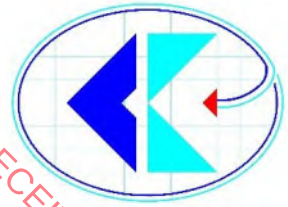


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APPENDIX 1
ENGINEERING
SERVICES
REPORT



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Report on the Proposed
Surface Water, Wastewater & Watermain Layout
For
Proposed Off-Line Service Area
At
Gort
County Galway

19th May 2025

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Revision History

Revision	Revision Date	Details	Name	Position
A	01/07/2025	Drawings Updated	BC/AC	ENG



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Introduction

This Civil Engineering Drainage Report has been prepared as part of the planning application documentation for the proposed Off-Line Service Area, Gort, Co. Galway. It presents the proposed drainage infrastructure in support of the planning submission and outlines the design approach for foul and surface water drainage, as well as water supply provisions, in accordance with the requirements of Galway County Council, Uisce Éireann, and relevant national standards. The drainage design is developed in line with best practice and includes the integration of Sustainable Urban Drainage Systems (SUDS) to manage runoff and improve water quality. This report has been prepared in close collaboration with our client and the broader design team to ensure a coordinated and integrated approach. It is informed by a detailed Hydrology Assessment and Geotechnical Site Investigation, which provide the basis for a drainage strategy responsive to the site's specific ground conditions and hydrological characteristics. This report forms a key component of the planning submission and should be read in conjunction with the architectural drawings, landscaping proposals, and the technical inputs of other design disciplines to ensure a holistic understanding of the proposed development.

Site Description

The proposed development site (circa 1.5 hectares) is situated at Gort Co. Galway, occupying a greenfield area with a gradual slope. The site's natural topography presents an opportunity to integrate sustainable drainage solutions that complement the existing hydrological characteristics.



Extract from Google Maps

The existing public foul sewer network runs along the main R458 Road, South of the site, and has been identified as the most appropriate connection point for wastewater



discharge. There is no existing surface water drainage system as water currently percolates through the soils. Additionally, a watermain runs along the R458 Road and will provide the primary water supply to the development.

The proposed development includes for a Fuel Forecourt Plaza, internal access roads, a wastewater pump chamber, landscaped green spaces, and associated services & infrastructure. The stormwater management approach prioritises the use of Sustainable Drainage Systems (SuDS) to control runoff at source, improve infiltration, and support environmental sustainability.

As part of the development, a foul water pump chamber and control station will be provided, designed with a 24-hour storage capacity to accommodate foul water generated by the proposed Off-Line Service Area. Wastewater will be pumped from the chamber to the public sewer located along the main road to the south of the site.

Proposed Surface Water Drainage Strategy

Allowance for Climate Change

Surface water runoff and attenuation calculations for the proposed development are based on regional rainfall data, with a 20% increase applied to account for the potential impacts of climate change. This allowance has been incorporated into the design in accordance with current best practice. The approach supports the development of a resilient drainage system, capable of accommodating increased rainfall intensities over its design life and helping to manage in so far as reasonable practicable surface water effectively during periods of heavy rainfall.

Surface water Discharge

The surface water drainage strategy for the site, covering approximately 1.5 hectares, integrates Sustainable Drainage Systems (SuDS), including a hybrid soakaway and attenuation zone. The soakaways have been designed and sized in line with BRE Digest 365, informed by the results of trial holes and percolation testing conducted during the geotechnical site investigation carried out by Irish Drilling Ltd. Furthermore, the soakaway volume has been increased to take account of the Design Performance Objectives as outlined below.

Policy Context

The proposed Surface Water Drainage Strategy for the new development has been designed to align with the policy objectives of the *Galway County Development Plan*, supporting a sustainable and efficient approach to stormwater management. by



integrating best-practice Sustainable Drainage Systems (SuDS) to manage surface water runoff, improve water quality, and reduce the impact on existing drainage infrastructure.

Proposed Surface Water Drainage Strategy

The site measures approximately 1.5 hectares, and the surface water drainage system has been designed to manage stormwater efficiently while preserving the site's natural characteristics. A hybrid approach incorporating both traditional infrastructure and SuDS features is proposed to manage runoff rates and enhance infiltration.

There is no readily available surface water network or drain to discharge the runoff from this site so natural filtration in accordance with good practice through the soils is proposed.

The surface water drainage system for the proposed development has been prepared in accordance with national and local standards, and best practice guidance. The following documents have been used to inform the design intent:

- Local Authority drainage design and development plan policies.
- BS EN 752 – *Drain and Sewer Systems Outside Buildings*, for general design principles and hydraulic performance targets
- Greater Dublin Regional Code of Practice GDRCP which outlines stormwater design standards for Irish residential developments.
- Greater Dublin Strategic Drainage Study (GDSDS). Technical Document on New Developments.
- BS EN 858-2 – *Separator Systems for Light Liquids*, ensuring oil interceptors are properly designed for environmental protection.
- The SuDS Manual (CIRIA C753).

Design Performance Objectives

The surface water system has been prepared to meet the following minimum performance criteria:

- No surcharging of the pipe network shall occur during storm events with a return period of 1 in 5 years (20% AEP).
- No flooding anywhere on site, except where specifically designed and approved for exceedance events (e.g. detention basins or swales), shall occur during the 1 in 30-year (3.33% AEP) rainfall event.
- No internal property flooding shall occur during storms with a return period of 1 in 100 years (1% AEP).



Hydraulic Design Parameters

The design has been carried out using the following technical standards and input data:

- Pipe velocities: Minimum 1.0 m/s, maximum 3.0 m/s (self-cleansing criteria).
- Colebrook-White roughness value: $k = 0.6$ mm.
- Runoff Method: Time of Concentration of 5 minutes with a Volumetric Runoff Coefficient of 0.75 for Summer and 0.840 for Winter with 100% Impervious surfaces for Roads, Roofs, Parking etc.
- Time of entry: 5 minutes for Impervious Surfaces, representing average inlet delay.
- Rainfall data source: Rainfall parameters can be estimated using the Met Éireann long-term data or using the Flood Studies Report (FSR). The FSR library data contained within the Info Drainage software is used as follows;
 - o M5-60 rainfall intensity = 15.4mm
 - o Rainfall ratio (r) = 0.3
- Design return periods:
 - o 30-year + CC 20% for pipe Sizing (normally taken as 5-year)
 - o 30-year +CC 20% for overland and site-wide flooding checks
 - o 100-year +CC 20% for site wide property flood check
- Climate change allowance: 20% increase in rainfall intensity has been adopted even though 10% is required in the GDSDS.
- Percolation Factor of Safety: A factor of Safety of 2.0 has been adopted in the design for reduced infiltration rate of the soil to account for silting up or poor maintenance. While this is normally a UK requirement nevertheless it has been adopted here as part of this analysis.

Water Treatment and Drainage System

The proposed water treatment and drainage system integrates conventional infrastructure with Sustainable Drainage Systems (SuDS) to ensure effective management of surface water across the site. The system is designed to capture, treat, and manage runoff in a way that reduces environmental impact and promotes sustainability.

This is achieved with reference to the findings of the Geotechnical Site Investigation, which informed the subdivision of the site into a number of surface water sub-



catchments, each with its own soakaway and localised water treatment capability. Dividing the site into drainage sub-catchments is a logical and effective approach given the development layout, variation in surface types, and site-specific conditions. This strategy supports better management of flow rates, reduces water depths, and allows for treatment systems to be proportionate to the pollution risk of each area; such as enhanced treatment at the fuel forecourt and more basic measures in landscaped zones. It also enables easier isolation of accidental spills or drainage failures, limiting their impact to a confined area.

Silt trap gullies are also proposed to be strategically placed to capture sediment and debris before runoff enters the main drainage network. Following this, oil and grit interceptors will separate hydrocarbons and finer particles, reducing the risk of pollution from reaching the soakaway system. The treated water will then pass through stages of filtration, adsorption, biodegradation, and microbial breakdown within the soakaway, ensuring high-quality water is returned to the ground. This process will reduce the risk of flooding, improve water quality, and support local groundwater recharge. The following outlines the various stages of treatment and the associated processes within the system.

Silt Trap Gullies

Surface water runoff from hardstanding areas, including the fuel forecourt and car parks, will initially be directed through silt trap gullies. These gullies are designed to intercept and retain coarse solids, litter, and debris carried by runoff. By reducing the sediment load early in the system, they protect downstream infrastructure and maintain the efficiency of subsequent treatment processes.

Oil & Grit Interceptors

Refuelling areas are considered high-risk from a pollution perspective. As such, they are constructed with an impermeable surface (RC Concrete) fully surrounded by a linear ACO drain. Surface water runoff is collected and directed through silt traps before passing into a full retention Class I oil and grit interceptor.

This system is essential in forecourt settings, where the risk of hydrocarbon contamination is elevated due to fuel dispensing and vehicle movements. The interceptor effectively separates oil, fuel residues, and fine sediments, preventing these pollutants from reaching the soakaway or infiltrating the ground.





In contrast, lower-risk areas such as car parks are proposed to be served with bypass oil and grit interceptors. Large Silt trap gullies, specifically for Carwash areas are also proposed at the proposed car wash facility even though the dirty water from this service is discharged to foul sewer.

Sediment Removal

Together, the silt traps and interceptor form an effective sediment removal system. These components capture both coarse and fine particulate matter, reducing turbidity in the runoff. Controlling sediment at this stage also limits the accumulation of material in the soakaway, preserving its infiltration capacity over time.

Hydrocarbon Separation

Hydrocarbons and light oils are separated within the interceptor through a process of gravity separation. The lighter substances float to the surface and are retained within the chamber, while treated water is discharged at a lower level. This step ensures that any accidental fuel spills or drips are effectively contained, in line with best practice for fuel-handling sites.

Filtration

Once the pre-treated water reaches the soakaway, it undergoes further filtration as it percolates through the gravel media and surrounding soil. This natural filtration mechanism removes residual suspended solids and fine particles. It also slows the passage of water, supporting gradual infiltration and reducing the risk of surface flooding during rainfall events.

Adsorption

The soil and granular materials within the soakaway provide adsorption capacity for dissolved pollutants, such as heavy metals, nutrients, and hydrocarbons. These substances adhere to the surfaces of soil particles and are immobilised, reducing their potential to migrate into the groundwater. Adsorption adds a valuable chemical treatment function to the overall drainage design.

Biodegradation

Organic contaminants that remain in the runoff are broken down through biological activity within the soil. Naturally occurring bacteria and other microorganisms degrade hydrocarbons and other organic compounds, converting them into simpler, less harmful substances. This process occurs continuously in the subsurface environment, enhancing long-term water quality.

Microbial Breakdown

In addition to biodegradation, microbial breakdown within the soakaway plays a key role in pollutant reduction. Microbes in the soil actively metabolise residual contaminants, including trace oils and organic waste. This biological process contributes significantly to



the purification of runoff and supports the overall function of the system as a sustainable drainage solution.

Infiltration

Treated water is gradually absorbed into the ground through the base and sides of the soakaway structure. This infiltration process mimics the natural hydrological cycle, helping to reduce surface water runoff rates. It also provides attenuation during peak rainfall events, alleviating pressure on downstream drainage systems.

Groundwater Recharge

As water infiltrates, it contributes to the replenishment of underlying groundwater reserves. This natural recharge supports local aquifers and promotes sustainable water management. Incorporating recharge as part of the drainage strategy aligns with environmental best practices and national guidance on sustainable development.

Sustainable Urban Drainage Systems

NB-SUDS – Pedestrian Routes, Amenity Areas, Paths etc. (Filtration & Treatment through Sub-base and Rain Gardens)

Some of the pedestrian routes, patio areas, paths, etc., will consist of impermeable surfaces. All such surfaces will adopt a Nature-Based Sustainable Drainage solution as runoff into a rain garden or landscape green. Both methods are a source control Sustainable Urban Drainage System.



Example of Urban Rain Garden extract from NBS Best Practice Guidance Document (Government of Ireland Publication)



The above image is extracted from the publication titled '*Nature-Based Solutions to the Management of Rainwater and Surface Water Runoff in Urban Areas.*' Such nature-based solutions will be adopted in this development and will be used to drain some of the impermeable surface areas.

NB-SUDS – Rain Garden

The utilisation of the proposed rain gardens as a Nature-Based Sustainable Urban Drainage System (NB-SUDS) offers numerous benefits. Not only does it slow the rate of discharge and improve water quality, but it also promotes biodiversity and provides year-round seasonal interest and green spaces for recreational activities within the development. This site will be enhanced, landscaped, and planted with vegetation that can withstand occasional temporary inundation, serving as an attractive feature in the landscape. As a natural SuDS feature, the rain garden will facilitate filtration through the vegetation and soil media, contributing to improved water quality. The green areas will also promote natural percolation of surface water runoff, similar to pre-development conditions. The internal access roads within the development can discharge into the Rain Gardens.

SUDS – Soakaways

The proposed soakaways are a sustainable drainage system designed to effectively manage surface water runoff from hard surface areas. The soakaways consist of a zone with natural permeable materials (e.g., clean stone with min. 30% voids) surrounded with a geotextile. When water flows into the soakaway, it is stored in the voids where impurities biodegrade and water quality is improved before infiltrating into the ground, reducing the risk of surface flooding and helping to recharge groundwater supplies.

The soakaway aid groundwater recharge, mitigate pollution, and enhance water quality before it percolates and discharges. As a low-impact development solution, the proposed soakaways integrate sustainable drainage practices into urban planning, reducing environmental impacts while bolstering resilience to climate-related challenges.

The soakaway design is based on a minimum of 30% voids using clean, clear stone. As is normal good practice, it is recommended that, during construction, an assessment is carried out to confirm that the actual ground conditions across the full extent of the soakaway align with the soil description and percolation rate detailed in the Site Investigation and quoted as part of this report. If discrepancies are found, it may be necessary to increase the void ratio/size of the soakaway etc. accordingly.

Maintenance Requirements

Regular inspection and periodic jet-washing of silt trap gullies and drains will be required to prevent clogging. As is normal practice, the proposed interceptors will be subject to scheduled maintenance to remove accumulated grease, oils and grit, to maintain long-term system performance throughout.



Uisce Éireann Confirmation - Foul & Water connection can be Facilitated

On the 19th of May 2025, Uisce Éireann confirmed that both water and wastewater connections for the proposed development were feasible and provided a description of the necessary upgrades to the existing infrastructure. A copy of the of said letter is included in Appendix 1 of this report.

Proposed Foul Sewer Drainage Strategy

A dedicated foul sewer network is proposed to collect wastewater from the development and direct it via gravity to an on-site pumping chamber, which includes 24-hour emergency storage capacity. The pumping station will be equipped with twin pumps arranged in a duty/standby configuration to ensure operational reliability. A weatherproof control kiosk/building (or similar) will be provided adjacent to the chamber to house the electrical controls, telemetry systems, and alarm notifications for pump failure or high-level conditions. The pumping station compound will be securely fenced and accessible for maintenance vehicles.

From the pumping chamber, wastewater is to be pumped to a public manhole located to the South of the site. The location and connection into the Uisce Éireann foul sewer network will be agreed in consultation with Uisce Éireann and carried out in accordance with their requirements.

Grease interceptors are to be installed at all kitchen and food preparation areas within the development. These units will trap fats, oils, and grease (FOG) produced during cooking operations, preventing them from entering the foul drainage system. The interceptors will be appropriately sized based on the kitchen capacity and located to allow for easy access and regular maintenance, helping to avoid blockages and protect the efficiency of the system.

The overall foul drainage infrastructure is to be designed in line with the Building Regulations and Uisce Éireann's Code of Practice. Appropriate pipeline gradients, minimum cover levels, and standard access chamber spacing will be incorporated. Manholes and inspection points will be included throughout the network to facilitate maintenance, cleaning, and system monitoring.

Water Supply

The proposed development will be served by a new potable water supply network, connected to the existing Uisce Éireann infrastructure located along the main R458 Road. The development will be provided with an individual metered connection to ensure accurate monitoring and management of water usage. Adequate pipeline sizing and pressure management measures will be incorporated to ensure a consistent and sufficient water supply throughout the development. Additionally, the development will include 24-



hour water storage capacity to support continuous supply during peak demand or supply interruptions.

Fire hydrants will be installed in strategic locations across the site, in compliance with safety regulations and emergency response requirements, subject to the approval of the Fire Safety Cert. The provision of firefighting water for this development is not part of this application and will be subject to further assessment and agreement during the detailed design stage to ensure it meets all necessary fire safety standards. Nevertheless, the layout plans include an area for firefighting water tanks.

Conclusion

The drainage and water supply strategy outlined in this report has been developed to ensure a coordinated, sustainable, and fully compliant approach to servicing the proposed Off-Line Service Area in Gort, Co. Galway. The design integrates traditional engineering infrastructure with Nature-Based and Sustainable Urban Drainage Systems (SuDS), enabling the site to effectively manage surface water runoff while enhancing water quality and supporting long-term resilience. Through the use of silt trap gullies, full retention oil and grit interceptors, soakaways, and rain gardens, the system captures, treats, and gradually infiltrates stormwater on site. This reduces discharge volumes, protects water quality, and promotes the recharge of local groundwater in line with best practice and CIRIA SuDS Manual (C753) guidance. The use of a hybrid drainage strategy also allows for the preservation of the site's natural hydrology and minimises the impact on surrounding drainage infrastructure.

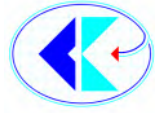
Foul drainage for the development is addressed through the provision of a dedicated gravity network discharging to a purpose-designed pumping chamber with 24-hour emergency storage. The pumping station will be supported by duty/standby pumps and a control kiosk containing alarms and telemetry to ensure robust operational management. Wastewater will ultimately discharge to an agreed Uisce Éireann manhole on the main road to the south of the site. Kitchen areas will be equipped with grease interceptors to prevent fats, oils, and grease from entering the foul system, thereby protecting the network's functionality. All elements of the foul drainage design are to be delivered in line with Building Regulations and Uisce Éireann's Code of Practice, ensuring appropriate gradients, cover depths, and access for maintenance.

The proposed potable water supply will connect to existing infrastructure along the R458 and will provide a reliable metered supply to the development, supported by 24-hour water storage for operational resilience. Hydrants will be installed in accordance with fire safety standards, subject to fire authority approval at the Fire Safety Certificate stage. The firefighting water requirements, including the need for on-site provision or reliance on the hydrant network, will be assessed as part of the Fire Cert application. If necessary, provision for firefighting water storage and associated infrastructure will be incorporated into the development at detailed design stage by others.

The full strategy is informed by a detailed Hydrology Assessment and Geotechnical Site Investigation, helping to achieve that the drainage design responds directly to the specific



ground conditions of the site and the design performance objectives. Overall, the approach taken reflects a balance between technical compliance, environmental responsibility and operational reliability. This drainage report forms a core part of the planning submission and should be reviewed in conjunction with architectural, landscape, and engineering documentation to provide a comprehensive understanding of the proposed development.



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Appendix 1 Uisce Eireann Confirmation that a connection can be Facilitated

CONFIRMATION OF FEASIBILITY

Brian Coyle & Alan Clancy

GFSC
Moneenageisha Road
Co. Galway
H91P48P

19 May 2025

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

**Our Ref: CDS25002471 Pre-Connection Enquiry
Green Field Site, Glenbrack, Gort, Glaway**

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 Business Connection of 1 unit(s) at Green Field Site, Glenbrack, Gort, Glaway, (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
 - The current 80mm uPVC mains lack the necessary capacity to satisfy the requirements of the development. Approximately 660 meters of the existing 80mm uPVC mains to be upgraded to a 100 mm ID main. There is no extra capacity available to meet fire demand; it is advisable to utilize an on-site storage tank with a 12-hour refill times
- **Wastewater Connection**
 - Feasible without infrastructure upgrade by Uisce Éireann
 - Based on a high level hydraulic review an upgrade of existing infrastructure may be required to facilitate development connection. Approximately 22m of 225mm

Stiúrtóirí / 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.

wastewater sewer on Crowe St between SMH0015129 and SMH0015128 may need to be upsized to a 300mm sewer. Applicant to carry out CCTV survey of this sewer and sewers upstream and downstream to confirm sizes at connection application stage. On site storage at development may also be required to reduce flow to network.

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

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

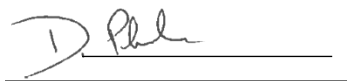
Where can you find more information?

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

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

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

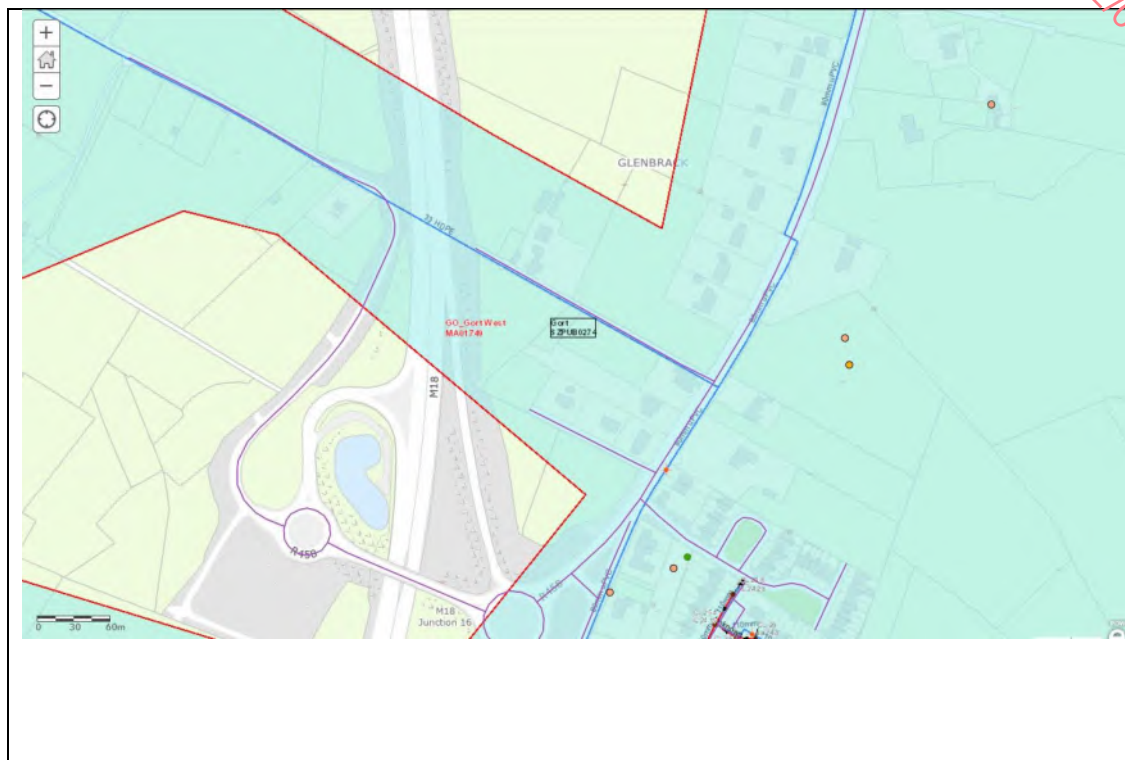
Yours sincerely,



Dermot Phelan
Connections Delivery Manager

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

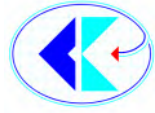
The map included below outlines the current Uisce Éireann infrastructure adjacent the Development: To access Uisce Éireann Maps email datarequests@water.ie



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

Note: The information provided on the included maps as to the position of Uisce Éireann’s underground network(s) is provided as a general guide only. The information is based on the best available information provided by each Local Authority in Ireland to Uisce Éireann.

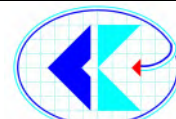
Whilst every care has been taken in respect of the information on Uisce Éireann’s network(s), Uisce Éireann assumes no responsibility for and gives no guarantees, undertakings or warranties concerning the accuracy, completeness or up to date nature of the information provided, nor does it accept any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



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Appendix 2 Rainfall Analysis Simulation

Proposed Off Line Service Area: at Gort CO. GALWAY	Date: 01/07/2025		
	Designed by: AC	Checked by: BC	Approved By:
Report Details: Type: Stormwater Controls Storm Phase: Phase	COYLEKENNEDY CONSULTING ENGINEERS: GFSC MONEENAGEISHA ROAD, GALWAY		



COYLE KENNEDY
Consulting Engineers



Soakaway 1

Type: Infiltration Trench

Dimensions

Exceedance Elevation (m)	24.700
Depth (m)	1.850
Base Elevation (m)	22.850
Freeboard (mm)	300
Porosity (%)	30
Length (m)	7.000
Long. Slope (1:x)	500.00
Width (m)	75.000
Total Volume (m³)	244.125

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	S3.002
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (2)

Inlet Type	Point Inflow
Incoming Item(s)	S1.003
Bypass Destination	(None)
Capacity Type	No Restriction

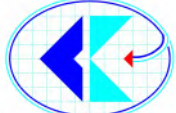
Inlet (1)

Inlet Type	Point Inflow
Incoming Item(s)	S4.002
Bypass Destination	(None)
Capacity Type	No Restriction

Advanced

Side Infiltration Rate (m/hr)	0.0612
Safety Factor	2.0
Conductivity (m/hr)	500.0

Proposed Off Line Service Area: at Gort CO. GALWAY	Date: 01/07/2025		
	Designed by: AC	Checked by: BC	Approved By:
Report Details: Type: Stormwater Controls Storm Phase: Phase	COYLEKENNEDY CONSULTING ENGINEERS: GFSC MONEENAGEISHA ROAD, GALWAY		


COYLE KENNEDY
 Consulting Engineers



Soakaway 3

Type: Infiltration Trench

Dimensions

Exceedance Elevation (m)	25.000
Depth (m)	2.600
Base Elevation (m)	22.400
Freeboard (mm)	300
Porosity (%)	30
Length (m)	3.000
Long. Slope (1:x)	500.00
Width (m)	35.000
Total Volume (m³)	72.450

Inlets

Inlet (3)

Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area (14)
Bypass Destination	(None)
Capacity Type	No Restriction

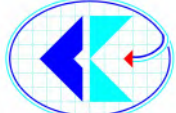
Inlet (4)

Inlet Type	Point Inflow
Incoming Item(s)	S6.001
Bypass Destination	(None)
Capacity Type	No Restriction

Advanced

Side Infiltration Rate (m/hr)	0.043
Safety Factor	2.0
Conductivity (m/hr)	500.0

Proposed Off Line Service Area: at Gort CO. GALWAY	Date: 01/07/2025		
	Designed by: AC	Checked by: BC	Approved By:
Report Details: Type: Stormwater Controls Storm Phase: Phase	COYLEKENNEDY CONSULTING ENGINEERS: GFSC MONEENAGEISHA ROAD, GALWAY		


COYLE KENNEDY
 Consulting Engineers



Soakaway 4

Type: Infiltration Trench

Dimensions

Exceedance Elevation (m)	25.000
Depth (m)	2.700
Base Elevation (m)	22.300
Freeboard (mm)	300
Porosity (%)	30
Length (m)	12.000
Long. Slope (1:x)	5000.00
Width (m)	12.000
Total Volume (m³)	103.680

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	S8.001
Bypass Destination	(None)
Capacity Type	No Restriction

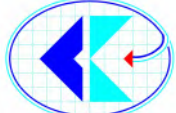
Inlet (1)

Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area (19)
Bypass Destination	(None)
Capacity Type	No Restriction

Advanced

Side Infiltration Rate (m/hr)	0.043
Safety Factor	2.0
Conductivity (m/hr)	500.0

Proposed Off Line Service Area: at Gort CO. GALWAY	Date: 01/07/2025		
	Designed by: AC	Checked by: BC	Approved By:
Report Details: Type: Stormwater Controls Storm Phase: Phase	COYLEKENNEDY CONSULTING ENGINEERS: GFSC MONEENAGEISHA ROAD, GALWAY		


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 Consulting Engineers



Soakaway 2

Type: Infiltration Trench

Dimensions

Exceedance Elevation (m)	24.900
Depth (m)	1.700
Base Elevation (m)	23.200
Freeboard (mm)	200
Porosity (%)	30
Length (m)	6.000
Long. Slope (1:x)	2000.00
Width (m)	4.000
Total Volume (m³)	10.800

Inlets

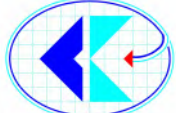
Inlet (2)

Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area (24)
Bypass Destination	(None)
Capacity Type	No Restriction

Advanced

Side Infiltration Rate (m/hr)	0.007
Safety Factor	2.0
Conductivity (m/hr)	500.0

Proposed Off Line Service Area: at Gort CO. GALWAY	Date: 01/07/2025		
	Designed by: AC	Checked by: BC	Approved By:
Report Details: Type: Stormwater Controls Storm Phase: Phase	COYLEKENNEDY CONSULTING ENGINEERS: GFSC MONEENAGEISHA ROAD, GALWAY		


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Soakaway 5

Type: Infiltration Trench

Dimensions

Exceedance Elevation (m)	25.000
Depth (m)	2.700
Base Elevation (m)	22.300
Freeboard (mm)	300
Porosity (%)	30
Length (m)	5.000
Long. Slope (1:x)	2000.00
Width (m)	28.000
Total Volume (m³)	100.800

Inlets

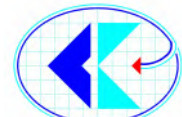
Inlet

Inlet Type	Point Inflow
Incoming Item(s)	S12.003
Bypass Destination	(None)
Capacity Type	No Restriction

Advanced

Side Infiltration Rate (m/hr)	0.043
Safety Factor	2.0
Conductivity (m/hr)	500.0

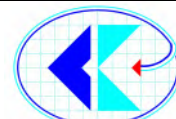
Proposed Off Line Service Area: at Gort CO. GALWAY	Date: 01/07/2025		
	Designed by: AC	Checked by: BC	Approved By:
Report Details: Type: Connections Storm Phase: Phase	COYLEKENNEDY CONSULTING ENGINEERS: GFSC MONEENAGEISHA ROAD, GALWAY		



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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)
S3.000	21.383	Pipe	51.526		0.6	150	25.650	24.450
S3.001	18.231	Pipe	98.546		0.6	225	25.600	24.035
S3.002	8.389	Pipe	150.000		0.6	225	25.500	23.850
S1.001	30.692	Pipe	99.972		0.6	225	25.900	24.250
S1.002	7.017	Pipe	107.949		0.6	225	25.900	23.943
S2.000	16.410	Pipe	34.768		0.6	150	25.700	24.350
S1.003	15.075	Pipe	98.854		0.6	225	25.850	23.878
S9.001	18.529	Pipe	149.393		0.6	225	25.150	23.624
S8.001	8.853	Pipe	150.000		0.6	225	25.100	23.500
S13.000	21.294	Pipe	125.000		0.6	225	25.800	24.350
S12.002	19.788	Pipe	97.232		0.6	150	25.500	23.800
S12.003	5.000	Pipe	121.940		0.6	225	25.500	23.596
S10.000	16.359	Pipe	65.436		0.6	150	25.500	24.050
S9.000	20.097	Pipe	47.180		0.6	150	25.500	24.050
S13.002	20.383	Pipe	150.000		0.6	225	25.600	23.732
S13.001	22.152	Pipe	150.000		0.6	225	25.750	24.180
S5.000	30.808	Pipe	30.808		0.6	150	26.800	25.450
S5.001	21.356	Pipe	106.782		0.6	150	25.800	24.450
S5.002	32.967	Pipe	32.933		0.6	150	25.600	24.250
S4.001	35.105	Pipe	100.000		0.6	150	25.000	23.600
S4.002	4.699	Pipe	150.000		0.6	225	25.330	23.250
S7.000	16.637	Pipe	66.549		0.6	150	25.600	24.350
S6.001	4.698	Pipe	100.000		0.6	225	25.500	23.800
S7.001	18.842	Pipe	62.807		0.6	225	25.550	24.100
S6.000	20.295	Pipe	101.474		0.6	150	25.450	24.000
S10.001	17.331	Pipe	98.486		0.6	150	25.250	23.800
S1.000	15.777	Pipe	78.886		0.6	150	25.800	24.450
S8.000	13.300	Pipe	98.522		0.6	150	25.000	23.635
S4.000	16.009	Pipe	100.054		0.6	150	25.000	23.760
S12.000	13.035	Pipe	100.000		0.6	150	25.500	24.150
S12.001	5.005	Pipe	100.000		0.6	150	25.400	23.850
S11.000	11.090	Pipe	63.020		0.6	150	25.150	23.800

Proposed Off Line Service Area: at Gort CO. GALWAY	Date: 01/07/2025		
	Designed by: AC	Checked by: BC	Approved By:
Report Details: Type: Connections Storm Phase: Phase	COYLEKENNEDY CONSULTING ENGINEERS: GFSC MONEENAGEISHA ROAD, GALWAY		

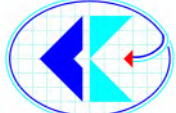


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Name	Downstream Cover Elevation (m)	Downstream Invert Elevation (m)	Lock	Min. Cover Depth (m)	Culvert Type	Culvert Entrance
S3.000	25.600	24.035	None	0.000	(None)	(None)
S3.001	25.500	23.850	None	0.000	(None)	(None)
S3.002	24.714	23.794	Elevations	0.000	(None)	(None)
S1.001	25.900	23.943	None	0.000	(None)	(None)
S1.002	25.850	23.878	None	0.000	(None)	(None)
S2.000	25.850	23.878	None	0.000	(None)	(None)
S1.003	24.714	23.725	Elevations	0.000	(None)	(None)
S9.001	25.100	23.500	None	0.000	(None)	(None)
S8.001	25.002	23.441	Elevations	0.000	(None)	(None)
S13.000	25.750	24.180	None	0.000	(None)	(None)
S12.002	25.500	23.596	None	0.000	(None)	(None)
S12.003	25.003	23.555	Elevations	0.000	(None)	(None)
S10.000	25.250	23.800	None	0.000	(None)	(None)
S9.000	25.150	23.624	None	0.000	(None)	(None)
S13.002	25.500	23.596	None	0.000	(None)	(None)
S13.001	25.600	24.032	None	0.000	(None)	(None)
S5.000	25.800	24.450	None	0.000	(None)	(None)
S5.001	25.600	24.250	None	0.000	(None)	(None)
S5.002	25.330	23.249	None	0.000	(None)	(None)
S4.001	25.330	23.249	None	0.000	(None)	(None)
S4.002	24.714	23.219	Elevations	0.000	(None)	(None)
S7.000	25.550	24.100	None	0.000	(None)	(None)
S6.001	25.006	23.753	Elevations	0.000	(None)	(None)
S7.001	25.500	23.800	None	0.000	(None)	(None)
S6.000	25.500	23.800	None	0.000	(None)	(None)
S10.001	25.150	23.624	None	0.000	(None)	(None)
S1.000	25.900	24.250	None	0.000	(None)	(None)
S8.000	25.100	23.500	None	0.000	(None)	(None)
S4.000	25.000	23.600	None	0.000	(None)	(None)
S12.000	25.400	24.020	None	0.000	(None)	(None)
S12.001	25.500	23.800	None	0.000	(None)	(None)
S11.000	25.150	23.624	None	0.000	(None)	(None)

RECEIVED: 22/07/2025

Proposed Off Line Service Area: at Gort CO. GALWAY	Date: 01/07/2025		
	Designed by: AC	Checked by: BC	Approved By:
Report Details: Type: Network Design Criteria Storm Phase: Phase	COYLEKENNEDY CONSULTING ENGINEERS: GFSC MONEENAGEISHA ROAD, GALWAY		


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Flow Options

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

FSR

Type: FSR

Return Period (years)	30.0
Region	Scotland and Ireland
M5-60 (mm)	15.4
Ratio R	0.300

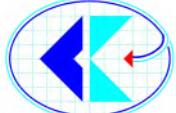
Pipe Options

Lock Slope Options	None
Design Options	Minimize Excavation
Design Level	Level Crowns
Min. Slope (1:x)	500.00
Max. Slope (1:x)	40.00
Min. Velocity (m/s)	1.0
Max. Velocity (m/s)	3.0
Use Flow Restriction	☐
Reduce Channel Depths	☐

Manhole Options

Apply Offset	☐
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Proposed Off Line Service Area: at Gort CO. GALWAY	Date: 01/07/2025		
	Designed by: AC	Checked by: BC	Approved By:
Report Title: Rainfall Analysis Criteria	COYLEKENNEDY CONSULTING ENGINEERS: GFSC MONEENAGEISHA ROAD, GALWAY		


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RECEIVED: 22/07/2025

Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Default
Urban Creep	Use Catchment Values
Junction Flood Risk Margin (mm)	300
Perform No Discharge Analysis	☒
Rainfall Depth (mm)	5.0
Run Time (mins)	1440

Rainfall

FSR	Type: FSR
-----	-----------

Region	Scotland and Ireland
M5-60 (mm)	15.4
Ratio R	0.300
Summer	☒
Winter	☒

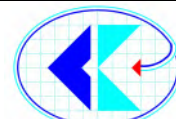
Return Period

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

Storm Durations

Duration (mins)	Run Time (mins)
15	30
30	60
60	120
120	240
180	360
240	480
360	720
480	960
600	1200
720	1440
960	1920
1440	2880
2160	4320
2880	5760
4320	8640
5760	11520
7200	14400
8640	17280
10080	20160

Proposed Off Line Service Area: at Gort CO. GALWAY	Date: 01/07/2025		
	Designed by: AC	Checked by: BC	Approved By:
Report Details: Type: Junctions Summary Storm Phase: Phase	COYLEKENNEDY CONSULTING ENGINEERS: GFSC MONEENAGEISHA ROAD, GALWAY		

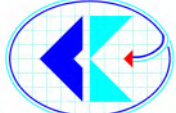


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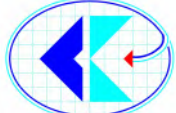
FSR: 30 years: Increase Rainfall (%): +20: Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Elevati on (m)	Invert Elevati on (m)	Max. Elevati on (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
S6	FSR: 30 years: +20 %: 15 mins: Winter	25.65 0	24.45 0	24.527	0.077	13.0	0.087	0.000	12.7	6.012	OK
S7	FSR: 30 years: +20 %: 15 mins: Winter	25.60 0	24.03 5	24.142	0.107	24.8	0.121	0.000	24.1	11.628	OK
S8	FSR: 30 years: +20 %: 15 mins: Winter	25.50 0	23.85 0	24.047	0.197	41.3	0.223	0.000	39.3	19.569	OK
S18	FSR: 30 years: +20 %: 1440 mins: Winter	25.55 0	24.10 0	24.231	0.131	1.7	0.148	0.000	1.7	57.576	OK
S16	FSR: 30 years: +20 %: 1440 mins: Winter	25.50 0	23.80 0	24.231	0.431	2.6	0.487	0.000	2.6	87.990	Surcharged
S15	FSR: 30 years: +20 %: 1440 mins: Winter	25.45 0	24.00 0	24.231	0.231	0.4	0.261	0.000	0.4	12.958	Surcharged
S2	FSR: 30 years: +20 %: 15 mins: Winter	25.90 0	24.25 0	24.336	0.086	16.8	0.097	0.000	16.1	7.849	OK
S3	FSR: 30 years: +20 %: 15 mins: Winter	25.90 0	23.94 3	24.076	0.133	25.6	0.151	0.000	24.3	12.244	OK
S4	FSR: 30 years: +20 %: 2160 mins: Winter	25.85 0	23.87 8	24.043	0.165	1.7	0.186	0.000	1.7	84.471	OK
S5	FSR: 30 years: +20 %: 15 mins: Winter	25.70 0	24.35 0	24.403	0.053	8.5	0.060	0.000	8.3	3.926	OK
S22	FSR: 30 years: +20 %: 2880 mins: Winter	25.15 0	23.62 4	24.146	0.522	1.6	0.590	0.000	1.6	111.109	Surcharged
S20	FSR: 30 years: +20 %: 2880 mins: Winter	25.10 0	23.50 0	24.146	0.646	1.9	0.730	0.000	1.9	127.736	Surcharged
S24	FSR: 30 years: +20 %: 2880 mins: Winter	25.25 0	23.80 0	24.146	0.346	0.7	0.391	0.000	0.7	44.967	Surcharged
S21	FSR: 30 years: +20 %: 2880 mins: Winter	25.50 0	24.05 0	24.146	0.096	0.3	0.108	0.000	0.3	20.836	OK
S23	FSR: 30 years: +20 %: 2880 mins: Winter	25.50 0	24.05 0	24.146	0.096	0.3	0.108	0.000	0.3	19.485	OK
S10	FSR: 30 years: +20 %: 2160 mins: Winter	25.00 0	23.60 0	24.043	0.443	0.5	0.501	0.000	0.5	24.775	Surcharged
S30	FSR: 30 years: +20 %: 15 mins: Winter	25.80 0	24.35 0	24.462	0.112	21.1	0.127	0.000	20.5	9.779	OK
S31	FSR: 30 years: +20 %: 15 mins: Winter	25.75 0	24.18 0	24.292	0.112	20.5	0.127	0.000	18.9	9.756	OK
S32	FSR: 30 years: +20 %: 2160 mins: Winter	25.60 0	23.73 2	24.195	0.462	1.0	0.523	0.000	1.0	50.832	Surcharged
S26	FSR: 30 years: +20 %: 2160 mins: Winter	25.50 0	24.15 0	24.194	0.044	0.1	0.050	0.000	0.1	6.160	OK
S28	FSR: 30 years: +20 %: 2160 mins: Winter	25.50 0	23.80 0	24.194	0.394	0.4	0.446	0.000	0.4	17.971	Surcharged
S29	FSR: 30 years: +20 %: 2160 mins: Winter	25.50 0	23.59 6	24.195	0.598	2.5	0.677	0.000	2.6	128.295	Surcharged
S12	FSR: 30 years: +20 %: 15 mins: Winter	26.80 0	25.45 0	25.498	0.048	7.3	0.054	0.000	7.1	3.372	OK

Proposed Off Line Service Area: at Gort CO. GALWAY		Date: 01/07/2025		 COYLE KENNEDY Consulting Engineers	
Report Details: Type: Junctions Summary Storm Phase: Phase		Designed by: AC	Checked by: BC		
		COYLEKENNEDY CONSULTING ENGINEERS: GFSC MONEENAGEISHA ROAD, GALWAY			

S13	FSR: 30 years: +20 %: 15 mins: Winter	25.80 0	24.45 0	24.516	0.066	7.1	0.074	0.000	6.5	3.357	OK
S14	FSR: 30 years: +20 %: 15 mins: Winter	25.60 0	24.25 0	24.332	0.082	18.8	0.093	0.000	18.1	9.012	OK
S11	FSR: 30 years: +20 %: 2160 mins: Winter	25.33 0	23.24 9	24.043	0.794	2.0	0.898	0.000	2.0	104.249	Surcharged
S17	FSR: 30 years: +20 %: 15 mins: Winter	25.60 0	24.35 0	24.413	0.063	8.2	0.072	0.000	8.0	3.814	OK
S1	FSR: 30 years: +20 %: 15 mins: Winter	25.80 0	24.45 0	24.511	0.061	6.9	0.069	0.000	6.7	3.214	OK
S19	FSR: 30 years: +20 %: 2880 mins: Winter	25.00 0	23.63 5	24.146	0.511	0.1	0.577	0.000	0.0	0.755	Surcharged
S9	FSR: 30 years: +20 %: 2160 mins: Winter	25.00 0	23.76 0	24.043	0.283	0.1	0.320	0.000	0.0	0.435	Surcharged
S27	FSR: 30 years: +20 %: 2160 mins: Winter	25.40 0	23.85 0	24.194	0.344	0.1	0.390	0.000	0.1	6.173	Surcharged
S25	FSR: 30 years: +20 %: 2880 mins: Winter	25.15 0	23.80 0	24.146	0.346	0.0	0.391	0.000	0.0	0.504	Surcharged

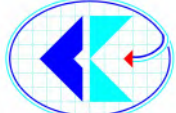
Proposed Off Line Service Area: at Gort CO. GALWAY	Date: 01/07/2025		
	Designed by: AC	Checked by: BC	Approved By:
Report Details: Type: Junctions Summary Storm Phase: Phase	COYLEKENNEDY CONSULTING ENGINEERS: GFSC MONEENAGEISHA ROAD, GALWAY		


