.225	25.636	0.8	0.55	24.7	Surcharged
P 1-2	FSR: 30 years: +0 %: 15 mins: Winter	Pipe	SW.001	SW.002	16.000	15.153	0.177	10.911	0.7	0.5	23.0	OK
P 12-E2	FSR: 30 years: +0 %: 1440 mins: Summer	Pipe	SW.012	EX.SW.002	16.400	14.219	0.019	275.327	0.8	0	2.5	OK
P 8-T	FSR: 30 years: +0 %: 30 mins: Winter	Pipe	SW.008	Tank	16.230	14.843	0.219	89.400	3.9	0.74	91.3	Surcharged
P T-9	FSR: 30 years: +0 %: 1440 mins: Summer	Pipe	Tank	SW.009	16.230	15.113	0.225	276.074	0.1	0.19	3.0	Surcharged
P I5-B	FSR: 30 years: +0 %: 15 mins: Winter	Pipe	IC005	SW.007	16.150	15.315	0.172	0.564	0.1	0	1.1	OK
P 7a-7	FSR: 30 years: +0 %: 15 mins: Winter	Pipe	SW.007a	SW.007	16.100	15.218	0.203	9.999	0.8	0.2	18.6	OK
P I1-I2	FSR: 30 years: +0 %: 15 mins: Winter	Pipe	IC001	IC002	16.575	15.745	0.094	6.848	0.9	0.35	13.8	OK
P I9-3a	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	IC009	SW.003a	16.250	15.053	0.180	6.264	0.4	0.24	11.1	OK
P 2a-2	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	SW.002a	SW.002	16.000	15.073	0.152	6.644	0.5	0.29	13.1	OK
P I7-3	FSR: 30 years: +0 %: 30 mins: Summer	Pipe	IC007	SW.003	16.250	15.034	0.225	3.732	0.4	0.09	4.5	Surcharged
P I6-I7	FSR: 30 years: +0 %: 15 mins: Winter	Pipe	IC006	IC007	16.250	15.061	0.225	3.043	0.3	0.13	5.8	Surcharged

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork				Date: 02/10/2025				 DENIS O'SULLIVAN & ASSOCIATES CONSULTING ENGINEERS			
				Designed by: A.G.		Checked by: S.O'D.					
Report Details: Type: Connections Summary Storm Phase: Storm				Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84							

P I8-I9	FSR: 30 years: +0 %: 15 mins: Winter	Pipe	IC008	IC009	16.250	15.155	0.099	6.908	0.9	0.31	14.7	OK
P I2-7a	FSR: 30 years: +0 %: 15 mins: Winter	Pipe	IC002	SW.007a	16.100	15.483	0.081	10.014	1.5	0.31	19.1	OK
P 3a-3	FSR: 30 years: +0 %: 15 mins: Winter	Pipe	SW.003a	SW.003	16.250	15.082	0.225	25.346	0.9	0.82	35.7	Surcharged
P I4-I5	FSR: 30 years: +0 %: 15 mins: Winter	Pipe	IC004	IC005	16.250	15.502	0.021	0.565	0.6	0.03	1.1	OK

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 02/10/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Details: Type: Inflows Storm Phase: Storm	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



C04

Type : Catchment Area

Area (m²)	624.119
-----------	---------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	77.14



C02

Type : Catchment Area

Area (m²)	750.184
-----------	---------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	70.58



C07

Type : Catchment Area

Area (m²)	343.737
-----------	---------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	68.32



C05

Type : Catchment Area

Area (m²)	962.297
-----------	---------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	91.26

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 02/10/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Details: Type: Inflows Storm Phase: Storm	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



C01

Type : Catchment Area

Area (m²)	468.157
-----------	---------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	52.63



C08

Type : Catchment Area

Area (m²)	876.233
-----------	---------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	7.21



C10

Type : Catchment Area

Area (m²)	1076.971
-----------	----------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	53.59



C11

Type : Catchment Area

Area (m²)	1712.48
-----------	---------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	49.59

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 02/10/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Details: Type: Inflows Storm Phase: Storm	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



C06

Type : Catchment Area

Area (m²)	224.313
-----------	---------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	19.47



C03

Type : Catchment Area

Area (m²)	1171.144
-----------	----------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	54.98



C09

Type : Catchment Area

Area (m²)	1155.243
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Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	46.87



Green Roof

Type : Catchment Area

Area (m²)	185.215
-----------	---------

Dynamic Sizing

Runoff Method	Green Roof
Summer Volumetric Runoff Coefficient	0.750
Winter Volumetric Runoff Coefficient	0.750
Depression Storage (mm)	50
Evapotranspiration (mm/day)	1.0
Decay Coefficiency	0.050
Time Delay (mins)	120

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 02/10/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Details: Type: Junctions Storm Phase: Storm	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



Name	Junction Type	Easting (m)	Northing (m)	Cover Elevation (m)	Depth (m)	Invert Elevation (m)	Sump Depth (m)	Chamber Shape
SW.004	Manhole	558158.097	570795.839	16.820	1.380	15.440	0.000	Circular
SW.006	Manhole	558106.848	570780.125	16.100	1.350	14.750	0.000	Circular
SW.007	Manhole	558090.977	570775.929	15.980	1.150	14.830	0.000	Circular
SW.003	Manhole	558109.729	570769.183	16.250	2.550	13.700	1.000	Circular
SW.005	Manhole	558140.009	570788.533	16.420	1.500	14.920	0.000	Circular
SW.002	Manhole	558117.446	570739.885	16.000	1.150	14.850	0.000	Circular
SW.010	Manhole	558135.825	570785.668	16.340	1.850	14.490	0.000	Circular
SW.008	Manhole	558113.969	570770.291	16.230	1.630	14.600	0.000	Circular
SW.001	Manhole	558153.840	570749.471	16.000	0.960	15.040	0.000	Circular
SW.009	Manhole	558135.862	570776.119	16.500	1.960	14.540	0.000	Circular
SW.011	Manhole	558165.566	570796.892	16.900	2.570	14.330	0.000	Circular
SW.012	Manhole	558162.484	570826.835	16.400	2.200	14.200	0.000	Circular
Ex.SW.001	Manhole	558176.818	570755.881	18.860	3.210	15.650	0.000	Circular
EX.SW.002	Manhole	558160.185	570838.215	16.400	2.450	13.950	0.000	Circular
IC002	Simple Junction	558069.615	570802.416					
IC006	Simple Junction	558109.403	570749.186					
SW.007a	Manhole	558076.046	570776.881	16.100	0.950	15.150	0.000	Circular
IC001	Simple Junction	558136.937	570819.716					
IC009	Simple Junction	558147.073	570761.118					
SW.002a	Manhole	558092.690	570733.365	16.000	1.020	14.980	0.000	Circular
IC007	Simple Junction	558104.416	570767.834					
IC008	Simple Junction	558142.766	570778.579					
SW.003a	Manhole	558114.001	570752.963	16.250	1.465	14.785	0.000	Circular
IC005	Simple Junction	558075.931	570770.164					
IC004	Simple Junction	558084.804	570736.240					

Name	Diameter (m)	Lock	Bend Loss
SW.004	1.200	None	0.00
SW.006	1.200	None	0.00
SW.007	1.200	None	0.00
SW.003	1.200	None	0.00
SW.005	1.200	None	0.00
SW.002	1.200	None	0.00
SW.010	1.200	None	0.00
SW.008	1.200	None	0.00
SW.001	1.200	None	0.00
SW.009	1.200	None	0.00
SW.011	1.200	None	0.00
SW.012	1.200	None	0.00
Ex.SW.001	1.200	None	0.00
EX.SW.002	1.200	None	0.00
IC002			0.00
IC006			0.00
SW.007a	1.200	None	0.00
IC001			0.00
IC009			0.00
SW.002a	1.200	None	0.00
IC007			0.00
IC008			0.00
SW.003a	1.200	None	0.00
IC005			0.00
IC004			0.00

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 02/10/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Details: Type: Junctions Storm Phase: Storm	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		

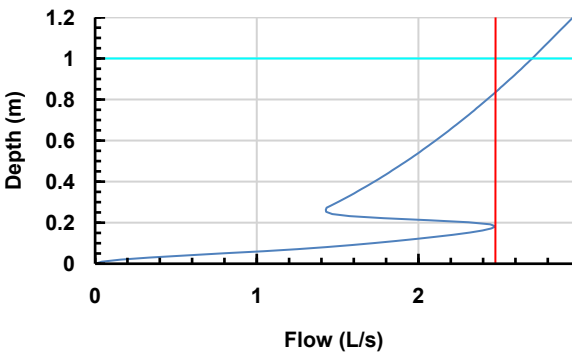


Inlets

Junction	Inlet Name	Incoming Item(s)	Bypass Destination	Capacity Type
SW.004	Inlet (1)	C03	(None)	No Restriction
SW.006	Inlet (1)	P 7-6	(None)	No Restriction
	Inlet (2)	P 5-6	(None)	No Restriction
SW.007	Inlet	C04	(None)	No Restriction
	Inlet (1)	P 7a-7	(None)	No Restriction
	Inlet (3)	P I5-B	(None)	No Restriction
SW.003	Inlet (1)	P 3a-3	(None)	No Restriction
	Inlet (2)	P 6-3	(None)	No Restriction
	Inlet (3)	C08	(None)	No Restriction
	Inlet (5)	P I7-3	(None)	No Restriction
SW.005	Inlet	P 4-5	(None)	No Restriction
	Inlet (2)	C05	(None)	No Restriction
SW.002	Inlet	P 1-2	(None)	No Restriction
	Inlet (3)	P 2a-2	(None)	No Restriction
SW.010	Inlet	P 9-10	(None)	No Restriction
SW.008	Inlet	P 3-8	(None)	No Restriction
SW.001	Inlet	C11	(None)	No Restriction
SW.009	Inlet	P T-9	(None)	No Restriction
SW.011	Inlet	P 10-11	(None)	No Restriction
SW.012	Inlet	P 11-12	(None)	No Restriction
	Inlet (1)	P E1-12	(None)	No Restriction
EX.SW.002	Inlet	P 12-E2	(None)	No Restriction
IC002	Inlet	P I1-I2	(None)	No Restriction
	Inlet (1)	C01	(None)	No Restriction
IC006	Inlet	C07	(None)	No Restriction
SW.007a	Inlet (1)	P I2-7a	(None)	No Restriction
IC001	Inlet	C02	(None)	No Restriction
IC009	Inlet (1)	P I8-I9	(None)	No Restriction
SW.002a	Inlet	C10	(None)	No Restriction
IC007	Inlet (1)	P I6-I7	(None)	No Restriction
IC008	Inlet	C09	(None)	No Restriction
SW.003a	Inlet	P 2-3a	(None)	No Restriction
	Inlet (1)	P I9-3a	(None)	No Restriction
IC005	Inlet	P I4-I5	(None)	No Restriction
IC004	Inlet	C06	(None)	No Restriction
	Inlet (2)	Green Roof	(None)	No Restriction

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork		Date: 02/10/2025		 DENIS O'SULLIVAN & ASSOCIATES CONSULTING ENGINEERS
Report Details: Type: Junctions Storm Phase: Storm		Designed by: A.G.	Checked by: S.O'D.	
		Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		

Outlets

Junction	Outlet Name	Outgoing Connection	Outlet Type
SW.004	Outlet	P 4-5	Free Discharge
SW.006	Outlet	P 6-3	Free Discharge
SW.007	Outlet	P 7-6	Free Discharge
SW.003	Outlet	P 3-8	Free Discharge
SW.005	Outlet	P 5-6	Free Discharge
SW.002	Outlet	P 2-3a	Free Discharge
SW.010	Outlet	P 10-11	Free Discharge
SW.008	Outlet	P 8-T	Free Discharge
SW.001	Outlet	P 1-2	Free Discharge
SW.009	Outlet	P 9-10	Hydro-Brake®
	Invert Elevation (m)	14.540	
	Design Depth (m)	1.000	
	Design Flow (L/s)	2.7	
	Objective	Minimize Upstream Storage Requirements	
	Application	Surface Water Only	
	Sump Available	☐	
	Unit Reference	CHE-0075-2700-1000-2700	
			
SW.011	Outlet	P 11-12	Free Discharge
SW.012	Outlet	P 12-E2	Free Discharge
Ex.SW.001	Outlet	P E1-12	Free Discharge
IC002	Outlet	P I2-7a	Free Discharge
IC006	Outlet	P I6-I7	Free Discharge
SW.007a	Outlet	P 7a-7	Free Discharge
IC001	Outlet	P I1-I2	Free Discharge
IC009	Outlet	P I9-3a	Free Discharge
SW.002a	Outlet	P 2a-2	Free Discharge
IC007	Outlet	P I7-3	Free Discharge
IC008	Outlet	P I8-I9	Free Discharge
SW.003a	Outlet	P 3a-3	Free Discharge
IC005	Outlet	P I5-B	Free Discharge
IC004	Outlet	P I4-I5	Free Discharge

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 02/10/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Details: Type: Stormwater Controls Storm Phase: Storm	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



Tank

Type : Tank

Dimensions

Exceedance Elevation (m)	16.230
Depth (m)	1.689
Base Elevation (m)	14.541
Freeboard (mm)	0
Initial Depth (m)	0.000
Porosity (%)	100
Average Slope (1:x)	0.00
Total Volume (m³)	350.689

Depth (m)	Area (m²)	Volume (m³)
0.000	350.00	0.000
1.000	350.00	350.000

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	P 8-T
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	P T-9
Outlet Type	Free Discharge

Advanced

Perimeter	Circular
Length (m)	20.000

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 02/10/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Details: Type: Inflow Summary Storm Phase: Storm	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (m²)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analyzed (m²)
C01	IC002		Time of Concentration	468.157	52.63	0	52.63	246.391
C02	IC001		Time of Concentration	750.184	70.58	0	70.58	529.480
C03	SW.004		Time of Concentration	1171.144	54.98	0	54.98	643.895
C04	SW.007		Time of Concentration	624.119	77.14	0	77.14	481.446
C05	SW.005		Time of Concentration	962.297	91.26	0	91.26	878.192
C06	IC004		Time of Concentration	224.313	19.47	0	19.47	43.674
C07	IC006		Time of Concentration	343.737	68.32	0	68.32	234.841
C08	SW.003		Time of Concentration	876.233	7.21	0	7.21	63.176
C09	IC008		Time of Concentration	1155.243	46.87	0	46.87	541.462
C10	SW.002a		Time of Concentration	1076.971	53.59	0	53.59	577.149
C11	SW.001		Time of Concentration	1712.480	49.59	0	49.59	849.219
Green Roof	IC004		Green Roof	185.215		0		185.215
TOTAL		0.0		9550.095				5274.141

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork		Date: 02/10/2025		 DOSA DENIS O'SULLIVAN & ASSOCIATES CONSULTING ENGINEERS	
		Designed by: A.G.	Checked by: S.O'D.		Approved By: C.O'S.
Report Details: Type: Network Design Criteria Storm Phase: Storm		Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84			

Flow Options

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

FSR

Type: FSR

Return Period (years)	2.0
Region	Scotland and Ireland
M5-60 (mm)	18.8
Ratio R	0.250

Pipe Options

Lock Slope Options	None
Design Options	Minimize Excavation
Design Level	Level Crowns
Min. Cover Depth (m)	1.200
Min. Slope (1:x)	200.00
Max. Slope (1:x)	13.00
Min. Velocity (m/s)	1.0
Max. Velocity (m/s)	3.0
Use Flow Restriction	☒
Reduce Channel Depths	☒

Manhole Options

Apply Offset	☐
--------------	--------------------------

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 02/10/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Title: Rainfall Analysis Criteria	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



DOSA
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CONSULTING ENGINEERS

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
Prefill Manhole Sumps	☐
Perform First Flush Analysis	☐

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 02/10/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Details: Type: Phase Management Storm Phase: Storm	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



DOSA
DENIS O'SULLIVAN & ASSOCIATES
CONSULTING ENGINEERS



Storm
FSR: 30 years: Increase Rainfall (%): +0: 1440 mins: Summer

Tables

Name	Max. Inflow (L/s)	Total Inflow Volume (m³)	Max. Outflow (L/s)	Total Outflow Volume (m³)
EX.SW.002			2.5	275.327
TOTAL	14.7	328.385	2.5	275.327

Appendix F – 1 in 100 yr design sheet

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork		Date: 02/10/2025	
		Designed by: A.G.	Checked by: S.O'D.
		Approved By: C.O'S.	
Report Details: Type: Inflows Summary Storm Phase: Storm		Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84	



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

Inflow	Storm Event	Inflow Area (m²)	Max. Inflow (L/s)	Total Inflow Volume (m³)
C04	FSR: 100 years: +20 %: 15 mins: Winter	624.12	21.1	9.732
C02	FSR: 100 years: +20 %: 15 mins: Winter	750.18	23.2	10.698
C07	FSR: 100 years: +20 %: 15 mins: Winter	343.74	10.3	4.748
C05	FSR: 100 years: +20 %: 15 mins: Winter	962.30	38.5	17.752
C01	FSR: 100 years: +20 %: 15 mins: Winter	468.16	10.8	4.982
C08	FSR: 100 years: +20 %: 15 mins: Winter	876.23	2.8	1.281
C10	FSR: 100 years: +20 %: 15 mins: Winter	1076.97	25.3	11.667
C11	FSR: 100 years: +20 %: 15 mins: Winter	1712.48	37.2	17.161
C06	FSR: 100 years: +20 %: 15 mins: Winter	224.31	1.9	0.885
C03	FSR: 100 years: +20 %: 15 mins: Winter	1171.14	28.2	13.010
C09	FSR: 100 years: +20 %: 15 mins: Winter	1155.24	23.7	10.947
Green Roof	FSR: 100 years: +20 %: 360 mins: Summer	185.21	1.2	4.338

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork		Date: 02/10/2025	
Report Details: Type: Junctions Summary Storm Phase: Storm		Designed by: A.G.	Checked by: S.O'D.
		Approved By: C.O'S.	
		Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84	



