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CONSULTING ENGINEERS

Civil Engineering Infrastructure Report for Planning

Project:
No.2 Firhouse Road

DOCUMENT CONTROL

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1. INTRODUCTION

1.1 Proposed Development

The development will consist of the demolition of all existing structures on site (c. 1,326 sq m), including: Two storey building formally used as public house, ancillary off-licence and associated structures (c. 972 sq m); Two storey building comprising an existing barber shop and betting office (c. 260 sq m); Single storey cottage building and associated structures (c. 94 sq m); and Eastern boundary wall and gated entrance from Mount Carmel Park.

The development will also consist of 83 no. residential units arranged in 2 blocks (Blocks 01 and 02) ranging between 3 and 4 storeys in height, over lower ground floor and basement levels, comprising:

- 83 no. apartments/Duplexes with private (balconies and private terraces)
- Communal amenity open space provision at podium and roof levels;
- 4 no. duplex apartments (consisting of 2 no. one bedroom units 1 no. two bedroom units (4 person) and 1 no. two-bedroom units (3 person) located within Block B01, together with private balconies and terraces.

The development will also consist of non-residential uses (c. 610.7 sq m), including:

- 156.8 sq m shared between 1. Café and 1. Office
- 1 no. medical unit (c. 159 sq m) and 1 no. bookmaker (c. 76.8sq m) located at ground floor level of Block B02;
- 1 no barber shop (c. 67.1 sq m) located at ground floor level between Blocks 01 and 02;
- 1 no. crèche (c. 151sq m) located at lower ground floor level of Block B01 and associated outdoor play area to the rear.

Vehicular access to the site will be from the existing access off Firhouse Road. The proposal includes minor alterations to the existing access, including the provision of new and enhanced pedestrian infrastructure within the red line boundary. The development will also consist of the provision of public open space and related play areas; hard and soft landscaping including internal road, cycle and pedestrian routes, pathways and boundary treatments, street furniture, basement car parking; motorcycle parking; electric vehicle charging points; bicycle parking; ESB substation, piped infrastructural services and connections to existing public services, (including relocation of existing surface water sewer and water main from within the application site onto the public roads / footpath area along Firhouse Road and Mount Carmel Park); ducting; plant; waste management provision; SuDS measures; stormwater management and attenuation; sustainability measures; signage; changes in levels; public lighting; and all ancillary site development and excavation works above and below ground.

1.2 Scope of this Report

This report describes the proposed civil engineering infrastructure for the development and how it connects to the public infrastructure serving the area. In particular, wastewater, surface water drainage and water supply are considered.

This report should be read in conjunction with the drawings listed in Section 1.3:

1.3 Drawings Submitted

- FHI-00-XX-DR-BMCE-CE-10000 – Civil General Notes
- FHI-00-B2-DR-BMCE-CE-11030 – Basement Level 2 Drainage Layout
- FHI-00-00-DR-BMCE-CE-11040 – Proposed Drainage and Watermain Layout
- FHI-00-ZZ-DR-BMCE-CE-11050 – Proposed Surface Water SuDS Layout
- FHI-00-ZZ-DR-BMCE-CE-12100 – Soft and Hard Landscaping – Standard Details

1.4 Location

The subject site, which extends to approximately 0.46 hectares, is located at the junction of Firhouse Road, Ballycullen Road and Mount Carmel Road in Firhouse, which is within the functional area of South Dublin County Council.

The subject site contains three existing buildings surrounded by a tarmac area marked out in paint for carparking. These are; a large two/three storey former pub, (no longer in active use), a small cottage, and a commercial building housing a bookmakers and a barber shop.

1.5 Topography

An existing historic stone wall, repaired insensitively in parts with concrete blockwork, forms the eastern/northeastern boundary of the subject site, beyond which sits a line of mature trees, at the edge of the adjacent playing fields site. The surrounding built environment is characterised by suburban housing estates, built in the grounds of historic houses of the area, now repurposed. The Dodder River parklands, and the Balrothery Wier, lie immediately to the north, with pedestrian access through Mount Carmel Park, the closest development to the subject site.

1.6 Ground Conditions

According to the Ground Investigations Ireland Ground Investigation report, dated March 2025, the site is surfaced by a 200mm layer of Tarmacadam across the entirety of the external areas, with a fill layer present with varying depth from 300mm to 500mm below ground level. Groundwater was found at the front of the building to be 1.8m below ground. Due to the size of the site it can be assumed this is likely consistent for the whole of the site. The soakaway tests indicated the availability of infiltration at SA01B, which was not highlighted in the report appendices, see Figure 1.1 below, however SA02 was deemed unsuitable for infiltration.

