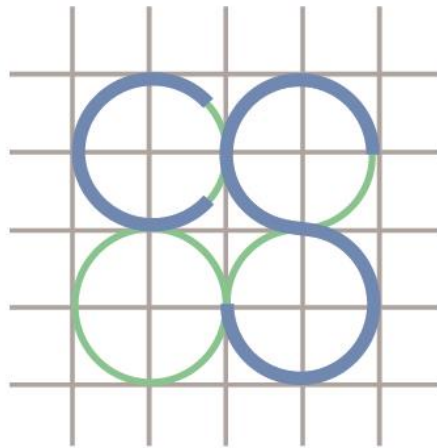




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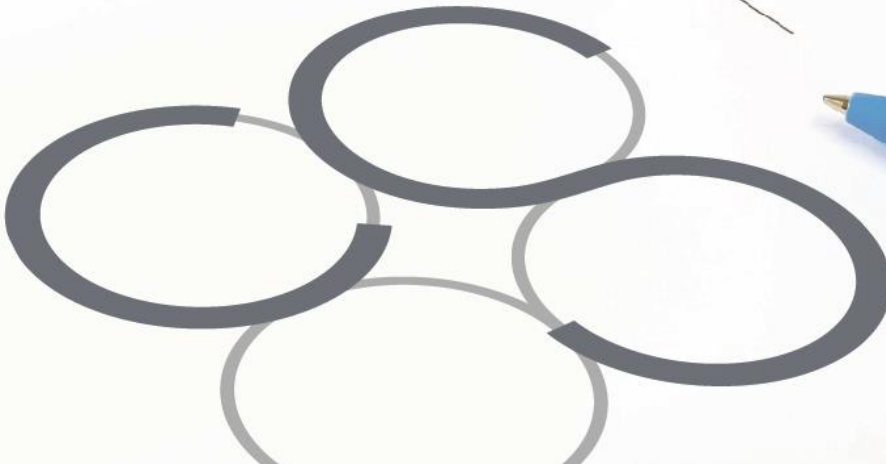
DUBLIN

Engineering Services Report Former Teagasc Lands Kinsealy, Co. Dublin

Client: Land Development Agency

Job No. C215

February 2025



ENGINEERING SERVICES REPORT

FORMER TEAGASC LANDS, KINSEALY, CO. DUBLIN

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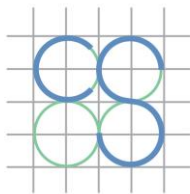
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Appendix A: Uisce Éireann Confirmation of Feasibility (CoF) and Statement of Design Acceptance (SoDA)

Appendix B: Met Éireann Rainfall Data & SW Network Modelling Analysis

Appendix C: Extract of Ground Investigation Report by GII

Appendix D: Uisce Éireann Drainage and Water Supply Records



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File Location: Job-C215\B_DOCUMENTS\1.0 Planning\1.0 CIVIL ENGINEERING\01_ESR

BS 1192 FIELD	C215-CSC-ZZ-XX-RP-C-0001
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Job Ref.	Author	Reviewed By	Authorised By	Issue Date	Rev. No.
C215	AC	GL	NB	05.02.2025	P1

1.0 INTRODUCTION

Cronin & Sutton Consulting Engineers (CS Consulting) have been commissioned by Land Development Agency (LDA) to prepare an Engineering Services Report to accompany a planning application for a proposed residential development at Malahide Road, Kinsealy Village, Co. Dublin.

1.1 Report Overview

This report details the following aspects of the proposed development:

- Storm Water Drainage Infrastructure
- Foul Drainage Infrastructure
- Potable Water Infrastructure

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

- Fingal County Council Development Plan 2023-2029
(including Strategic Flood Risk Assessment)
- Regional Code of Practice For development works, Version 6
- Uisce Éireann Code of Practice for Water Infrastructure
- Uisce Éireann Code of Practice for Wastewater Infrastructure
- Greater Dublin Strategic Development Study
- Local Authority Drainage Records

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

2.0 SITE LOCATION AND PROPOSED DEVELOPMENT

2.1 Site Location

The site of the proposed development is located immediately to the east of the Malahide Road (R107) in the village of Kinsealy, Co. Dublin. The site has a total area of 8.2ha and is in the administrative jurisdiction of Fingal County Council. It is bounded to the north and northeast by recently completed residential developments, to the southeast by greenfield lands, to the south by St. Nicholas of Myra National School and commercial premises, and to the west by the Malahide/Portmarnock Educate Together National School, 2no. dwellings, and the Malahide Road (along a road frontage of approx. 35m).

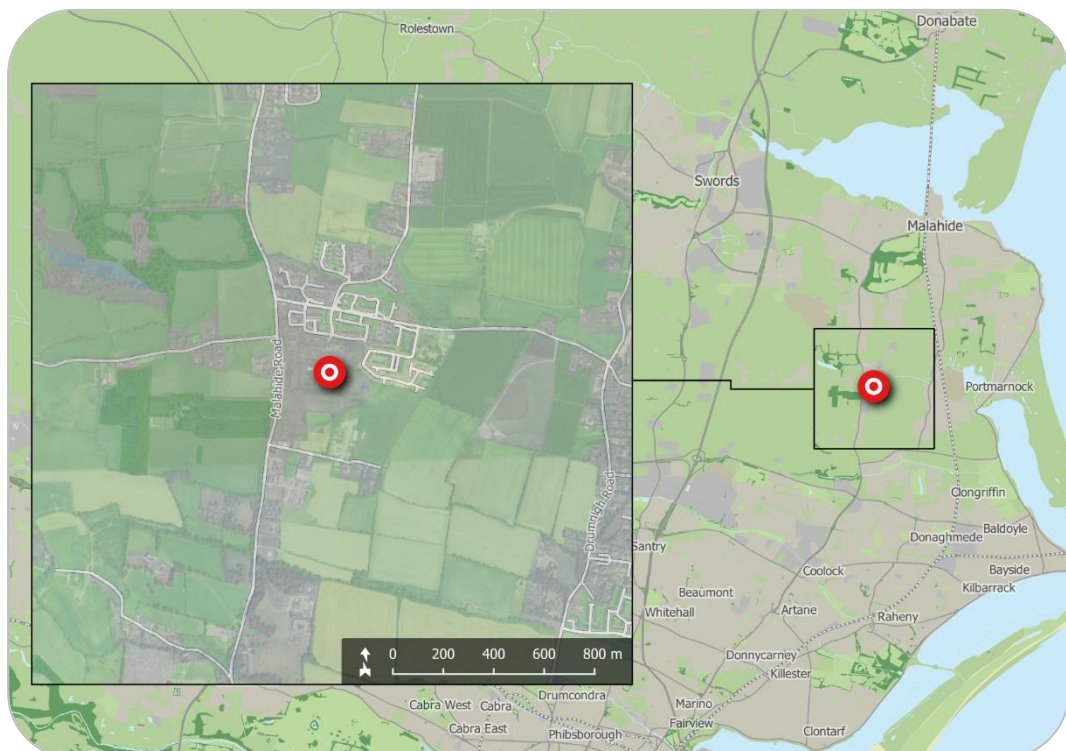


Figure 1 – Location of proposed development site
(map data & imagery: EPA, OSi, OSM Contributors, Google)

The location of the proposed development site is shown in **Figure 1**; the extents and context of the development site are shown in more detail in **Figure 2**.



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

2.2 Existing Site Condition

The subject development site is brownfield, having previously accommodated the majority of a Teagasc agricultural research facility. A number of existing structures are present on the site, as well as a network of internal roads and other hardstanding elements. The site currently generates no vehicular or pedestrian traffic.

2.3 Ground Conditions

The subject site has a slope falling away from the southwest corner 21.50m AOD to the northeast to a level of 18.75m AOD before making a sharp drop to a low point on the site of 12.6m AOD at the top northeast corner only. The Geological Survey Ireland Map Viewer indicates that the Groundwater Vulnerability at the subject development site is moderate.

2.4 Description of Proposed Development

The proposed development consists of the demolition of existing buildings and structures on a site associated with the former Teagasc Research Centre, and the construction of 193 no. residential dwellings comprising 153 no. two storey houses (consisting of 30 no. two-bed; and 123 no. three-bed terraced houses) and 40 no. duplex units (comprising 20 no. two-bed ground floor apartments with 20 no. three-bed duplexes above) arranged in three storey blocks.

The proposed development includes a single storey childcare facility (approx. 283 sqm gross floor area) with the capacity for approximately 50 children.

The proposed development incorporates approximately 1.65 ha of dedicated public open space comprising a series of open spaces and a central east-west green route linear park and parklands along the east boundary. In addition, 2.2 ha of green belt lands are included to the south and south-east of the residential development area to accommodate a playing pitch.

Vehicular access to the site will be via a new vehicular entrance at Gandon Lane to the north (providing access to the northern part of the site) and a new vehicular access from the Malahide Road, located to the south of the

existing Malahide Portmarnock Educate Together National School (providing access to the southern part of the site).

The proposed development includes 229 no. car parking spaces (comprising 193 no. residential spaces, 4 no. childcare drop off spaces, 3 no. childcare staff spaces, and 29 no. visitor spaces), and 345 no. bicycle parking spaces (201 no. private secure on-curtilage spaces for houses without independent garden access, 100 no. private secure spaces and 20. no. visitor spaces for duplex units, 20 no. childcare drop-off spaces, and 4 no. childcare staff spaces).

The proposed development facilitates pedestrian and cycle links to existing and proposed adjoining developments, including the provision of an east-west greenway connecting residential lands to the east of the site at Newpark to the Malahide Road and the provision of a north-south link connecting Beechwood in the north to the green belt lands in the south, with provision for a future link to the St Nicholas of Myra national school.

The proposed development has an overall site area of 8.2 ha, and includes bin storage, internal roads, boundary treatments, public lighting, 3 no. ESB unit substations, water supply, surface water drainage and foul water drainage infrastructure, and all associated and ancillary site and development works.

Please refer to CS Consulting Drawings **C215-CSC-00-XX-DR-C-0004/0005** for the layout of the proposed development.

3.0 WATER SUPPLY

3.1 Existing Water Supply

Uisce Éireann records (see **Appendix D**) show a 250mm diameter HPPE watermain and a 101.6" diameter asbestos watermain on Malahide Road. In addition, a 100mm diameter PE watermain is present on Kinsealy Manor and Gandon Lane to the north of the subject lands.

3.2 Proposed Water Supply Design & Calculations

It is proposed to connect to the existing 250mm diameter HPPE watermain on Malahide Road, to the east of the subject site.

Based on the Uisce Éireann Code of Practice for Water Infrastructure, the proposed development shall have the following water demand:

➤ For the residential units:

⇒ 405 l/day per residential unit (based on 2.7 persons per unit x 150l/person/day).

⇒ 405 l/day /unit x 193 units = 78,165 l/day = 78.2 m³/day.

⇒ 0.90 l/sec Average water demand,

⇒ 4.52 l/sec Peak water demand (5 times average water demand).

Please refer to CS Consulting Drawing **C215-CSC-00-XX-DR-C-0012** for the proposed watermain layout of the proposed development and to Drawings **C215-CSC-00-XX-DR-C-0019/0020** for the respective construction details.

3.3 Uisce Éireann Liaison

An initial Pre-Connection Enquiry was submitted to confirm capacity with Uisce Éireann for the proposed development. A Confirmation of Feasibility letter was received and Uisce Éireann noted that the proposed development is feasible. However, Uisce Éireann noted that;

"The network will require upgrades and rezoning work in order to accommodate the proposed development.

The existing 100mm PE pipe (in Gandon Lane) must be upgraded to a new 200mm ID pipe main, approximately 115m required."

CS Consulting reverted to Uisce Éireann on the Confirmation of Feasibility and queried if a connection to the existing watermain network on the Malahide Road could be facilitated as the existing main at this location is 250mm in diameter and that there would be less impact on the existing residential development to the north with this proposal. An updated Confirmation of Feasibility (CoF) was received, where the proposed connection to the existing network in Malahide Road was deemed acceptable by Uisce Éireann. Please see **Appendix A** for the most recent CoF, CDS24002091.

A Statement of Design Acceptance (SoDA) letter is also included within **Appendix A**.

3.4 Design Standards

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

4.0 FOUL DRAINAGE

4.1 Existing Foul Drainage Infrastructure

Uisce Éireann records (see **Appendix D**) show that the following existing foul drainage networks are in place in the immediate vicinity of the development site:

- A 225mm diameter foul drainage network flowing south to north in the Malahide Road, to the west of the development site.
- 2no. 225mm diameter foul drainage network in Gandon Lane and Beechwood (part of the foul drainage network serving the adjacent Kinsealy Manor and Beechwood estates), which currently begin at the development site's northern boundary and discharge to a public foul sewer in Kinsealy Lane, approx. 110m further north.
- A 225mm diameter foul drainage network in Newpark Drive, running along the development site's eastern boundary, which forms part of the foul drainage network serving the adjacent Kinsealy Woods estate.

4.2 Proposed Foul Drainage Design & Calculations

The Newpark Estate has now been constructed and occupied including the vesting of all foul infrastructure to Uisce Éireann. It is proposed to discharge a large portion of the foul effluent from the proposed development into this newly constructed 225mm diameter foul pipe. The remaining foul effluent from the proposed development is proposed to discharge into the existing foul network serving the Gandon Lane development north of the subject site. See section below for Uisce Éireann liaison and confirmation of feasibility details.

Based on Uisce Éireann guidelines, the proposed development shall generate the following foul effluent:

➤ For the residential units:

⇒ 446l/ residential unit (based on 2.7 persons per residential unit x 150l/person/day, + a 10% increase factor).

⇒ 446l/day/residential unit x 193 units = 86,078 l/day = 86.1 m³/day;

⇒ 1.0 l/sec Average flow (1 DWF);

⇒ 6.0 l/sec Peak Flow (6 x DWF).

Please refer to CS Consulting Drawing **C215-CSC-00-XX-DR-C-0010** for the proposed foul drainage layout for the proposed development and to Drawings **C215-CSC-00-XX-DR-C-0016/0017/0018** for the respective construction details.

4.3 Uisce Éireann Liaison

A Pre-Connection Enquiry has been submitted to confirm foul capacity with Uisce Éireann for a proposed residential development which consisted of 225no. residential units. A Confirmation of Feasibility letter has been received and Uisce Éireann noted that the proposed development is feasible without any infrastructure upgrades to Uisce Éireann. However, Uisce Éireann noted that:

"The development must connect to the network in Newpark Estate, to the northeast of the site. This sewer is recently completed and not yet taken in charge by Irish Water".

The Newpark Estate has now been constructed and occupied including the vesting of all foul infrastructure to Uisce Éireann.

Due to the site's topography, an element of the foul effluent from the proposed development is proposed to discharge into the existing foul network serving Gandon Lane, north of the subject site. To this end, CS Consulting liaised with Uisce Éireann through e-mail correspondence to confirm the feasibility to discharge foul drainage via Gandon Lane for circa 57 No. residential units plus a creche. Uisce Éireann confirmed feasibility of this proposal.

A Confirmation of Feasibility (CoF) letter is included within **Appendix A**, CDS24002091, along with correspondence from Uisce Éireann to confirm feasibility to discharge part of the foul effluent to the existing foul network in Gandon Lane.

A Statement of Design Acceptance (SoDA) letter is also included within **Appendix A**.

4.4 Design Standards

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

5.0 SURFACE WATER MANAGEMENT PLAN

5.1 Existing Storm Water Network

Uisce Éireann records do not include all storm water drainage infrastructure, as this remains under the control of Local Authorities (with the exception of combined foul and storm sewers). From a topographic survey of the surrounding area and through consultation with Donnachadh O'Brien & Associates (the consulting engineers commissioned to undertake design works for the adjacent Kinsealy Manor and Beechwood estates), it has been established that the following existing storm water drainage infrastructure is in place in the immediate vicinity of the development site:

- A 450mm diameter storm sewer in Beechwood, originating at the development site's northeast corner, which provides a storm water drainage connection from the development site to public storm water drainage infrastructure in Chapel Road.
- 225mm diameter storm sewers in Kinsealy Manor, Gandon Lane, and Beechwood, close to the development site's northern boundary; these form part of the surface water drainage network serving the adjacent Kinsealy Manor and Beechwood estates, which discharges to public storm water drainage infrastructure in Chapel Road.

5.2 Proposed Storm Water Management

In accordance with Fingal County Council requirements, storm water shall be managed in two phases.

The first is to restrict storm water runoff from the proposed development to greenfield runoff rates. The second aspect, to be included in new applications, is to incorporate Sustainable Drainage Systems (SuDS) proposals into the scheme. The SuDS concept requires that storm water

quality is improved before disposal and, where applicable, storm water is discharged to ground on site.

All surface water management for proposed developments is required to be designed to comply with the Greater Dublin Strategic Drainage Study (GDSDS). In addition, CIRIA design publications, notably C697, C609 & C753 have aided in the development of the overall storm water strategy. In addition, the design has taken into consideration the document namely; Green/ Blue Infrastructure for Development Guidance Note Final Rev0 December 2020 by Fingal County Council.

The GDSDS and the Uisce Éireann Regional Code of Practice for Drainage Works require that four main criteria be provided by the developer.

- Criterion 1: River Water Quality Protection – satisfied by providing treatment of run-off within SUDS features e.g., bio-retention areas, rain gardens etc.
- Criterion 2: River Regime Protection - satisfied by attenuating run-off from the site.
- Criterion 3: Level of Service (flooding) for the site – satisfied by the site being outside the 1000 year coastal and fluvial flood levels. Pluvial flood risk addressed by development designed to accommodate a 100 year extreme storm as noted in GDSDS. Planned flood routing for storms greater than 100-year level considered in design and development run-off contained on site.
- Criterion 4: River Flood Protection – attenuation and/or long-term storage provided within the Suds features.

While the sustainable drainage elements can improve the overall surface water quality, a second requirement under storm water management in the GDSDS is to ensure that the subject lands only discharge storm water at

the greenfield (undeveloped) run off rate. In restricting the storm water flow to pre-development levels, suitably sized storage is required to retain on site the excess storm water generated during extreme storm events.

In accordance with the requirements of Fingal County Council, all new developments are to limit their storm water discharge to 2 l/s/Ha or to the site-specific Q-Bar, which is determined in the below calculation for sites with less than an overall area of 50ha:

$$QBAR = (0.00108 \times AREA^{0.89} \times SAAR^{1.17} \times SOIL^{2.17})/50$$

Where the AREA parameter was taken as 0.5km² (50ha), the SAAR parameter was taken from Met Éireann's records for the development site of 733mm/year and the SOIL parameter equals 0.3 in accordance with the findings of the ground investigation undertaken by GII. The discharge rate for the site was calculated to be 15.9 l/s:

$$QBAR = (0.00108 \times 0.5^{0.89} \times 733^{1.17} \times 0.3^{2.17})/50 = 0.00192 \text{ m}^3/\text{s}/\text{ha} = 1.92 \text{ l/s}/\text{ha}$$

$$1.92 \text{ l/s}/\text{ha} \times 8.2 \text{ ha} = 15.9 \text{ l/s}$$

Using Autodesk's InfoDrainage program, a surface water network was designed. Using the site's limited discharge rate of 15.9 l/s and rainfall data obtained from Met Éireann, – see **Appendix B** - attenuation analysis was conducted for the 5, 30 and 100 year storm events, plus 20% allowance for climate change.

The main attenuation facility for the proposed development shall be provided in the form of a detention basin located in the northeast corner of the development site, designed in accordance with CIRIA C753 guidelines. The basin was developed for the above stated storm events in consultation with Fingal County Council – see Section 5.4 of this Document. The below levels, volumes and half-empty times were determined as outlined in the below table:

Storm Event	Top Water Level (m)	Rounded up Level (m)	Max. Depth (m)	Volume (m ³)	Time to Half-Empty (mins)	Half Depth (m)
100 Year	14.171	14.200	0.900	616	59	0.450
30 Year	13.936	14.000	0.700	421	45	0.350
5 Year	13.667	13.700	0.400	225	27	0.200

The basin has been designed to allow infiltration around the sides and through the base, with an infiltration rate at its proposed location of 0.82 m/hour taken directly from the Ground Investigation Report undertaken by GII. See **Appendix C** for an extract of the Ground Investigation Report.

It is proposed to provide a standard manhole with a flow control device limiting the flow to 15.9/s for the subject site. A penstock shall be included in the manhole for maintenance purposes.

It is proposed to connect the attenuated run off from this site to the existing 450mm diameter pipe in the Beechwood development north of the subject site. Relevant consents have been obtained from the owner as this development's surface water drainage is still not taken in charge by FCC.

See **Appendix B** for surface water modelling analysis, as well as CS Consulting drawings **C215-CSC-00-XX-DR-C-0011** for the proposed surface water drainage and **C215-CSC-00-XX-DR-C-0021** for sections through the proposed basin and surrounding environment.

5.3 Proposed Sustainable Urban Drainage Systems

The proposed development's SuDS features shall consist of:

- a) Rain gardens - located in a few of the open spaces of the development, they provide initial interception.

- c) Permeable paving – carparking bays are to be fitted with a permeable paving surface to allow rainwater to percolate through the pavement and into the strata below.
- d) Permeable macadam – a portion of the footpath is to be fitted with a permeable paving surface to allow rainwater to percolate through the pavement and into the strata below.
- e) Swales – strategically placed along several roads within the development, these help alleviate runoff in the initial stages of a storm event.
- f) Oil Separator – before outfalling to the basin, a suitable oil separator is to be fitted to allow any hydrocarbons which may have built up from on-site traffic to be removed from storm water prior to disposal.

The combination of the above noted elements shall allow the proposed development to adhere to the principles of sustainable drainage practices while enhancing overall storm water quality and help reduce the overall volume of attenuation required to cater for the 100-year storm event (including climate change factors).

There are several benefits from the promotion of these SuDS elements within the development, below is a list of such benefits:

- Biodiversity and Ecology: Habitats are maintained, created & linked to support existing & new wildlife. This increases biodiversity & improves the quality of ecosystems in urban environments.
- Amenity and Economy: Access to open, green spaces allows for activities such as walking, cycling & organised sports. This improves the physical & mental health & wellbeing of communities.
- Water Quality: SuDS filter sediment & contaminants from runoff which improves quality. They intercept rainfall & reduce the volume entering

sewers & drains, reducing combined sewer overflow and the amount that needs treating.

- Flood Risk Management: SuDS mimic natural drainage patterns & reduce the volume of runoff reaching drains & watercourses. They provide areas to store water & slow the flow of water to reduce flood risk in urban areas.
- Climate Resilience: Vegetation and plants used, e.g., in green roofs, can capture & store carbon and greenhouse gases to improve air quality. They can also regulate building temperatures and reduce air & water pollution.
- Rainwater Demand: Water is collected all year round in water butts (rainwater harvesting) and can be used for landscape maintenance. This reduces demand on mains supplies & is useful in drought conditions.

Please refer to CS Consulting Drawing **C215-CSC-00-XX-DR-C-0011** for the proposed surface water drainage and SuDS layout and to Drawings **C215-CSC-00-XX-DR-C-0021/0022** for the proposed SuDS Details for the proposed development.

5.4 Meeting with Fingal County Council Drainage Department

CS Consulting met with Mr. Phillip Grobler of FCC Drainage Department on three separate occasions via MS Teams to discuss the proposed surface water arrangement, connection points to the existing surface water network and SuDS features proposed on the development site.

The proposed surface water network, its outfall into the existing surface water system in the Beechwood Development, attenuation in the form of a detention basin and all other SuDS systems outlined previously were agreed in principle with Mr. Grobler.

5.5 Surface Water Drainage

Surface water from the development has been designed in accordance with:

- Greater Dublin Regional Code of Practice for Drainage Works
- Building Regulations (2005) – Part H Drainage & Wastewater Disposal

The proposed storm water network has been designed using Autodesk's InfoDrainage Program, to check for suitable capacity in the network to ensure no on flooding takes place for the extreme storm events. See **Appendix B** for InfoDrainage network design for the proposed storm water system.

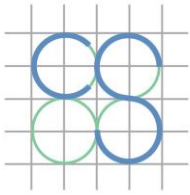
Refer to CS Consulting drawings **C215-CSC-00-XX-DR-C-0016** to **C215-CSC-00-XX-DR-C-0018** for the proposed drainage details.

5.6 Site Specific Flood Risk Assessment

Please refer to document Ref. **C215-CSC-ZZ-XX-RP-C-0002** for an in-depth Site Specific Flood Risk Assessment for the proposed development.

Appendix A

Uisce Éireann Confirmation of Feasibility (CoF) and Statement of Design Acceptance (SoDA)



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CONFIRMATION OF FEASIBILITY

Antonio Campello
CS Consulting
19-22 Dame Street
Dublin

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Oifig Sheachadta na
Cathrach Theas
Cathair Chorcaí

Uisce Éireann
PO Box 448
South City
Delivery Office
Cork City

www.water.ie

23 April 2024

Our Ref: CDS24002091 Pre-Connection Enquiry
Teagasc Lands, Malahide Road, Co. Dublin

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 192 unit(s) at Teagasc Lands, Malahide Road, Co. Dublin, (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
- **Wastewater Connection** - Feasible without infrastructure upgrade by Uisce Éireann

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/

Stiúrthóirí / Directors: Tony Keohane (Cathaoirleach / Chairman), Niall Gleeson (POF / CEO), Christopher Banks, Fred Barry, Gerard Britchfield, Liz Joyce, Patricia King, Eileen Maher, Cathy Mannion, 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 design activity company, limited by shares. Cláraithe in Éirinn Uimh.: 530363 / Registered in Ireland No.: 530363.

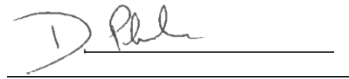
Where can you find more information?

- **Section A** - What is important to know?

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,

A handwritten signature in dark ink, appearing to read 'D. Phelan', is written over a horizontal line. Below this line is another horizontal line, creating a space for a printed name.

Dermot Phelan
Connections Delivery Manager

Section A - What is important to know?

What is important to know?	Why is this important?
Do you need a contract to connect?	• Yes, a contract is required to connect. This letter does not constitute a contract or an offer in whole or in part to provide a connection to Uisce Éireann's network(s). • Before the Development can connect to Uisce Éireann's network(s), you must submit a connection application <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)

From: Marina Zivanovic Byrne <mzbyrne@water.ie>
Sent: Friday 16 August 2024 11:02
To: Gary Lindsay
Cc: Antonio Campello
Subject: RE: CDS24002091 Pre-Connection Enquiry - Teagasc Lands, Malahide Road, Co. Dublin
Attachments: CDS24002091 COF.pdf; scan_garyl_2024-08-15-18-09-41.pdf; C215-CSC-00-XX-DR-C-1002_IW Wastewater Layout.pdf

Hi Gary,

I reviewed the proposal, and I can confirm it is acceptable.
Detail design of the proposed network has to be in accordance with UE Code of Practice and Standard Details.

Kind Regards,

Marina

From: Gary Lindsay <gary.lindsay@csconsulting.ie>
Sent: Thursday, August 15, 2024 6:17 PM
To: Marina Zivanovic Byrne <mzbyrne@water.ie>
Cc: Antonio Campello <Antonio.Campello@csconsulting.ie>
Subject: RE: CDS24002091 Pre-Connection Enquiry - Teagasc Lands, Malahide Road, Co. Dublin

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Marina,

Apologies for not reverting sooner.