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

Junction	Storm Event	Cover Elevati on (m)	Invert Elevati on (m)	Max. Elevatio n (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
SW.004	FSR: 100 years: +20 %: 30 mins: Winter	16.820	15.440	15.937	0.497	19.6	0.562	0.000	19.4	18.094	Surcharged
SW.006	FSR: 100 years: +20 %: 15 mins: Winter	16.100	14.750	15.767	1.017	73.7	1.151	0.000	69.9	56.661	Surcharged
SW.007	FSR: 100 years: +20 %: 15 mins: Winter	15.980	14.830	15.827	0.997	36.1	1.128	0.000	35.3	28.429	Flood Risk
SW.003	FSR: 100 years: +20 %: 1440 mins: Winter	16.250	13.700	15.749	2.049	15.1	2.318	0.000	15.0	547.000	Surcharged
SW.005	FSR: 100 years: +20 %: 30 mins: Winter	16.420	14.920	15.915	0.995	46.2	1.126	0.000	44.0	42.768	Surcharged
SW.002	FSR: 100 years: +20 %: 30 mins: Winter	16.000	14.850	15.775	0.925	40.5	1.046	0.000	38.9	39.994	Flood Risk
SW.010	FSR: 100 years: +20 %: 1440 mins: Winter	16.340	14.490	14.529	0.039	2.9	0.044	0.000	2.9	360.074	OK
SW.008	FSR: 100 years: +20 %: 1440 mins: Winter	16.230	14.600	15.762	1.162	25.5	1.314	0.000	25.5	545.798	Surcharged
SW.001	FSR: 100 years: +20 %: 30 mins: Winter	16.000	15.040	15.833	0.793	25.9	0.897	0.000	24.4	23.858	Flood Risk
SW.009	FSR: 100 years: +20 %: 1440 mins: Winter	16.500	14.540	15.768	1.228	18.2	1.389	0.000	2.9	368.126	Surcharged
SW.011	FSR: 100 years: +20 %: 1440 mins: Winter	16.900	14.330	14.373	0.043	2.9	0.049	0.000	2.9	359.921	OK
SW.012	FSR: 100 years: +20 %: 1440 mins: Winter	16.400	14.200	14.220	0.020	2.9	0.023	0.000	2.9	359.811	OK
Ex.SW.001	FSR: 100 years: +20 %: 15 mins: Summer	18.860	15.650	15.650	0.000	0.0	0.000	0.000	0.0	0.000	OK
EX.SW.002	FSR: 100 years: +20 %: 1440 mins: Winter	16.400	13.950	13.970	0.020	2.9	0.000	0.000	2.9	359.811	OK
IC002	FSR: 100 years: +20 %: 15 mins: Winter		15.390	15.883	0.493	32.5			18.4	15.658	Surcharged
IC006	FSR: 100 years: +20 %: 1440 mins: Winter		14.825	15.762	0.937	2.2			2.3	32.718	Surcharged
SW.007a	FSR: 100 years: +20 %: 15 mins: Winter	16.100	15.150	15.856	0.706	18.4	0.799	0.000	21.6	15.630	Flood Risk
IC001	FSR: 100 years: +20 %: 15 mins: Winter		15.650	15.892	0.242	23.2			21.7	10.656	Surcharged
IC009	FSR: 100 years: +20 %: 1440 mins: Winter		14.955	15.749	0.794	1.6			1.5	58.005	Surcharged
SW.002a	FSR: 100 years: +20 %: 30 mins: Winter	16.000	14.980	15.794	0.814	17.6	0.920	0.000	16.1	16.254	Flood Risk
IC007	FSR: 100 years: +20 %: 1440 mins: Winter		14.730	15.748	1.018	2.4			2.9	40.984	Surcharged
IC008	FSR: 100 years: +20 %: 1440 mins: Winter		15.060	15.750	0.690	1.6			1.6	57.054	Surcharged
SW.003a	FSR: 100 years: +20 %: 1440 mins: Winter	16.250	14.785	15.747	0.962	5.5	1.088	0.000	5.5	205.226	Surcharged
IC005	FSR: 100 years: +20 %: 15 mins: Winter		15.300	15.834	0.534	13.0			5.1	3.733	Surcharged
IC004	FSR: 100 years: +20 %: 15 mins: Winter		15.475	15.839	0.364	1.9			2.2	1.602	Surcharged

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 02/10/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Details: Type: Stormwater Controls Summary Storm Phase: Storm	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



DOSA
DENIS O'SULLIVAN & ASSOCIATES
CONSULTING ENGINEERS



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
Tank	FSR: 100 years: +20 %: 1440 mins: Winter	15.776	15.776	1.235	1.235	47.4	350.358	0.000	0.000	18.2	369.149	0.094	OK

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 02/10/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Details: Type: Connections Summary Storm Phase: Storm	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



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
P E1-12	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	Ex.SW.001	SW.012	18.860	15.650	0.009	0.000	0.0	0	0.0	OK
P 7-6	FSR: 100 years: +20 %: 30 mins: Summer	Pipe	SW.007	SW.006	15.980	15.638	0.225	32.580	1.0	0.91	40.0	Surcharged
P 3-8	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	SW.003	SW.008	16.250	15.600	0.225	100.342	3.1	1.34	124.3	Surcharged
P 5-6	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	SW.005	SW.006	16.420	15.824	0.225	30.610	1.3	1.19	53.6	Surcharged
P 6-3	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	SW.006	SW.003	16.100	15.767	0.225	56.582	1.8	1.62	69.9	Surcharged
P 10-11	FSR: 100 years: +20 %: 1440 mins: Winter	Pipe	SW.010	SW.011	16.340	14.529	0.041	360.074	0.6	0.06	2.9	OK
P 4-5	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	SW.004	SW.005	16.820	15.834	0.225	12.974	0.8	0.21	21.6	Surcharged
P 9-10	FSR: 100 years: +20 %: 1440 mins: Winter	Pipe	SW.009	SW.010	16.500	15.768	0.041	360.161	0.6	0.07	2.9	Surcharged
P 11-12	FSR: 100 years: +20 %: 1440 mins: Winter	Pipe	SW.011	SW.012	16.900	14.373	0.032	359.921	0.9	0.07	2.9	OK
P 2-3a	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	SW.002	SW.003a	16.000	15.737	0.225	28.870	1.1	1	45.1	Flood Risk
P 1-2	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SW.001	SW.002	16.000	15.568	0.225	15.232	0.8	0.69	31.3	Surcharged
P 12-E2	FSR: 100 years: +20 %: 1440 mins: Winter	Pipe	SW.012	EX.SW.002	16.400	14.220	0.020	359.811	0.9	0	2.9	OK
P 8-T	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	SW.008	Tank	16.230	15.221	0.225	100.050	4.8	1.03	126.2	Surcharged
P T-9	FSR: 100 years: +20 %: 1440 mins: Winter	Pipe	Tank	SW.009	16.230	15.776	0.225	352.553	0.5	1.15	18.2	Surcharged
P I5-B	FSR: 100 years: +20 %: 30 mins: Summer	Pipe	IC005	SW.007	16.150	15.640	0.300	1.114	0.2	0.05	11.5	Surcharged
P 7a-7	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	SW.007a	SW.007	16.100	15.686	0.225	13.996	0.8	0.27	25.3	Surcharged
P I1-I2	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	IC001	IC002	16.575	15.892	0.225	10.656	0.9	0.55	21.7	Surcharged
P I9-3a	FSR: 100 years: +20 %: 30 mins: Winter	Pipe	IC009	SW.003a	16.250	15.725	0.225	15.279	0.4	0.29	13.4	Surcharged
P 2a-2	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	SW.002a	SW.002	16.000	15.743	0.225	11.650	0.6	0.46	20.8	Flood Risk
P I7-3	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	IC007	SW.003	16.250	15.603	0.225	4.557	0.2	0.19	9.0	Surcharged
P I6-I7	FSR: 100 years: +20 %: 30 mins: Summer	Pipe	IC006	IC007	16.250	15.473	0.225	5.821	0.5	0.15	6.9	Surcharged

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork		Date: 02/10/2025		
		Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Details: Type: Connections Summary Storm Phase: Storm		Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



P I8-I9	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	IC008	IC009	16.250	15.723	0.225	10.814	0.8	0.37	17.5	Surcharged
P I2-7a	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	IC002	SW.007a	16.100	15.717	0.225	14.003	1.1	0.47	29.0	Surcharged
P 3a-3	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	SW.003a	SW.003	16.250	15.703	0.225	39.548	1.3	1.22	53.0	Surcharged
P I4-I5	FSR: 100 years: +20 %: 30 mins: Winter	Pipe	IC004	IC005	16.250	15.794	0.225	1.244	0.6	0.1	4.5	Surcharged

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 02/10/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Details: Type: Inflows Storm Phase: Storm	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



C04

Type : Catchment Area

Area (m²)	624.119
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Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	77.14



C02

Type : Catchment Area

Area (m²)	750.184
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Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	70.58



C07

Type : Catchment Area

Area (m²)	343.737
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Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	68.32



C05

Type : Catchment Area

Area (m²)	962.297
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Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	91.26

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 02/10/2025		
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Report Details: Type: Inflows Storm Phase: Storm	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



C01

Type : Catchment Area

Area (m²)	468.157
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Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	52.63



C08

Type : Catchment Area

Area (m²)	876.233
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Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	7.21



C10

Type : Catchment Area

Area (m²)	1076.971
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Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	53.59



C11

Type : Catchment Area

Area (m²)	1712.48
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Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	49.59

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 02/10/2025		
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Report Details: Type: Inflows Storm Phase: Storm	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



C06

Type : Catchment Area

Area (m²)	224.313
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Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	19.47



C03

Type : Catchment Area

Area (m²)	1171.144
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Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	54.98



C09

Type : Catchment Area

Area (m²)	1155.243
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Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	46.87



Green Roof

Type : Catchment Area

Area (m²)	185.215
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Dynamic Sizing

Runoff Method	Green Roof
Summer Volumetric Runoff Coefficient	0.750
Winter Volumetric Runoff Coefficient	0.750
Depression Storage (mm)	50
Evapotranspiration (mm/day)	1.0
Decay Coefficiency	0.050
Time Delay (mins)	120

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 02/10/2025		
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Report Details: Type: Junctions Storm Phase: Storm	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



Name	Junction Type	Easting (m)	Northing (m)	Cover Elevation (m)	Depth (m)	Invert Elevation (m)	Sump Depth (m)	Chamber Shape
SW.004	Manhole	558158.097	570795.839	16.820	1.380	15.440	0.000	Circular
SW.006	Manhole	558106.848	570780.125	16.100	1.350	14.750	0.000	Circular
SW.007	Manhole	558090.977	570775.929	15.980	1.150	14.830	0.000	Circular
SW.003	Manhole	558109.729	570769.183	16.250	2.550	13.700	1.000	Circular
SW.005	Manhole	558140.009	570788.533	16.420	1.500	14.920	0.000	Circular
SW.002	Manhole	558117.446	570739.885	16.000	1.150	14.850	0.000	Circular
SW.010	Manhole	558135.825	570785.668	16.340	1.850	14.490	0.000	Circular
SW.008	Manhole	558113.969	570770.291	16.230	1.630	14.600	0.000	Circular
SW.001	Manhole	558153.840	570749.471	16.000	0.960	15.040	0.000	Circular
SW.009	Manhole	558135.862	570776.119	16.500	1.960	14.540	0.000	Circular
SW.011	Manhole	558165.566	570796.892	16.900	2.570	14.330	0.000	Circular
SW.012	Manhole	558162.484	570826.835	16.400	2.200	14.200	0.000	Circular
Ex.SW.001	Manhole	558176.818	570755.881	18.860	3.210	15.650	0.000	Circular
EX.SW.002	Manhole	558160.185	570838.215	16.400	2.450	13.950	0.000	Circular
IC002	Simple Junction	558069.615	570802.416					
IC006	Simple Junction	558109.403	570749.186					
SW.007a	Manhole	558076.046	570776.881	16.100	0.950	15.150	0.000	Circular
IC001	Simple Junction	558136.937	570819.716					
IC009	Simple Junction	558147.073	570761.118					
SW.002a	Manhole	558092.690	570733.365	16.000	1.020	14.980	0.000	Circular
IC007	Simple Junction	558104.416	570767.834					
IC008	Simple Junction	558142.766	570778.579					
SW.003a	Manhole	558114.001	570752.963	16.250	1.465	14.785	0.000	Circular
IC005	Simple Junction	558075.931	570770.164					
IC004	Simple Junction	558084.804	570736.240					

Name	Diameter (m)	Lock	Bend Loss
SW.004	1.200	None	0.00
SW.006	1.200	None	0.00
SW.007	1.200	None	0.00
SW.003	1.200	None	0.00
SW.005	1.200	None	0.00
SW.002	1.200	None	0.00
SW.010	1.200	None	0.00
SW.008	1.200	None	0.00
SW.001	1.200	None	0.00
SW.009	1.200	None	0.00
SW.011	1.200	None	0.00
SW.012	1.200	None	0.00
Ex.SW.001	1.200	None	0.00
EX.SW.002	1.200	None	0.00
IC002			0.00
IC006			0.00
SW.007a	1.200	None	0.00
IC001			0.00
IC009			0.00
SW.002a	1.200	None	0.00
IC007			0.00
IC008			0.00
SW.003a	1.200	None	0.00
IC005			0.00
IC004			0.00

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 02/10/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Details: Type: Junctions Storm Phase: Storm	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		

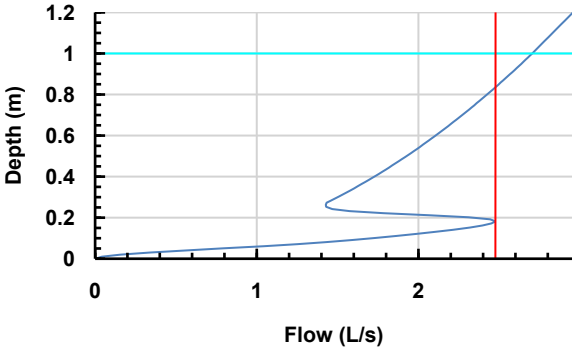


Inlets

Junction	Inlet Name	Incoming Item(s)	Bypass Destination	Capacity Type
SW.004	Inlet (1)	C03	(None)	No Restriction
SW.006	Inlet (1)	P 7-6	(None)	No Restriction
	Inlet (2)	P 5-6	(None)	No Restriction
SW.007	Inlet	C04	(None)	No Restriction
	Inlet (1)	P 7a-7	(None)	No Restriction
	Inlet (3)	P I5-B	(None)	No Restriction
SW.003	Inlet (1)	P 3a-3	(None)	No Restriction
	Inlet (2)	P 6-3	(None)	No Restriction
	Inlet (3)	C08	(None)	No Restriction
	Inlet (5)	P I7-3	(None)	No Restriction
SW.005	Inlet	P 4-5	(None)	No Restriction
	Inlet (2)	C05	(None)	No Restriction
SW.002	Inlet	P 1-2	(None)	No Restriction
	Inlet (3)	P 2a-2	(None)	No Restriction
SW.010	Inlet	P 9-10	(None)	No Restriction
SW.008	Inlet	P 3-8	(None)	No Restriction
SW.001	Inlet	C11	(None)	No Restriction
SW.009	Inlet	P T-9	(None)	No Restriction
SW.011	Inlet	P 10-11	(None)	No Restriction
SW.012	Inlet	P 11-12	(None)	No Restriction
	Inlet (1)	P E1-12	(None)	No Restriction
EX.SW.002	Inlet	P 12-E2	(None)	No Restriction
IC002	Inlet	P I1-I2	(None)	No Restriction
	Inlet (1)	C01	(None)	No Restriction
IC006	Inlet	C07	(None)	No Restriction
SW.007a	Inlet (1)	P I2-7a	(None)	No Restriction
IC001	Inlet	C02	(None)	No Restriction
IC009	Inlet (1)	P I8-I9	(None)	No Restriction
SW.002a	Inlet	C10	(None)	No Restriction
IC007	Inlet (1)	P I6-I7	(None)	No Restriction
IC008	Inlet	C09	(None)	No Restriction
SW.003a	Inlet	P 2-3a	(None)	No Restriction
	Inlet (1)	P I9-3a	(None)	No Restriction
IC005	Inlet	P I4-I5	(None)	No Restriction
IC004	Inlet	C06	(None)	No Restriction
	Inlet (2)	Green Roof	(None)	No Restriction

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork		Date: 02/10/2025		 DENIS O'SULLIVAN & ASSOCIATES CONSULTING ENGINEERS
		Designed by: A.G.	Checked by: S.O'D.	
Report Details: Type: Junctions Storm Phase: Storm		Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		

Outlets

Junction	Outlet Name	Outgoing Connection	Outlet Type
SW.004	Outlet	P 4-5	Free Discharge
SW.006	Outlet	P 6-3	Free Discharge
SW.007	Outlet	P 7-6	Free Discharge
SW.003	Outlet	P 3-8	Free Discharge
SW.005	Outlet	P 5-6	Free Discharge
SW.002	Outlet	P 2-3a	Free Discharge
SW.010	Outlet	P 10-11	Free Discharge
SW.008	Outlet	P 8-T	Free Discharge
SW.001	Outlet	P 1-2	Free Discharge
SW.009	Outlet	P 9-10	Hydro-Brake®
	Invert Elevation (m)	14.540	
	Design Depth (m)	1.000	
	Design Flow (L/s)	2.7	
	Objective	Minimize Upstream Storage Requirements	
	Application	Surface Water Only	
	Sump Available	☐	
	Unit Reference	CHE-0075-2700-1000-2700	
			
SW.011	Outlet	P 11-12	Free Discharge
SW.012	Outlet	P 12-E2	Free Discharge
Ex.SW.001	Outlet	P E1-12	Free Discharge
IC002	Outlet	P I2-7a	Free Discharge
IC006	Outlet	P I6-I7	Free Discharge
SW.007a	Outlet	P 7a-7	Free Discharge
IC001	Outlet	P I1-I2	Free Discharge
IC009	Outlet	P I9-3a	Free Discharge
SW.002a	Outlet	P 2a-2	Free Discharge
IC007	Outlet	P I7-3	Free Discharge
IC008	Outlet	P I8-I9	Free Discharge
SW.003a	Outlet	P 3a-3	Free Discharge
IC005	Outlet	P I5-B	Free Discharge
IC004	Outlet	P I4-I5	Free Discharge

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 02/10/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Details: Type: Stormwater Controls Storm Phase: Storm	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



Tank

Type : Tank

Dimensions

Exceedance Elevation (m)	16.230
Depth (m)	1.689
Base Elevation (m)	14.541
Freeboard (mm)	0
Initial Depth (m)	0.000
Porosity (%)	100
Average Slope (1:x)	0.00
Total Volume (m³)	350.689

Depth (m)	Area (m²)	Volume (m³)
0.000	350.00	0.000
1.000	350.00	350.000

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	P 8-T
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	P T-9
Outlet Type	Free Discharge

Advanced

Perimeter	Circular
Length (m)	20.000

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 02/10/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Details: Type: Inflow Summary Storm Phase: Storm	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (m²)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analyzed (m²)
C01	IC002		Time of Concentration	468.157	52.63	0	52.63	246.391
C02	IC001		Time of Concentration	750.184	70.58	0	70.58	529.480
C03	SW.004		Time of Concentration	1171.144	54.98	0	54.98	643.895
C04	SW.007		Time of Concentration	624.119	77.14	0	77.14	481.446
C05	SW.005		Time of Concentration	962.297	91.26	0	91.26	878.192
C06	IC004		Time of Concentration	224.313	19.47	0	19.47	43.674
C07	IC006		Time of Concentration	343.737	68.32	0	68.32	234.841
C08	SW.003		Time of Concentration	876.233	7.21	0	7.21	63.176
C09	IC008		Time of Concentration	1155.243	46.87	0	46.87	541.462
C10	SW.002a		Time of Concentration	1076.971	53.59	0	53.59	577.149
C11	SW.001		Time of Concentration	1712.480	49.59	0	49.59	849.219
Green Roof	IC004		Green Roof	185.215		0		185.215
TOTAL		0.0		9550.095				5274.141

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork		Date: 02/10/2025		 DENIS O'SULLIVAN & ASSOCIATES CONSULTING ENGINEERS	
		Designed by: A.G.	Checked by: S.O'D.		Approved By: C.O'S.
Report Details: Type: Network Design Criteria Storm Phase: Storm		Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84			

Flow Options

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

FSR

Type: FSR

Return Period (years)	2.0
Region	Scotland and Ireland
M5-60 (mm)	18.8
Ratio R	0.250

Pipe Options

Lock Slope Options	None
Design Options	Minimize Excavation
Design Level	Level Crowns
Min. Cover Depth (m)	1.200
Min. Slope (1:x)	200.00
Max. Slope (1:x)	13.00
Min. Velocity (m/s)	1.0
Max. Velocity (m/s)	3.0
Use Flow Restriction	☒
Reduce Channel Depths	☒

Manhole Options

Apply Offset	☐
--------------	--------------------------

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 02/10/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Title: Rainfall Analysis Criteria	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



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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
Prefill Manhole Sumps	☐
Perform First Flush Analysis	☐

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 02/10/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Details: Type: Phase Management Storm Phase: Storm	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



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Storm
FSR: 100 years: Increase Rainfall (%): +20: 1440 mins: Winter

Tables

Name	Max. Inflow (L/s)	Total Inflow Volume (m³)	Max. Outflow (L/s)	Total Outflow Volume (m³)
EX.SW.002			2.9	359.811
TOTAL	16.0	540.315	2.9	359.811

Appendix G – Foul Sewer Report

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 30/09/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Details: Type: Inflows Sanitary Phase: Foul	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



IC001c

Type : Catchment Area

Area (m²)	50.794
-----------	--------

Dynamic Sizing

Runoff Method	Sanitary
Volumetric Runoff Coefficient	0.750
Domestic Flow (L/s/ha)	0.0
Domestic Peak Flow Factor	0.00
Calculation Method	Main Drainage
Flow per Dwelling (L/day)	2430.0
Number of Dwellings	4.00
Resulting Flow Rate (L/s)	0.113