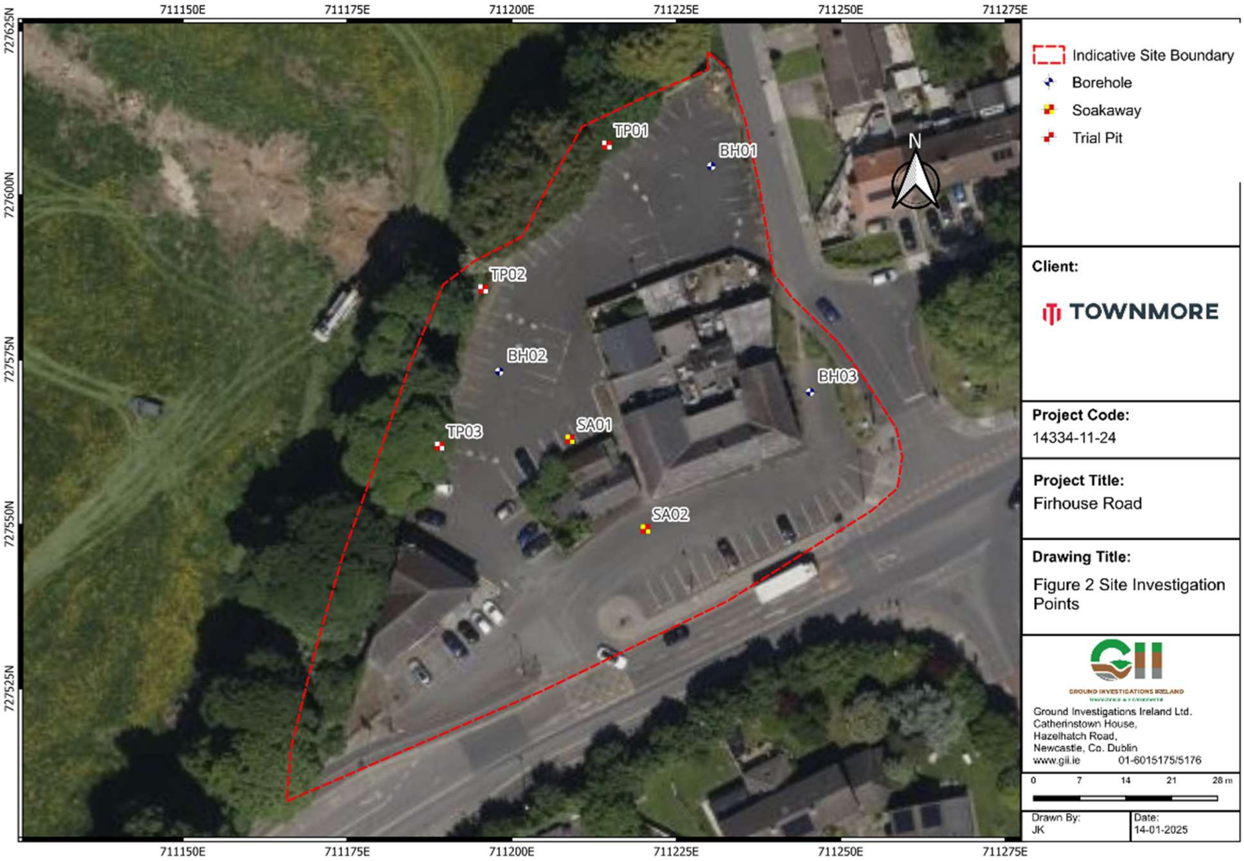


Figure 1.1 Firhouse Road Site Investigation Points

2. SURFACE WATER DRAINAGE

2.1 Existing Surface Water Drainage

The existing unattenuated runoff from the site, calculated for a 50mm/hr storm, is as follows:

$$\text{Site Area} \times (50/1000) \times (1000/60^2)$$
$$= 4619 \times 0.050 \times 0.278$$
$$= 64.204 \text{ l/s}$$

The existing site is entirely covered in Tarmacadam, except for the building areas, therefore it implied that the site is entirely impermeable at present. There is a 300mm surface water sewer which crosses the site from the western corner to the northeast edge, continuing on into Mount Carmel Park, the flow is in the same direction. The existing buildings drain into this via a series of drains and gullies.