In our original COF we were discharging our foul drainage to the Newpark Development to the East of ours. However due to the topography of our site we cannot achieve a gravity connection for all our units as Fingal Co Co are insisting we access our development via Gandon Lane directly to the north. Gandon is a few metres below our site so we need to drop our levels to suit. So we are wondering if a certain number circa 57 units can discharge to Gandon Lane's network while the remaining 135 units still outfall to Newpark as before.

Could you give me a call at your earliest convenience to discuss this proposal.

Thanking you in advance

Antonio Campello
CS Consulting
19-22
Dame street
Dublin
D02E267

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

Uisce Éireann
PO Box 448
South City
Delivery Office
Cork City

www.water.ie

13 January 2025

**Re: Design Submission for Teagasc Lands, Malahide Road, Co. Dublin (the
“Development”)
(the “Design Submission”) / Connection Reference No: CDS24002091**

Dear Antonio Campello,

Many thanks for your recent Design Submission.

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

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

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

If you have any further questions, please contact your Uisce Éireann representative:

Name: Alicia Ros Bernal

Email: ailciarosbernal.bernal@water.ie

Yours sincerely,



Dermot Phelan
Connections Delivery Manager

Stiúrthóirí / Directors: Niall Gleeson (POF / CEO), Jerry Grant (Cathaoirleach / Chairperson), Gerard Britchfield, Liz Joyce, Michael Nolan, Patricia King, Eileen Maher, Cathy Mannion, Paul Reid, Michael Walsh.

Oifig Chláraithe / Registered Office: Teach Colvill, 24-26 Sráid Thalbóid, Baile Átha Cliath 1, D01 NP86 / Colvill House, 24-26 Talbot Street, Dublin, Ireland D01NP86

Is cuideachta ghníomhaíochta ainmnithe atá faoi theorainn scaireanna é Uisce Éireann / Uisce Éireann is a designated activity company, limited by shares. Cláraithe in Éirinn Uimh.: 530363 / Registered in Ireland No.: 530363.

Appendix A

Document Title & Revision

- C215-CSC-00-XX-DR-C-0012_Proposed Watermain Layout
- C215-CSC-00-XX-DR-C-0010_Proposed Foul Layout
- C215-CSC-00-XX-DR-C-0013_Proposed Combined Services Layout
- C215-CSC-00-XX-DR-C-0031_Foul Longsections_Sheet 1 of 2
- C215-CSC-00-XX-DR-C-0032_Foul Longsections_Sheet 2 of 2
- C215-CSC-00-XX-DR-C-0006_Proposed Road Levels and Paved areas-Sheet 1 of 2
- C215-CSC-00-XX-DR-C-0007_Proposed Road Levels and Paved areas-Sheet 2 of 2

Additional Comments

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

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

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

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



WATERMAIN LEGEND:

- EXISTING WATERMAIN — EX-WM —
- PROPOSED 150mm I.D. WATERMAIN — WM —
- PROPOSED 100mm I.D. WATERMAIN — WM —
- PROPOSED Ø25 WATERMAINS SERVICE CONNECTIONS — —
- PROPOSED SLUICE VALVE — S.V. —
- PROPOSED SCOUR VALVE — Sc.V. —
- PROPOSED AIR VALVE — A.V. —
- PROPOSED HYDRANT — H —
- PROPOSED BULK METER — Me —
- PROPOSED BOUNDARY BOX — Rb —

- NOTE:
- ALL PIPE WORK, VALVES, CHAMBERS, NETWORK ARRANGEMENTS AND ALL ASSOCIATED WATERMAIN WORKS TO COMPLY WITH THE IRISH WATER INFRASTRUCTURE STANDARD DETAILS.
 - ALL NEW WATERMAIN MATERIAL SHALL BE IN ACCORDANCE WITH SECTION 3.9 OF THE IRISH WATER CODE OF PRACTICE. MDPE PIPES SHALL BE OF A TYPE PE-80 AND HAVE AN SDR-17 AND SDR-11 RATING. THEY SHALL CONFORM TO IS EN 12201: PART 1, PART 2 AND PART 3.
 - THE PROPOSED 150mm and 100mm WATERMAINS WILL BE LOCATED A MINIMUM OF 300mm FROM THE WASTEWATER INFRASTRUCTURE IN ACCORDANCE WITH SECTION 3.5.18 OF THE IRISH WATER WASTEWATER CODE OF PRACTICE AND TYPICAL SERVICE LAYOUT DISTANCES (HORIZONTAL AND VERTICAL) SHALL BE AS PER IRISH WATER STANDARD DETAIL STD-W-11.
 - AIR PRESSURE TESTS TO ALL WORKS TO BE TAKEN IN CHARGE TO IRISH WATER CODE OF PRACTICE SECTION 4.10.
 - MANIFOLD CHAMBERS WILL BE USED TO PROVIDE A COMMUNAL BOX FOR THE APARTMENT BLOCK AND THAT EACH DWELLING UNIT WILL HAVE ITS OWN SUPPLY PIPE AND METER AND STOP VALVE. ALL METERS IN THE MANIFOLD SHALL BE TAGGED TO INDICATE WHICH PROPERTY IS SUPPLIED AND ANY UNUSED OUTLETS WILL BE BLANKED OFF IN ACCORDANCE WITH SECTION 3.15.3 OF THE IRISH WATER WASTEWATER CODE OF PRACTICE.
 - BULK METERS SHALL COMPLY WITH SECTION 3.15.4 OF THE IRISH WATERS CODE OF PRACTICE FOR WATER INFRASTRUCTURE.
 - WATERMAIN T-JUNCTIONS SHALL BE AT 90 DEGREE ANGLES AS PER IRISH WATER DETAIL STD-W-07.
 - THRUST BLOCKS TO BE PROVIDED AT DEAD ENDS, BENDS, TEE JUNCTIONS, VALVE CHAMBERS (AS PER DETAILS) OR ANY ABRUPT CHANGE IN VERTICAL OR HORIZONTAL DIRECTION AND AT ANY LOCATION WHERE WATER PRESSURE IS LIKELY TO DISTORT THE PIPE LINE INSTALLATION OR CAUSE DISPROPORTIONATE MOVEMENT. THRUST BLOCKS TO BE IN ACCORDANCE WITH SECTION 4.9 OF THE IRISH WATER CODE OF PRACTICE AND IRISH WATER STANDARD DETAIL STD-W-28.
 - NOTE: THE FIRE SAFETY CERTIFICATE HAS NOT BEEN COMPLETED YET, BUT AS PART OF THIS DEVELOPMENT, IT IS CONFIRMED THAT HYDRANTS SHALL NOT BE LOCATED ANY MORE THAN 46m FROM ANY PART OF THE DEVELOPMENT UNITS.
 - HYDRANTS / SLUICE VALVE ETC COVERS, WHERE LOCATED IN GRASS AREAS, SHALL BE SURROUNDED BY A CONCRETE PLINTH, 200MM ALL ROUND AND 100MM DEEP; FORMED WITH C20/25 CONCRETE, 20MM AGGREGATE SIZE, AND BEDDED IN CLAUSE 804 MATERIAL. THE PLINTH SHALL INCORPORATE MILD STEEL REINFORCEMENT LINKS AND SHALL HAVE A BULL-NOSE FINISH AROUND ITS EXTERNAL PERIMETER. SEE SECTION 3.18 OF WATER CODE OF PRACTICE.
 - RESTRICTIONS ON PLANTING ADJACENT TO WATER MAINS AS PER DETAIL STD-W-12A. IF THE PROPOSED WATERMAIN DOES NOT MEET THIS CRITERION, PROTECTION MEASURES SUCH AS ROOT PROTECT BARRIERS SHALL BE INSTALLED TO THE SUBJECT WATERMAIN TO PREVENT ROOT INGRESS, AS OUTLINED IN SECTION 3.26 OF THE WATER CODE OF PRACTICE.
 - OFFLINE HYDRANTS SHALL DEAD END OF 3.0m OR LESS AND SHALL BE FITTED TO A DOUBLED FLANGED, DN80 PIPE OF SUITABLE LENGTH TO EXTEND BELOW THE FLOOR SLAB OF THE HYDRANT CHAMBER AND TO SUIT SITE CONDITIONS.
 - WHERE SERVICE CONNECTIONS EXCEED 15m IN LENGTH, THE SERVICE CONNECTION SHALL BE UPSIZED FROM 25mmØ TO 32mmØ.
 - SCOUR VALVES ARE TO BE SHOWN OFFLINE AND CONNECTED TO A SURFACE WATER MANHOLE, IN ACCORDANCE WITH STD-W-30B. THE SCOUR CHAMBER IS TO BE PROVIDED WITH A NON-RETURN VALVE TO PREVENT BACKFLOW TO THE WATER SUPPLY NETWORK SYSTEM AND IS TO BE AGREED WITH THE LOCAL AUTHORITY. A SCOUR VALVE TO A WASHOUT HYDRANT IN ACCORDANCE WITH STANDARD DETAIL STD-W-30A IS ALSO ACCEPTABLE; SEE SECTION 3.16.4 AND 3.21 OF CODE OF PRACTICE.
 - ALL WATERMAIN "T" JUNCTIONS TO BE AT 90 DEGREE ANGLES AS PER STD-W-07 OF THE CODE OF PRACTICE.

DRAWINGS REFERENCES

- REFER TO DRAWING C215-CSC-00-XX-DR-C-0019 TO 0020 FOR WATERMAIN DETAILS.

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NOTES

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Rev. No	Date	REVISION NOTE	Dm. By	Chkd. By
P1	03.09.2024	DRAFT ISSUE	AB	GL
P2	10.08.2024	GENERAL UPDATES TO WATERMAIN : HYDRANTS RELOCATED	AC	GL
P3	12.09.2024	ISSUED FOR STAGE 2 PLANNING SUBMISSION	JL	GL
P4	13.12.2024	WATERMAIN LAYOUT UPDATED FOLLOWING COMMENTS FROM UE FROM SODA APPLICATION	AB	GL
P5	2025.01.06	NOTE 15 ADDED AND MINOR AMENDMENTS TO WATERMAIN LAYOUT.	AB	GL

Architect	CCK ARCHITECTS			
Project	Development at Former Teagasc Lands Kinsealy, Co. Dublin			
Title	Proposed Watermain Layout			
Dwg. No.	C215-CSC-00-XX-DR-0012			
Date	Dm by	Chkd by	Apprv by	Scale
Sep 2024	AB	GL	OS	1:500 @A1
Revision				P5

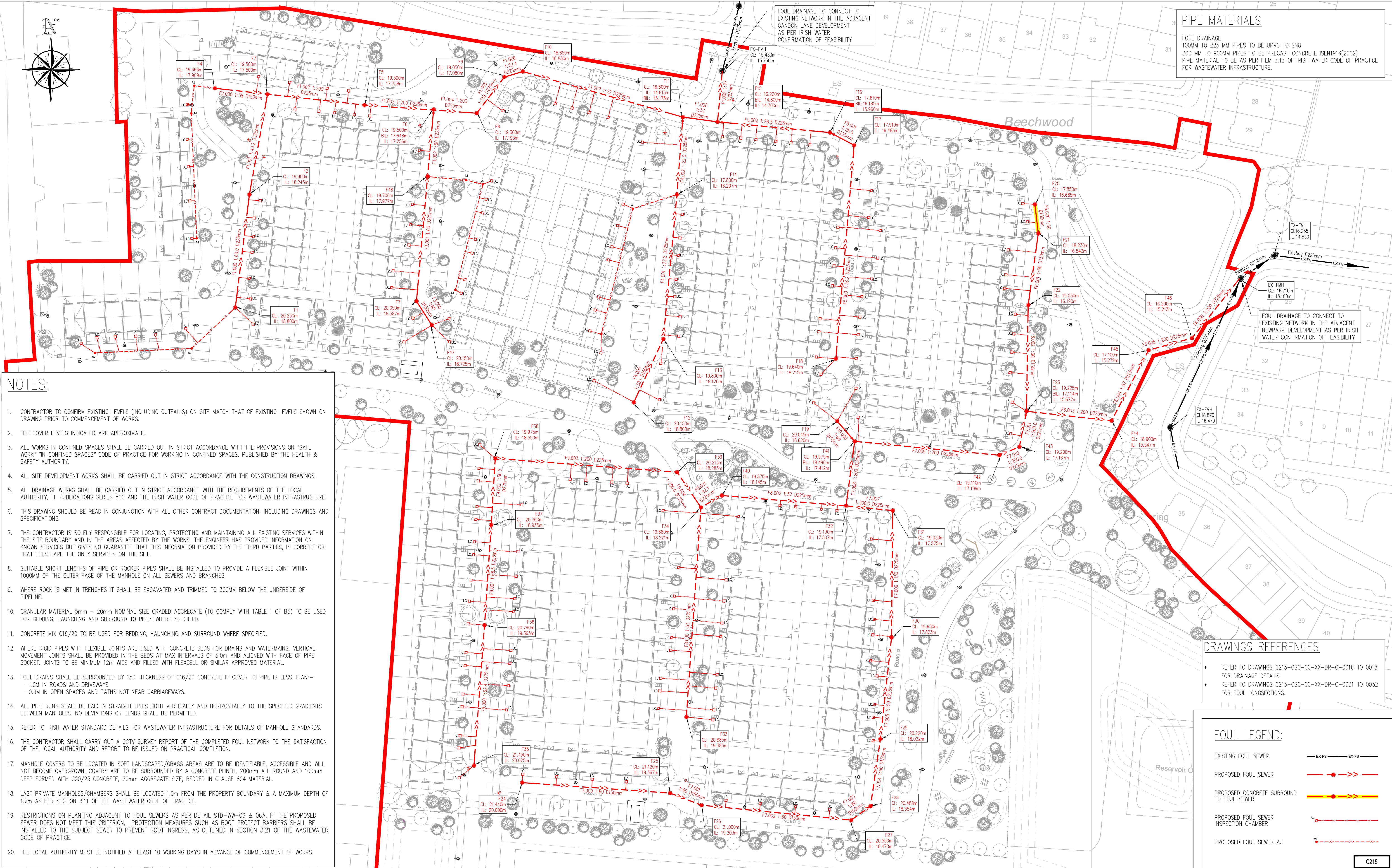
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Quality
Environment
Energy
Health & Safety

NSAI
Certified

ISO 9001:2008
ISO 14001:2004
ISO 50001:2011
OHSAS 18001:2007



- NOTES:
- CONTRACTOR TO CONFIRM EXISTING LEVELS (INCLUDING OUTFALLS) ON SITE MATCH THAT OF EXISTING LEVELS SHOWN ON DRAWING PRIOR TO COMMENCEMENT OF WORKS.
 - THE COVER LEVELS INDICATED ARE APPROXIMATE.
 - ALL WORKS IN CONFINED SPACES SHALL BE CARRIED OUT IN STRICT ACCORDANCE WITH THE PROVISIONS ON "SAFE WORK" IN CONFINED SPACES" CODE OF PRACTICE FOR WORKING IN CONFINED SPACES, PUBLISHED BY THE HEALTH & SAFETY AUTHORITY.
 - ALL SITE DEVELOPMENT WORKS SHALL BE CARRIED OUT IN STRICT ACCORDANCE WITH THE CONSTRUCTION DRAWINGS.
 - ALL DRAINAGE WORKS SHALL BE CARRIED OUT IN STRICT ACCORDANCE WITH THE REQUIREMENTS OF THE LOCAL AUTHORITY, TII PUBLICATIONS SERIES 500 AND THE IRISH WATER CODE OF PRACTICE FOR WASTEWATER INFRASTRUCTURE.
 - THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH ALL OTHER CONTRACT DOCUMENTATION, INCLUDING DRAWINGS AND SPECIFICATIONS.
 - THE CONTRACTOR IS SOLELY RESPONSIBLE FOR LOCATING, PROTECTING AND MAINTAINING ALL EXISTING SERVICES WITHIN THE SITE BOUNDARY AND IN THE AREAS AFFECTED BY THE WORKS. THE ENGINEER HAS PROVIDED INFORMATION ON KNOWN SERVICES BUT GIVES NO GUARANTEE THAT THIS INFORMATION PROVIDED BY THE THIRD PARTIES, IS CORRECT OR THAT THESE ARE THE ONLY SERVICES ON THE SITE.
 - SUITABLE SHORT LENGTHS OF PIPE OR ROCKER PIPES SHALL BE INSTALLED TO PROVIDE A FLEXIBLE JOINT WITHIN 100MM OF THE OUTER FACE OF THE MANHOLE ON ALL SEWERS AND BRANCHES.
 - WHERE ROCK IS MET IN TRENCHES IT SHALL BE EXCAVATED AND TRIMMED TO 300MM BELOW THE UNDERSIDE OF PIPELINE.
 - GRANULAR MATERIAL 5mm – 20mm NOMINAL SIZE GRADED AGGREGATE (TO COMPLY WITH TABLE 1 OF B5) TO BE USED FOR BEDDING, HAUNCHING AND SURROUND TO PIPES WHERE SPECIFIED.
 - CONCRETE MIX C16/20 TO BE USED FOR BEDDING, HAUNCHING AND SURROUND WHERE SPECIFIED.
 - WHERE RIGID PIPES WITH FLEXIBLE JOINTS ARE USED WITH CONCRETE BEDS FOR DRAINS AND WATERMAINS, VERTICAL MOVEMENT JOINTS SHALL BE PROVIDED IN THE BEDS AT MAX INTERVALS OF 5.0m AND ALIGNED WITH FACE OF PIPE SOCKET. JOINTS TO BE MINIMUM 12m WIDE AND FILLED WITH FLEXCELL OR SIMILAR APPROVED MATERIAL.
 - FOUL DRAINS SHALL BE SURROUNDED BY 150 THICKNESS OF C16/20 CONCRETE IF COVER TO PIPE IS LESS THAN: –
–1.2m IN ROADS AND DRIVEWAYS
–0.9m IN OPEN SPACES AND PATHS NOT NEAR CARRIAGEWAYS.
 - ALL PIPE RUNS SHALL BE LAID IN STRAIGHT LINES BOTH VERTICALLY AND HORIZONTALLY TO THE SPECIFIED GRADIENTS BETWEEN MANHOLES. NO DEVIATIONS OR BENDS SHALL BE PERMITTED.
 - REFER TO IRISH WATER STANDARD DETAILS FOR WASTEWATER INFRASTRUCTURE FOR DETAILS OF MANHOLE STANDARDS.
 - THE CONTRACTOR SHALL CARRY OUT A CCTV SURVEY REPORT OF THE COMPLETED FOUL NETWORK TO THE SATISFACTION OF THE LOCAL AUTHORITY AND REPORT TO BE ISSUED ON PRACTICAL COMPLETION.
 - MANHOLE COVERS TO BE LOCATED IN SOFT LANDSCAPED/GRASS AREAS ARE TO BE IDENTIFIABLE, ACCESSIBLE AND WILL NOT BECOME OVERGROWN. COVERS ARE TO BE SURROUNDED BY A CONCRETE PLINTH, 200mm ALL ROUND AND 100mm DEEP FORMED WITH C20/25 CONCRETE, 20mm AGGREGATE SIZE, BEDDED IN CLAUSE 804 MATERIAL.
 - LAST PRIVATE MANHOLES/CHAMBERS SHALL BE LOCATED 1.0m FROM THE PROPERTY BOUNDARY & A MAXIMUM DEPTH OF 1.2m AS PER SECTION 3.11 OF THE WASTEWATER CODE OF PRACTICE.
 - RESTRICTIONS ON PLANTING ADJACENT TO FOUL SEWERS AS PER DETAIL STD-WW-06 & 06A. IF THE PROPOSED SEWER DOES NOT MEET THIS CRITERION, PROTECTION MEASURES SUCH AS ROOT PROTECT BARRIERS SHALL BE INSTALLED TO THE SUBJECT SEWER TO PREVENT ROOT INGRESS, AS OUTLINED IN SECTION 3.21 OF THE WASTEWATER CODE OF PRACTICE.
 - THE LOCAL AUTHORITY MUST BE NOTIFIED AT LEAST 10 WORKING DAYS IN ADVANCE OF COMMENCEMENT OF WORKS.

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Rev. No	Date	REVISION NOTE	Dm. By	Chkd. By
P1	03.09.2024	DRAFT ISSUE	AB	GL
P2	10.09.2024	UPDATED FOUL INSPECTION CHAMBERS	AC	GL
P3	12.09.2024	ISSUED FOR STAGE 2 PLANNING SUBMISSION	JL	GL
P4	06.01.2025	FOUL BRANCHES F1 AND F7 T1 UPDATED - CONCRETE COVER ADDED TO FOUL PIPE F6.000	AC	GL

Architect	CCK Architects
Project	Development at Former Teagasc Lands Kinsealy, Co. Dublin
Title	Proposed Foul Layout
Dwg. No.	C215-CSC-00-XX-DR-0010
Date	Sep '24
Dm by	AB
Chkd by	GL
Aprvd by	OS
Scale	1:500 @A1
Revision	P4

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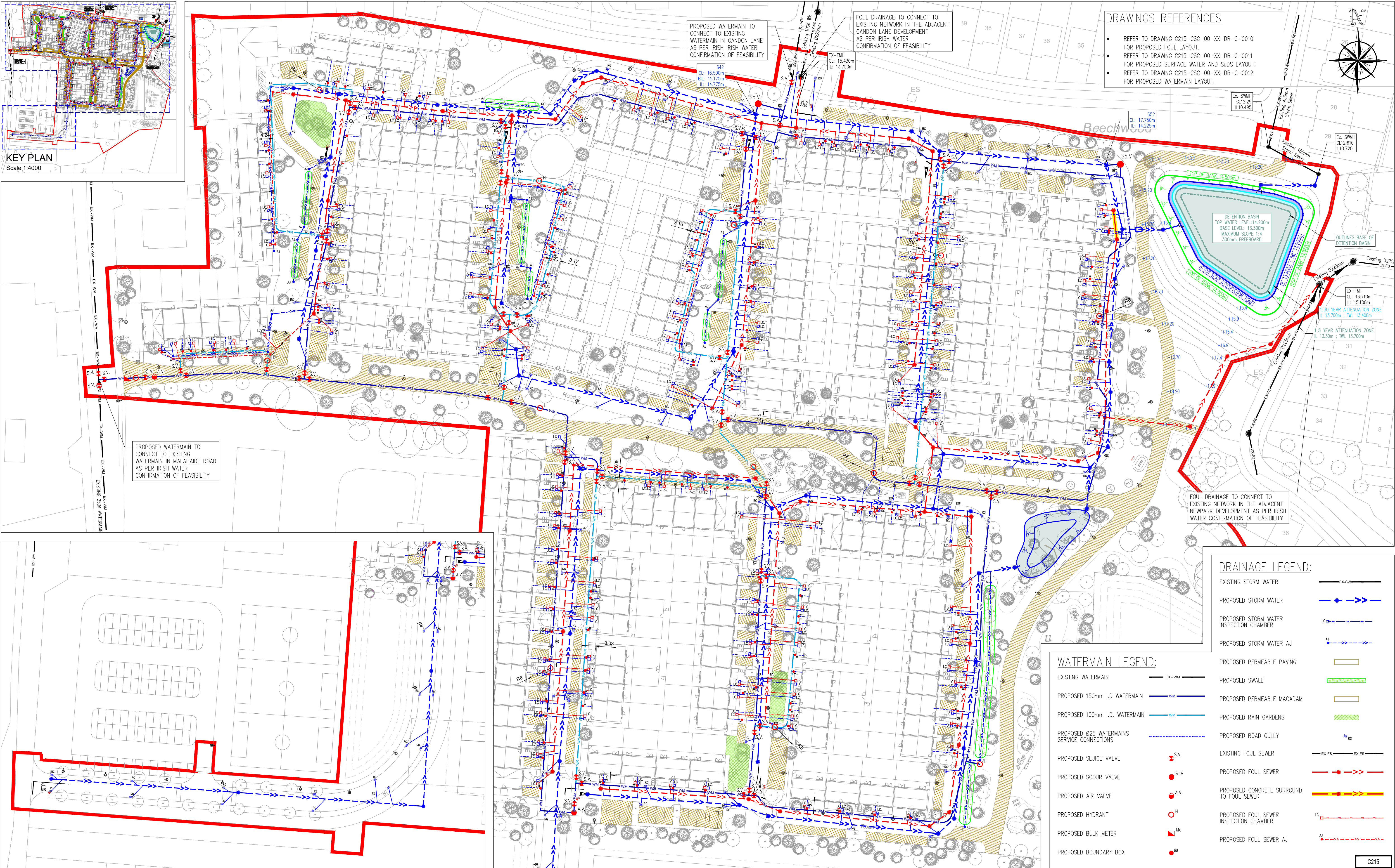
Quality
Environment
Energy
Health & Safety

I.S. EN ISO 9001:2008
I.S. EN ISO 14001:2004
I.S. EN ISO 50001:2011
OHSAS 18001:2007

- DRAWINGS REFERENCES
- REFER TO DRAWINGS C215-CSC-00-XX-DR-C-0016 TO 0018 FOR DRAINAGE DETAILS.
 - REFER TO DRAWINGS C215-CSC-00-XX-DR-C-0031 TO 0032 FOR FOUL LONGSECTIONS.

- FOUL LEGEND:
- EXISTING FOUL SEWER — EX-FS — EX-FS
 - PROPOSED FOUL SEWER ————●———>>>
 - PROPOSED CONCRETE SURROUND TO FOUL SEWER ————●———>>>
 - PROPOSED FOUL SEWER INSPECTION CHAMBER IC ————●———
 - PROPOSED FOUL SEWER AJ ————●———>>>

C215



DRAWINGS REFERENCES

- REFER TO DRAWING C215-CSC-00-XX-DR-C-0010 FOR PROPOSED FOUL LAYOUT.
- REFER TO DRAWING C215-CSC-00-XX-DR-C-0011 FOR PROPOSED SURFACE WATER AND SUDS LAYOUT.
- REFER TO DRAWING C215-CSC-00-XX-DR-C-0012 FOR PROPOSED WATERMAIN LAYOUT.