IC001a

Type : Catchment Area

Area (m²)	74.305
-----------	--------

Dynamic Sizing

Runoff Method	Sanitary
Volumetric Runoff Coefficient	0.750
Calculation Method	Main Drainage
Flow per Dwelling (L/day)	2430.0
Number of Dwellings	18.00
Resulting Flow Rate (L/s)	0.506



FS002a-2

Type : Catchment Area

Area (m²)	88.454
-----------	--------

Dynamic Sizing

Runoff Method	Sanitary
Volumetric Runoff Coefficient	0.750
Calculation Method	Main Drainage
Flow per Dwelling (L/day)	2430.0
Number of Dwellings	15.00
Resulting Flow Rate (L/s)	0.422

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 30/09/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Details: Type: Inflows Sanitary Phase: Foul	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



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FS002a-1

Type : Catchment Area

Area (m²)	36.452
-----------	--------

Dynamic Sizing

Runoff Method	Sanitary
Volumetric Runoff Coefficient	0.750
Calculation Method	Main Drainage
Flow per Dwelling (L/day)	2430.0
Number of Dwellings	20.00
Resulting Flow Rate (L/s)	0.563



FS005a

Type : Catchment Area

Area (m²)	49.577
-----------	--------

Dynamic Sizing

Runoff Method	Sanitary
Volumetric Runoff Coefficient	0.750
Calculation Method	Main Drainage
Flow per Dwelling (L/day)	2430.0
Number of Dwellings	29.00
Resulting Flow Rate (L/s)	0.816



FS005c

Type : Catchment Area

Area (m²)	218.631
-----------	---------

Dynamic Sizing

Runoff Method	Sanitary
Volumetric Runoff Coefficient	0.750
Calculation Method	Main Drainage
Flow per Dwelling (L/day)	2430.0
Number of Dwellings	28.00
Resulting Flow Rate (L/s)	0.788

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 30/09/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Details: Type: Inflows Sanitary Phase: Foul	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



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FS003

Type : Catchment Area

Area (m²)	53.317
-----------	--------

Dynamic Sizing	
Runoff Method	Sanitary
Volumetric Runoff Coefficient	0.750
Calculation Method	Main Drainage
Flow per Dwelling (L/day)	2430.0
Number of Dwellings	4.00
Resulting Flow Rate (L/s)	0.113



FS-004

Type : Catchment Area

Area (m²)	30.336
-----------	--------

Dynamic Sizing	
Runoff Method	Sanitary
Volumetric Runoff Coefficient	0.750
Calculation Method	Main Drainage
Flow per Dwelling (L/day)	2430.0
Number of Dwellings	6.00
Resulting Flow Rate (L/s)	0.169



FS005

Type : Catchment Area

Area (m²)	29.743
-----------	--------

Dynamic Sizing	
Runoff Method	Sanitary
Volumetric Runoff Coefficient	0.750
Calculation Method	Main Drainage
Flow per Dwelling (L/day)	2430.0
Number of Dwellings	8.00
Resulting Flow Rate (L/s)	0.225

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 30/09/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Details: Type: Junctions Sanitary Phase: Foul	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



Name	Junction Type	Easting (m)	Northing (m)	Cover Elevation (m)	Depth (m)	Invert Elevation (m)	Chamber Shape	Diameter (m)
FS.002	Manhole	558098.893	570779.243	16.070	1.420	14.650	Circular	1.200
FS.002a	Manhole	558106.997	570750.770	16.250	0.750	15.500	Circular	1.200
FS.001	Manhole	558080.142	570777.977	16.100	1.400	14.700	Circular	1.200
IC.001a	Manhole	558085.972	570735.064	16.250	1.000	15.250	Circular	1.200
FS.004	Manhole	558138.255	570789.504	16.420	2.110	14.310	Circular	1.200
FS.005	Manhole	558156.170	570796.458	16.800	2.640	14.160	Circular	1.200
FS.005a	Manhole	558136.269	570755.098	16.100	0.600	15.500	Circular	1.200
FS.005b	Manhole	558148.431	570758.581	16.250	0.930	15.320	Circular	1.200
FS.005c	Manhole	558141.799	570785.469	16.500	1.400	15.100	Circular	1.200
FS.005d	Manhole	558156.920	570791.681	16.100	1.130	14.970	Circular	1.200
FS.007	Manhole	558173.558	570824.822	16.680	2.780	13.900	Circular	1.200
Ex.FS.001	Manhole	558192.657	570737.274	19.290	4.185	15.105	Circular	1.200
Ex.FS.002	Manhole	558175.520	570825.235	16.690	2.800	13.890	Circular	1.200
IC001b	Simple Junction	558076.857	570768.901					
IC001d	Simple Junction	558071.183	570802.096					
IC001c	Simple Junction	558081.591	570804.752					
FS.006	Manhole	558177.912	570802.500	17.340	3.310	14.030	Circular	1.200
IC001e	Simple Junction	558076.332	570782.407					

Name	Lock	Bend Loss
FS.002	None	0.00
FS.002a	None	0.00
FS.001	None	0.00
IC.001a	None	0.00
FS.004	None	0.00
FS.005	None	0.00
FS.005a	None	0.00
FS.005b	None	0.00
FS.005c	None	0.00
FS.005d	None	0.00
FS.007	None	0.00
Ex.FS.001	None	0.00
Ex.FS.002	None	0.00
IC001b		0.00
IC001d		0.00
IC001c		0.00
FS.006	None	0.00
IC001e		0.00

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 30/09/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Details: Type: Junctions Sanitary Phase: Foul	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



Inlets

Junction	Inlet Name	Incoming Item(s)	Bypass Destination	Capacity Type
FS.002	Inlet	P 1-2	(None)	No Restriction
	Inlet (1)	P 2a-2	(None)	No Restriction
	Inlet (2)	FS003	(None)	No Restriction
FS.002a	Inlet	FS002a-2	(None)	No Restriction
	Inlet (1)	FS002a-1	(None)	No Restriction
FS.001	Inlet	P I1-1	(None)	No Restriction
	Inlet (1)	P I2-1 (1)	(None)	No Restriction
IC.001a	Inlet	IC001a	(None)	No Restriction
FS.004	Inlet		(None)	No Restriction
	Inlet (1)	FS-004	(None)	No Restriction
	Inlet (2)	Pipe	(None)	No Restriction
FS.005	Inlet	P 4-5	(None)	No Restriction
	Inlet (1)	p 5d-5	(None)	No Restriction
	Inlet (2)	FS005	(None)	No Restriction
FS.005a	Inlet	FS005a	(None)	No Restriction
FS.005b	Inlet	P 5a-5b	(None)	No Restriction
FS.005c	Inlet	P 5b-5c	(None)	No Restriction
	Inlet (1)	FS005c	(None)	No Restriction
FS.005d	Inlet	P 5c-5d	(None)	No Restriction
FS.007	Inlet	P 6-7	(None)	No Restriction
Ex.FS.002	Inlet	P 7-E2	(None)	No Restriction
	Inlet (1)	P E1-E2	(None)	No Restriction
IC001b	Inlet	P 1a-I1	(None)	No Restriction
IC001d	Inlet	P I3-I2	(None)	No Restriction
IC001c	Inlet	IC001c	(None)	No Restriction
FS.006	Inlet	P 5-6	(None)	No Restriction
IC001e	Inlet	P I2-1	(None)	No Restriction

Outlets

Junction	Outlet Name	Outgoing Connection	Outlet Type
FS.002	Outlet	Pipe	Free Discharge
FS.002a	Outlet	P 2a-2	Free Discharge
FS.001	Outlet	P 1-2	Free Discharge
IC.001a	Outlet	P 1a-I1	Free Discharge
FS.004	Outlet	P 4-5	Free Discharge
FS.005	Outlet	P 5-6	Free Discharge
FS.005a	Outlet	P 5a-5b	Free Discharge
FS.005b	Outlet	P 5b-5c	Free Discharge
FS.005c	Outlet	P 5c-5d	Free Discharge
FS.005d	Outlet	p 5d-5	Free Discharge
FS.007	Outlet	P 7-E2	Free Discharge
Ex.FS.001	Outlet	P E1-E2	Free Discharge
IC001b	Outlet	P I1-1	Free Discharge
IC001d	Outlet	P I2-1	Free Discharge
IC001c	Outlet	P I3-I2	Free Discharge
FS.006	Outlet	P 6-7	Free Discharge
IC001e	Outlet	P I2-1 (1)	Free Discharge

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 30/09/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Details: Type: Inflow Summary Sanitary Phase: Foul	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (m²)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analyzed (m²)
FS002a-1	FS.002a		Sanitary	36.452		0		0.00
FS002a-2	FS.002a		Sanitary	88.454		0		0.00
FS003	FS.002		Sanitary	53.317		0		0.00
FS-004	FS.004		Sanitary	30.336		0		0.00
FS005	FS.005		Sanitary	29.743		0		0.00
FS005a	FS.005a		Sanitary	49.577		0		0.00
FS005c	FS.005c		Sanitary	218.631		0		0.00
IC001a	IC.001a		Sanitary	74.305		0		0.00
IC001c	IC001c		Sanitary	50.794		0		0.00
TOTAL		0.0		631.608				0.00

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 30/09/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Details: Type: Network Design Report Sanitary Phase: Foul Flow Path: FS.001-EX.FS.002	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



Name	Total Area (m²)	Proportional Depth (mm)	Proportional Velocity (m/s)	Full Bore Velocity (m/s)	Capacity (L/s)	Flow (L/s)
P I3-I2	50.794	6	0.377	2.112	83.958	0.113
P I2-1	50.794	6	0.377	2.115	84.078	0.113
P I2-1 (1)	50.794	6	0.411	2.552	101.465	0.113
Branch: P 1a-I1						
P 1a-I1	74.305	14	0.487	1.630	64.818	0.506
P I1-1	74.305	13	0.578	2.100	83.501	0.506
P 1-2	125.098	21	0.325	0.841	33.454	0.619
Branch: P 2a-2						
P 2a-2	124.906	20	0.560	1.499	59.601	0.984
Pipe	303.322	28	0.592	1.279	50.846	1.716
P 4-5	333.657	28	0.647	1.392	55.357	1.884
Branch: P 5a-5b						
P 5a-5b	49.577	17	0.624	1.891	75.187	0.816
P 5b-5c	49.577	19	0.509	1.420	56.478	0.816
P 5c-5d	268.208	26	0.618	1.398	55.568	1.603
p 5d-5	268.208	23	0.742	1.817	72.246	1.603
P 5-6	631.608	43	0.709	1.190	47.297	3.713
P 6-7	631.608	42	0.727	1.233	49.036	3.713
P 7-E2	631.608	22	1.808	4.521	179.746	3.713

Project: Castle Peak Properties Ltd Innishmore, Ballincollig, Co. Cork	Date: 30/09/2025		
	Designed by: A.G.	Checked by: S.O'D.	Approved By: C.O'S.
Report Details: Type: Network Design Criteria Sanitary Phase: Foul	Company Address: Joyce House, Barrack Square, Ballincollig, Co. Cork P31 KP84		



Pipe Options

Lock Slope Options	None
Design Options	Minimize Excavation
Design Level	Level Inverts
Min. Slope (1:x)	200.00
Max. Slope (1:x)	13.00
Min. Backdrop (m)	0.000
Max. Backdrop (m)	10.000
Velocity Criteria	1/3 Proportional Velocity
Min. Velocity (m/s)	1.0
Max. Velocity (m/s)	3.0
Use Flow Restriction	☒
Reduce Channel Depths	☒

Manhole Options

Apply Offset	☐
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Appendix H - Storm water long sections

Project: Castle Peak Properties Ltd
Innishmore, Ballincollig, Co. Cork

Modified date 30/09/2025
File Drainage Design.iddx

Profile - SW.001-EX.SW.002

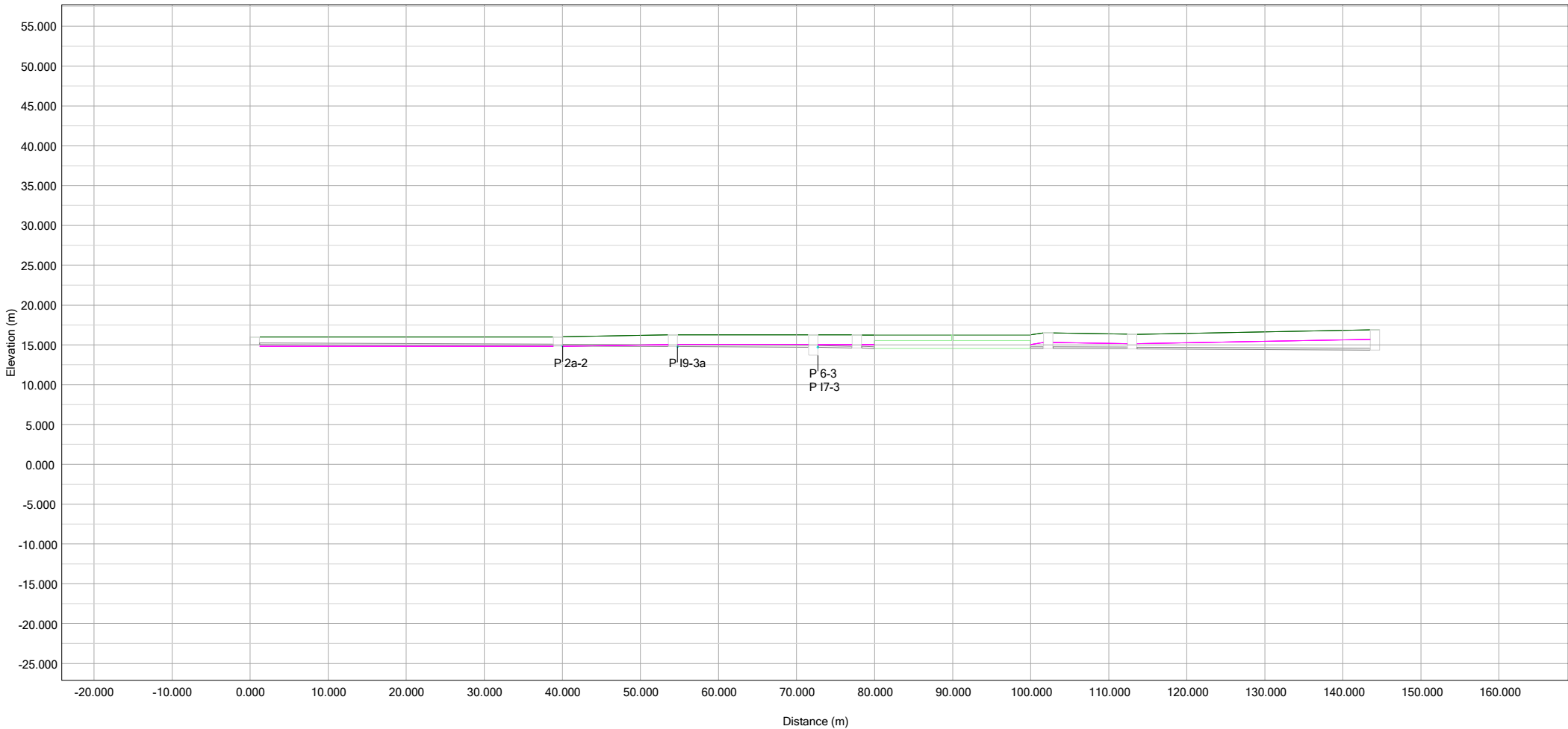
Company Address: Joyce House, Barrack Square,
Ballincollig, Co. Cork
P31 KP84

Designed by A.G.
Checked by S.O'D.