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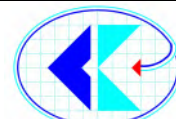
FSR: 100 years: Increase Rainfall (%): +20: Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Elevati on (m)	Invert Elevati on (m)	Max. Elevati on (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
S6	FSR: 100 years: +20 %: 15 mins: Winter	25.65 0	24.45 0	24.541	0.091	16.8	0.103	0.000	16.4	7.789	OK
S7	FSR: 100 years: +20 %: 2160 mins: Winter	25.60 0	24.03 5	24.307	0.272	1.5	0.308	0.000	1.5	74.932	Surcharged
S8	FSR: 100 years: +20 %: 2160 mins: Winter	25.50 0	23.85 0	24.307	0.457	2.5	0.517	0.000	2.5	126.321	Surcharged
S18	FSR: 100 years: +20 %: 1440 mins: Winter	25.55 0	24.10 0	24.638	0.538	2.1	0.608	0.000	2.1	71.383	Surcharged
S16	FSR: 100 years: +20 %: 1440 mins: Winter	25.50 0	23.80 0	24.638	0.838	3.2	0.947	0.000	3.2	108.262	Surcharged
S15	FSR: 100 years: +20 %: 1440 mins: Winter	25.45 0	24.00 0	24.638	0.638	0.5	0.721	0.000	0.5	16.024	Surcharged
S2	FSR: 100 years: +20 %: 15 mins: Winter	25.90 0	24.25 0	24.349	0.099	21.7	0.112	0.000	20.9	10.160	OK
S3	FSR: 100 years: +20 %: 2160 mins: Winter	25.90 0	23.94 3	24.307	0.364	1.5	0.412	0.000	1.5	79.088	Surcharged
S4	FSR: 100 years: +20 %: 2160 mins: Winter	25.85 0	23.87 8	24.307	0.429	2.0	0.485	0.000	2.0	104.607	Surcharged
S5	FSR: 100 years: +20 %: 15 mins: Winter	25.70 0	24.35 0	24.411	0.061	11.0	0.069	0.000	10.8	5.086	OK
S22	FSR: 100 years: +20 %: 2880 mins: Winter	25.15 0	23.62 4	24.527	0.903	2.0	1.021	0.000	1.9	136.738	Surcharged
S20	FSR: 100 years: +20 %: 2880 mins: Winter	25.10 0	23.50 0	24.527	1.027	2.2	1.161	0.000	2.1	157.179	Surcharged
S24	FSR: 100 years: +20 %: 2880 mins: Winter	25.25 0	23.80 0	24.527	0.727	0.8	0.822	0.000	0.8	55.121	Surcharged
S21	FSR: 100 years: +20 %: 2880 mins: Winter	25.50 0	24.05 0	24.527	0.477	0.4	0.539	0.000	0.4	25.708	Surcharged
S23	FSR: 100 years: +20 %: 2880 mins: Winter	25.50 0	24.05 0	24.527	0.477	0.3	0.539	0.000	0.4	23.864	Surcharged
S10	FSR: 100 years: +20 %: 2160 mins: Winter	25.00 0	23.60 0	24.307	0.707	0.6	0.799	0.000	0.5	30.887	Surcharged
S30	FSR: 100 years: +20 %: 2160 mins: Winter	25.80 0	24.35 0	24.579	0.229	1.2	0.258	0.000	1.2	62.977	Surcharged
S31	FSR: 100 years: +20 %: 2160 mins: Winter	25.75 0	24.18 0	24.578	0.398	1.2	0.450	0.000	1.2	63.013	Surcharged
S32	FSR: 100 years: +20 %: 2160 mins: Winter	25.60 0	23.73 2	24.579	0.847	1.2	0.958	0.000	1.2	62.807	Surcharged
S26	FSR: 100 years: +20 %: 2160 mins: Winter	25.50 0	24.15 0	24.579	0.429	0.2	0.485	0.000	0.2	7.849	Surcharged
S28	FSR: 100 years: +20 %: 2160 mins: Winter	25.50 0	23.80 0	24.578	0.778	0.4	0.880	0.000	0.4	22.771	Surcharged

Proposed Off Line Service Area: at Gort CO. GALWAY		Date: 01/07/2025		 COYLE KENNEDY Consulting Engineers	
Report Details: Type: Junctions Summary Storm Phase: Phase		Designed by: AC	Checked by: BC		Approved By:
		COYLEKENNEDY CONSULTING ENGINEERS: GFSC MONEENAGEISHA ROAD, GALWAY			

S29	FSR: 100 years: +20 %: 2160 mins: Winter	25.50 0	23.59 6	24.580	0.983	3.1	1.112	0.000	3.0	157.987	Surcharged
S12	FSR: 100 years: +20 %: 15 mins: Winter	26.80 0	25.45 0	25.505	0.055	9.4	0.062	0.000	9.2	4.359	OK
S13	FSR: 100 years: +20 %: 15 mins: Winter	25.80 0	24.45 0	24.526	0.076	9.2	0.086	0.000	8.6	4.343	OK
S14	FSR: 100 years: +20 %: 15 mins: Winter	25.60 0	24.25 0	24.350	0.100	24.4	0.113	0.000	23.7	11.670	OK
S11	FSR: 100 years: +20 %: 2160 mins: Winter	25.33 0	23.24 9	24.307	1.058	2.4	1.197	0.000	2.4	128.403	Surcharged
S17	FSR: 100 years: +20 %: 1440 mins: Winter	25.60 0	24.35 0	24.638	0.288	0.6	0.325	0.000	0.6	22.011	Surcharged
S1	FSR: 100 years: +20 %: 15 mins: Winter	25.80 0	24.45 0	24.522	0.072	9.0	0.082	0.000	8.7	4.162	OK
S19	FSR: 100 years: +20 %: 2880 mins: Winter	25.00 0	23.63 5	24.527	0.892	0.1	1.009	0.000	0.0	1.618	Surcharged
S9	FSR: 100 years: +20 %: 2160 mins: Winter	25.00 0	23.76 0	24.307	0.547	0.1	0.619	0.000	0.0	0.767	Surcharged
S27	FSR: 100 years: +20 %: 2160 mins: Winter	25.40 0	23.85 0	24.578	0.728	0.4	0.824	0.000	0.2	8.221	Surcharged
S25	FSR: 100 years: +20 %: 2880 mins: Winter	25.15 0	23.80 0	24.527	0.727	0.1	0.822	0.000	0.1	1.314	Surcharged

Proposed Off Line Service Area: at Gort CO. GALWAY	Date: 01/07/2025		
	Designed by: AC	Checked by: BC	Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	COYLEKENNEDY CONSULTING ENGINEERS: GFSC MONEENAGEISHA ROAD, GALWAY		



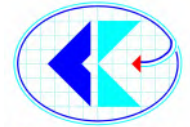
COYLE KENNEDY
Consulting Engineers



FSR: 30 years: Increase Rainfall (%): +20: Critical Storm Per Item: Rank By: Max. Avg. Depth

Stormwater Control	Storm Event	Max. US Elevation (m)	Max. DS Elevation (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residual Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)	Status
Soakaway 1	FSR: 30 years: +20 %: 2160 mins: Winter	24.043	24.041	1.179	1.191	5.6	186.642	0.000	236.328	0.0	0.042	23.546	OK
Soakaway 3	FSR: 30 years: +20 %: 1440 mins: Winter	24.231	24.230	1.825	1.830	2.7	57.572	0.000	77.760	0.0	0.000	20.536	OK
Soakaway 4	FSR: 30 years: +20 %: 2880 mins: Winter	24.146	24.142	1.844	1.842	1.9	79.611	0.000	103.527	0.0	0.008	23.215	OK
Soakaway 2	FSR: 30 years: +20 %: 10080 mins: Winter	23.971	23.971	0.768	0.771	0.0	5.540	0.000	8.795	0.0	0.000	48.701	OK
Soakaway 5	FSR: 30 years: +20 %: 2160 mins: Winter	24.194	24.194	1.891	1.894	2.6	79.495	0.000	106.416	0.0	0.036	21.136	OK

Proposed Off Line Service Area: at Gort CO. GALWAY	Date: 01/07/2025		
	Designed by: AC	Checked by: BC	Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	COYLEKENNEDY CONSULTING ENGINEERS: GFSC MONEENAGEISHA ROAD, GALWAY		



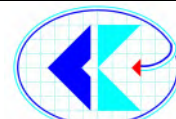
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FSR: 100 years: Increase Rainfall (%): +20: Critical Storm Per Item: Rank By: Max. Avg. Depth

Stormwater Control	Storm Event	Max. US Elevation (m)	Max. DS Elevation (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residual Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)	Status
Soakaway 1	FSR: 100 years: +20 %: 2160 mins: Winter	24.307	24.305	1.443	1.455	6.9	228.261	0.000	291.112	0.0	0.037	6.498	OK
Soakaway 3	FSR: 100 years: +20 %: 1440 mins: Winter	24.638	24.637	2.232	2.237	3.4	70.392	0.000	96.005	0.0	0.059	2.841	OK
Soakaway 4	FSR: 100 years: +20 %: 2880 mins: Winter	24.527	24.523	2.225	2.223	2.1	96.077	0.000	126.198	0.0	0.034	7.334	OK
Soakaway 2	FSR: 100 years: +20 %: 8640 mins: Winter	24.113	24.113	0.910	0.913	0.1	6.562	0.000	9.315	0.0	0.000	39.239	OK
Soakaway 5	FSR: 100 years: +20 %: 2160 mins: Winter	24.577	24.577	2.275	2.277	3.0	95.601	0.000	130.908	0.0	0.121	5.158	OK

Proposed Off Line Service Area: at Gort CO. GALWAY	Date: 01/07/2025		
	Designed by: AC	Checked by: BC	Approved By:
Report Details: Type: Connections Summary Storm Phase: Phase	COYLEKENNEDY CONSULTING ENGINEERS: GFSC MONEENAGEISHA ROAD, GALWAY		



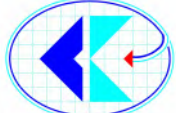
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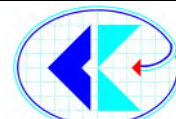
FSR: 30 years: Increase Rainfall (%): +20: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Elevation (m)	Max. US Water Elevation (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
S3.000	FSR: 30 years: +20 %: 15 mins: Winter	Pipe	S6	S7	25.650	24.527	0.092	6.012	1.1	0.51	12.7	OK
S3.001	FSR: 30 years: +20 %: 15 mins: Winter	Pipe	S7	S8	25.600	24.142	0.152	11.628	0.8	0.46	24.1	OK
S3.002	FSR: 30 years: +20 %: 15 mins: Winter	Pipe	S8	Soakaway 1	25.500	24.047	0.181	19.569	1.1	0.93	39.3	OK
S1.001	FSR: 30 years: +20 %: 15 mins: Winter	Pipe	S2	S3	25.900	24.336	0.110	7.849	0.8	0.31	16.1	OK
S1.002	FSR: 30 years: +20 %: 15 mins: Winter	Pipe	S3	S4	25.900	24.076	0.135	12.244	1.0	0.49	24.3	OK
S2.000	FSR: 30 years: +20 %: 15 mins: Winter	Pipe	S5	S4	25.700	24.403	0.095	3.926	0.7	0.28	8.3	OK
S1.003	FSR: 30 years: +20 %: 15 mins: Winter	Pipe	S4	Soakaway 1	25.850	24.015	0.130	16.147	1.3	0.59	31.0	OK
S9.001	FSR: 30 years: +20 %: 15 mins: Winter	Pipe	S22	S20	25.150	23.813	0.196	19.436	1.0	0.87	37.0	OK
S8.001	FSR: 30 years: +20 %: 15 mins: Winter	Pipe	S20	Soakaway 4	25.100	23.704	0.187	22.333	1.2	0.97	41.0	OK
S13.000	FSR: 30 years: +20 %: 15 mins: Winter	Pipe	S30	S31	25.800	24.462	0.112	9.779	1.0	0.44	20.5	OK
S12.002	FSR: 30 years: +20 %: 15 mins: Winter	Pipe	S28	S29	25.500	23.864	0.143	3.447	0.4	0.39	7.0	OK
S12.003	FSR: 30 years: +20 %: 15 mins: Winter	Pipe	S29	Soakaway 5	25.500	23.819	0.201	24.613	1.2	0.98	46.2	OK
S10.000	FSR: 30 years: +20 %: 15 mins: Winter	Pipe	S23	S24	25.500	24.109	0.095	3.439	0.6	0.33	7.3	OK
S9.000	FSR: 30 years: +20 %: 15 mins: Winter	Pipe	S21	S22	25.500	24.105	0.122	3.686	0.5	0.3	7.8	OK
S13.002	FSR: 30 years: +20 %: 15 mins: Summer	Pipe	S32	S29	25.600	23.830	0.153	8.590	0.6	0.4	17.1	OK
S13.001	FSR: 30 years: +20 %: 15 mins: Winter	Pipe	S31	S32	25.750	24.292	0.108	9.756	1.0	0.45	18.9	OK
S5.000	FSR: 30 years: +20 %: 15 mins: Winter	Pipe	S12	S13	26.800	25.498	0.057	3.372	1.2	0.22	7.1	OK
S5.001	FSR: 30 years: +20 %: 15 mins: Winter	Pipe	S13	S14	25.800	24.516	0.074	3.357	0.8	0.38	6.5	OK
S5.002	FSR: 30 years: +20 %: 15 mins: Winter	Pipe	S14	S11	25.600	24.332	0.142	9.012	1.0	0.58	18.1	OK

Proposed Off Line Service Area: at Gort CO. GALWAY		Date: 01/07/2025		 COYLE KENNEDY Consulting Engineers	
Report Details: Type: Connections Summary Storm Phase: Phase		Designed by: AC	Checked by: BC		Approved By:
		COYLEKENNEDY CONSULTING ENGINEERS: GFSC MONEENAGEISHA ROAD, GALWAY			

S4.001	FSR: 30 years: +20 %: 15 mins: Winter	Pipe	S10	S11	25.000	23.678	0.140	4.688	0.6	0.54	9.5	OK
S4.002	FSR: 30 years: +20 %: 15 mins: Winter	Pipe	S11	Soakaway 1	25.330	23.451	0.184	19.890	1.1	0.94	39.7	OK
S7.000	FSR: 30 years: +20 %: 15 mins: Winter	Pipe	S17	S18	25.600	24.413	0.083	3.814	0.8	0.37	8.0	OK
S6.001	FSR: 30 years: +20 %: 15 mins: Winter	Pipe	S16	Soakaway 3	25.500	23.968	0.155	18.937	1.3	0.74	38.3	OK
S7.001	FSR: 30 years: +20 %: 15 mins: Winter	Pipe	S18	S16	25.550	24.203	0.136	12.405	1.0	0.4	26.0	OK
S6.000	FSR: 30 years: +20 %: 15 mins: Winter	Pipe	S15	S16	25.450	24.058	0.113	2.786	0.4	0.33	5.8	OK
S10.001	FSR: 30 years: +20 %: 15 mins: Summer	Pipe	S24	S22	25.250	23.910	0.146	6.975	0.8	0.81	14.4	OK
S1.000	FSR: 30 years: +20 %: 15 mins: Winter	Pipe	S1	S2	25.800	24.511	0.074	3.214	0.8	0.34	6.7	OK
S8.000	FSR: 30 years: +20 %: 15 mins: Winter	Pipe	S19	S20	25.000	23.705	0.137	0.000	0.0	0.01	0.1	OK
S4.000	FSR: 30 years: +20 %: 480 mins: Summer	Pipe	S9	S10	25.000	23.771	0.091	0.000	0.0	0	0.0	OK
S12.000	FSR: 30 years: +20 %: 15 mins: Summer	Pipe	S26	S27	25.500	24.190	0.039	1.185	0.7	0.14	2.6	OK
S12.001	FSR: 30 years: +20 %: 15 mins: Summer	Pipe	S27	S28	25.400	23.888	0.051	1.181	0.5	0.14	2.5	OK
S11.000	FSR: 30 years: +20 %: 2880 mins: Winter	Pipe	S25	S22	25.150	24.146	0.150	0.017	0.0	0	0.0	Surcharged

Proposed Off Line Service Area: at Gort CO. GALWAY	Date: 01/07/2025		
	Designed by: AC	Checked by: BC	Approved By:
Report Details: Type: Connections Summary Storm Phase: Phase	COYLEKENNEDY CONSULTING ENGINEERS: GFSC MONEENAGEISHA ROAD, GALWAY		

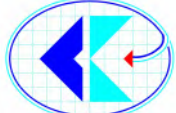


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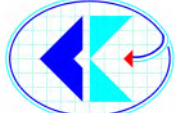


FSR: 100 years: Increase Rainfall (%): +20: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Elevation (m)	Max. US Water Elevation (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
S3.000	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S6	S7	25.650	24.541	0.111	7.789	1.2	0.66	16.4	OK
S3.001	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S7	S8	25.600	24.166	0.200	15.064	0.8	0.58	30.1	OK
S3.002	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S8	Soakaway 1	25.500	24.120	0.225	25.345	1.2	1.17	49.7	Surcharged
S1.001	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S2	S3	25.900	24.349	0.131	10.160	0.9	0.4	20.9	OK
S1.002	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S3	S4	25.900	24.105	0.164	15.856	1.0	0.63	31.5	OK
S2.000	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S5	S4	25.700	24.411	0.113	5.086	0.8	0.36	10.8	OK
S1.003	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S4	Soakaway 1	25.850	24.043	0.156	20.918	1.4	0.77	40.3	OK
S9.001	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S22	S20	25.150	23.920	0.225	25.172	1.1	1.04	44.3	Surcharged
S8.001	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S20	Soakaway 4	25.100	23.756	0.220	28.932	1.2	1.15	48.8	Surcharged
S13.000	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S30	S31	25.800	24.482	0.132	12.664	1.1	0.57	26.6	OK
S12.002	FSR: 100 years: +20 %: 30 mins: Winter	Pipe	S28	S29	25.500	23.863	0.146	6.129	0.4	0.37	6.6	OK
S12.003	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S29	Soakaway 5	25.500	23.891	0.225	31.897	1.5	1.25	58.6	Surcharged
S10.000	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	S23	S24	25.500	24.116	0.150	3.920	0.5	0.4	8.8	OK
S9.000	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S21	S22	25.500	24.115	0.150	4.768	0.6	0.39	10.1	OK

Proposed Off Line Service Area: at Gort CO. GALWAY		Date: 01/07/2025		 COYLE KENNEDY Consulting Engineers	
Report Details: Type: Connections Summary Storm Phase: Phase		Designed by: AC	Checked by: BC		Approved By:
		COYLEKENNEDY CONSULTING ENGINEERS: GFSC MONEENAGEISHA ROAD, GALWAY			

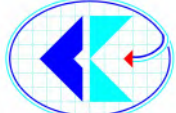
S13.002	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S32	S29	25.600	23.939	0.225	12.626	0.6	0.52	22.1	OK
S13.001	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S31	S32	25.750	24.312	0.127	12.638	1.1	0.58	24.7	OK
S5.000	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S12	S13	26.800	25.505	0.066	4.359	1.2	0.29	9.2	OK
S5.001	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S13	S14	25.800	24.526	0.088	4.343	0.8	0.5	8.6	OK
S5.002	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S14	S11	25.600	24.350	0.150	11.670	1.3	0.76	23.7	OK
S4.001	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S10	S11	25.000	23.695	0.150	6.063	0.7	0.7	12.5	OK
S4.002	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S11	Soakaway 1	25.330	23.523	0.225	25.448	1.3	1.24	52.4	Surcharged
S7.000	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S17	S18	25.600	24.424	0.096	4.935	0.9	0.48	10.4	OK
S6.001	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S16	Soakaway 3	25.500	24.014	0.194	24.521	1.4	0.95	49.3	OK
S7.001	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S18	S16	25.550	24.217	0.166	16.060	1.1	0.52	34.1	OK
S6.000	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S15	S16	25.450	24.068	0.141	3.609	0.4	0.43	7.5	OK
S10.001	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S24	S22	25.250	24.115	0.150	10.241	1.0	0.99	17.8	Surcharged
S1.000	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S1	S2	25.800	24.522	0.086	4.162	0.8	0.44	8.7	OK
S8.000	FSR: 100 years: +20 %: 15 mins: Winter	Pipe	S19	S20	25.000	23.751	0.150	0.000	0.1	0.06	1.0	OK
S4.000	FSR: 100 years: +20 %: 960 mins: Summer	Pipe	S9	S10	25.000	24.092	0.150	0.003	0.0	0	0.0	Surcharged
S12.000	FSR: 100 years: +20 %: 15 mins: Summer	Pipe	S26	S27	25.500	24.196	0.045	1.535	0.8	0.19	3.3	OK
S12.001	FSR: 100 years: +20 %: 30 mins: Summer	Pipe	S27	S28	25.400	23.888	0.050	2.096	0.5	0.14	2.4	OK

Proposed Off Line Service Area:		Date:			 COYLE KENNEDY Consulting Engineers	
at		01/07/2025				
Gort		Designed by:	Checked by:	Approved By:		
CO. GALWAY		AC	BC			
Report Details:		COYLEKENNEDY CONSULTING ENGINEERS:				
Type: Connections Summary		GFSC				
Storm Phase: Phase		MONEENAGEISHA ROAD, GALWAY				

S11.000	FSR: 100 years: +20 %: 2160 mins: Summer	Pipe	S25	S22	25.150	24.279	0.150	0.021	0.0	0.01	0.2	Surcharged
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Proposed Off Line Service Area: at Gort CO. GALWAY	Date: 01/07/2025		
	Designed by: AC	Checked by: BC	Approved By:
Report Details: Type: Phase Management Storm Phase: Phase	COYLEKENNEDY CONSULTING ENGINEERS: GFSC MONEENAGEISHA ROAD, GALWAY		


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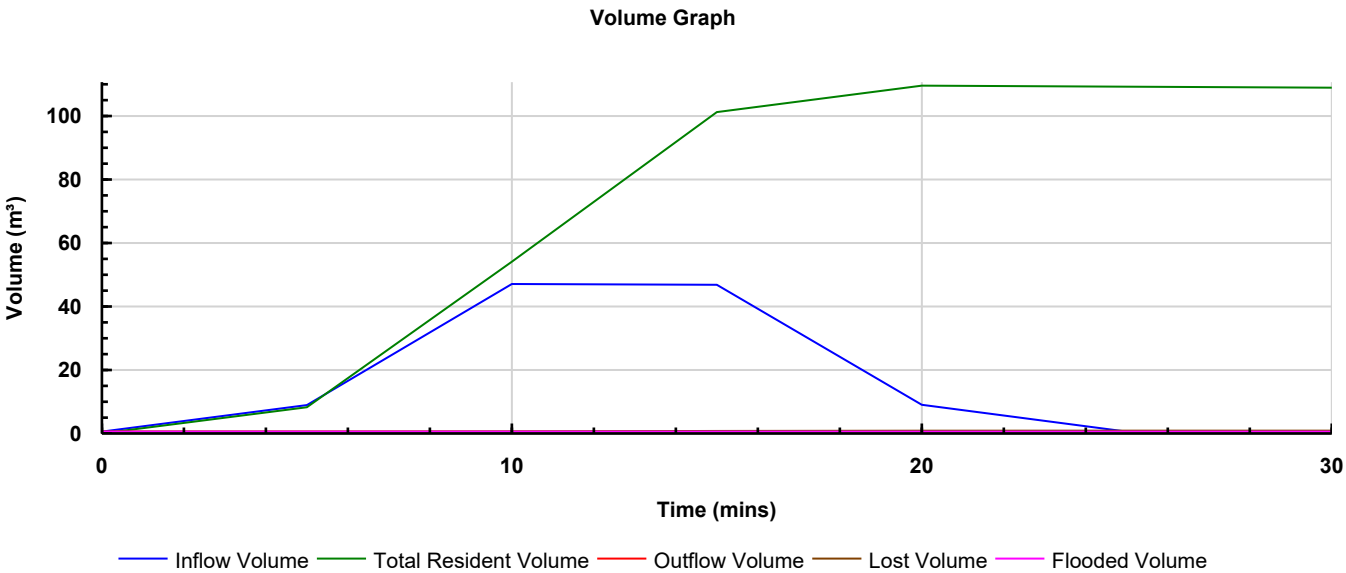
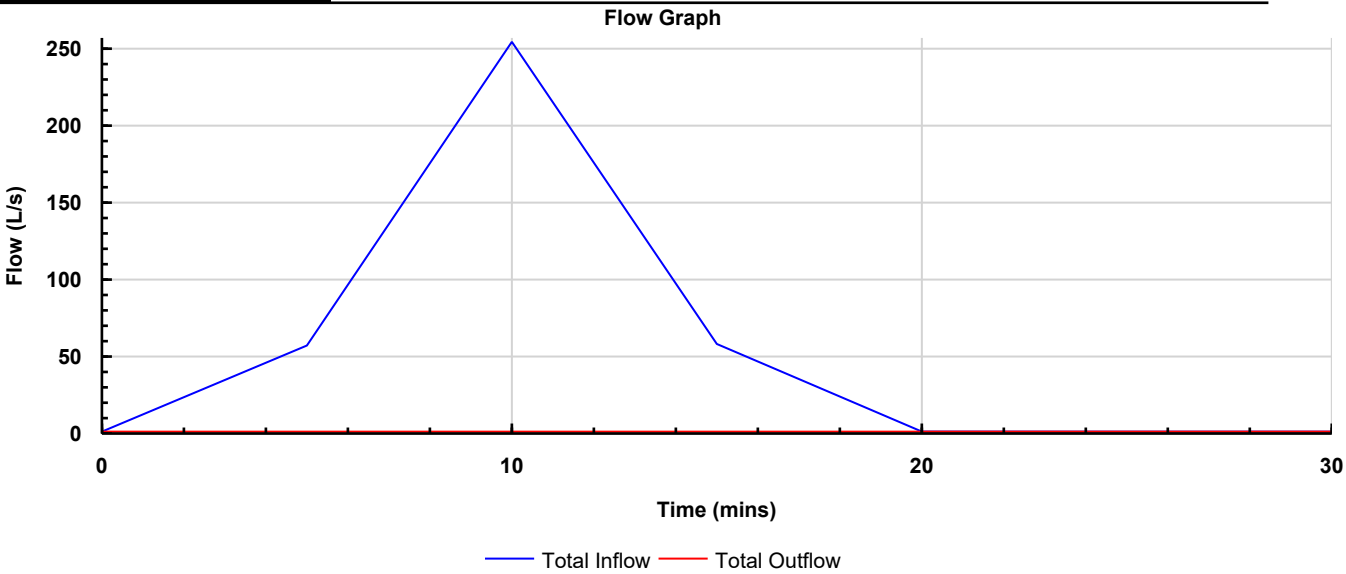


Phase
FSR: 30 years: Increase Rainfall (%): +20: 15 mins: Summer

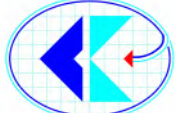
Tables

Name	Max. Inflow (L/s)	Total Inflow Volume (m³)	Max. Outflow (L/s)	Total Outflow Volume (m³)
TOTAL	254.4	110.137	0.0	0.000

Graphs



Proposed Off Line Service Area: at Gort CO. GALWAY	Date: 01/07/2025		
	Designed by: AC	Checked by: BC	Approved By:
Report Details: Type: Phase Management Storm Phase: Phase	COYLEKENNEDY CONSULTING ENGINEERS: GFSC MONEENAGEISHA ROAD, GALWAY		


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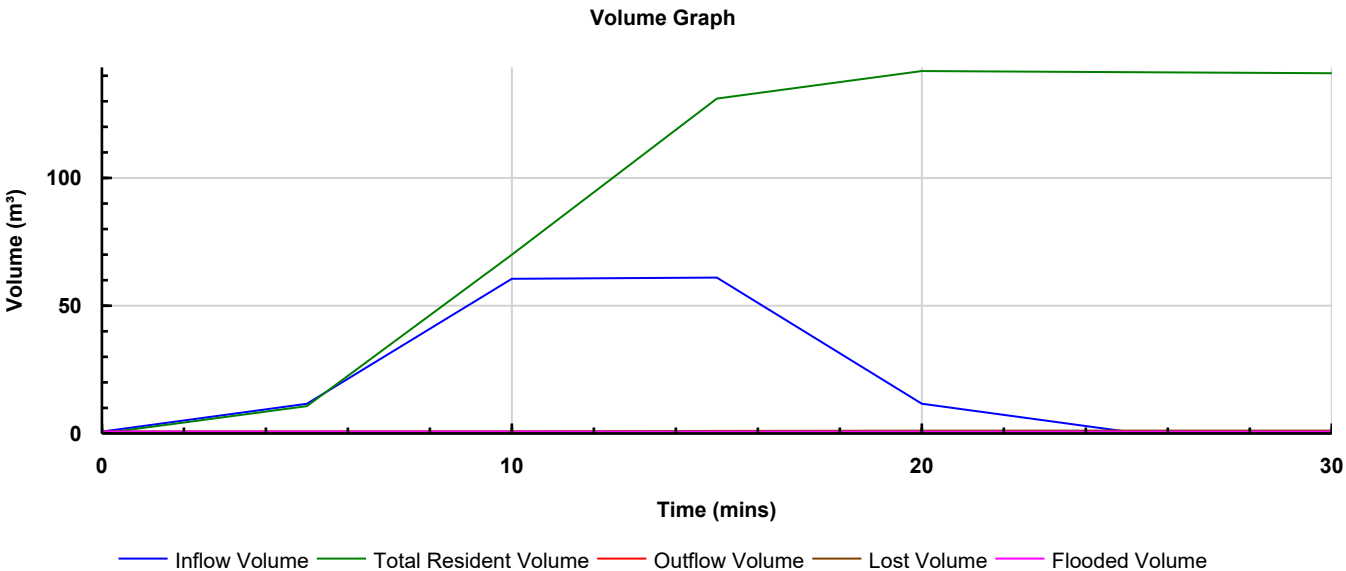
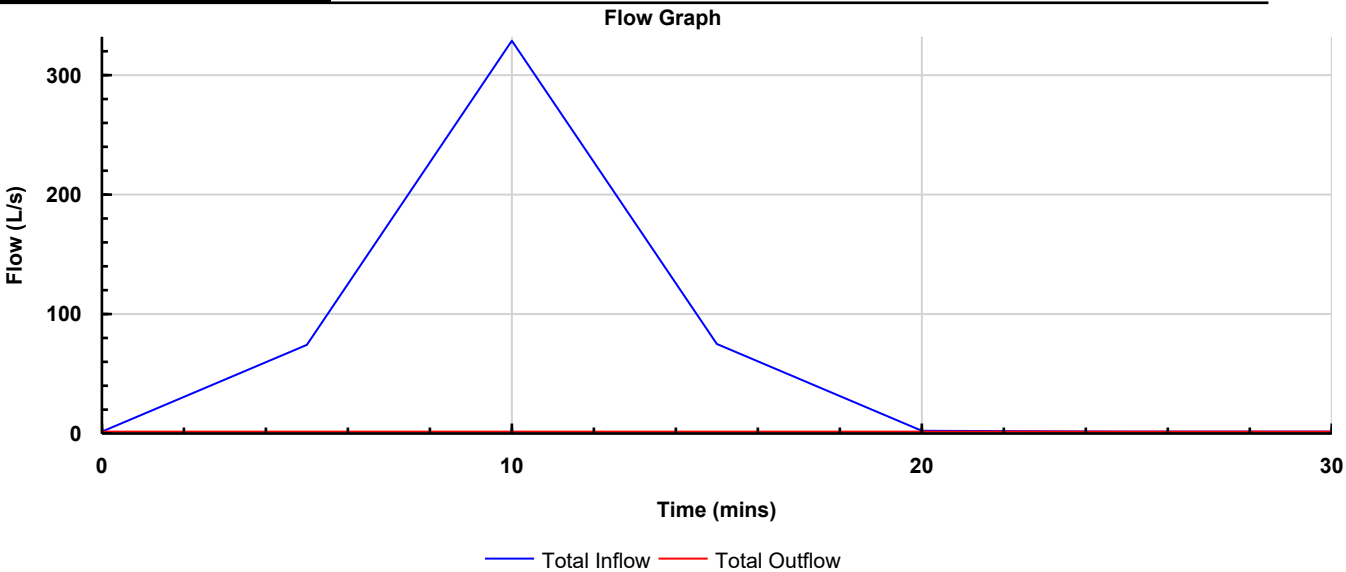


Phase
FSR: 100 years: Increase Rainfall (%): +20: 15 mins: Summer

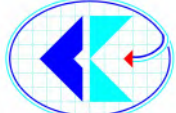
Tables

Name	Max. Inflow (L/s)	Total Inflow Volume (m³)	Max. Outflow (L/s)	Total Outflow Volume (m³)
TOTAL	328.8	142.616	0.0	0.000

Graphs



Proposed Off Line Service Area: at Gort CO. GALWAY	Date: 01/07/2025		
	Designed by: AC	Checked by: BC	Approved By:
Report Details: Type: Stormwater Control Results Storm Phase: Phase	COYLEKENNEDY CONSULTING ENGINEERS: GFSC MONEENAGEISHA ROAD, GALWAY		


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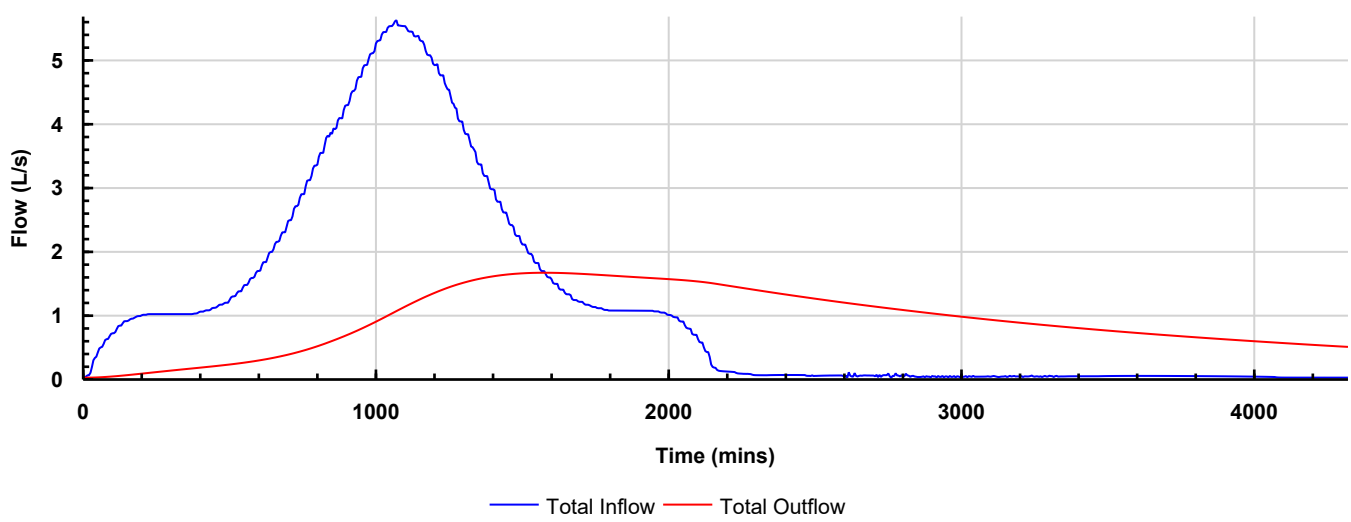
Soakaway 1
Critical by Return Period: FSR: 30 years: Increase Rainfall (%): +20: 2160 mins: Winter

Type: Infiltration Trench

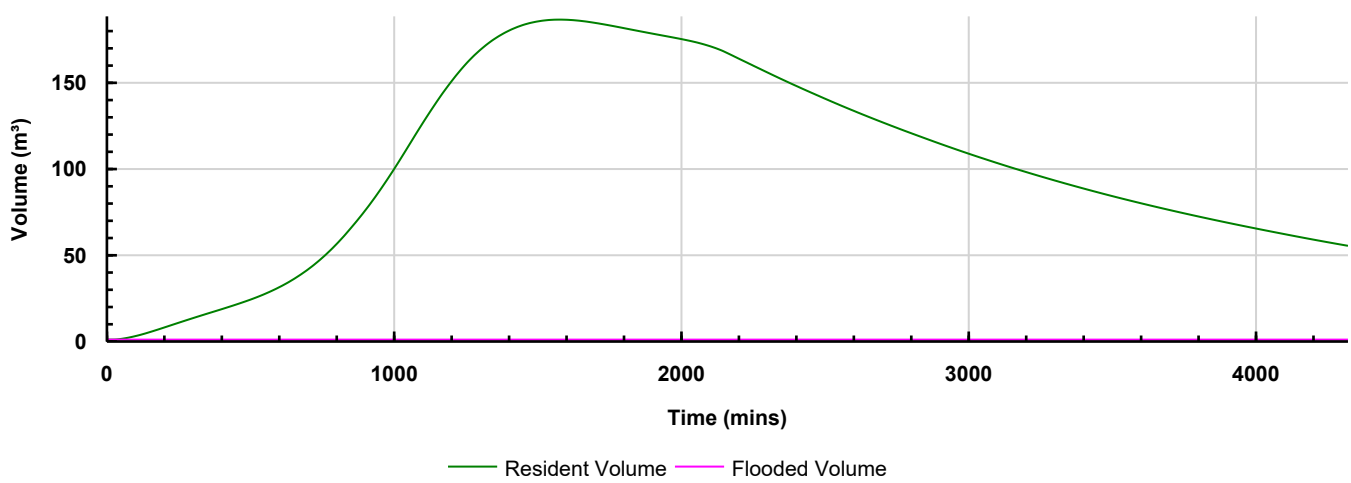
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Graphs

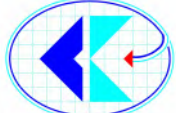
Flow Graph



Volume Graph

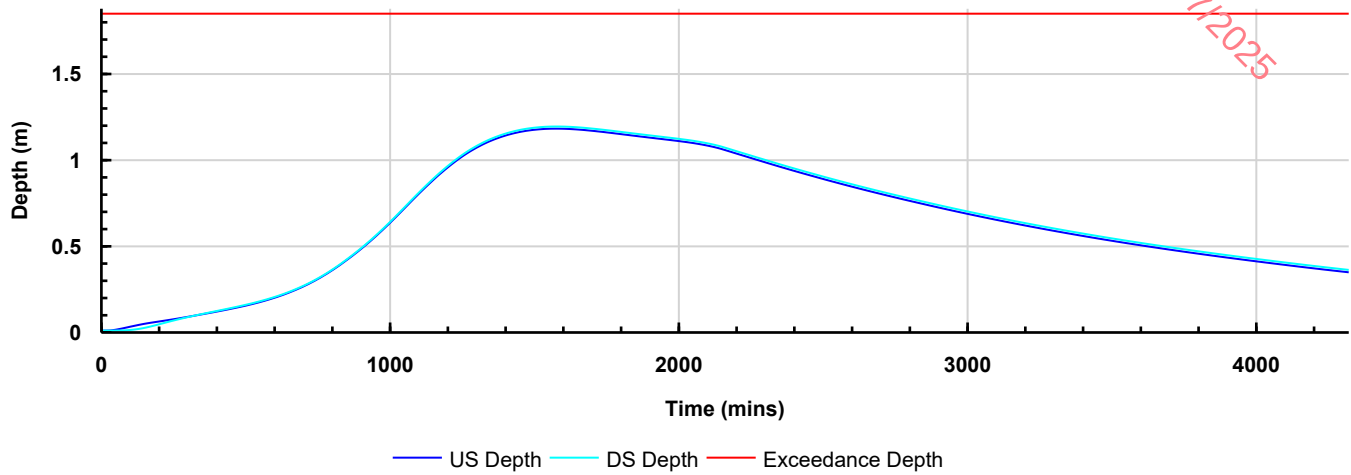


Proposed Off Line Service Area: at Gort CO. GALWAY	Date: 01/07/2025		
	Designed by: AC	Checked by: BC	Approved By:
Report Details: Type: Stormwater Control Results Storm Phase: Phase	COYLEKENNEDY CONSULTING ENGINEERS: GFSC MONEENAGEISHA ROAD, GALWAY		

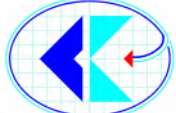

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Depth Graph



Proposed Off Line Service Area: at Gort CO. GALWAY	Date: 01/07/2025		
	Designed by: AC	Checked by: BC	Approved By:
Report Details: Type: Stormwater Control Results Storm Phase: Phase	COYLEKENNEDY CONSULTING ENGINEERS: GFSC MONEENAGEISHA ROAD, GALWAY		


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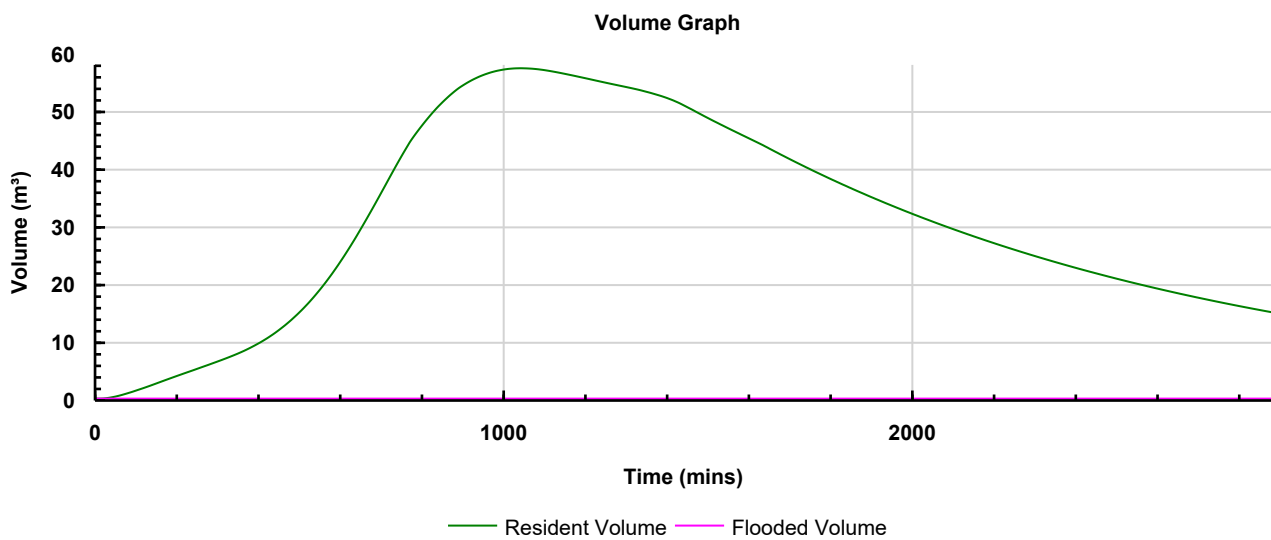
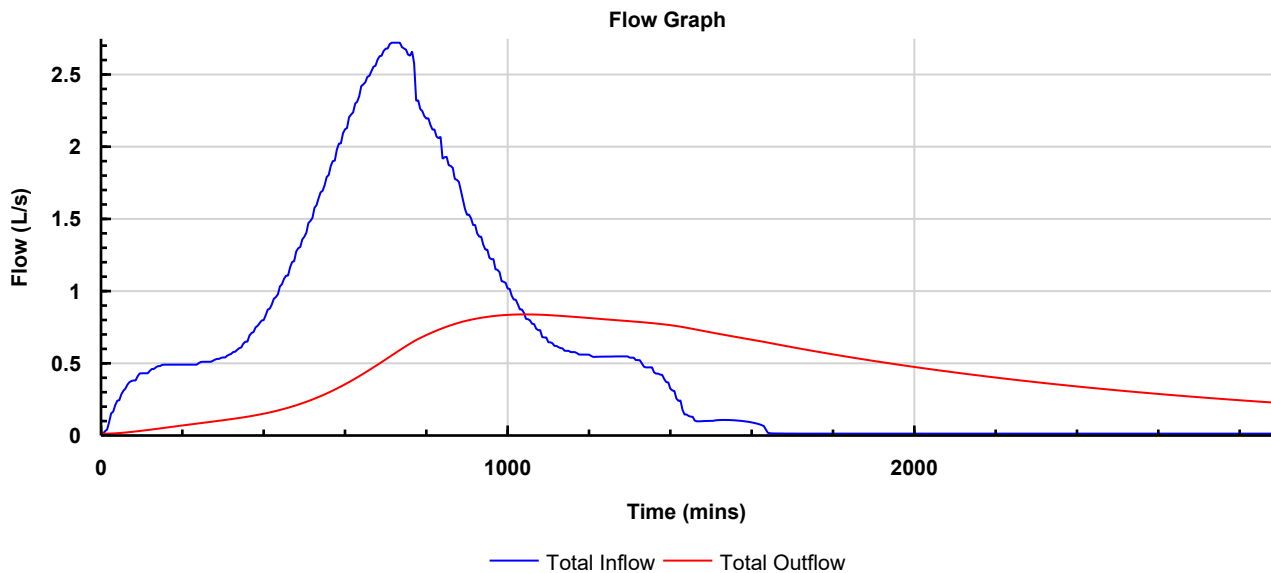


Soakaway 3
Critical by Return Period: FSR: 30 years: Increase Rainfall (%): +20: 1440 mins: Winter