DRAINAGE LEGEND:

- EXISTING STORM WATER — EX-SW —
- PROPOSED STORM WATER ———>>> —
- PROPOSED STORM WATER INSPECTION CHAMBER — LC —
- PROPOSED STORM WATER AJ ———>>> —
- PROPOSED PERMEABLE PAVING ———>>> —
- PROPOSED SWALE ———>>> —
- PROPOSED PERMEABLE MACADAM ———>>> —
- PROPOSED RAIN GARDENS ———>>> —
- PROPOSED ROAD GULLY ———>>> —
- EXISTING FOUL SEWER — EX-FS —
- PROPOSED FOUL SEWER ———>>> —
- PROPOSED CONCRETE SURROUND TO FOUL SEWER ———>>> —
- PROPOSED FOUL SEWER INSPECTION CHAMBER — LC —
- PROPOSED FOUL SEWER AJ ———>>> —

WATERMAIN LEGEND:

- EXISTING WATERMAIN — EX-WM —
- PROPOSED 150mm I.D. WATERMAIN ———>>> —
- PROPOSED 100mm I.D. WATERMAIN ———>>> —
- PROPOSED 025 WATERMAINS SERVICE CONNECTIONS ———>>> —
- PROPOSED SLUICE VALVE — S.V. —
- PROPOSED SCOUR VALVE — Sc.V —
- PROPOSED AIR VALVE — A.V. —
- PROPOSED HYDRANT — H —
- PROPOSED BULK METER — Me —
- PROPOSED BOUNDARY BOX — RB —

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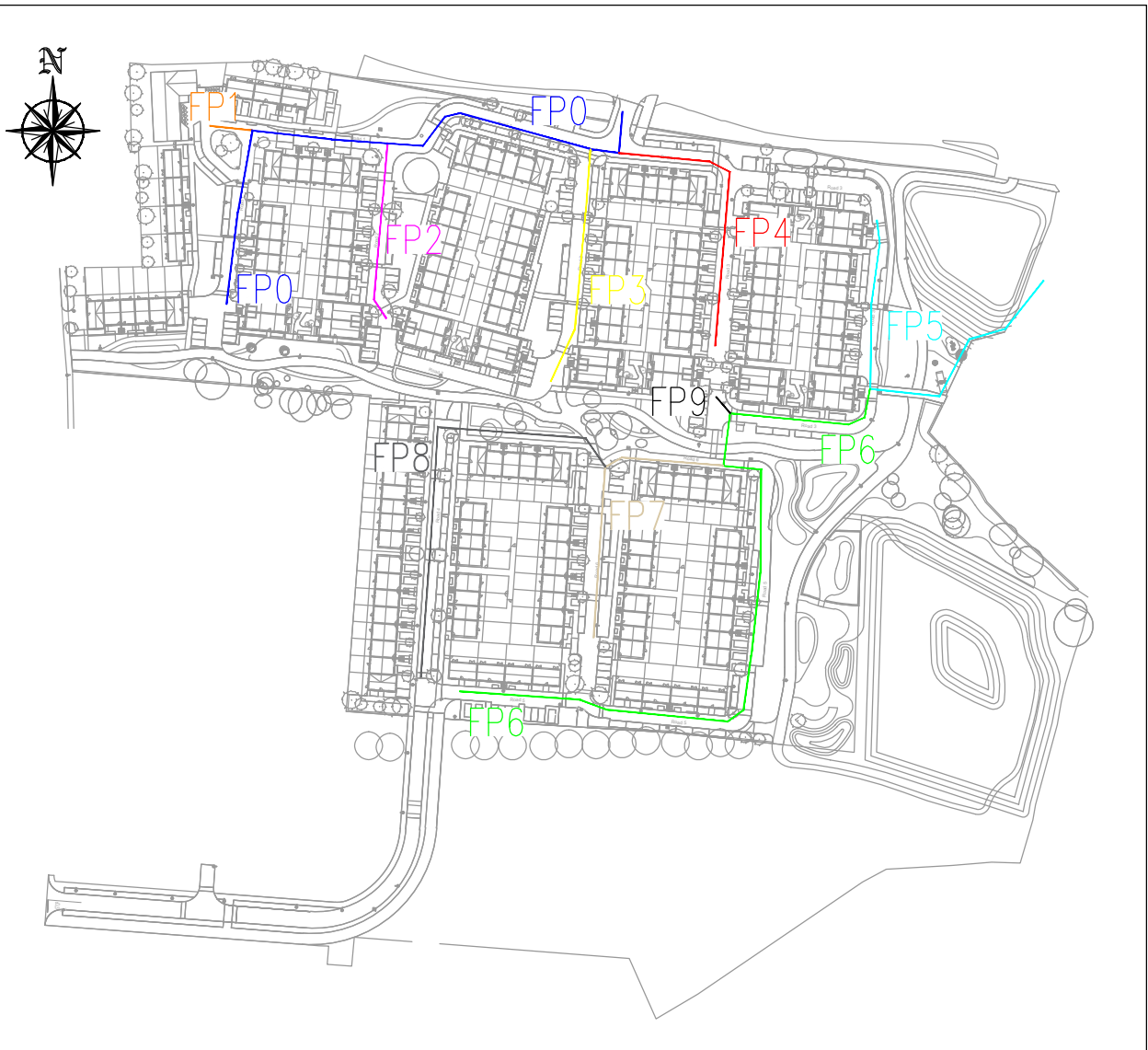
NOTES

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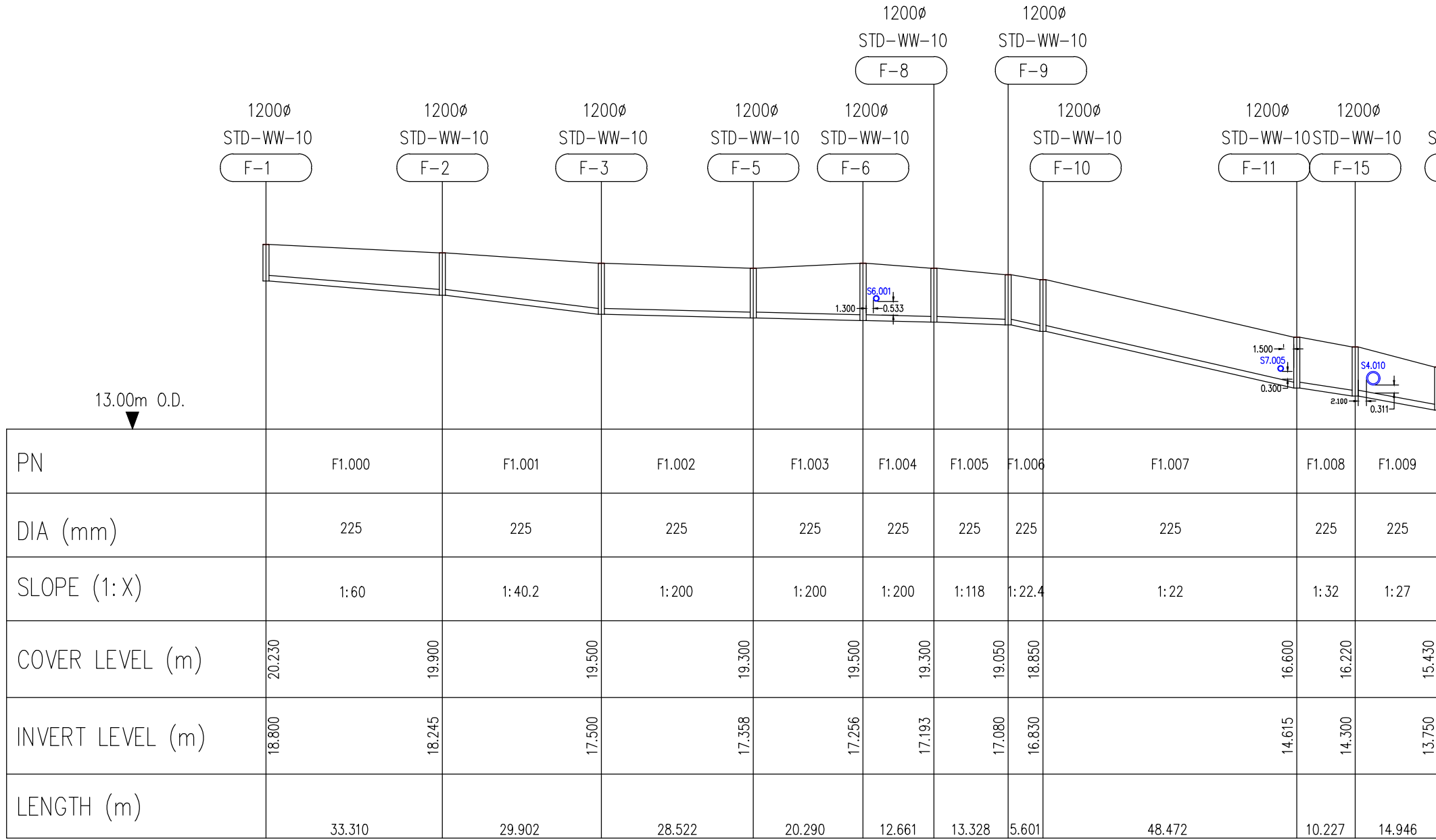
Rev. No	Date	REVISION NOTE	Dim. By	Chkd. By
P1	03.09.2024	DRAFT ISSUE	AB	GL
P2	10.09.2024	FOUL AND SURFACE WATER INSPECTION CHAMBERS UPDATED; HYDRANTS RELOCATED AND WATERMAIN UPDATED	AC	GL
P3	12.09.2024	ISSUED FOR STAGE 2 PLANNING SUBMISSION	JL	GL
P4	06.01.2025	UPDATES TO FOUL AND WATERMAIN FOLLOWING COMMENTS FROM UE SODA APPLICATION	AC	GL

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Date	Sep' 2024
Dim by	SC
Chkd by	GL
Aprvd by	OS
Scale	1:500 @A1
Revision	P4

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Quality	I.S. EN ISO 9001:2008
Environment	I.S. EN ISO 14001:2004
Health & Safety	I.S. EN ISO 50001:2011
NSAI Certified	CHSAS 18001:2007