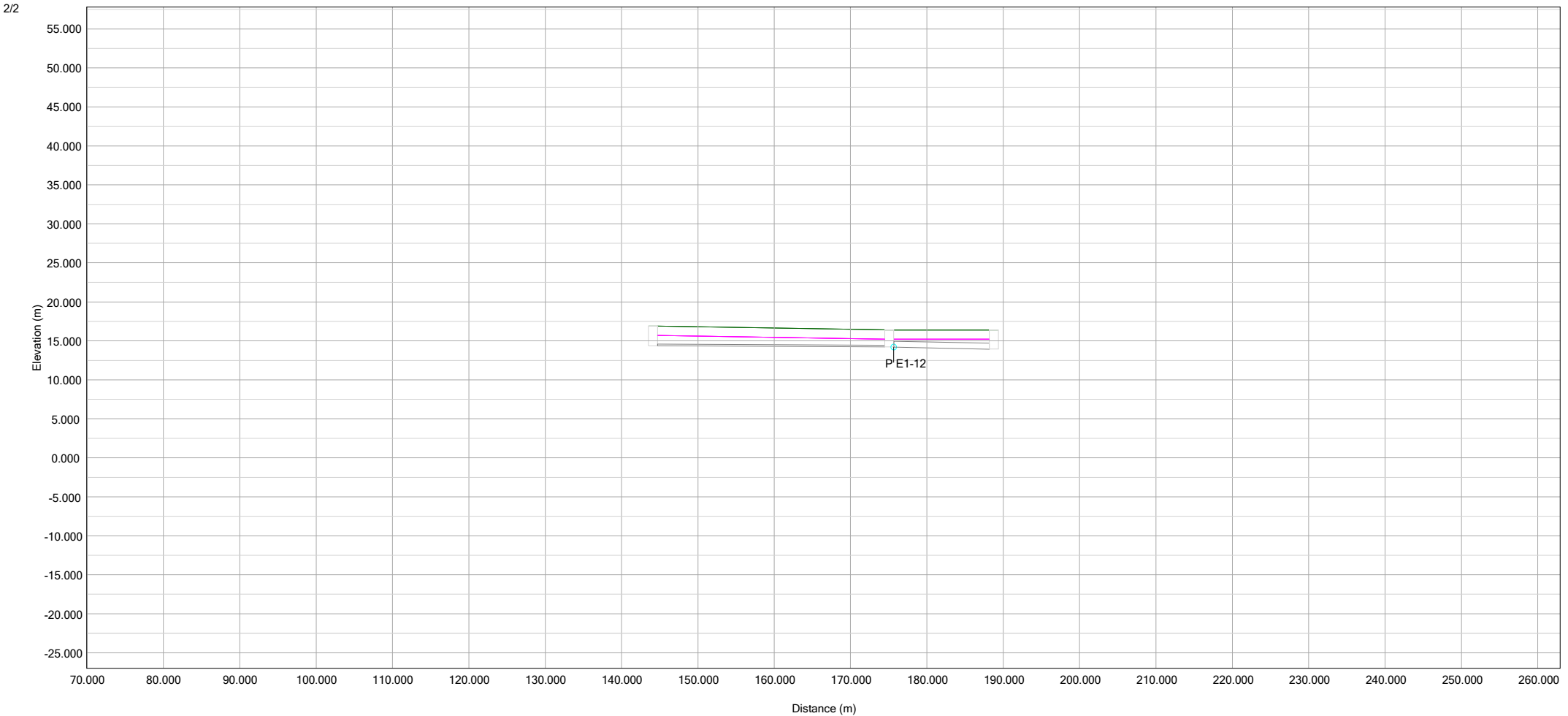
InfoDrainage 2026.2

Horizontal Scale 1:500, Vertical Scale 1:500

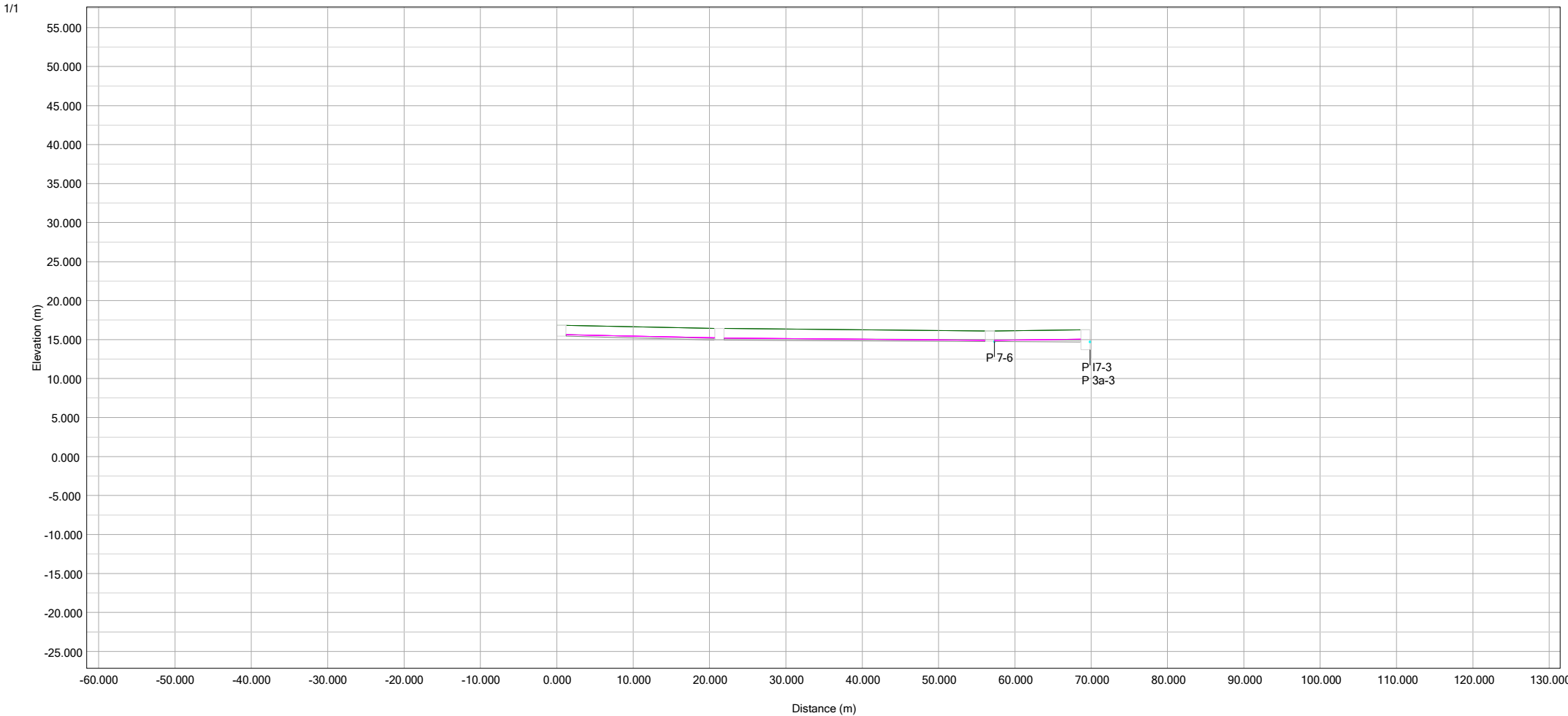
1/2



Junction	SW.001	SW.002	SW.003a	SW.003	SW.009	SW.010	SW.011
Type	Manhole	Manhole	Manhole	Manhole	Manhole	Manhole	Manhole
CE (m)	16.000	16.000	16.250	16.250	16.500	16.340	16.900
IE (m)	15.040	14.850	14.785	13.700	14.540	14.490	14.350
Connection	P 1-2	P 2-3a	P 3a-3	P 3-8	P T-9	P 9-10	P 10-11
Type	Pipe	Pipe	Pipe	Pipe	Pipe	Pipe	Pipe
Curved	No	No	No	No	No	No	No
Length (m)	37.635	13.524	16.773	4.382	1.686	9.549	29.912
Diam (mm)	225	225	225	225	225	225	225
Height (mm)							
U/S IE (m)	15.040	14.850	14.785	14.700	14.541	14.540	14.490
D/S IE (m)	14.855	14.785	14.710	14.610	14.540	14.500	14.350
C. Splay (mm)							
SWC							
Type					Tank		
EE (m)					16.230		
BE (m)					14.541		



Junction		SW.011		SW.012	EX.SW.002
Type		Manhole		Manhole	Manhole
CE (m)		16.900		16.400	16.400
IE (m)		14.350		14.200	13.950
Connection			P 11-12		P 12-E2
Type			Pipe		Pipe
Curved			No		No
Length (m)			29.756		12.500
Diam (mm)			225		750
Height (mm)					
U/S IE (m)			14.350		14.200
D/S IE (m)			14.200		13.950
C. Splay (mm)					
SWC					
Type					
EE (m)					
BE (m)					



Junction	SW.004	SW.005	SW.006	SW.003
Type	Manhole	Manhole	Manhole	Manhole
CE (m)	16.820	16.420	16.100	16.250
IE (m)	15.440	14.920	14.750	13.700
Connection	P 4-5	P 5-6	P 6-3	
Type	Pipe	Pipe	Pipe	
Curved	No	No	No	
Length (m)	19.508	34.210	11.316	
Diam (mm)	225	225	225	
Height (mm)				
U/S IE (m)	15.440	14.920	14.750	
D/S IE (m)	14.930	14.755	14.700	
C. Splay (mm)				
SWC				
Type				
EE (m)				
BE (m)				

Project: Castle Peak Properties Ltd
Innishmore, Ballincollig, Co. Cork

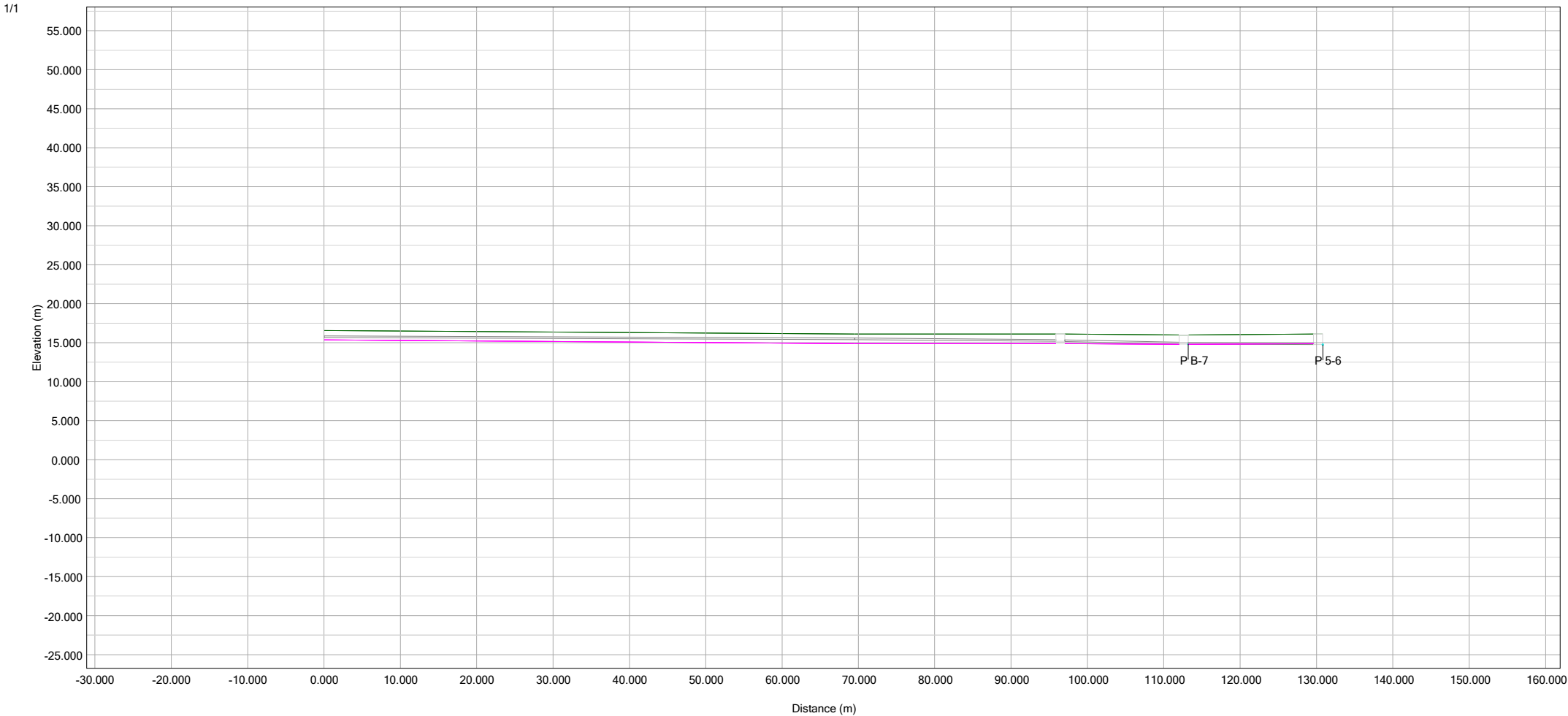
Modified date 30/09/2025
File Drainage Design.iddx

Profile - IC001-SW.006

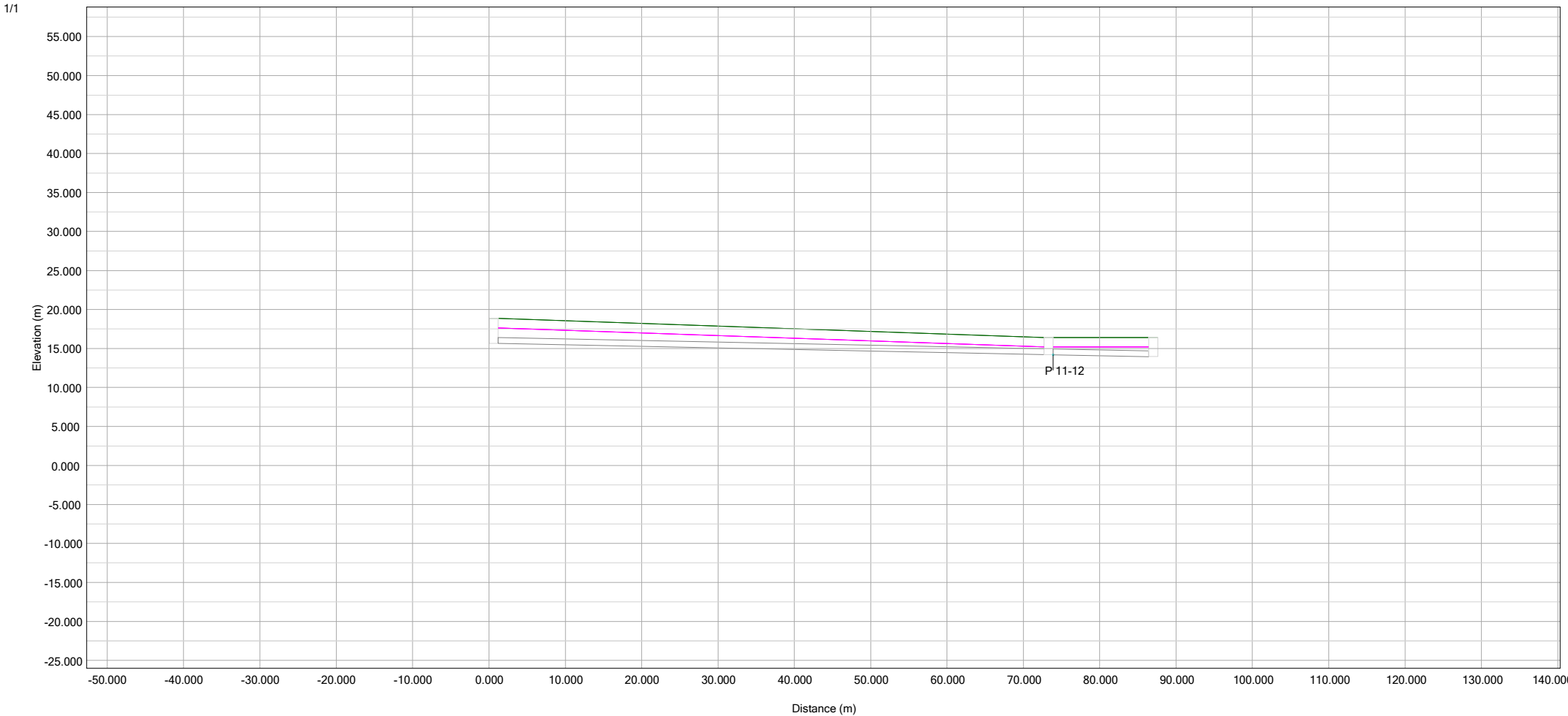
Company Address: Joyce House, Barrack Square,
Ballincollig, Co. Cork
P31 KP84

Designed by A.G.
Checked by S.O'D.

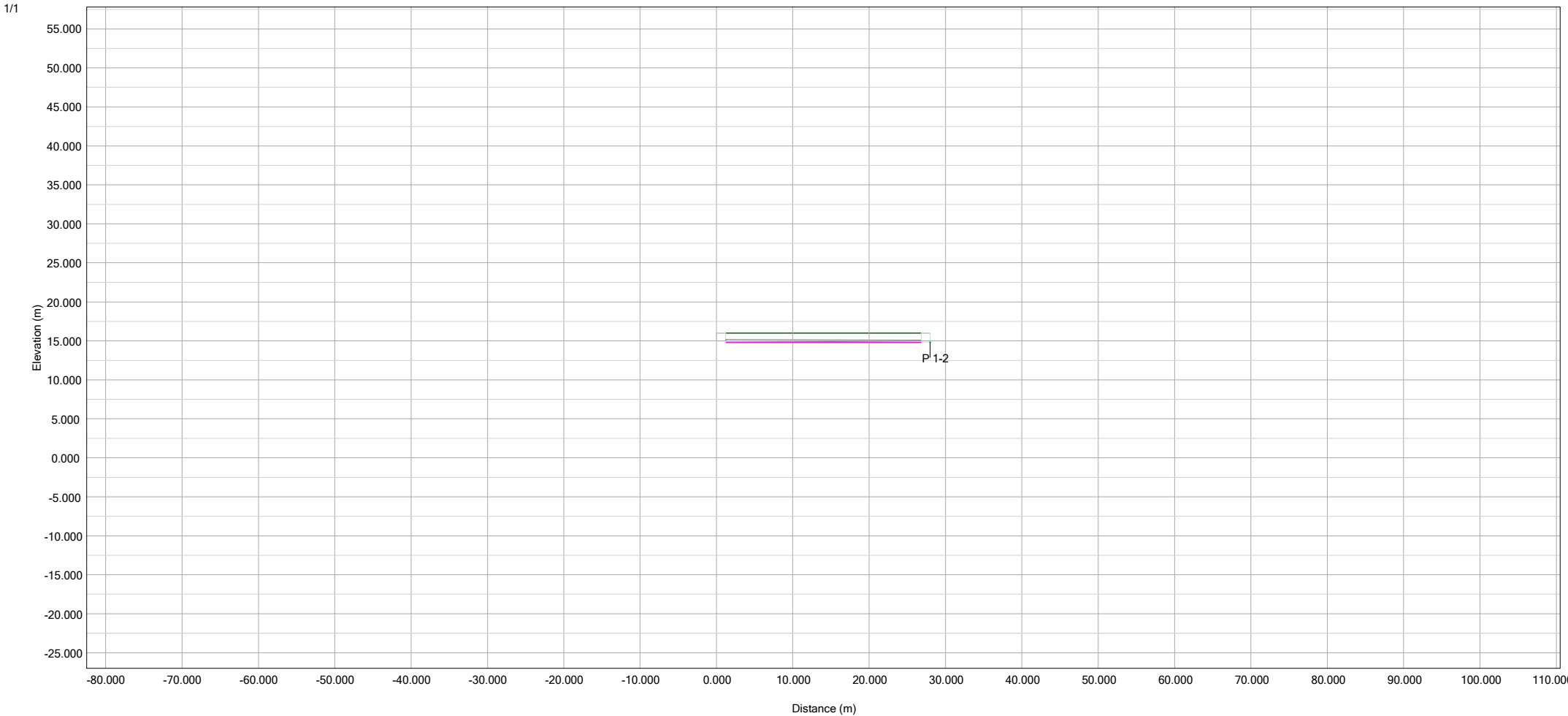
InfoDrainage 2026.2
Horizontal Scale 1:500, Vertical Scale 1:500



Junction	IC001	IC002	SW.007a	SW.007	SW.006
Type	Simple Junction	Simple Junction	Manhole	Manhole	Manhole
CE (m)			16.100	15.980	
IE (m)			15.150	14.830	14.750
Connection					
Type	P 11-12	P 12-7a	P 7a-7	P 7-6	
Curved	Pipe	Pipe	Pipe	Pipe	
Length (m)	No	No	No	No	
Diam (mm)	69.509	26.332	14.961	16.416	
Height (mm)	225	225	225	225	
U/S IE (m)	15.650	15.390	15.150	14.830	
D/S IE (m)	15.390	15.150	14.840	14.755	
C. Splay (mm)					
SWC					
Type					
EE (m)					
BE (m)					



Junction	Ex.SW.001		SW.012	EX.SW.002
Type	Manhole		Manhole	Manhole
CE (m)	18.860		16.400	16.400
IE (m)	15.650		14.200	13.950
Connection		P E1-12		P 12-E2
Type		Pipe		Pipe
Curved		No		No
Length (m)		71.498		12.500
Diam (mm)		750		750
Height (mm)				
U/S IE (m)		15.650		14.200
D/S IE (m)		14.200		13.950
C. Splay (mm)				
SWC				
Type				
EE (m)				
BE (m)				



Junction	SW.002a	SW.002
Type	Manhole	Manhole
CE (m)	16.000	16.000
IE (m)	14.980	14.850
Connection	P 2a-2	
Type	Pipe	
Curved	No	
Length (m)	25.600	
Diam (mm)	225	
Height (mm)		
U/S IE (m)	14.980	
D/S IE (m)	14.855	
C. Splay (mm)		
SWC		
Type		
EE (m)		
BE (m)		

Project: Castle Peak Properties Ltd
Innishmore, Ballincollig, Co. Cork

Modified date 30/09/2025
File Drainage Design.iddx

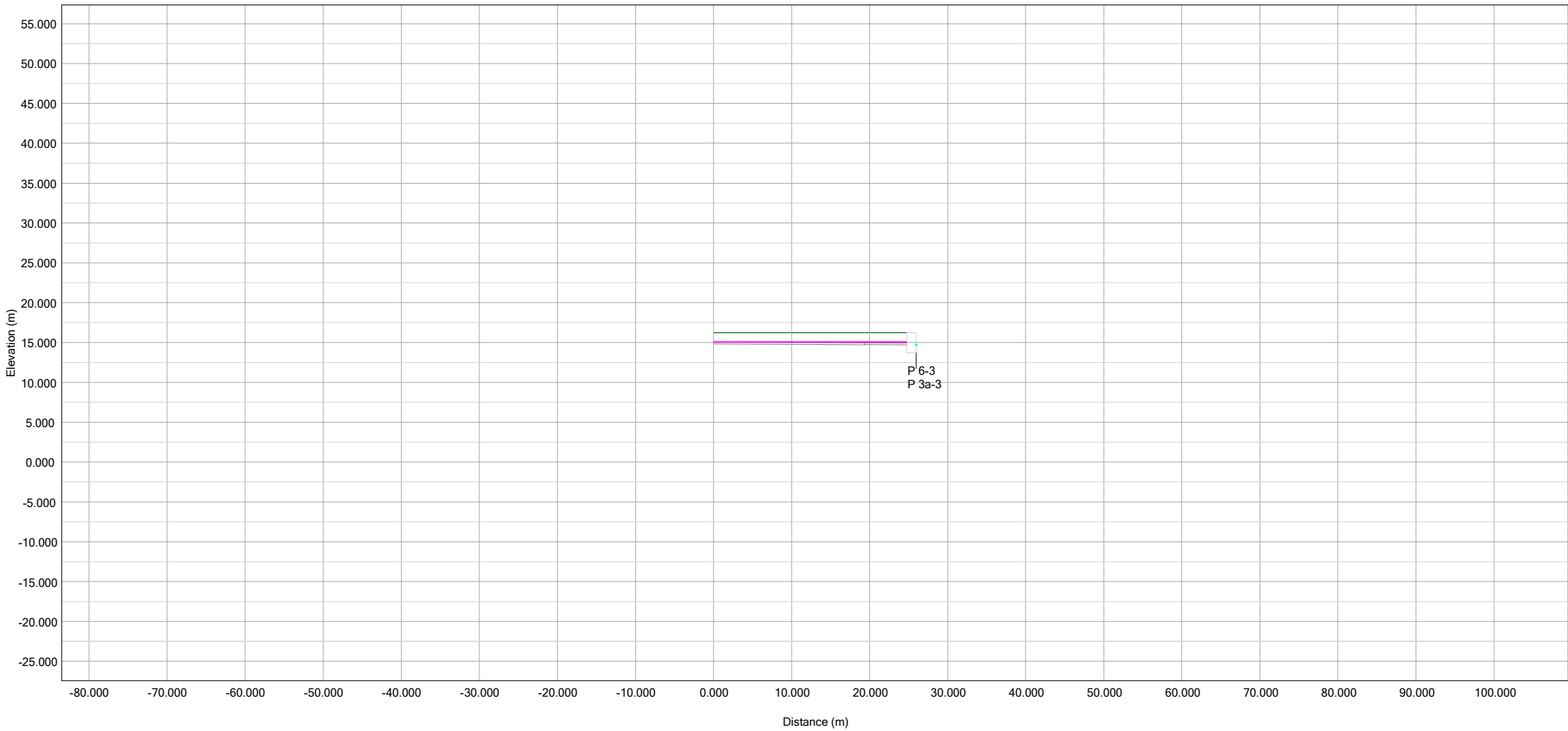
Profile - IC006-SW.003

Company Address: Joyce House, Barrack Square,
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P31 KP84