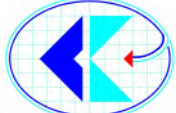
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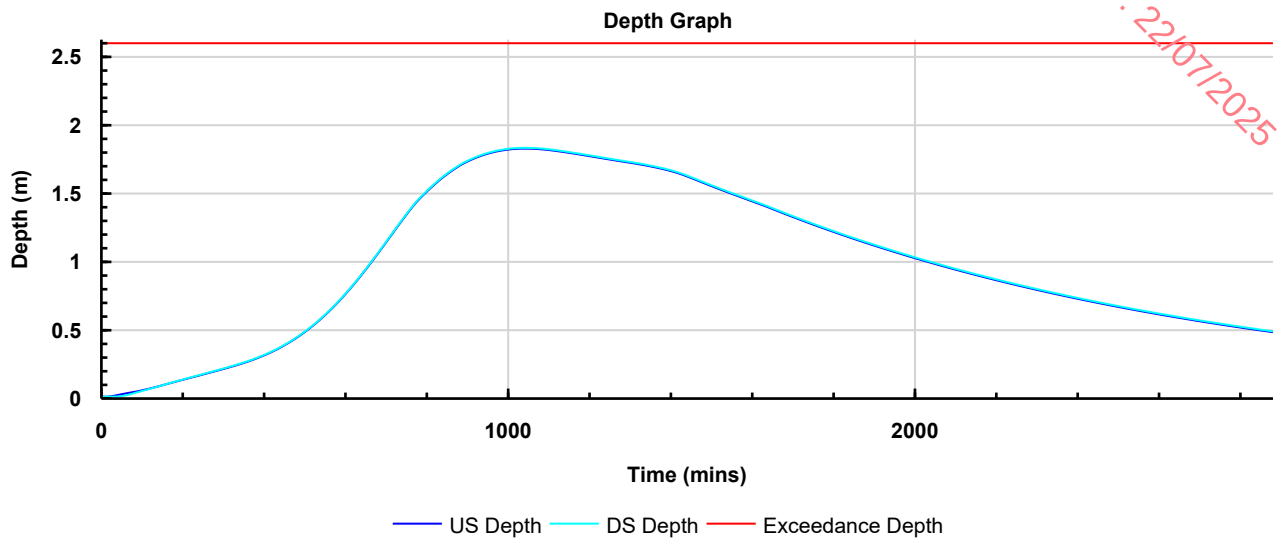
Graphs



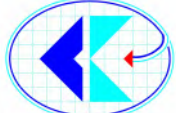
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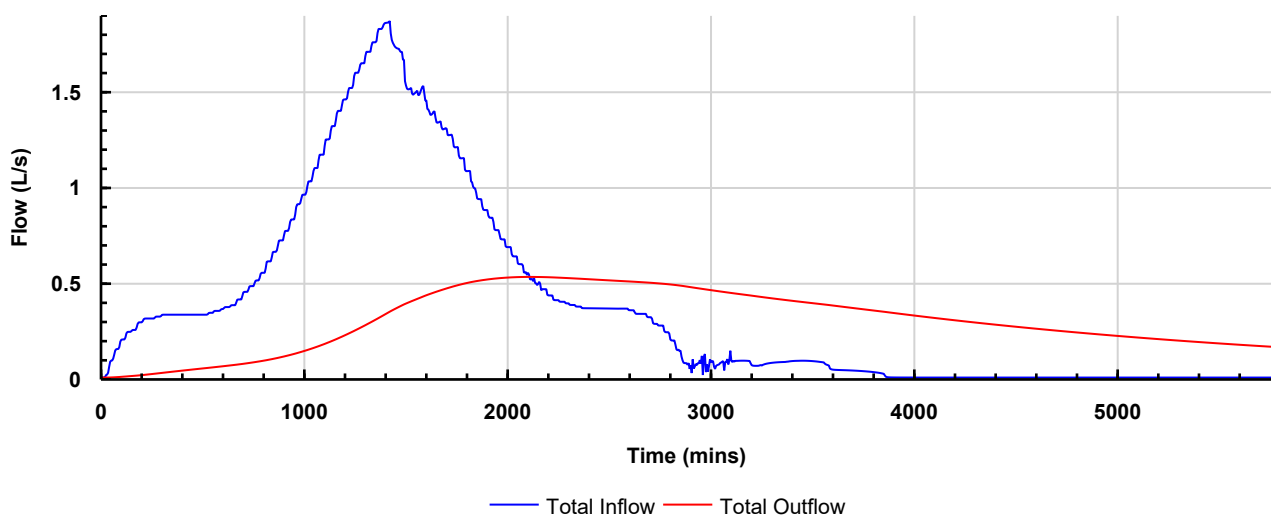
Soakaway 4
Critical by Return Period: FSR: 30 years: Increase Rainfall (%): +20: 2880 mins: Winter

Type: Infiltration Trench

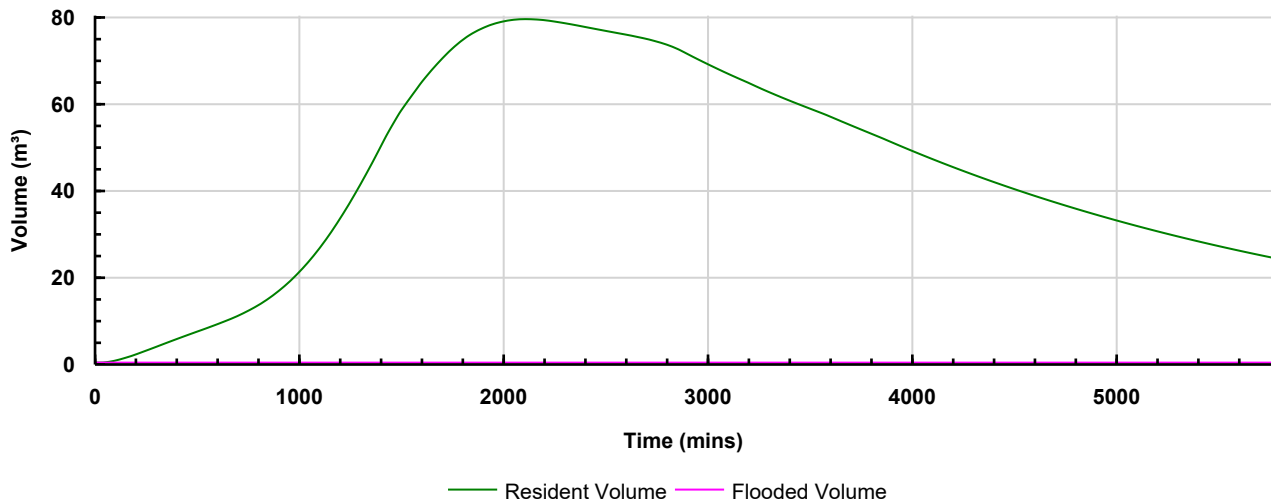
RECEIVED: 22/07/2025

Graphs

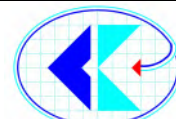
Flow Graph



Volume Graph



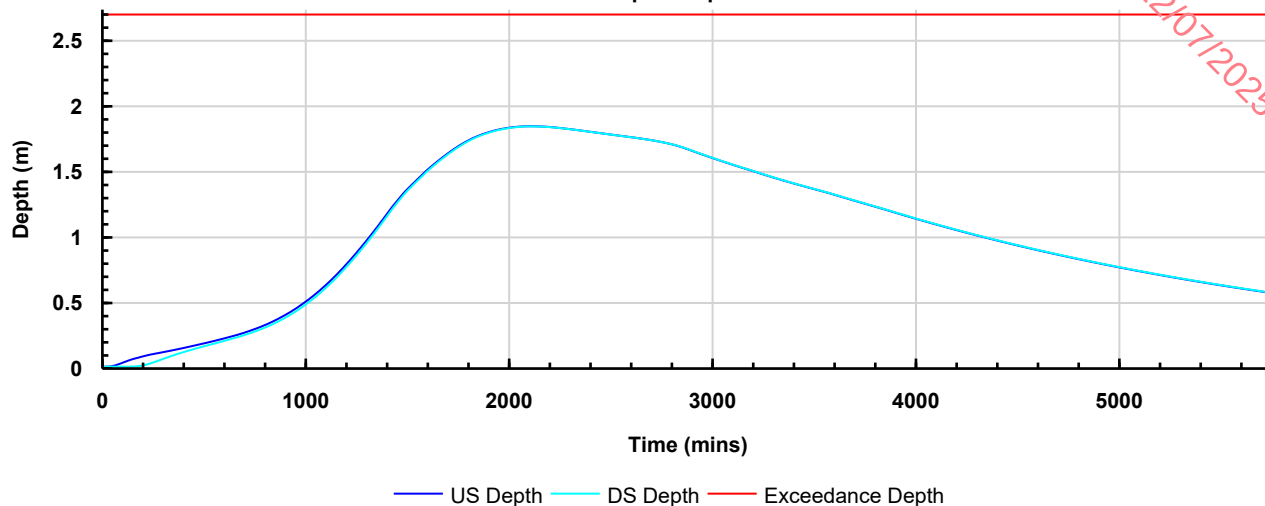
Proposed Off Line Service Area: at Gort CO. GALWAY	Date: 01/07/2025		
	Designed by: AC	Checked by: BC	Approved By:
Report Details: Type: Stormwater Control Results Storm Phase: Phase	COYLEKENNEDY CONSULTING ENGINEERS: GFSC MONEENAGEISHA ROAD, GALWAY		



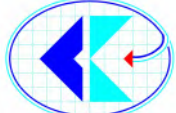
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Depth Graph



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	Designed by: AC	Checked by: BC	Approved By:
Report Details: Type: Stormwater Control Results Storm Phase: Phase	COYLEKENNEDY CONSULTING ENGINEERS: GFSC MONEENAGEISHA ROAD, GALWAY		

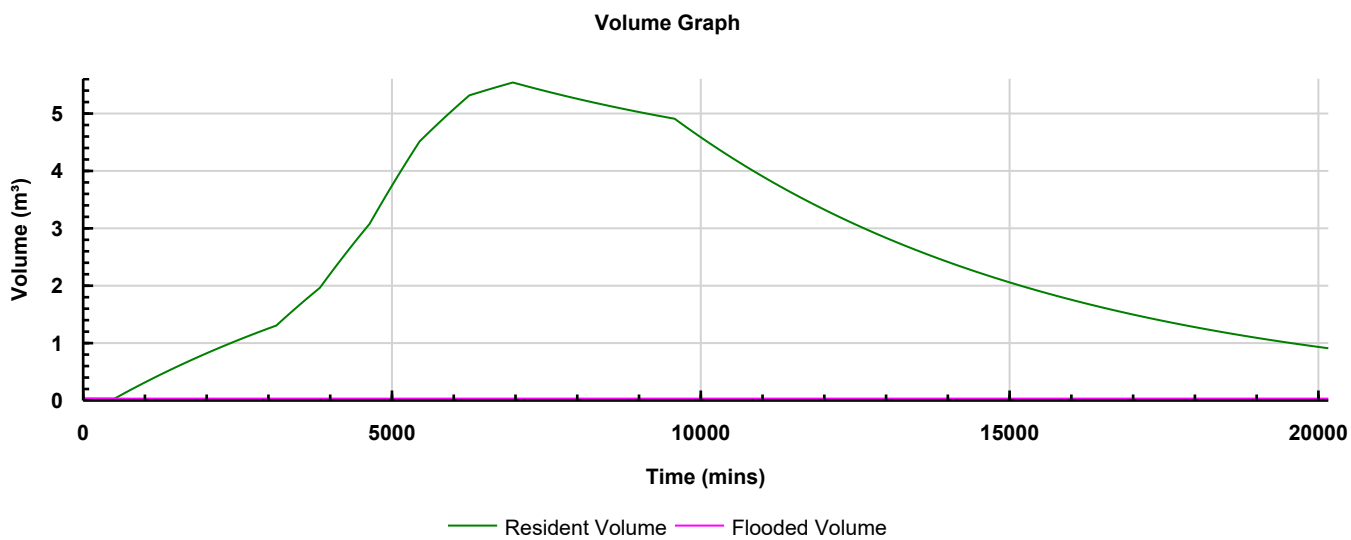
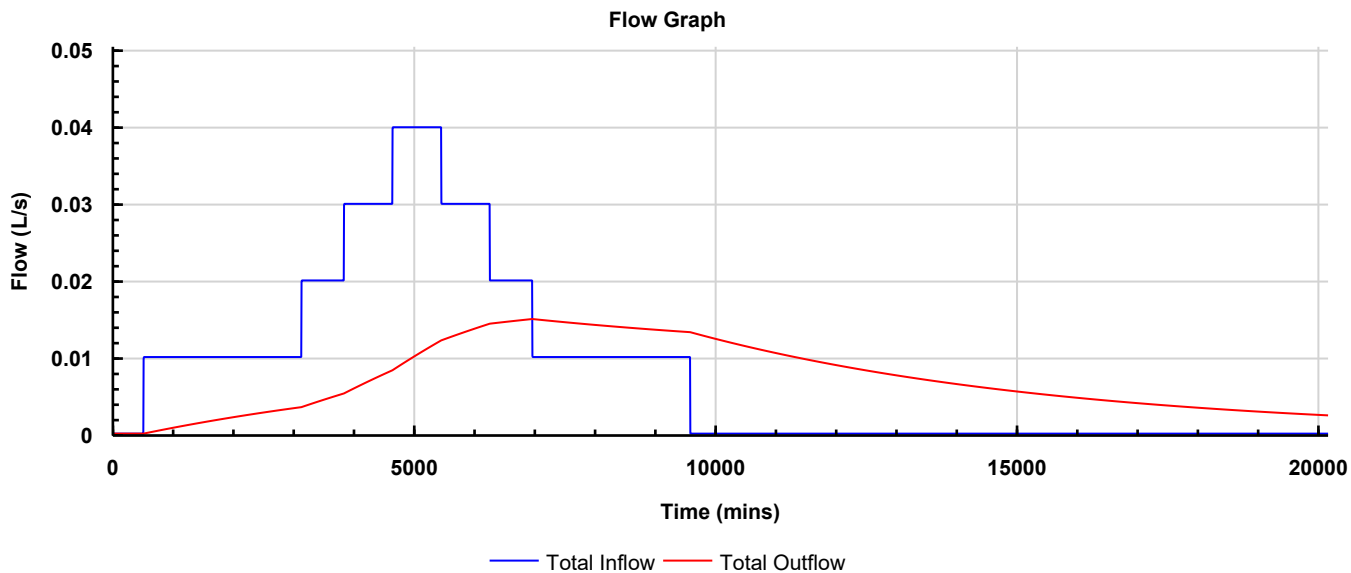

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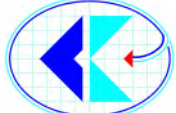
Soakaway 2
Critical by Return Period: FSR: 30 years: Increase Rainfall (%): +20: 10080 mins: Winter

Type: Infiltration Trench

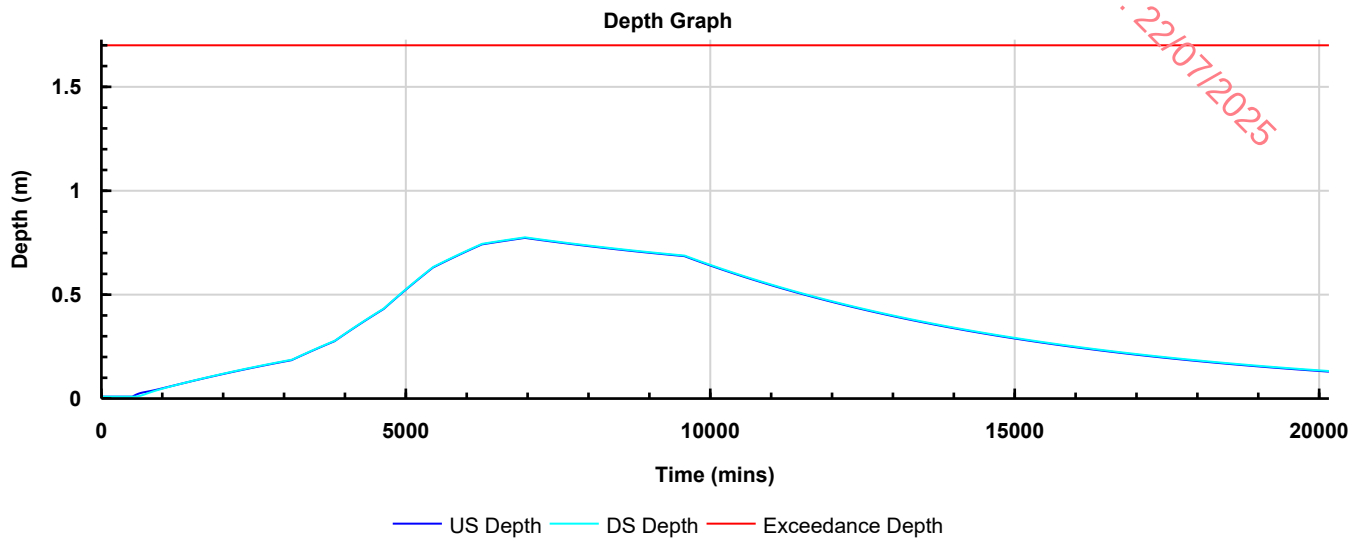
Graphs



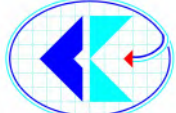
Proposed Off Line Service Area: at Gort CO. GALWAY	Date: 01/07/2025		
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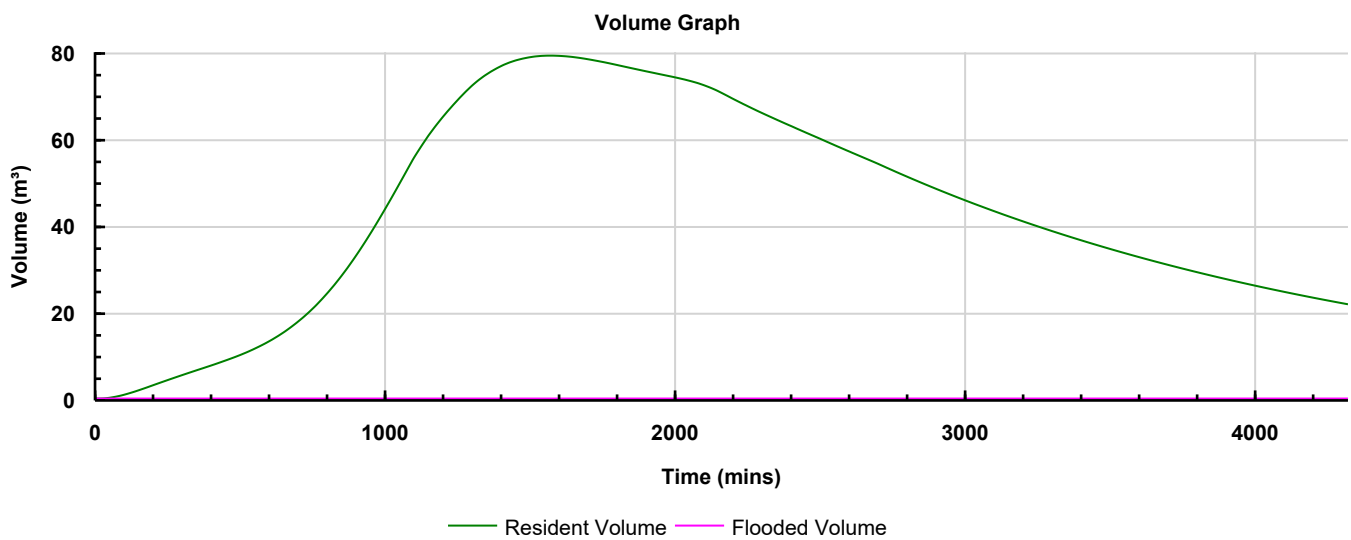
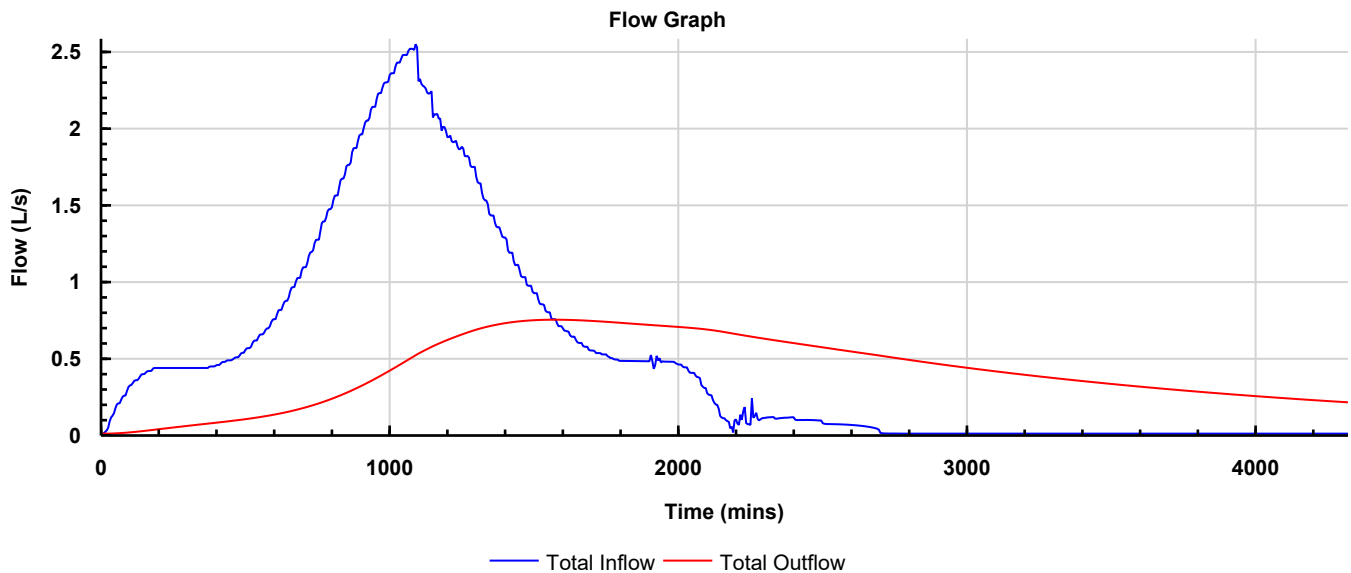

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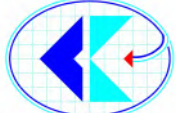
Soakaway 5
Critical by Return Period: FSR: 30 years: Increase Rainfall (%): +20: 2160 mins: Winter

Type: Infiltration Trench

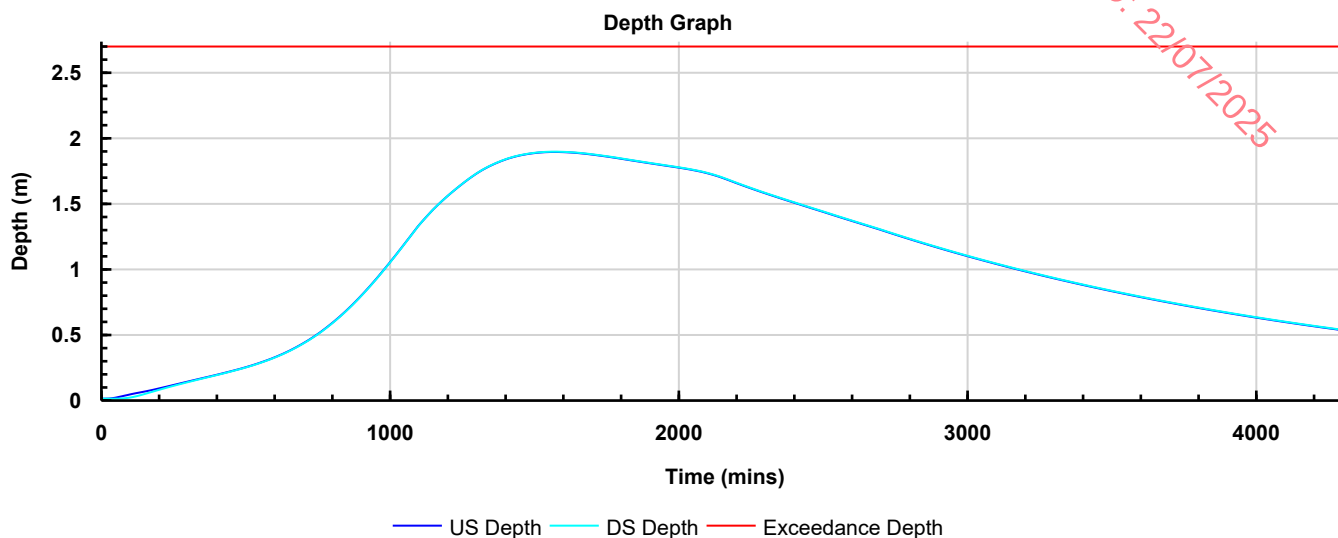
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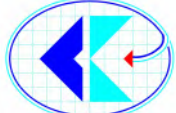
Proposed Off Line Service Area: at Gort CO. GALWAY	Date: 01/07/2025		
	Designed by: AC	Checked by: BC	Approved By:
Report Details: Type: Stormwater Control Results Storm Phase: Phase	COYLEKENNEDY CONSULTING ENGINEERS: GFSC MONEENAGEISHA ROAD, GALWAY		


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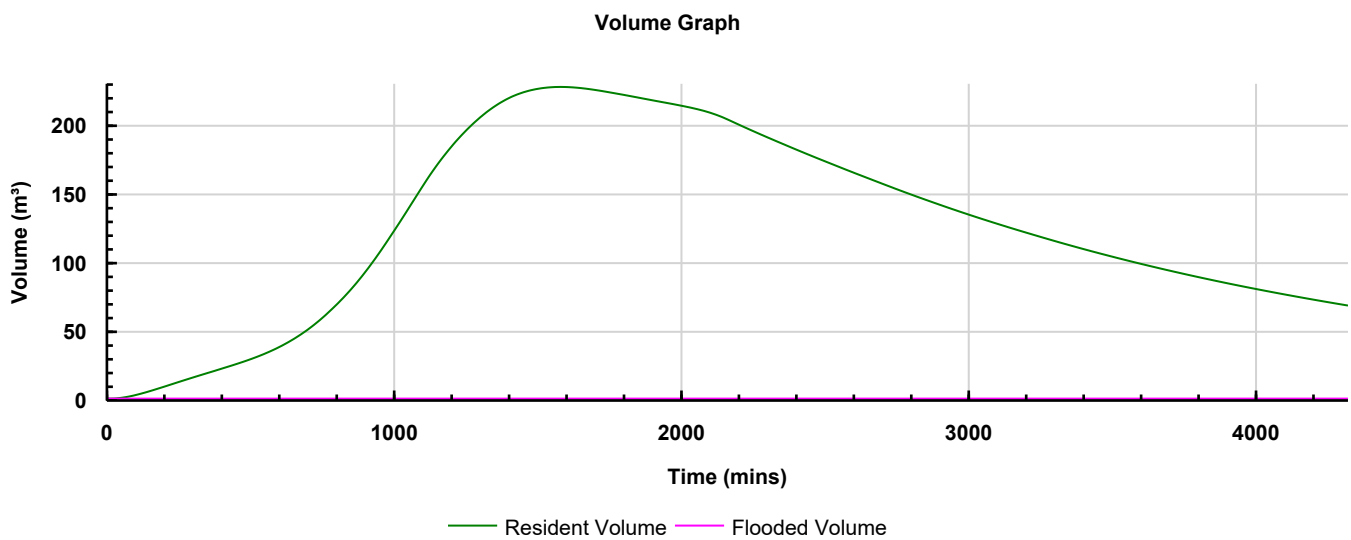
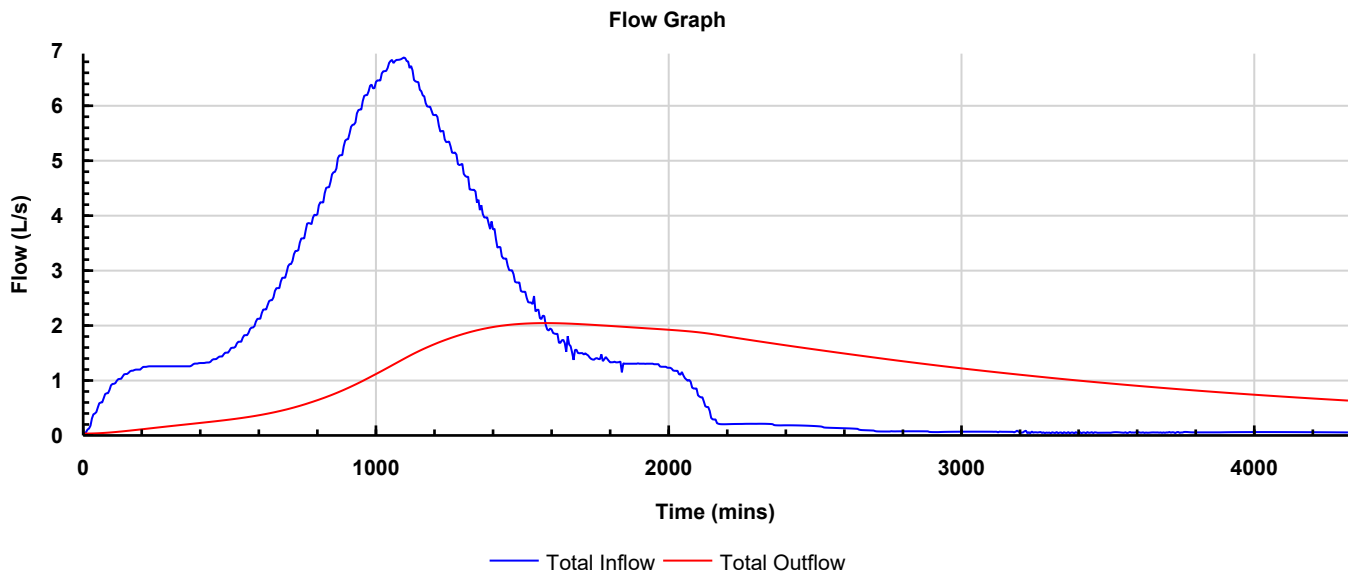


Soakaway 1
Critical by Return Period: FSR: 100 years: Increase Rainfall (%): +20: 2160 mins: Winter

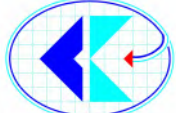
Type: Infiltration Trench

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Graphs

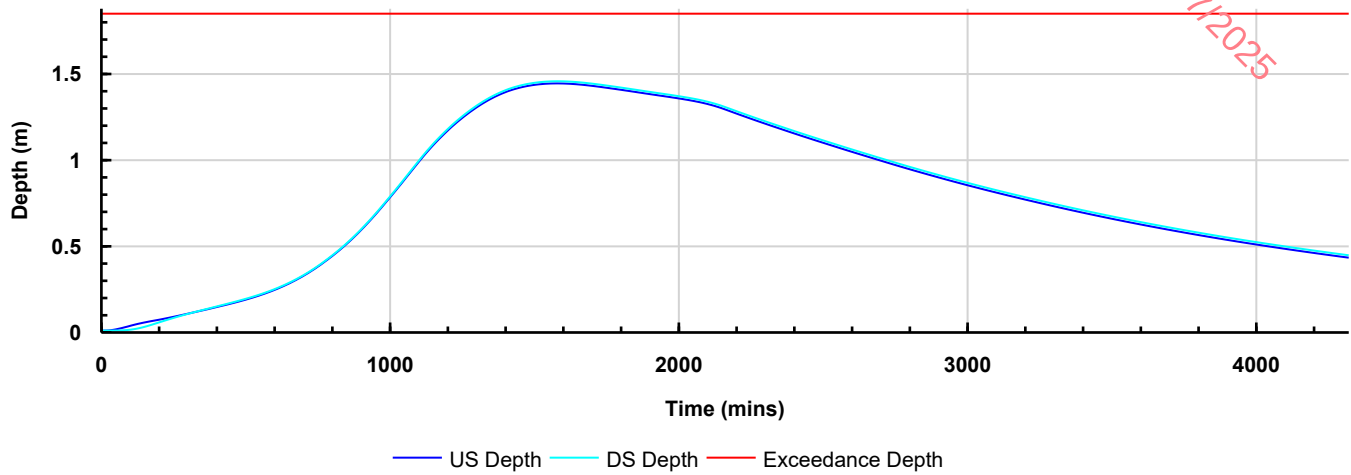


Proposed Off Line Service Area: at Gort CO. GALWAY	Date: 01/07/2025		
	Designed by: AC	Checked by: BC	Approved By:
Report Details: Type: Stormwater Control Results Storm Phase: Phase	COYLEKENNEDY CONSULTING ENGINEERS: GFSC MONEENAGEISHA ROAD, GALWAY		

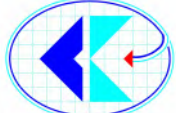

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Depth Graph



Proposed Off Line Service Area: at Gort CO. GALWAY	Date: 01/07/2025		
	Designed by: AC	Checked by: BC	Approved By:
Report Details: Type: Stormwater Control Results Storm Phase: Phase	COYLEKENNEDY CONSULTING ENGINEERS: GFSC MONEENAGEISHA ROAD, GALWAY		


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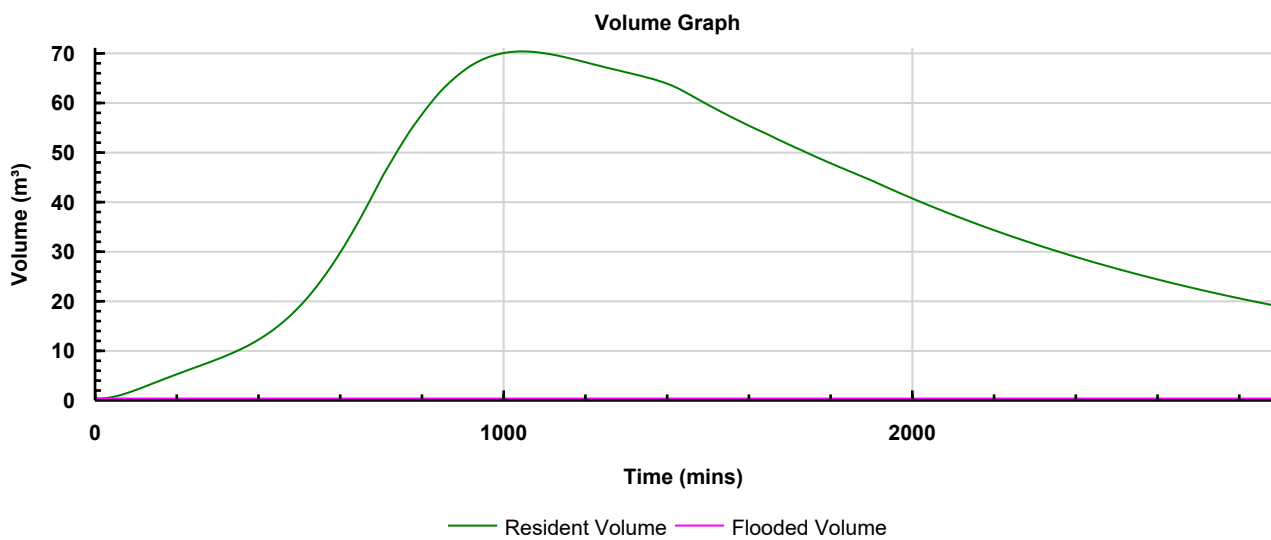
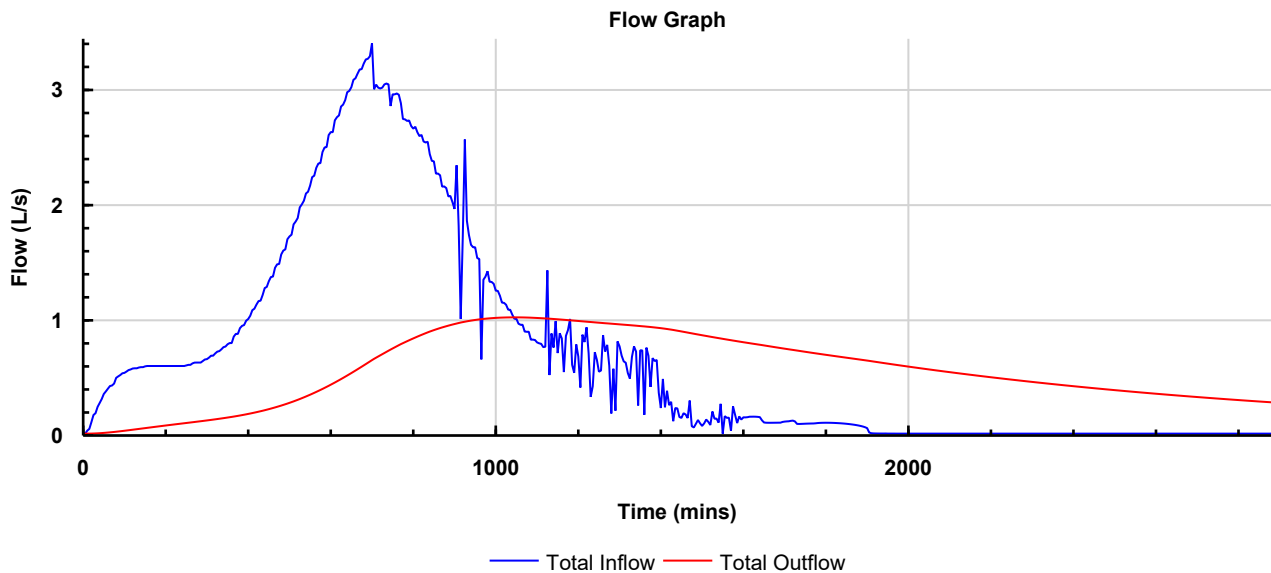


Soakaway 3
Critical by Return Period: FSR: 100 years: Increase Rainfall (%): +20: 1440 mins: Winter

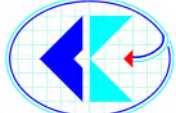
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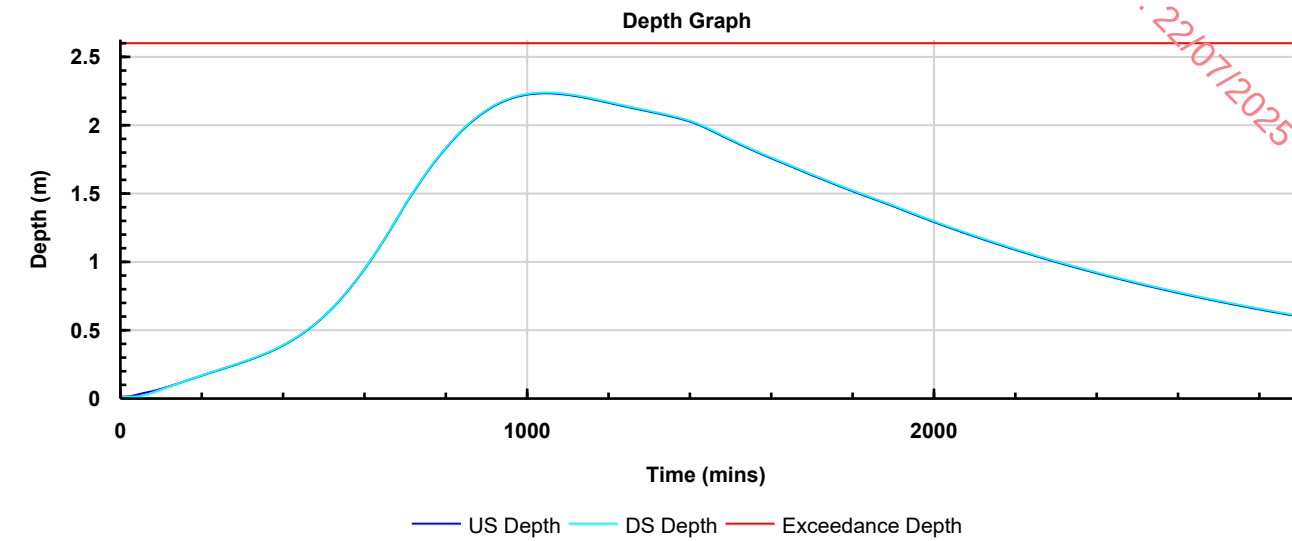
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Graphs

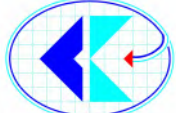


Proposed Off Line Service Area: at Gort CO. GALWAY	Date: 01/07/2025		
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Report Details: Type: Stormwater Control Results Storm Phase: Phase	COYLEKENNEDY CONSULTING ENGINEERS: GFSC MONEENAGEISHA ROAD, GALWAY		


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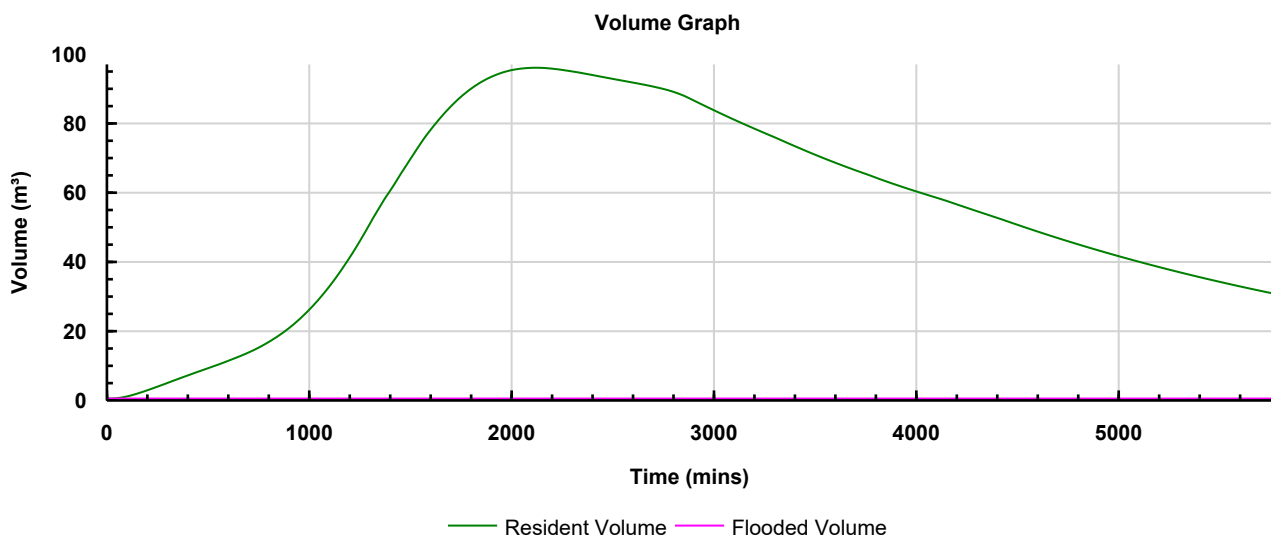
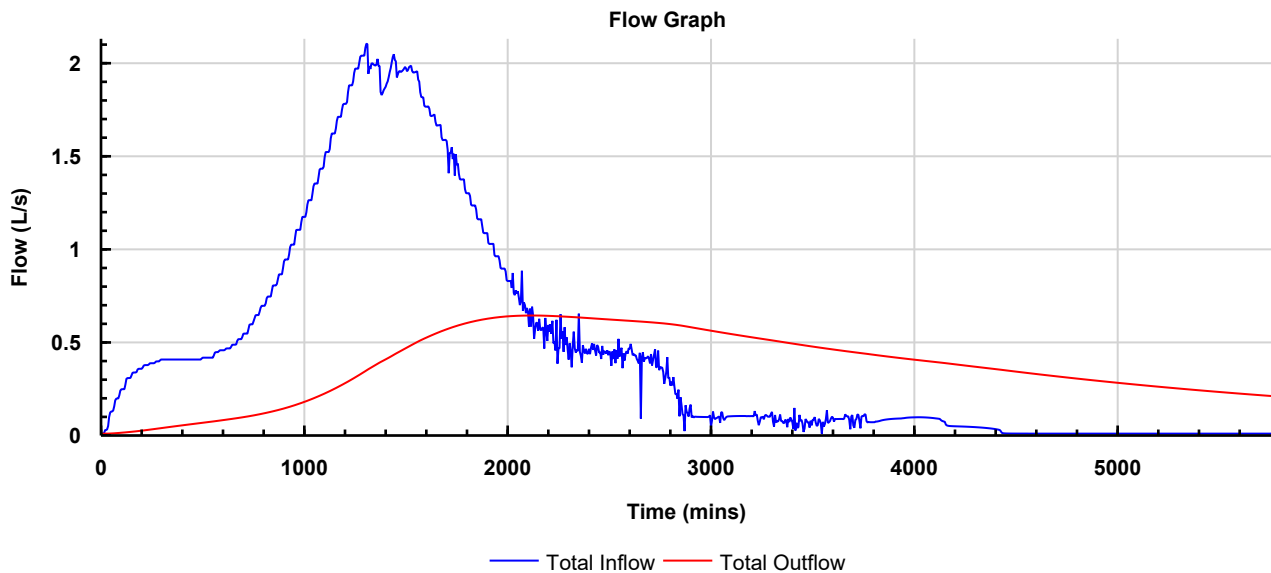


Soakaway 4
Critical by Return Period: FSR: 100 years: Increase Rainfall (%): +20: 2880 mins: Winter