KEY PLAN
SCALE NTS

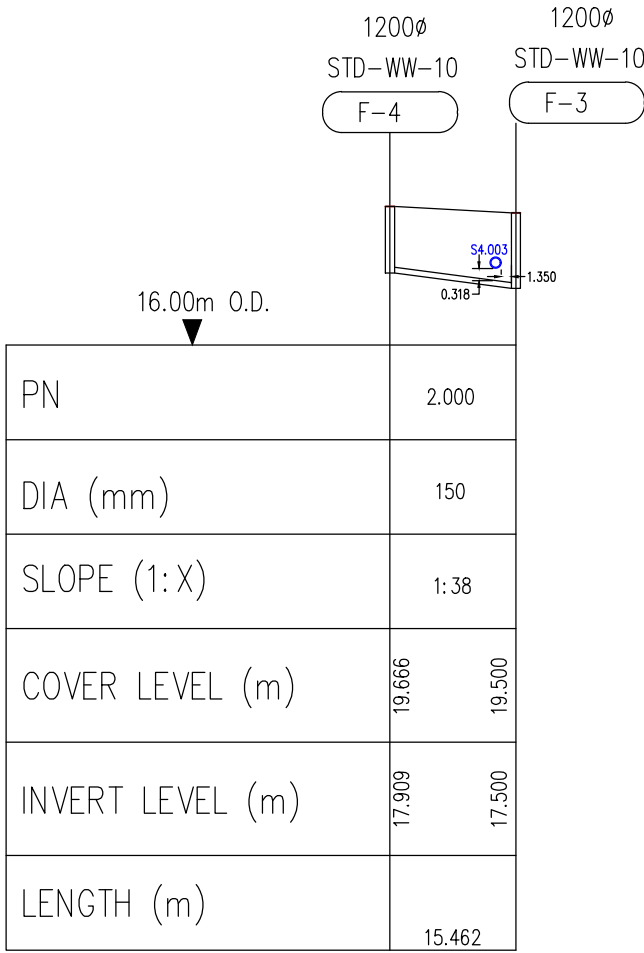


FP0 - FOUL WATER SEWER FROM MANHOLE

F-1 TO Ex-FMH Gandon Lane

HORIZONTAL SCALE 1:200

VERTICAL SCALE 1:1000

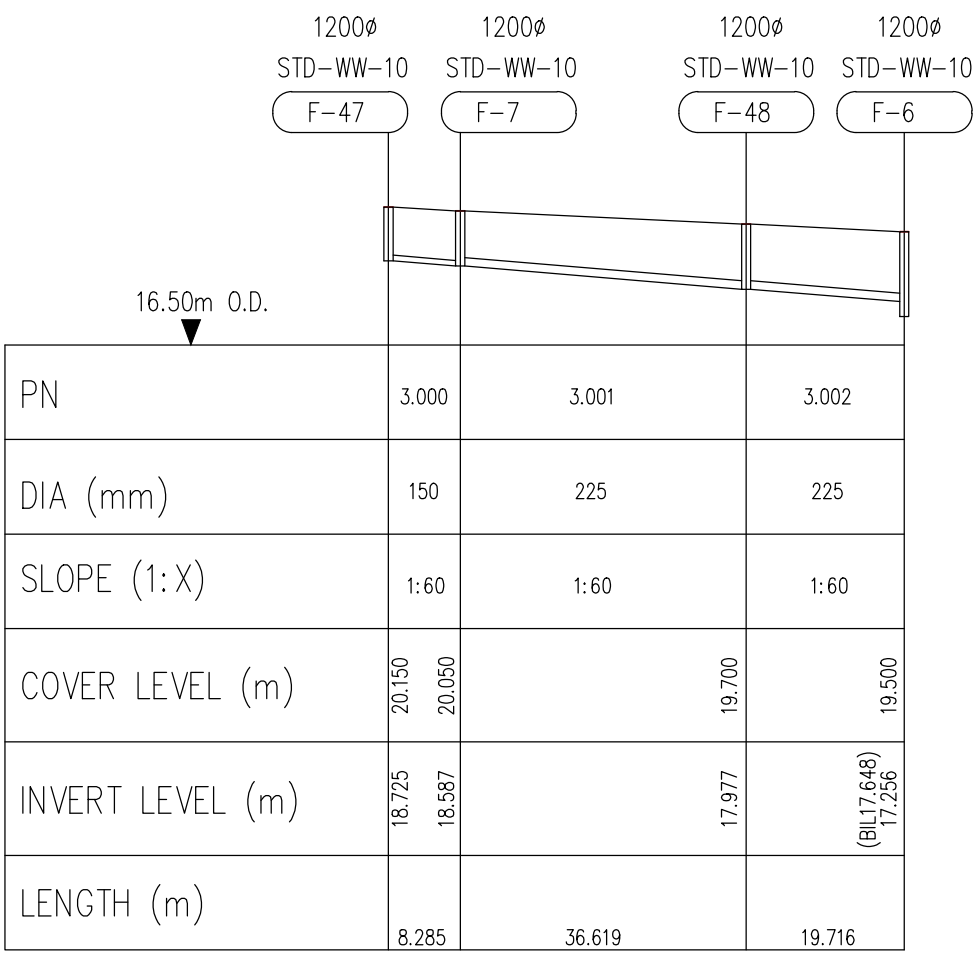


FP1 - FOUL WATER SEWER FROM MANHOLE

F-4 TO F-3

HORIZONTAL SCALE 1:200

VERTICAL SCALE 1:1000

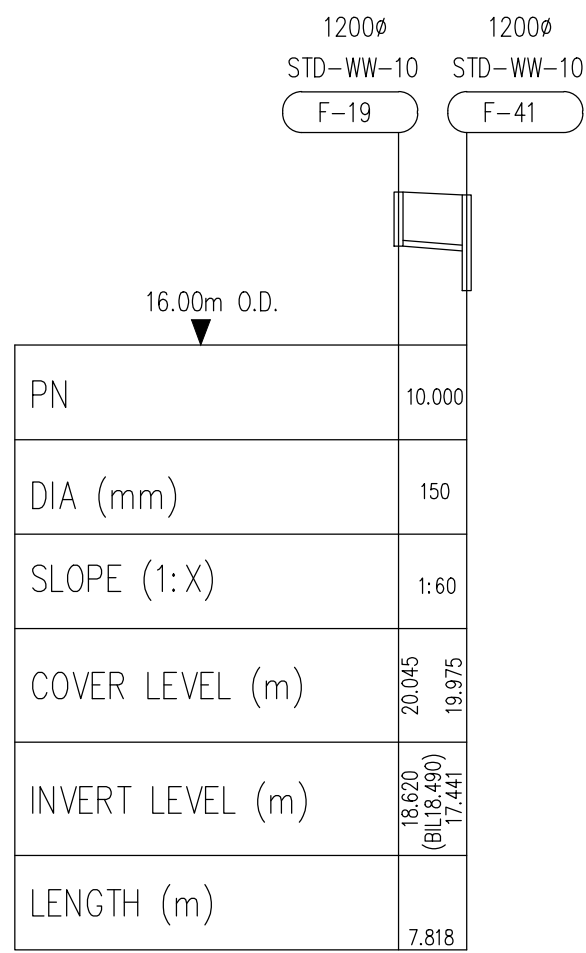


FP2 - FOUL WATER SEWER FROM MANHOLE

F-47 TO F-6

HORIZONTAL SCALE 1:200

VERTICAL SCALE 1:1000

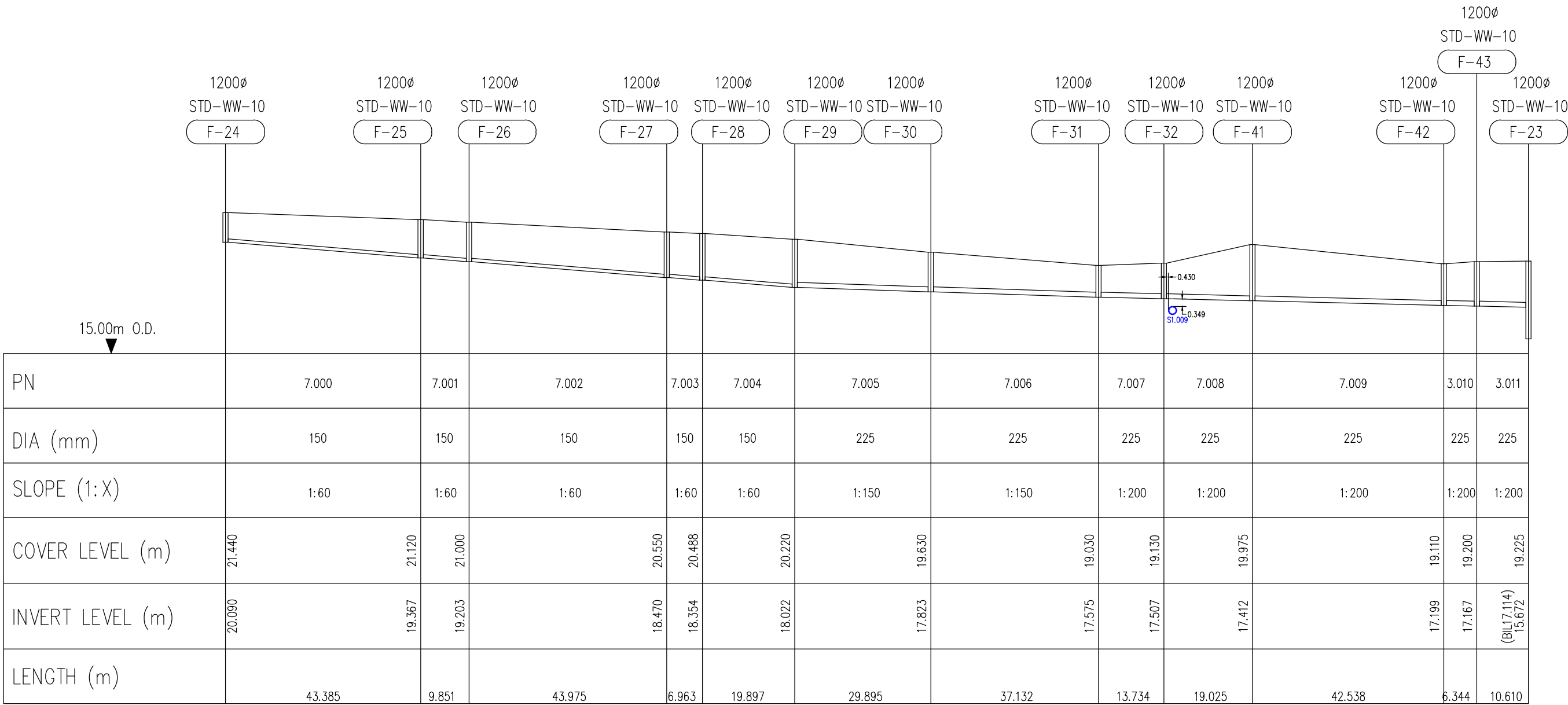


FP9 - FOUL WATER SEWER FROM MANHOLE

F-4 TO F-3

HORIZONTAL SCALE 1:200

VERTICAL SCALE 1:1000

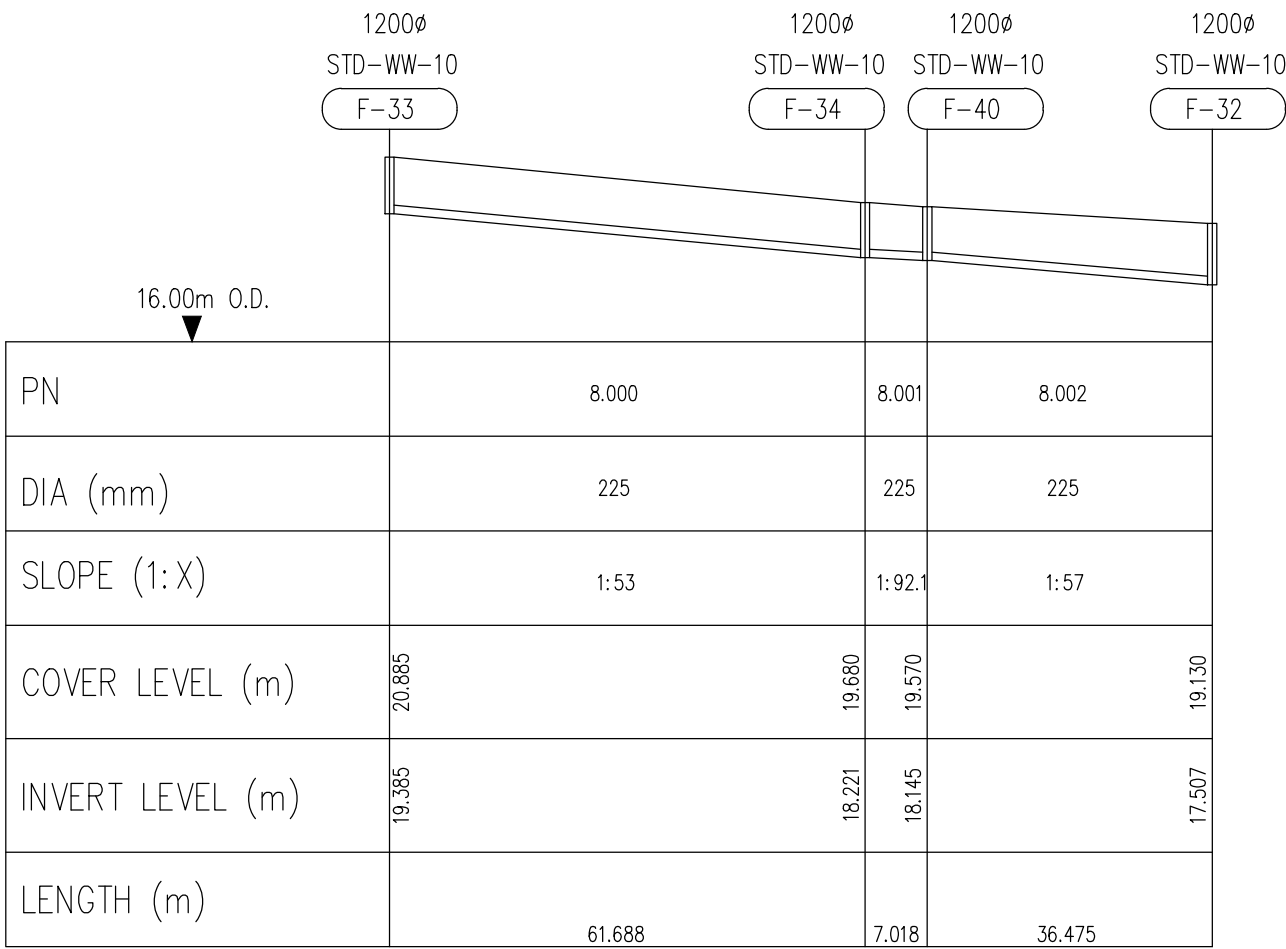


FP6 - FOUL WATER SEWER FROM MANHOLE

F-24 TO F-23

HORIZONTAL SCALE 1:200

VERTICAL SCALE 1:1000

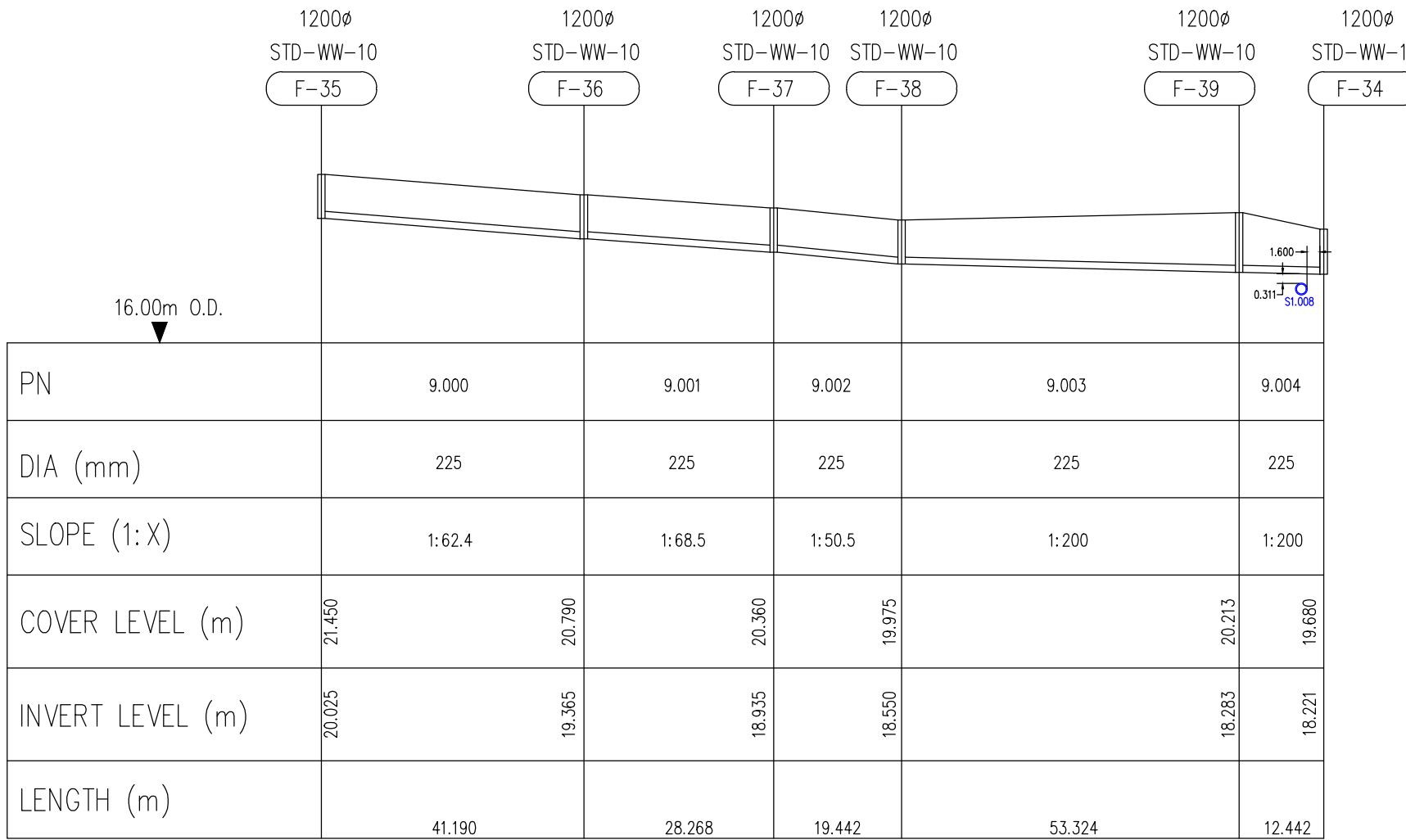


FP7 - FOUL WATER SEWER FROM MANHOLE

F-4 TO F-3

HORIZONTAL SCALE 1:200

VERTICAL SCALE 1:1000



FP8 - FOUL WATER SEWER FROM MANHOLE

F-34 TO F-35

HORIZONTAL SCALE 1:200

VERTICAL SCALE 1:1000

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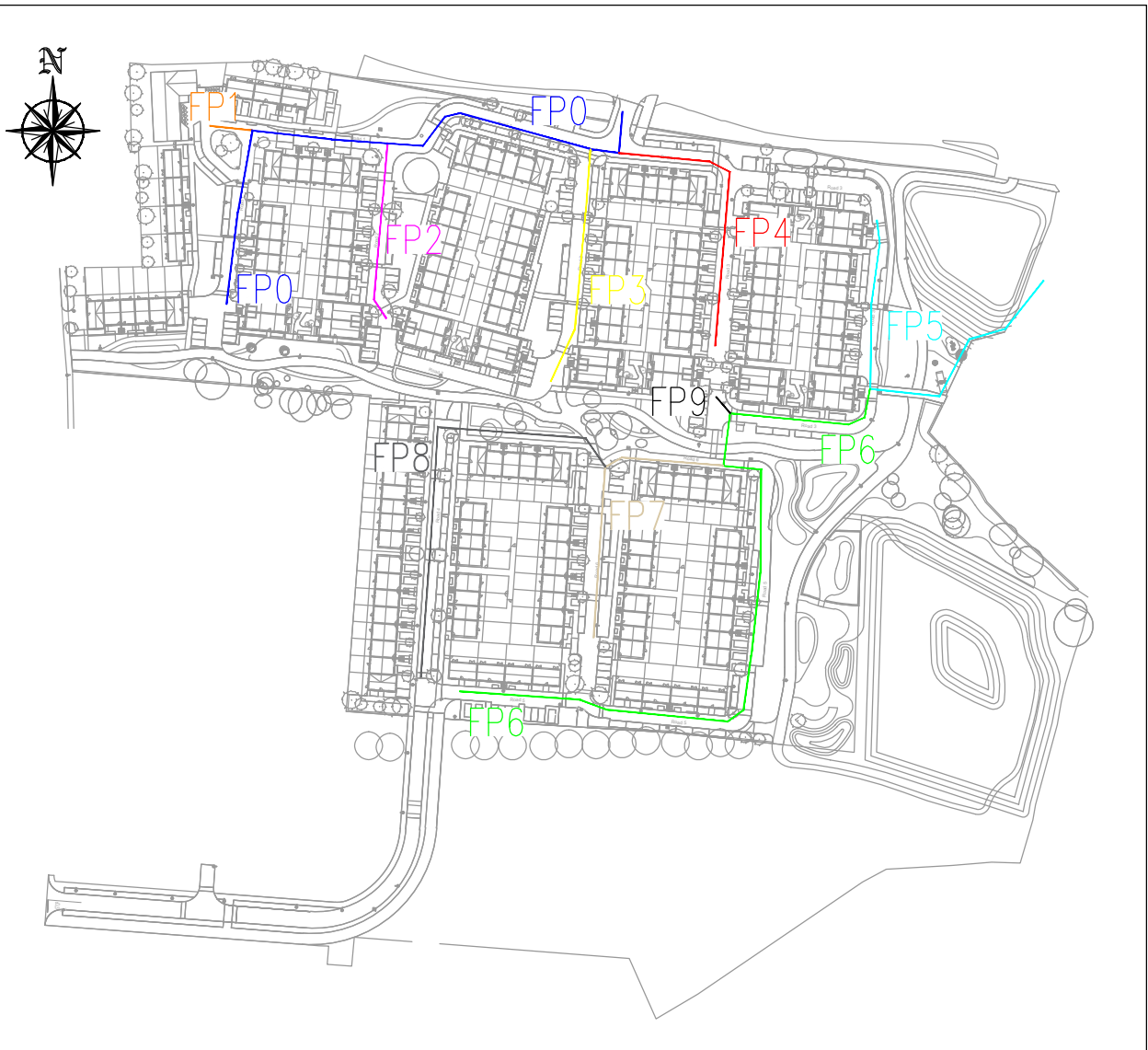
NOTES

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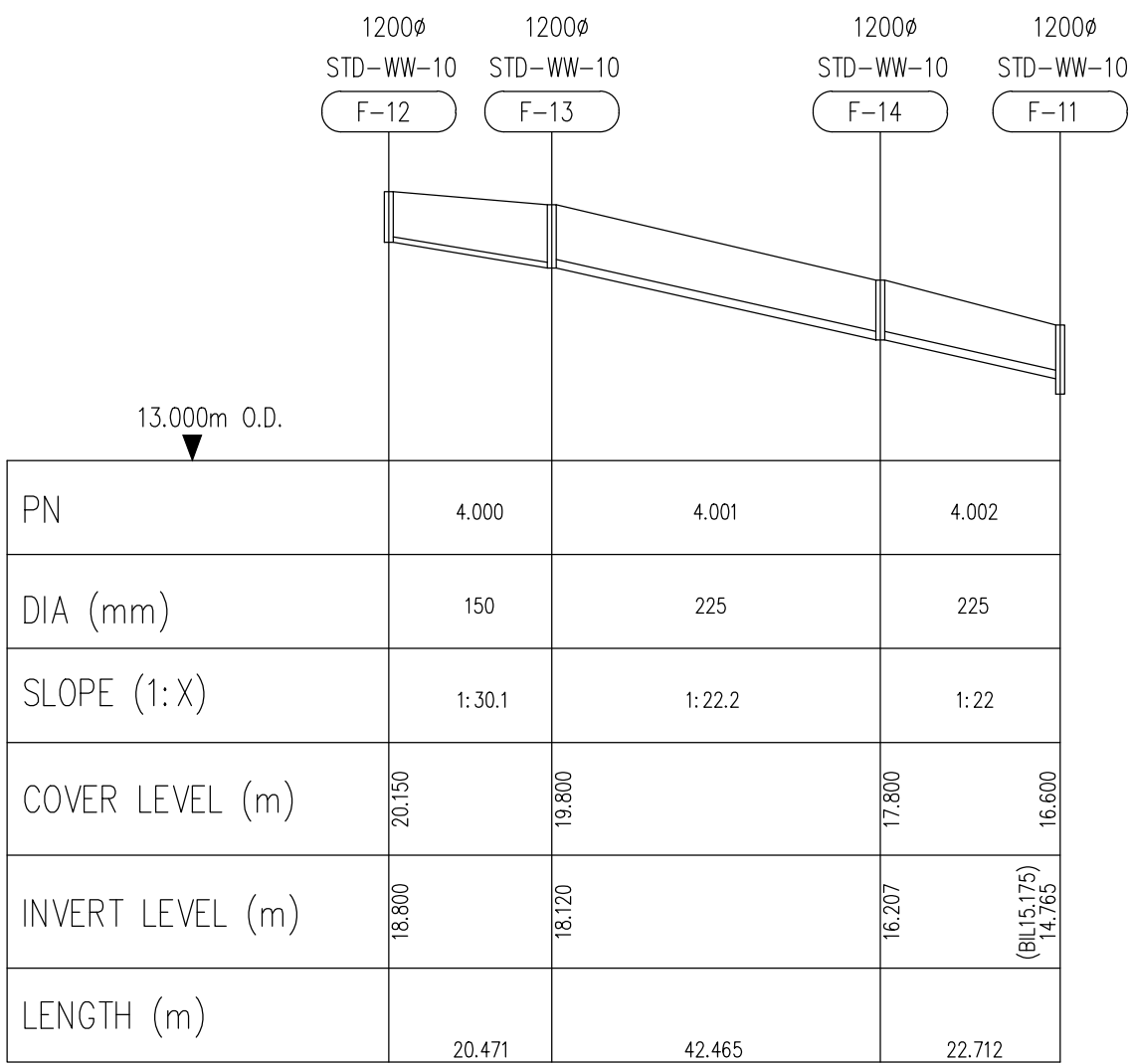
Rev. No	Date	REVISION NOTE	Dim. By	Chkd. By
P1	08.01.2025	FOUL RUN FP6 UPDATED; BACKDROP INVERT LEVELS ADDED; SURFACE WATER CROSSINGS ADDED	AC	GL
P2	10.01.2025	FOUL RUN FP8 UPDATED	AC	GL

Architect	CCK Architects
Project	Development at Former Teagasc Lands Kinsealy, Co. Dublin
Title	Foul Longsections Sheet 1 of 2
Dwg. No.	C215-CSC-00-XX-DR-C-0031
Date	Dec' 2024
Dim by	AB
Chkd by	GL
Aprvd by	OS
Scale	AS SHOWN
Revision	P2

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Quality Environment Energy Health & Safety	I.S. EN ISO 9001:2008 I.S. EN ISO 14001:2004 I.S. EN ISO 50001:2011 OHSAS 18001:2007

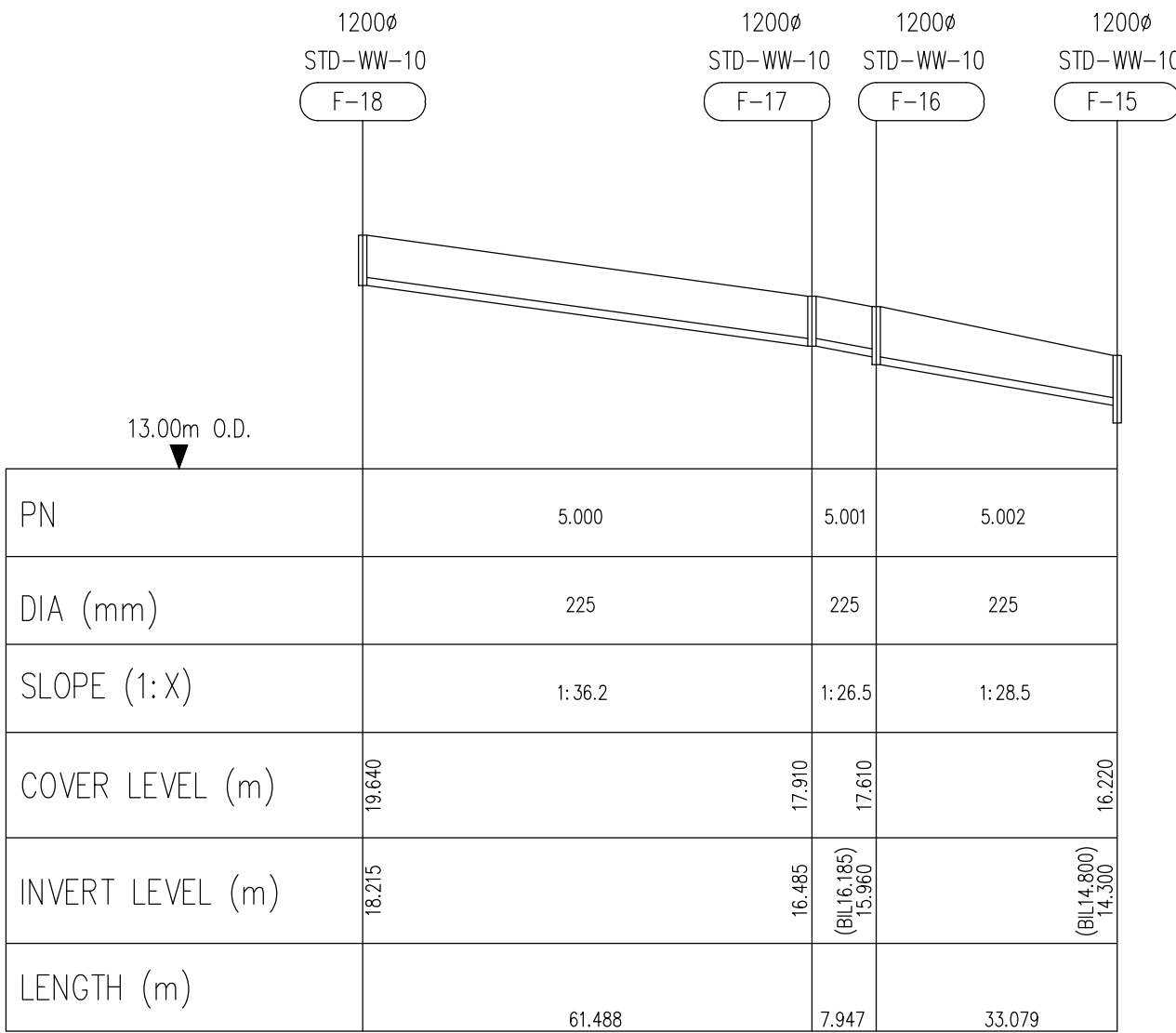


KEY PLAN
SCALE NTS



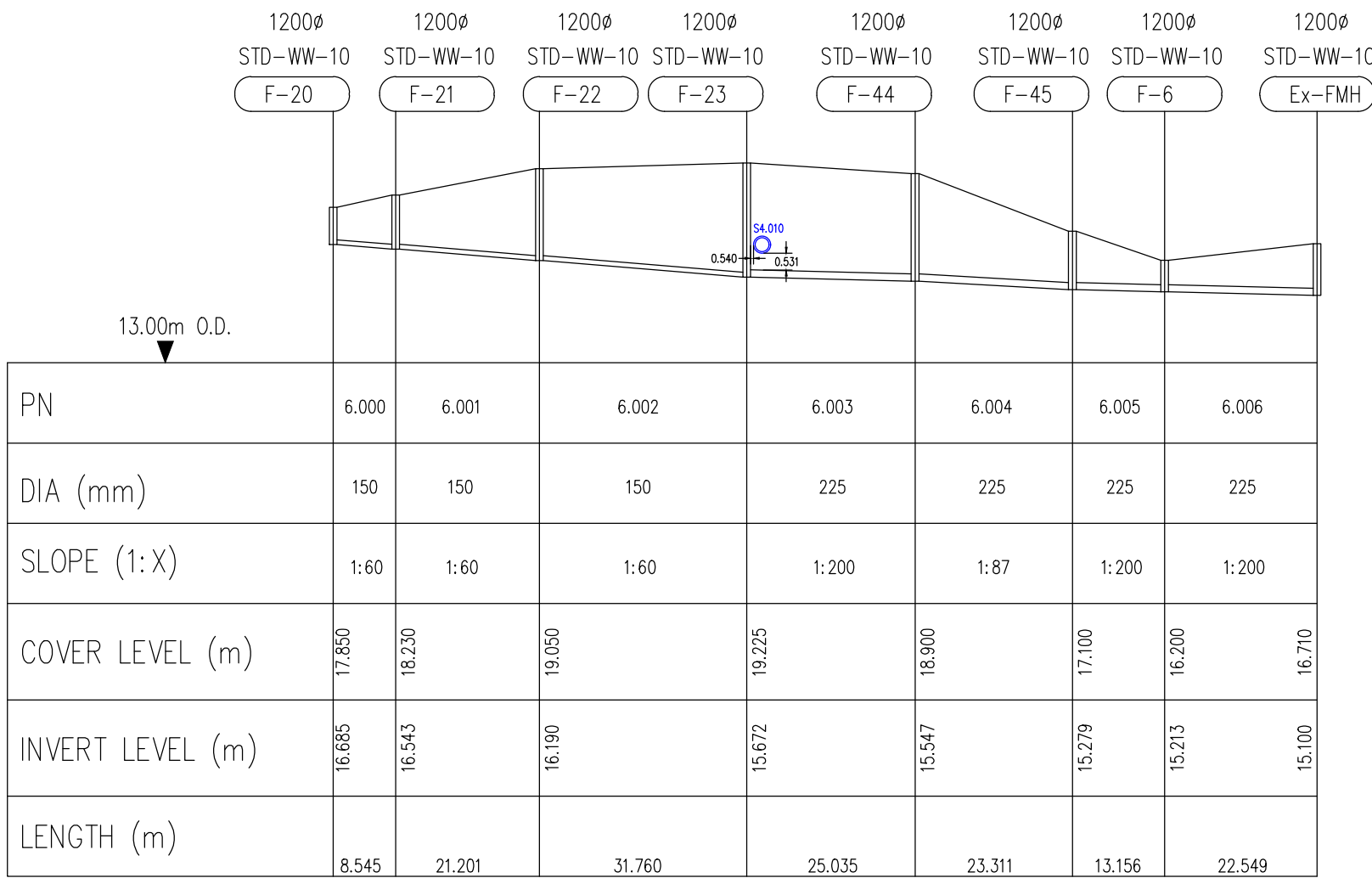
FP3 - FOUL WATER SEWER FROM MANHOLE
F-12 TO F-11

HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:1000



FP4 - FOUL WATER SEWER FROM MANHOLE
F-18 TO F-15

HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:1000



FP5 - FOUL WATER SEWER FROM MANHOLE
F-20 TO F-Ex FMH

HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:1000

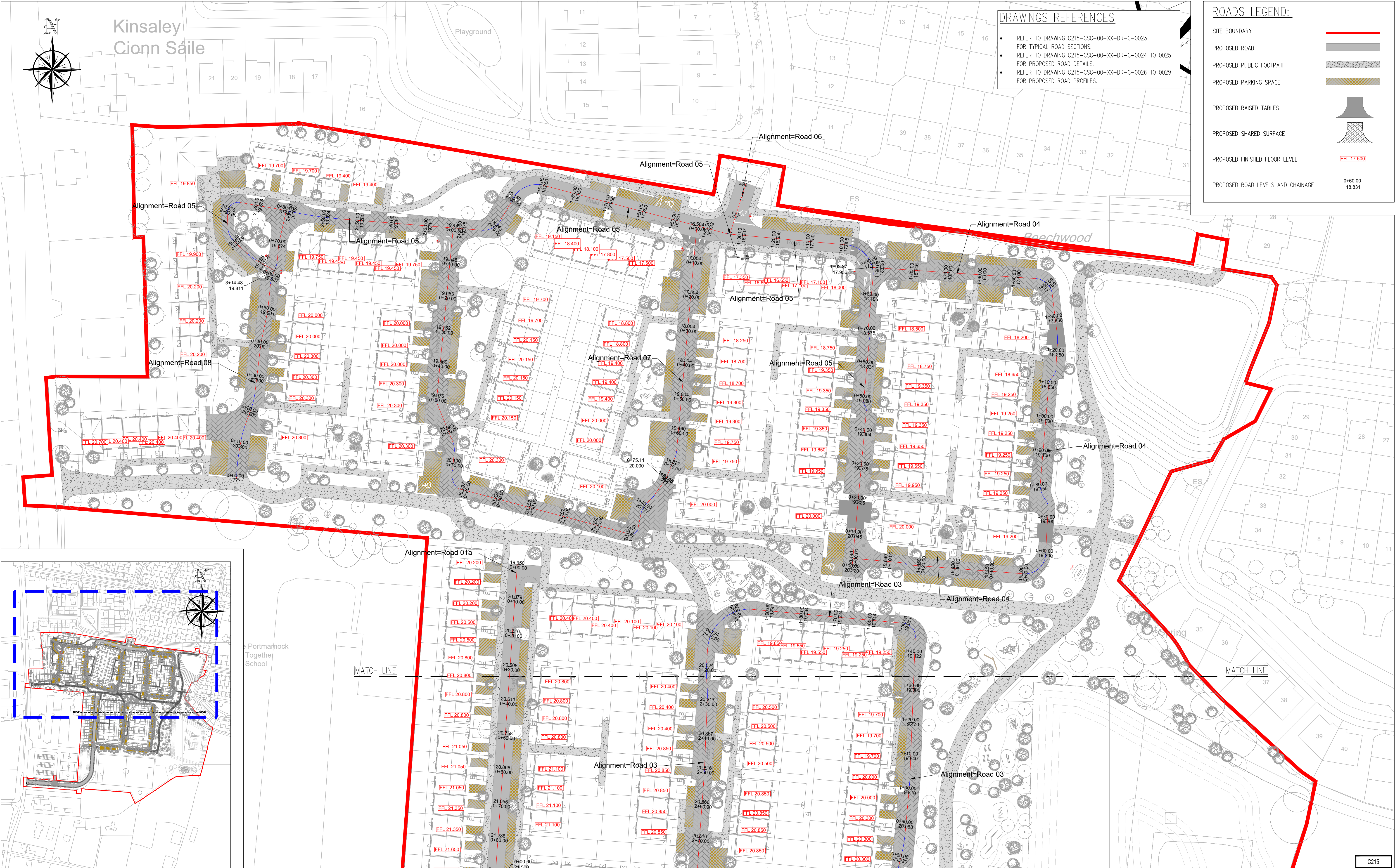
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Rev. No	Date	REVISION NOTE	Dim. By	Chkd. By
P1	06.01.2025	BACKDROP INVERT LEVELS ADDED ; SURFACE WATER CROSSINGS ADDED	AC	GL

Architect	CCK Architects			
Project	Development at Former Teagasc Lands Kinsealy, Co. Dublin			
Title	Foul Longsections Sheet 2 of 2			
Dwg. No.	C215-CSC-00-XX-DR-C-0032			
Date	Dim by	Chkd by	Aprvd by	Scale
Dec' 2024	AB	GL	OS	AS SHOWN
Revision				P1

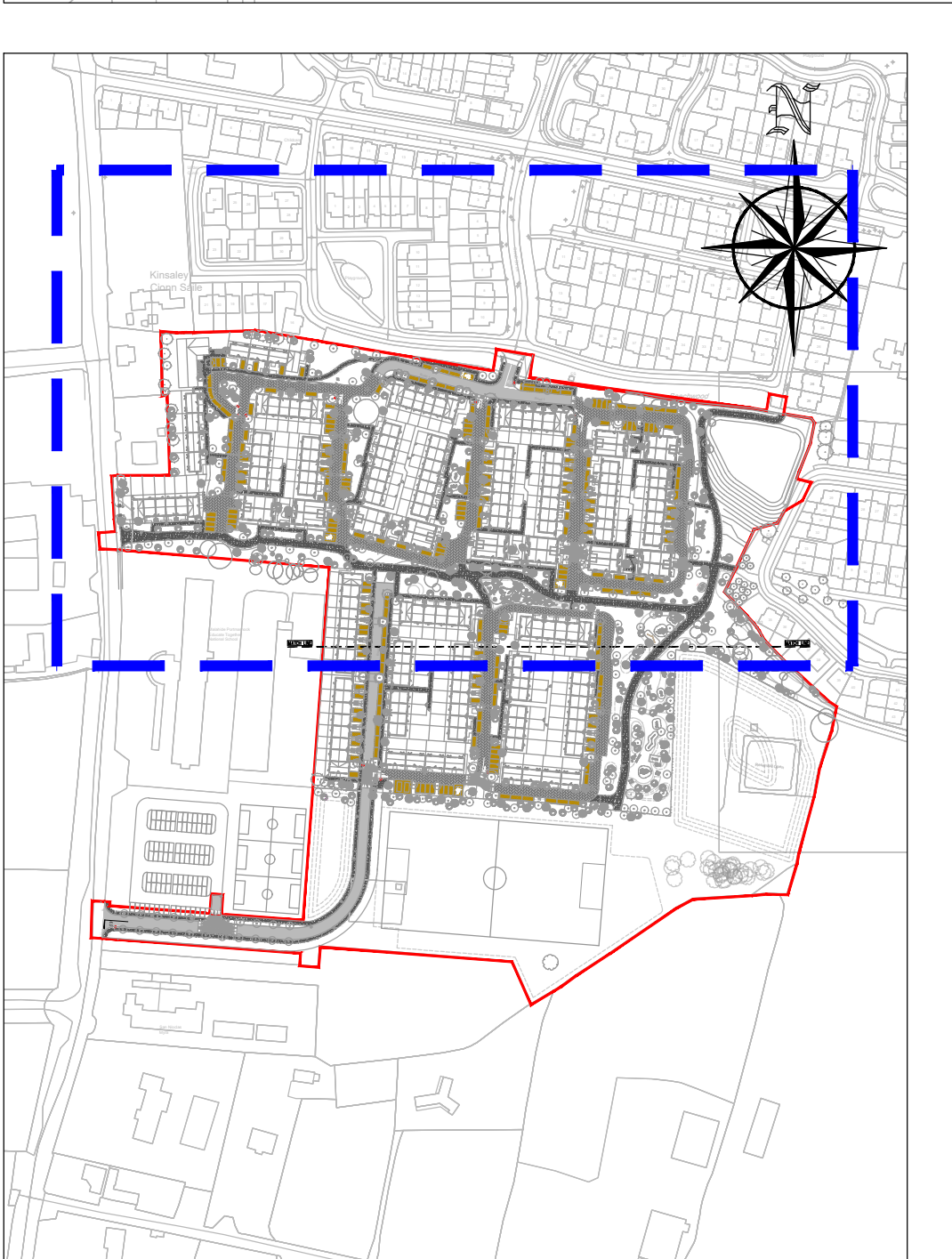
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- DRAWINGS REFERENCES**
- REFER TO DRAWING C215-CSC-00-XX-DR-C-0023 FOR TYPICAL ROAD SECTIONS.
 - REFER TO DRAWING C215-CSC-00-XX-DR-C-0024 TO 0025 FOR PROPOSED ROAD DETAILS.
 - REFER TO DRAWING C215-CSC-00-XX-DR-C-0026 TO 0029 FOR PROPOSED ROAD PROFILES.