Similar to the original granted planning application drainage arrangement (see Figure 1.2), register reference LRD24A/0001, it is proposed to connect the new system into the manhole marked SMH on Mount Carmel Park at a discharge rate of 2l/s. The proposed attenuation tank however has been relocated to the southern side of the site due to difficulties in achieving separation distances to the boundaries and the proposed building structure.

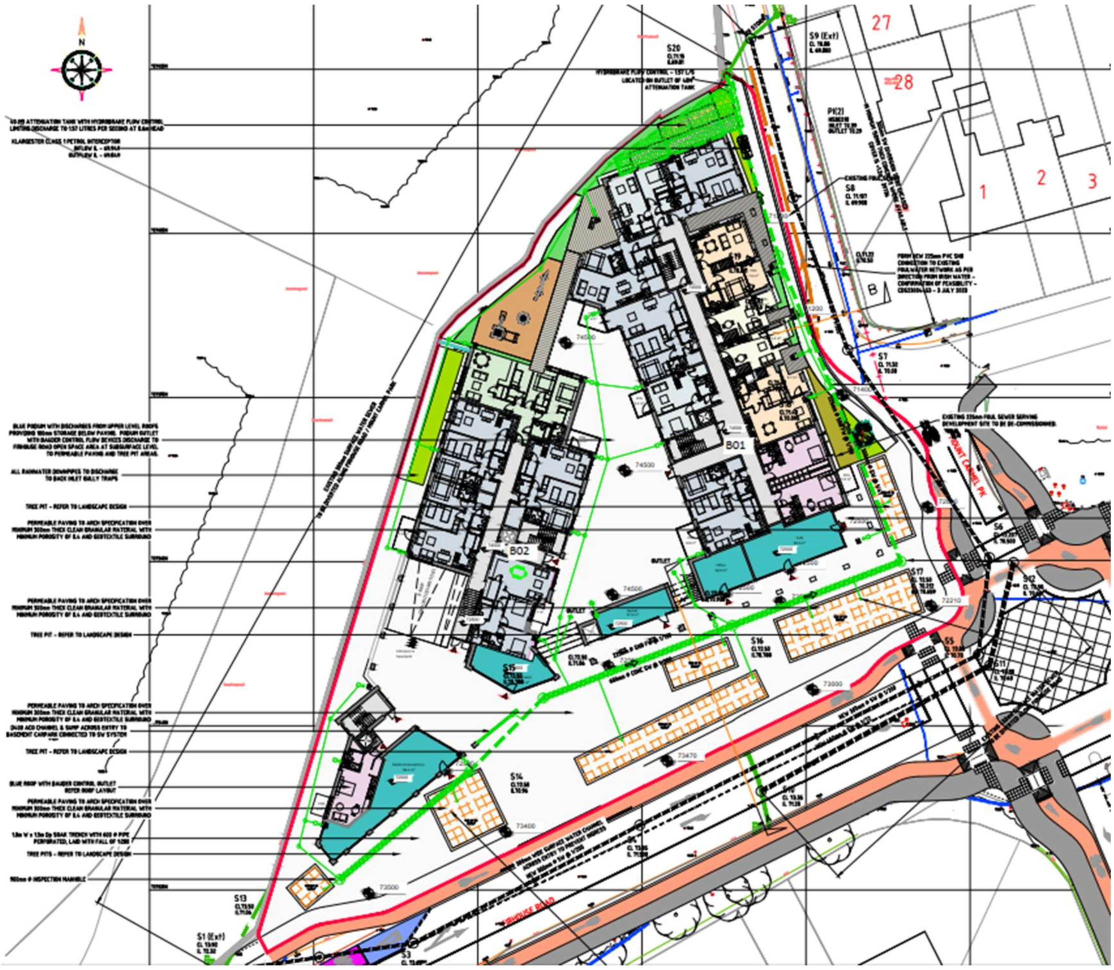


Figure 2.2 Surface water drawing lodged with previous planning application LRD24A/0001

2.2 Proposed Surface water Drainage

The proposed surface water network will incorporate various SuDS measures, primarily blue roofs for high-level attenuation and a geocellular attenuation tank located at the south end of the site within the ground-level parking area. The tank will provide 80m³ of attenuation storage and discharge to the public sewer under a controlled flow of 2 l/s via a hydrobrake.