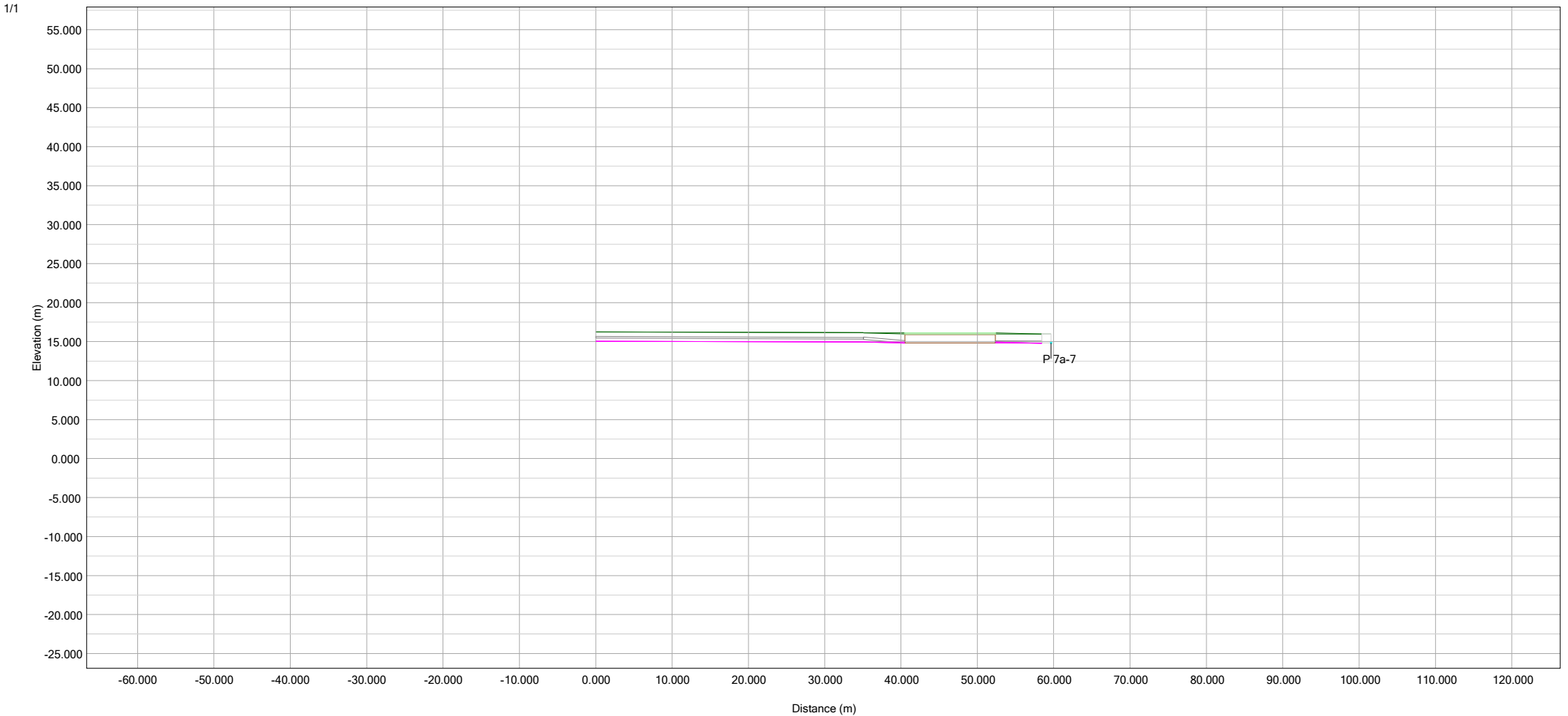
Designed by A.G.
Checked by S.O'D.
InfoDrainage 2026.2

Horizontal Scale 1:500, Vertical Scale 1:500

1/1



Junction		IC006	IC007
Type		Simple Junction	Simple Junction
CE (m)			
IE (m)			
Connection		P I6-17	P I7-3
Type		Pipe	Pipe
Curved		No	No
Length (m)		19.303	5.482
Diam (mm)		225	225
Height (mm)			
U/S IE (m)		14.825	14.730
D/S IE (m)		14.730	14.700
C. Splay (mm)			
SWC			
Type			
EE (m)			
BE (m)			



Junction	IC004		IC005		SW.007	
Type	Simple Junction		Simple Junction		Manhole	
CE (m)					15.980	
IE (m)					14.830	
Connection	P I4-I5		P I5-B		P B-7	
Type	Pipe		Pipe		Pipe	
Curved	No		No		No	
Length (m)	35.064		5.430		6.119	
Diam (mm)	225		300		225	
Height (mm)						
U/S IE (m)	15.475		15.300		14.870	
D/S IE (m)	15.300		14.850		14.840	
C. Splay (mm)						
SWC			Bioretention			
Type			Bioretention			
EE (m)			16.150			
BE (m)			14.800			

Appendix I – Foul Sewer long sections

Project: Castle Peak Properties Ltd
Innishmore, Ballincollig, Co. Cork

Modified date 30/09/2025
File Drainage Design.iddx

Profile - FS.001a-FS.001

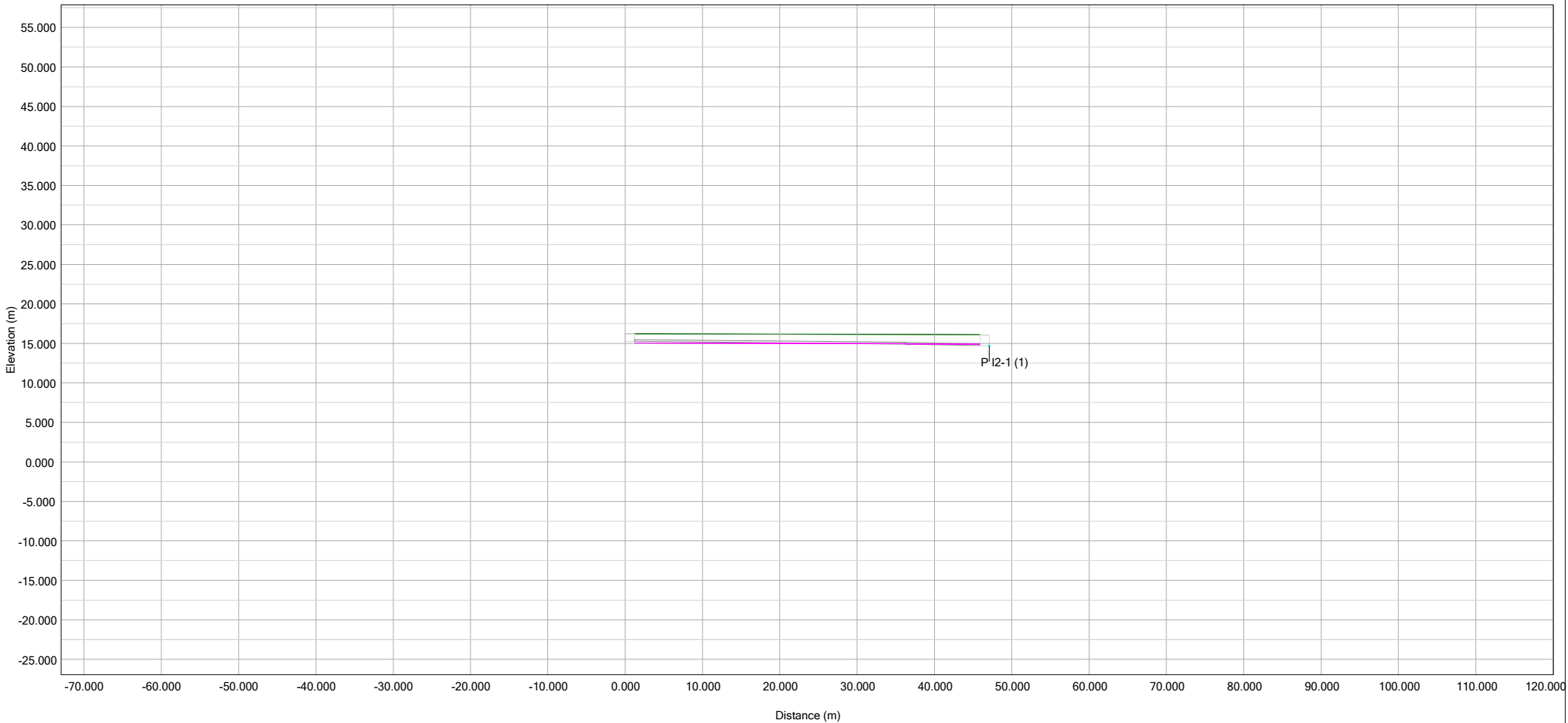
Company Address: Joyce House, Barrack Square,
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P31 KP84

Designed by A.G.
Checked by S.O'D.

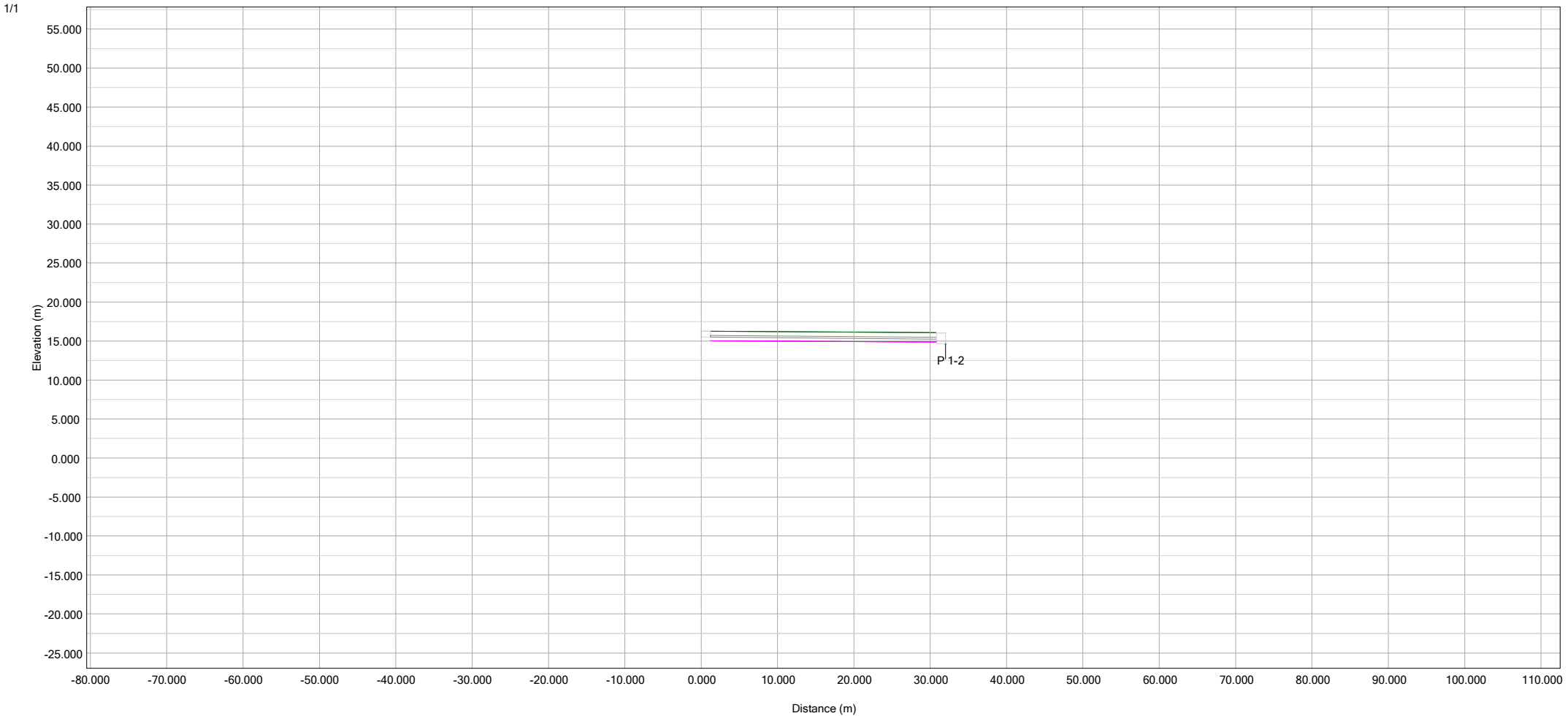
InfoDrainage 2026.2
Horizontal Scale 1:500, Vertical Scale 1:500



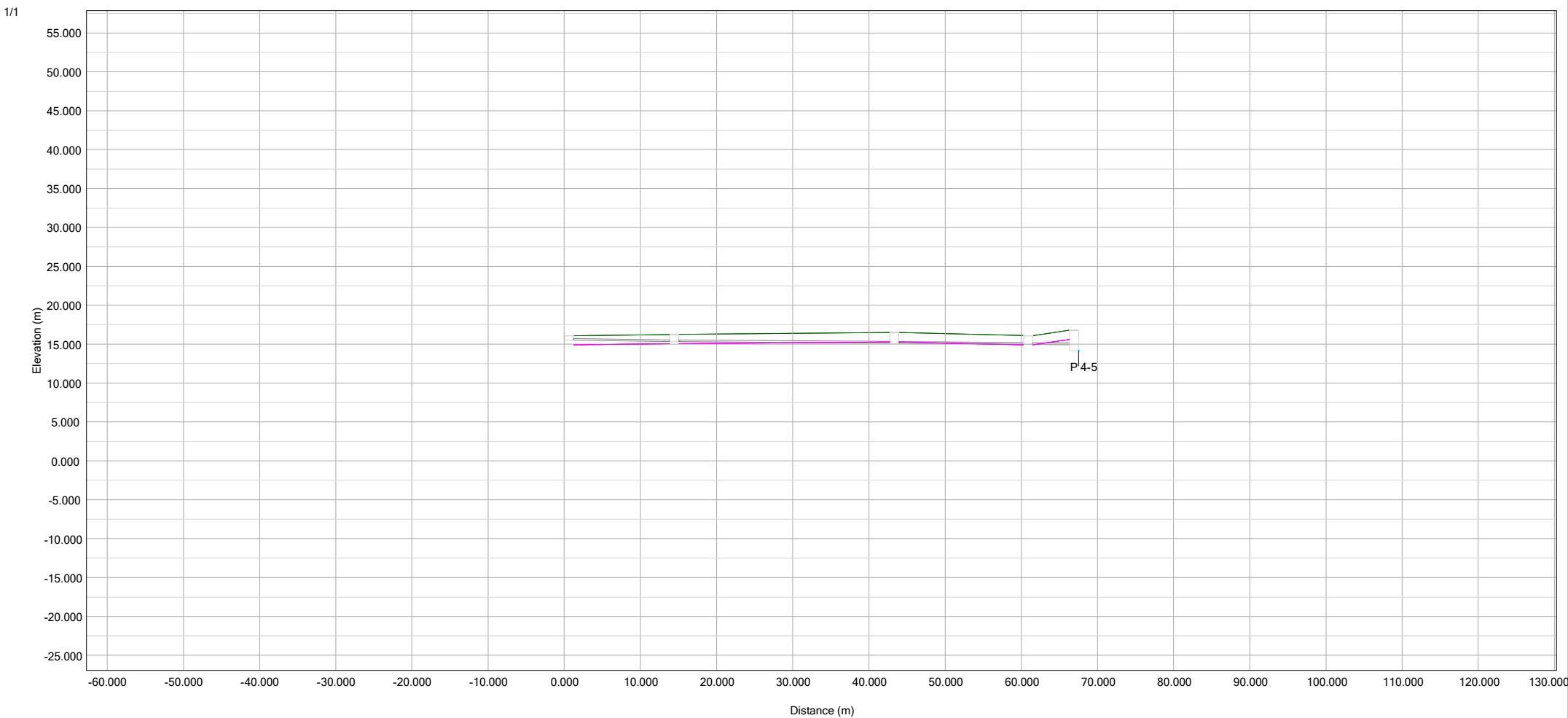
1/1



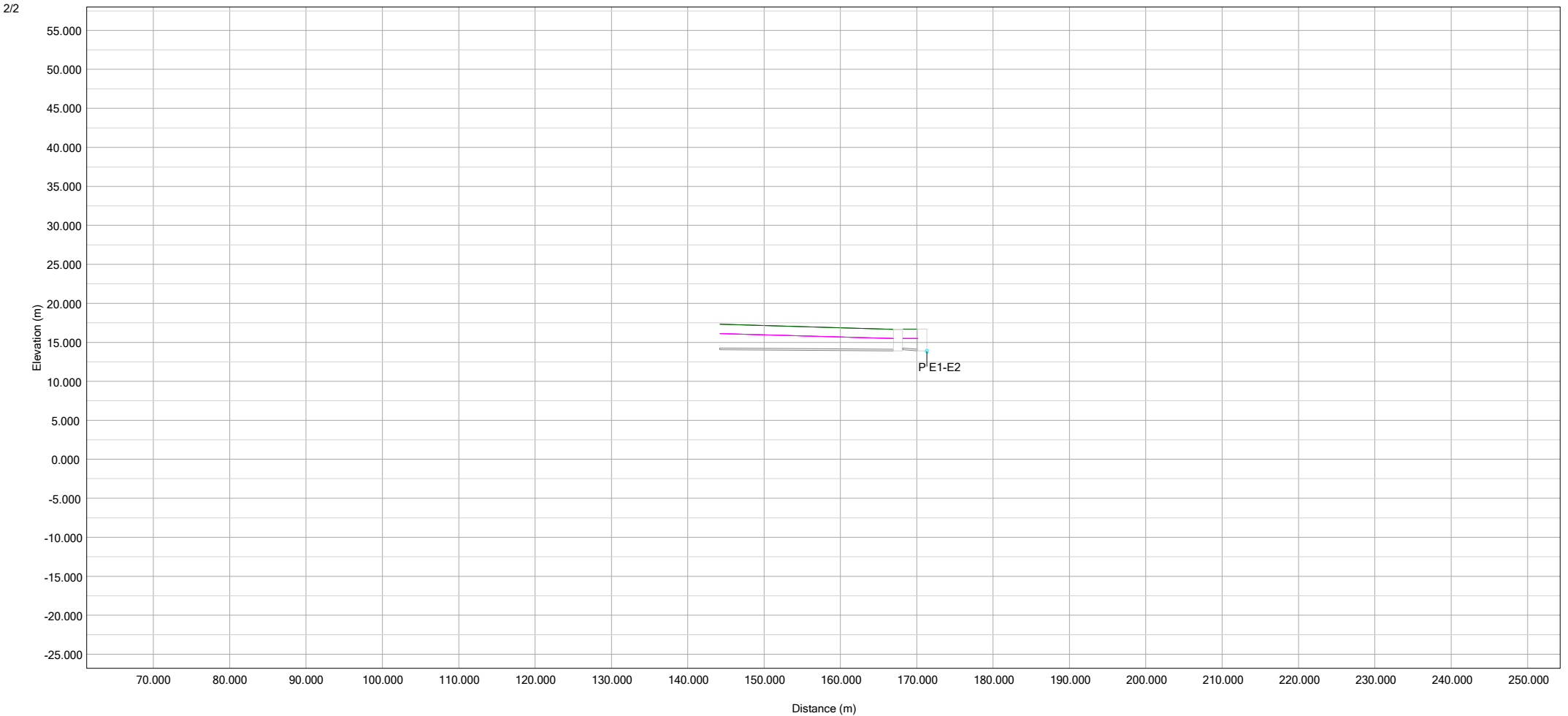
Junction		IC.001a	IC001b	FS.001
Type		Manhole	Simple Junction	Manhole
CE (m)		16.250		16.100
IE (m)		15.250		14.700
Connection				
Type		P 1a-11	P I1-1	
Curved		Pipe	Pipe	
Length (m)		No	No	
Diam (mm)		35.043	9.653	
Height (mm)		225	225	
U/S IE (m)		15.250	14.900	
D/S IE (m)		14.900	14.740	
C. Splay (mm)				
SWC				
Type				
EE (m)				
BE (m)				