ROADS LEGEND:

- SITE BOUNDARY
- PROPOSED ROAD
- PROPOSED PUBLIC FOOTPATH
- PROPOSED PARKING SPACE
- PROPOSED RAISED TABLES
- PROPOSED SHARED SURFACE
- PROPOSED FINISHED FLOOR LEVEL
- PROPOSED ROAD LEVELS AND CHAINAGE



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Rev. No	Date	REVISION NOTE	Dm. By	Chkd. By
P1	03.09.2024	DRAFT ISSUE	AB	GL
P2	10.09.2024	UPDATED SHARED SURFACE	AC	GL
P3	12.09.2024	ISSUED FOR STAGE 2 PLANNING SUBMISSION	JL	GL
P4	06.12.2024	REVISED ROAD LEVELS	AB	GL

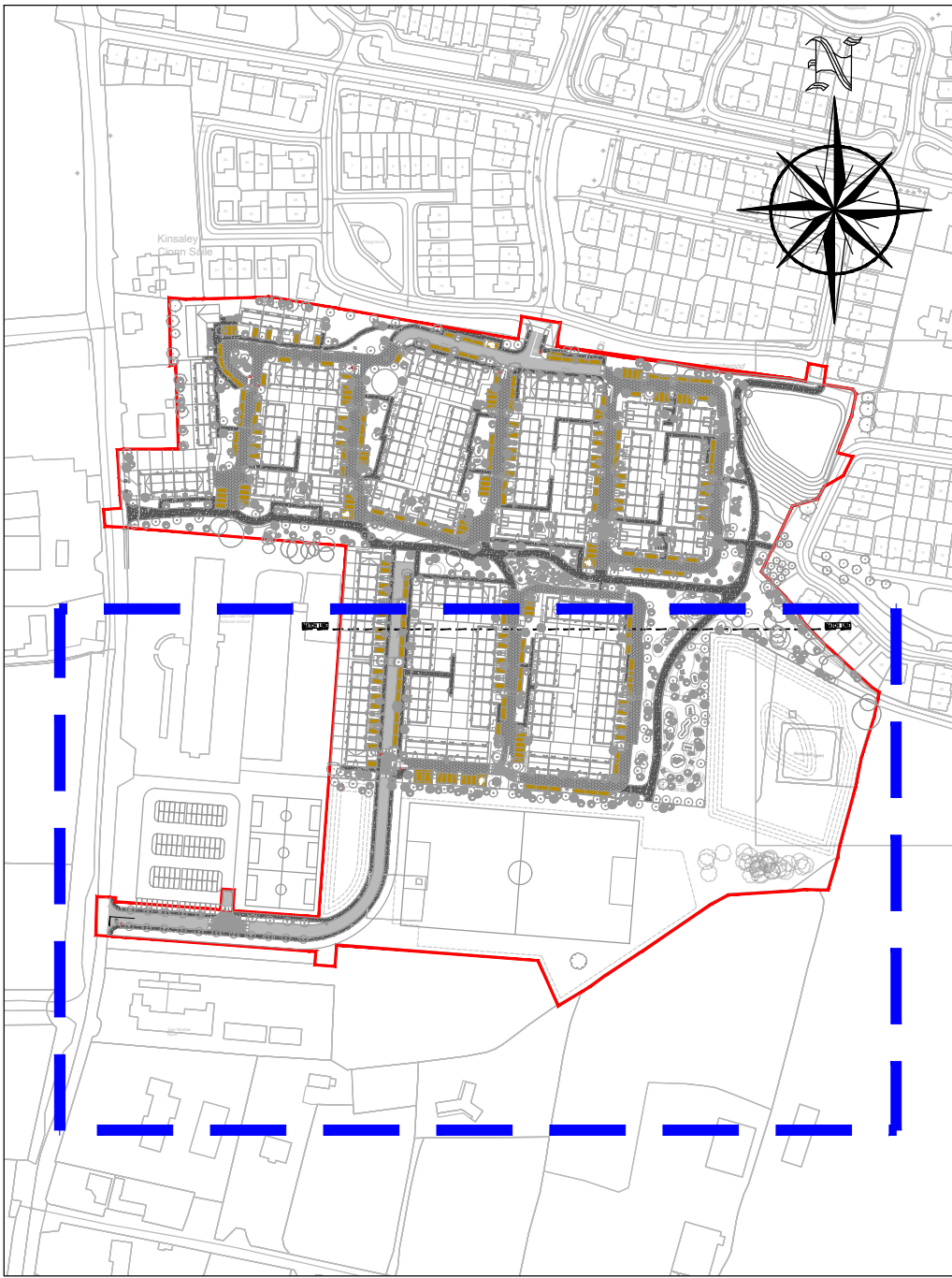
Architect	CCK Architects
Project	Development at Former Teagasc Lands Kinsaley, Co. Dublin
Title	Proposed Road Levels and Paved Areas Sheet 1 of 2
Dwg. No.	C215-CSC-00-XX-DR-0006
Date	Sep '24
Dm by	AB
Chkd by	GL
Apprv by	OS
Scale	1:500 @A1
Revision	P4

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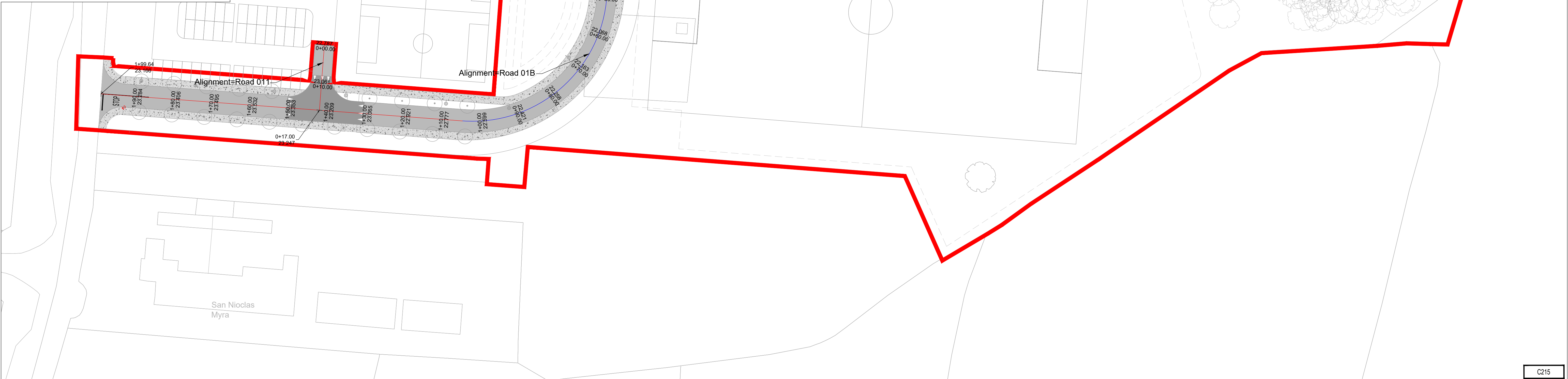
DRAWINGS REFERENCES

- REFER TO DRAWING C215-CSC-00-XX-DR-C-0023 FOR TYPICAL ROAD SECTIONS.
- REFER TO DRAWING C215-CSC-00-XX-DR-C-0024 TO 0025 FOR PROPOSED ROAD DETAILS.
- REFER TO DRAWING C215-CSC-00-XX-DR-C-0026 TO 0029 FOR PROPOSED ROAD PROFILES.

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ROADS LEGEND:

- SITE BOUNDARY
- PROPOSED ROAD
- PROPOSED PUBLIC FOOTPATH
- PROPOSED PARKING SPACE
- PROPOSED RAISED TABLES
- PROPOSED SHARED SURFACE
- PROPOSED FINISHED FLOOR LEVEL
- PROPOSED ROAD LEVELS AND CHAINAGE



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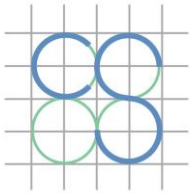
Rev. No	Date	REVISION NOTE	Dm. By	Chkd. By
P1	03.09.2024	DRAFT ISSUE	AB	GL
P2	10.09.2024	UPDATED SHARED SURFACE	AC	GL
P3	12.09.2024	ISSUED FOR STAGE 2 PLANNING SUBMISSION	JL	GL
P4	06.12.2024	REVISED ROAD LEVELS	AB	GL

Architect	CCK Architects
Project	Development at Former Teagasc Lands Kinsealy, Co. Dublin
Title	Proposed Road Levels and Paved Areas Sheet 2 of 2
Dwg. No.	C215-CSC-00-XX-DR-0007
Date	Sep' 2024
Dim by	AB
Chkd by	GL
Aprvd by	OS
Scale	1:500 @A1
Revision	P4

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Appendix B

Met Éireann Rainfall Data & Surface Water Network Modelling Analysis



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Met Eireann
Return Period Rainfall Depths for sliding Durations
Irish Grid: Easting: 321391, Northing: 242975,

DURATION	Interval		Years										
	6months,	1year,	2,	3,	4,	5,	10,	20,	30,	50,	75,	100,	120,
5 mins	2.4,	3.4,	3.9,	4.7,	5.3,	5.7,	7.1,	8.7,	9.7,	11.2,	12.5,	13.5,	14.2,
10 mins	3.4,	4.8,	5.5,	6.6,	7.4,	8.0,	9.9,	12.1,	13.5,	15.6,	17.4,	18.8,	19.7,
15 mins	4.0,	5.6,	6.5,	7.8,	8.7,	9.4,	11.6,	14.2,	15.9,	18.3,	20.4,	22.1,	23.2,
30 mins	5.2,	7.3,	8.4,	10.0,	11.1,	12.0,	14.8,	17.9,	19.9,	22.8,	25.4,	27.3,	28.6,
1 hours	6.9,	9.5,	10.9,	12.9,	14.3,	15.3,	18.7,	22.5,	25.0,	28.4,	31.4,	33.8,	35.3,
2 hours	9.2,	12.4,	14.1,	16.6,	18.3,	19.6,	23.7,	28.3,	31.2,	35.4,	39.0,	41.8,	43.6,
3 hours	10.8,	14.5,	16.4,	19.3,	21.2,	22.6,	27.2,	32.3,	35.6,	40.2,	44.2,	47.3,	49.3,
4 hours	12.1,	16.2,	18.3,	21.4,	23.4,	25.0,	30.0,	35.6,	39.1,	44.0,	48.3,	51.6,	53.8,
6 hours	14.2,	18.9,	21.3,	24.8,	27.1,	28.9,	34.5,	40.7,	44.6,	50.1,	54.8,	58.4,	60.9,
9 hours	16.8,	22.1,	24.8,	28.8,	31.4,	33.3,	39.7,	46.5,	50.9,	56.9,	62.2,	66.2,	68.8,
12 hours	18.8,	24.7,	27.6,	31.9,	34.8,	36.9,	43.8,	51.2,	55.9,	62.4,	68.0,	72.3,	75.1,
18 hours	22.2,	28.8,	32.2,	37.0,	40.2,	42.6,	50.3,	58.5,	63.7,	70.9,	77.1,	81.8,	84.9,
24 hours	24.9,	32.2,	35.8,	41.1,	44.6,	47.2,	55.5,	64.3,	70.0,	77.7,	84.3,	89.3,	92.7,
2 days	30.5,	38.7,	42.8,	48.6,	52.4,	55.3,	64.2,	73.7,	79.6,	87.7,	94.7,	99.9,	103.3,
3 days	35.2,	44.2,	48.6,	55.0,	59.0,	62.1,	71.6,	81.7,	88.0,	96.5,	103.8,	109.3,	112.9,
4 days	39.4,	49.1,	53.9,	60.6,	64.9,	68.2,	78.3,	88.9,	95.5,	104.4,	112.0,	117.7,	121.5,
6 days	47.0,	57.8,	63.2,	70.7,	75.5,	79.0,	90.1,	101.7,	108.9,	118.5,	126.7,	132.8,	136.8,
8 days	53.8,	65.7,	71.5,	79.7,	84.8,	88.7,	100.7,	113.1,	120.8,	131.1,	139.8,	146.3,	150.5,
10 days	60.1,	73.0,	79.2,	88.0,	93.5,	97.7,	110.4,	123.6,	131.8,	142.6,	151.8,	158.6,	163.1,
12 days	66.0,	79.8,	86.5,	95.8,	101.7,	106.1,	119.5,	133.4,	142.0,	153.4,	163.0,	170.2,	174.9,
16 days	77.2,	92.6,	100.1,	110.4,	116.9,	121.7,	136.5,	151.7,	161.1,	173.5,	183.9,	191.6,	196.6,
20 days	87.8,	104.7,	112.7,	124.0,	131.0,	136.3,	152.3,	168.6,	178.7,	192.0,	203.1,	211.3,	216.7,
25 days	100.3,	118.9,	127.7,	140.0,	147.7,	153.4,	170.8,	188.5,	199.3,	213.6,	225.6,	234.4,	240.2,

NOTES:

These values are derived from a Depth Duration Frequency (DDF) Model update 2023

For details refer to:

'Mateus C., and Coonan, B. 2023. Estimation of point rainfall frequencies in Ireland. Technical Note No. 68. Met Eireann',

Available for download at:

<http://hdl.handle.net/2262/102417>

Project: C215 Development at Former Teagasc Lands Kinsealy, Co. Dublin		Date: 30/01/2025			
Report Details: Type: Junctions Storm Phase: Surface Water		Designed by: AC	Checked by: GL		Approved By:
		Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street Dublin 2, D02 E267			

Name	Junction Type	Easting (m)	Northing (m)	Cover Elevation (m)	Depth (m)	Invert Elevation (m)	Chamber Shape	Diameter (m)
S29	Manhole	721269.163	742997.596	20.300	1.425	18.875	Circular	1.200
S30	Manhole	721274.111	743023.492	20.050	1.614	18.436	Circular	1.200
S31	Manhole	721276.897	743045.265	19.820	1.500	18.320	Circular	1.200
S32	Manhole	721278.438	743050.821	19.790	1.500	18.290	Circular	1.200
S33	Manhole	721280.615	743069.264	19.500	1.500	18.000	Circular	1.200
S34	Manhole	721267.593	743070.978	19.660	1.425	18.235	Circular	1.200
S35	Manhole	721309.622	743066.097	19.265	1.575	17.690	Circular	1.200
S36	Manhole	721333.470	743064.107	19.500	1.915	17.585	Circular	1.200
S39	Manhole	721342.683	743063.439	19.280	1.772	17.508	Circular	1.200
S38	Manhole	721331.193	743038.748	19.650	1.500	18.150	Circular	1.200
S37	Manhole	721328.440	743008.087	20.050	1.425	18.625	Circular	1.200
S43	Manhole	721332.619	742994.619	20.200	1.425	18.775	Circular	1.200
S44	Manhole	721333.472	742986.863	20.290	1.560	18.730	Circular	1.200
S45	Manhole	721383.555	742974.238	20.000	1.564	18.436	Circular	1.200
S47	Manhole	721396.275	742993.872	19.827	1.900	17.927	Circular	1.200
S48	Manhole	721399.973	743031.655	17.950	1.950	16.000	Circular	1.200
S42	Manhole	721402.768	743063.364	16.500	1.725	14.775	Circular	1.200
S40	Manhole	721349.749	743073.265	19.100	1.702	17.398	Circular	1.200
S41	Manhole	721356.190	743076.007	18.900	1.800	17.100	Circular	1.200
S49	Manhole	721448.367	743058.325	17.600	3.009	14.591	Circular	1.200
S50	Manhole	721456.489	743052.521	17.950	3.529	14.421	Circular	1.200
S51	Manhole	721449.439	742973.480	20.040	1.425	18.615	Circular	1.200
S22	Manhole	721457.574	742963.933	19.950	3.289	16.661	Circular	1.200
S23	Manhole	721500.476	742959.895	19.140	2.652	16.488	Circular	1.200
S24	Manhole	721505.737	742965.933	19.250	2.794	16.456	Circular	1.200
S25	Manhole	721506.547	742982.053	19.175	2.783	16.392	Circular	1.200
S26	Manhole	721506.161	742990.842	19.130	2.773	16.357	Circular	1.200
S27	Manhole	721507.780	743015.142	18.650	2.411	16.239	Circular	1.200
S28	Manhole	721509.997	743029.745	18.000	3.852	14.148	Circular	1.200
S52	Manhole	721505.280	743048.394	17.750	3.525	14.225	Circular	1.200
S1	Manhole	721215.342	742791.796	23.250	1.500	21.750	Circular	1.200
S2	Manhole	721277.849	742787.240	23.200	1.711	21.489	Circular	1.200
S3	Manhole	721339.890	742782.657	22.330	1.500	20.830	Circular	1.200
S4	Manhole	721342.351	742827.881	21.880	1.500	20.380	Circular	1.200
S5	Manhole	721345.338	742874.023	21.409	1.500	19.909	Circular	1.200
S13	Manhole	721353.524	742864.334	21.450	1.425	20.025	Circular	1.200
S14	Manhole	721398.007	742861.184	21.120	1.425	19.695	Circular	1.200
S15	Manhole	721406.458	742857.959	21.050	1.425	19.625	Circular	1.200
S16	Manhole	721456.109	742852.845	20.530	1.425	19.105	Circular	1.200
S17	Manhole	721460.781	742857.253	20.488	1.440	19.048	Circular	1.200
S18	Manhole	721463.593	742877.780	20.220	1.425	18.795	Circular	1.200
S19	Manhole	721467.105	742903.071	19.700	1.500	18.200	Circular	1.200
S20	Manhole	721468.016	742929.047	19.280	1.500	17.780	Circular	1.200
S21	Manhole	721465.653	742947.177	19.030	1.425	17.605	Circular	1.200
S12	Manhole	721454.647	742947.902	19.110	2.384	16.726	Circular	1.200
S11	Manhole	721417.453	742951.748	19.530	2.025	17.505	Circular	1.200
S9	Manhole	721407.440	742947.989	19.674	2.116	17.558	Circular	1.200
S10	Manhole	721403.292	742873.856	20.965	1.425	19.540	Circular	1.200
S6	Manhole	721348.459	742911.423	20.785	1.500	19.285	Circular	1.200
S7	Manhole	721351.522	742959.615	20.000	1.719	18.281	Circular	1.200
S8	Manhole	721400.807	742956.092	20.000	1.917	18.083	Circular	1.200
S53	Manhole	721521.851	743029.531	15.500	1.500	14.000	Circular	1.200
Ex. SW Outfall	Manhole	721567.355	743045.847	12.610	1.890	10.720	Circular	1.200
S55	Manhole	721566.219	743042.473	13.200	2.300	10.900	Circular	1.200
Swale 6 AJ	Manhole	721267.918	743013.443	20.200	0.150	20.050	Circular	0.600
Swale 1 AJ	Manhole	721336.205	743009.320	19.850	0.100	19.750	Circular	0.600
Swale 8 AJ	Manhole	721322.781	743066.911	19.200	0.150	19.050	Circular	0.600
Swale 2 AJ	Manhole	721387.957	742996.113	19.500	0.100	19.400	Circular	0.600

Project: C215 Development at Former Teagasc Lands Kinsealy, Co. Dublin		Date: 30/01/2025			
Report Details: Type: Junctions Storm Phase: Surface Water		Designed by: AC	Checked by: GL		Approved By:
		Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street Dublin 2, D02 E267			

Swale 4 AJ	Manhole	721463.881	742855.198	20.300	0.150	20.150	Circular	0.600
S54	Manhole	721550.453	743042.663	14.500	2.500	12.000	Circular	1.200
S56	Manhole	721499.563	742947.950	19.200	1.813	17.387	Circular	1.200
S46	Manhole	721478.448	742930.720	19.200	1.787	17.413	Circular	1.200

Name	Lock
S29	None
S30	None
S31	None
S32	None
S33	None
S34	None
S35	None
S36	None
S39	None
S38	None
S37	None
S43	None
S44	None
S45	None
S47	None
S48	None
S42	None
S40	None
S41	None
S49	None
S50	All
S51	None
S22	None
S23	None
S24	None
S25	None
S26	None
S27	None
S28	None
S52	None
S1	None
S2	None
S3	None
S4	None
S5	None
S13	None
S14	None
S15	None
S16	None
S17	None
S18	None
S19	None
S20	None
S21	None
S12	None
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S10	None
S6	None
S7	None
S8	None
S53	None
Ex. SW Outfall	All
S55	All

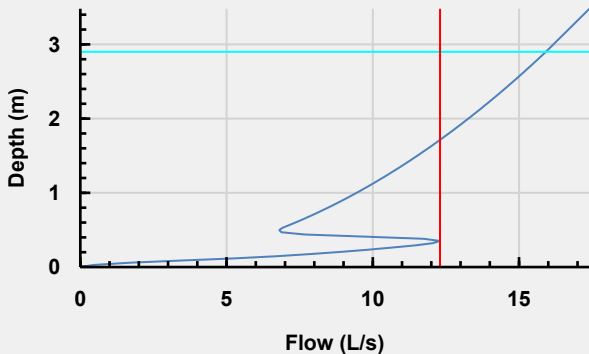
Project: C215 Development at Former Teagasc Lands Kinsealy, Co. Dublin	Date: 30/01/2025		
	Designed by: AC	Checked by: GL	Approved By:
Report Details: Type: Junctions Storm Phase: Surface Water	Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street Dublin 2, D02 E267		



Swale 6 AJ	None
Swale 1 AJ	None
Swale 8 AJ	None
Swale 2 AJ	None
Swale 4 AJ	None
S54	All
S56	None
S46	None

Outlets			
Junction	Outlet Name	Outgoing Connection	Outlet Type
S29	Outlet	S4.000	Free Discharge
S30	Outlet	S4.001	Free Discharge
S31	Outlet	S4.002	Free Discharge
S32	Outlet	S4.003	Free Discharge
S33	Outlet	S4.004	Free Discharge
S34	Outlet	S5.000	Free Discharge
S35	Outlet	S4.005	Free Discharge
S36	Outlet	S4.006	Free Discharge
S39	Outlet	S4.007	Free Discharge
S38	Outlet	S6.001	Free Discharge
S37	Outlet	S6.000	Free Discharge
S43	Outlet	S7.000	Free Discharge
S44	Outlet	S7.001	Free Discharge
S45	Outlet	S7.002	Free Discharge
S47	Outlet	S7.004	Free Discharge
S48	Outlet	S7.005	Free Discharge
S42	Outlet	S4.010	Free Discharge
S40	Outlet	S4.008	Free Discharge
S41	Outlet	S4.009	Free Discharge
S49	Outlet	S4.011	Free Discharge
S50	Outlet	S4.012	Free Discharge
S51	Outlet	S8.000	Free Discharge
S22	Outlet	S1.011	Free Discharge
S23	Outlet	S1.012	Free Discharge
S24	Outlet	S1.013	Free Discharge
S25	Outlet	S1.014	Free Discharge
S26	Outlet	S1.015	Free Discharge
S27	Outlet	S1.016	Free Discharge
S28	Outlet	S1.017	Free Discharge
S52	Outlet	S4.013	Free Discharge
S1	Outlet	S1.000	Free Discharge
S2	Outlet	S1.001	Free Discharge
S3	Outlet	S1.002	Free Discharge
S4	Outlet	S1.003	Free Discharge
S5	Outlet	S1.004	Free Discharge
S13	Outlet	S3.000	Free Discharge
S14	Outlet	S3.001	Free Discharge
S15	Outlet	S3.002	Free Discharge
S16	Outlet	S3.003	Free Discharge
S17	Outlet	S3.004	Free Discharge
S18	Outlet	S3.005	Free Discharge
S19	Outlet	S3.006	Free Discharge
S20	Outlet	S3.007	Free Discharge
S21	Outlet	S9.000	Free Discharge
S12	Outlet	S1.010	Free Discharge
S11	Outlet	S1.009	Free Discharge
S9	Outlet	S1.008	Free Discharge
S10	Outlet	S2.000	Free Discharge
S6	Outlet	S1.005	Free Discharge
S7	Outlet	S1.006	Free Discharge
S8	Outlet	S1.007	Free Discharge
S53	Outlet	S1.018	Free Discharge
S55	Outlet	S1.020	Free Discharge
Swale 6 AJ	Outlet	Swale 6 Pipe 1	Free Discharge
Swale 1 AJ	Outlet	Swale 1 Pipe	Free Discharge
Swale 8 AJ	Outlet	Swale 8 Pipe 1	Free Discharge
Swale 2 AJ	Outlet	Swale 2 Pipe	Free Discharge
Swale 4 AJ	Outlet	Swale 4 Pipe	Free Discharge
	Outlet (1)	S1.019	Hydro-Brake®

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S54	Junction	Outlet Name	Outgoing Connection	Outlet Type
		Invert Elevation (m)	12.000	
		Design Depth (m)	2.900	
		Design Flow (L/s)	15.9	
		Objective	Minimize Upstream Storage Requirements	
		Application	Surface Water Only	
		Sump Available	☐	
		Unit Reference	CHE-0141-1590-2900-1590	
				
S56	Outlet	S3.008 (1)	Free Discharge	
S46	Outlet	Reservoir	Orifice	
	Diameter (m)	0.300		
	Coefficient of Discharge	0.600		
	Invert Elevation (m)	17.413		

Project: C215 Development at Former Teagasc Lands Kinsealy, Co. Dublin	Date: 30/01/2025		
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Report Details: Type: Stormwater Controls Storm Phase: Surface Water	Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street Dublin 2, D02 E267		



Basin

Type : Pond

Dimensions

Exceedance Elevation (m)	14.900
Depth (m)	1.600
Base Elevation (m)	13.300
Freeboard (mm)	700
Initial Depth (m)	0.000
Porosity (%)	100
Average Slope (1:x)	4.00
Total Volume (m³)	641.687

Depth (m)	Area (m²)	Volume (m³)
0.000	549.80	0.000
0.900	889.75	641.687
1.600	1210.45	1373.881

Inlets

Inlet (1)

Inlet Type	Point Inflow
Incoming Item(s)	S1.018
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	Basin
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	S1.021
Outlet Type	Free Discharge

Advanced

Base Infiltration Rate (m/hr)	0.8186
Side Infiltration Rate (m/hr)	0.8186
Safety Factor	2.0
Perimeter	Circular
Length (m)	51.433
Friction Scheme	Manning's n
n	0.015

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Swale (6)

Type : Swale

Swale

Exceedance Elevation (m)	20.150
Depth (m)	0.150
Base Elevation (m)	20.000
Top Width (m)	1.800
Side Slope (1:x)	4.00
Base Width (m)	0.600
Freeboard (mm)	0
Length (m)	10.619
Long. Slope (1:x)	200.00
Filtration Rate (m/hr)	0.85
Friction Scheme	Manning's n
n	0.015
Total Volume (m³)	1.911

Inlets

Inlet (1)

Inlet Type	Lateral Inflow
Incoming Item(s)	Swale 6 Pipe 1
Bypass Destination	(None)
Inlet Destination	Ponding Area
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	Swale 6 Pipe 2
Outlet Type	Free Discharge

Advanced

Safety Factor	2.0
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Swale

Side Infiltration Rate (m/hr)	0.85
Porosity (%)	100

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Swale (7)

Type : Swale

Swale

Exceedance Elevation (m)	20.000
Depth (m)	0.150
Base Elevation (m)	19.850
Top Width (m)	1.800
Side Slope (1:x)	4.00
Base Width (m)	0.600
Freeboard (mm)	0
Length (m)	15.740
Long. Slope (1:x)	200.00
Filtration Rate (m/hr)	0.85
Friction Scheme	Manning's n
n	0.015
Total Volume (m³)	2.833

Inlets

Inlet

Inlet Type	Lateral Inflow
Incoming Item(s)	Swale 6 Pipe 2
Bypass Destination	(None)
Inlet Destination	Ponding Area
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	Swale 7 Pipe
Outlet Type	Free Discharge

Advanced

Safety Factor	2.0
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Swale

Side Infiltration Rate (m/hr)	0.85
Porosity (%)	100

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Report Details: Type: Stormwater Controls Storm Phase: Surface Water	Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street Dublin 2, D02 E267		



Swale (1)

Type : Swale

Swale

Exceedance Elevation (m)	19.850
Depth (m)	0.150
Base Elevation (m)	19.700
Top Width (m)	1.800
Side Slope (1:x)	4.00
Base Width (m)	0.600
Freeboard (mm)	0
Length (m)	7.439
Long. Slope (1:x)	200.00
Filtration Rate (m/hr)	0.85
Friction Scheme	Manning's n
n	0.015
Total Volume (m³)	1.339

Inlets

Inlet (1)

Inlet Type	Lateral Inflow
Incoming Item(s)	Swale 1 Pipe
Bypass Destination	(None)
Inlet Destination	Ponding Area
Capacity Type	No Restriction

Outlets

Outlet (1)

Outgoing Connection	Swale 9 Pipe
Outlet Type	Free Discharge

Advanced

Safety Factor	2.0
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Swale

Side Infiltration Rate (m/hr)	0.85
Porosity (%)	100

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Swale (9)