Blue Roofs

All available roof areas are proposed to be fitted with 0.15m deep blue roof build-ups, which will include a mixture of brown and green roof finishes. These combined systems will provide interception storage and attenuation at roof level while delivering additional environmental benefits such as:

- Enhanced biodiversity through vegetation planting on green and brown roofs.
- Improved thermal performance and energy efficiency for the buildings.
- Reduction of urban heat island effect by introducing natural surfaces.
- Visual and amenity value, creating a more attractive and sustainable development.

Each blue roof will discharge under flow restriction to the podium level, where a network of slung drainage pipes beneath the podium will convey flows to the main surface water system.

Block 01

The south-end roof at lower level will attenuate at high level and discharge under restriction to the podium drainage network. From there, flows will be conveyed via slung pipes to the attenuation tank at the south end of the site.

Block 02

This block features three roof levels.
The lower north roof will attenuate in the blue roof and discharge under restriction to the podium drainage network.
The central roof will attenuate and discharge under restriction to the podium, which then conveys flows to the network.
The south-end roof will follow the same approach, discharging under restriction to the podium drainage system.

Podium Drainage

The podium courtyard area sits directly above the basement slab. It will be fitted with drainage boards to enable conveyance to outlets at the north and south ends. These outlets will connect to slung trapped gullies beneath the podium, which will discharge to the surface water network and ultimately to the attenuation tank.

Attenuation Tank

The StormTech attenuation tank, or similar approved, will be located at the south end of the site within the parking area. It will provide 80 m³ of storage and discharge to the public sewer via a hydrobrake restricted to 2 l/s.

Please refer to Appendix B for the surface water layout and modelling.

2.3 SUDS STRATEGY

2.3.1 Compliance with the principles of Sustainable Drainage Systems

The development of this brownfield site will result in reduced rainwater run-off and pollution. In order to ensure this, the development will be designed in accordance with the principles of Sustainable Drainage Systems (SUDS) as embodied in the recommendations of the Greater Dublin Strategic Drainage Study (GDSDS). The GDSDS addresses the issue of sustainability by requiring designs to comply with a set of drainage criteria which aim to minimize the impact of urbanization by replicating the run-off characteristics of the greenfield site. The criteria provide a consistent approach to addressing the increase in both rate and volume of run-off as well as ensuring the environment is protected from pollution that is washed off roads and buildings. These drainage design criteria and are as follows:

GDSDS Criteria	Aims
Criterion 1 – River Water Quality Protection -Provide Interception & treatment Storage	• to prevent pollution • to maintain base flows in streams • to recharge groundwater.
Criterion 2 – River Regime Protection -Provide Attenuation Storage	• to prevent river scour due to flash flooding.
Criterion 3 – Site Flood Risk Mitigation -Provide adequate pipe network & check overland flows	• to prevent site flooding for 30 year storm and manage overland flows if site flooding occurs for 100 year storm.
Criterion 4 – River Flood Protection -Provide Long Term Storage or Extended Attenuation Storage	• to prevent river flooding

Table 3.1: GDSDS Criteria

The overarching principle of SuDS design is that surface water runoff should be managed for maximum benefit. The types of benefits that can be achieved by SuDS will be dependent on the site, but fit broadly into four categories – The Four Pillars of SuDS – and are as follows: water quantity, water quality, amenity, and biodiversity.

SuDS Category	Benefit
Water Quantity	• Maintain & protect the natural water cycle • Support the management of Flood Risk
Water Quality	Manage the quality of the runoff to prevent pollution
Biodiversity	Create & Sustain better places for Nature
Amenity	Create & Sustain better places for people

Table 3.2 Benefits of Suds Design

Compliance with Criteria 1 to 4 will require a SuDS strategy that employs at source and site wide SuDS control measures to control water quantity and quality whilst creating biodiversity and amenity for the benefit of nature and people. An initial assessment of the potential SuDS measures that could be incorporated within the site and the various storage volume requirements was conducted using the website www.irishsuds.com- see appendix C. Reference was also made to the SuDS Manual - CIRIA 753 - and the final strategy was agreed with the Landscape Architect and the other members of the Design Team.

The Suds measures employed on the subject site are listed in the Table 3.3 and the percentage of public Open Space occupied by Suds features is given on Table 3.4. The SuDS approach is also shown on Drawing No. FHI-00-ZZ-DR-BMCE-CE-11050 - SuDS Strategy and associated SuDS details on drg no FHI-00-ZZ-DR-BMCE-CE-12100. The management train of SUDS devices shown on the drawing addresses Criterion 1 to 4 as described in Sections 3.3.2 to 3.3.5 that follow.