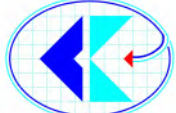
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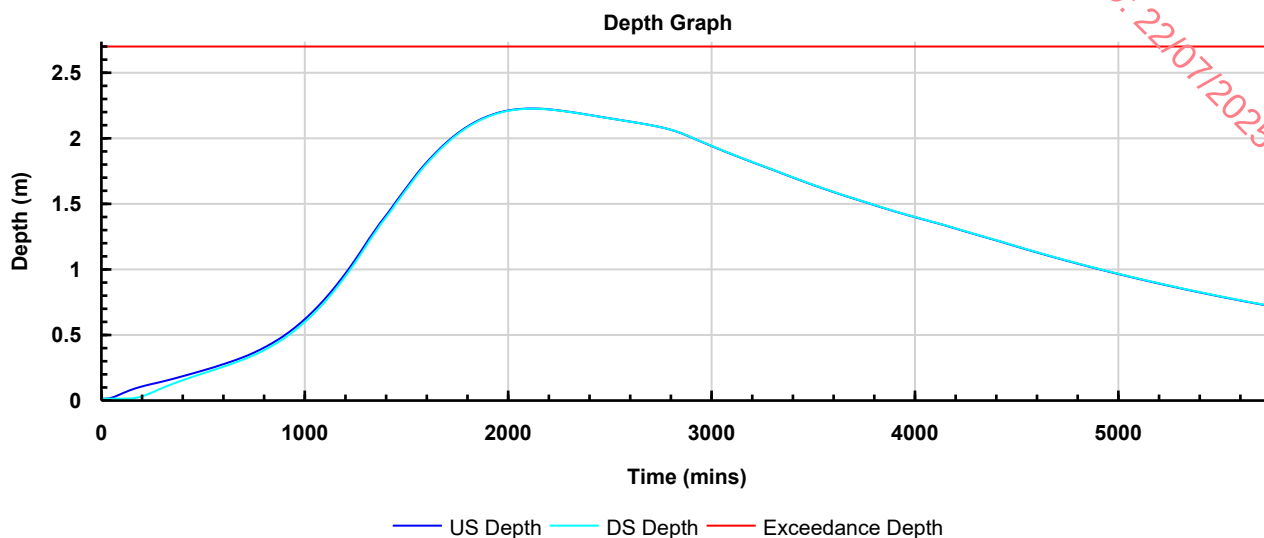
Graphs



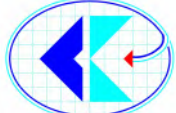
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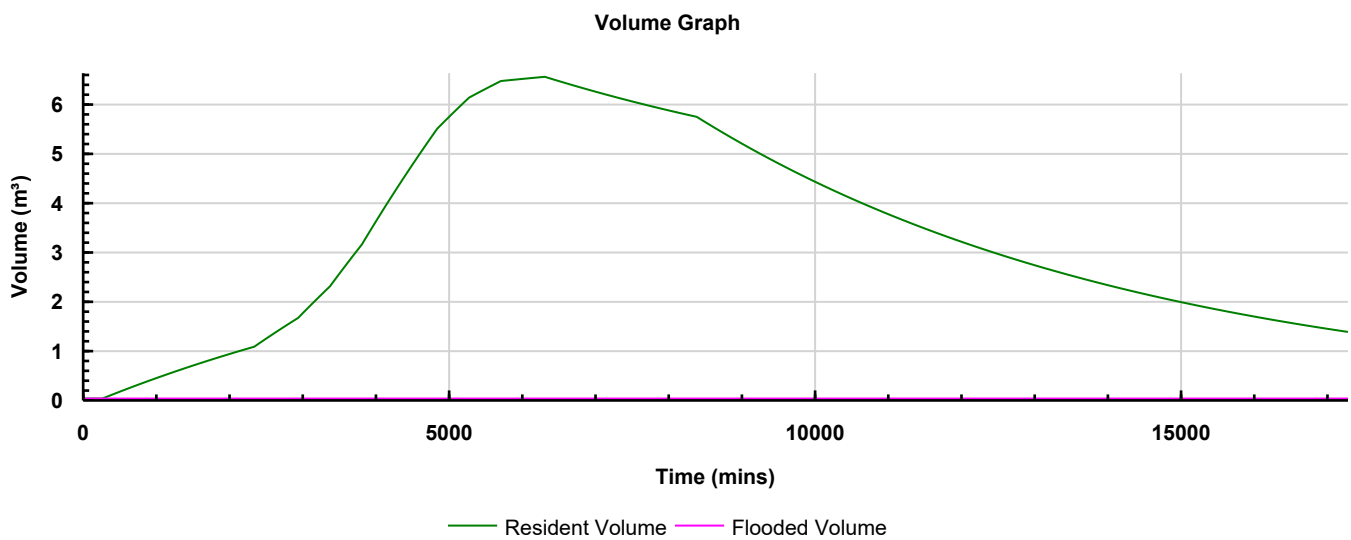
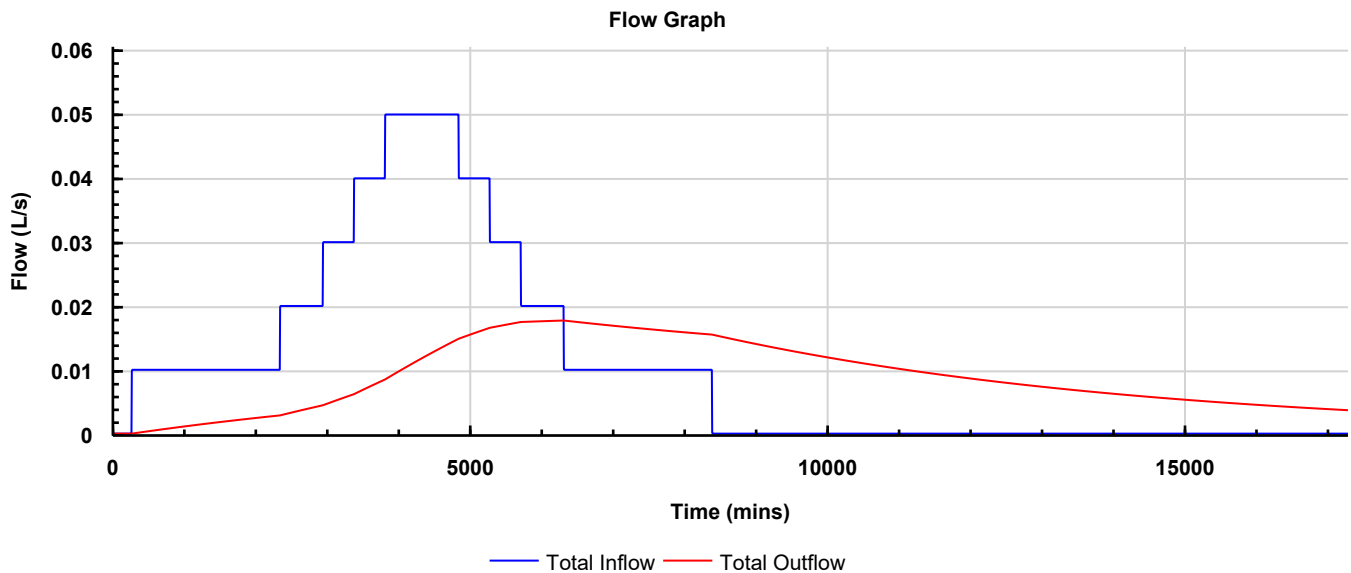


Soakaway 2
Critical by Return Period: FSR: 100 years: Increase Rainfall (%): +20: 8640 mins: Winter

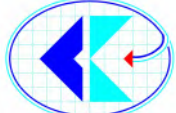
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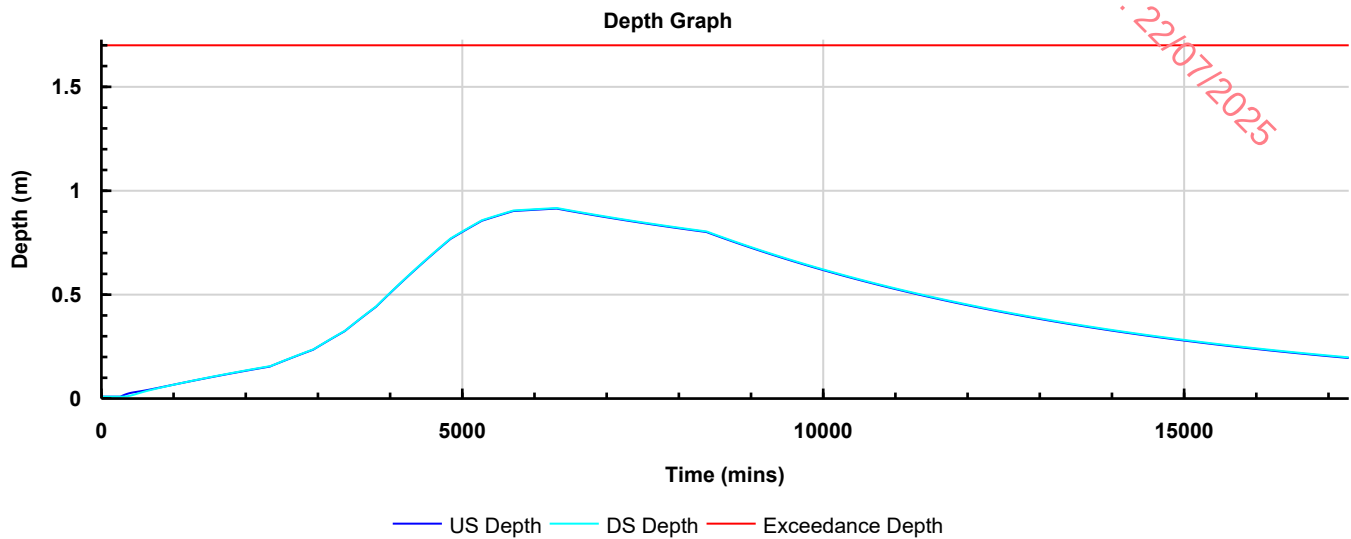
Graphs



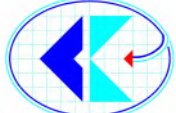
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Report Details: Type: Stormwater Control Results Storm Phase: Phase	COYLEKENNEDY CONSULTING ENGINEERS: GFSC MONEENAGEISHA ROAD, GALWAY		


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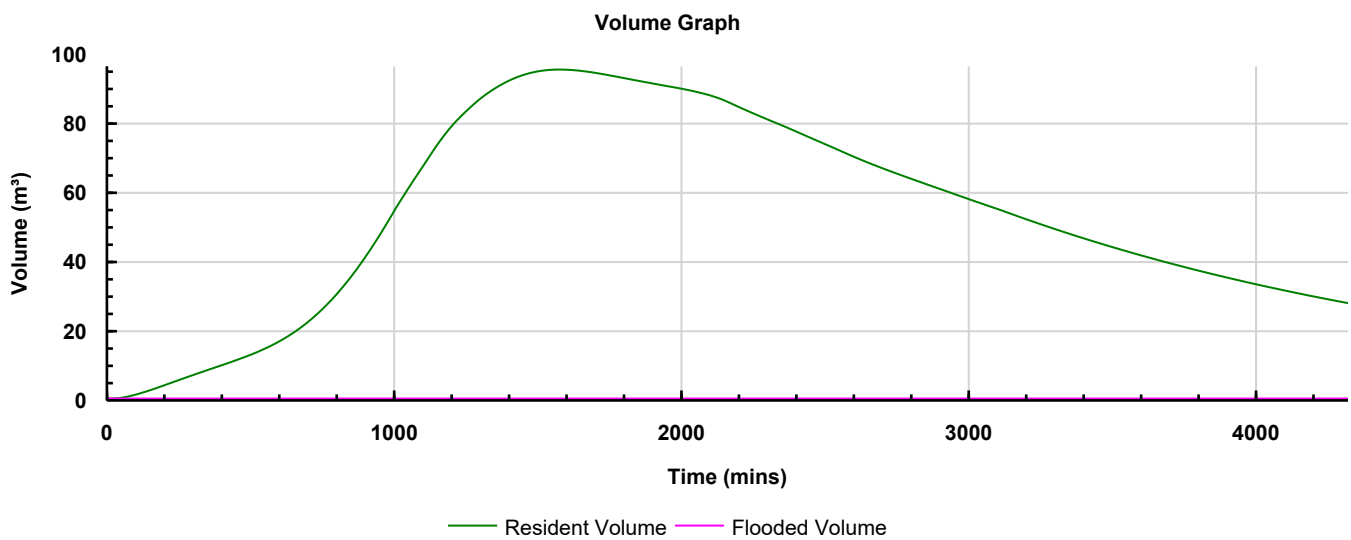
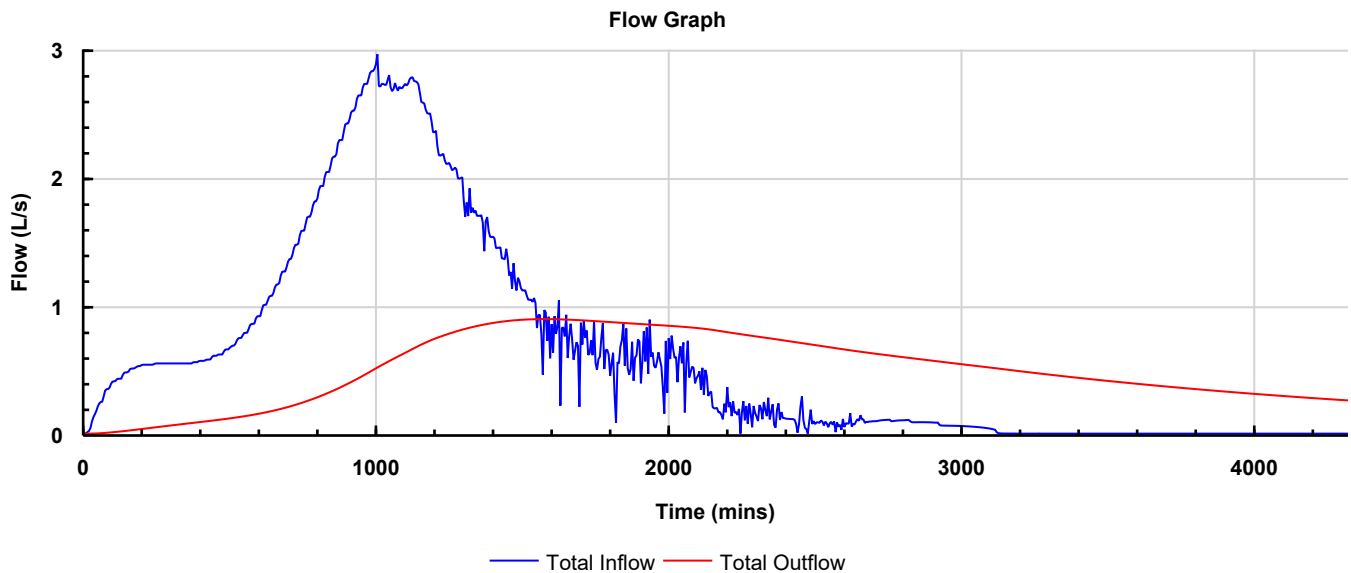


Soakaway 5
Critical by Return Period: FSR: 100 years: Increase Rainfall (%): +20: 2160 mins: Winter

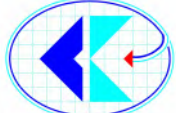
Type: Infiltration Trench

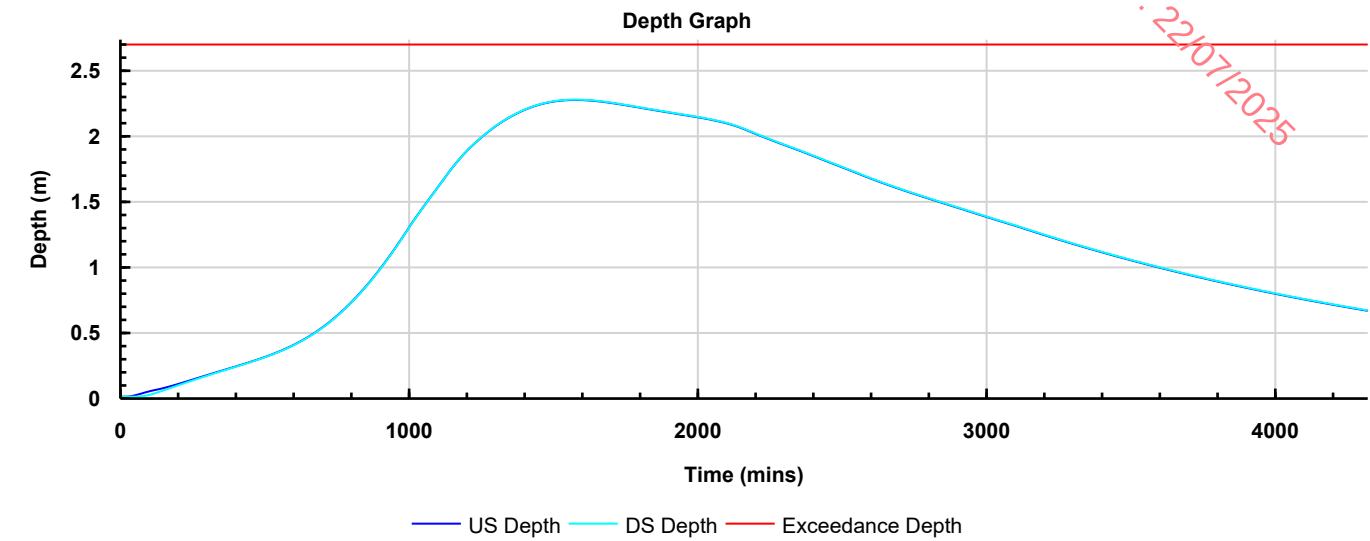
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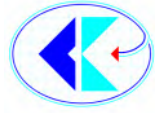
Graphs



Proposed Off Line Service Area: at Gort CO. GALWAY	Date: 01/07/2025		
	Designed by: AC	Checked by: BC	Approved By:
Report Details: Type: Stormwater Control Results Storm Phase: Phase	COYLEKENNEDY CONSULTING ENGINEERS: GFSC MONEENAGEISHA ROAD, GALWAY		

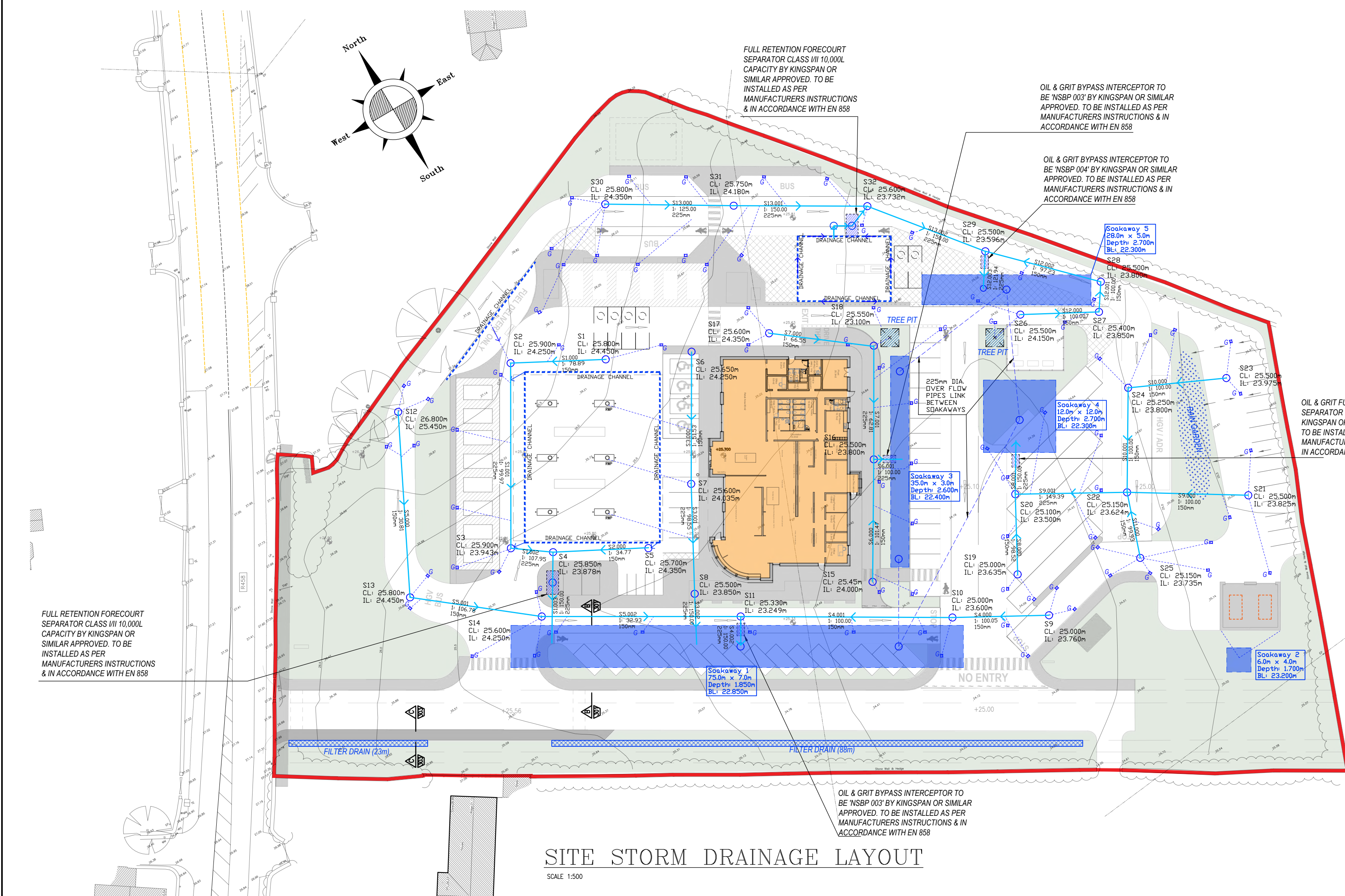

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Appendix 3 Drawings, Details & Calculations



SERVICES LEGEND:

- PROPOSED FOUL SEWER
- PROPOSED ROAD MANHOLE
- PROPOSED ROAD GULLY
- PROPOSED STORM SEWER
- PROPOSED STORM MANHOLE
- PROPOSED SURFACE WATER SOKAWAY/ATTENUATION
- OIL/GRIT INTERCEPTOR
- RAIN GARDEN - PLANTING TO SPECIALIST LANDSCAPING DETAILS
- TREE PITS - TO SPECIALIST LANDSCAPING DETAILS

1. ALL MAIN DRAINAGE PIPES TO BE MIN. 150mm DIA. UPVC TO IS EN 1401 & AGREEMENT CERTIFIED LINED.

2. ALL LOCAL STORM PIPES AROUND BUILDING TO BE MIN. 100mm DIA. LAD AT MIN. 1:100 FALLS.

3. ALL LOCAL FOUL PIPES AROUND BUILDING TO BE MIN. 100mm DIA. LAD AT MIN. 1:100 FALLS.

4. ALL INTERNAL CONNECTIONS TO LOCAL EXTERNAL DRAINAGE TO BE 1:40 FALLS.

5. ALL INSPECTION CHAMBERS TO BE IN COMPLIANCE WITH STANDARD DETAIL STD-WH-13.

6. ALL INTERNAL DRAINAGE IN BUILDING TO ARCHITECTS DETAILS.

7. ALL SLOTTED DRAINAGE CHANNELS AROUND BUILDINGS TO ARCHITECTS/LANDSCAPE ARCHITECTS DETAILS.

8. ALL SOKAWAYS DESIGNED TO BRESS. SOKAWAYS TO BE FILLED WITH CLEAN BROKEN STONE, ALL SURROUNDED IN A GEOTEXTILE. SOKAWAY DESIGN SUBJECT TO FURTHER ASSESSMENT AT CONSTRUCTION STAGE.

EXCAVATION AND FILL NOTES :

1. THE RESPONSIBLE AUTHORITIES SHOULD BE CONSULTED REGARDING THE GROUND TO BE EXCAVATED WITH REGARD TO THE POSITION AND TYPE OF UNDERGROUND SERVICES THAT ARE LIKELY TO BE ENCOUNTERED DURING EXCAVATION AND ANY POSSIBLE OVERSIGHTS REQUIRED.

2. THE BEARING STRATA TO BE APPROVED AND AGREED BY THE CONSULTING ENGINEER.

3. TEMPORARY FILL OVER BEARING STRATA TO BE PROVIDED TO PROTECT THE AGREED BEARING STRATA AND REMOVED FROM SITE BEFORE BEGINNING PERMANENT CONSTRUCTION.

4. EXCAVATE TO THE DIMENSIONS, LEVELS, LINES AND PROFILES SHOWN ON THE RELEVANT DRAWINGS. LEVEL AND GRADE TO FALLS AND REMAIN ALL LOOSE MATERIAL - OBTAIN APPROVAL BEFORE ANY CONCRETING OR FILL WORK IS CARRIED OUT. IF ROCK OR OTHER NATURAL STRATA IS ENCOUNTERED NOTIFY THE ARCHITECT AND ENGINEER AND OBTAIN INSTRUCTIONS BEFORE EXCAVATION. BACK FILL UNAUTHORISED OR EXCESS EXCAVATIONS WITH APPROVED FILLING AT NO EXPENSE TO THE CLIENT.

5. WHEN ARCHAEOLOGICAL OBJECTS ARE DISCOVERED DURING EXCAVATION, STOP WORK IN THE IMMEDIATE VICINITY OF THE FIND AND INFORM THE ARCHITECT AND ENGINEER AT ONCE. THE OWNER OF MINERALS, SINKS, CAVES, OR ARCHAEOLOGICAL OBJECTS AND THE LIEVE DISCOVERED IN THE COURSE OF THE EXCAVATIONS SHALL BE DEEMED TO BE THE PROPERTY OF THE CLIENT.

6. EXCAVATIONS IN PROXIMITY ADJACENT TO EXISTING BUILDINGS, PATHWAYS OR THE LIKE SHALL BE CARRIED OUT IN SUCH A MANNER THAT SUCH EXISTING BUILDINGS, PATHWAYS OR THE LIKE ARE NOT ENDANGERED.

7. KEEP EXCAVATIONS FREE FROM WATER, AND KEEP WATER FROM EXCAVATIONS CLEAR OF OTHER CONSTRUCTION WORK. THE WATER LEVEL MAY BE SEASONAL AND/OR TIDAL. WHERE TEMPORARY SUMPS ARE REQUIRED CONSTRUCTION OF EXCAVATIONS FOR PERMANENT WORK AND FILL THEM WITH SUITABLE FILLING WHEN NO LONGER REQUIRED.

8. DISPOSAL AREA FOR EXCAVATED MATERIAL TO BE AGREED WITH CLIENT AND OTHER RELEVANT AUTHORITIES.

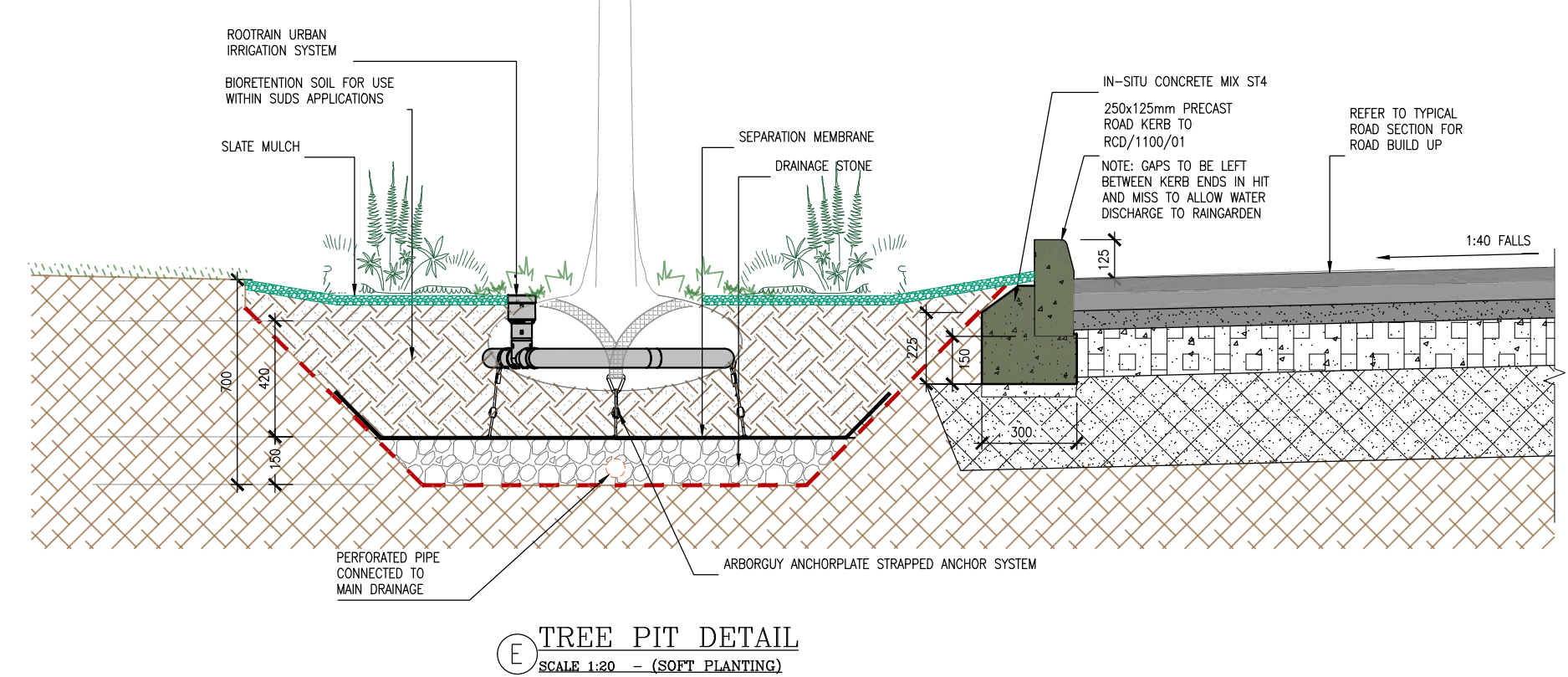
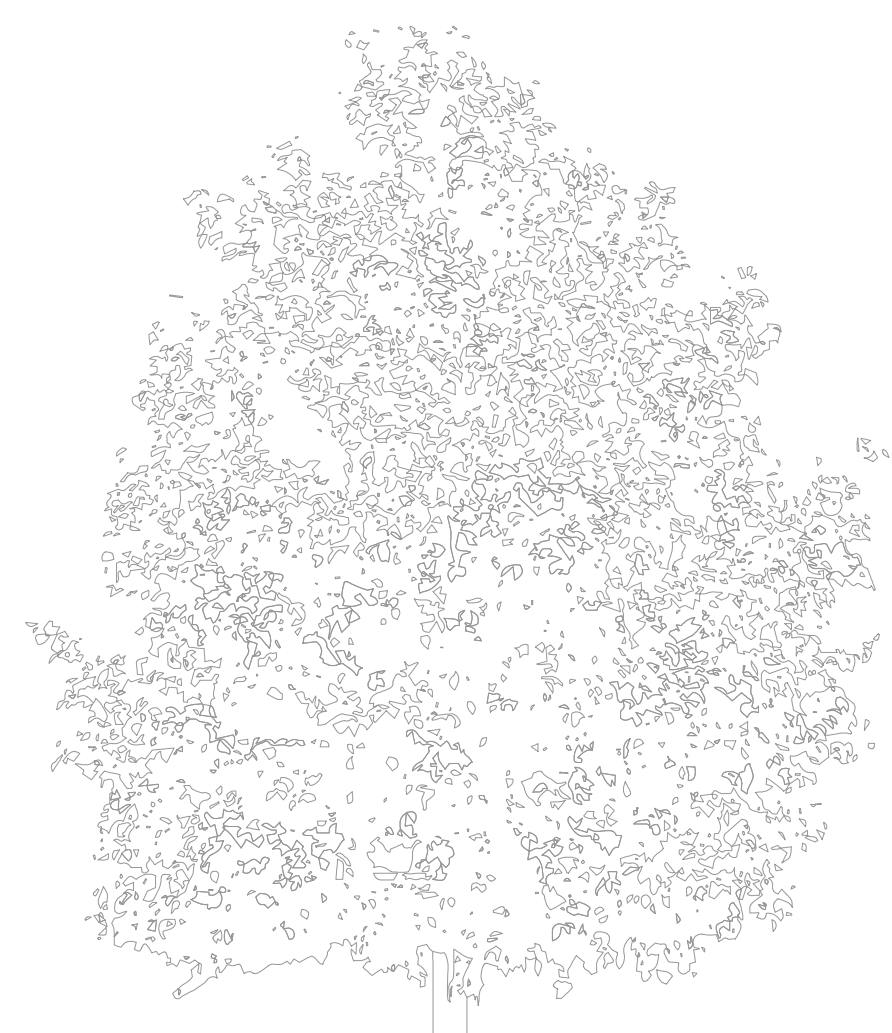
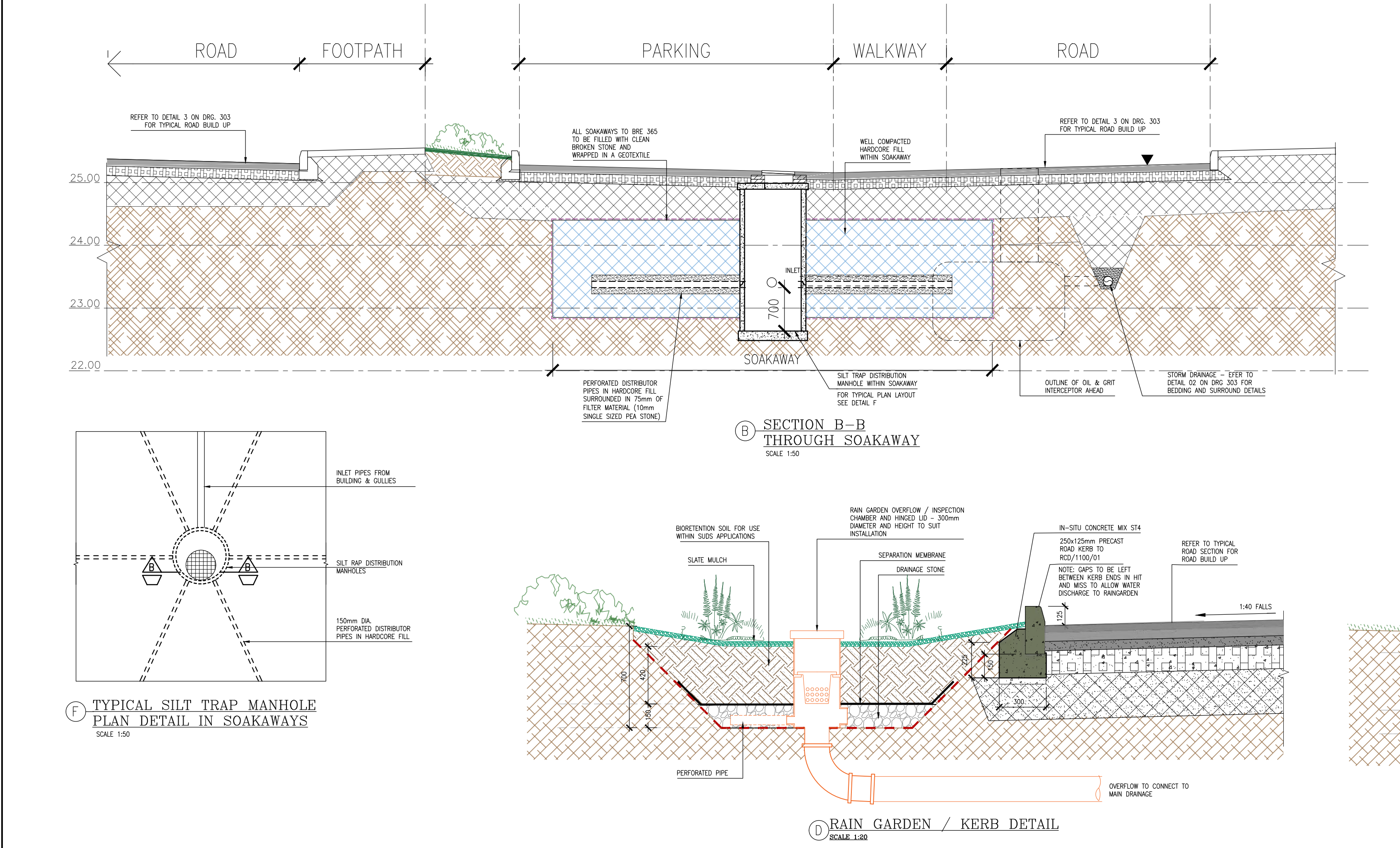
9. UNLESS OTHERWISE AGREED, EXCAVATED MATERIAL WITHIN 1.0m OF BUILDINGS SHOULD BE 'ORANULAR' FILL S.P. 21-2014 ANNEX C, COMPACTED IN 200mm LAYERS USING 10 NUMBER PASSES OF A 3000kg PER METER WITH VIBRATING ROLLER. SEE COMPACTOR SPECIFICATION TABLE.

10. FILL MATERIAL MUST BE PROVIDED OVER THE ENTIRE EXTENT OF THE ROADS AND EXTEND AT LEAST 300mm BEYOND KERB LINE. IT MUST THEN TAPEL DOWN TO BEARING STRATA.

Compaction Specification			
Type of Compaction Plant	Category	Number of Passes	Layers not exceeding the following compacted thickness
Smooth-wheeled Roller (or vibratory roller operating without vibration)	Mass per metre width of roll: Over 2700 Kg to 5400 Kg	16	150mm
	Over 5400 Kg	18	150mm
Pneumatic-tyred Roller	Mass per metre width of vibrating roll: Over 4000 Kg up to 6000 Kg	12	150mm
	Over 6000 Kg up to 8000 Kg	12	150mm
	Over 8000 Kg up to 12000 Kg	10	150mm
Vibratory Roller	Mass per metre width of vibrating roll: Over 700 Kg up to 1300 Kg	16	150mm
	Over 1300 Kg up to 1800 Kg	6	150mm
	Over 1800 Kg up to 2300 Kg	4	150mm
	Over 2300 Kg up to 2900 Kg	3	150mm
	Over 2900 Kg up to 3600 Kg	3	150mm
Vibrating-plate Compactor	Mass per metre of base plate: Over 1400 Kg/m2 up to 1800 Kg/m2	8	150mm
	Over 1800 Kg/m2 up to 2100 Kg/m2	5	150mm
Vibro-tamper	Mass: Over 50 Kg up to 65 Kg	4	150mm
	Over 65 Kg up to 75 Kg	3	150mm
Power Rammer	Mass: 100 Kg - 500 Kg	5	150mm
	Over 500 Kg	5	150mm

- NOTES**
- GENERAL NOTES :**
- ALL COYLE KENNEDY DRAWINGS TO BE READ IN CONJUNCTION WITH ARCHITECTS DRAWINGS AND ALL OTHER RELEVANT DRAWINGS.
 - ALL SETTING OUT, INSULATION, DPC, TANKING / WATERPROOFING, SCORED AND RASON PROTECTION DETAILS BY ARCHITECT & SPECIALIST.
 - DETAILED SPECIFICATIONS (IF NOT ISSUED) ARE AVAILABLE AT ENGINEERS OFFICE FOR INSPECTION BY CONTRACTORS, BY APPOINTMENT.
 - REFER TO ARCHITECT FOR DAMP PROOF, TANKING AND GAS PROOFING MEMBRANE REQUIREMENTS. REQUIREMENTS OF SUBSTRUCTURE GAS/WATER PROOFING MEMBRANES TO BE BY A REPUTABLE, COMPETENT SPECIALIST WITH ADEQUATE PL.
 - THE CONTRACTOR SHALL BE DEEMED TO HAVE ALLOWED FOR, WITHIN HIS TENDER, EMPLOYING A CHARTERED STRUCTURAL ENGINEER WITH ADEQUATE PROFESSIONAL INDEMNITY INSURANCE TO ASSESS, DESIGN AND DETAIL SUCH TEMPORARY WORKS AS ARE NECESSARY TO OBTAIN SUPPORT TO EXISTING AND/OR CONSTRUCTED ELEMENTS DURING THE CONSTRUCTION PERIOD. THIS APPLIES TO ELEMENTS WITHIN THE SITE AND NEIGHBOURING SITES.
 - THE CONTRACTOR IS DEEMED TO HAVE VISITED THE SITE AND CONSULTED WITH RELEVANT AUTHORITIES AND BE SATISFIED IN RELATION TO THE SITES SURROUNDINGS, EXISTING SERVICES, LEVELS, BOUNDARIES, GROUND CHARACTERISTICS AND ANY OTHER SITE CONSTRAINTS, INCLUDING DIVERSION OF SERVICES AS NECESSARY.
 - ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE CURRENT BUILDING REGULATIONS.
 - WHERE LEANMX IS SPECIFIED ALL LEANMX TO BE GRADE C16/20 (GEN 3), UNLESS NOTED OTHERWISE.
 - ALL LEVELS ARE IN METRES ABOVE ORNANCE DATUM (U.N.O.) INDICATING STRUCTURAL LEVEL (SSL).
 - DO NOT SCALE FROM DRAWINGS. USE FIGURED DIMENSIONS ONLY. ANY DISCREPANCIES TO BE REPORTED TO THE STRUCTURAL ENGINEER PRIOR TO COMMENCEMENT OF WORKS.
 - ALL WORKS SHALL BE CARRIED OUT IN A SAFE MANNER AND IN ACCORDANCE WITH THE HEALTH AND SAFETY REGULATIONS, METHOD STATEMENTS (WHERE REQUIRED) SHALL BE SUBMITTED TO THE ENGINEER OR OTHER APPOINTED PERSON(S).
 - THE CONTRACTOR SHALL COMPLY WITH ALL STATUTORY AUTHORITY REQUIREMENTS INCLUDING PLANNING CONDITIONS, FIRE SAFETY CERTIFICATE CONDITIONS, LOCAL AUTHORITY DRAINAGE REQUIREMENTS, ETC.
 - PROJECT DRAWINGS AND SPECIFICATIONS REFERENCE TO BUILDING REGULATIONS, BRITISH, IRISH OR OTHER NATIONAL STANDARDS OR CODES OF PRACTICE DO NOT GIVE THE YEAR OF ISSUE OR DATES OF AMENDMENTS. THE LATEST RELEVANT PUBLISHED VERSION INCLUDING ANY RELEVANT AMENDMENTS AND ADD END AT THE DATE OF INITIATION TO TENDER SHALL APPLY. WHERE A STANDARD OR CODE OF PRACTICE HAS BEEN SUPERSEDED, THE LATEST EDITION OF THE SUPERSEDING PUBLICATION SHALL APPLY.
 - ANY DISCREPANCIES DISCOVERED BETWEEN DESIGN TEAM DRAWINGS TO BE REPORTED IMMEDIATELY AND CLARIFICATION SOUGHT AND DISCREPANCY CORRECTED PRIOR TO CONSTRUCTION COMMENCING.

- DRAINAGE NOTES :**
- CONTRACTOR TO MAKE ALL NECESSARY ENQUIRIES REGARDING LOCATION OF EXISTING SEWERS, ELECTRICAL AND OTHER SERVICES ON SITE.
 - FOR DRAINAGE WORK LOCAL TO BUILDINGS, REFER TO ARCHITECT'S DRAWINGS.
 - ALL DRAINAGE WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE CURRENT SPECIFICATION, PART H - BUILDING REGULATIONS AND DEPT. OF ENVIRONMENT DOCUMENT 'RECOMMENDATIONS FOR SITE DEVELOPMENT WORKS FOR HOUSING AREAS', & WRC 'SEWERS FOR ADOPTION' 6th EDITION A DESIGN & CONSTRUCTION GUIDE FOR DEVELOPERS AND USER EIREANN WASTEWATER CODE OF PRACTICE.
 - BEDDING MATERIAL TO BE 10mm SINGLE SIZED AGGREGATE COMPLYING WITH THE REQUIREMENTS OF SPECIFICATIONS FOR CONCRETE. FOR RIGID PIPES THE GRANULAR MATERIAL SHOULD CONFORM TO BS EN 12620 ANNEX B TABLE B AND SHOULD BE SINGLE SIZE MATERIAL OR GRADED MATERIAL FROM 5mm to 10mm FOR 150mm PIPES, 4mm for 100mm PIPES, 25mm for 150mm - 600mm DIAMETER AND 40mm FOR PIPES MORE THAN 600mm DIAMETER.
 - THE PREPARED UNDEROFT OF THE TRENCH SHOULD CONSIST OF BEDDING MATERIAL FOR THE FULL WIDTH OF THE TRENCH AND LAD TO THE CORRECT GRADIENT.
 - THE MINIMUM THICKNESS OF BEDDING MATERIAL UNDER THE BARREL OF THE PIPE SHOULD BE 100mm.
 - IMPORTED BEDDING MATERIAL AND BACKFILL USING 'AS DUG MATERIAL' MUST BE APPROVED BY ENGINEER.
 - ALL PVC-U PIPES AND FITTINGS USED FOR DRAIN AND SEWER MUST COMPLY WITH IS 424 " UNPLASTICISED POLYVINYL CHLORIDE (PVC-U) PIPES AND FITTINGS FOR BURIED DRAINAGE AND SEWAGE SYSTEMS "
- REFER TO DRAWINGS 300 FOR RISING MAIN CONNECTION AND TO 302 FOR FOUL SEWER LAYOUT. REFER TO DRG. 303 & 304 FOR TYPICAL DETAILS. REFER TO DRGS, 305 & 306 FOR DRAINAGE NETWORK SECTIONS.**
- DRAWINGS TO BE READ IN CONJUNCTION WITH CK REFER 25-029-250519-01RP AND ITS APPENDICES**



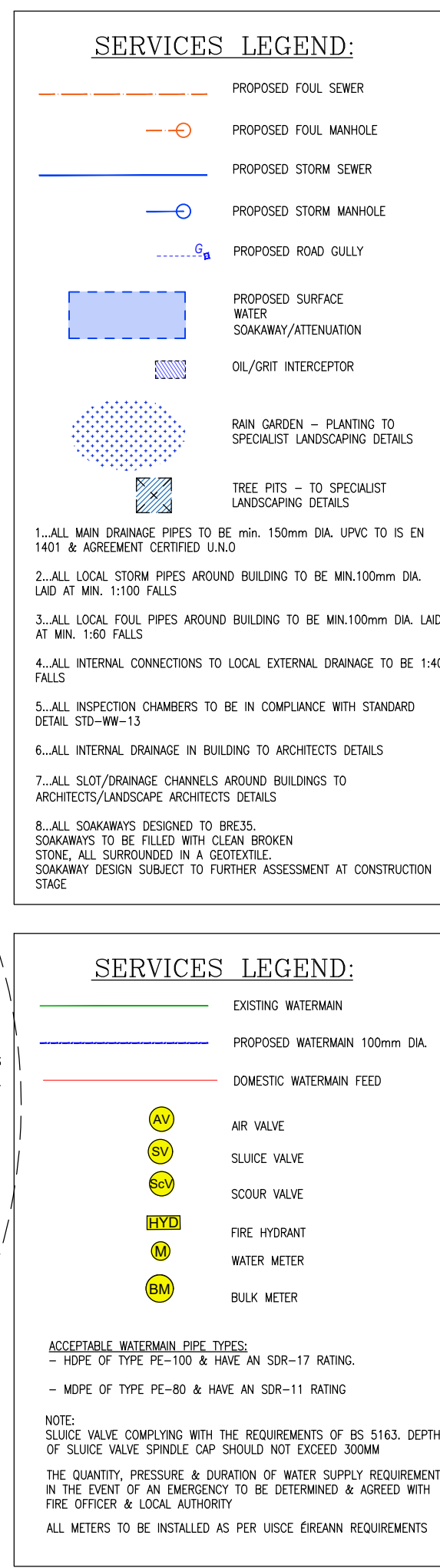
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PROJECT	
PROPOSED OFF LINE SERVICE AREA AT GORT	
CLIENT	
RIVERSIDE FOODS	
TITLE	
SITE STORM DRAINAGE LAYOUT	
PROJECT No.	25-029
DATE	MAY 2025
SCALE	1:500,100 @ A1
BY	AC
CHECKED	BC
STATUS - SKETCH No.	
P-301	
DRAWING REV.	
A	



EXCAVATION AND FILL NOTES:

1. THE RESPONSIBLE AGENCY SHOULD BE CONSULTED REGARDING THE FOLLOWING:

2. THE BEARING STRATA TO BE APPROVED AND AGREED BY THE CONSULTING ENGINEER.

3. TEMPORARY FILL OVER BEARING STRATA TO BE PROVIDED TO PROTECT THE AFFECTED BEARING STRATA AND REMOVED FROM SITE BEFORE BEARING PERMANENT CONSTRUCTION.