Type : Swale

Swale

Exceedance Elevation (m)	19.650
Depth (m)	0.150
Base Elevation (m)	19.500
Top Width (m)	1.800
Side Slope (1:x)	4.00
Base Width (m)	0.600
Freeboard (mm)	0
Length (m)	17.411
Long. Slope (1:x)	200.00
Filtration Rate (m/hr)	0.85
Friction Scheme	Manning's n
n	0.015
Total Volume (m³)	3.134

Inlets

Inlet

Inlet Type	Lateral Inflow
Incoming Item(s)	Swale 9 Pipe
Bypass Destination	(None)
Inlet Destination	Ponding Area
Capacity Type	No Restriction

Outlets

Outlet (1)

Outgoing Connection	Pipe (3)
Outlet Type	Free Discharge

Advanced

Safety Factor	2.0
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Swale

Side Infiltration Rate (m/hr)	0.85
Porosity (%)	100

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Swale (2)

Type : Swale

Swale

Exceedance Elevation (m)	19.500
Depth (m)	0.150
Base Elevation (m)	19.350
Top Width (m)	1.800
Side Slope (1:x)	4.00
Base Width (m)	0.600
Freeboard (mm)	0
Length (m)	8.187
Long. Slope (1:x)	200.00
Filtration Rate (m/hr)	0.85
Friction Scheme	Manning's n
n	0.015
Total Volume (m³)	1.474

Inlets

Inlet (1)

Inlet Type	Lateral Inflow
Incoming Item(s)	Swale 2 Pipe
Bypass Destination	(None)
Inlet Destination	Ponding Area
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	Swale 3 Pipe 1
Outlet Type	Free Discharge

Advanced

Safety Factor	2.0
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Swale

Side Infiltration Rate (m/hr)	0.85
Porosity (%)	100

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Swale (3)

Type : Swale

Swale

Exceedance Elevation (m)	18.600
Depth (m)	0.150
Base Elevation (m)	18.450
Top Width (m)	1.800
Side Slope (1:x)	4.00
Base Width (m)	0.600
Freeboard (mm)	0
Length (m)	17.411
Long. Slope (1:x)	200.00
Filtration Rate (m/hr)	0.85
Friction Scheme	Manning's n
n	0.015
Total Volume (m³)	3.134

Inlets

Inlet

Inlet Type	Lateral Inflow
Incoming Item(s)	Swale 3 Pipe 1
Bypass Destination	(None)
Inlet Destination	Ponding Area
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	Swale 3 Pipe 2 (1)
Outlet Type	Free Discharge

Advanced

Safety Factor	2.0
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Swale

Side Infiltration Rate (m/hr)	0.85
Porosity (%)	100

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Swale (4)

Type : Swale

Swale

Exceedance Elevation (m)	20.300
Depth (m)	0.200
Base Elevation (m)	20.100
Top Width (m)	2.400
Side Slope (1:x)	4.00
Base Width (m)	0.800
Freeboard (mm)	0
Length (m)	21.453
Long. Slope (1:x)	200.00
Filtration Rate (m/hr)	0.85
Friction Scheme	Manning's n
n	0.015
Total Volume (m³)	6.865

Inlets

Inlet (1)

Inlet Type	Lateral Inflow
Incoming Item(s)	Swale 4 Pipe
Bypass Destination	(None)
Inlet Destination	Ponding Area
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	Swale 5 Pipe 1
Outlet Type	Free Discharge

Advanced

Safety Factor	2.0
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Swale

Side Infiltration Rate (m/hr)	0.85
Porosity (%)	100

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Swale (5)

Type : Swale

Swale

Exceedance Elevation (m)	19.600
Depth (m)	0.200
Base Elevation (m)	19.400
Top Width (m)	2.400
Side Slope (1:x)	4.00
Base Width (m)	0.800
Freeboard (mm)	0
Length (m)	66.310
Long. Slope (1:x)	200.00
Filtration Rate (m/hr)	0.85
Friction Scheme	Manning's n
n	0.015
Total Volume (m³)	21.219

Inlets

Inlet

Inlet Type	Lateral Inflow
Incoming Item(s)	Swale 5 Pipe 1
Bypass Destination	(None)
Inlet Destination	Ponding Area
Capacity Type	No Restriction

Outlets

Advanced

Safety Factor	2.0
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Swale

Side Infiltration Rate (m/hr)	0.85
Porosity (%)	100

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Swale (8)

Type : Swale

Swale

Exceedance Elevation (m)	19.200
Depth (m)	0.200
Base Elevation (m)	19.000
Top Width (m)	2.400
Side Slope (1:x)	4.00
Base Width (m)	0.800
Freeboard (mm)	0
Length (m)	13.861
Long. Slope (1:x)	200.00
Filtration Rate (m/hr)	0.85
Friction Scheme	Manning's n
n	0.015
Total Volume (m³)	4.435

Inlets

Inlet (1)

Inlet Type	Lateral Inflow
Incoming Item(s)	Swale 8 Pipe 1
Bypass Destination	(None)
Inlet Destination	Ponding Area
Capacity Type	No Restriction

Outlets

Outlet (1)

Outgoing Connection	Swale 8 Pipe 2
Outlet Type	Free Discharge

Advanced

Safety Factor	2.0
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Swale

Side Infiltration Rate (m/hr)	0.85
Porosity (%)	100

Project: C215 Development at Former Teagasc Lands Kinsealy, Co. Dublin		Date: 30/01/2025			
Report Details: Type: Connections Storm Phase: Surface Water		Designed by: AC	Checked by: GL		Approved By:
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Name	Length (m)	Connection Type	Slope (1:x)	Manning's n	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Upstream Cover Elevation (m)	Upstream Invert Elevation (m)
S4.000	26.365	Pipe	60.057		0.6	225	20.300	18.875
S4.001	21.951	Pipe	189.228		0.6	300	20.050	18.436
S4.002	5.765	Pipe	192.175		0.6	300	19.820	18.320
S4.003	18.572	Pipe	64.040		0.6	300	19.790	18.290
S5.000	13.135	Pipe	55.893		0.6	225	19.660	18.235
S4.004	29.179	Pipe	94.127		0.6	300	19.500	18.000
S4.005	23.930	Pipe	227.490		0.6	375	19.265	17.690
S4.006	9.237	Pipe	120.000		0.6	375	19.500	17.585
S6.000	30.784	Pipe	64.808		0.6	225	20.050	18.625
S6.001	25.461	Pipe	169.741		0.6	225	19.650	18.150
S4.007	12.103	Pipe	110.000		0.6	375	19.280	17.508
S4.008	7.000	Pipe	96.155		0.6	375	19.100	17.398
S4.009	48.263	Pipe	20.758		0.6	375	18.900	17.100
S4.010	45.877	Pipe	249.332		0.6	525	16.500	14.775
S4.011	9.983	Pipe	58.620		0.6	525	17.600	14.591
S8.000	79.355	Pipe	27.000		0.6	225	20.040	18.615
S4.012	48.965	Pipe	250.000		0.6	600	17.950	14.421
S4.013	19.236	Pipe	250.000		0.6	600	17.750	14.225
S1.011	43.092	Pipe	250.000		0.6	450	19.950	16.661
S1.012	8.008	Pipe	250.000		0.6	525	19.140	16.488
S1.013	16.140	Pipe	249.642		0.6	525	19.250	16.456
S1.014	8.797	Pipe	250.000		0.6	525	19.175	16.392
S1.015	24.354	Pipe	205.929		0.6	525	19.130	16.357
S1.016	14.771	Pipe	25.000		0.6	525	18.650	16.239
S1.000	62.673	Pipe	240.000		0.6	225	23.250	21.750
S1.001	62.209	Pipe	94.419		0.6	225	23.200	21.489
S1.002	45.290	Pipe	100.645		0.6	300	22.330	20.830
S1.003	46.239	Pipe	98.172		0.6	300	21.880	20.380
S1.004	37.530	Pipe	60.144		0.6	300	21.409	19.909
S1.005	48.289	Pipe	48.075		0.6	300	20.785	19.285
S1.006	49.410	Pipe	250.000		0.6	375	20.000	18.281
S1.007	10.472	Pipe	19.950		0.6	375	20.000	18.083
S1.008	10.695	Pipe	200.000		0.6	375	19.674	17.558
S1.009	37.393	Pipe	48.029		0.6	375	19.530	17.505
S1.010	16.296	Pipe	250.000		0.6	450	19.110	16.726
S3.000	44.595	Pipe	135.135		0.6	225	21.450	20.025
S3.001	9.045	Pipe	129.221		0.6	225	21.120	19.695
S3.002	49.913	Pipe	95.987		0.6	225	21.050	19.625
S3.003	6.423	Pipe	112.937		0.6	225	20.530	19.105
S3.004	20.718	Pipe	81.850		0.6	225	20.488	19.048
S3.005	25.534	Pipe	42.914		0.6	300	20.220	18.795
S3.006	25.992	Pipe	61.887		0.6	300	19.700	18.200
S9.000	11.029	Pipe	90.000		0.6	225	19.030	17.605
S2.000	74.249	Pipe	37.461		0.6	225	20.965	19.540
S7.000	7.802	Pipe	173.389		0.6	225	20.200	18.775
S7.001	51.650	Pipe	175.695		0.6	225	20.290	18.730
S7.004	37.963	Pipe	25.703		0.6	225	19.827	17.927
S7.005	31.832	Pipe	38.580		0.6	225	17.950	16.000
S1.017	11.856	Pipe	79.955		0.6	600	18.000	14.148
S1.020	3.560	Pipe	19.780		0.6	225	13.200	10.900
S1.018	8.572	Pipe	17.144		0.6	600	15.500	14.000
Swale 6 Pipe 2	6.612	Pipe	44.079		0.6	150	20.203	20.000
Swale 7 Pipe	7.988	Pipe	5.120		0.6	150	20.079	19.850
Swale 9 Pipe	4.132	Pipe	20.659		0.6	150	19.887	19.700
Pipe (3)	4.927	Pipe	3.650		0.6	150	19.737	19.500
Swale 3 Pipe 1	6.471	Pipe	7.190		0.6	150	19.541	19.350

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Swale 3 Pipe 2 (1)	8.042	Pipe	3.282		0.6	150	18.687	18.450
Swale 5 Pipe 1	7.279	Pipe	10.399		0.6	150	20.407	20.100
Swale 8 Pipe 2	5.453	Pipe	3.654		0.6	150	19.269	19.000
Swale 6 Pipe 1	2.361	Pipe	47.227		0.6	150	20.200	20.050
Swale 1 Pipe	1.842	Pipe	36.831		0.6	150	19.850	19.750
Swale 8 Pipe 1	4.222	Pipe	84.448		0.6	150	19.200	19.050
Swale 2 Pipe	1.533	Pipe	30.655		0.6	150	19.500	19.400
Swale 4 Pipe	2.086	Pipe	41.712		0.6	150	20.300	20.150
S1.021	1.972	Pipe	24.647		0.6	225	14.900	13.300
S1.019	15.767	Pipe	26.278		0.6	225	14.500	12.000
S3.008 (1)	11.980	Pipe	30.000		0.6	300	19.200	17.387
S7.002	23.394	Pipe	45.959		0.6	225	20.000	18.436
S3.007	10.566	Pipe	28.789		0.6	300	19.280	17.780
Reservoir	27.253	No Delay						

Name	Downstream Cover Elevation (m)	Downstream Invert Elevation (m)	Part Family	Lock	Entry Loss	Exit Loss	Flow Restriction (L/s)	Culvert Type
S4.000	20.050	18.436		None	0.5	0		(None)
S4.001	19.820	18.320		None	0.5	0		(None)
S4.002	19.790	18.290		None	0.5	0		(None)
S4.003	19.500	18.000		None	0.5	0		(None)
S5.000	19.500	18.000		None	0.5	0		(None)
S4.004	19.265	17.690		None	0.5	0		(None)
S4.005	19.500	17.585		None	0.5	0		(None)
S4.006	19.280	17.508		None	0.5	0		(None)
S6.000	19.650	18.150		None	0.5	0		(None)
S6.001	19.500	18.000		Elevations	0.5	0		(None)
S4.007	19.100	17.398		None	0.5	0		(None)
S4.008	18.900	17.325		Elevations	0.5	0		(None)
S4.009	16.500	14.775		None	0.5	0		(None)
S4.010	17.600	14.591		None	0.5	0		(None)
S4.011	17.950	14.421		All	0.5	0		(None)
S8.000	17.950	15.676		All	0.5	0		(None)
S4.012	17.750	14.225		All	0.5	0		(None)
S4.013	18.000	14.148		None	0.5	0		(None)
S1.011	19.140	16.488		None	0.5	0		(None)
S1.012	19.250	16.456		None	0.5	0		(None)
S1.013	19.175	16.392		None	0.5	0		(None)
S1.014	19.130	16.357		None	0.5	0		(None)
S1.015	18.650	16.239		Elevations	0.5	0		(None)
S1.016	18.000	15.648		All	0.5	0		(None)
S1.000	23.200	21.489		None	0.5	0		(None)
S1.001	22.330	20.830		None	0.5	0		(None)
S1.002	21.880	20.380		None	0.5	0		(None)
S1.003	21.409	19.909		None	0.5	0		(None)
S1.004	20.785	19.285		None	0.5	0		(None)
S1.005	20.000	18.281		None	0.5	0		(None)
S1.006	20.000	18.083		None	0.5	0		(None)
S1.007	19.674	17.558		None	0.5	0		(None)
S1.008	19.530	17.505		None	0.5	0		(None)
S1.009	19.110	16.726		None	0.5	0		(None)
S1.010	19.950	16.661		None	0.5	0		(None)
S3.000	21.120	19.695		None	0.5	0		(None)
S3.001	21.050	19.625		None	0.5	0		(None)
S3.002	20.530	19.105		None	0.5	0		(None)
S3.003	20.488	19.048		None	0.5	0		(None)
S3.004	20.220	18.795		None	0.5	0		(None)
S3.005	19.700	18.200		None	0.5	0		(None)
S3.006	19.280	17.780		None	0.5	0		(None)

Project: C215 Development at Former Teagasc Lands Kinsealy, Co. Dublin		Date: 30/01/2025			
Report Details: Type: Connections Storm Phase: Surface Water		Designed by: AC	Checked by: GL		Approved By:
		Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street Dublin 2, D02 E267			

S9.000	19.110	17.482	Elevations	0.5	0	(None)
S2.000	19.674	17.558	None	0.5	0	(None)
S7.000	20.290	18.730	None	0.5	0	(None)
S7.001	20.000	18.436	None	0.5	0	(None)
S7.004	17.950	16.450	Elevations	0.5	0	(None)
S7.005	16.500	15.175	None	0.5	0	(None)
S1.017	15.500	14.000	None	0.5	0	(None)
S1.020	12.610	10.720	All	0.5	0	(None)
S1.018	14.900	13.500	All	0.5	0	(None)
Swale 6 Pipe 2	20.079	19.850	None	0.5	0	(None)
Swale 7 Pipe	19.790	18.290	None	0.5	0	(None)
Swale 9 Pipe	19.737	19.500	None	0.5	0	(None)
Pipe (3)	19.650	18.150	None	0.5	0	(None)
Swale 3 Pipe 1	18.687	18.450	None	0.5	0	(None)
Swale 3 Pipe 2 (1)	17.950	16.000	None	0.5	0	(None)
Swale 5 Pipe 1	19.932	19.400	None	0.5	0	(None)
Swale 8 Pipe 2	19.280	17.508	None	0.5	0	(None)
Swale 6 Pipe 1	20.203	20.000	None	0.5	0	(None)
Swale 1 Pipe	19.887	19.700	None	0.5	0	(None)
Swale 8 Pipe 1	19.269	19.000	None	0.5	0	(None)
Swale 2 Pipe	19.541	19.350	None	0.5	0	(None)
Swale 4 Pipe	20.407	20.100	None	0.5	0	(None)
S1.021	14.500	13.220	All	0.5	0	(None)
S1.019	13.200	11.400	All	0.5	0	14.8 (None)
S3.008 (1)	19.140	16.988	All	0.5	0	(None)
S7.002	19.827	17.927	None	0.5	0	(None)
S3.007	19.200	17.413	None	0.5	0	(None)
Reservoir						

Name	Culvert Entrance
S4.000	(None)
S4.001	(None)
S4.002	(None)
S4.003	(None)
S5.000	(None)
S4.004	(None)
S4.005	(None)
S4.006	(None)
S6.000	(None)
S6.001	(None)
S4.007	(None)
S4.008	(None)
S4.009	(None)
S4.010	(None)
S4.011	(None)
S8.000	(None)
S4.012	(None)
S4.013	(None)
S1.011	(None)
S1.012	(None)
S1.013	(None)
S1.014	(None)
S1.015	(None)
S1.016	(None)
S1.000	(None)
S1.001	(None)
S1.002	(None)
S1.003	(None)
S1.004	(None)

Project: C215 Development at Former Teagasc Lands Kinsealy, Co. Dublin	Date: 30/01/2025		
	Designed by: AC	Checked by: GL	Approved By:
Report Details: Type: Connections Storm Phase: Surface Water	Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street Dublin 2, D02 E267		



S1.005	(None)
S1.006	(None)
S1.007	(None)
S1.008	(None)
S1.009	(None)
S1.010	(None)
S3.000	(None)
S3.001	(None)
S3.002	(None)
S3.003	(None)
S3.004	(None)
S3.005	(None)
S3.006	(None)
S9.000	(None)
S2.000	(None)
S7.000	(None)
S7.001	(None)
S7.004	(None)
S7.005	(None)
S1.017	(None)
S1.020	(None)
S1.018	(None)
Swale 6 Pipe 2	(None)
Swale 7 Pipe	(None)
Swale 9 Pipe	(None)
Pipe (3)	(None)
Swale 3 Pipe 1	(None)
Swale 3 Pipe 2 (1)	(None)
Swale 5 Pipe 1	(None)
Swale 8 Pipe 2	(None)
Swale 6 Pipe 1	(None)
Swale 1 Pipe	(None)
Swale 8 Pipe 1	(None)
Swale 2 Pipe	(None)
Swale 4 Pipe	(None)
S1.021	(None)
S1.019	(None)
S3.008 (1)	(None)
S7.002	(None)
S3.007	(None)
Reservoir	

Project: C215 Development at Former Teagasc Lands Kinsealy, Co. Dublin		Date: 30/01/2025			
Report Details: Type: Inflow Summary Storm Phase: Surface Water		Designed by: AC	Checked by: GL		Approved By:
		Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street Dublin 2, D02 E267			

Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (ha)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analyzed (ha)
0% Green Areas	S47		Time of Concentration	0.042	0	0	0	0.000
0% Green Areas (1)	S30		Time of Concentration	0.024	0	0	0	0.000
0% Green Areas (2)	S29		Time of Concentration	0.016	0	0	0	0.000
0% Green Areas (3)	S37		Time of Concentration	0.030	0	0	0	0.000
0% Green Areas (4)	S36		Time of Concentration	0.027	0	0	0	0.000
10% Green Area	S20		Time of Concentration	0.076	10	0	10	0.008
10% Green Area (1)	S19		Time of Concentration	0.185	10	0	10	0.019
10% Green Area (2)	S18		Time of Concentration	0.157	10	0	10	0.016
10% Green Area (3)	S17		Time of Concentration	0.543	10	0	10	0.054
Basin	Basin		Time of Concentration	0.121	80	0	80	0.097
Catchment Area (11)	S29		Time of Concentration	0.051	95	0	95	0.049
Catchment Area (12)	S30		Time of Concentration	0.041	95	0	95	0.039
Catchment Area (13)	S32		Time of Concentration	0.011	95	0	95	0.010
Catchment Area (14)	S35		Time of Concentration	0.022	95	0	95	0.021
Catchment Area (15)	S38		Time of Concentration	0.016	95	0	95	0.015
Catchment Area (46)	S31		Time of Concentration	0.041	95	0	95	0.039
Catchment Area (47)	S34		Time of Concentration	0.043	95	0	95	0.040
Catchment Area (48)	S33		Time of Concentration	0.032	95	0	95	0.030
Catchment Area (49)	S37		Time of Concentration	0.036	95	0	95	0.034
Catchment Area (50)	S29		Time of Concentration	0.030	95	0	95	0.029
Catchment Area (51)	S43		Time of Concentration	0.031	95	0	95	0.030
Catchment Area (52)	S43		Time of Concentration	0.030	95	0	95	0.029
Catchment Area (53)	S45		Time of Concentration	0.029	95	0	95	0.028
Catchment Area (54)	S47		Time of Concentration	0.050	95	0	95	0.048
Catchment Area (55)	S37		Time of Concentration	0.053	95	0	95	0.050
Catchment Area (56)	S39		Time of Concentration	0.019	95	0	95	0.018
Catchment Area (57)	S41		Time of Concentration	0.043	95	0	95	0.041
Catchment Area (58)	S48		Time of Concentration	0.019	95	0	95	0.018
Catchment Area (59)	S48		Time of Concentration	0.020	95	0	95	0.019
Catchment Area (60)	S42		Time of Concentration	0.032	95	0	95	0.030
Catchment Area (61)	S49		Time of Concentration	0.014	95	0	95	0.014
Catchment Area (62)	S51		Time of Concentration	0.054	95	0	95	0.052
Catchment Area (63)	S47		Time of Concentration	0.054	95	0	95	0.052
Catchment Area (64)	S45		Time of Concentration	0.024	95	0	95	0.023
Catchment Area (65)	S51		Time of Concentration	0.023	95	0	95	0.022
Catchment Area (66)	S22		Time of Concentration	0.007	95	0	95	0.006
Catchment Area (67)	S50		Time of Concentration	0.035	95	0	95	0.033
Catchment Area (68)	S52		Time of Concentration	0.031	95	0	95	0.030
Catchment Area (69)	S26		Time of Concentration	0.050	95	0	95	0.047

Project: C215 Development at Former Teagasc Lands Kinsealy, Co. Dublin		Date: 30/01/2025			
Report Details: Type: Inflow Summary Storm Phase: Surface Water		Designed by: AC	Checked by: GL		Approved By:
		Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street Dublin 2, D02 E267			

Catchment Area (70)	S23		Time of Concentration	0.031	95	0	95	0.029
Catchment Area (71)	S22		Time of Concentration	0.030	95	0	95	0.028
Catchment Area (72)	S51		Time of Concentration	0.058	95	0	95	0.055
Catchment Area (73)	S6		Time of Concentration	0.076	95	0	95	0.073
Catchment Area (74)	S5		Time of Concentration	0.066	95	0	95	0.063
Catchment Area (75)	S7		Time of Concentration	0.023	95	0	95	0.021
Catchment Area (76)	S7		Time of Concentration	0.023	95	0	95	0.022
Catchment Area (77)	S8		Time of Concentration	0.020	95	0	95	0.019
Catchment Area (78)	S9		Time of Concentration	0.017	95	0	95	0.016
Catchment Area (79)	S11		Time of Concentration	0.018	95	0	95	0.017
Catchment Area (80)	S21		Time of Concentration	0.015	95	0	95	0.015
Catchment Area (81)	S19		Time of Concentration	0.028	95	0	95	0.027
Catchment Area (82)	S18		Time of Concentration	0.026	95	0	95	0.025
Catchment Area (83)	S5		Time of Concentration	0.044	95	0	95	0.041
Catchment Area (84)	S6		Time of Concentration	0.028	95	0	95	0.027
Catchment Area (85)	S10		Time of Concentration	0.055	95	0	95	0.052
Catchment Area (86)	S10		Time of Concentration	0.066	95	0	95	0.063
Catchment Area (87)	S15		Time of Concentration	0.024	95	0	95	0.023
Catchment Area (88)	S13		Time of Concentration	0.024	95	0	95	0.023
Full Road	S29		Time of Concentration	0.024	100	0	100	0.024
Full Road (1)	S32		Time of Concentration	0.016	100	0	100	0.016
Full Road (2)	S34		Time of Concentration	0.015	100	0	100	0.015
Full Road (3)	S33		Time of Concentration	0.017	100	0	100	0.017
Full Road (4)	S39		Time of Concentration	0.011	100	0	100	0.011
Full Road (5)	S41		Time of Concentration	0.047	100	0	100	0.047
Full Road (6)	S40		Time of Concentration	0.006	100	0	100	0.006
Full Road (7)	S42		Time of Concentration	0.061	100	0	100	0.061
Full Road (8)	S51		Time of Concentration	0.060	100	0	100	0.060
Full Road (9)	S49		Time of Concentration	0.006	100	0	100	0.006
Full Road (10)	S50		Time of Concentration	0.040	100	0	100	0.040
Full Road (11)	S52		Time of Concentration	0.011	100	0	100	0.011
Full Road (12)	S27		Time of Concentration	0.005	100	0	100	0.005
Full Road (13)	S24		Time of Concentration	0.008	100	0	100	0.008
Full Road (14)	S22		Time of Concentration	0.029	100	0	100	0.029
Full Road (15)	S44		Time of Concentration	0.024	100	0	100	0.024
Full Road (16)	S43		Time of Concentration	0.008	100	0	100	0.008
Full Road (17)	S45		Time of Concentration	0.026	100	0	100	0.026
Full Road (18)	S48		Time of Concentration	0.025	100	0	100	0.025
Full Road (19)	S38		Time of Concentration	0.014	100	0	100	0.014
Full Road (20)	S6		Time of Concentration	0.027	100	0	100	0.027
Full Road (21)	S5		Time of Concentration	0.020	100	0	100	0.020

Project: C215 Development at Former Teagasc Lands Kinsealy, Co. Dublin		Date: 30/01/2025		 CS CONSULTING GROUP	
		Designed by: AC	Checked by: GL		Approved By:
Report Details: Type: Inflow Summary Storm Phase: Surface Water		Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street Dublin 2, D02 E267			