Junction		FS.002a		FS.002
Type		Manhole		Manhole
CE (m)		16.250		16.070
IE (m)		15.500		14.650
Connection			P 2a-2	
Type			Pipe	
Curved			No	
Length (m)			29.604	
Diam (mm)			225	
Height (mm)				
U/S IE (m)			15.500	
D/S IE (m)			15.250	
C. Splay (mm)				
SWC				
Type				
EE (m)				
BE (m)				



Junction		FS.005a	FS.005b		FS.005c	FS.005d	FS.005
Type		Manhole	Manhole		Manhole	Manhole	Manhole
CE (m)		16.100	16.250		16.500	16.100	16.800
IE (m)		15.500	15.320		15.100	14.970	14.160
Connection		P 5a-5b	P 5b-5c		P 5c-5d	p 5d-5	
Type		Pipe	Pipe		Pipe	Pipe	
Curved		No	No		No	No	
Length (m)		12.650	27.694		16.348	4.836	
Diam (mm)		225	225		225	225	
Height (mm)							
U/S IE (m)		15.500	15.320		15.100	14.970	
D/S IE (m)		15.330	15.110		14.980	14.910	
C. Splay (mm)							
SWC							
Type							
EE (m)							
BE (m)							



Junction		FS.007
Type		Manhole
CE (m)		16.680
IE (m)		13.900
Connection		P 6-7P 7-E2
Type		PipePipe
Curved		NoNo
Length (m)		22.7422.005
Diam (mm)		225225
Height (mm)		
U/S IE (m)		14.03014.054
D/S IE (m)		13.90013.900
C. Splay (mm)		
SWC		
Type		
EE (m)		
BE (m)		

Project: Castle Peak Properties Ltd
Innishmore, Ballincollig, Co. Cork

Modified date 30/09/2025
File Drainage Design.iddx

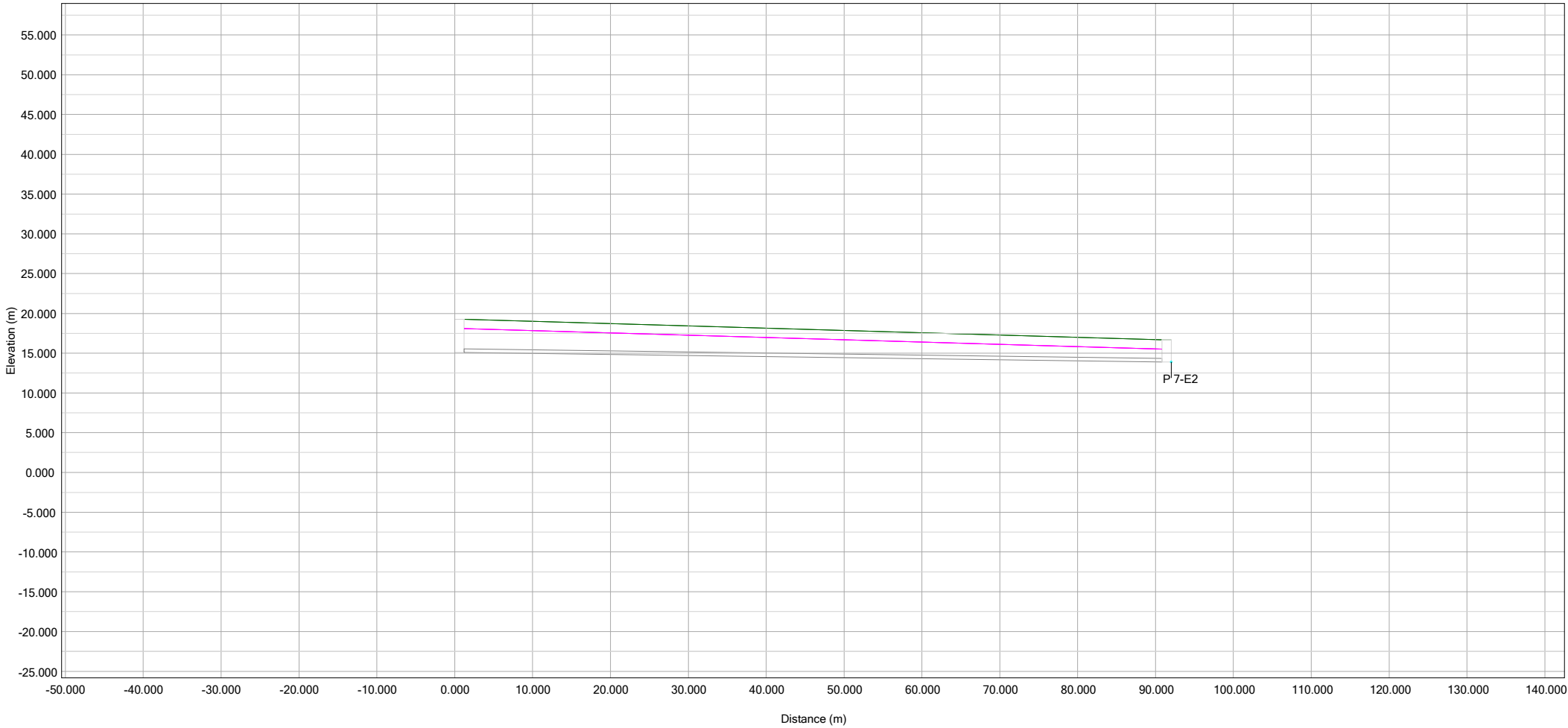
Profile - EX.FS.001-EX.FS.002

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P31 KP84

Designed by A.G.
Checked by S.O'D.
InfoDrainage 2026.2

Horizontal Scale 1:500, Vertical Scale 1:500

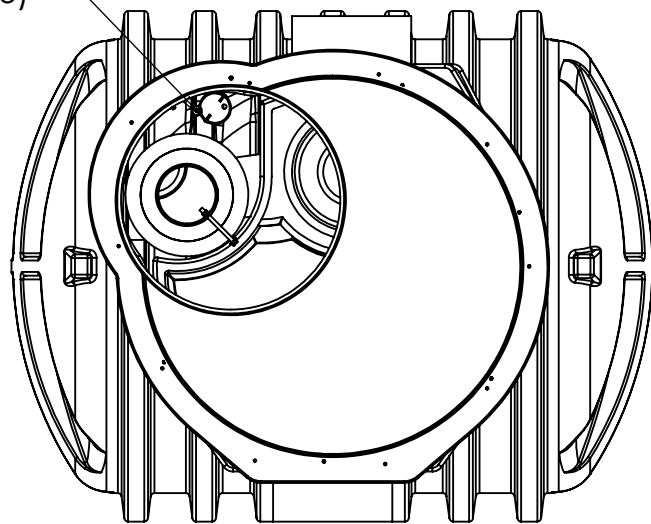
1/1



Junction	Ex.FS.001	Ex.FS.002
Type	Manhole	Manhole
CE (m)	19.290	16.690
IE (m)	15.105	13.890
Connection	P E1-E2	
Type	Pipe	
Curved	No	
Length (m)	89.616	
Diam (mm)	450	
Height (mm)		
U/S IE (m)	15.105	
D/S IE (m)	13.890	
C. Splay (mm)		
SWC		
Type		
EE (m)		
BE (m)		

Appendix J – Petrol Interceptor Details

Alarm Probe Tube
(see note 6)

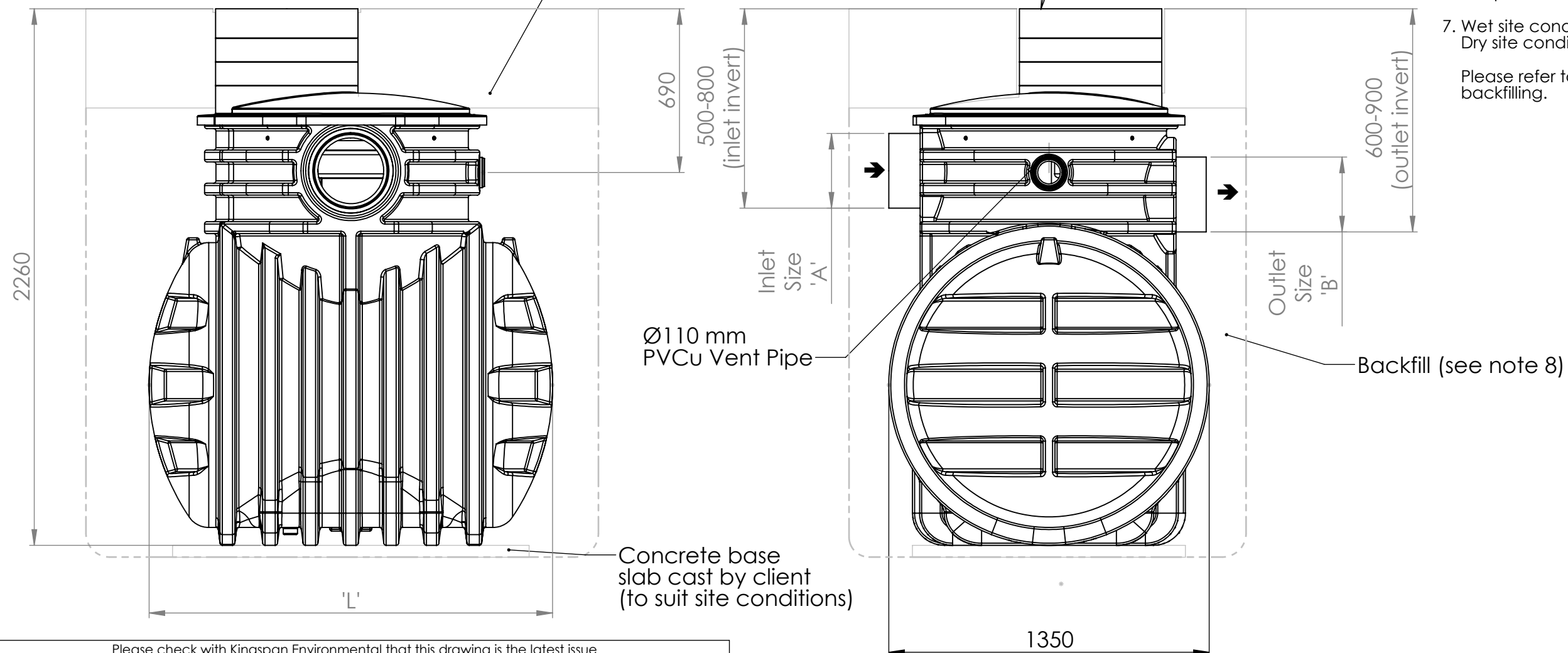


Unit Ref No	Nominal Flow	Dim L (mm)	Approx Empty Weight (kgs)	Fall across unit	Inlet Size 'A'	Outlet Size 'B'
NSBP003	3 L/s	1700	180	100	Ø160 mm Ø315 mm	Ø160 mm Ø315 mm
NSBP004	4 L/s	1700	180	100		
NSBP006	6 L/s	1700	180	100		

** Inlet/Outlet size
A must equal B**

Concrete cover slab cast by client
(to suit wet site conditions)

Neck can be trimmed
down to required invert



Notes:-

1. Inlet/Outlet pipes are plain pipe Ø315 mm PVCu. The standard EN 858 states minimum connection sizes, units ordered with different sized connections are not fully compliant with the standard.
2. Extension necks for deeper inverts can be provided. These can be cut in 200 mm sections. Max 2.0m Invert recommended. Please ask our sales department for further details.
3. All units require appropriate cover and frame to suit applied loadings.
4. This drawing should be used for dimensional information only. It is essential that this drawing is read in conjunction with the installation guidelines supplied with the unit. (Copies are available from our sales dept.).
5. This drawing is also available on our website www.kingspanenv.com.
6. A Ø76 mm tube (internal) is supplied to house an oil alarm probe.
7. Wet site conditions - Concrete Backfill
Dry site conditions - Pea Shingle Backfill

Please refer to installation manual for details of correct backfilling.

Please check with Kingspan Environmental that this drawing is the latest issue

Issue	Date	Drawn by	Approved by	Description
07	15/12/11	S.Gill		CC1020
06	15/12/10	S.Gill		CC 934
05	24/03/10	S.Gill		CC817
04	24/02/10	S.Gill		CC794
03	23/02/10	S.Gill		Table Edited
02	23/09/09	S.Gill		Drawing Description Changed
01	19/03/09	S.Gill		Initial Release

Material : n/a
Finish : n/a
Weight : Kgs n/a

Tolerance : n/a
Thickness : n/a
Surface Area : n/a

Drawing : NSBP003,004 & 006 Sales Drawing

Page 1 of 1

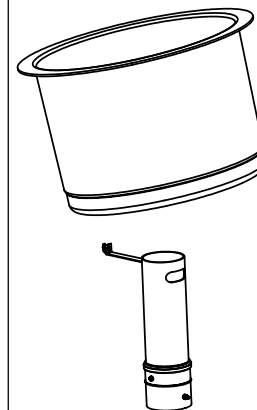
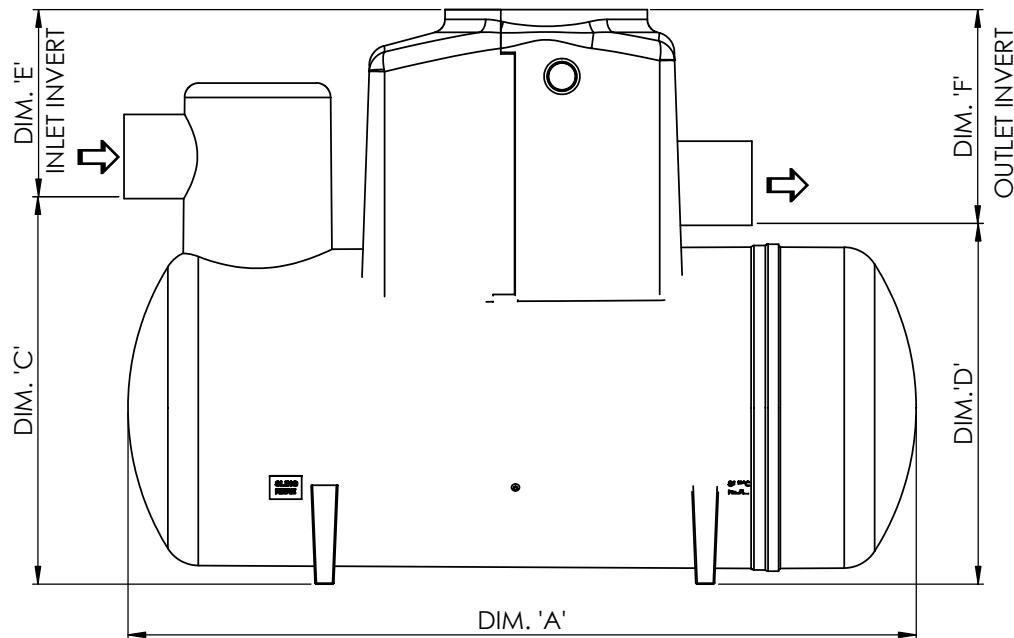
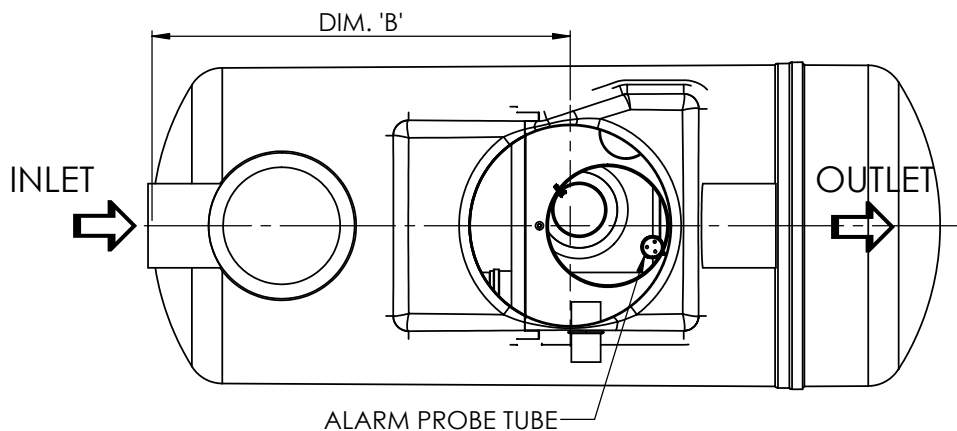
Drg No: DSO993

All dimensions in mm

Scale: Not to scale

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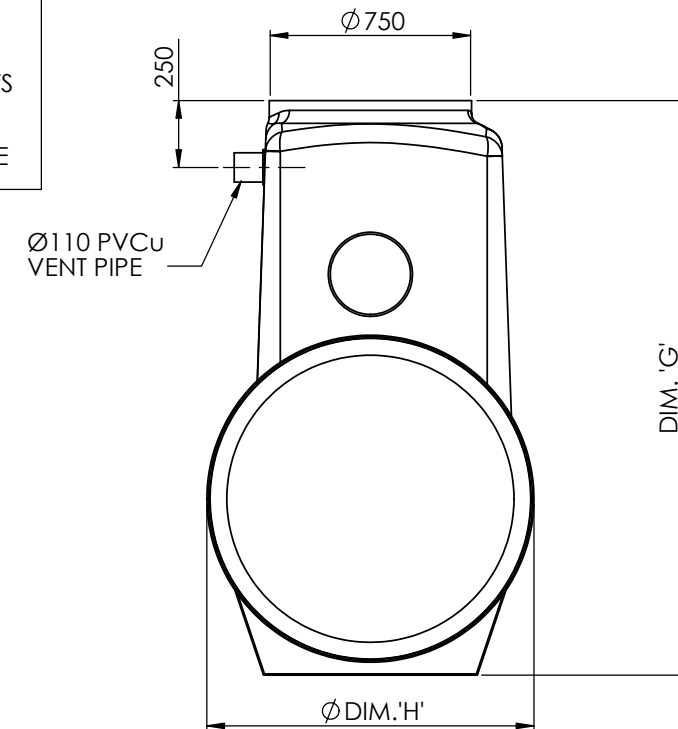




EXTENSION PARTS
(IF REQUIRED)
INCLUDED IN
PRODUCT CODE

NOTES

1. UNITS ARE SUPPLIED WITH THE STANDARD (MINIMUM) PIPEWORK SIZE, AND ORIENTATION SHOWN ON THE DRAWING. THE STANDARD EN858-1 STATES MINIMUM CONNECTION SIZES, UNITS ORDERED WITH DIFFERENT SIZE CONNECTIONS MAY NOT BE FULLY COMPLIANT WITH THE STANDARD. PLEASE CONSULT OUR SALES DEPARTMENT FOR DETAILS OF AVAILABLE OPTIONS, BUT PLEASE NOTE WE DO NOT ALTER INTERNAL PIPEWORK.
2. ALL UNITS SUPPLIED ARE CLASS 1 AND INCLUDE A COALESCER.
3. EXTENSION PARTS FOR DEEPER INVERTS CAN BE PROVIDED FOR ON SITE ASSEMBLY.
4. ALL UNITS REQUIRE APPROPRIATE CONCRETE BASE, COVER AND FRAME TO SUIT APPLIED LOADINGS.
5. THIS DRAWING SHOULD BE USED FOR DIMENSIONAL INFORMATION ONLY.
6. A Ø76mm TUBE IS SUPPLIED TO HOUSE AN OIL ALARM PROBE.