4. DEDICATE TO THE DIMENSIONS, LEVELS, LINES AND PROFILES SHOWN ON THE RELEVANT DRAWINGS, LEVEL, CATCH TO FALLS AND REMOVE ALL LOOSE MATERIAL. (GENERAL APPROVAL BEFORE ANY CONCRETING OR FORMWORK OR SHORING OFF, OR ROCK OR OTHER NATURAL STRATA IS EXCAVATED WITHIN THE ARCHITECT AND ENGINEER AND OTHER INSTRUCTIONS BEFORE EXCAVATION, BACK FILL UNAUTHORIZED OR EXCESS EXCAVATIONS WITH APPROVED FILLING AT NO EXPENSE TO THE CLIENT.

5. WHEN HISTORICAL/ARCHAEOLOGICAL OBJECTS ARE DISCOVERED DURING EXCAVATION, STOP WORK IN THE IMMEDIATE VICINITY OF THE FIND AND INFORM THE ARCHITECT AND ENGINEER AT ONCE. THE OWNER OF MINERALS, SUCH AS GRAVEL OR ARCHAEOLGICAL OBJECTS AND THE LIKE DISCOVERED IN THE COURSE OF THE EXCAVATIONS IS TO BE THE PROPERTY OF THE PROPOSER AND NOT THE CLIENT.

6. EXCAVATE IN POSITIVE ADJACENT TO EXISTING BUILDINGS, PATHWAYS OR THE LIKE SHALL BE CARRIED OUT IN SUCH A MANNER THAT SUCH EXISTING BUILDINGS, PATHWAYS OR THE LIKE ARE NOT ENDANGERED.

7. KEEP EXCAVATIONS FREE FROM WATER, AND KEEP WATER FROM EXCAVATIONS CLEAR OF OTHER CONSTRUCTION WORK. WATER LEVEL MAY BE SEASONAL AND/OR LOCAL, DRAIN TEMPORARY SUMPS ARE REQUIRED CONTINUOUSLY FROM EXCAVATIONS FOR FLEWMENT AND FILL THEM WITH SUITABLE FILLING WHEN NO LONGER REQUIRED.

8. DISPOSAL AREA FOR EXCAVATED MATERIAL TO BE AGREED WITH CLIENT AND OTHER RELEVANT AUTHORITIES.

9. UNLESS OTHERWISE AGREED ALL MATERIAL WITHIN 1.0m OF BUILDINGS SHOULD BE 'ORANNUAL FILL S.R. 21 2014 ANNEE' COMPACTED TO 200mm VIBRATIONS USING 10 NUMBER PASSES OF A 3000kg PER MEET WITH VIBRATING ROLLER. SEE COMPLETION VERIFICATION SHEET.

10. FILL MATERIAL MUST BE PROVIDED WITH THE FULL EXTENT OF THE ROADS AND EXTEND AT MOST 300mm BEYOND KERB LINE. IT MUST THEN TAPER EXCEED DOWN TO BEARING STRATA.

WATERMAIN NOTES :

1. WATER MAINS SHOULD HAVE A MINIMUM NOMINAL PRESSURE CLASSIFICATION OF 9 BAR. THE FOLLOWING PIPES MAY BE USED:

(A) PIPE TYPE AND MATERIAL SPECIFICATION SHOULD BE IN ACCORDANCE WITH SECTION 3.9 OF THE WATER CODE OF PRACTICE.

(B) DUCTILE IRON PIPES TYPE AND MATERIAL SPECIFICATION SHOULD BE IN ACCORDANCE WITH SECTION 3.9.1 OF THE WATER CODE OF PRACTICE.

(C) POLYETHYLENE PIPES TYPE AND MATERIAL SPECIFICATION SHOULD BE IN ACCORDANCE WITH SECTION 3.9.2 AND 3.9.3 OF THE WATER CODE OF PRACTICE.

2. SERVICE PIPES SHOULD HAVE AN INTERNAL DIAMETER OF 250mm AND SHOULD COMPLY WITH WATER CODE OF PRACTICE SECTION 3.9.1 TO 3.9.3 OF THE WATER CODE OF PRACTICE.

3. CLASS OF PIPE TO USE: EXCEARN CODE OF PRACTICE

4. CONCRETE ANCHOR BOLTS TO COMPLY WITH STANDARD DETAIL STD-W-28.

5. THE DEPTH OF THE SLURIC WAVE SPINDLE CAP BELOW FINISHED GROUND LEVEL SHOULD NOT EXCEED 300mm.

6. DEPTH OF HYDRANT FROM FINISHED GROUND LEVEL SHOULD BE A MAXIMUM OF 250mm. HYDRANTS TO COMPLY WITH USICE EXCEARN STANDARD DETAILS STD-W-16 TO STD-W-19.

7. ARV LINES TO BE IN COMPLIANCE WITH THE REQUIREMENTS LISTED IN USICE EXCEARN STANDARD DETAIL STD-W-21.

8. THE BOUNDARY BOX IS TO COMPLY WITH USICE EXCEARN STANDARD DETAIL STD-W-03.

9. ALL FITTINGS, INCLUDING SLUIC VALVES, BUTTERFLY VALVES, SCOUR VALVES, HYDRANTS, ARV LINES AND METERS TO COMPLY WITH WATER CODE OF PRACTICE 3.16.

10. IF A WATERMAIN.

11. NO PIPE, CABLE, CONDUIT OR OTHER SERVICE PIPE SHOULD BE LAD LONGITUDINALLY OVER THE WORKFACE.

12. TRENCHE BACKFILL AND BEDDING TO COMPLY WITH USICE EXCEARN STANDARD DETAIL STD-W-13.

13. ALL NEW PRESS/SHOULDER PLATING ADJACENT TO WATER MAINS TO COMPLY WITH USICE EXCEARN STANDARD DETAIL STD-W-30A.

13. REFER TO STD-W-5 FOR ARRANGEMENT OF FITTINGS/PIPEWORK FOR TEMPORARY STOP ENDS OR PROVISION FOR FUR FUTURE DEVELOPMENT.

NOTES

GENERAL NOTES :

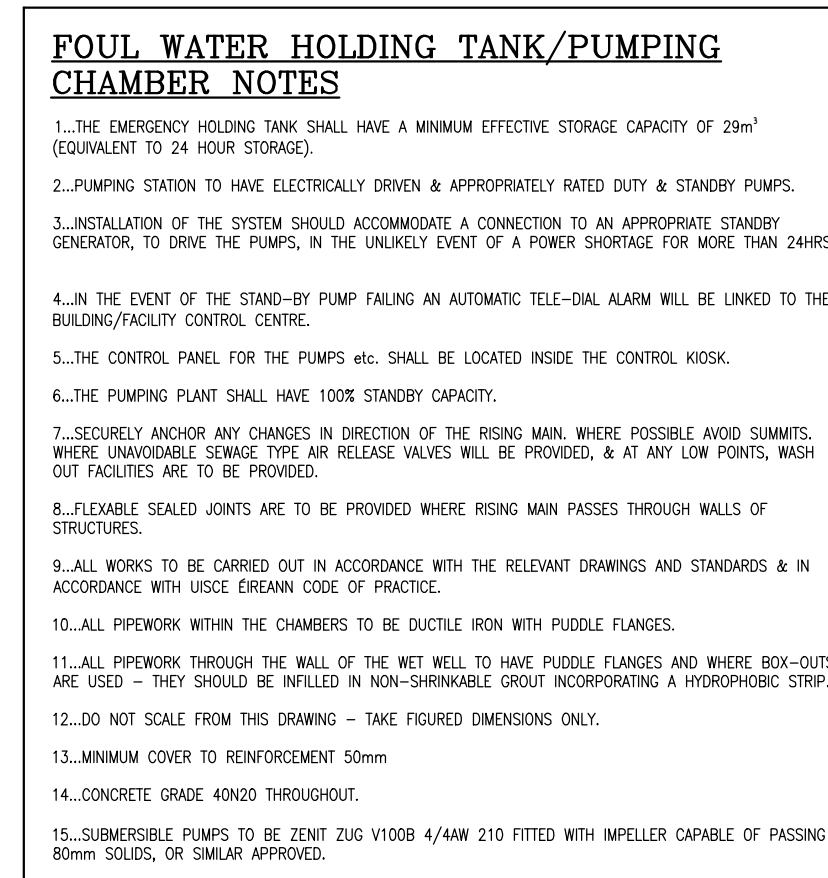
1. ALL CLOVE KENNEDY DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ARCHITECTS DRAWINGS AND ALL OTHER RELEVANT DRAWINGS.
2. ALL SETTING OUT, INSULATION, PIPE, TANKING / WATERPROOFING, SLOPE AND RAOON PROTECTION DETAILS BY ARCHITECT & SPECIALIST.
3. DETAILED SPECIFICATIONS (IF NOT ISSUED) ARE AVAILABLE AT ENGINEERS OFFICE FOR INSPECTION BY CONTRACTORS, BY APPOINTMENT.
4. REFER TO ARCHITECT FOR DAMP PROOF, TANKING AND GAS PROOFING MEMBRANE REQUIREMENTS.
5. REQUIREMENTS OF SUBSTRUCTURE GAS/WATER PROOFING MEMBRANES TO BE BY A REPUTABLE, COMPETENT SPECIALIST WITH ASSURANCE P.P.
6. THE CONTRACTOR SHALL BE DEEMED TO HAVE ALLOWED FOR, WITHIN HIS TENDERS, EMPLOYING A CHARTERED STRUCTURAL ENGINEER WITH ADEQUATE PROFESSIONAL INDEMNITY INSURANCE TO ASSESS, DESIGN AND DETAIL SUCH TEMPORARY WORKS AS ARE NECESSARY TO OBTAIN SUPPORT TO EXISTING AND/OR CONSTRUCTED ELEMENTS DURING THE CONSTRUCTION PERIOD. THIS APPLIES TO ELEMENTS WITHIN THE SITE AND NEIGHBORING THE SITE.
7. THE CONTRACTOR IS DEEMED TO HAVE VISITED THE SITE AND CONSULTED WITH RELEVANT AUTHORITIES AND AGENCIES IN RELATION TO THE SITE SURROUNDINGS, EXISTING SERVICES, LEVELS, BOUNDARIES, GROUND CHARACTERISTICS AND ANY OTHER SITE CONSTRAINTS, INCLUDING DIVERSION OF SERVICES AS NECESSARY.
8. THE CONTRACTOR TO BE CARRIED OUT IN ACCORDANCE WITH THE CURRENT BUILDING REGULATIONS.
9. WHERE LEANIN IS SPECIFIED ALL LEANINX TO BE GRADE C16/20 (EN 33), UNLESS NOTED OTHERWISE.
10. ALL LEVELS ARE IN METRES ABOVE ORIGINANE DATUM (A.O.D.) INDICATING STRUCTURAL LEVEL (SSL).
11. DO NOT SCALE FROM DRAWINGS, USE DIMENSIONS QUOTED; ANY DISCREPANCIES TO BE REPORTED TO THE STRUCTURAL ENGINEER PRIOR TO COMMENCEMENT OF WORKS.
12. THE CONTRACTOR SHALL BE CHARGED OUT TO A SAFE MANAGER AND IN ACCORDANCE WITH THE HEALTH AND SAFETY REGULATIONS, METHOD STATEMENTS (WHICHE REQUIRED) SHALL BE SUBMITTED TO THE ENGINEER OR OTHER APPOINTED PERSON(S).
13. THE CONTRACTOR SHALL COMPLY WITH ALL STATUTORY AUTHORITY REQUIREMENTS INCLUDING PLANNING CONDITIONS, FIRE SAFETY CERTIFICATE CONDITIONS, LOCAL AUTHORITY DRAINAGE REQUIREMENTS etc
14. PROJECT REGULATIONS AND SPECIFICATIONS REFERENCE TO BUILDING REGULATIONS, BRITISH, IRISH OR OTHER NATIONAL STANDARDS OR CODES OF PRACTICE DO NOT GIVE ONE THE DATE OF ISSUE OR DATES OF AMENDMENTS. THE LATEST RELEVANT PUBLISHED VERSION INCLUDING ANY RELEVANT AMENDMENTS AND END AT THE DATE OF INVITATION TO TENDERS SHALL BE USED. IN THE CASE OF CODE OF PRACTICE, IF ONE CODE OF PRACTICE HAS SUPERSEDED, THE LATEST EDITION OF THE SUPERSEDING PUBLISHED SHALL APPLY.
15. ANY DISCREPANCIES DISCOVERED BETWEEN DESIGN TEAM DRAWINGS TO BE REPORTED IMMEDIATELY AND CLARIFICATION SOUGHT AND CORRECTIONS CORRECTED PRIOR TO CONSTRUCTION COMMENCING.

DRAINAGE NOTES :

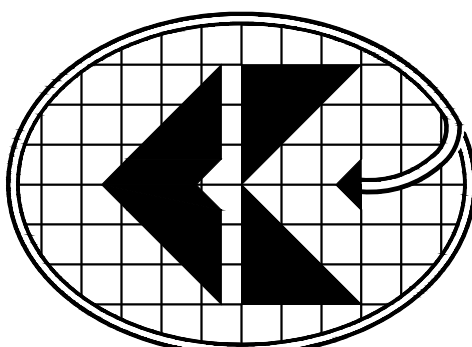
1. CONTRACTOR TO MAKE ALL NECESSARY ENQUIRIES REGARDING LOCATION OF EXISTING SEWERS, ELECTRICAL AND OTHER SERVICES ON SITE.
2. FOR DRAINAGE WORK LOCAL TO BUILDINGS, REFER TO ARCHITECTS DRAWINGS.
3. ALL DRAINAGE WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE CURRENT SPECIFICATION, PART H BUILDING REGULATIONS AND DEPT. OF ENVIRONMENT DOCUMENT "RECOMMENDATIONS FOR SITE DEVELOPMENT WORKS FOR HOUSING AREAS", & WHERE SEWERS FOR ADDITION (EITHER A) DESIGN & CONSTRUCTION GUIDE FOR DEVELOPERS AND USE/USE DRAINAGE WATERSEWER CODE OF PRACTICE.
4. BEDDING MATERIAL, TO BE 100mm SINGLE SIZE AGGREGATE COMPLYING WITH THE REQUIREMENTS OF AGGREGATES FOR CONCRETE, FOR ROAD PAVES THE GRANULAR MATERIAL SHOULD CONFORM TO BS EN 12618 ANNEX B TABLE B AND SHOULD BE SINGLE SIZE MATERIAL OR GRADED MATERIAL FROM 5mm to 10mm for FILL MORE THAN 600mm DEEPER. TRENCH SHOULD FOR 150mm - 600mm DEEPER AND 40mm for PIPES MORE THAN 600mm DEEPER.
5. THE PREPARED UNDOING OF THE TRENCH SHOULD CONSIST OF BEDDING MATERIAL FOR THE FULL WIDTH OF THE TRENCH AND LAD TO THE CORRECT GRADIENT.
6. THE MINIMUM THICKNESS OF BEDDING MATERIAL UNDER THE BARREL OF THE PIPE SHOULD BE 100MM
7. IMPORTED BEDDING MATERIAL AND BACKFILL (SUCH AS DUG MATERIAL) MUST BE APPROVED BY ENGINEER.
8. ALL PVC-U PIPES AND FITTINGS USED FOR DRAIN AND SEWER MUST COMPLY WITH BS 6242 " UNPLASTICIZED POLYVINYL CHLORIDE (PVC-U)PIPES AND FITTINGS FOR BURIED DRAINAGE AND SEWERAGE SYSTEMS"

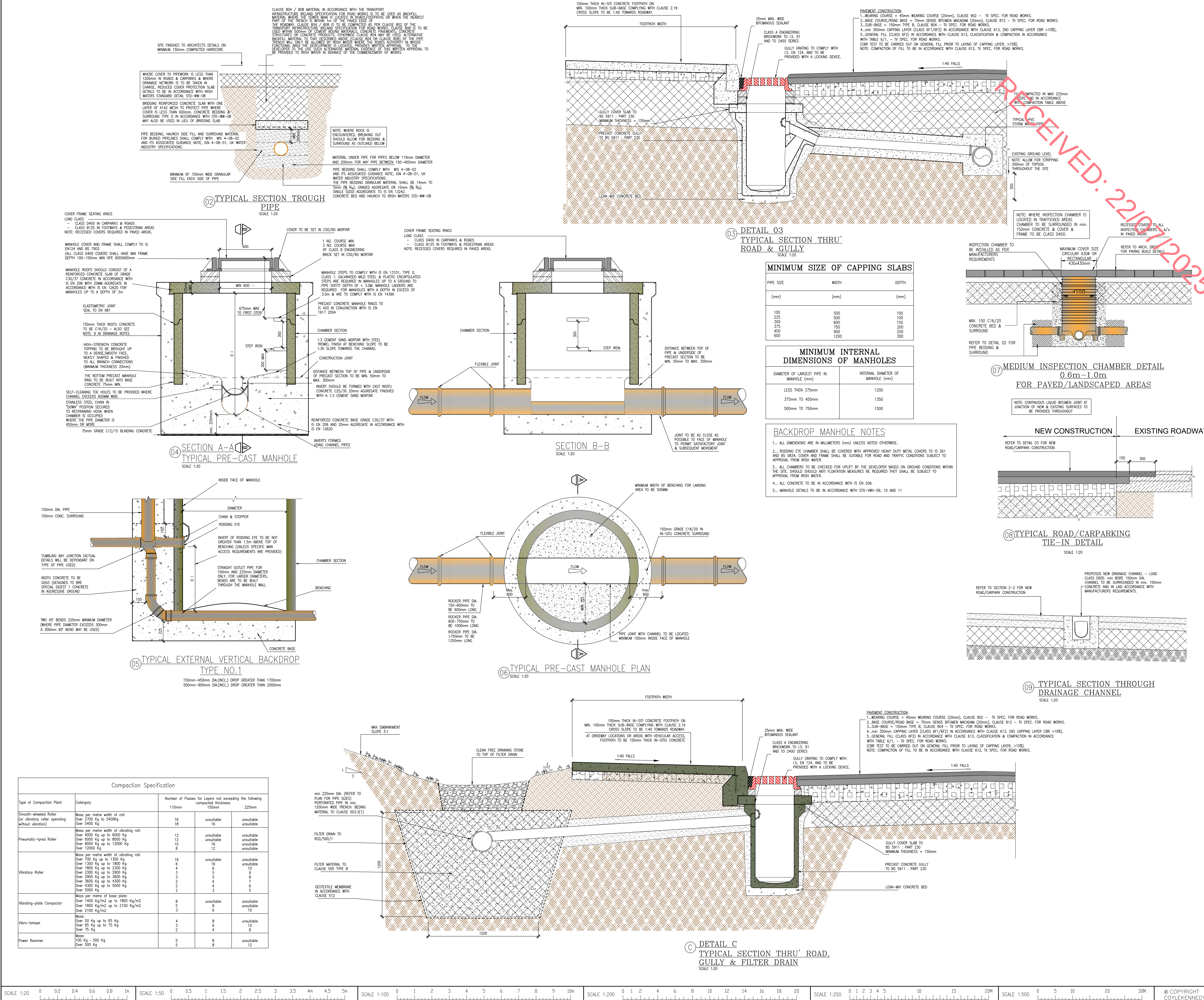
REFER TO DRAWINGS 300 FOR RISING MAIN CONNECTION AND TO 301 FOR STORM SEWER/LAYOUT. REFER TO DRG. 303 & 304 FOR TYPICAL DETAILS. REFER TO DRGS, 307 & 308 FOR DRAINAGE NETWORK AND WATERMAIN SECTIONS.

DRAWINGS TO BE READ IN CONJUNCTION WITH CK REPORT 25-029-250519-01RP AND ITS APPENDICES



SECTION A-A
SECTION THROUGH PUMPING CHAMBER & HOLDING TANK
SCALE 1:50

F _o - 8/1			
A	LEVELS UPDATED TO ALIGN WITH REVISED SITE LEVELS	01/07/2025	
Rev.	Revision	Date	
DRAWING STATUS			
PRELIMINARY	A APPROVAL	T TENDER	
CONSTRUCTION	R RECORD	I INFORMATION	
			
COYLE KENNEDY Consulting Engineers			
GFSC, Moneenageisha Rd, Galway.			
Tel: +353 (0)91 752000 Fax: +353 (0)91 753000			
Website: www.coylekennedy.com email: mail@coylekennedy.com			
PROJECT PROPOSED OFF LINE SERVICE AREA AT GORT			
CLIENT RIVERSIDE FOODS			
TITLE SITE FOUL DRAINAGE & WATERMAIN LAYOUT			
PROJECT No. 25-029		STATUS - SKETCH No. P-302	
DATE MAY 2025		DRAWING REV. A	
SCALE 1:500, 100 @ A1	BY AC	CHECKED BC	



NOTES

GENERAL NOTES :

- ALL COYLE KENNEDY DRAWINGS TO BE READ IN CONJUNCTION WITH ARCHITECTS DRAWINGS AND ALL OTHER RELEVANT DRAWINGS.
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- DETAILED SPECIFICATIONS (IF NOT ISSUED) ARE AVAILABLE AT ENGINEERS OFFICE FOR INSPECTION BY CONTRACTORS, BY APPOINTMENT.
- REFER TO ARCHITECT FOR DAMP PROOF, TANKING AND GAS PROOFING MEMBRANE REQUIREMENTS. REQUIREMENTS OF SUBSTRUCTURE GAS/WATER PROOFING MEMBRANES TO BE BY A REPUTABLE, COMPETENT SPECIALIST WITH ADEQUATE PL.
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- ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE CURRENT BUILDING REGULATIONS.
- WHERE LEANMIX IS SPECIFIED ALL LEANMIX TO BE GRADE C16/20 (EN 3) UNLESS NOTED OTHERWISE.
- ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM (A.D.2000) INDICATING STRUCTURAL LEVEL (SSL).
- DO NOT SCALE FROM DRAWINGS. USE FIGURED DIMENSIONS ONLY. ANY DISCREPANCIES TO BE REPORTED TO THE STRUCTURAL ENGINEER PRIOR TO COMMENCEMENT OF WORKS.
- ALL WORKS SHALL BE CARRIED OUT IN A SAFE MANNER AND IN ACCORDANCE WITH THE HEALTH AND SAFETY REGULATIONS. METHOD STATEMENTS (WHERE REQUIRED) SHALL BE SUBMITTED TO THE ENGINEER OR OTHER APPOINTED PERSON(S).
- THE CONTRACTOR SHALL COMPLY WITH ALL STATUTORY AUTHORITY REQUIREMENTS INCLUDING PLANNING CONDITIONS, FIRE SAFETY CERTIFICATE CONDITIONS, LOCAL AUTHORITY DRAINAGE REQUIREMENTS ETC.
- PROJECT DRAWINGS AND SPECIFICATIONS REFERENCE TO BUILDING REGULATIONS, BRITISH, IRISH OR OTHER NATIONAL STANDARD OR CODES OF PRACTICE DO NOT GIVE THE YEAR OF ISSUE OR DATES OF AMENDMENTS. THE LATEST RELEVANT PUBLISHED VERSION INCLUDING ANY RELEVANT AMENDMENTS AND ADD END AT THE DATE OF INVITATION TO TENDER SHALL APPLY WHERE A STANDARD OR CODE OF PRACTICE HAS BEEN SUPERSEDED, THE LATEST EDITION OF THE SUPERSEDING PUBLICATION SHALL APPLY.
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- FOR DRAINAGE WORK LOCAL TO BUILDINGS, REFER TO ARCHITECT'S DRAWINGS.
- ALL DRAINAGE WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE CURRENT SPECIFICATION, PART H. BUILDING REGULATIONS AND DEPT. OF ENVIRONMENT DOCUMENT "RECOMMENDATIONS FOR SITE DEVELOPMENT WORKS FOR HOUSING AREAS", & WRC "SEWERS FOR ADOPTION 6th EDITION" A DESIGN & CONSTRUCTION GUIDE FOR DEVELOPERS AND USICE DRAINAGE WATERWAY CODE OF PRACTICE.
- BEDDING MATERIAL TO BE 10mm SINGLE SIZED AGGREGATE COMPLYING WITH THE REQUIREMENTS OF AGGREGATES FOR CONCRETE. FOR ROAD PIPES THE GRANULAR MATERIAL SHOULD CONFORM TO BS EN 12620 ANNEX B TABLE 8 AND SHOULD BE SINGLE SIZE MATERIAL OR GRADED MATERIAL FROM 5mm TO 10mm FOR 100mm PIPES, 14mm FOR 150mm PIPES, 20mm FOR 150mm - 600mm DIAMETER AND 40mm FOR PIPES MORE THAN 600mm DIAMETER.
- THE PREPARED UNDERBED OF THE TRENCH SHOULD CONSIST OF BEDDING MATERIAL FOR THE FULL WIDTH OF THE TRENCH AND LAID TO THE CORRECT GRADIENT.
- THE MINIMUM THICKNESS OF BEDDING MATERIAL UNDER THE BARREL OF THE PIPE SHOULD BE 100mm.
- IMPORTED BEDDING MATERIAL AND BACKFILL USING "AS DUG MATERIAL" MUST BE APPROVED BY ENGINEER.
- ALL PVC-U PIPES AND FITTINGS USED FOR DRAIN AND SEWER MUST COMPLY WITH IS 424 " UNPLASTICIZED POLYVINYL CHLORIDE (PVC-U)PIPES AND FITTINGS FOR BURIED DRAINAGE AND SEWAGE SYSTEMS ".
- ANY CONCRETE SURROUND TO MANHOLES OR PIPES SHALL BE DETAILED AND CONSTRUCTED SO AS NOT TO RESTRICT OR IMPED THE FLOW OF GROUNDWATER WITHIN THE GROUND OR DRAINAGE TRENCHES.

Rev.

Revision

Date

DRAWING STATUS

P	PRELIMINARY	A	APPROVAL	T	TENDER
C	CONSTRUCTION	R	RECORD	I	INFORMATION

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PROJECT

PROPOSED OFF LINE SERVICE AREA AT GORT

CLIENT

RIVERSIDE FOODS

TITLE

TYPICAL DRAINAGE/CIVILS DETAILS -SHEET 1

PROJECT No.

25-029

STATUS - DRAWING No.

P-303

DATE

MAY 2025

DRAWING REV.

SCALE

1:100,1:50,1:20
A1

BY

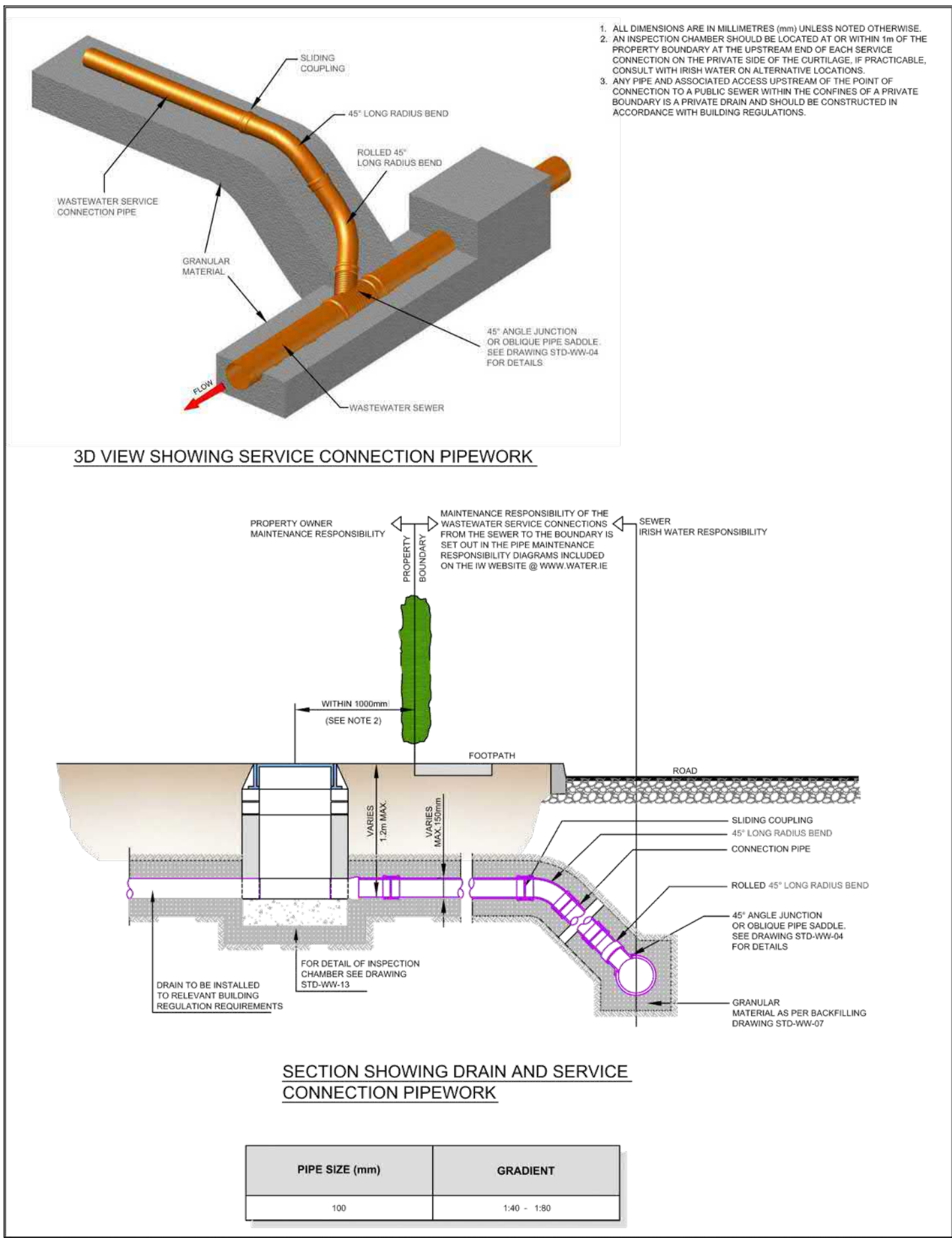
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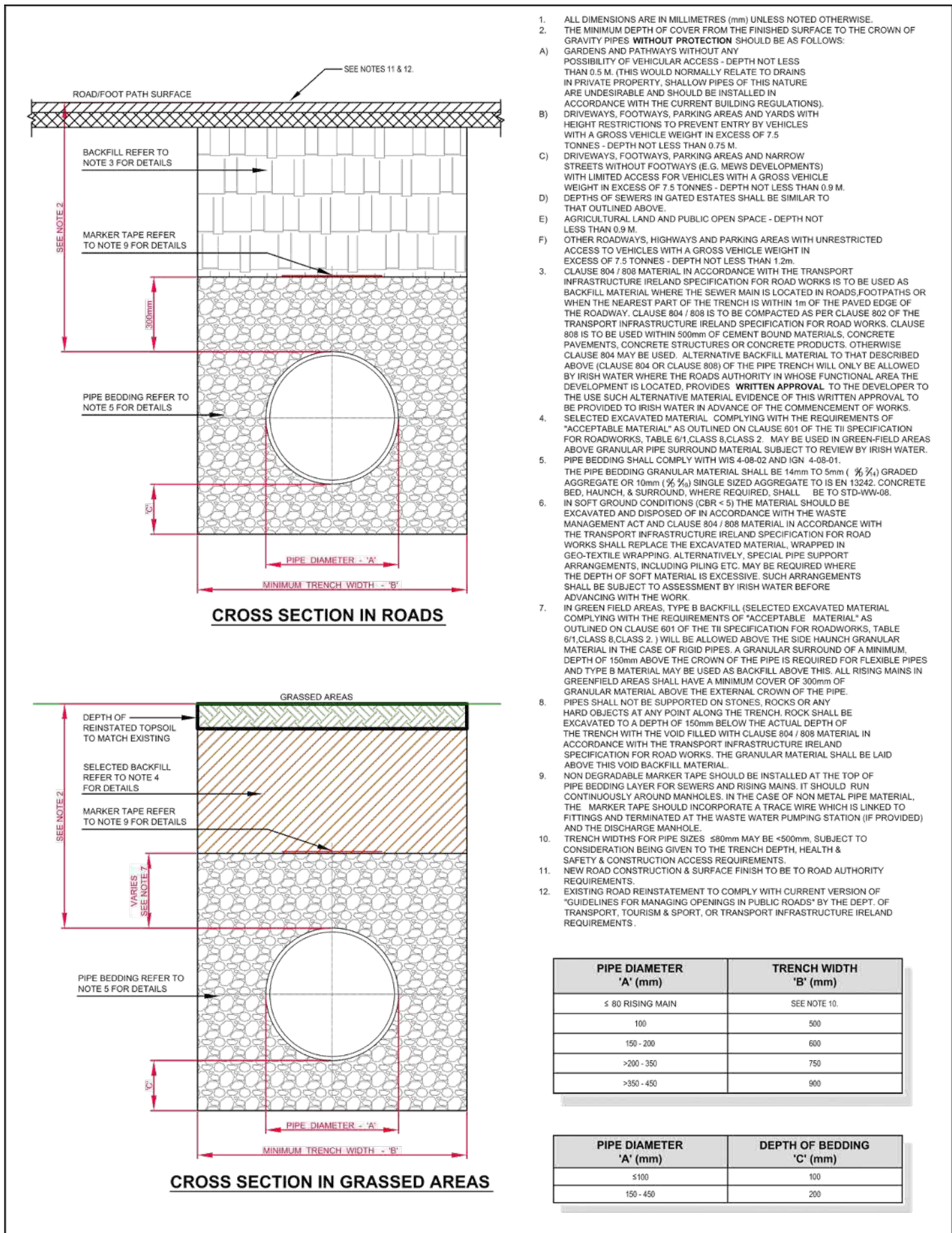
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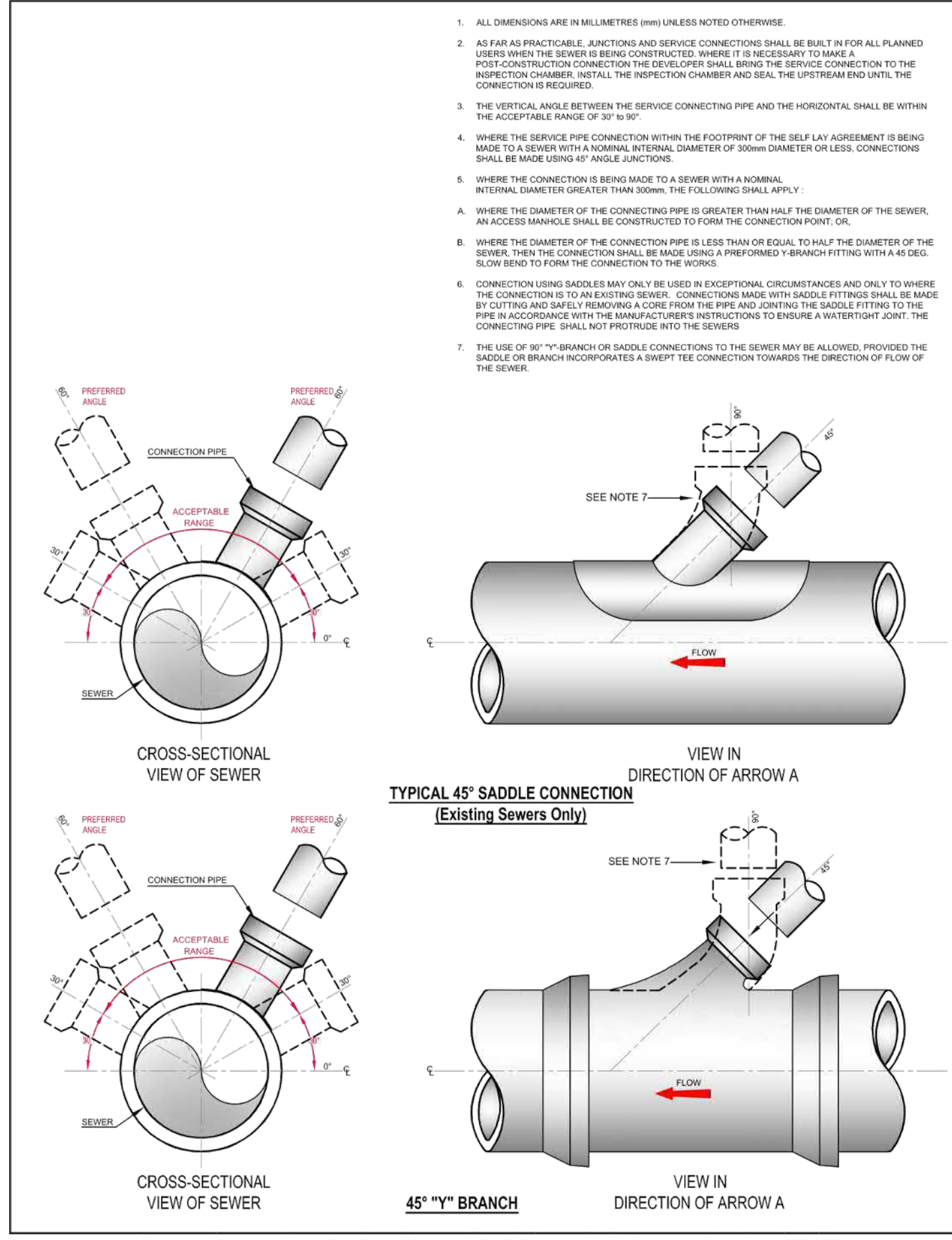
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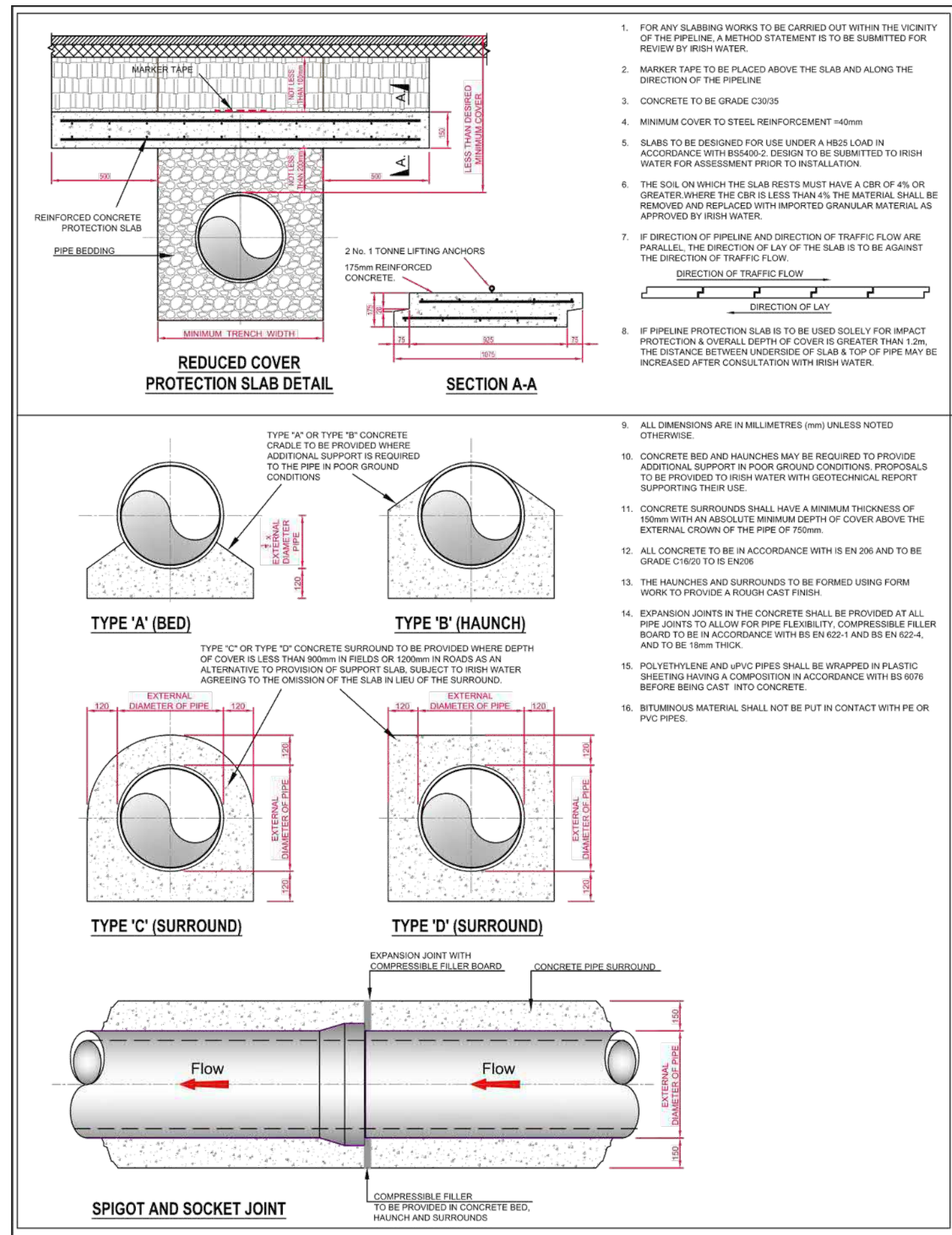
DRAIN & SERVICE CONNECTION PIPEWORK
EXTRACT FROM UISCE ÉIREANN'S
STD-WW-03