Full Road (22)	S4		Time of Concentration	0.040	100	0	100	0.040
Full Road (23)	S13		Time of Concentration	0.046	100	0	100	0.046
Full Road (24)	S14		Time of Concentration	0.009	100	0	100	0.009
Full Road (25)	S15		Time of Concentration	0.034	100	0	100	0.034
Full Road (26)	S16		Time of Concentration	0.003	100	0	100	0.003
Full Road (27)	S10		Time of Concentration	0.047	100	0	100	0.047
Full Road (28)	S11		Time of Concentration	0.013	100	0	100	0.013
Full Road (29)	S9		Time of Concentration	0.007	100	0	100	0.007
Full Road (30)	S21		Time of Concentration	0.006	100	0	100	0.006
Full Road (31)	S20		Time of Concentration	0.012	100	0	100	0.012
Full Road (32)	S3		Time of Concentration	0.038	100	0	100	0.038
Full Road (33)	S2		Time of Concentration	0.063	100	0	100	0.063
Full Road (34)	S1		Time of Concentration	0.088	100	0	100	0.088
Green Area	S3		Time of Concentration	0.037	20	0	20	0.007
Green Area (1)	S13		Time of Concentration	0.150	20	0	20	0.030
Green Area (2)	S15		Time of Concentration	0.514	20	0	20	0.103
Green Area (3)	S27		Time of Concentration	0.253	10	0	10	0.025
Green Area (4)	S24		Time of Concentration	0.029	20	0	20	0.006
Green Area (10)	S23		Time of Concentration	0.026	20	0	20	0.005
Green Area (11)	S4		Time of Concentration	0.034	20	0	20	0.007
Green Area (12)	S11		Time of Concentration	0.059	20	0	20	0.012
Green Area (13)	S9		Time of Concentration	0.024	20	0	20	0.005
Green Area (14)	S7		Time of Concentration	0.078	20	0	20	0.016
Green Area (15)	S8		Time of Concentration	0.028	20	0	20	0.006
Green Area (16)	S22		Time of Concentration	0.067	20	0	20	0.013
Green Area (17)	S4		Time of Concentration	0.052	20	0	20	0.010
Green Area (18)	S3		Time of Concentration	0.367	20	0	20	0.073
Green Area (19)	S44		Time of Concentration	0.011	20	0	20	0.002
Green Area (20)	S29		Time of Concentration	0.035	20	0	20	0.007
Green Area (21)	S44		Time of Concentration	0.064	20	0	20	0.013
Green Area (30)	S34		Time of Concentration	0.011	20	0	20	0.002
Green Area (32)	S2		Time of Concentration	0.020	20	0	20	0.004
Green Area (33)	S1		Time of Concentration	0.016	20	0	20	0.003
Green Area (34)	S2		Time of Concentration	0.011	20	0	20	0.002
Road to Swale	Swale 8 AJ		Time of Concentration	0.013	80	0	80	0.010
Road to Swale (1)	S25		Time of Concentration	0.028	80	0	80	0.022
Road to Swale (2)	Swale 6 AJ		Time of Concentration	0.025	80	0	80	0.020
Road to Swale (3)	Swale 4 AJ		Time of Concentration	0.039	80	0	80	0.031
Road to Swale (4)	Swale 1 AJ		Time of Concentration	0.034	80	0	80	0.027
Road to Swale (5)	Swale 2 AJ		Time of Concentration	0.028	80	0	80	0.023
TOTAL		0.0		5.793				3.117

Project: C215 Development at Former Teagasc Lands Kinsealy, Co. Dublin		Date: 30/01/2025			
Report Details: Type: Network Design Criteria Storm Phase: Surface Water		Designed by: AC	Checked by: GL		Approved By:
		Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street Dublin 2, D02 E267			

Flow Options

Peak Flow Calculation	(UK) Modified Rational Method
Min. Time of Entry (mins)	4
Max. Travel Time (mins)	30

FSR

Type: FSR

Return Period (years)	100.0
Region	Scotland and Ireland
M5-60 (mm)	15.3
Ratio R	0.277

Lock Slope Options	None
Design Options	Minimize Excavation
Design Level	Level Crowns
Min. Cover Depth (m)	1.200
Min. Slope (1:x)	250.00
Max. Slope (1:x)	20.00
Min. Backdrop (m)	0.000
Max. Backdrop (m)	1.600
Min. Velocity (m/s)	1.0
Max. Velocity (m/s)	3.0
Use Flow Restriction	☐
Reduce Channel Depths	☐

Project: C215 Development at Former Teagasc Lands Kinsealy, Co. Dublin		Date: 30/01/2025			
Report Details: Type: Outfall Details Storm Phase: Surface Water		Designed by: AC	Checked by: GL		Approved By:
		Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street Dublin 2, D02 E267			

Outfalls

Outfall	Outfall Type	Fixed Surcharged Elevation (m)	Elevation Curve
Ex. SW Outfall	Fixed Surcharged Elevation	10.720	
FSR : 100 years: +20 %: 15 mins: Summer		10.720	
FSR : 100 years: +20 %: 15 mins: Winter		10.720	
FSR : 100 years: +20 %: 30 mins: Summer		10.720	
FSR : 100 years: +20 %: 30 mins: Winter		10.720	
FSR : 100 years: +20 %: 60 mins: Summer		10.720	
FSR : 100 years: +20 %: 60 mins: Winter		10.720	
FSR : 100 years: +20 %: 120 mins: Summer		10.720	
FSR : 100 years: +20 %: 120 mins: Winter		10.720	
FSR : 100 years: +20 %: 180 mins: Summer		10.720	
FSR : 100 years: +20 %: 180 mins: Winter		10.720	
FSR : 100 years: +20 %: 240 mins: Summer		10.720	
FSR : 100 years: +20 %: 240 mins: Winter		10.720	
FSR : 100 years: +20 %: 360 mins: Summer		10.720	
FSR : 100 years: +20 %: 360 mins: Winter		10.720	
FSR : 100 years: +20 %: 480 mins: Summer		10.720	
FSR : 100 years: +20 %: 480 mins: Winter		10.720	
FSR : 100 years: +20 %: 600 mins: Summer		10.720	
FSR : 100 years: +20 %: 600 mins: Winter		10.720	
FSR : 100 years: +20 %: 720 mins: Summer		10.720	
FSR : 100 years: +20 %: 720 mins: Winter		10.720	
FSR : 100 years: +20 %: 960 mins: Summer		10.720	
FSR : 100 years: +20 %: 960 mins: Winter		10.720	
FSR : 100 years: +20 %: 1440 mins: Summer		10.720	
FSR : 100 years: +20 %: 1440 mins: Winter		10.720	
FSR : 100 years: +20 %: 2160 mins: Summer		10.720	
FSR : 100 years: +20 %: 2160 mins: Winter		10.720	
FSR : 100 years: +20 %: 2880 mins: Summer		10.720	
FSR : 100 years: +20 %: 2880 mins: Winter		10.720	

Project: C215 Development at Former Teagasc Lands Kinsealy, Co. Dublin	Date: 30/01/2025		
Report Title: Rainfall Analysis Criteria	Designed by: AC	Checked by: GL	Approved By:
		Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street Dublin 2, D02 E267	



Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Shortest
Urban Creep	Apply Global Value
Urban Creep Global Value (%)	0
Junction Flood Risk Margin (mm)	300
Perform No Discharge Analysis	☐

Rainfall	
FSR	Type: FSR
Region	Scotland and Ireland
M5-60 (mm)	15.3
Ratio R	0.277
Summer	☒
Winter	☒

Return Period	
Return Period (years)	Increase Rainfall (%)
100.0	20.000

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

Project: C215 Development at Former Teagasc Lands Kinsealy, Co. Dublin		Date: 30/01/2025		 CS CONSULTING GROUP	
Report Details: Type: Junctions Summary Storm Phase: Surface Water		Designed by: AC	Checked by: GL		Approved By:
		Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street Dublin 2, D02 E267			



Critical Storm Per Item: Rank By: Max. Outflow

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
S29	FSR: 100 years: +20 %: 15 mins: Winter	20.300	18.875	19.003	0.128	39.3	0.145	0.000	38.4	18.172	OK
S30	FSR: 100 years: +20 %: 15 mins: Winter	20.050	18.436	18.630	0.194	52.5	0.220	0.000	50.0	24.706	OK
S31	FSR: 100 years: +20 %: 15 mins: Winter	19.820	18.320	18.535	0.215	64.3	0.244	0.000	62.7	31.281	OK
S32	FSR: 100 years: +20 %: 15 mins: Winter	19.790	18.290	18.470	0.180	77.8	0.203	0.000	77.2	38.624	OK
S33	FSR: 100 years: +20 %: 15 mins: Summer	19.500	18.000	18.258	0.258	108.0	0.291	0.000	101.6	50.199	OK
S34	FSR: 100 years: +20 %: 15 mins: Winter	19.660	18.235	18.317	0.082	20.9	0.092	0.000	20.6	9.662	OK
S35	FSR: 100 years: +20 %: 15 mins: Winter	19.265	17.690	18.011	0.321	109.0	0.363	0.000	107.0	59.701	OK
S36	FSR: 100 years: +20 %: 15 mins: Winter	19.500	17.585	17.932	0.347	149.4	0.393	0.000	145.4	82.769	OK
S39	FSR: 100 years: +20 %: 15 mins: Winter	19.280	17.508	17.834	0.326	159.0	0.369	0.000	155.8	89.127	OK
S38	FSR: 100 years: +20 %: 15 mins: Winter	19.650	18.150	18.380	0.230	48.7	0.260	0.000	42.4	23.108	Surcharged
S37	FSR: 100 years: +20 %: 15 mins: Winter	20.050	18.625	18.732	0.107	30.6	0.121	0.000	30.0	14.159	OK
S43	FSR: 100 years: +20 %: 15 mins: Winter	20.200	18.775	18.937	0.162	24.1	0.183	0.000	23.4	11.151	OK
S44	FSR: 100 years: +20 %: 15 mins: Winter	20.290	18.730	18.908	0.178	37.5	0.201	0.000	34.8	17.671	OK
S45	FSR: 100 years: +20 %: 15 mins: Winter	20.000	18.436	18.599	0.163	62.7	0.185	0.000	59.6	30.491	OK
S47	FSR: 100 years: +20 %: 15 mins: Winter	19.827	17.927	18.102	0.175	95.8	0.197	0.000	91.7	47.003	OK
S48	FSR: 100 years: +20 %: 15 mins: Winter	17.950	16.000	16.935	0.935	121.0	1.057	0.000	108.4	60.871	Surcharged
S42	FSR: 100 years: +20 %: 15 mins: Winter	16.500	14.775	15.250	0.475	326.2	0.537	0.000	304.1	180.834	OK
S40	FSR: 100 years: +20 %: 15 mins: Winter	19.100	17.398	17.692	0.295	158.0	0.333	0.000	154.8	90.103	OK
S41	FSR: 100 years: +20 %: 15 mins: Winter	18.900	17.100	17.269	0.169	186.9	0.191	0.000	184.6	104.848	OK
S49	FSR: 100 years: +20 %: 15 mins: Winter	17.600	14.591	14.992	0.401	311.4	0.454	0.000	291.9	184.221	OK
S50	FSR: 100 years: +20 %: 15 mins: Winter	17.950	14.421	14.924	0.503	382.3	0.569	0.000	359.5	227.888	OK
S51	FSR: 100 years: +20 %: 15 mins: Winter	20.040	18.615	18.750	0.135	68.5	0.153	0.000	64.1	31.628	OK
S22	FSR: 100 years: +20 %: 30 mins: Winter	19.950	16.661	17.465	0.804	238.8	0.909	0.000	238.7	232.212	Surcharged
S23	FSR: 100 years: +20 %: 15 mins: Winter	19.140	16.488	17.195	0.706	352.8	0.799	0.000	351.5	244.274	Surcharged
S24	FSR: 100 years: +20 %: 15 mins: Winter	19.250	16.456	17.090	0.634	356.5	0.717	0.000	355.4	246.449	Surcharged
S25	FSR: 100 years: +20 %: 15 mins: Winter	19.175	16.392	16.937	0.545	363.4	0.616	0.000	360.4	250.023	Surcharged
S26	FSR: 100 years: +20 %: 30 mins: Winter	19.130	16.357	16.786	0.429	369.3	0.485	0.000	369.0	359.564	OK
S27	FSR: 100 years: +20 %: 30 mins: Winter	18.650	16.239	16.510	0.272	376.6	0.307	0.000	376.2	366.545	OK
S28	FSR: 100 years: +20 %: 30 mins: Winter	18.000	14.148	14.697	0.549	727.5	0.621	0.000	727.0	692.917	OK
S52	FSR: 100 years: +20 %: 30 mins: Winter	17.750	14.225	14.786	0.561	352.1	0.634	0.000	351.3	326.419	OK
S1	FSR: 100 years: +20 %: 15 mins: Winter	23.250	21.750	21.926	0.176	33.0	0.199	0.000	30.3	15.224	OK
S2	FSR: 100 years: +20 %: 15 mins: Winter	23.200	21.489	21.667	0.178	55.4	0.202	0.000	50.2	26.731	OK
S3	FSR: 100 years: +20 %: 15 mins: Winter	22.330	20.830	21.051	0.221	93.3	0.249	0.000	87.6	46.598	OK
S4	FSR: 100 years: +20 %: 15 mins: Winter	21.880	20.380	20.624	0.244	108.2	0.276	0.000	100.9	56.200	OK
S5	FSR: 100 years: +20 %: 15 mins: Summer	21.409	19.909	20.157	0.248	136.0	0.280	0.000	127.7	68.629	OK

Project: C215 Development at Former Teagasc Lands Kinsealy, Co. Dublin		Date: 30/01/2025		
Report Details: Type: Junctions Summary Storm Phase: Surface Water		Designed by: AC	Checked by: GL	Approved By:
		Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street Dublin 2, D02 E267		



S13	FSR: 100 years: +20 %: 15 mins: Winter	21.450	20.025	20.711	0.686	35.9	0.776	0.000	26.4	16.563	Surcharged
S14	FSR: 100 years: +20 %: 15 mins: Summer	21.120	19.695	20.398	0.703	26.7	0.795	0.000	31.9	16.166	Surcharged
S15	FSR: 100 years: +20 %: 15 mins: Winter	21.050	19.625	20.581	0.956	77.0	1.081	0.000	65.9	44.890	Surcharged
S16	FSR: 100 years: +20 %: 30 mins: Winter	20.530	19.105	19.741	0.636	65.0	0.719	0.000	64.4	63.095	Surcharged
S17	FSR: 100 years: +20 %: 30 mins: Winter	20.488	19.048	19.582	0.534	78.1	0.604	0.000	77.5	75.735	Surcharged
S18	FSR: 100 years: +20 %: 15 mins: Winter	20.220	18.795	18.962	0.167	91.7	0.188	0.000	90.1	61.347	OK
S19	FSR: 100 years: +20 %: 15 mins: Winter	19.700	18.200	18.413	0.213	106.5	0.241	0.000	103.6	68.877	OK
S20	FSR: 100 years: +20 %: 15 mins: Summer	19.280	17.780	17.936	0.156	104.0	0.176	0.000	104.8	64.367	OK
S21	FSR: 100 years: +20 %: 15 mins: Winter	19.030	17.605	17.660	0.055	7.5	0.063	0.000	7.5	3.448	OK
S12	FSR: 100 years: +20 %: 30 mins: Winter	19.110	16.726	17.587	0.861	219.8	0.974	0.000	219.5	214.366	Surcharged
S11	FSR: 100 years: +20 %: 15 mins: Summer	19.530	17.505	18.076	0.572	211.4	0.647	0.000	215.9	134.267	Surcharged
S9	FSR: 100 years: +20 %: 15 mins: Winter	19.674	17.558	18.291	0.733	205.3	0.829	0.000	207.1	143.550	Surcharged
S10	FSR: 100 years: +20 %: 15 mins: Winter	20.965	19.540	19.678	0.138	58.9	0.156	0.000	57.6	27.074	OK
S6	FSR: 100 years: +20 %: 15 mins: Winter	20.785	19.285	19.785	0.500	163.5	0.566	0.000	155.7	97.982	Surcharged
S7	FSR: 100 years: +20 %: 15 mins: Winter	20.000	18.281	18.744	0.464	177.1	0.525	0.000	166.8	107.876	Surcharged
S8	FSR: 100 years: +20 %: 15 mins: Winter	20.000	18.083	18.339	0.257	175.7	0.290	0.000	183.9	111.836	OK
S53	FSR: 100 years: +20 %: 30 mins: Winter	15.500	14.000	14.378	0.378	727.0	0.428	0.000	726.7	692.135	OK
Ex. SW Outfall	FSR: 100 years: +20 %: 120 mins: Winter	12.610	10.720	10.772	0.052	13.6	0.000	0.000	13.6	140.557	OK
S55	FSR: 100 years: +20 %: 120 mins: Winter	13.200	10.900	10.959	0.059	13.6	0.066	0.000	13.6	140.557	OK
Swale 6 AJ	FSR: 100 years: +20 %: 15 mins: Winter	20.200	20.050	20.116	0.066	7.3	0.019	0.000	7.2	3.387	Flood Risk
Swale 1 AJ	FSR: 100 years: +20 %: 15 mins: Winter	19.850	19.750	19.822	0.072	9.8	0.020	0.000	9.7	4.525	Flood Risk
Swale 8 AJ	FSR: 100 years: +20 %: 15 mins: Winter	19.200	19.050	19.098	0.048	3.8	0.014	0.000	3.6	1.726	Flood Risk
Swale 2 AJ	FSR: 100 years: +20 %: 15 mins: Winter	19.500	19.400	19.465	0.065	8.2	0.018	0.000	8.1	3.805	Flood Risk
Swale 4 AJ	FSR: 100 years: +20 %: 15 mins: Winter	20.300	20.150	20.247	0.097	11.3	0.027	0.000	11.1	5.191	Flood Risk
S54	FSR: 100 years: +20 %: 120 mins: Winter	14.500	12.000	14.167	2.167	13.7	2.451	0.000	13.6	140.559	Surcharged
S56	FSR: 100 years: +20 %: 15 mins: Winter	19.200	17.387	17.561	0.174	102.4	0.197	0.000	101.7	72.114	OK
S46	FSR: 100 years: +20 %: 15 mins: Winter	19.200	17.413	17.861	0.448	103.8	0.506	0.000	102.5	72.124	OK

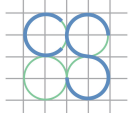
Project: C215 Development at Former Teagasc Lands Kinsealy, Co. Dublin		Date: 30/01/2025			
Report Details: Type: Stormwater Controls Summary Storm Phase: Surface Water		Designed by: AC	Checked by: GL		Approved By:
		Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street Dublin 2, D02 E267			



Critical Storm Per Item: Rank By: Max. Avg. Depth

Stormwater Control	Storm Event	Max. US Elevation (m)	Max. DS Elevation (m)	Max. Avg. Elevation (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Avg. 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)	Half Drain Down Time (mins)
Basin	FSR: 100 years: +20 %: 120 mins: Winter	14.171	14.171	14.171	0.871	0.871	0.871	403.4	615.988	0.000	1042.728	13.7	140.543	59
Swale (6)	FSR: 100 years: +20 %: 15 mins: Winter	20.067	20.052	20.031	0.014	0.052	0.031	7.2	0.250	0.000	0.207	6.1	3.176	0
Swale (7)	FSR: 100 years: +20 %: 15 mins: Winter	19.941	19.875	19.868	0.012	0.025	0.019	6.1	0.198	0.000	0.206	5.5	2.966	0
Swale (1)	FSR: 100 years: +20 %: 15 mins: Winter	19.758	19.753	19.737	0.021	0.053	0.037	9.7	0.216	0.000	0.177	8.9	4.345	0
Swale (9)	FSR: 100 years: +20 %: 15 mins: Winter	19.603	19.528	19.522	0.015	0.028	0.022	8.9	0.264	0.000	0.260	8.1	4.081	0
Swale (2)	FSR: 100 years: +20 %: 15 mins: Winter	19.410	19.384	19.377	0.019	0.034	0.027	8.1	0.155	0.000	0.144	7.7	3.659	0
Swale (3)	FSR: 100 years: +20 %: 15 mins: Winter	18.551	18.475	18.470	0.014	0.025	0.020	7.7	0.238	0.000	0.232	6.9	3.422	0
Swale (4)	FSR: 100 years: +20 %: 15 mins: Winter	20.220	20.141	20.124	0.013	0.041	0.024	11.1	0.473	0.000	0.347	9.8	4.826	0
Swale (5)	FSR: 100 years: +20 %: 30 mins: Winter	19.740	19.546	19.447	0.009	0.146	0.047	7.4	3.848	0.000	5.795	0.0	0.000	17
Swale (8)	FSR: 100 years: +20 %: 15 mins: Winter	19.077	19.018	19.012	0.008	0.018	0.012	3.6	0.145	0.000	0.115	3.2	1.606	0

Project: C215 Development at Former Teagasc Lands Kinsealy, Co. Dublin	Date: 30/01/2025		
	Designed by: AC	Checked by: GL	Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Surface Water	Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street Dublin 2, D02 E267		



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Percentage Available (%)	Status
4.005	OK
86.919	OK
93.019	OK
83.899	OK
91.569	OK
89.461	OK
92.419	OK
93.114	OK
81.867	OK
96.734	OK

Project: C215 Development at Former Teagasc Lands Kinsealy, Co. Dublin		Date: 30/01/2025		 CS CONSULTING GROUP	
Report Details: Type: Connections Summary Storm Phase: Surface Water		Designed by: AC	Checked by: GL		Approved By:
		Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street Dublin 2, D02 E267			



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
S4.000	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S29	S30	20.300	19.003	0.161	18.172	1.3	0.57	38.4	OK
S4.001	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S30	S31	20.050	18.630	0.205	24.706	1.0	0.62	50.0	OK
S4.002	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S31	S32	19.820	18.535	0.197	31.281	1.3	0.78	62.7	OK
S4.003	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S32	S33	19.790	18.470	0.235	38.624	1.3	0.56	77.2	OK
S5.000	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S34	S33	19.660	18.317	0.186	9.662	0.6	0.3	20.6	OK
S4.004	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	S33	S35	19.500	18.258	0.281	50.199	1.5	0.89	101.6	OK
S4.005	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S35	S36	19.265	18.011	0.334	59.701	1.0	0.81	107.0	OK
S4.006	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S36	S39	19.500	17.932	0.337	82.769	1.4	0.8	145.4	OK
S6.000	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S37	S38	20.050	18.732	0.169	14.159	0.9	0.46	30.0	OK
S6.001	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S38	S36	19.650	18.380	0.201	23.108	1.1	1.07	42.4	Surchar ged
S4.007	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S39	S40	19.280	17.834	0.310	89.127	1.6	0.82	155.8	OK
S4.008	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S40	S41	19.100	17.692	0.269	90.103	1.8	0.76	154.8	OK
S4.009	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S41	S42	18.900	17.269	0.322	104.848	1.8	0.42	184.6	OK
S4.010	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S42	S49	16.500	15.250	0.438	180.834	1.6	0.99	304.1	OK
S4.011	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S49	S50	17.600	14.992	0.452	184.221	1.5	0.46	291.9	OK
S8.000	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S51	S50	20.040	18.750	0.133	31.628	2.6	0.64	64.1	OK
S4.012	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S50	S52	17.950	14.924	0.527	227.888	1.4	0.83	359.5	OK
S4.013	FSR: 100 years: +20 %: 30 mins: Winter	Pipe	S52	S28	17.750	14.786	0.555	326.419	1.3	0.81	351.3	OK
S1.011	FSR: 100 years: +20 %: 30 mins: Winter	Pipe	S22	S23	19.950	17.465	0.450	232.212	1.5	1.17	238.7	Surchar ged
S1.012	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S23	S24	19.140	17.195	0.525	244.274	1.6	1.15	351.5	Surchar ged
S1.013	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S24	S25	19.250	17.090	0.525	246.449	1.6	1.16	355.4	Surchar ged
S1.014	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S25	S26	19.175	16.937	0.489	250.023	1.7	1.18	360.4	Surchar ged
S1.015	FSR: 100 years: +20 %: 30 mins: Winter	Pipe	S26	S27	19.130	16.786	0.350	359.564	2.4	1.09	369.0	OK

Project: C215 Development at Former Teagasc Lands Kinsealy, Co. Dublin				Date: 30/01/2025				 CS CONSULTING GROUP					
				Designed by: AC		Checked by: GL						Approved By:	
Report Details: Type: Connections Summary Storm Phase: Surface Water				Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street Dublin 2, D02 E267									

S1.016	FSR: 100 years: +20 %: 30 mins: Winter	Pipe	S27	S28	18.650	16.510	0.249	366.545	3.7	0.39	376.2	OK
S1.000	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S1	S2	23.250	21.926	0.177	15.224	0.9	0.91	30.3	OK
S1.001	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S2	S3	23.200	21.667	0.199	26.731	1.3	0.94	50.2	OK
S1.002	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S3	S4	22.330	21.051	0.232	46.598	1.5	0.79	87.6	OK
S1.003	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S4	S5	21.880	20.624	0.265	56.200	1.5	0.9	100.9	OK
S1.004	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	S5	S6	21.409	20.157	0.281	68.629	1.9	0.89	127.7	OK
S1.005	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S6	S7	20.785	19.785	0.300	97.982	2.2	0.97	155.7	Surchar ged
S1.006	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S7	S8	20.000	18.744	0.354	107.876	1.5	1.32	166.8	Surchar ged
S1.007	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S8	S9	20.000	18.339	0.375	111.836	1.7	0.41	183.9	OK
S1.008	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S9	S11	19.674	18.291	0.375	143.550	1.9	1.47	207.1	Surchar ged
S1.009	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	S11	S12	19.530	18.076	0.375	134.267	2.0	0.75	215.9	Surchar ged
S1.010	FSR: 100 years: +20 %: 30 mins: Winter	Pipe	S12	S22	19.110	17.587	0.450	214.366	1.4	1.08	219.5	Surchar ged
S3.000	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S13	S14	21.450	20.711	0.225	16.563	0.8	0.59	26.4	Surchar ged
S3.001	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	S14	S15	21.120	20.398	0.225	16.166	0.8	0.7	31.9	Surchar ged
S3.002	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S15	S16	21.050	20.581	0.225	44.890	1.7	1.24	65.9	Surchar ged
S3.003	FSR: 100 years: +20 %: 30 mins: Winter	Pipe	S16	S17	20.530	19.741	0.225	63.095	1.6	1.32	64.4	Surchar ged
S3.004	FSR: 100 years: +20 %: 30 mins: Winter	Pipe	S17	S18	20.488	19.582	0.225	75.735	2.0	1.35	77.5	Surchar ged
S3.005	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S18	S19	20.220	18.962	0.190	61.347	1.9	0.53	90.1	OK
S3.006	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S19	S20	19.700	18.413	0.193	68.877	2.2	0.73	103.6	OK
S9.000	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S21	S12	19.030	17.660	0.085	3.426	0.7	0.14	7.5	OK
S2.000	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S10	S9	20.965	19.678	0.225	27.074	1.4	0.68	57.6	OK
S7.000	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S43	S44	20.200	18.937	0.170	11.151	0.7	0.59	23.4	OK
S7.001	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S44	S45	20.290	18.908	0.170	17.671	1.1	0.89	34.8	OK
S7.004	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S47	S48	19.827	18.102	0.225	47.003	2.4	0.89	91.7	OK
S7.005	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S48	S42	17.950	16.935	0.225	60.871	2.7	1.29	108.4	Surchar ged
S1.017	FSR: 100 years: +20 %: 30 mins: Winter	Pipe	S28	S53	18.000	14.697	0.464	692.917	3.1	0.94	727.0	OK
S1.020	FSR: 100 years: +20 %: 120 mins: Winter	Pipe	S55	Ex. SW Outfall	13.200	10.959	0.055	140.557	1.8	0.12	13.6	OK

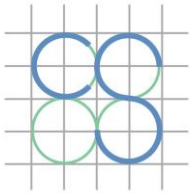
Project: C215 Development at Former Teagasc Lands Kinsealy, Co. Dublin		Date: 30/01/2025		
		Designed by: AC	Checked by: GL	Approved By:
Report Details: Type: Connections Summary Storm Phase: Surface Water		Company Address: Cronin & Sutton Consulting 1st Floor, 19-22 Dame Street Dublin 2, D02 E267		