UNIT	NOMINAL FLOW (l/sec.)	DIM. 'A'	DIM. 'B'	DIM. 'C'	DIM. 'D'	DIM. 'E'	DIM. 'F'	DIM. 'G'	DIM. 'H'	STD. PIPE Ø	APPROX. EMPTY WEIGHT (kg)	FALL ACROSS UNIT
NSBE010	10.0	2070	1095	1450	1350	700	800	2150	1220	315	160	100
NSBE015	15.0	2950	1560	1450	1350	700	800	2150	1220	315	200	100
NSBE020	20.0	3893	2016	1450	1350	700	800	2150	1220	375	220	100
NSBE025	25.0	3575	1900	1680	1580	700	800	2380	1420	375	300	100
NSBE030	30.0	4265	2263	1680	1580	700	800	2380	1420	450	325	100

Please check with Kingspan Environmental that this drawing is the latest issue

Issue	Date	Drawn by	Approved by	Description
05	24.06.13	T.Kelly		CC1131 - Case Feet Changed
04	13.02.13	T.Kelly		CC981 Phase 2 - NSBE025 & 030 Added

Material : Various

Finish :

Weight :

Tolerance :

Thickness : n/a

Surface Area :

Drawing : DS1155

Page 1 of 2

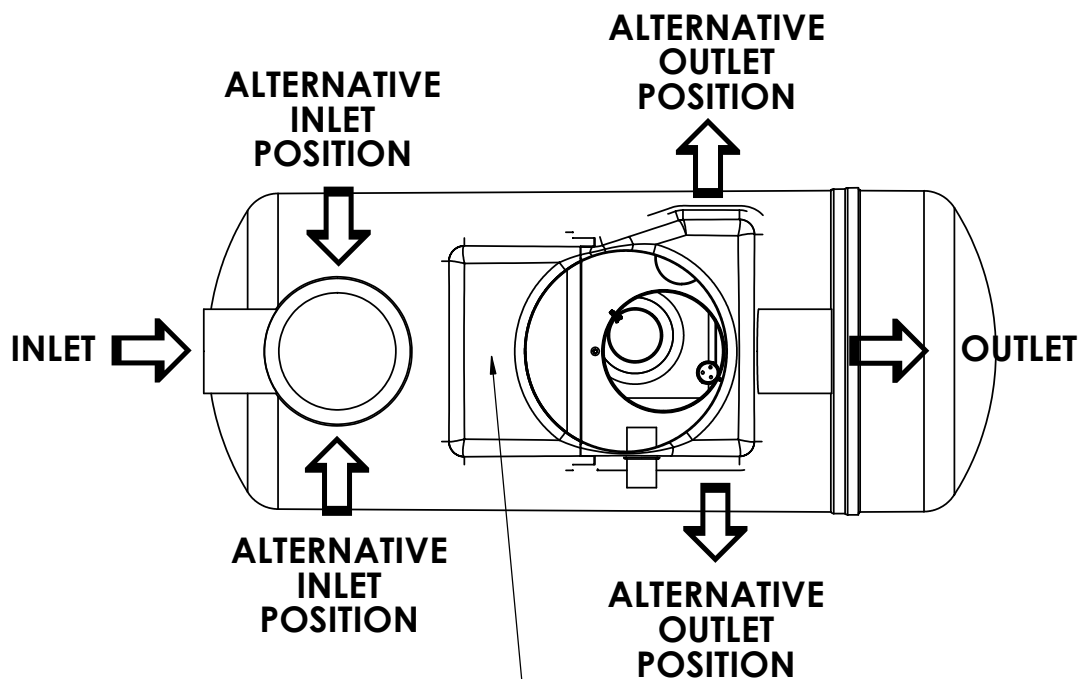
NSBE010 - NSBE030 Bypass Separators

All dimensions in mm

Scale: Not to scale

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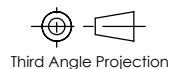


Please Note:-
 Due to the physically small size of the NSBE010, the inlet pipe, all orientation options, is fitted directly into this turret.

Pipe Orientation Options		
OPTION A 	OPTION B 	OPTION C
OPTION D 	OPTION E 	OPTION F
OPTION G 	OPTION H 	OPTION K

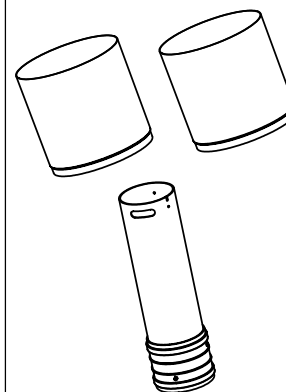
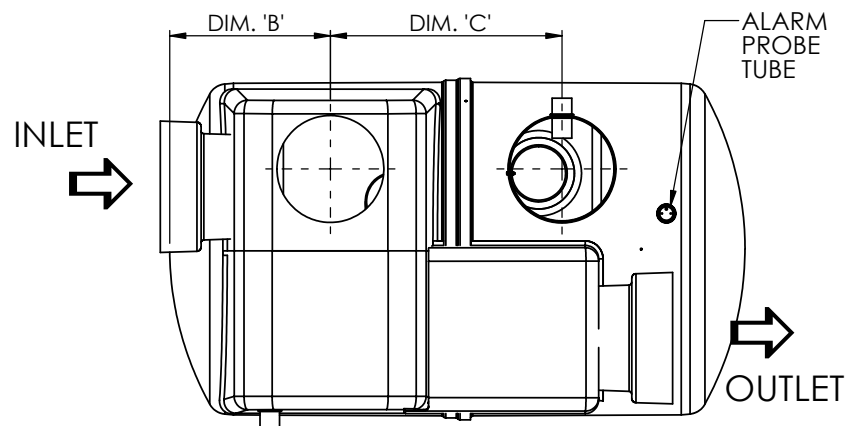
Material : Various	Tolerance (unless stated) :	Drawing : DS1155 NSBE010 - 030 BYPASS SEPARATORS
Finish :	Thickness : n/a	
Weight : 229.91 Kg	Surface Area : m ²	
Modelled By :		

All Dimensions In mm Scale: Do Not Scale



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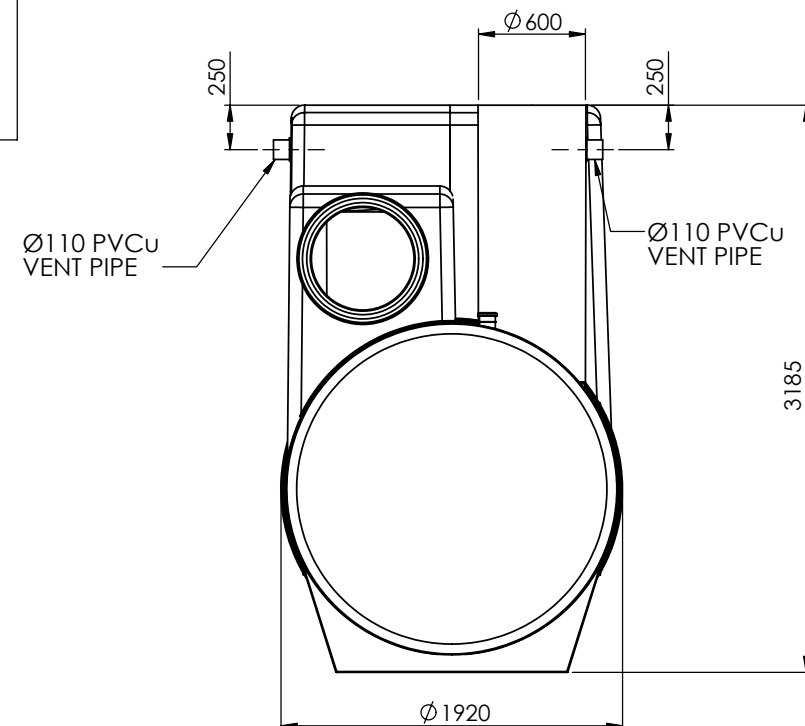
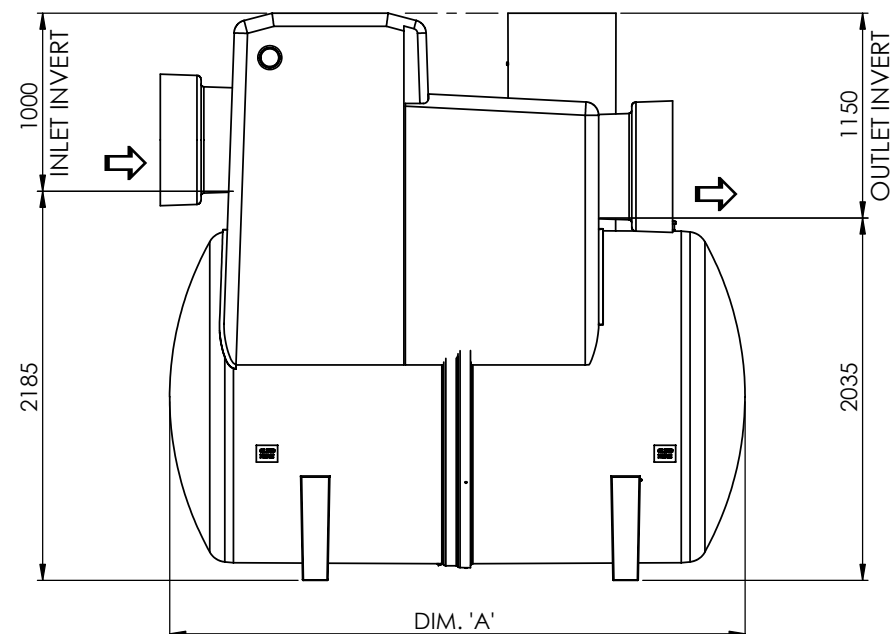




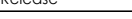
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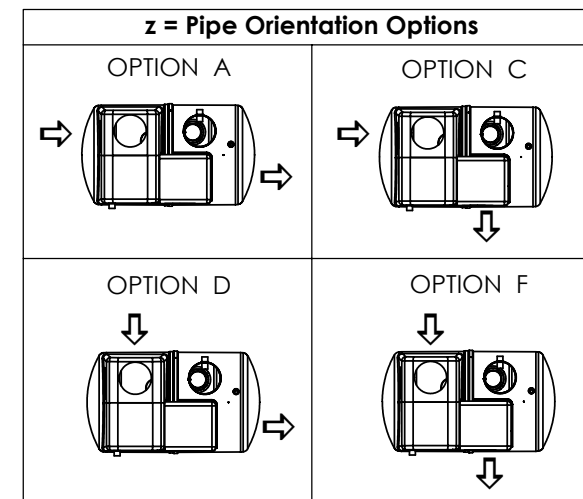
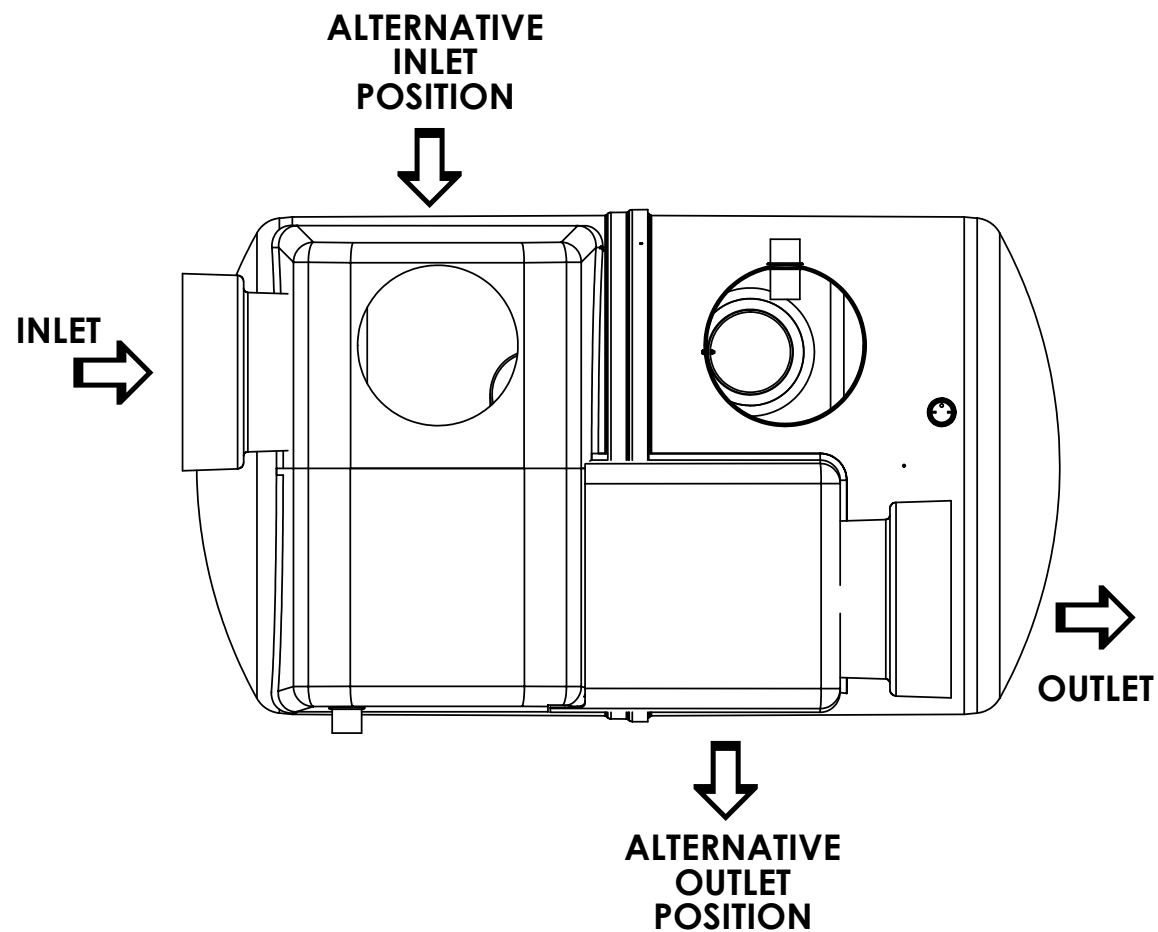
NOTES

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4. ALL UNITS REQUIRE APPROPRIATE CONCRETE BASE, COVER AND FRAME TO SUIT APPLIED LOADINGS.
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6. A Ø76mm TUBE IS SUPPLIED TO HOUSE AN OIL ALARM PROBE.



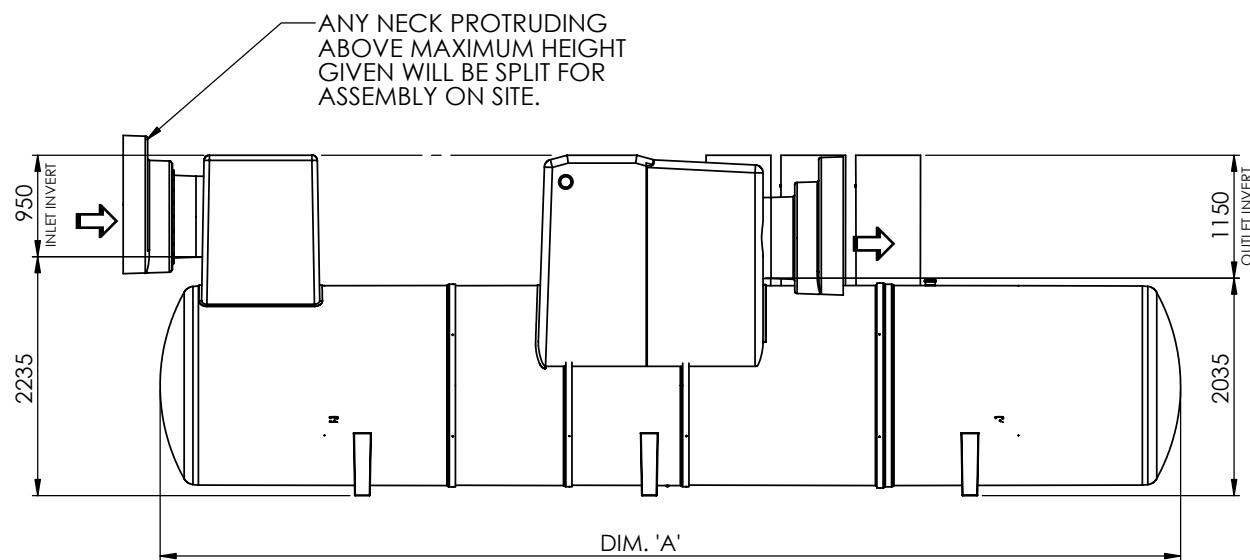
UNIT	NOMINAL FLOW (l/sec.)	DIM.'A'	DIM.'B'	DIM.'C'	STD. PIPE Ø	APPROX. EMPTY WEIGHT (kg)	FALL ACROSS UNIT
NSBE040	40.0	3230	902	1300	500	713	150
NSBE050	50.0	3960	1243	1325	600	782	150

Please Check with Environmental Treatment Systems Limited For The Latest Issue Of This Drawing					Material : Various		Tolerance (unless stated) :		Drawing : DS1224		Page 1 of 2		
Issue	Date	Drawn by	Approved by	Description		Finish :		Thickness : n/a		NSBE040 & NSBE050 Bypass Separators			
01	03.03.14	T.Kelly		CC981 Phase 3 - Sales Release		Weight : 608.07 Kg		Surface Area : m²					
					Modelled By : Name								
All Dimensions In mm			Scale: Do Not Scale		 Third Angle Projection		Kingspan Environmental reserve the right to alter the details of this drawing without prior notice. This drawing is copyright and may not be reproduced or used without the written permission of Kingspan Environmental						
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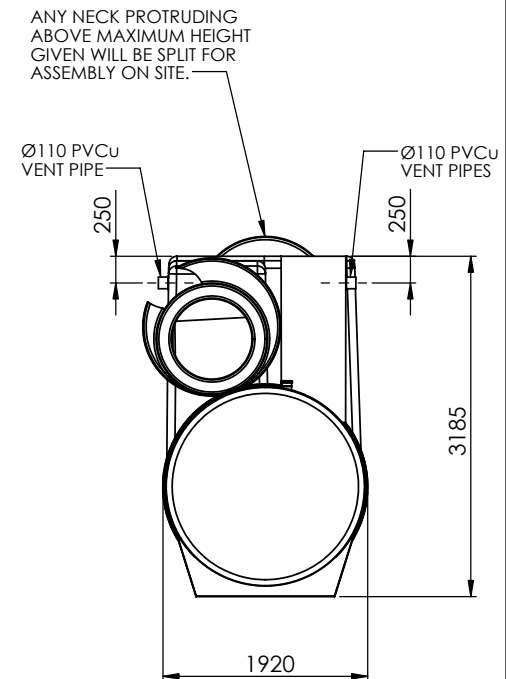
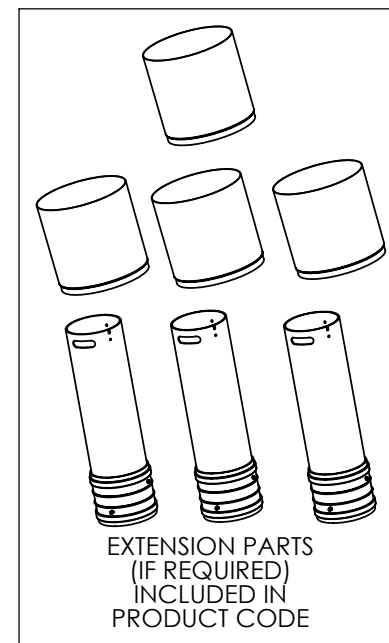