Reference should also be made to the Causeway Flow output for Attenuation & Network Simulation calculations given in Appendix C.

SuDS Measures	Measures to be used on this site (Y/N)	Rationale for selecting / not selecting measure	Area of Feature (m^2)	Relevant GDSDS Criterion	GDSDS Storage Volume Classification (see note 1)	Storage volume size (m^3)	Performance (See Note 2)			
							Quantity	Quality	Biodiversity	Amenity
Source Control										
Swales	N	Not appropriate for urban site		1 &2	Int, Tre & Att		green	green	green	green
Tree Pits	N	Levels do not allow for this		1 &2	Int, Tre & Att		green	green	green	green
Downpipe Planters	N	Blue roof flow too high		1	Int		orange	orange	red	red
Rainwater harvesting	N	Reuse possible too low		1	Int		orange	orange	red	red
Soakaways	N	Infiltration not appropriate for site		1 &2	Int, Tre & Att		green	green	red	red
Infiltration Trenches	N	Filter drains used instead		1 &2	Int, Tre & Att		green	green	red	red
Permeable pavement	N	Not compatible with other attenuation features		1 &2	Int, Tre & Att		green	green	orange	orange
Green/Brown Roofs	Y	Used with blue roofs		1 &2	Int, Tre & Att		orange	green	green	green
Green Wall	N	Not appropriate for development					orange	green	green	green
Filter strips	N	Not suitable due to levels		1 &2	Int, Tre & Att		orange	green	green	green
Raingardens/ Bio-retention system	N	Space constraints		1 &2	Int, Tre & Att		green	green	green	green
Blue Roofs	Y	To attenuate roof flows	1698	2	Att	144.33	green	green	green	green
Filter Drain	N	Not suitable due to levels		1 &2	Int, Tre & Att		green	green	green	green
Site Control										
Detention Basins	N	Space constraints		1	Int & Att & LT		green	green	green	green
Bio Retention Systems	N	Space constraints		1 &4	Int & LT		green	green	green	green
Ponds & Wetlands	N	Not appropriate for site		1 &2	Int, Tre & Att		green	green	green	green
Petrol/Oil interceptor	Y	To serve oil / petrol spills		1	Tre		orange	green	red	red
Attenuation Systems	Y	To allow restricted discharge	80	2	Att & Int	80	green	green	red	red

Note 1: Int = Interception storage (can be counted as both treatment & attenuation storage), Tre = Treatment Storage, Att = Attenuation Storage, LT= long term storage.
Note 2: green = good performance, orange = moderate performance, red = poor performance.

Table 3.3 List of Suds Measures Employed, with volumes and performance rating

2.3.2 Criterion 1 GDSDS: River Quality Protection - Interception or Treatment Storage

2.3.2.1 Calculation of Interception Volume

Run-off from natural greenfield areas contributes very little pollution and sediment to rivers and for most rainfall events direct run-off from greenfield sites to rivers does not take place with rainfall percolating into the ground. By contrast urban run-off, when drained by pipe systems, results in run-off from virtually every rainfall event with high levels of pollution, particularly in the first phase of run-off, with little of the rainfall percolating to the ground. To prevent this happening Criterion 1 requires that interception storage is provided so that the first 5-10mm of rainfall from the developed site is intercepted and retained on site to prevent pollution, recharge groundwater and maintain base flows in streams thereby replicating the run-off characteristics of the pre-development greenfield site.

In the context of the subject site, the impermeable areas are as follows:

Roofs =	0.170ha
Roofs factored for Green and Brown surfacing	(0.170x0.4) = 0.068ha
Roads, footpaths & hard surfaces =	0.288ha
Roads, footpaths & hard surfaces factored	(0.288x0.9) = 0.259ha
Total impermeable area =	0.328ha

Table 3.5 Impermeable Areas

The proposed blue roof system provides interception storage in accordance with CIRIA SuDS Manual (C753) and Irish SuDS guidance. In addition, the green and brown roof finishes contribute significant retention and evapotranspiration benefits, typically reducing annual runoff by 40–60% for extensive systems and 30–50% for intensive.