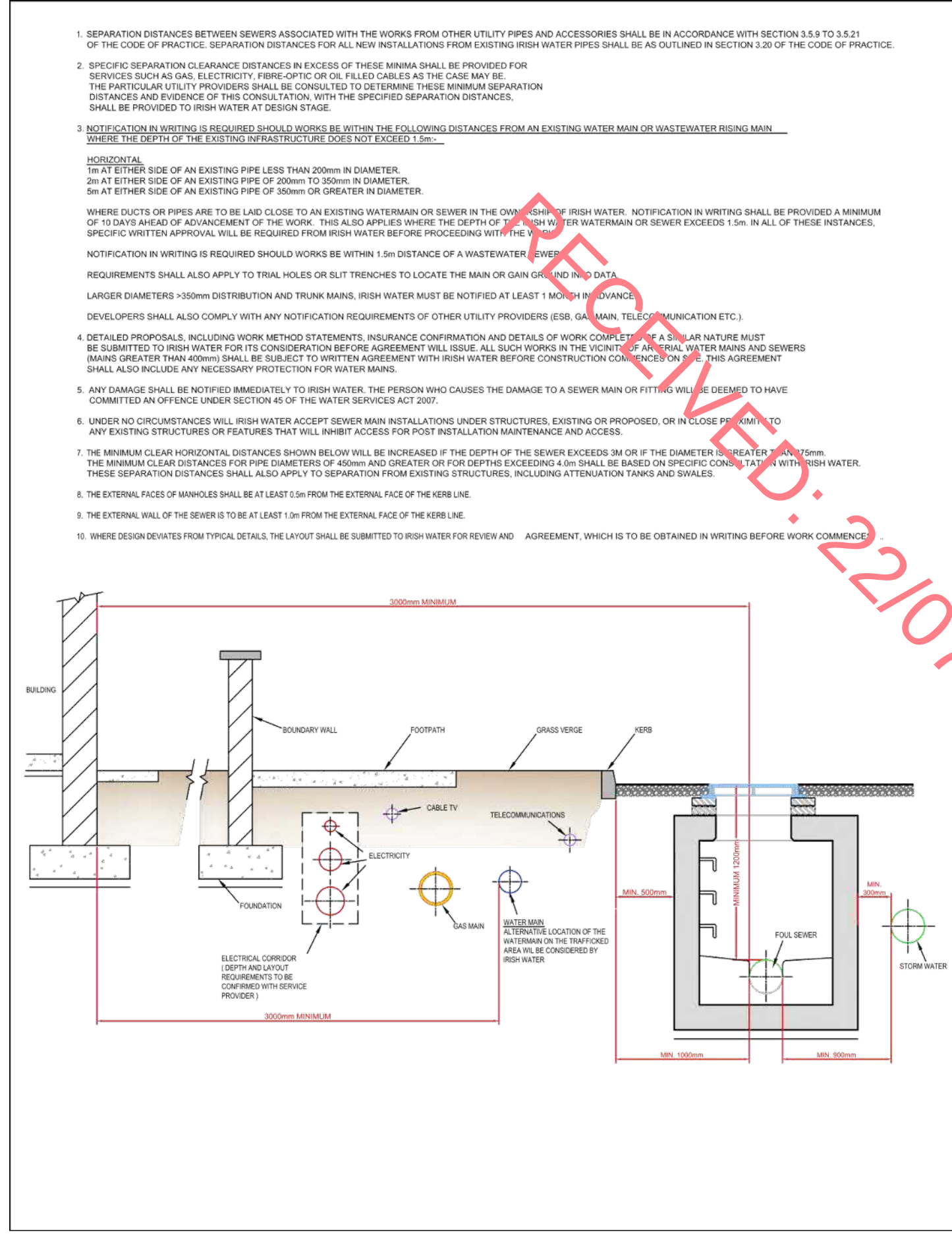
TRENCH BACKFILL & BEDDING
EXTRACT FROM UISCE ÉIREANN'S
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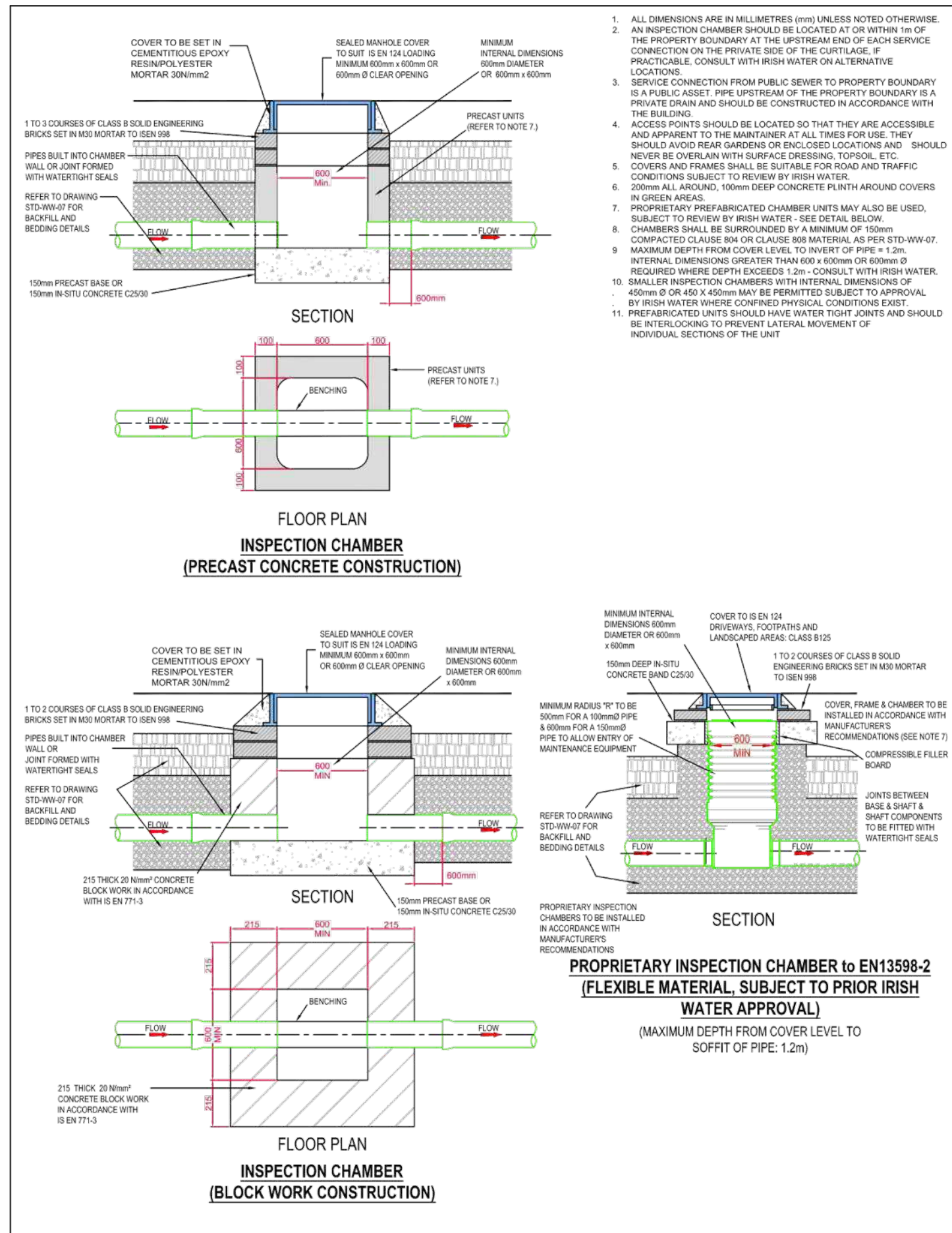
TYPICAL SEWER/SERVICE PIPE CONNECTION
EXTRACT FROM UISCE ÉIREANN'S
STD-WW-04



CONCRETE PROTECTION SLAB, BED, HAUNCH AND SURROUND TO PIPES
EXTRACT FROM UISCE ÉIREANN'S
STD-WW-08

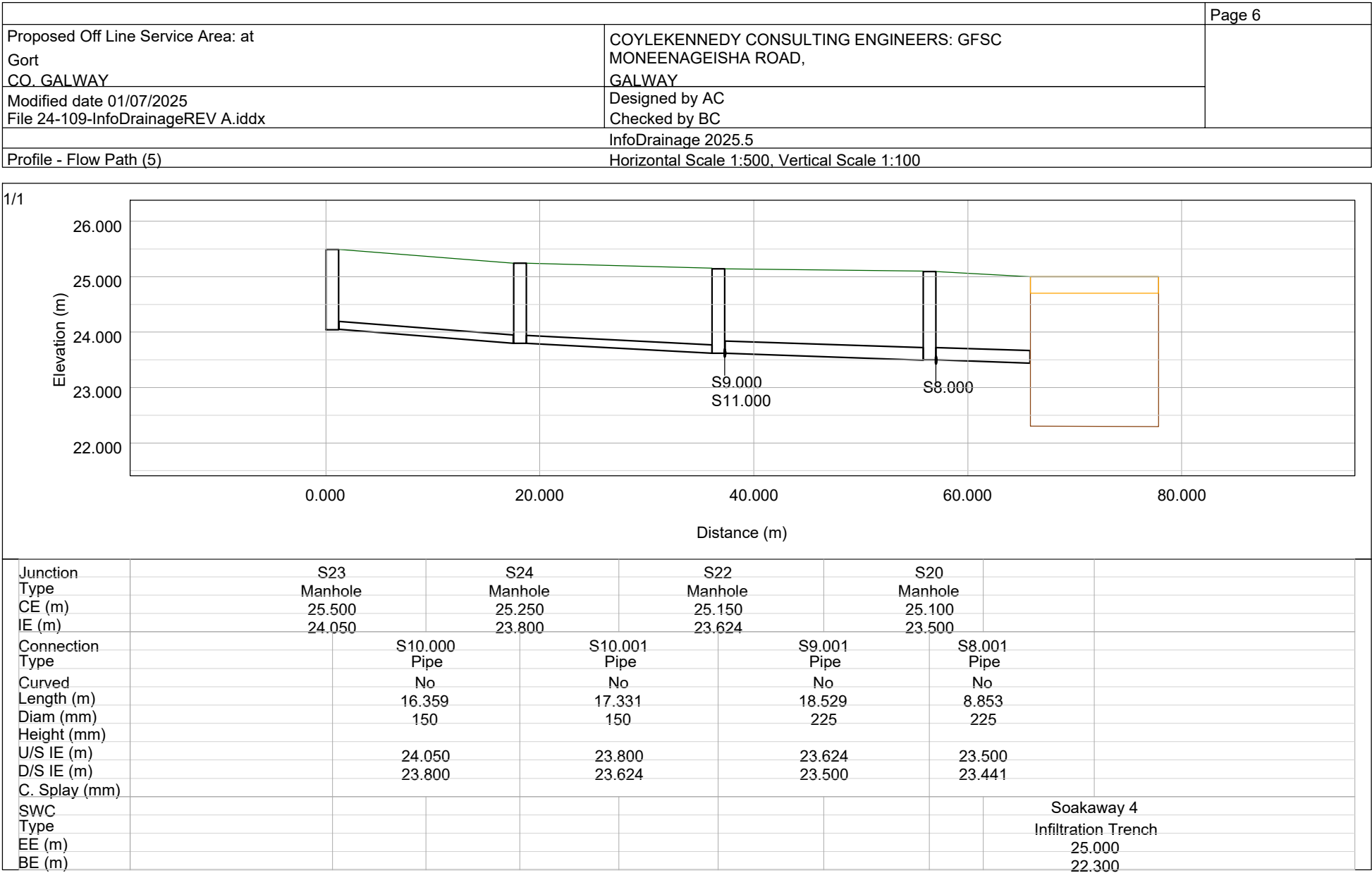
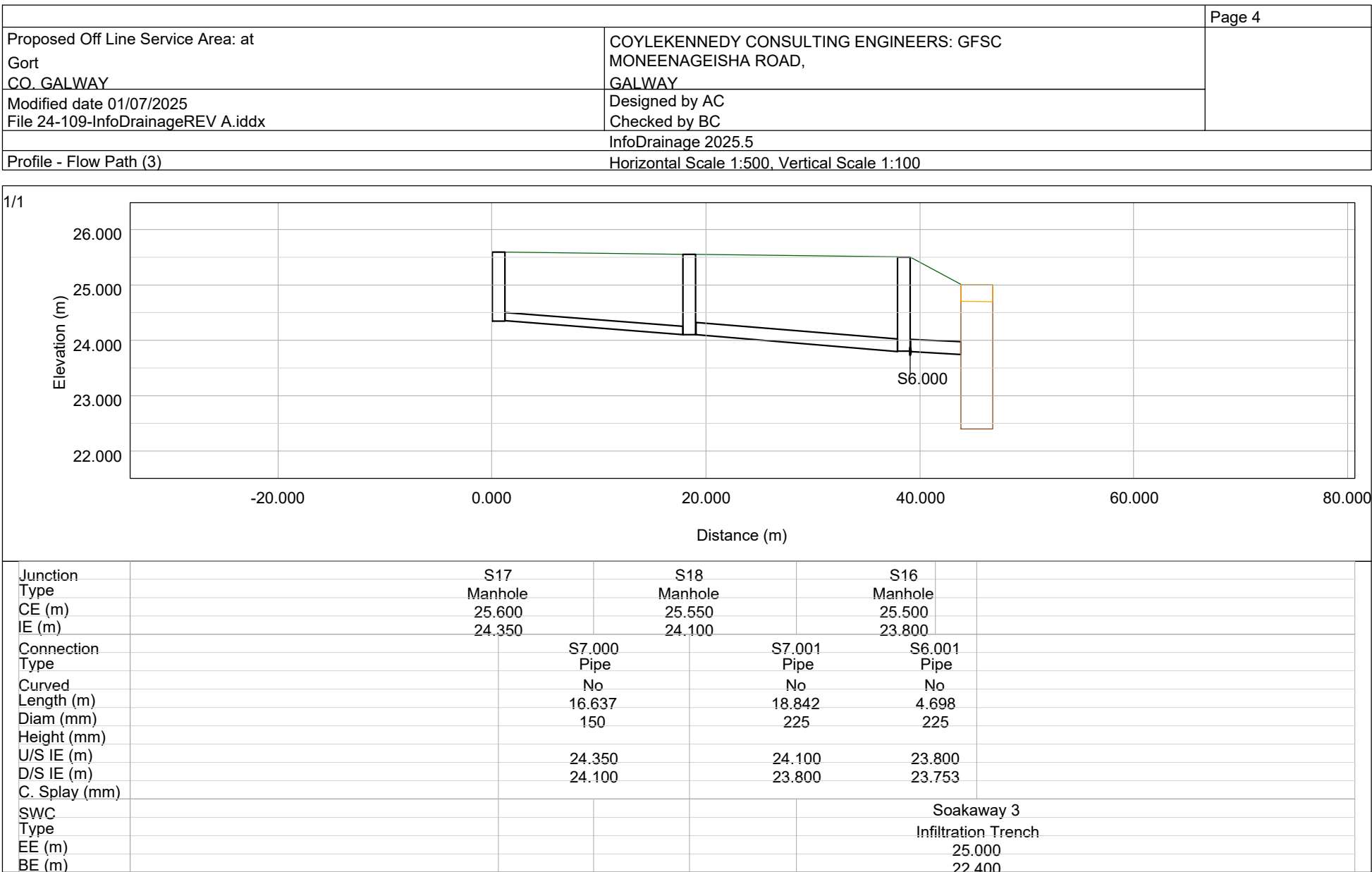
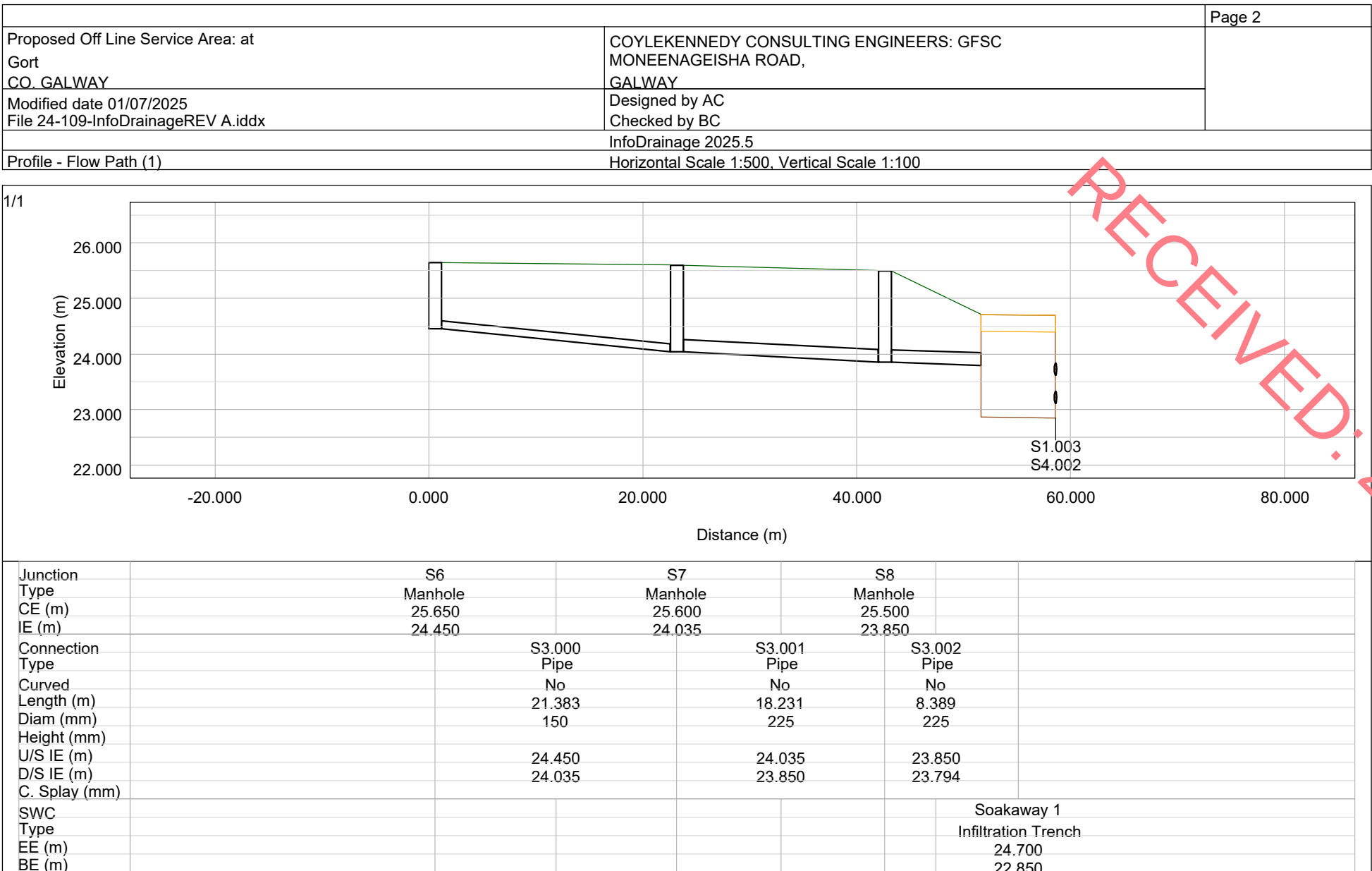
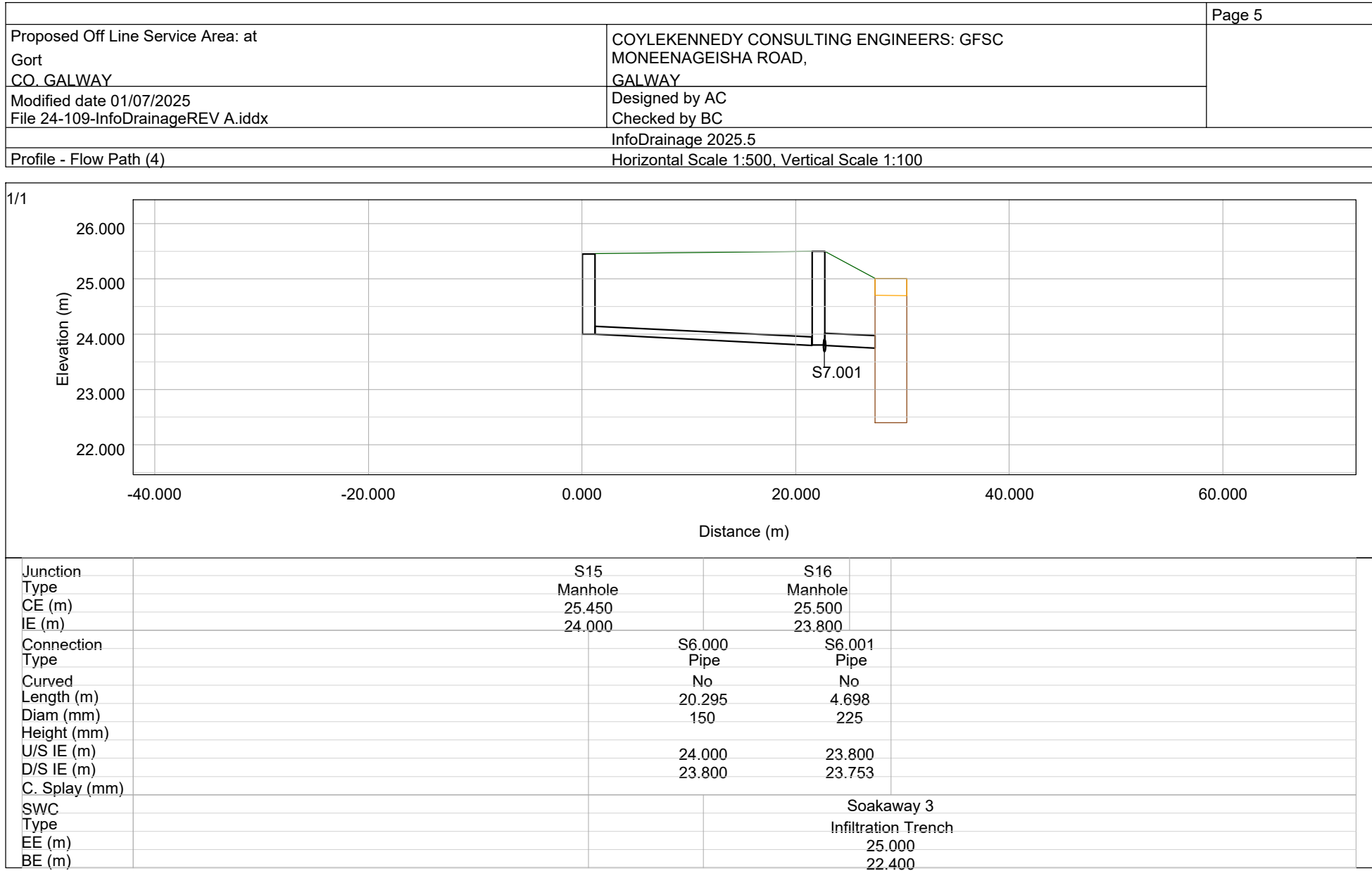
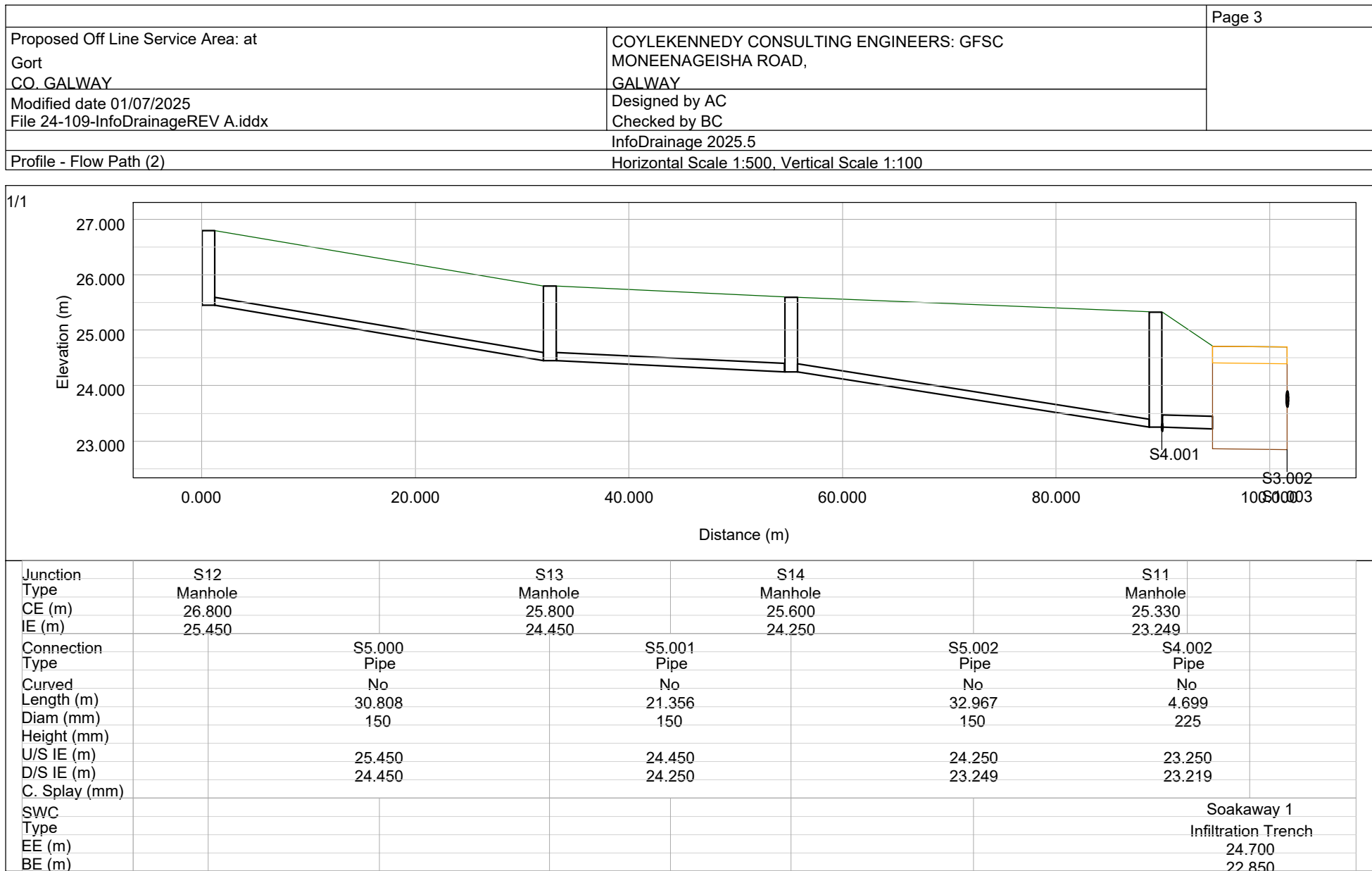
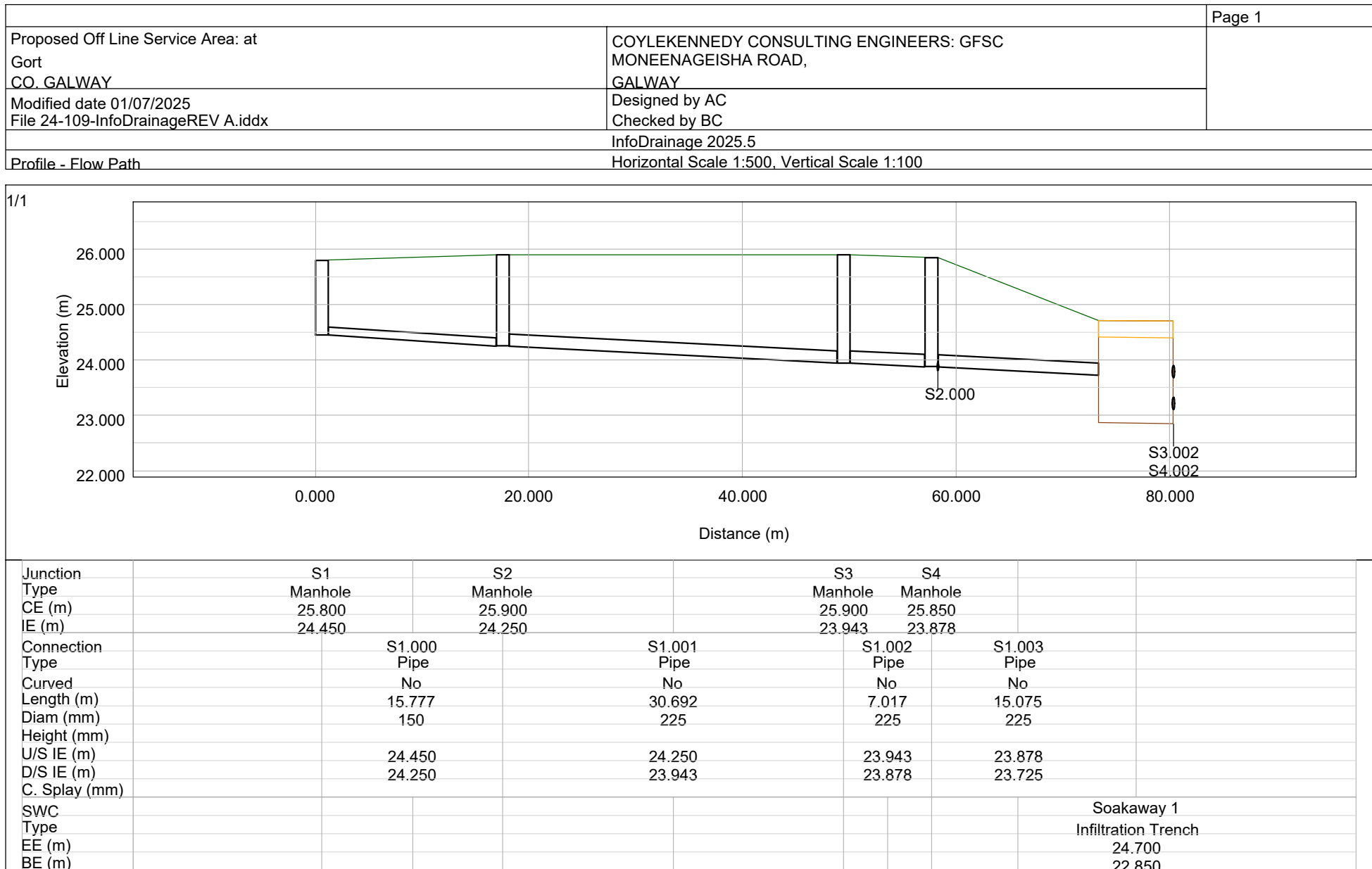


TYPICAL SERVICE LAYOUT INDICATING SEPARATION DISTANCES
EXTRACT FROM UISCE ÉIREANN'S
STD-WW-05



PRIVATE SIDE INSPECTION CHAMBER
EXTRACT FROM UISCE ÉIREANN'S
STD-WW-05

- NOTES
- GENERAL NOTES :
1. ALL COYLE KENNEDY DRAWINGS TO BE READ IN CONJUNCTION WITH ARCHITECTS DRAWINGS AND ALL OTHER RELEVANT DRAWINGS.
 2. ALL SETTING OUT, INSULATION, DPC, TANKING / WATERPROOFING, SCREED AND RADON PROTECTION DETAILS BY ARCHITECT & SPECIALIST.
 3. DETAILED SPECIFICATIONS (IF NOT ISSUED) ARE AVAILABLE AT ENGINEERS OFFICE FOR INSPECTION BY CONTRACTORS, BY APPOINTMENT.
 4. REFER TO ARCHITECT FOR DAMP PROOF, TANKING AND GAS PROOFING MEMBRANE REQUIREMENTS. REQUIREMENTS OF SUBSTRUCTURE/GAS/WATER PROOFING MEMBRANES TO BE BY A REPUTABLE, COMPETENT SPECIALIST WITH ADEQUATE PL.
 5. THE CONTRACTOR SHALL BE DEEMED TO HAVE ALLOWED FOR, WITHIN HIS TENDER, EMPLOYING A CHARTERED STRUCTURAL ENGINEER WITH ADEQUATE PROFESSIONAL INDEMNITY INSURANCE, TO ASSESS, DESIGN AND DETAIL SUCH TEMPORARY WORKS AS ARE NECESSARY TO OBTAIN SUPPORT TO EXISTING AND/OR CONSTRUCTED ELEMENTS DURING THE CONSTRUCTION PERIOD. THIS APPLIES TO ELEMENTS WITHIN THE SITE AND NEIGHBOURING THE SITE.
 6. THE CONTRACTOR IS DEEMED TO HAVE VISITED THE SITE AND CONSULTED WITH RELEVANT AUTHORITIES AND BEEN SATISFIED IN RELATION TO THE SITE'S SURROUNDINGS, EXISTING SERVICES, LEVELS, BOUNDARIES, GROUND CHARACTERISTICS AND ANY OTHER SITE CONSTRAINTS, INCLUDING DIVERSITY OF SERVICES AS NECESSARY.
 7. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE CURRENT BUILDING REGULATIONS.
 8. WHERE LEANWY IS SPECIFIED ALL LEANWY TO BE GRADE C16/20 (EN 3), UNLESS NOTED OTHERWISE.
 9. ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM (X.N.O.) INDICATING STRUCTURAL LEVEL (SSL).
 10. DO NOT SCALE FROM DRAWINGS. USE FIGURED DIMENSIONS ONLY. ANY DISCREPANCIES TO BE REPORTED TO THE STRUCTURAL ENGINEER PRIOR TO COMMENCEMENT OF WORKS.
 11. ALL WORKS SHALL BE CARRIED OUT IN A SAFE MANNER AND IN ACCORDANCE WITH THE HEALTH AND SAFETY REGULATIONS. METHOD STATEMENTS (WHERE REQUIRED) SHALL BE SUBMITTED TO THE ENGINEER OR OTHER APPOINTED PERSON(S).
 12. THE CONTRACTOR SHALL COMPLY WITH ALL STATUTORY AUTHORITY REQUIREMENTS INCLUDING PLANNING CONDITIONS, FIRE SAFETY CERTIFICATE CONDITIONS, LOCAL AUTHORITY DRAINAGE REQUIREMENTS AND OTHER SERVICES ON SITE.
 13. PROJECT DRAWINGS AND SPECIFICATIONS REFERENCE TO BUILDING REGULATIONS, BRITISH STANDARDS OR OTHER NATIONAL STANDARDS OR CODES OF PRACTICE DO NOT GIVE THE YEAR OF ISSUE OR DATES OF AMENDMENTS. THE LATEST RELEVANT PUBLISHED VERSION INCLUDING ANY RELEVANT AMENDMENTS AND ADD END AT THE DATE OF INVITATION TO TENDER SHALL APPLY WHERE A STANDARD OR CODE OF PRACTICE HAS BEEN SUPERSEDED, THE LATEST EDITION OF THE SUPERSEDING PUBLICATION SHALL APPLY.
 14. ANY DISCREPANCIES DISCOVERED BETWEEN DESIGN TEAM DRAWINGS TO BE REPORTED IMMEDIATELY AND CLARIFICATION SOUGHT AND DISCREPANCY CORRECTED PRIOR TO CONSTRUCTION COMMENCING.
- DRAINAGE NOTES :
1. CONTRACTOR TO MAKE ALL NECESSARY ENQUIRIES REGARDING LOCATION OF EXISTING SEWERS, ELECTRICAL AND OTHER SERVICES ON SITE.
 2. FOR DRAINAGE WORK LOCAL TO BUILDINGS, REFER TO ARCHITECT'S DRAWINGS.
 3. ALL DRAINAGE WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE CURRENT SPECIFICATION, PART H BUILDING REGULATIONS AND DEPT. OF ENVIRONMENT DOCUMENT "RECOMMENDATIONS FOR SITE DEVELOPMENT WORKS FOR HOUSING AREAS", & WRC "SEWERS FOR ADOPTION 6th EDITION A DESIGN & CONSTRUCTION GUIDE FOR DEVELOPERS AND LOCAL COUNCILS".
 4. BEDDING MATERIAL TO BE 10mm SINGLE SIZED AGGREGATE COMPLYING WITH THE REQUIREMENTS OF AGGREGATES FOR CONCRETE. FOR RCD PIPES THE GRANULAR MATERIAL SHOULD CONFORM TO BS EN 12617 PART 1, GRADE 1 & 2. FOR 100mm PIPES, 10mm FOR 100mm PIPES, 20mm FOR 150mm PIPES, 25mm FOR 200mm PIPES, 30mm FOR 250mm PIPES, 40mm FOR 300mm PIPES, 50mm FOR 350mm PIPES, 60mm FOR 400mm PIPES, 75mm FOR 450mm PIPES, 100mm FOR 500mm PIPES, 125mm FOR 600mm PIPES, 150mm FOR 750mm PIPES, 200mm FOR 900mm PIPES, 250mm FOR 1050mm PIPES, 300mm FOR 1200mm PIPES, 350mm FOR 1350mm PIPES, 400mm FOR 1500mm PIPES, 450mm FOR 1650mm PIPES, 500mm FOR 1800mm PIPES, 600mm FOR 2100mm PIPES, 750mm FOR 2400mm PIPES, 900mm FOR 2700mm PIPES, 1050mm FOR 3000mm PIPES, 1200mm FOR 3300mm PIPES, 1350mm FOR 3600mm PIPES, 1500mm FOR 3900mm PIPES, 1650mm FOR 4200mm PIPES, 1800mm FOR 4500mm PIPES, 2000mm FOR 4800mm PIPES, 2250mm FOR 5100mm PIPES, 2400mm FOR 5400mm PIPES, 2700mm FOR 5700mm PIPES, 3000mm FOR 6000mm PIPES, 3300mm FOR 6300mm PIPES, 3600mm FOR 6600mm PIPES, 3900mm FOR 6900mm PIPES, 4200mm FOR 7200mm PIPES, 4500mm FOR 7500mm PIPES, 4800mm FOR 7800mm PIPES, 5100mm FOR 8100mm PIPES, 5400mm FOR 8400mm PIPES, 5700mm FOR 8700mm PIPES, 6000mm FOR 9000mm PIPES, 6300mm FOR 9300mm PIPES, 6600mm FOR 9600mm PIPES, 6900mm FOR 9900mm PIPES, 7200mm FOR 10200mm PIPES, 7500mm FOR 10500mm PIPES, 7800mm FOR 10800mm PIPES, 8100mm FOR 11100mm PIPES, 8400mm FOR 11400mm PIPES, 8700mm FOR 11700mm PIPES, 9000mm FOR 12000mm PIPES, 9300mm FOR 12300mm PIPES, 9600mm FOR 12600mm PIPES, 9900mm FOR 12900mm PIPES, 10200mm FOR 13200mm PIPES, 10500mm FOR 13500mm PIPES, 10800mm FOR 13800mm PIPES, 11100mm FOR 14100mm PIPES, 11400mm FOR 14400mm PIPES, 11700mm FOR 14700mm PIPES, 12000mm FOR 15000mm PIPES, 12300mm FOR 15300mm PIPES, 12600mm FOR 15600mm PIPES, 12900mm FOR 15900mm PIPES, 13200mm FOR 16200mm PIPES, 13500mm FOR 16500mm PIPES, 13800mm FOR 16800mm PIPES, 14100mm FOR 17100mm PIPES, 14400mm FOR 17400mm PIPES, 14700mm FOR 17700mm PIPES, 15000mm FOR 18000mm PIPES, 15300mm FOR 18300mm PIPES, 15600mm FOR 18600mm PIPES, 15900mm FOR 18900mm PIPES, 16200mm FOR 19200mm PIPES, 16500mm FOR 19500mm PIPES, 16800mm FOR 19800mm PIPES, 17100mm FOR 20100mm 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118800mm PIPES, 116100mm FOR 119100mm PIPES, 116400mm FOR 119400mm PIPES, 116700mm FOR 119700mm PIPES, 117000mm FOR 120000mm PIPES, 117300mm FOR 120300mm PIPES, 117600mm FOR 120600mm PIPES, 117900mm FOR 120900mm PIPES, 118200mm FOR 121200mm PIPES, 118500mm FOR 121500mm PIPES, 118800mm FOR 121800mm PIPES, 119100mm FOR 122100mm PIPES, 119400mm FOR 122400mm PIPES, 119700mm FOR 122700mm PIPES, 120000mm FOR 123000mm PIPES, 120300mm FOR 123300mm PIPES, 120600mm FOR 123600mm PIPES, 120900mm FOR 123900mm PIPES, 121200mm FOR 124200mm PIPES, 121500mm FOR 124500mm PIPES, 121800mm FOR 124800mm PIPES, 122100mm FOR 125100mm PIPES, 122400mm FOR 125400mm PIPES, 122700mm FOR 125700mm PIPES, 123000mm FOR 126000mm PIPES, 123300mm FOR 126300mm PIPES, 123600mm FOR 126600mm PIPES, 123900mm FOR 126900mm PIPES, 124200mm FOR 127200mm PIPES, 124500mm FOR 127500mm PIPES, 124800mm FOR 127800mm PIPES, 125100mm FOR 128100mm PIPES, 125400mm FOR 128400mm PIPES, 125700mm FOR 128700mm PIPES, 126000mm FOR 129000mm PIPES, 126300mm FOR 129300mm PIPES, 126600mm FOR 129600mm PIPES, 126900mm FOR 129900mm PIPES, 127200mm FOR 130200mm PIPES, 127500mm FOR 130500mm PIPES, 127800mm FOR 130800mm PIPES, 128100mm FOR 131100mm PIPES, 128400mm FOR 131400mm PIPES, 128700mm FOR 131700mm PIPES, 129000mm FOR 132000mm PIPES, 129300mm FOR 132300mm PIPES, 129600mm FOR 132600mm PIPES, 129900mm FOR 132900mm PIPES, 130200mm FOR 133200mm PIPES, 130500mm FOR 133500mm PIPES, 130800mm FOR 133800mm PIPES, 131100mm FOR 134100mm PIPES, 131400mm FOR 134400mm PIPES, 131700mm FOR 134700mm PIPES, 132000mm FOR 135000mm PIPES, 132300mm FOR 135300mm PIPES, 132600mm FOR 135600mm PIPES, 132900mm FOR 135900mm PIPES, 133200mm FOR 136200mm PIPES, 133500mm FOR 136500mm PIPES, 133800mm FOR 136800mm PIPES, 134100mm FOR 137100mm PIPES, 134400mm FOR 137400mm PIPES, 134700mm FOR 137700mm PIPES, 135000mm FOR 138000mm PIPES, 135300mm FOR 138300mm PIPES, 135600mm FOR 138600mm PIPES, 135900mm FOR 138900mm PIPES, 136200mm FOR 139200mm PIPES, 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149700mm PIPES, 147000mm FOR 150000mm PIPES, 147300mm FOR 150300mm PIPES, 147600mm FOR 150600mm PIPES, 147900mm FOR 150900mm PIPES, 148200mm FOR 151200mm PIPES, 148500mm FOR 151500mm PIPES, 148800mm FOR 151800mm PIPES, 149100mm FOR 152100mm PIPES, 149400mm FOR 152400mm PIPES, 149700mm FOR 152700mm PIPES, 150000mm FOR 153000mm PIPES, 150300mm FOR 153300mm PIPES,



NOTES

GENERAL NOTES :

- 1..ALL COYLE KENNEDY DRAWINGS TO BE READ IN CONJUNCTION WITH ARCHITECTS DRAWINGS AND ALL OTHER RELEVANT DRAWINGS.
- 2..ALL SETTING OUT, INSULATION, DPC, TANKING / WATERPROOFING, SCORED AND RASON PROTECTION DETAILS BY ARCHITECT & SPECIALIST.
- 3..DETAILED SPECIFICATIONS (IF NOT ISSUED) ARE AVAILABLE AT ENGINEERS OFFICE FOR INSPECTION BY CONTRACTORS, BY APPOINTMENT.
- 4..REFER TO ARCHITECT FOR DAMP PROOF, TANKING AND GAS PROOFING MEMBRANE REQUIREMENTS. REQUIREMENTS OF SUBSTRUCTURE GAS/WATER PROOFING MEMBRANES TO BE BY A REPUTABLE, COMPETENT SPECIALIST WITH ADEQUATE PL.
- 5..THE CONTRACTOR SHALL BE DEEMED TO HAVE ALLOWED FOR WITHIN HIS TENDER, EMPLOYING A CHARTERED STRUCTURAL ENGINEER WITH ADEQUATE PROFESSIONAL INDEMNITY INSURANCE TO ASSESS, DESIGN AND DETAIL SUCH TEMPORARY WORKS AS ARE NECESSARY TO OBTAIN SUPPORT TO EXISTING AND/OR CONSTRUCTED ELEMENTS DURING THE CONSTRUCTION PERIOD. THIS APPLIES TO ELEMENTS WITHIN THE SITE AND NEIGHBOURING THE SITE.
- 6..THE CONTRACTOR IS DEEMED TO HAVE VISITED THE SITE AND CONSULTED WITH RELEVANT AUTHORITIES AND BE SATISFIED IN RELATION TO THE SITES SURROUNDINGS, EXISTING SERVICES, LEVELS, BOUNDARIES, GROUND CHARACTERISTICS AND ANY OTHER SITE CONSTRAINTS, INCLUDING DIVERSION OF SERVICES AS NECESSARY.
- 7..ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE CURRENT BUILDING REGULATIONS.
- 8..WHERE LEANMX IS SPECIFIED ALL LEANMX TO BE GRADE C16/20 (GEN 3), UNLESS NOTED OTHERWISE.
- 9..ALL LEVELS ARE IN METRES ABOVE ORNANCE DATUM (U.N.O.) INDICATING STRUCTURAL LEVEL (SSL).
- 10..DO NOT SCALE FROM DRAWINGS, USE FIGURED DIMENSIONS ONLY. ANY DISCREPANCIES TO BE REPORTED TO THE STRUCTURAL ENGINEER PRIOR TO COMMENCEMENT OF WORKS.
- 11..ALL WORKS SHALL BE CARRIED OUT IN A SAFE MANNER AND IN ACCORDANCE WITH THE HEALTH AND SAFETY REGULATIONS, METHOD STATEMENTS (WHERE REQUIRED) SHALL BE SUBMITTED TO THE ENGINEER OR OTHER APPOINTED PERSON(S).
- 12..THE CONTRACTOR SHALL COMPLY WITH ALL STATUTORY AUTHORITY REQUIREMENTS INCLUDING PLANNING CONDITIONS, FIRE SAFETY CERTIFICATE CONDITIONS, LOCAL AUTHORITY DRAINAGE REQUIREMENTS etc.
- 13..PROJECT DRAWINGS AND SPECIFICATIONS REFERENCE TO BUILDING REGULATIONS, BRITISH, IRISH OR OTHER NATIONAL STANDARD OR CODES OF PRACTICE DO NOT GIVE THE YEAR OF ISSUE OR DATES OF AMENDMENTS. THE LATEST RELEVANT PUBLISHED VERSION INCLUDING ANY RELEVANT AMENDMENTS AND ADD END AT THE DATE OF INTIMATION TO TENDER SHALL APPLY. WHERE A STANDARD OR CODE OF PRACTICE HAS BEEN SUPERSEDED, THE LATEST EDITION OF THE SUPERSEDING PUBLICATION SHALL APPLY.
- 14..ANY DISCREPANCIES DISCOVERED BETWEEN DESIGN TEAM DRAWINGS TO BE REPORTED IMMEDIATELY AND CLARIFICATION SOUGHT AND DISCREPANCY CORRECTED PRIOR TO CONSTRUCTION COMMENCING