S1.018	FSR: 100 years: +20 %: 30 mins: Winter	Pipe	S53	Basin	15.500	14.378	0.405	692.135	4.6	0.44	726.7	OK
Swale 6 Pipe 2	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	Swale (6)	Swale (7)	20.203	20.031	0.072	3.176	0.7	0.23	6.1	OK
Swale 7 Pipe	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	Swale (7)	S32	20.079	19.868	0.102	2.966	0.4	0.07	5.5	OK
Swale 9 Pipe	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	Swale (1)	Swale (9)	19.887	19.737	0.078	4.345	1.0	0.23	8.9	OK
Pipe (3)	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	Swale (9)	S38	19.737	19.522	0.129	4.081	0.5	0.09	8.1	OK
Swale 3 Pipe 1	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	Swale (2)	Swale (3)	19.541	19.377	0.068	3.659	1.0	0.11	7.7	OK
Swale 3 Pipe 2 (1)	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	Swale (3)	S48	18.687	18.470	0.150	3.422	0.4	0.07	6.9	OK
Swale 5 Pipe 1	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	Swale (4)	Swale (5)	20.407	20.124	0.150	4.826	0.6	0.18	9.8	OK
Swale 8 Pipe 2	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	Swale (8)	S39	19.269	19.012	0.150	1.606	0.2	0.03	3.2	OK
Swale 6 Pipe 1	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	Swale 6 AJ	Swale (6)	20.200	20.116	0.066	3.387	1.0	0.28	7.2	Flood Risk
Swale 1 Pipe	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	Swale 1 AJ	Swale (1)	19.850	19.822	0.065	4.525	1.3	0.33	9.7	Flood Risk
Swale 8 Pipe 1	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	Swale 8 AJ	Swale (8)	19.200	19.098	0.063	1.726	0.5	0.19	3.6	Flood Risk
Swale 2 Pipe	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	Swale 2 AJ	Swale (2)	19.500	19.465	0.062	3.805	1.2	0.25	8.1	Flood Risk
Swale 4 Pipe	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	Swale 4 AJ	Swale (4)	20.300	20.247	0.108	5.191	0.8	0.4	11.1	Flood Risk
S1.021	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	Basin	S54	14.900	13.853	0.225	17.305	2.0	0.35	37.2	Surchar ged
S1.019	FSR: 100 years: +20 %: 120 mins: Winter	Pipe	S54	S55	14.500	14.167	0.056	140.558	1.7	0.13	13.6	Surchar ged
S3.008 (1)	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S56	S23	19.200	17.561	0.190	72.114	2.6	0.5	101.7	OK
S7.002	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S45	S47	20.000	18.599	0.169	30.491	1.9	0.77	59.6	OK
S3.007	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	S20	S46	19.280	17.936	0.297	64.367	1.5	0.5	104.8	OK
Reservoir	FSR: 100 years: +20 %: 15 mins: Winter	No Delay	S46	S56		17.861	0.055	72.145	0.0		102.4	

Appendix C

Extract of Ground Investigation Report by GII



CS CONSULTING
GROUP





Catherinestown House,
Hazelhatch Road,
Newcastle,
Co. Dublin,
D22 YD52

Tel: 01 601 5175 / 5176
Email: info@gii.ie
Web: www.gii.ie

TP-30

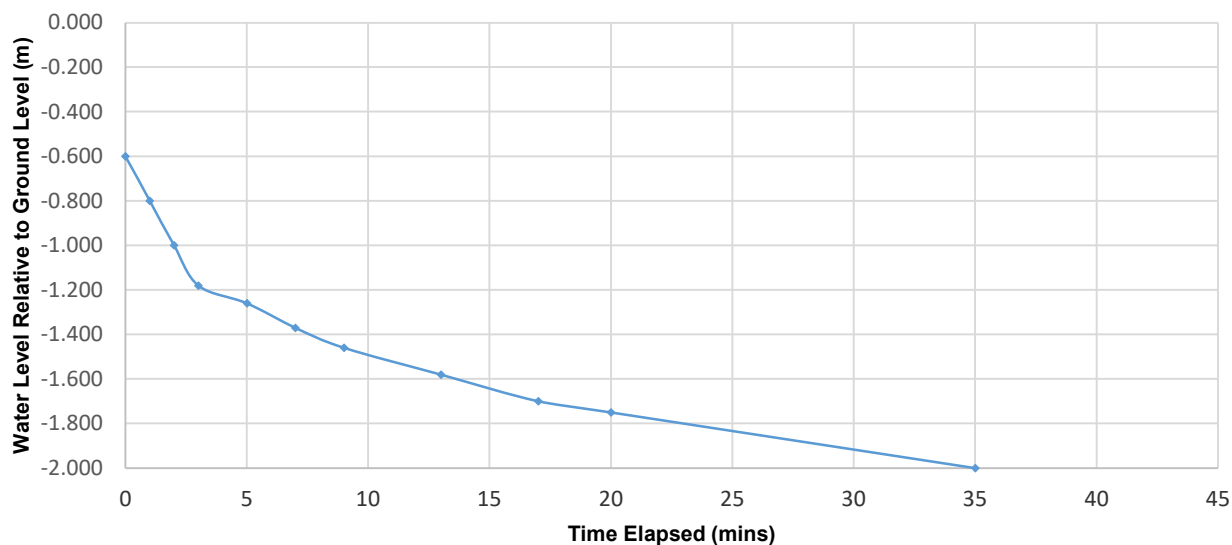
Soakaway Test to BRE Digest 365

Trial Pit Dimensions: 3.00m x 0.60m x 2.30m (L x W x D)

Date	Time	Water level (m bgl)
09/01/2024	0	-0.600
09/01/2024	1	-0.800
09/01/2024	2	-1.000
09/01/2024	3	-1.180
09/01/2024	5	-1.260
09/01/2024	7	-1.370
09/01/2024	9	-1.460
09/01/2024	13	-1.580
09/01/2024	17	-1.700
09/01/2024	20	-1.750
09/01/2024	35	-2.000

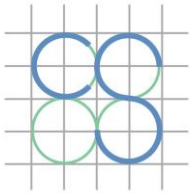
Start depth 0.60	Depth of Pit 2.000	Diff 1.400	75% full 0.95	25%full 1.65
Length of pit (m) 3.000	Width of pit (m) 0.600		75-25Ht (m) 0.700	Vp75-25 (m3) 1.26
Tp75-25 (from graph) (s)		810	50% Eff Depth 0.700	ap50 (m2) 6.84
f =		2.274E-04	m/s	

TP-30



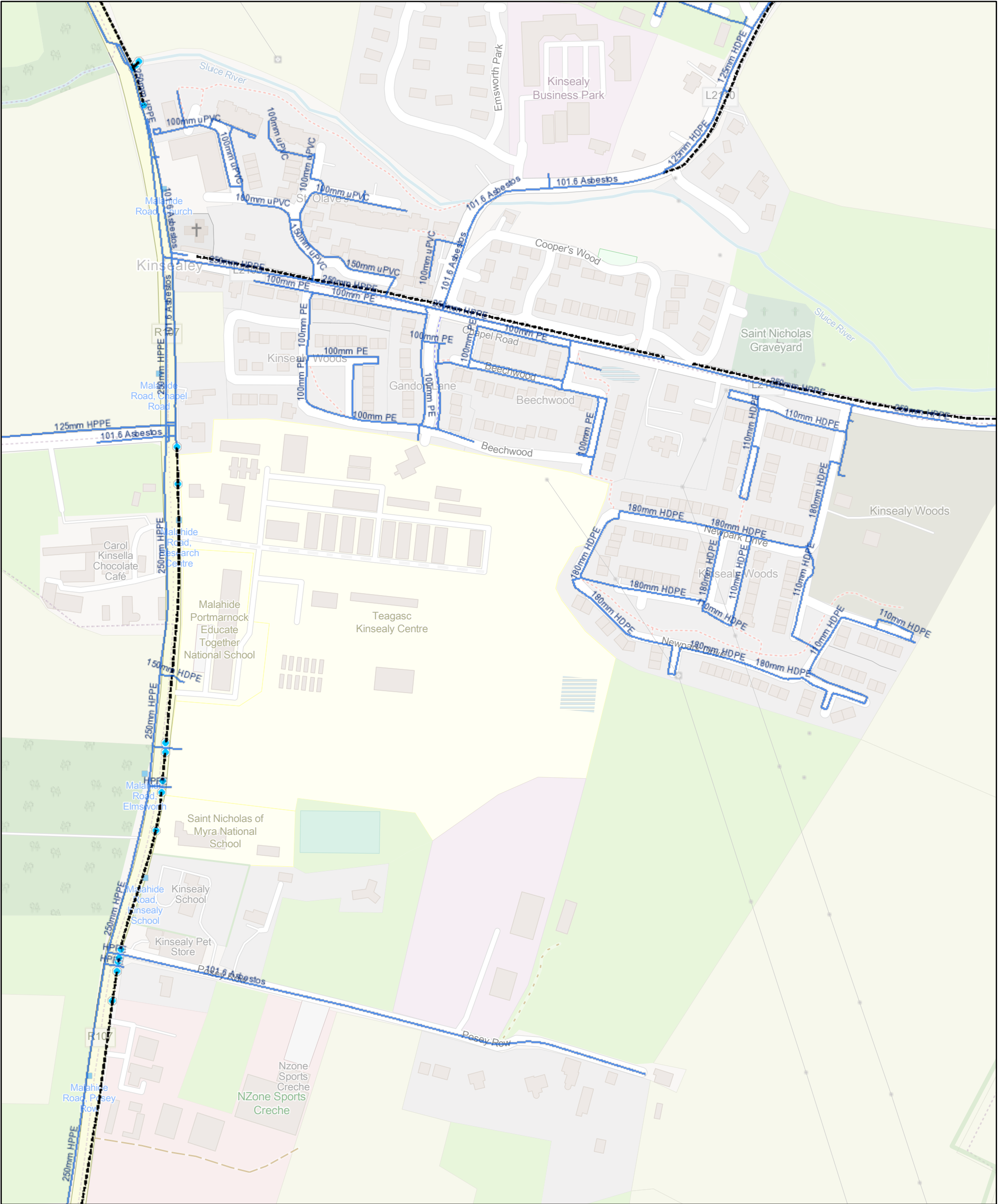
Appendix D

Uisce Éireann Drainage and Water Supply Records



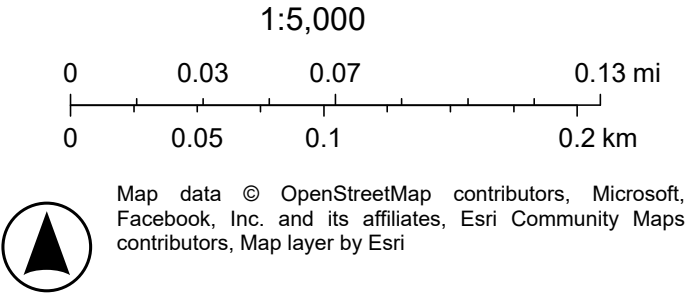
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GROUP

Uisce Éireann Distribution Network - Kinsealy

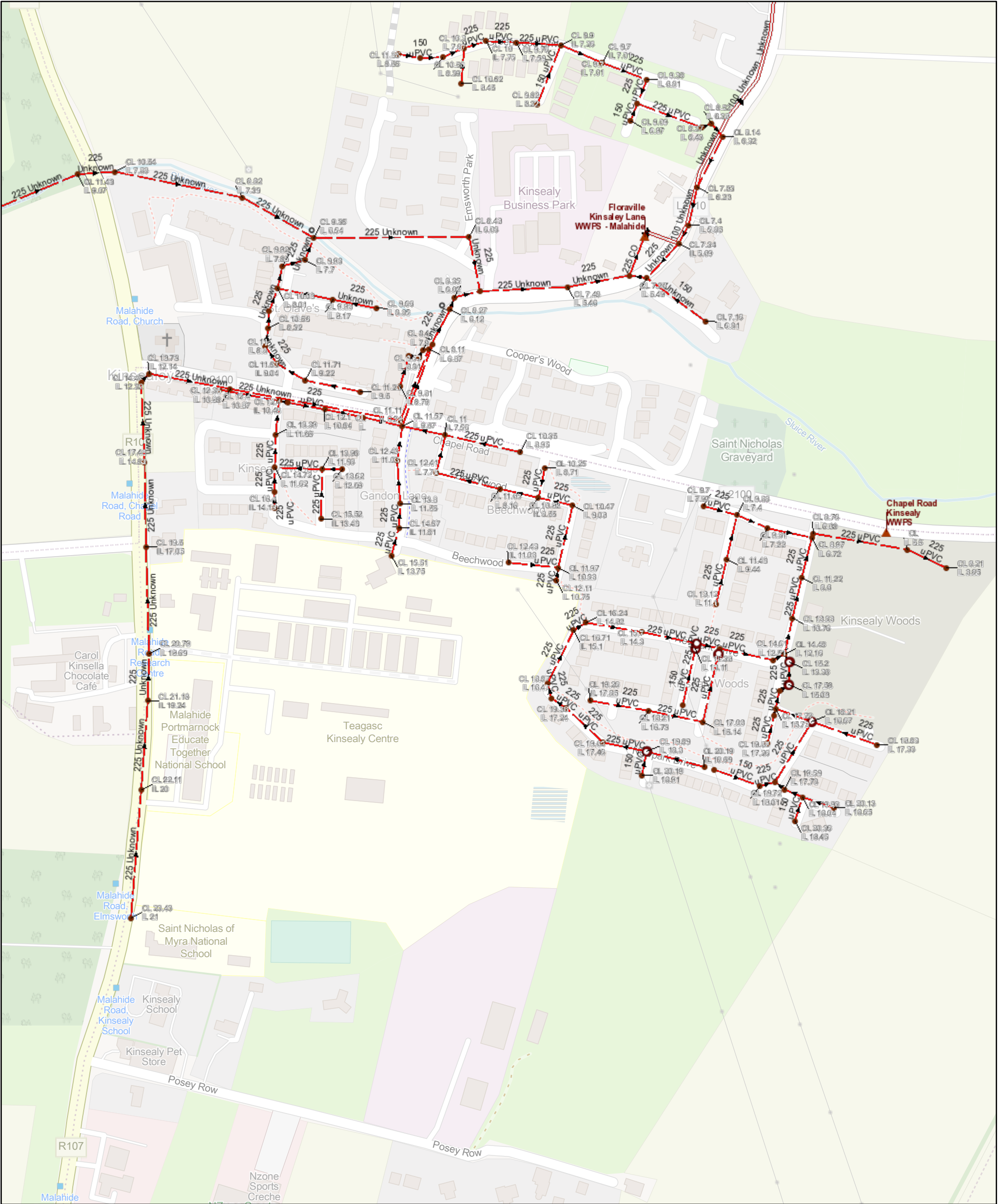


13/12/2024

- | | | | |
|---------------------------|----------------------------------|--------------------------|------------------------|
| Water Treatment Plant | Storage Tower | Storage Tower | Private |
| Abstraction Point | Dosing Point | Dosing Point | Trunk Water Mains |
| Reservoir | Meter Station | Meter Station | Irish Water |
| Reservoir (Potable Water) | Water Pump | Water Pump | Private |
| Reservoir (Raw Water) | Other; Unknown | Other; Unknown | Water Abandoned Lines |
| Water Pump Stations | Private Water Network Structures | Water Distribution Mains | Water Abandoned Points |
| Storage Cell | Storage Cell | Irish Water | |



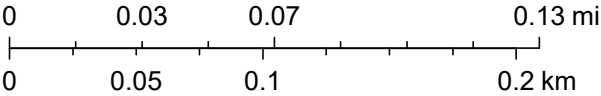
Uisce Éireann Foul Drainage Network - Kinsealy



13/12/2024

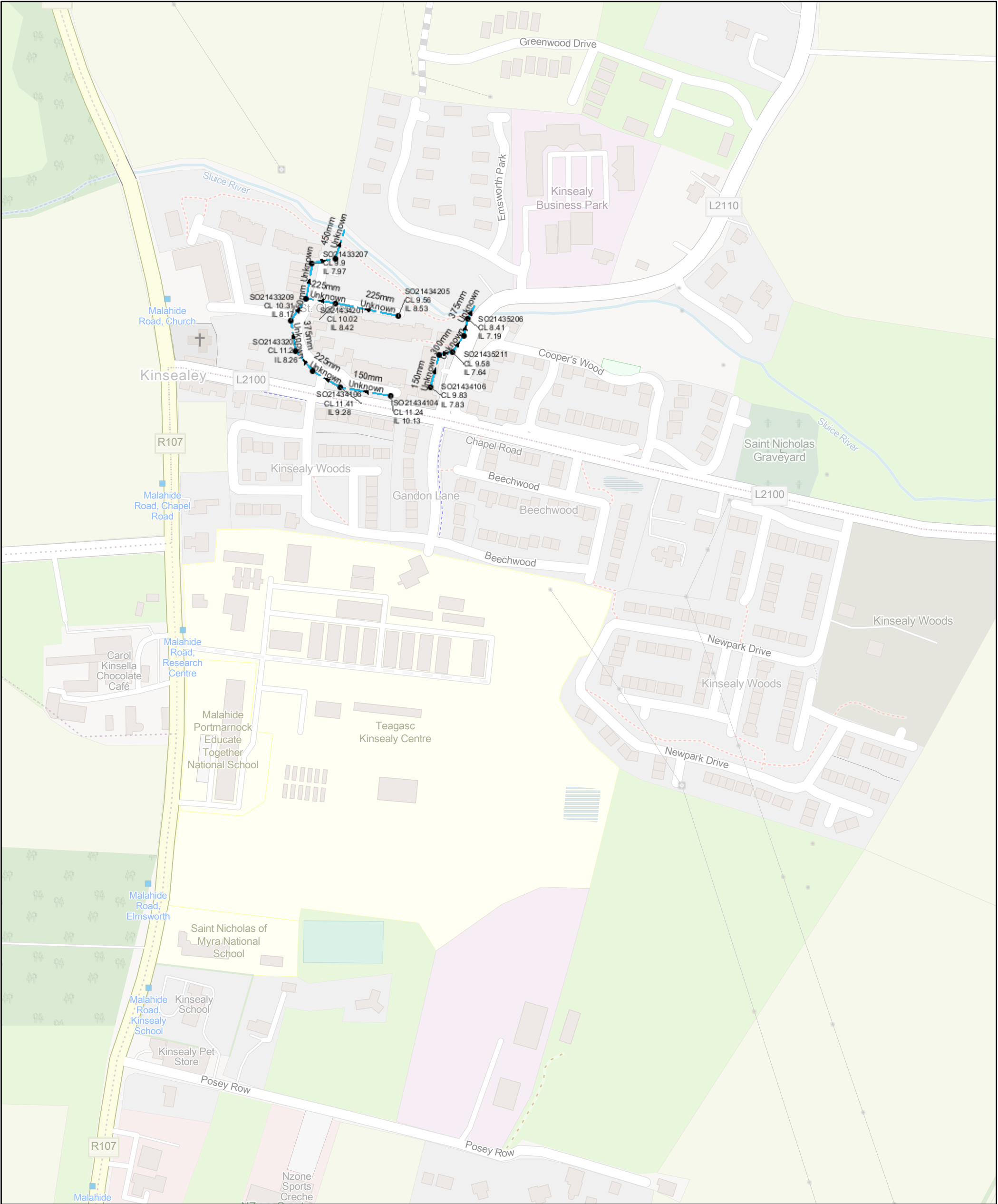
Sewer Manholes		Sewer Mains		Sewer Discharge Points	
Standard	Overflow	Gravity - Combined	Pumping - Foul	Gravity - Unknown	Outfall
Backdrop	Soakaway	Gravity - Foul	Pumping - Overflow	Gravity - Foul	
Cascade	Other; Unknown	Gravity - Overflow	Pumping - Unknown	Gravity - Overflow	
Catchpit	Waste Water Treatment plant		Syphon - Combined	Gravity - Unknown	
Bifurcation	Waste Water Pump station		Syphon - Foul	Pumping - Combined	
Hatchbox	Sewer Chambers		Syphon - Overflow		
Lamphole			Overflow		
Hydrobrake			Sewer Mains (Private)		
Other; Unknown			Gravity - Combined		
			Gravity - Foul		
			Gravity - Overflow		
			Gravity - Unknown		
			Gravity - Foul		
			Gravity - Overflow		
			Gravity - Unknown		

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Uisce Éireann Storm Drainage Records - Kinsealy

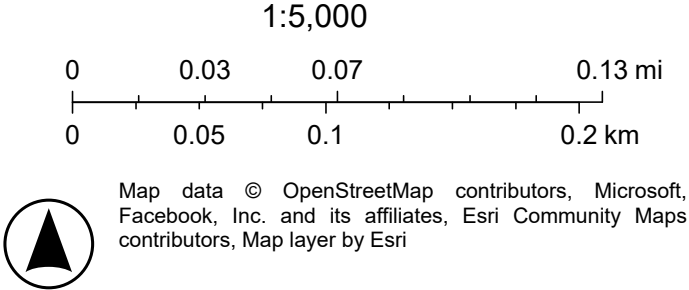


13/12/2024

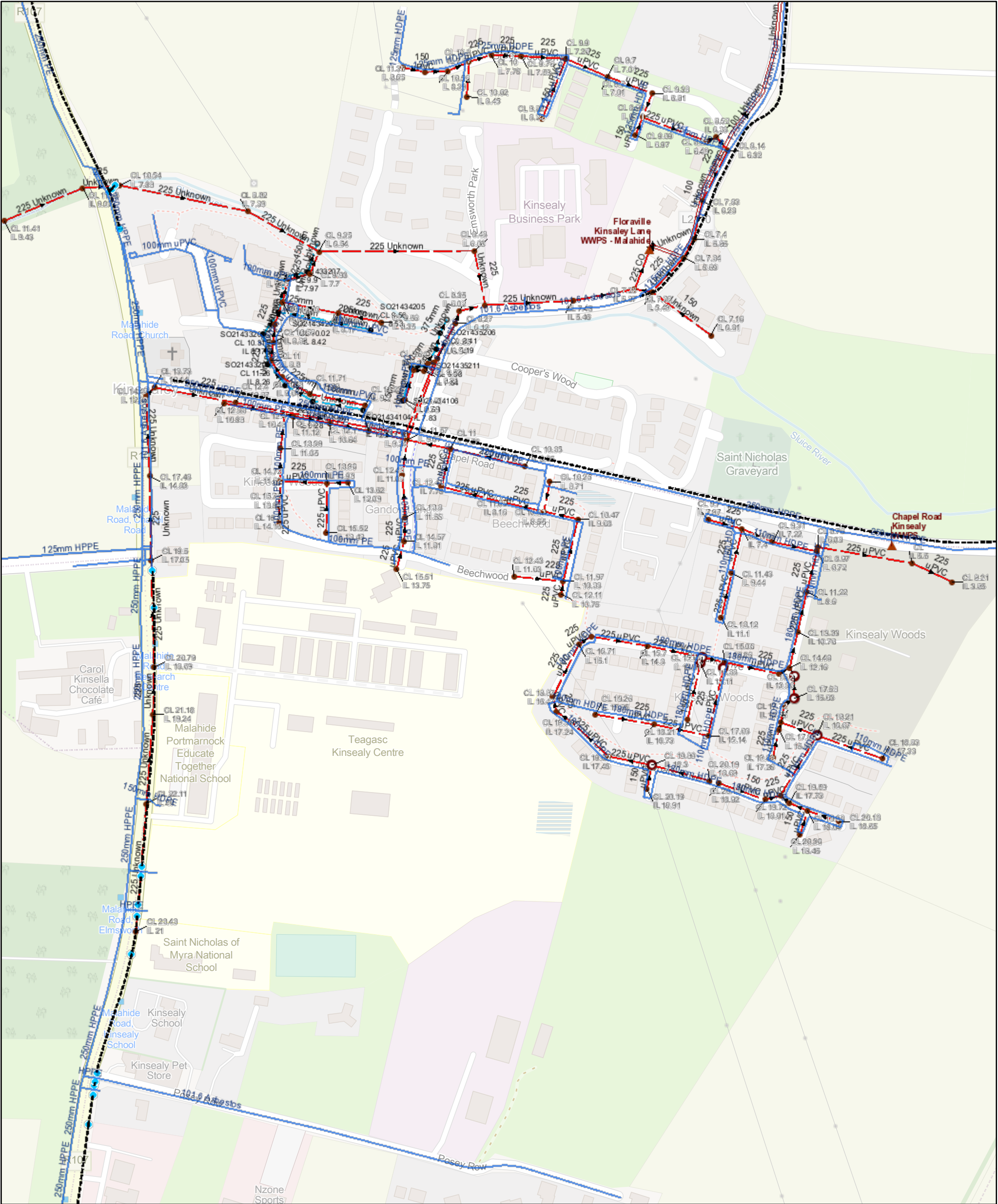
- Storm Manholes
- Standard
 - Backdrop
 - Cascade
 - Catchpit
 - Bifurcation

- Hatchbox
 - Lamphole
 - Hydrobrake
 - Other; Unknown
- Surface Water Mains
- Surface Gravity Mains

- Surface Gravity Mains Private
- Surface Water Pressurised Mains
- Surface Water Pressurised Mains Private
- Storm Culverts
- Storm Open Drains



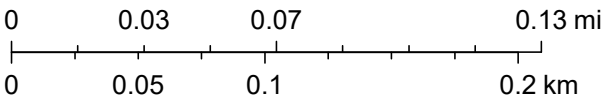
Uisce Éireann Combined Records - Kinsealy



13/12/2024

- | | | | | | |
|----------------------------------|--------------------------|-----------------------------|-----------------------|---|---|
| Water Treatment Plant | Dosing Point | Catchpit | Gravity - Foul | Gravity - Unknown | Cascade |
| Abstraction Point | Meter Station | Bifurcation | Gravity - Overflow | Pumping - Combined | Catchpit |
| Reservoir | Water Pump | Hatchbox | Gravity - Unknown | Pumping - Foul | Bifurcation |
| Reservoir (Potable Water) | Other: Unknown | Lamphole | Pumping - Combined | Pumping - Overflow | Hatchbox |
| Reservoir (Raw Water) | Water Distribution Mains | Hydrobrake | Pumping - Foul | Pumping - Unknown | Lamphole |
| Water Pump Stations | Irish Water | Other: Unknown | Pumping - Overflow | Syphon - Combined | Hydrobrake |
| Water Network Structures | Private | Sewer Discharge Points | Pumping - Unknown | Syphon - Foul | Other: Unknown |
| Storage Cell | Trunk Water Mains | Outfall | Syphon - Combined | Syphon - Overflow | Surface Water Mains |
| Storage Tower | Irish Water | Overflow | Syphon - Foul | Overflow | Surface Gravity Mains |
| Dosing Point | Private | Soakaway | Syphon - Overflow | Sewer Detention Areas | Surface Gravity Mains Private |
| Meter Station | Water Abandoned Lines | Other: Unknown | Overflow | Waste Water Asset Site Boundary | Surface Water Pressurised Mains |
| Water Pump | Water Abandoned Points | Waste Water Treatment plant | Sewer Mains (Private) | Wastewater Discharge Authorisation Boundary | Surface Water Pressurised Mains Private |
| Other: Unknown | Sewer Manholes | Standard | Gravity - Combined | Storm Manholes | Storm Culverts |
| Private Water Network Structures | Backdrop | Gravity - Foul | Gravity - Overflow | Standard | Storm Open Drains |
| Storage Cell | Storage Tower | Gravity - Combined | | | |

1:5,000



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