Interception storage volume required @ 5mm across site = 16.4m^3

This is provided by the summation of interception storage volumes for each suds device listed in 2.3.2.2 to 2.3.2.5 below, = 17m^3

It is proposed to intercept the first 10mm to meet the requirement. This will be achieved by setting the outlets for the specific features at 10mm above the respective invert levels.

2.3.2.2 Blue roofs

Blue roofs are essentially an attenuation storage volume provided at roof level and, unlike green roofs, there is no vegetation used. The outlet from roof level is throttled to a certain rate and the system provides at source flow attenuation but no volume reduction apart from a small amount of evaporation.

Refer the SuDS Manual for further guidance. Blue roofs are not considered in detail in any specific chapter of the SuDS Manual as they are, essentially, equivalent to other components described in that manual. The key design considerations are the structural capacity of the roof to deal with the extra loadings and the waterproofing required to protect the building.

2.3.2.3 StormTech Attenuation Tank (or similar approved)

StormTech attenuation tanks provide below-ground storage for surface water runoff, typically constructed using modular plastic chambers surrounded by clean, washed aggregate. The aggregate layer not only provides structural stability but also acts as a natural filtration medium, improving water quality by trapping sediments and pollutants before discharge. These systems offer high storage efficiency and flexibility in layout, making them suitable for constrained sites.

Refer to the SuDS Manual for further guidance on proprietary attenuation systems and design considerations such as inspection access, maintenance regimes, and compliance with adoptable standards.

2.3.2.4 Green Roofs

Green roofs combine vegetation with a growing medium over a waterproof membrane, providing both flow attenuation and volume reduction through evapotranspiration. They deliver multiple benefits, including biodiversity enhancement, thermal insulation, and improved air quality. The design must consider plant species selection, substrate depth, and irrigation requirements to ensure long-term performance.

Refer to the SuDS Manual for detailed guidance on green roof design, including structural loading, waterproofing, and maintenance considerations.

2.3.2.5 Brown Roofs

Brown roofs are similar to green roofs but use a substrate of recycled aggregates and natural soils, often seeded naturally to encourage local biodiversity. They are particularly effective in supporting habitat creation for invertebrates and bird species while still providing surface water attenuation benefits. Design considerations include substrate composition, depth, and ensuring the roof structure can accommodate the additional load.

Refer to the SuDS Manual for further guidance on brown roofs and their role in delivering ecological and hydrological benefits.

2.3.3 Criterion 2 GDSDS – River Regime Protection – Attenuation Storage

2.3.3.1 Calculation of Qbar

Whatever the rainfall event unchecked run-off from the developed site through traditional pipe networks will discharge into receiving waters at rates that are an order of magnitude greater than that prior to development. This can cause flash flow in the outfall river / stream that can cause scour and erosion. Attenuation storage is provided to prevent this occurring by limiting the rate of run-off to that which took place from the pre-development greenfield site. In practice the rate of run-off needs to be appropriately low for the majority of rainfall events and attenuation storage volumes should be provided for the 1- and 100-year storm events and the rate of outflow from such storage should be controlled so that it does not exceed the greenfield flow – QBAR – factored by the appropriate growth factors. QBAR is estimated as follows:

For sites < 50 hectares Qbar per hectare is given by the following formula:

$Qbar_{rural}$ (in m^3/s) = $0.00108 \times (0.01 \times AREA)^{0.89} \times SAAR^{1.17} \times SPR^{2.17}$
where:

- $Qbar_{rural}$ is the mean annual flood flow from a catchment.
- AREA is the area of the catchment in ha.
- SAAR is the standard average annual rainfall for the period 1981-2010 Annual Average Rainfall Grid produced by Met Éireann.
- SPR is Standard Percentage Runoff coefficient for the SOIL category – geotechnical report, shown below:

Soil Type 1 =	0.15
Soil Type 2 =	0.30
Soil Type 3 =	0.40
Soil Type 4 =	0.45
Soil Type 5 =	0.50

Qbar = $0.00108 \times (0.01 \times 0.46)^{0.89} \times 813.6^{1.17} \times 0.45^{2.17}$
Qbar = 0.004 m^3/s = **4.036 l/s**

Note: the area used here should conservatively be the footprint of the impermeable area. The site area should only be used if it is clear that the development effectively isolates the remaining green areas and prevents run-off from these areas reaching the receiving system.