Material : Various	Tolerance (unless stated) :	Drawing : DS1224	Page 2 of 2
Finish :	Thickness : n/a		
Weight : 608.07 Kg	Surface Area : m²		
Modelled By : Name			
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All Dimensions In mm	Scale: Do Not Scale	 Third Angle Projection
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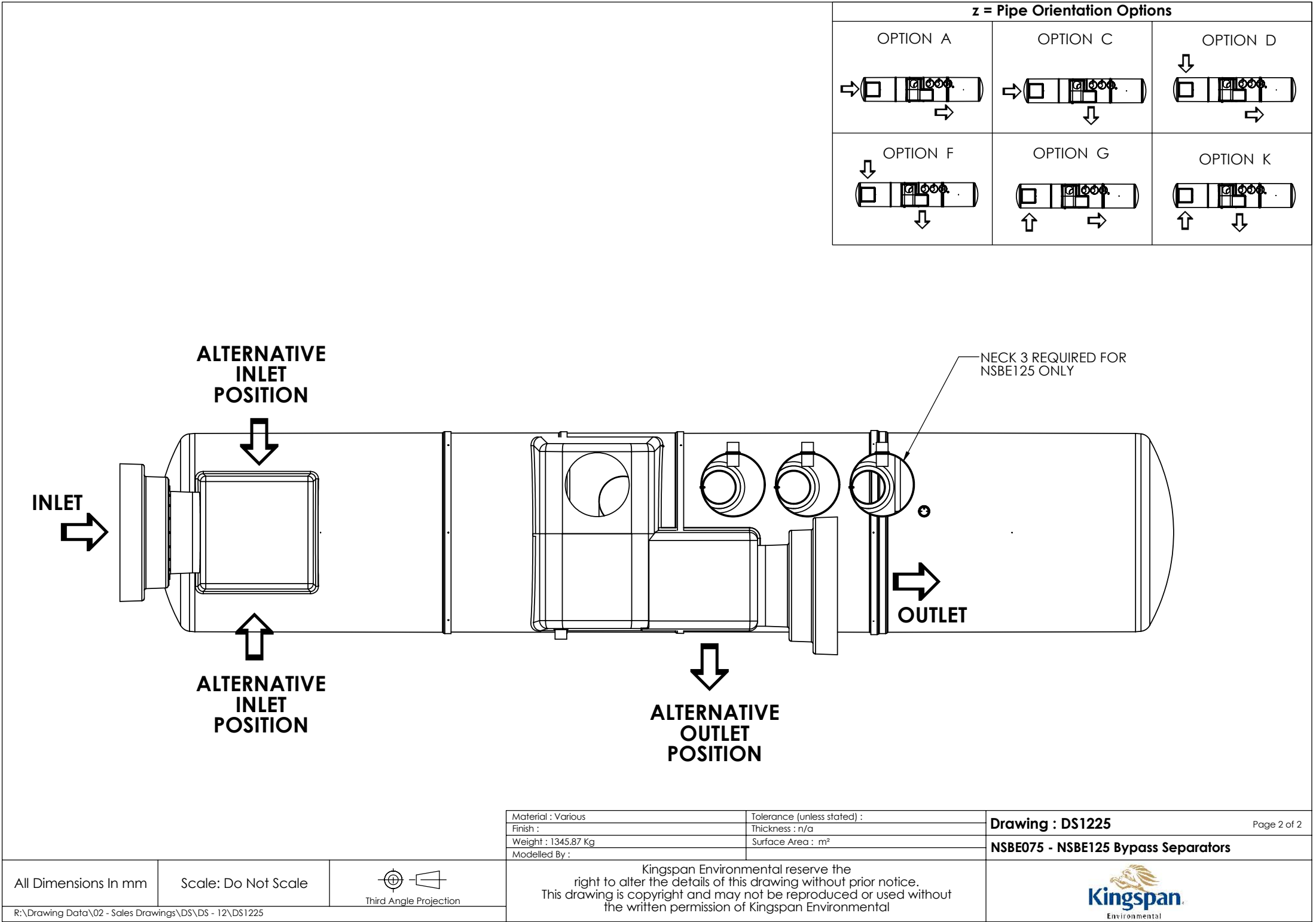
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4. ALL UNITS REQUIRE APPROPRIATE CONCRETE BASE, COVER AND FRAME TO SUIT APPLIED LOADINGS.
5. THIS DRAWING SHOULD BE USED FOR DIMENSIONAL INFORMATION ONLY.
6. A Ø76mm TUBE IS SUPPLIED TO HOUSE AN OIL ALARM PROBE.



UNIT	NOMINAL FLOW (l/sec.)	DIM.'A'	DIM.'B'	STD. PIPE Ø	NECK 1 FITTED	NECK 2 FITTED	NECK 3 FITTED	APPROX. EMPTY WEIGHT (kg)	FALL ACROSS UNIT
NSBE075	75.0	5841	2333	675	✓	✓		1122	200
NSBE100	100.0	7661	3122	750	✓	✓		1300	200
NSBE125	125.0	9548	4136	750	✓	✓	✓	1560	200

Please Check with Environmental Treatment Systems Limited For The Latest Issue Of This Drawing					Material : Unfilled Spray		Tolerance (unless stated) : ±0.5mm		Drawing : DS1225		Page 1 of 2	
Issue	Date	Drawn by	Approved by	Description	Finish : n/a		Thickness : 3mm					
01	03.03.14	T.Kelly		CC981 Phase 3 - Sales Issue	Weight : 4.62kg Min		Surface Area : EXT 2.02 m²		NSBE075 - NSBE125 Bypass Separators			
All Dimensions In mm			Scale: Do Not Scale		 Third Angle Projection		Kingspan Environmental reserve the right to alter the details of this drawing without prior notice. This drawing is copyright and may not be reproduced or used without the written permission of Kingspan Environmental					
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z = Pipe Orientation Options		
OPTION A	OPTION C	OPTION D
OPTION F	OPTION G	OPTION K



Material : Various	Tolerance (unless stated) :	Drawing : DS1225	Page 2 of 2
Finish :	Thickness : n/a		
Weight : 1345.87 Kg	Surface Area : m²	NSBE075 - NSBE125 Bypass Separators	
Modelled By :			
Kingspan Environmental reserve the right to alter the details of this drawing without prior notice. This drawing is copyright and may not be reproduced or used without the written permission of Kingspan Environmental			

All Dimensions In mm	Scale: Do Not Scale	 Third Angle Projection
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Appendix K – Hydrobrake Details

Hydro-Brake® Flow Control

Modelling Guide

Unit Selection Design Guide

Overview

Hydro-Brake® Flow Controls restrict the flow in surface/storm water or foul/combined sewer systems by inducing a vortex flow pattern in the water passing through the device, having the effect of increasing back-pressure.

Their 'hydrodynamic' rather than 'physical restriction' based operation provides flow regulation whilst maintaining larger clearances than most other types of flow control, making them less susceptible to blockage. Their unique "S"-shaped head-flow characteristic also enables them to pass greater flows at lower heads, which can enable more efficient use of upstream storage facilities.

This document provides guidance relating to the selection and use of Hydro-Brake® Flow Controls for use in surface/storm water and foul/combined sewer systems.

The information provided here is intended for the purposes of general guidance only - individual application requirements may differ. If in doubt, or to enquire about new product additions, please contact HRD Technologies Ltd.

STH Range of Hydro-Brake® Flow Controls

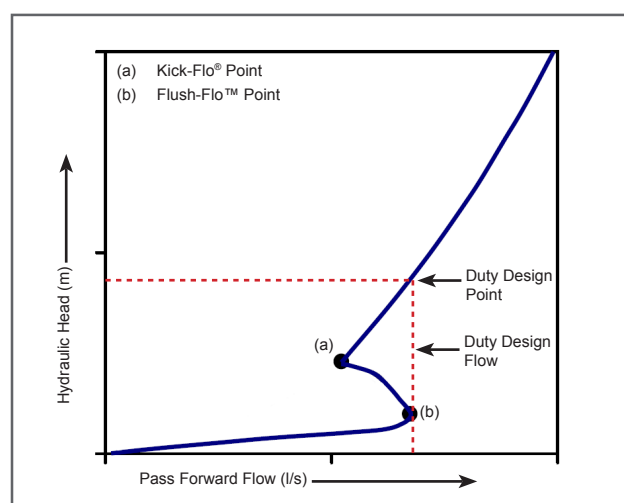


See back cover for details.

Hydraulic Characteristics and Specification

Hydro-Brake® Flow Controls should be selected such that the duty/design flow is not exceeded at any point on the head-flow curve, see illustration right. If this is not achievable using the initially selected unit, it may be appropriate to select an alternative option (see selection guidance overleaf).

While the primary aim of a flow control is to provide a particular flow rate at a given upstream head (giving a design/duty point), it is important to note that secondary opportunities, such as potential for optimised storage use, derive from consideration of the full hydraulic characteristic. It is therefore important to ensure that the same flow control, or one confirmed to provide equivalent hydraulic performance, is implemented in any final installation.



Typical Hydro-Brake® Head Versus Flow Characteristics

To ensure correct implementation a multiple design-point specification, defining the main hydraulic features of the selected flow control, can be provided by HRD Technologies Ltd. This should include at least the following information:

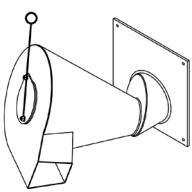
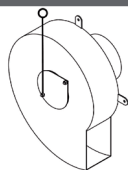
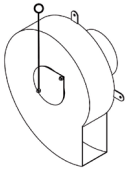
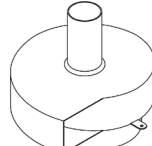
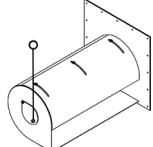
- outlet size and model of Hydro-Brake® Flow Control
- definition of the duty/design point (head and flow)
- definition of the Flush-Flo™ point (head and flow)
- definition of the Kick-Flo® point (head and flow)

To ensure that a drainage system performs as designed, it is strongly recommended that this information is reproduced on any technical specifications.

Hydro-Brake® Flow Control Models Supported in Micro Drainage

The Table below provides a summary of the Hydro-Brake® Flow Control models currently supported by the Micro Drainage programs, including details of unit styles, applications and design/installation considerations. Advice regarding unit selection is provided in subsequent sections.



WinDes® Reference Code	Style / Typical Shape	Application	Design / Installation Notes
Md1	Conical 	Foul / combined and surface / storm water.	With the exception of the Md14, conical units require benching into the intake (the Md14 has a piped intake). They generally require larger manholes than equivalent sump-type units.
Md2			
Md4			
Md14			
Md5	Sump-Type 	Surface / storm water only.	Sump-type units require the provision of a sump to accommodate the flow control. As this will always be full of water, sump-type units are unsuitable for use in foul / combined systems.
Md6			
Md7			
Md12			
Md13	Sump-Type  	Surface / storm water only.	The Md13 (STH) unit will always have an outlet size in excess of 75 mm and can always be fitted to a 225 mm diameter outlet pipe or larger.
Md8	Vertical Discharge 	Foul / combined and surface / storm water.	Vertical discharge units require a chamber design to accommodate the vertically directed outlet. They do not have S-shaped head / discharge curves and are for special applications only - please refer to HRD Technologies Ltd for advice.
Md9			
Md11			
Md10	Tubular 	Foul / combined and surface / storm water.	Tubular units require benching into the intake. They do not have S-shaped head / discharge curves and are for special applications only - please refer to HRD Technologies Ltd for advice.

Note: For system modelling using other software packages, HRD Technologies Ltd can provide individual unit head / flow characteristics in an appropriate format.

General Advice

Selection of the most appropriate Hydro-Brake® Flow Control for a particular application depends on a number of considerations, including the type of sewer system, the hydraulic characteristic of the device, device clearances and overall physical dimensions. The Micro Drainage programs provide outputs for hydraulic characteristic and outlet size.

The table opposite provides general selection guidance taking into account the considerations of type of sewer system, device clearances and overall physical dimensions. This should be considered along with other information provided here and in conjunction with the advice contained within the software design program that is being used.

The Table should be followed from the top, using the left hand column for surface/storm water applications and the right hand column for foul/combined applications. The 'general comments' provided are relevant to both applications.

HRD Technologies Ltd offer a free design service and can assist with unit selection.

General Guidance on Unit Selection

Surface / Storm Water Applications	Foul / Combined Applications
1) Select sump-type Md13 (STH) initially. This is a British Board of Agrément (BBA) approved product that is currently only available in certain sizes – if a size is not available for the specified duty/design point go to 2) otherwise use Md13 (STH). The Md13 (STH) has a minimum outlet size in excess of 75 mm and can always be fitted to a 225 mm diameter outlet pipe (or greater).	1) Select conical-type Md4 (CX) initially provided the required outlet >150 mm. If the required manhole/chamber size is too large go to 2) otherwise use Md4 (CX).
2) Select sump-type Md6 (SXH) initially provided the required outlet >75 mm (please seek advice if outlet <75 mm). If required outlet >200 mm go to 3) otherwise use Md6 (SXH).	2) Select conical-type Md2 (CH) provided the required outlet >150 mm. If the required manhole/chamber size is too large go to 3) otherwise use Md2 (CH).
3) Select sump-type Md5 (SH) or Md12 (SMXH) provided the required outlet >75 mm (please seek advice if outlet <75 mm). If required outlet >250 mm (Md5 - SH) or >300 mm (Md12 - SMXH) go to 4) otherwise use Md5 (SH) /Md12 (SMXH).	3) Select conical-type Md1 (C) provided the required outlet >429 mm. If the required manhole/chamber size is too large go to 4) otherwise use Md1 (C).
4) Select conical-type Md4 (CX) provided the required outlet >100 mm. This unit does not require a sump arrangement but requires benching into the intake. If the required manhole/chamber size is too large go to 5), otherwise use Md4 (CX).	4) Vertical discharge units Md8 (SV), Md9 (SMV) and Md11 (SXV) can be considered if their outlets are >150 mm. Their physical dimensions should be considered - the Md9 (SMV) is typically used when the diameter of the Md8 (SV) and Md11 (SXV) >200 to 250 mm. If none of these units are suitable go to 5).
5) Select conical-type Md2 (CH) unit provided the required outlet >100 mm. This unit does not require a sump arrangement but requires benching into the intake. If the required manhole/chamber size is too large go to 6), otherwise use Md2 (CH).	5) Select tubular-type Md10 (TH) provided the required outlet >333 mm. This is sometimes the only option that will meet a certain head/discharge relationship (eg. low head, low flow situations). It should only be used when there is no other alternative.
6) Select conical-type Md1 (C) provided the required outlet >285 mm. This unit does not require a sump arrangement but requires benching into the intake. If the required manhole/chamber size is too large go to 7), otherwise use Md1 (C).	For design assistance for any Hydro-Brake® Flow Control please call: 01-4013964 or e-mail: enquiries@hrdtec.com
7) Select sump-type Md7 (SMH) provided the required outlet >75 mm. If the required outlet >300 mm then go to 8), otherwise use Md7 (SMH).	
8) Vertical discharge units Md8 (SV), Md9 (SMV) and Md11 (SXV) can be considered provided the required outlet >75 mm. Their physical dimensions should be considered - the Md9 (SMV) is typically used when the diameter of the Md8 (SV) and Md11 (SXV) >200 to 250 mm. If none of these units are suitable go to 9).	
9) Select tubular-type Md10 (TH) provided the required outlet >222 mm. This is sometimes the only option that will meet a certain head/discharge relationship (eg. low head, low flow situations). It should only be used when there is no other alternative.	
General Comments: The minimum sizes quoted for Hydro-Brake® Flow Controls represent sizes based on experience as offering significant reduction in risk of blockage and hence maintenance and derive from general practice in flow control selection in the UK and Ireland. Sizes below the minimum recommended can be specified though it should be recognised these might incur increased risks of blockage and associated maintenance. Sizes above the maximum recommended can also be specified though may require oversized manholes/chambers. For the larger units, refer to HRD Technologies Ltd for advice.	

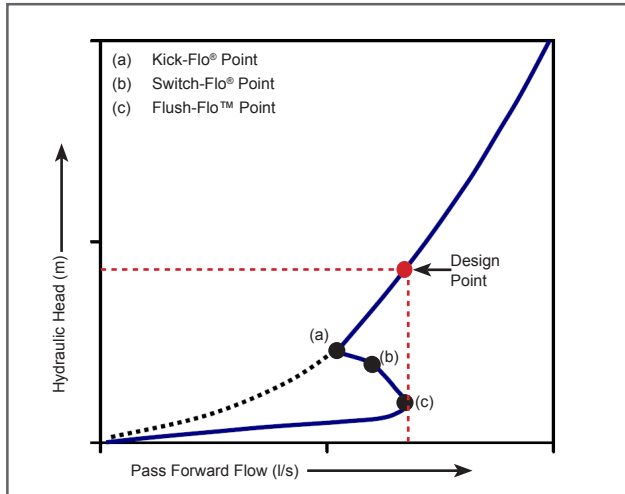
The information provided here is intended for the purposes of general guidance only - individual application requirements may differ. **If in doubt, please contact HRD Technologies Ltd.**

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STH Type Hydro-Brake® Flow Control with BBA Approval

Now included in WinDes® W.12.6!

The new STH type Hydro-Brake® Flow Control range has a unique head / discharge performance curve which introduces a very important feature - the Switch-Flo® Point. This point illustrates the unique performance feature of the STH range which can lead to further savings in upstream storage, whilst also enabling increased inlet / outlet size to further reduce the risk of blockage.

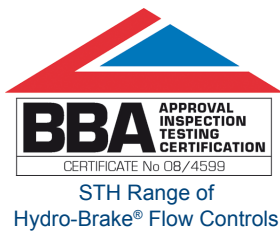


Typical STH Head Versus Flow Characteristics

Kick-Flo® (a) - the point at which the vortex has initiated and at which the curve begins to return back to follow the orifice curve and reach the same design point or desired head / flow condition.

NEW Switch-Flo® (b) - marks the transition between the Kick-Flo® and Flush-Flo™, from vortex initiation to stabilisation. This point adds a new layer of resolution to the Hydro-Brake® curve that has implications to upstream storage savings.

Flush-Flo™ (c) - the point at which the vortex begins to initiate and have a throttling effect. This point on the Hydro-Brake® curve is usually much nearer to the maximum design flow (Design Point), than other vortex flow controls leading to more water passing through the unit during the earlier stages of a storm, thus reducing the amount of water that needs to be stored upstream.



The STH Hydro-Brake® Flow Control is the only vortex flow control available today that has been given the prestigious BBA Approval Certificate. The BBA assessment procedure entails rigorous assessment of production and manufacturing standards, and confirms that the hydraulic performance of the Hydro-Brake® Flow Control matches the data given to designers by HRD Technologies with their head / discharge curves.



A worked example showing the steps to model a Hydro-Brake® Flow Control and associated Stormcell® Storage System within Micro Drainage WinDes® is available on our website:

www.hrdtec.com

Take a Look at Our New Stormwater Web Resource



Engineering
Nature's Way™

www.engineeringnaturesway.co.uk

Engineering Nature's Way is a brand new resource for people working with Sustainable Drainage and flood management in the UK.

The site provides an opportunity to share news, opinion, information and best practice for people working in local and central Government; developers, consulting engineers and contractors. Do you have something to share? We would be delighted to receive your contributions.

turning water around ...®

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