DRAINAGE NOTES :

- 1..CONTRACTOR TO MAKE ALL NECESSARY ENQUIRES REGARDING LOCATION OF EXISTING SEWERS, ELECTRICAL AND OTHER SERVICES ON SITE.
- 2..FOR DRAINAGE WORK LOCAL TO BUILDINGS, REFER TO ARCHITECT'S DRAWINGS.
- 3..ALL DRAINAGE WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE CURRENT SPECIFICATION, PART H BUILDING REGULATIONS AND DEPT. OF ENVIRONMENT DOCUMENT RECOMMENDATIONS FOR SITE DEVELOPMENT WORKS FOR HOUSING AREAS, & WRc 'SEWERS FOR ADOPTION' 6th EDITION A DESIGN & CONSTRUCTION GUIDE FOR DEVELOPERS AND USER IREANN WASTEWATER CODE OF PRACTICE.
- 4..BEDDING MATERIAL TO BE 10mm SINGLE SIZED AGGREGATE COMPLYING WITH THE REQUIREMENTS OF AGGREGATES FOR CONCRETE. FOR RIGID PIPES THE GRANULAR MATERIAL SHOULD CONFORM TO BS EN 12620 ANNEX B TABLE B AND SHOULD BE SINGLE SIZE MATERIAL OR GRADED MATERIAL FROM 5mm to 10mm for 150mm PIPES, 4mm for 100mm PIPES, 20mm for 150mm - 600mm DIAMETER AND 40mm for PIPES MORE THAN 600mm DIAMETER.
- 5..THE PREPARED UNDERBED OF THE TRENCH SHOULD CONSIST OF BEDDING MATERIAL FOR THE FULL WIDTH OF THE TRENCH AND LAD TO THE CORRECT GRADIENT.
- 6..THE MINIMUM THICKNESS OF BEDDING MATERIAL UNDER THE BARREL OF THE PIPE SHOULD BE 100mm.
- 7..IMPORTED BEDDING MATERIAL AND BACKFILL USING 'AS DUG MATERIAL' MUST BE APPROVED BY ENGINEER.
- 8..ALL PVC-U PIPES AND FITTINGS USED FOR DRAIN AND SEWER MUST COMPLY WITH IS 424 " UNPLASTICISED POLYVINYL CHLORIDE (PVC-U)PIPES AND FITTINGS FOR BURIED DRAINAGE AND SEWAGE SYSTEMS "

REFER TO CK DRAWING 301 FOR PLAN LAYOUT OF DRAINAGE NETWORK

$F_w = 8/0$

Rev.	Revision	Date
A	LEVELS UPDATED TO ALIGN WITH REVISED SITE LEVELS	01/07/2025

DRAWING STATUS

P	A	T
PRELIMINARY	APPROVAL	TENDER
C	CONSTRUCTION	RECORD
		INFORMATION

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PROJECT

PROPOSED OFF LINE SERVICE AREA AT GORT

CLIENT

RIVERSIDE FOODS

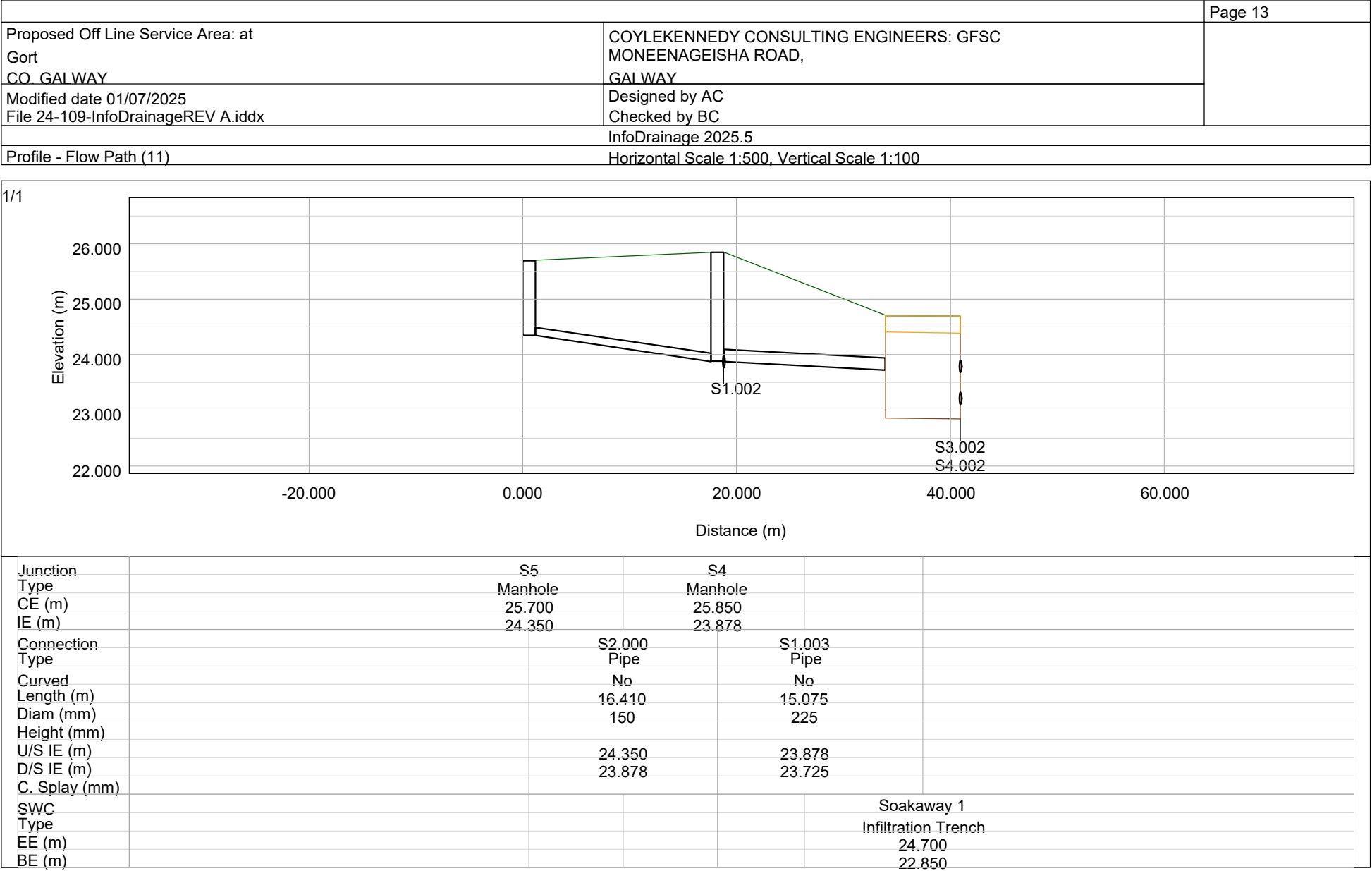
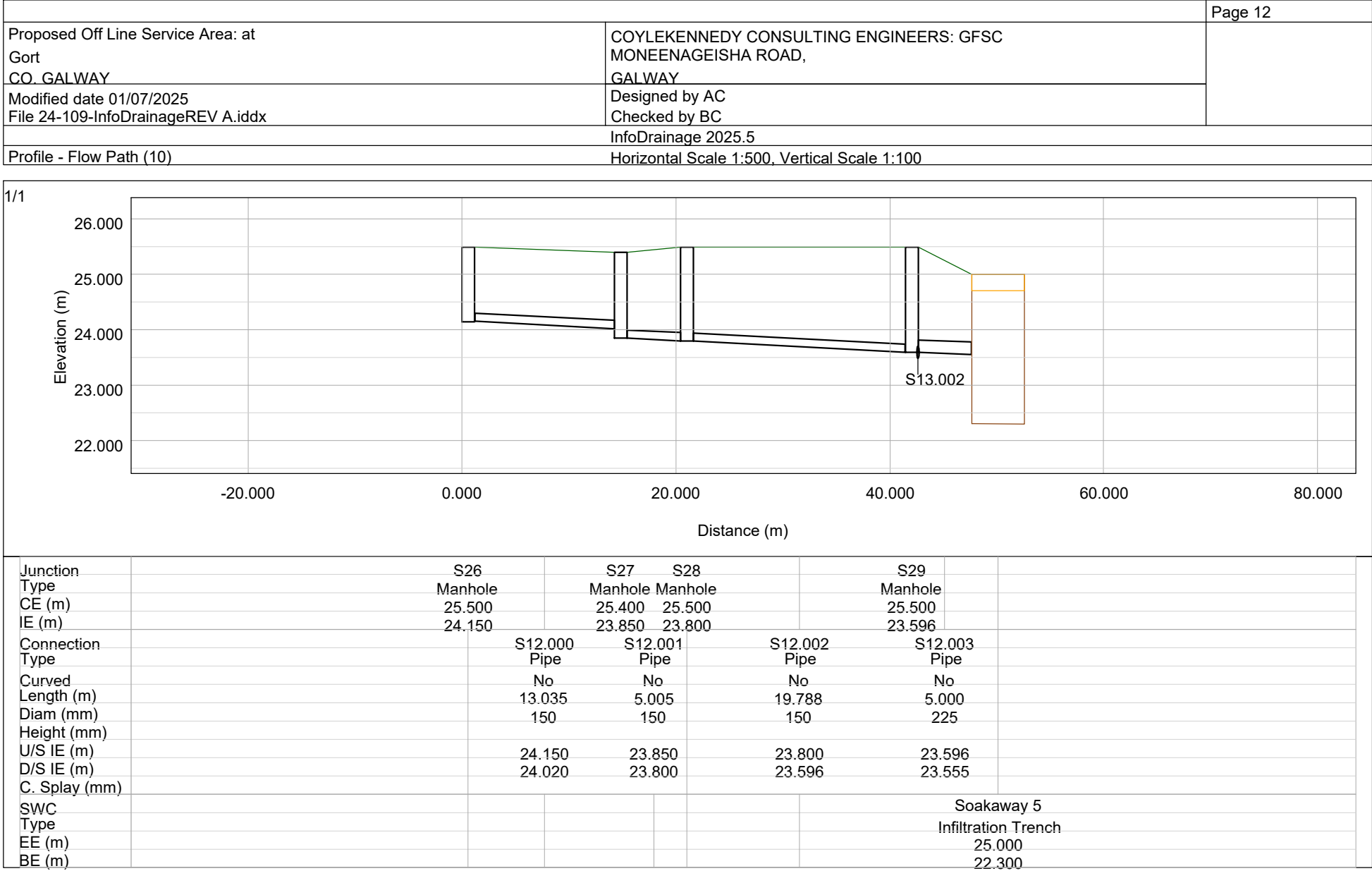
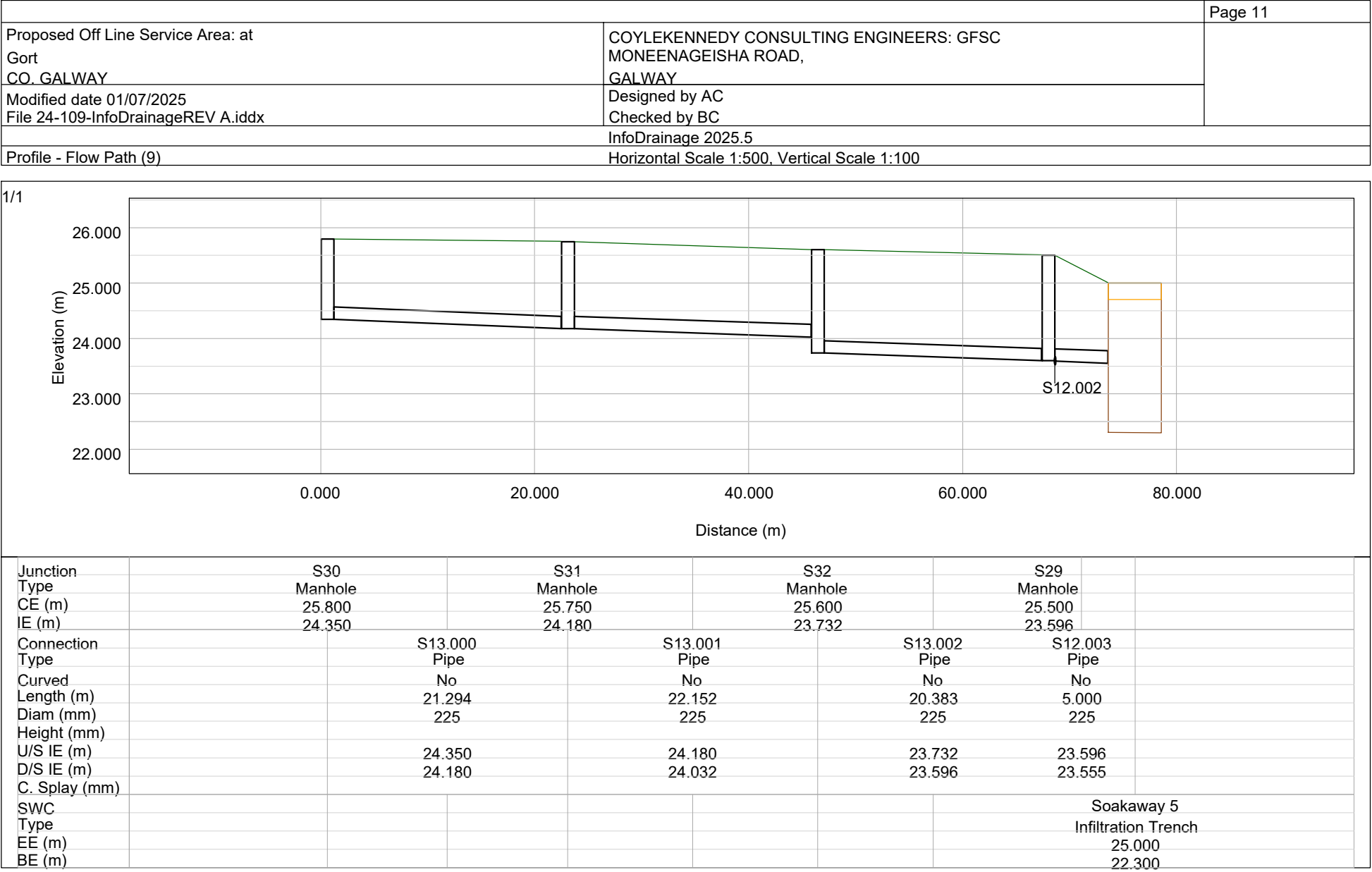
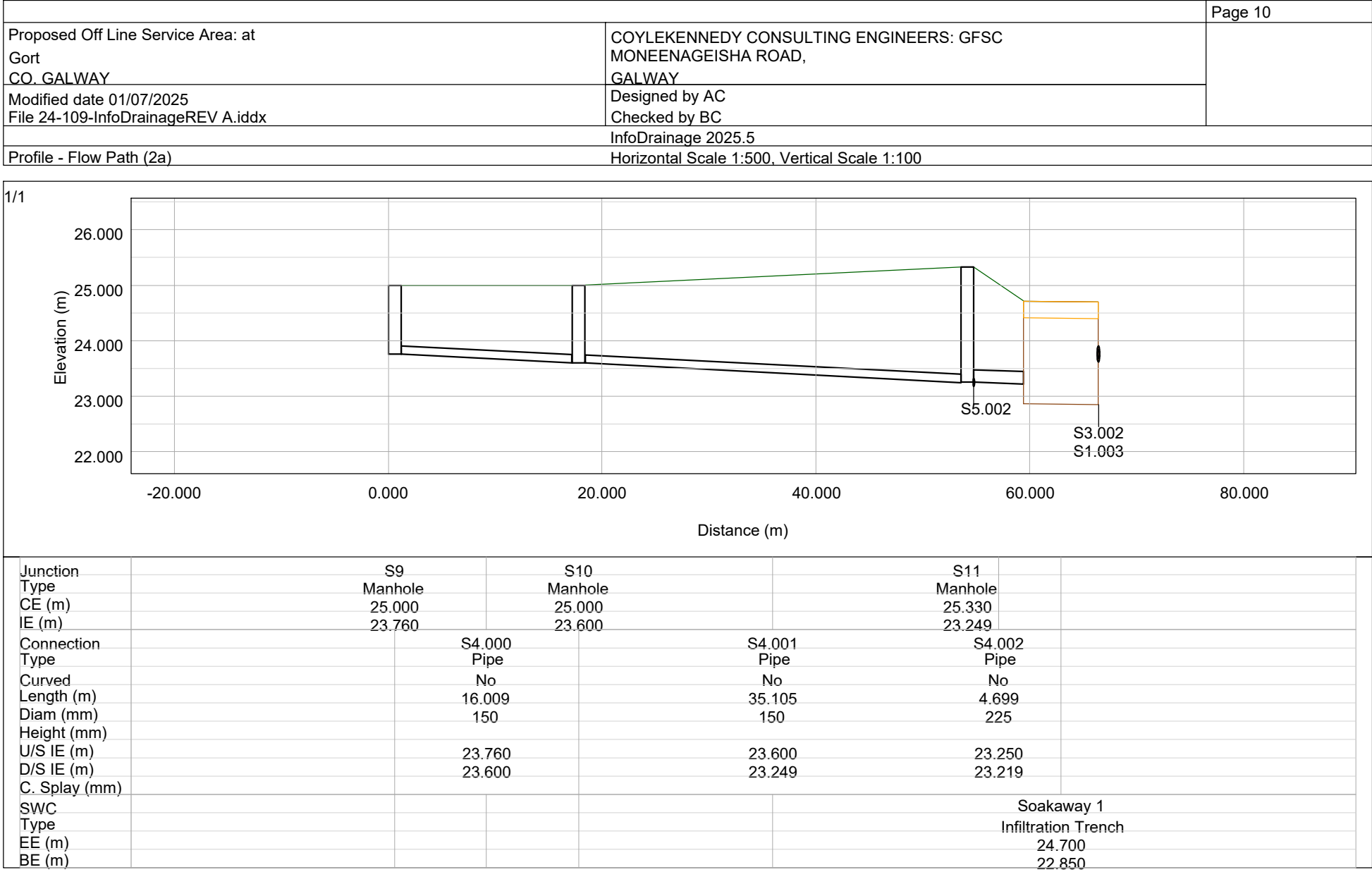
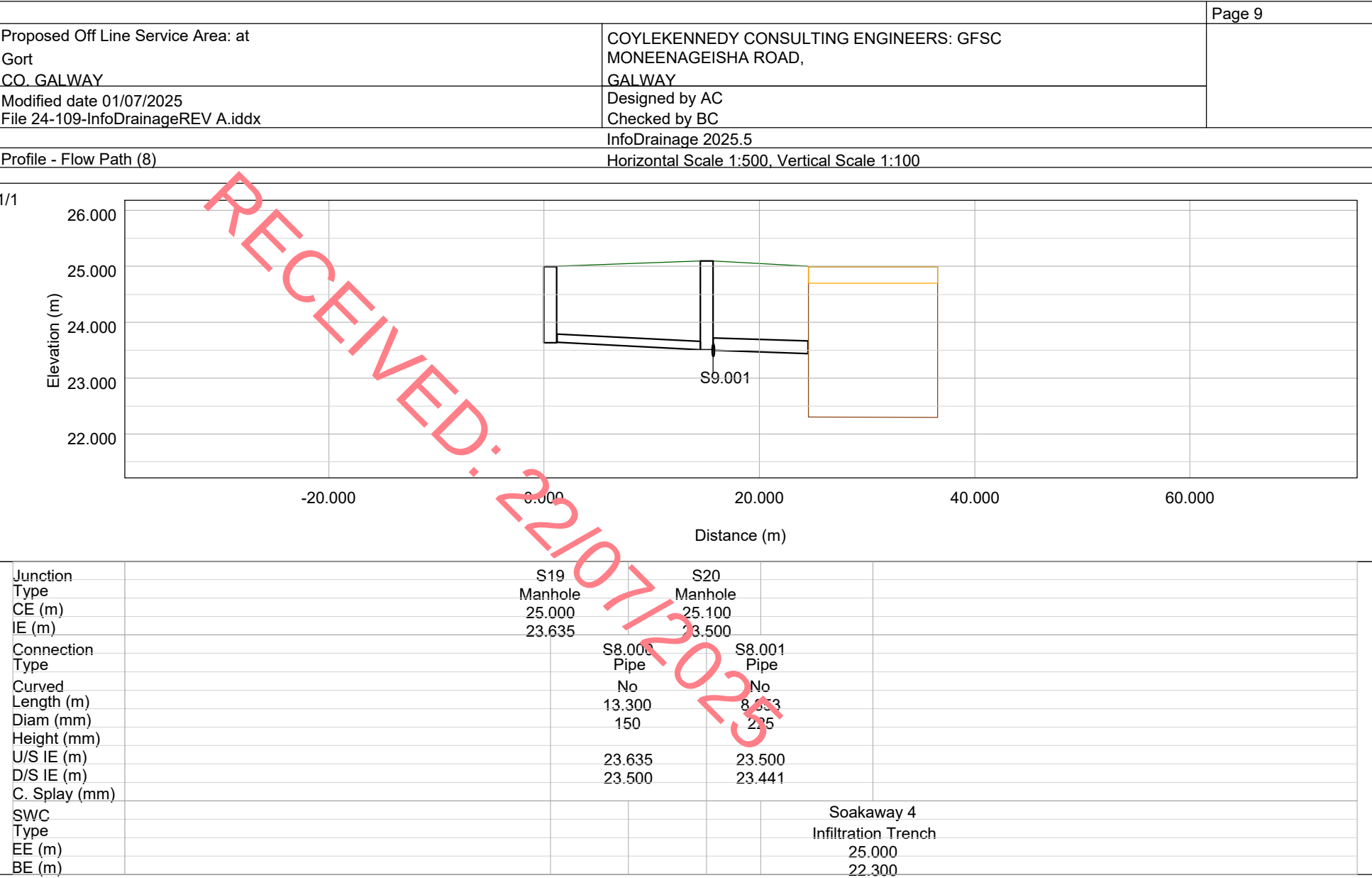
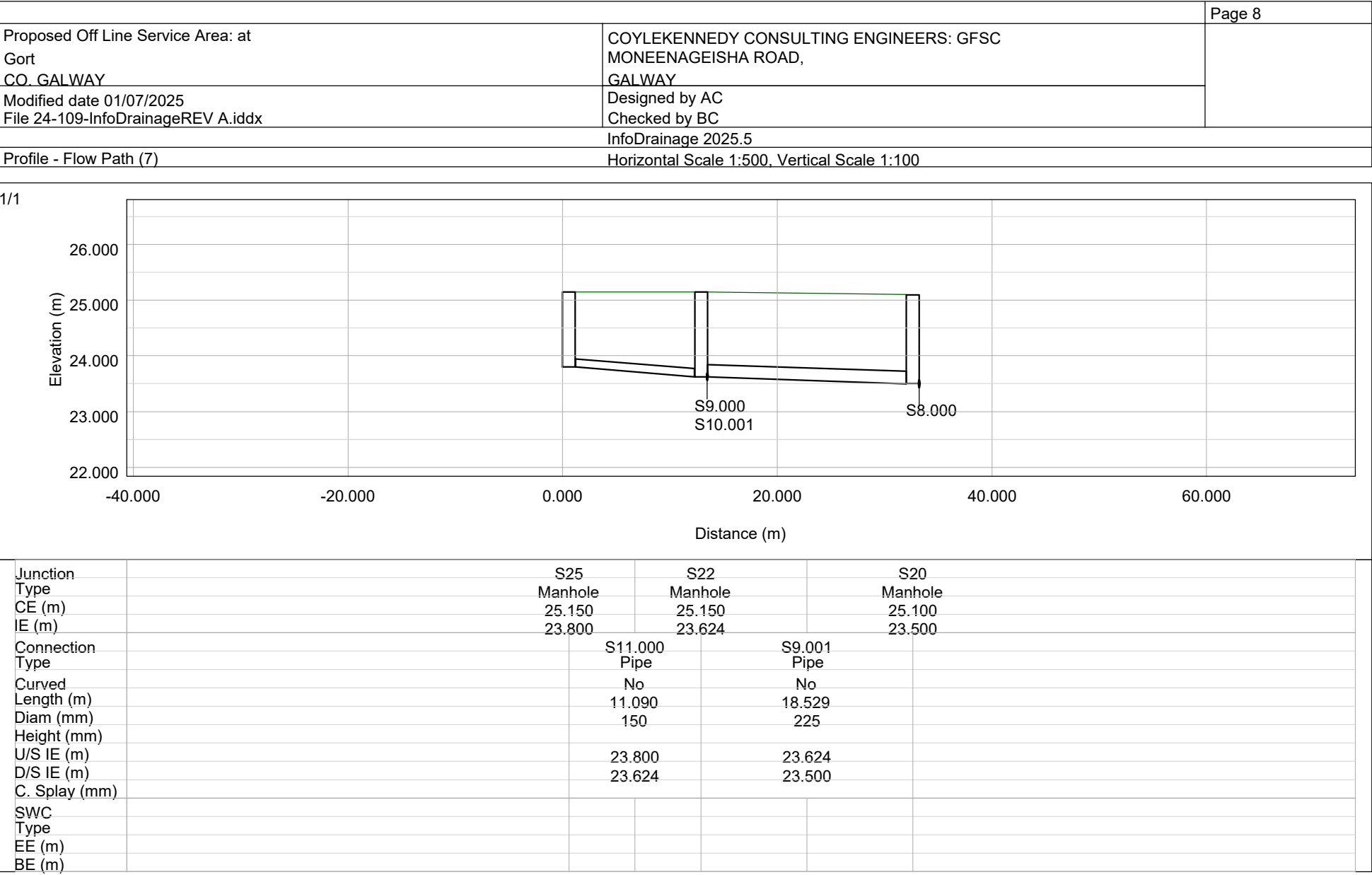
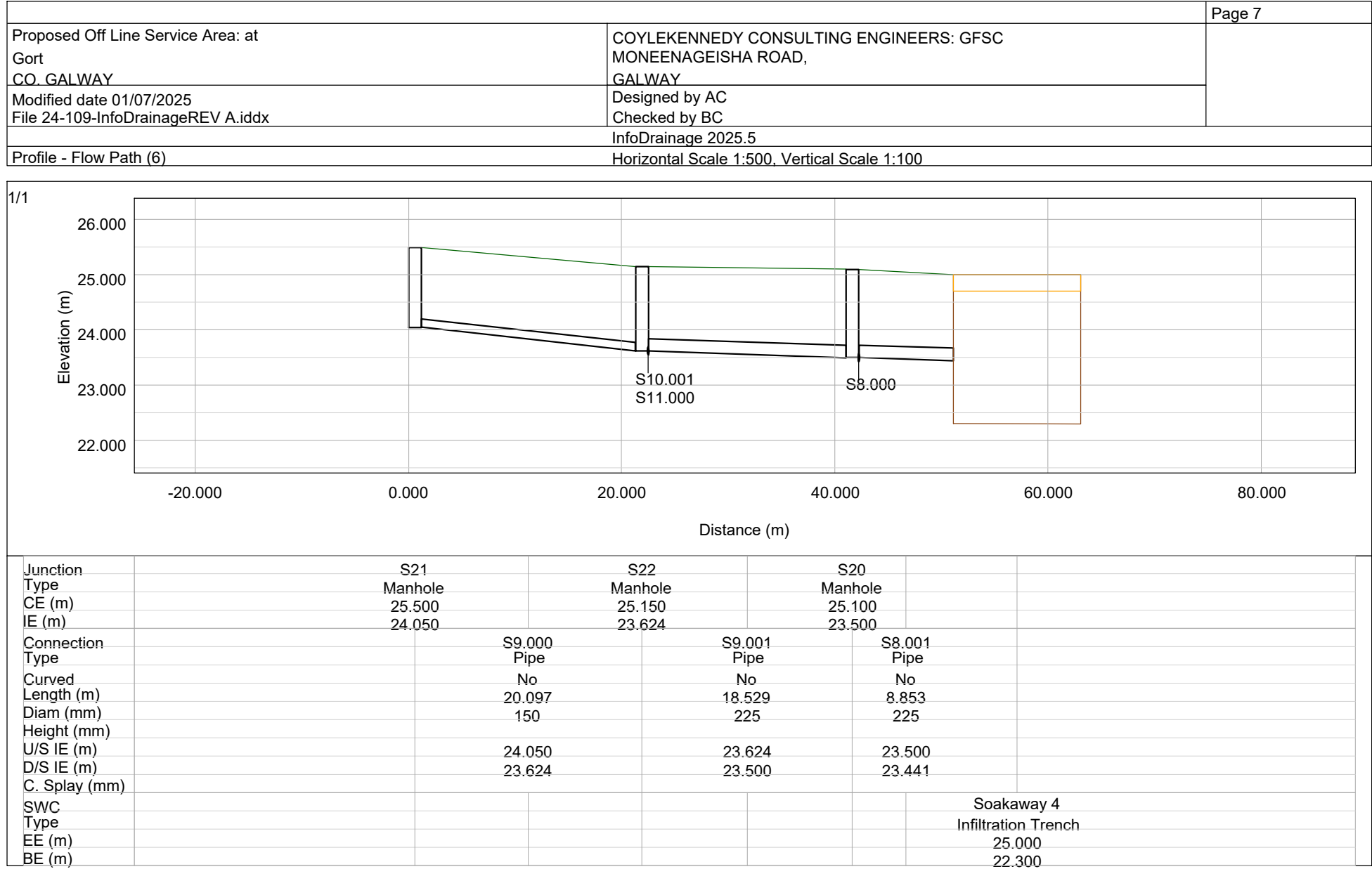
TITLE

STORM DRAINAGE SECTIONS - SHEET 1

PROJECT No. 25-029 **STATUS - DRAWING No.** **P-305**

DATE MAY 2025 **DRAWING REV.**

SCALE 1:500,100,0 A1 **BY** AC **CHECKED** BC **A**



- NOTES
- DRAINAGE NOTES :
- 1..CONTRACTOR TO MAKE ALL NECESSARY ENQUIRIES REGARDING LOCATION OF EXISTING SEWERS, ELECTRICAL AND OTHER SERVICES ON SITE.

2..FOR DRAINAGE WORK LOCAL TO BUILDINGS, REFER TO ARCHITECT'S DRAWINGS.

3..ALL DRAINAGE WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE CURRENT SPECIFICATION, PART H - BUILDING REGULATIONS AND DEPT. OF ENVIRONMENT DOCUMENT "RECOMMENDATIONS FOR SITE DEVELOPMENT WORKS FOR HOUSING AREAS", & WRc "SEWERS FOR ADOPTION - 6th EDITION" A DESIGN & CONSTRUCTION GUIDE FOR DEVELOPERS AND USICE DRAINAGE CODE OF PRACTICE.

4..BEDDING MATERIAL TO BE 10mm SINGLE SIZED AGGREGATE COMPLYING WITH THE REQUIREMENTS OF AGGREGATES FOR CONCRETE. FOR RIGID PIPES THE GRANULAR MATERIAL SHOULD CONFORM TO BS EN 12620 ANNEX B TABLE B AND SHOULD BE SINGLE SIZE MATERIAL OR GRADED MATERIAL FROM 5mm TO 10mm FOR 100mm PIPES, 4mm FOR 150mm PIPES, 20mm FOR 150mm - 600mm DIAMETER AND 40mm FOR PIPES MORE THAN 600mm DIAMETER.

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REFER TO CK DRAWING 301 FOR PLAN LAYOUT OF DRAINAGE NETWORK

F_a - 8/0

A	LEVELS UPDATED TO ALIGN WITH REVISED SITE LEVELS	01/07/2025

Rev.	Revision	Date
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DRAWING STATUS

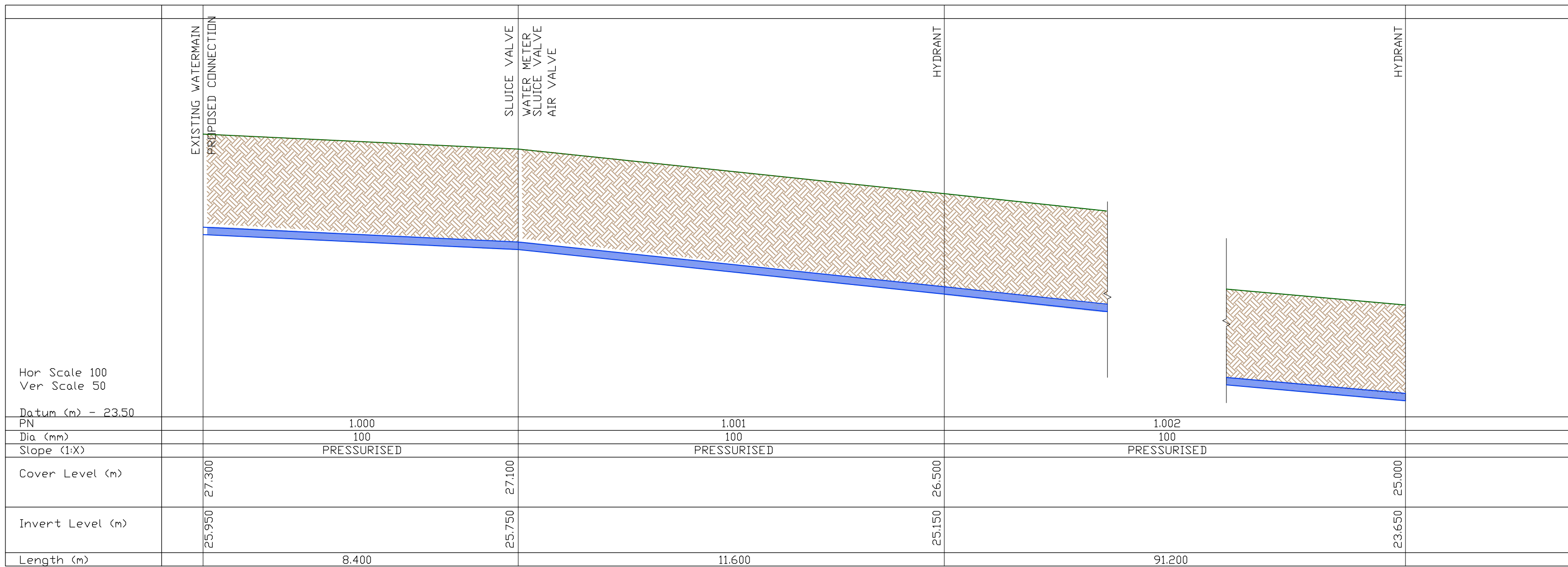
P	PRELIMINARY	A	APPROVAL	T	TENDER
C	CONSTRUCTION	R	RECORD	I	INFORMATION

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PROJECT		PROPOSED OFF LINE SERVICE AREA AT GORT	
CLIENT		RIVERSIDE FOODS	
TITLE			
STORM DRAINAGE SECTIONS – SHEET 2			
PROJECT No.		STATUS – DRAWING No.	
25–029		P-306	
DATE		DRAWING REV.	
MAY 2025		A	
SCALE	BY	CHECKED	
1:500,100,@ A1	AC	BC	



WATERMAIN SECTION - at CONNECTION POINT to HYDRANT

SCALE = AS NOTED ABOVE

PLAN - THRUST BLOCK 'T' CONNECTION TO EXISTING WATERMAIN

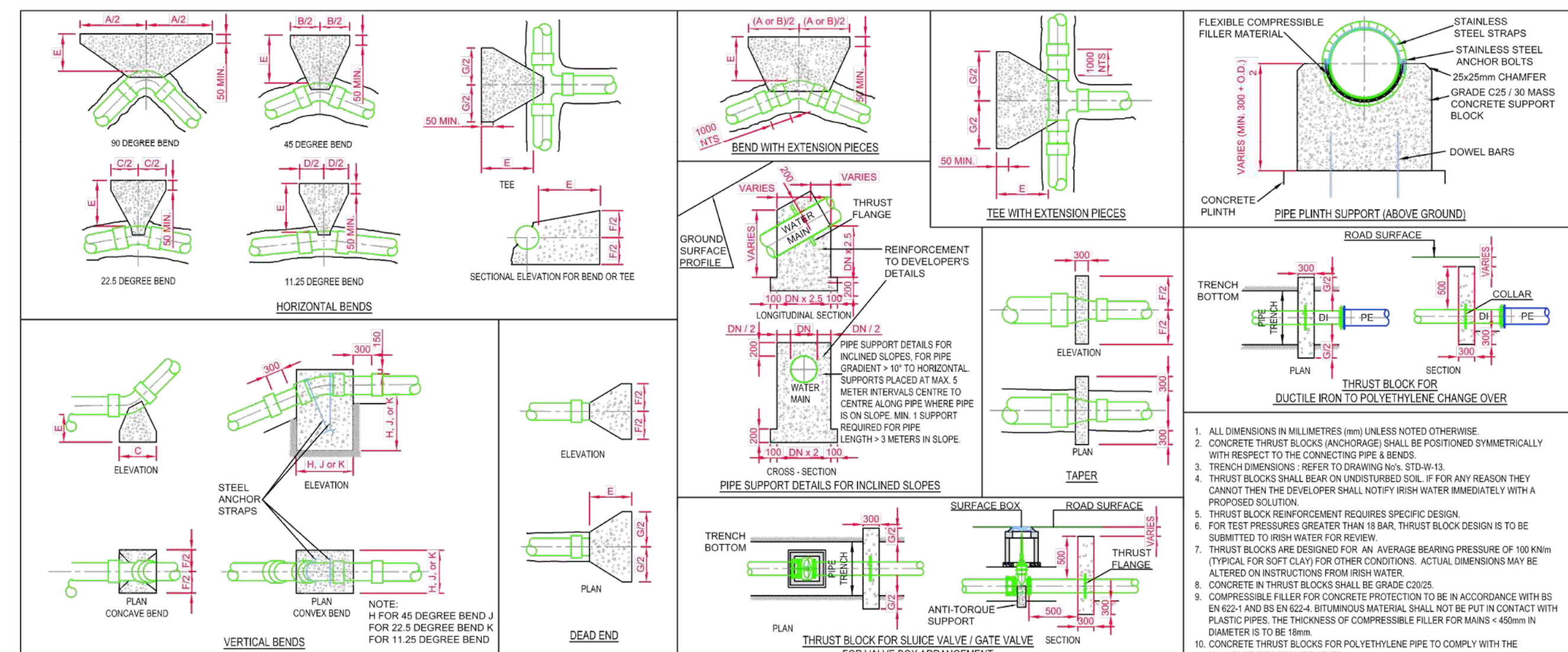
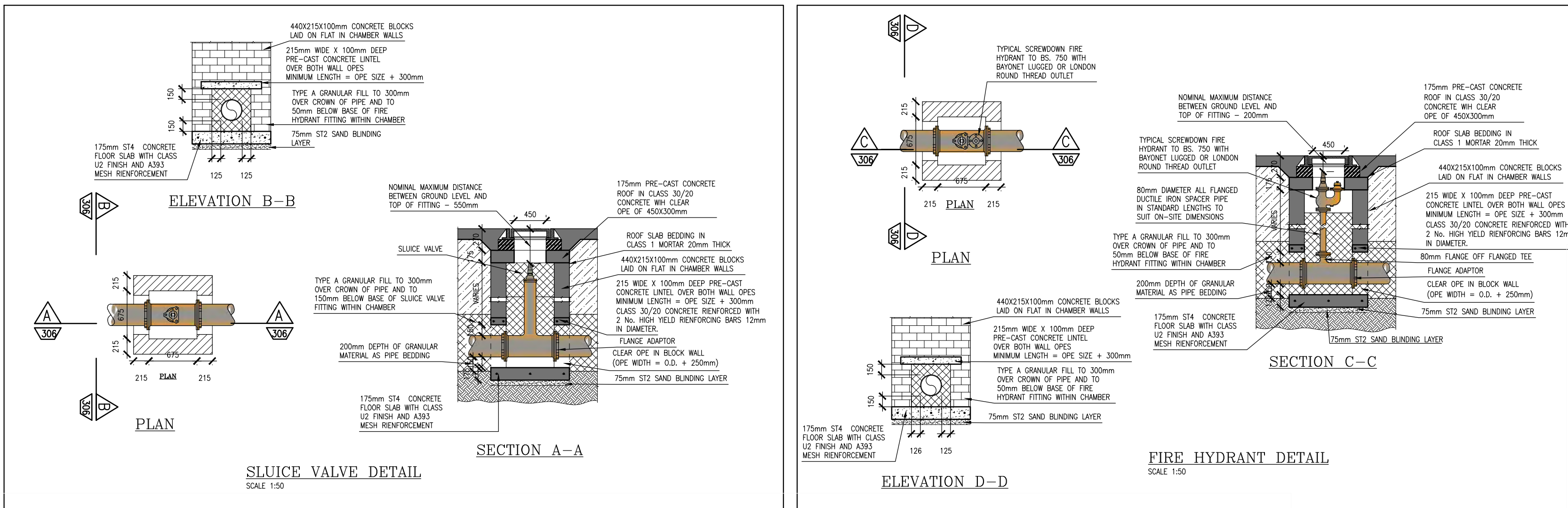
SCALE 1:20

SECTION 2-2

SCALE 1:20

WATERMAIN NOTES :

1. WATER MAINS SHOULD HAVE A MINIMUM NOMINAL PRESSURE CLASSIFICATION OF 9 BAR. THE FOLLOWING PIPES MAY BE USED:
(A) PIPE TYPE AND MATERIAL SPECIFICATION SHOULD BE IN ACCORDANCE WITH SECTION 3.9 OF THE WATER CODE OF PRACTICE.
(B) DUCTILE IRON PIPES TYPE AND MATERIAL SPECIFICATION SHOULD BE IN ACCORDANCE WITH SECTION 3.9.2 AND 3.9.3 OF THE WATER CODE OF PRACTICE.
(C) POLYETHYLENE PIPE TYPE AND MATERIAL SPECIFICATION SHOULD BE IN ACCORDANCE WITH SECTION 3.9.2 AND 3.9.3 OF THE WATER CODE OF PRACTICE.
(D) POLYETHYLENE PIPE TYPE AND MATERIAL SPECIFICATION SHOULD BE IN ACCORDANCE WITH SECTION 3.9.2 AND 3.9.3 OF THE WATER CODE OF PRACTICE.
2. SERVICE PIPES SHOULD HAVE AN INTERNAL DIAMETER OF 25mm AND SHOULD COMPLY WITH WATER CODE OF PRACTICE 3.9 AND STANDARD DETAIL STD-W-03.
3. CLASS OF PIPE TO IRISH WATER CODE OF PRACTICE
4. CONCRETE ANCHOR BLOCKS TO COMPLY WITH STANDARD DETAIL STD-W-28.
5. THE DEPTH OF THE SLUCE VALVE SPINDLE CAP BELOW FINISHED GROUND LEVEL SHOULD NOT EXCEED 300mm
6. DEPTH OF HYDRANT FROM FINISHED GROUND LEVEL SHOULD BE A MAXIMUM OF 250mm. HYDRANTS TO COMPLY WITH STANDARD DETAILS STD-W-16 TO STD-W-18.
7. AIR VALVES TO BE IN COMPLIANCE WITH THE REQUIREMENTS LISTED IN STANDARD DETAIL STD-W-21.
8. THE BOUNDARY BOX IS TO COMPLY WITH STANDARD DETAIL STD-W-03.
9. ALL FITTINGS, INCLUDING SLUCE VALVES, BUTTERFLY VALVES, SCOUR VALVES, HYDRANTS, AIR VALVES AND METERS, TO COMPLY WITH WATER CODE OF PRACTICE 3.18.
10. NO PIPE, CABLE, CONDUIT OR OTHER SERVICE PIPE SHOULD BE LAD LONGITUDINALLY OVER THE LINE OF A WATERMAIN.
11. TRENCH BACKFILL AND BEDDING TO COMPLY WITH STANDARD DETAIL STD-W-13.
12. ALL NEW TREES/SHRUBS PLANTING ADJACENT TO WATER MAINS TO COMPLY WITH STANDARD DETAIL STD-W-12A.



<12 BAR TEST PRESSURE										
NOM. DIA. (mm)	DIMENSIONS									
	A	B	C	D	E	F	G	H	J	K
100	600	330	160	80	200	300	300	700	600	400
150	850	510	260	130	225	450	660	900	750	600
200	1150	600	310	160	300	650	790	1050	600	700
250	1350	750	380	200	300	800	870	1200	1000	750
300	1580	850	450	220	320	950	1110	1300	1100	850
350	2100	1150	570	250	450	1050	1480	1550	1200	900
400	2250	1400	700	350	500	1200	1700	1750	1250	1000
450	3000	1650	830	420	680	1100	2150	1800	1450	1150
500	3500	1950	960	500	800	1200	2540	1950	1600	1250
600	4100	2200	1120	570	850	1400	2850	2100	1700	1300

12 BAR TO 15 BAR TEST PRESSURE										
NOM. DIA. (mm)	DIMENSIONS									
	A	B	C	D	E	F	G	H	J	K
100	700	380	190	100	200	350	510	750	600	400
150	1135	620	320	160	225	450	760	950	750	600
200	1400	750	380	190	300	650	980	1150	950	700
250	1730	940	480	240	320	800	1210	1350	1050	850
300	2090	1150	580	300	360	950	1480	1550	1200	950
350	2620	1410	720	360	530	1050	1860	1700	1350	1050
400	2980	1610	820	420	750	1200	2110	1850	1500	1150
450	3430	1940	940	470	900	1300	2350	2000	1600	1250
500	4090	2210	1130	570	1000	1400	2690	2200	1750	1350
600	5010	2710	1380	700	1000	1500	3550	2350	1900	1500

15 BAR TO 18 BAR TEST PRESSURE										
NOM. DIA. (mm)	DIMENSIONS									
	A	B	C	D	E	F	G	H	J	K
100	750	400	205	100	220	400	530	850	650	400
150	1250	700	350	160	250	550	890	1000	850	650
200	1650	800	450	230	320	700	1170	1250	1000	800
250	1960	1060	540	270	350	900	1370	1450	1150	900
300	2300	1250	640	320	500	1100	1630	1650	1300	1050
350	2620	1560	830	410	750	1200	2070	1950	1550	1150
400	3250	1950	970	1000	1300	2490	2300	1900	1250	
450	3870	2270	1160	580	1000	1350	2970	2150	1700	1350
500	4340	2380	1210	610	1000	1400	3700	2250	1750	1400
600	5370	2450	1700	860	1000	1500	4500	2400	2050	1650

TABLE OF DIMENSIONS FOR STEEPLY INCLINED PIPELINES										
GRADIENT		SPACING								
1 IN 2 & STEEPER		5.5m								
BELOW 1 IN 2 TO 1 IN 4		11.0m								
1 IN 4 TO 1 IN 5		16.0m								
1 IN 5 TO 1 IN 6		22.5m								

12. ALL CONCRETE TO BE IN ACCORDANCE WITH S EN 206

13. ALL REINFORCING STEEL TO BE IN ACCORDANCE WITH S EN 10080

REFER TO INDEX SHEET FOR NOTES REGARDING DESIGN RESPONSIBILITY & RISK ASSESSMENT

STANDARD DETAILS - WATER

WATER MAIN THRUST AND SUPPORT BLOCKS

SCALE NOT TO SCALE

DRAWING No.

STD-W-28

1

DATE SEPT. 2015

REV

REFER TO INDEX SHEET FOR NOTES REGARDING DESIGN RESPONSIBILITY & RISK ASSESSMENT

STANDARD DETAILS - WATER

TRENCH BACKFILL / BEDDING & REDUCED COVER PROTECTION SLAB DETAIL

SCALE NOT TO SCALE

DRAWING No.

STD-W-13

2

DATE SEPT. 2015

REV

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Coyle Kennedy		Page 1																																																																																																																																																																																																						
Consulting Civil & email: Website:	OFF LINE SERVICE AREA GORT																																																																																																																																																																																																							
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<u>FOUL SEWERAGE DESIGN</u> <u>Design Criteria for Foul - Main</u> Pipe Sizes STANDARD Manhole Sizes STANDARD <table><tr><td>Industrial Flow (l/s/ha)</td><td>0.00</td><td>Add Flow / Climate Change (%)</td><td>0</td></tr><tr><td>Industrial Peak Flow Factor</td><td>0.00</td><td>Minimum Backdrop Height (m)</td><td>0.200</td></tr><tr><td>Flow Per Person (l/per/day)</td><td>150.00</td><td>Maximum Backdrop Height (m)</td><td>1.500</td></tr><tr><td>Persons per House</td><td>3.00</td><td>Min Design Depth for Optimisation (m)</td><td>1.200</td></tr><tr><td>Domestic (l/s/ha)</td><td>0.00</td><td>Min Vel for Auto Design only (m/s)</td><td>0.75</td></tr><tr><td>Domestic Peak Flow Factor</td><td>6.00</td><td>Min Slope for Optimisation (1:X)</td><td>500</td></tr></table> Designed with Level Soffits			Industrial Flow (l/s/ha)	0.00	Add Flow / Climate Change (%)	0	Industrial Peak Flow Factor	0.00	Minimum Backdrop Height (m)	0.200	Flow Per Person (l/per/day)	150.00	Maximum Backdrop Height (m)	1.500	Persons per House	3.00	Min Design Depth for Optimisation (m)	1.200	Domestic (l/s/ha)	0.00	Min Vel for Auto Design only (m/s)	0.75	Domestic Peak Flow Factor	6.00	Min Slope for Optimisation (1:X)	500																																																																																																																																																																														
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<u>Network Design Table for Foul - Main</u> <table><tr><th>PN</th><th>Length (m)</th><th>Fall (m)</th><th>Slope (1:X)</th><th>Area (ha)</th><th>Houses</th><th>Base Flow (l/s)</th><th>k (mm)</th><th>HYD SECT</th><th>DIA (mm)</th><th>Section Type</th></tr><tr><td>F1.000</td><td>27.380</td><td>0.456</td><td>60.0</td><td>0.000</td><td>30</td><td>0.0</td><td>1.500</td><td>o</td><td>150</td><td>Pipe/Conduit</td></tr><tr><td>F1.001</td><td>39.220</td><td>0.654</td><td>60.0</td><td>0.000</td><td>4</td><td>0.0</td><td>1.500</td><td>o</td><td>150</td><td>Pipe/Conduit</td></tr><tr><td>F2.000</td><td>27.380</td><td>0.913</td><td>30.0</td><td>0.000</td><td>20</td><td>0.0</td><td>1.500</td><td>o</td><td>150</td><td>Pipe/Conduit</td></tr><tr><td>F1.002</td><td>46.140</td><td>0.577</td><td>80.0</td><td>0.000</td><td>0</td><td>0.0</td><td>1.500</td><td>o</td><td>150</td><td>Pipe/Conduit</td></tr><tr><td>F3.000</td><td>20.135</td><td>0.336</td><td>60.0</td><td>0.000</td><td>2</td><td>0.0</td><td>1.500</td><td>o</td><td>150</td><td>Pipe/Conduit</td></tr><tr><td>F3.001</td><td>13.875</td><td>0.231</td><td>60.0</td><td>0.000</td><td>0</td><td>0.0</td><td>1.500</td><td>o</td><td>150</td><td>Pipe/Conduit</td></tr><tr><td>F4.000</td><td>15.550</td><td>0.389</td><td>40.0</td><td>0.000</td><td>7</td><td>0.0</td><td>1.500</td><td>o</td><td>150</td><td>Pipe/Conduit</td></tr><tr><td>F3.002</td><td>6.100</td><td>0.102</td><td>60.0</td><td>0.000</td><td>0</td><td>0.0</td><td>1.500</td><td>o</td><td>150</td><td>Pipe/Conduit</td></tr></table> <u>Network Results Table</u> <table><tr><th>PN</th><th>US/IL (m)</th><th>Σ Area (ha)</th><th>Σ Base Flow (l/s)</th><th>Σ Hse</th><th>Add Flow (l/s)</th><th>P.Dep (mm)</th><th>P.Vel (m/s)</th><th>Vel (m/s)</th><th>Cap (l/s)</th><th>Flow (l/s)</th></tr><tr><td>F1.000</td><td>24.400</td><td>0.000</td><td>0.0</td><td>30</td><td>0.0</td><td>22</td><td>0.57</td><td>1.13</td><td>20.0</td><td>0.9</td></tr><tr><td>F1.001</td><td>23.944</td><td>0.000</td><td>0.0</td><td>34</td><td>0.0</td><td>24</td><td>0.59</td><td>1.13</td><td>20.0</td><td>1.1</td></tr><tr><td>F2.000</td><td>24.300</td><td>0.000</td><td>0.0</td><td>20</td><td>0.0</td><td>16</td><td>0.64</td><td>1.60</td><td>28.3</td><td>0.6</td></tr><tr><td>F1.002</td><td>23.290</td><td>0.000</td><td>0.0</td><td>54</td><td>0.0</td><td>32</td><td>0.62</td><td>0.98</td><td>17.3</td><td>1.7</td></tr><tr><td>F3.000</td><td>23.700</td><td>0.000</td><td>0.0</td><td>2</td><td>0.0</td><td>6</td><td>0.24</td><td>1.13</td><td>20.0</td><td>0.1</td></tr><tr><td>F3.001</td><td>23.364</td><td>0.000</td><td>0.0</td><td>2</td><td>0.0</td><td>6</td><td>0.24</td><td>1.13</td><td>20.0</td><td>0.1</td></tr><tr><td>F4.000</td><td>23.700</td><td>0.000</td><td>0.0</td><td>7</td><td>0.0</td><td>10</td><td>0.41</td><td>1.39</td><td>24.5</td><td>0.2</td></tr><tr><td>F3.002</td><td>23.133</td><td>0.000</td><td>0.0</td><td>9</td><td>0.0</td><td>13</td><td>0.39</td><td>1.13</td><td>20.0</td><td>0.3</td></tr></table>			PN	Length (m)	Fall (m)	Slope (1:X)	Area (ha)	Houses	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	F1.000	27.380	0.456	60.0	0.000	30	0.0	1.500	o	150	Pipe/Conduit	F1.001	39.220	0.654	60.0	0.000	4	0.0	1.500	o	150	Pipe/Conduit	F2.000	27.380	0.913	30.0	0.000	20	0.0	1.500	o	150	Pipe/Conduit	F1.002	46.140	0.577	80.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	F3.000	20.135	0.336	60.0	0.000	2	0.0	1.500	o	150	Pipe/Conduit	F3.001	13.875	0.231	60.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	F4.000	15.550	0.389	40.0	0.000	7	0.0	1.500	o	150	Pipe/Conduit	F3.002	6.100	0.102	60.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	PN	US/IL (m)	Σ Area (ha)	Σ Base Flow (l/s)	Σ Hse	Add Flow (l/s)	P.Dep (mm)	P.Vel (m/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)	F1.000	24.400	0.000	0.0	30	0.0	22	0.57	1.13	20.0	0.9	F1.001	23.944	0.000	0.0	34	0.0	24	0.59	1.13	20.0	1.1	F2.000	24.300	0.000	0.0	20	0.0	16	0.64	1.60	28.3	0.6	F1.002	23.290	0.000	0.0	54	0.0	32	0.62	0.98	17.3	1.7	F3.000	23.700	0.000	0.0	2	0.0	6	0.24	1.13	20.0	0.1	F3.001	23.364	0.000	0.0	2	0.0	6	0.24	1.13	20.0	0.1	F4.000	23.700	0.000	0.0	7	0.0	10	0.41	1.39	24.5	0.2	F3.002	23.133	0.000	0.0	9	0.0	13	0.39	1.13	20.0	0.3
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Date 01/07/2025 File 25-029 Foul.MDX	Designed by AC Checked by BC	
Innovyze Network 2020.1.3		

Network Design Table for Foul - Main

PN	Length (m)	Fall (m)	Slope (1:X)	Area (ha)	Houses	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type
F1.003	2.500	0.031	80.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit

Network Results Table

PN	US/IL (m)	Σ Area (ha)	Σ Base Flow (l/s)	Σ Hse Add Flow (l/s)	P.Dep (mm)	P.Vel (m/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
F1.003	22.713	0.000	0.0	63	0.0	34	0.65	0.98	17.3

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Date 01/07/2025 File 25-029 Foul.MDX	Designed by AC Checked by BC	
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PIPELINE SCHEDULES for Foul - Main

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
F1.000	o	150	F1	25.600	24.400	1.050	Open Manhole	1200
F1.001	o	150	F2	25.550	23.944	1.456	Open Manhole	1200
F2.000	o	150	F3	25.500	24.300	1.050	Open Manhole	1200
F1.002	o	150	F4	25.450	23.290	2.010	Open Manhole	1200
F3.000	o	150	F5	25.300	23.700	1.450	Open Manhole	1200
F3.001	o	150	F6	25.150	23.364	1.636	Open Manhole	1200
F4.000	o	150	F7	25.150	23.700	1.300	Open Manhole	1200
F3.002	o	150	F8	25.000	23.133	1.717	Open Manhole	1200
F1.003	o	150	F9	25.000	22.713	2.137	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
F1.000	27.380	60.0	F2	25.550	23.944	1.456	Open Manhole	1200
F1.001	39.220	60.0	F4	25.450	23.290	2.010	Open Manhole	1200
F2.000	27.380	30.0	F4	25.450	23.387	1.913	Open Manhole	1200
F1.002	46.140	80.0	F9	25.000	22.713	2.137	Open Manhole	1200
F3.000	20.135	60.0	F6	25.150	23.364	1.636	Open Manhole	1200
F3.001	13.875	60.0	F8	25.000	23.133	1.717	Open Manhole	1200
F4.000	15.550	40.0	F8	25.000	23.311	1.539	Open Manhole	1200
F3.002	6.100	60.0	F9	25.000	23.032	1.819	Open Manhole	1200
F1.003	2.500	80.0	F	0.000	22.682		Open Manhole	0

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Separators Product Brochure

Fully compliant range of Separators for
a variety of commercial and industrial
applications



Fuel/Oil Separators for Commercial and Industrial Applications

Surface water drains typically discharge to a watercourse or indirectly into underground waters (groundwater) via a soakaway. Contamination of surface water by oil, chemicals or suspended solids can cause these discharges to have a serious impact on the receiving water.

UK environment regulators, the Environment Agency; the Scottish Environment Protection Agency (SEPA); and the Department of Environment (DOE); have all published guidance on surface water disposal, which includes dealing with pollution both at source and at the point of discharge from site (so-called 'end of pipe' treatment). These techniques are known as 'Sustainable Drainage Systems' (SuDS).

Where run-off is draining from relatively low risk areas such as car parks and non-operational areas, a source control approach - such as permeable surfaces or infiltration trenches - may offer a suitable means of treatment, removing the need for a separator.

Oil separators are installed on surface water drainage systems to protect receiving waters from pollution by oil, which may be present due to minor leaks from vehicles or from across the plant, or from more major events like accidental spillage.

Effluent from industrial processes and vehicle washing should normally be discharged to the foul sewer (subject to the approval of the sewerage undertaker) for further treatment at a municipal treatment works.

Separator Standards and Types

The UK has adopted a two-part European Standard (BS EN 858-1:2002 and BS EN 858-2:2003; Reference 5) for the design, use, selection, installation, operation and maintenance of prefabricated oil separators. New prefabricated separators should comply with the standard.

Separator Classes

The standard refers to two 'classes' of separator, based on performance under standard test conditions.

Class I

Designed to achieve a concentration of less than 5mg/l of oil under standard test conditions, a Class I separator should be used when the separator is required to remove very small oil droplets. Class I separators always discharge to a watercourse.

Class II

Designed to achieve a concentration of less than 100mg/l oil under standard test conditions, Class II separators are suitable for dealing with discharges where a lower quality requirement applies. Class II separators discharge effluent to a foul sewer.

Bypass separators

Bypass separators fully treat all flows generated by rainfall rates of up to 6.5mm/hr. This covers over 99% of all rainfall events. Flows above this rate are allowed to bypass the separator. These separators are used when it is considered an acceptable risk not to provide full treatment for high flows, for example where the risk of a large spillage and heavy rainfall occurring at the same time is small.

Contact our expert local separators team for technical advice on your project requirements.

Email Water-ME@kingspan.com and a member of our team will be in touch.

Full retention separators

Full retention separators treat the full flow that can be delivered by the drainage system, which is normally equivalent to the flow generated by a rainfall intensity of 65mm/hr.

On large sites, some short term flooding may be an acceptable means of limiting the flow rate and hence the size of full retention systems.

Forecourt separators

Forecourt separators are full retention separators specified to retain on site the maximum spillage likely to occur on a petrol filling station. They are required for both safety and environmental reasons and will treat spillages occurring during vehicle refuelling and road tanker delivery. The size of the separator is increased in order to retain the possible loss of the contents of one compartment of a road tanker, which may be up to 7,600 litres.

Selecting the right separator

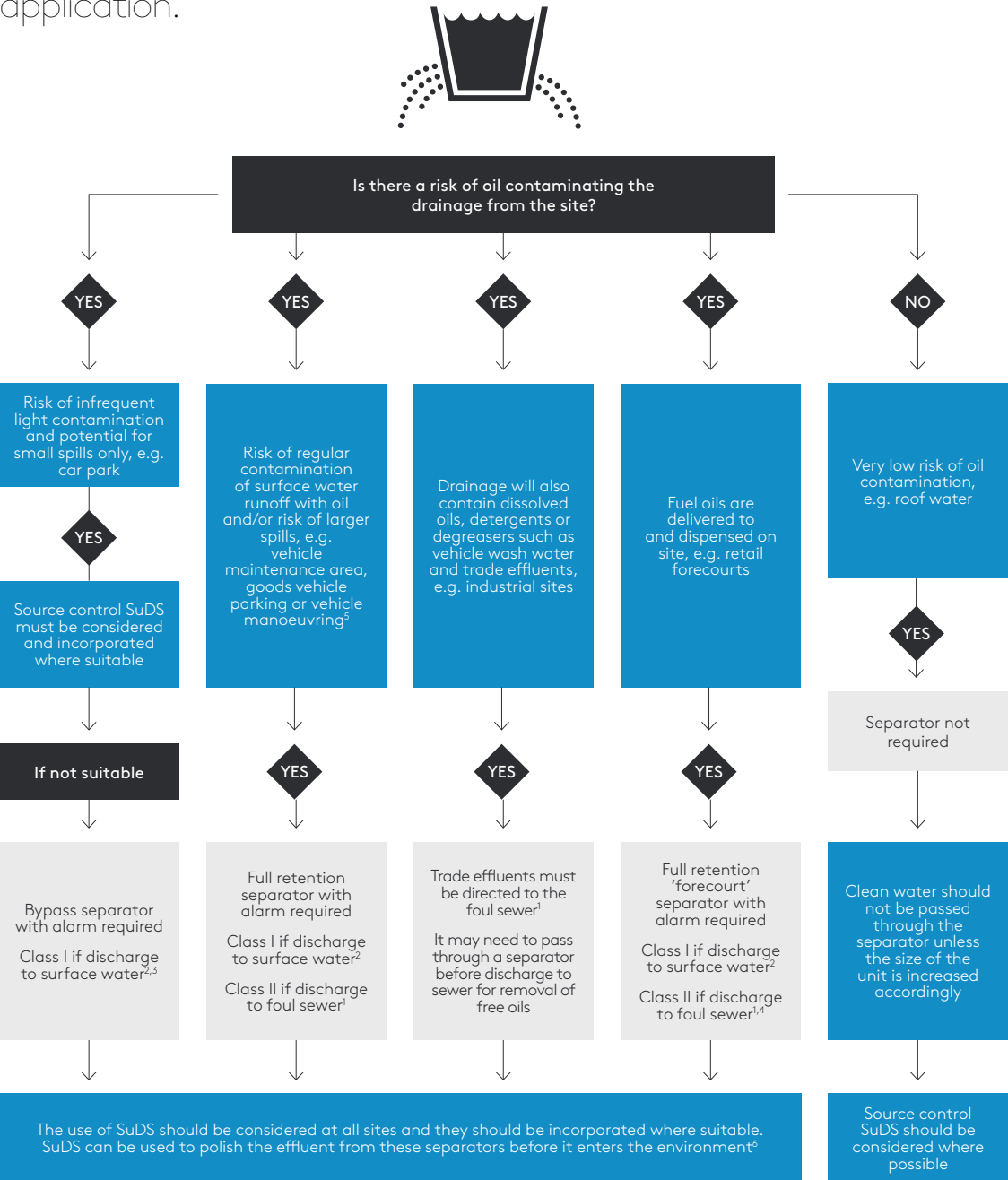
The chart on the following page gives guidance to aid selection of the appropriate type of fuel/oil separator for use in surface water drainage systems which discharge into rivers and soakaways. For further detailed information, please consult your local Water/Environmental Agency.

Kingspan has a specialist team who provide technical assistance in selecting the appropriate separator for your application.

Choosing the Right Separator

Kingspan has a specialist team who provide expert technical assistance in selecting the appropriate separator for your application.

The chart below gives guidance to aid selection of the appropriate type of fuel/oil separator for use in surface water drainage systems which discharge into rivers and soakaways.



Bypass Separators

NSB RANGE



Performance

Kingspan was one of the first UK manufacturers to have separators tested to BS EN 858-1. In 2006, we introduced the NSB range of bypass separators. The NSB number denotes the maximum flow at which the separator treats liquids. The British Standards Institute (BSI) tested the required range of Kingspan bypass separators, and certified their performance in relation to their flow and process performance, assessing the effluent qualities to the requirements of BS EN 858-1. Kingspan bypass separator designs follow the parameters determined during the testing of the required range of bypass separators.

Each bypass separator design includes the necessary volume requirements for:

- Oil separation capacity
- Oil storage volume
- Silt storage capacity
- Coalescer (Class 1 units only).

The unit is designed to treat the first 10% of peak flow ('first flush principle'). The calculated drainage areas served by each separator are indicated according to the formula $NSB = 0.0018A(m^2)$. Flows generated by higher rainfall rates will pass through part of the separator, bypassing the separation chamber.

Class I separators are designed to achieve a concentration of 5mg/litre of oil under standard test conditions.

Features

Light and easy to install.

- Inclusive of silt storage volume
- Fitted inlet/outlet connectors
- Vent points within necks
- Oil alarm system available (required by BS EN 858-1)
- Extension access shafts for deep inverts
- Maintenance from ground level
- GRP or rotomoulded construction (subject to model).

To specify a nominal size bypass separator, the following information is needed:

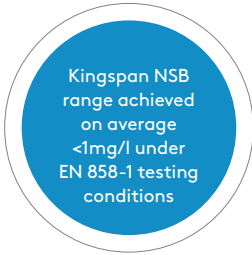
- The calculated flow rate for the drainage area served. Our designs are based on the assumptions that any interconnecting pipework fitted elsewhere on site does not impede flow into or out of the separator and that the flow is not pumped
- The drain invert inlet depth
- Pipework type, size and orientation.

Technical Specifications

Model Reference	Flow (l/s)	Peak Flow Rate (l/s)	Drainage Area(M ²) Based on UK rainwater flow	Storage Capacity (Ltrs)		Length (mm)	Diameter (mm)	Access Shaft Diameter (mm)	Base Inlet Invert (mm)	Base to Outlet Invert (mm)	Standard Fall Across (mm)	Min Inlet Invert (mm)	Standard Pipework Diameter (mm)**
				Silt	Oil								
Polyethylene Chamber Construction													
NSBP003	3	30	1670	300	45	1700	1350	600	1420	1320	100	500	160
NSBP004	4.5	45	2500	450	60	1700	1350	600	1420	1320	100	500	160
NSBP006	6	60	3335	600	90	1700	1350	600	1420	1320	100	500	160
GRP Chamber Construction													
NSBE010	10	100	5560	1000	150	2069	1220	750	1450	1350	100	700	315
NSBE015	15	150	8335	1500	225	2947	1220	750	1450	1350	100	700	315
NSBE020	20	200	11111	2000	300	3893	1220	750	1450	1350	100	700	375
NSBE025	25	250	13890	2500	375	3575	1420	750	1680	1580	100	700	375
NSBE030	30	300	16670	3000	450	4265	1420	750	1680	1580	100	700	450
NSBE040	40	400	22222	4000	600	3230	1920	600	2185	2035	150	1000	500
NSBE050	50	500	27778	5000	750	3960	1920	600	2185	2035	150	1000	600
NSBE075	75	750	41667	7500	1125	5841	1920	600	2235	2035	200	950	675
NSBE100	100	1000	55556	10000	1500	7661	1920	600	2235	2035	200	950	750
NSBE125	125	1250	69444	12500	1875	9548	1920	600	2235	2035	200	950	750

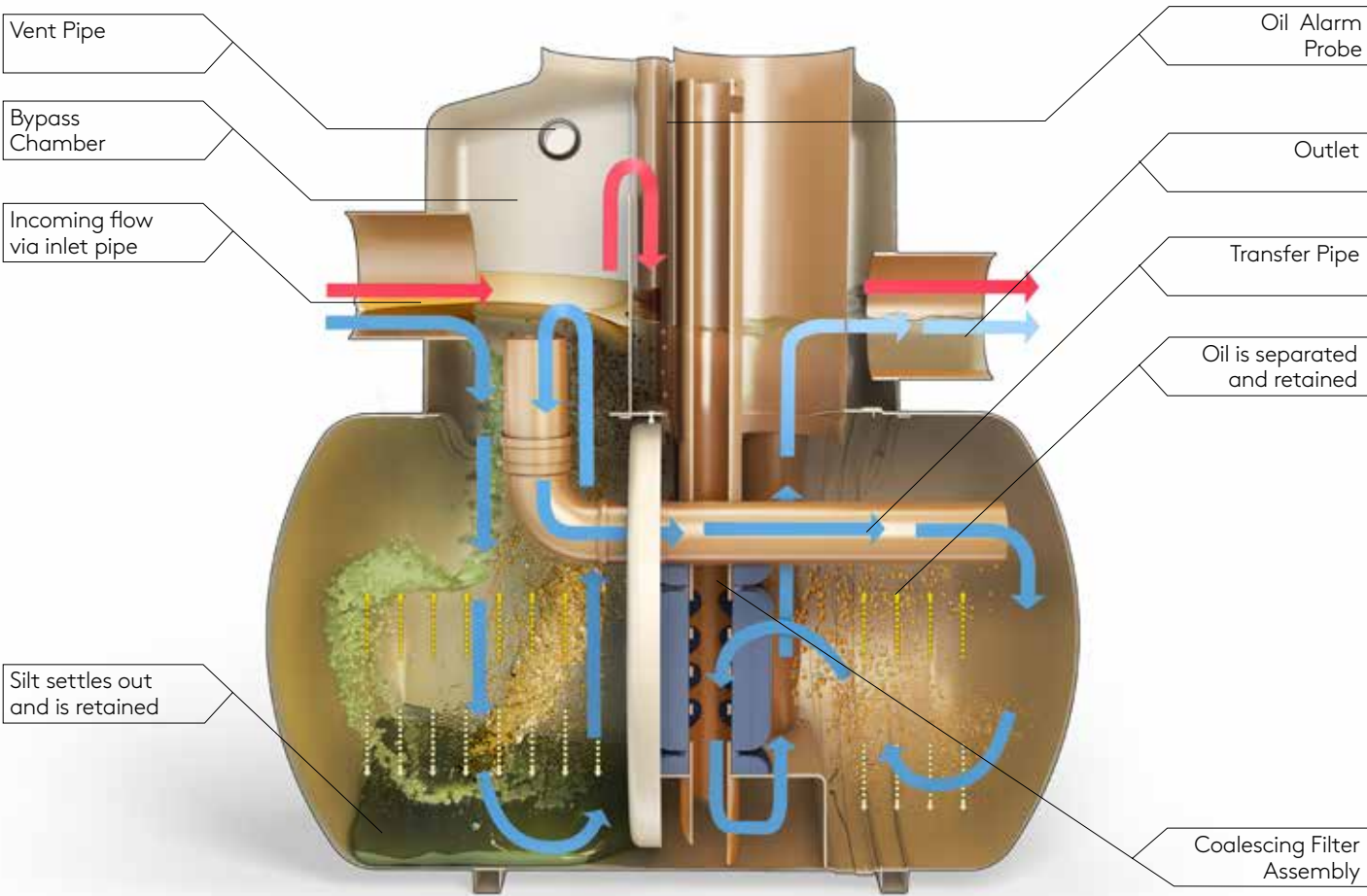
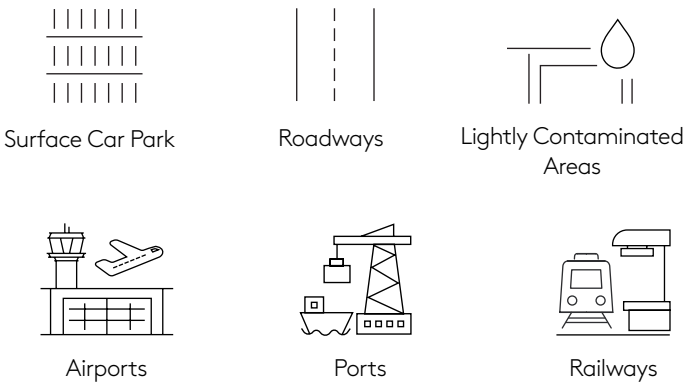
* Systems to cater for larger flow rates are available on request. Email water-ME@kingspan.com for further information.
* Some units have more than one access shaft – diameter of largest shown | ** Larger pipework available on request.

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Applications

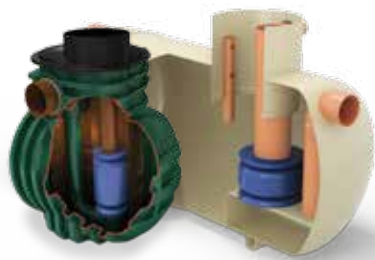
Kingspan's range of bypass separators are typically used for the following applications:



● Bypass flow route ● Normal flow route

Full Retention Separators

NSF RANGE



Performance

Kingspan were the first UK manufacturer to have the required range (3-30 l/sec) certified to BS EN 858-1 in the UK. The NSF number denotes the flow at which the separator operates. The British Standards Institute (BSI) have witnessed the performance tests of the required range of separators and have certified their performance, in relation to their flow and process performance to ensure that they meet the effluent quality requirements of BS EN 858-1. Larger separator designs have been determined using the formulas extrapolated from the test range.

Each full retention separator design includes the necessary volume requirements for:

- Oil separation capacity
- Oil storage volume
- Silt storage capacity
- Coalescer (Class I units only)
- Automatic closure device.

Kingspan full retention separators treat the whole of the specified flow.

Features

- Light and easy to install
- 3-30 l/sec range independently tested and performance sampled, certified by the BSI
- Inclusive of silt storage volume
- Fitted inlet/outlet connectors
- Oil alarm system available

- Vent points within necks
- Extension access shafts for deep inverts
- Maintenance from ground level
- GRP or rotomoulded construction (subject to model)

To specify a nominal size full retention separator, the following information is needed:

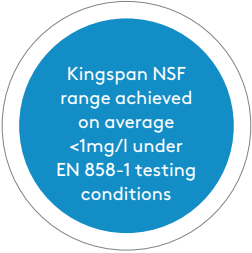
- The calculated flow rate for the drainage area served. Our designs are based on the assumptions that any interconnecting pipework fitted elsewhere on site does not impede flow into or out of the separator and that the influent is not pumped
- The required discharge standard
- The drain invert inlet depth
- Pipework type, size and orientation.

Technical Specifications

Model Reference	Flow (l/s)	Drainage Area (m2) PPG-3 (0.018)	Storage Capacity (Ltrs)		Length (mm)	Diameter (mm)	Manhole Cover Dimensions (mm)	Base Inlet Invert (mm)	Base to Outlet Invert (mm)	Min Inlet Invert (mm)	Standard Pipework Diameter (mm)
			Silt	Oil							
Polyethylene Chamber Construction											
NSFP003	3	170	300	30	1700	1350	600	1410	1335	550	160
NSFP006	6	335	600	60	1700	1350	600	1410	1335	550	160
GRP Chamber Construction											
NSFA010	10	555	1000	100	2610	1225	600	1050	1000	500	200
NSFA015	15	835	1500	150	3910	1225	600	1050	1000	1000	200
NSFA020	20	1115	2000	200	3200	2010	600	1810	1760	1000	315
NSFA030	30	1670	3000	300	3915	2010	600	1810	1760	1000	315
NSFA040	40	2225	4000	400	4640	2010	600	1810	1760	1000	315
NSFA050	50	2780	5000	500	5425	2010	600	1810	1760	1000	315
NSFA065	65	3160	6500	650	6850	2010	600	1810	1760	1000	315
NSFA080	80	4445	8000	800	5744	2820	600	2500	2450	1000	315
NSFA100	100	5560	10000	1000	6200	2820	600	2500	2450	1000	400
NSFA125	125	6945	12500	1250	7365	2820	600	2500	2450	1000	450
NSFA150	150	8335	15000	1500	8675	2820	600	2500	2450	1000	525
NSFA175	175	9725	17500	1750	9975	2820	600	2500	2450	1000	525
NSFA200	200	11110	20000	2000	11,280	2820	600	2500	2450	1000	600

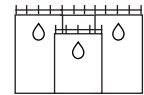
* Systems to cater for larger flow rates are available on request. Email water-ME@kingspan.com for further information
* Some units have more than one access shaft - diameter of largest shown.

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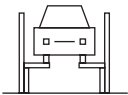


Applications

Full retention separators are used in high risk spillage areas such as:



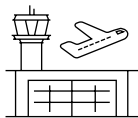
Fuel Distribution Depots



Vehicle Workshops



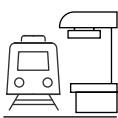
Scrap Yards



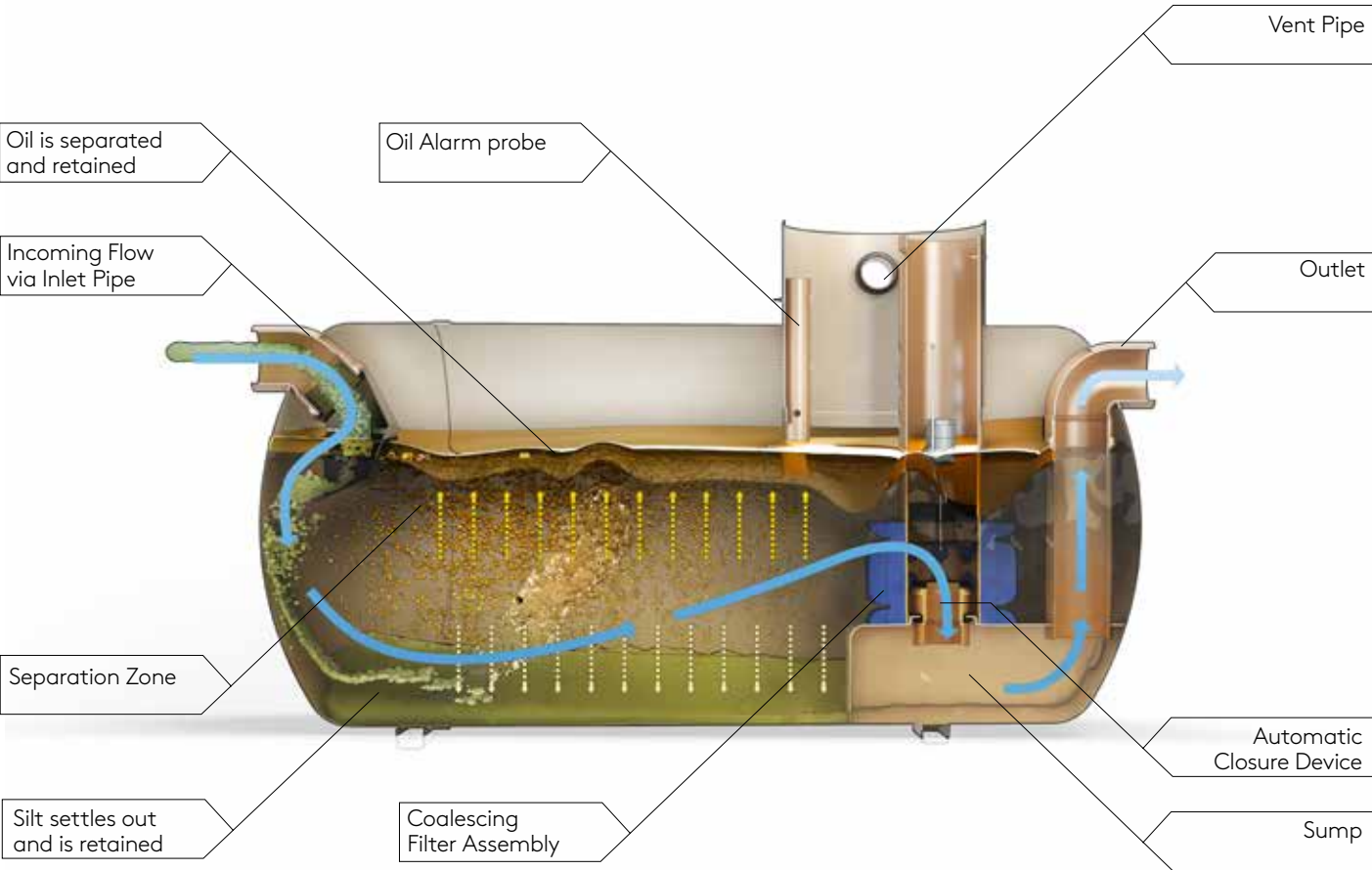
Airports



Ports



Railways



Forecourt Separators

Compliance

Operation ensures that the flow cannot exit the unit without first passing through the coalescer assembly.

In normal operation, the forecourt separator has sufficient capacity to provide storage for separated pollutants within the main chamber, but is also able to contain up to 7,600 litres of pollutant arising from the spillage of a fuel delivery tanker compartment on the petrol forecourt. The separator has been designed to ensure that oil cannot exit the separator in the event of a major spillage, therefore the separator should be emptied immediately.

Technical Specifications

Separator Class	Backfill Type	Total Capacity (Ltrs)	Drainage Area (m²)	Peak Flow Rate (L/s)	Length (mm)	Diameter (mm)	Access Shaft Diameter (mm)	Base Inlet Invert (mm)	Base to Outlet Invert (mm)	Standard Fall Across (mm)	Min Inlet Invert (mm)	Standard Pipework Diameter (mm)	Empty Weight (kg)
I/II	Concrete	10000	835	15	3915	2020	600	2180	2130	50	600	160	620
I/II	Concrete	10000	1115	20	3915	2020	600	2180	2130	50	600	200	620

Features

- Light and easy to install
- Inclusive of silt storage volume
- Fitted inlet/outlet connectors
- Vent points within necks
- Extension access shafts for deep inverts
- Maintenance from ground level
- Class I and Class II design
- Oil storage volume
- Coalescer (Class I unit only)
- Automatic closure device
- Oil alarm system available

Installation

The unit should be installed on a suitable concrete base slab and surrounded with concrete or pea gravel backfill.

If the separator is to be installed within a trafficked area, then a suitable cover slab must be designed to ensure that loads are not transmitted to the unit.

The separator should be installed and vented in accordance with local Health and Safety guidelines.



Local and remote separator monitoring solutions

Kingspan offer both local oil level alarm systems and remote monitoring solutions, specifically designed to help you manage your separator system(s).

SmartServ Remote Monitoring Solution

Kingspan's intelligent fuel/oil separator monitoring system ('SmartServ') is a cost effective solution designed to offer greater control over your separator system. SmartServ is also fully compliant with British European Standard EN 858-1.

Benefits

- Helps avoid costly overflows
- Saves money
- Greater control over assets

Oil Level Alarm System

British European Standard EN 858-1 requires that all separators are to be fitted with an oil level alarm system and that it should be installed and calibrated by a suitably qualified technician so that it will respond to an alarm condition when the separator requires emptying.

Benefits

- Easily fitted to existing tanks
- Excellent operational range
- Visual and audible alarm



Washdown and Silt Units

Performance

Vehicle wash down facilities must not be allowed to discharge directly into surface water. Instead, their discharge must be directed to a foul connection leading to a municipal treatment works as it is likely to contain emulsifiers, soaps and detergents, which can dissolve and disperse the oils.

Features

- Light and easy to install
- Inclusive of silt storage volume
- Fitted inlet/outlet connectors
- Vent points within necks
- Extension access shafts for deep inverts

Applications



Technical Specifications

Model Ref	Total Capacity (Ltrs)	Max.rec. Silt (Ltrs)	Max. Flow Rate (L/s)	Length (mm)	Diameter (mm)	Access Shaft Diameter (mm)	Base Inlet Invert (mm)	Base To Outlet Invert (mm)	Standard Fall Across (mm)	Min Inlet Invert (mm)	Standard Pipework Diameter (mm)	Approx. Empty (Kg)
W1/010	1000	500	3	1123	1225	460	1150	1100	50	500	160	60
W1/020	2000	1000	5	2074	1225	460	1150	1100	50	500	160	120
W1/030	3000	1500	8	2952	1225	460	1150	1100	50	500	160	150
W1/040	4000	2000	11	3898	1225	460	1150	1100	50	500	160	180
W1/060	6000	3000	16	4530	1440	600	1360	1310	50	500	160	320
W1/080	8000	4000	22	3200	2020	600	2005	1955	50	500	160	585
W1/100	10000	5000	27	3915	2020	600	2005	1955	50	500	160	680
W1/120	12000	6000	33	4640	2020	600	2005	1955	50	500	160	770
W1/150	15000	7500	41	5435	2075	600	1940	1890	50	500	160	965
W1/190	19000	9500	52	6865	2075	600	1940	1890	50	500	160	1200

Car Wash Silt Trap

Features

- FACTA Class B covers
- Light and easy to install
- Maintenance from ground level

Technical Specifications

Model Ref	Total Capacity (Ltrs)	Max.rec. Silt (Ltrs)	Max. Flow Rate (L/s)	Length (mm)	Diameter (mm)	Access Shaft Diameter (mm)	Base Inlet Invert (mm)	Base To Outlet Invert (mm)	Standard Fall Across (mm)	Min Inlet Invert (mm)	Standard Pipework Diameter (mm)	Approx. Empty (Kg)
W1/080	8000	4000	22	3200	2020	600	2005	1955	50	500	160	585
W1/100	10000	5000	27	3915	2020	600	2005	1955	50	500	160	680
W1/120	12000	6000	33	4640	2020	600	2005	1955	50	500	160	770
W1/150	15000	7500	41	5435	2075	600	1940	1890	50	500	160	965
W1/190	19000	9500	52	6865	2075	600	1940	1890	50	500	160	1200



Middle Eastern Installations

Kingspan operate in over 85 countries worldwide, with currently over 5 million water management system installations. Take a look at a selection of our case studies below.

Experience

OVER

60

YEARS

QA

Hamad International Airport
Qatar
Fuel/Oil Separators



EAU

Jumeirah Lake Towers
Dubai
Fuel/Oil Separators



EAU

Four Seasons Hotel
Abu Dhabi
Fuel/Oil Separators and Grease Separators



OM

Sohar Labour Camp
Oman
Forecourt Separators and Sewage Treatment Plants



KW

AZ-Zour Desalination Plant
Kuwait City
Fuel/Oil Separators and Package Pumping Stations



OM

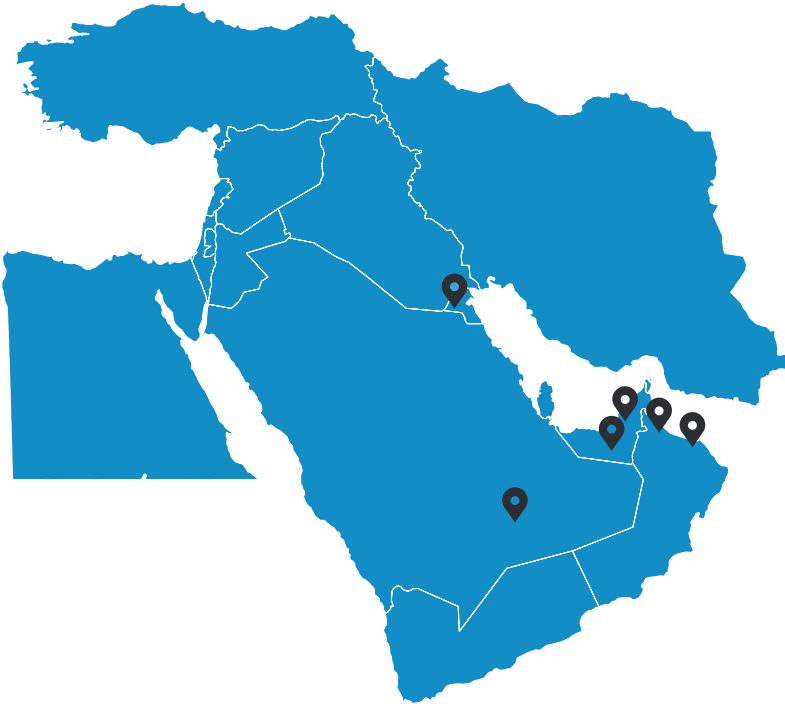
Muscat Airport
Oman
Fuel/Oil Separators



SA

Haramain 'Western Railway'
High Speed Rail Project
Saudi Arabia
Fuel/Oil Separators





Other Water Management Solutions from Kingspan

Expert Advice Available



Kingspan offer a full range of commercial, domestic and industrial wastewater treatment solutions. To find out more information on any of our products featured, email water-ME@kingspan.com or visit our website at kingspan.me/water

Domestic Sewage Treatment Plants



Commercial Sewage Treatment Plants



Domestic and Commercial Pumping Stations



Rainwater Harvesting Systems



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