QBAR is the flood flow from the greenfield catchment in l/s and represents a storm with a return period of approximately 2.3 years. Greenfield flow for storm events of different return periods should be calculated by multiplying QBAR by the following growth factors only to be applied if Long Term storage is provided.:

1 Year	=	0.85
10 Years	=	1.7
30 Years	=	2.1
100 Years	=	2.6
200 Years	=	2.9

It has been agreed to avoid excessive attenuation to discharge our site at 2l/s in all storm events. This is an **improvement of the 1 year Qbar, 3.430l/s by 41%** and an **improvement on the 100-year Qbar, 10.494l/s, by 81%.**

2.3.3.2 Calculation of Attenuation Volume

The proposed surface water strategy combines blue roofs and a StormTech attenuation tank to manage runoff in accordance with SuDS principles. All available roof areas (approximately 1,698 m^2) will incorporate blue roof build-ups, providing an estimated 144.33m^3 of attenuation storage at source. These roofs will discharge under flow restriction to the podium drainage network, which then conveys flows to the main surface water system.

To accommodate residual runoff beyond the roof-level storage, a StormTech attenuation tank will be installed at the south end of the site within the ground-level parking area. This tank will provide 80m^3 of storage capacity, forming the final stage of the SuDS management train. The combined system is designed to manage a 1 in 100-year storm event, including allowances for 20% climate change and 10% urban creep. Discharge from the tank will be controlled via a Hydrobrake, limiting outflow to 2l/s before connection to the public sewer.

Appendix C contains hydraulic modelling outputs, including critical storm durations, rainfall depths, and corresponding storage volumes for both 30-year and 100-year events, confirming compliance with the design criteria.

2.3.3.3 Suds Measures providing Attenuation Storage requirement

The GDSDS requires that flood waters be managed within the site for a 1 in 100-year flood. All surface water up to the 1 in 100-year storm event, plus a 20% allowance for climate change is attenuated on site and discharge to the network under restriction as per the previous section.
The total SuDS attenuation volume available for the site is 144.33m^3, additionally topped up by the attenuation tank providing 80m^3, giving a total of 224.33m^3.

2.3.4 Criterion 3 GDSDS – Site flood risk mitigation – Pipe Network Design

2.3.4.1 Network Design

The GDSDS requires that no flooding should occur on site for storms up to and including the 30year event. The pipe network and the attenuation storage volumes should, therefore, be checked for such storms to ensure that no site flooding occurs.

No flooding of internal areas should occur during the 100year event. The pipe network can therefore surcharge and cause site flooding during this event but the top water level due to any such flooding must be at least 500mm below any internal floor levels and the flood waters should be contained within the site. In addition, the top water level in the attenuation tank during the 100-year storm must be at least 500mm below any internal floor levels. Consideration should also be given to flooding of the receiving public system or watercourse outside the site during the 100year event and all internal floor levels should be at least 500mm above the recorded levels for the receiving system for the 100year event.

Appendix C gives Causeway Flow Simulation Output for both the pipe system and attenuation storage volumes during the 100year event. No flooding occurs during the event, and the tank top water level never exceeds 71.200m, 1.000m below the nearest internal floor level = 72.500m. The

2.3.4.2 Assessment of possible Overland Flow Routes due to a Blockage in system

All attenuation storage has been modelled with a factor of safety of 2. This means that in the event of a 50% blockage of the hydrobrake, all flows will still be able to be maintained within the system. If a 100% blockage of the hydrobrake occurs based on the site levels, flows will discharge in a northeasterly direction away from the buildings, and into Mount Carmel Park. It is expected the existing surface water drainage will take on some of these additional flows, however the topography of the road ensures the additional flows are contained within the road and flow overland to the River Dodder, specifically towards Balrothery Weir. Therefore, even during an emergency blockage it is not anticipated to cause problems for either the proposed site or adjacent housing.

2.3.5 Criterion 4 GDSDS – River Flood Protection– Long Term Storage or Extended Attenuation

2.3.5.1 Calculation of Long -Term Storage Volume

Criterion 4 is intended to prevent flooding of the receiving system/watercourse by either limiting the volume of run-off to the pre-development greenfield volume using “long term storage” (Option 1) or by limiting the rate of run-off for the 100-year storm to QBAR without applying growth factors using “extended attenuation storage” (Option 2).

In the context of the subject site Criterion 4 has been satisfied using Option 2 by providing extended attenuation storage. As can be seen in the Causeway Flow Modelling results given in Appendix 4 the rate of outflow from the attenuation tank does not exceed QBAR during the 100year storm event.

3. FOUL DRAINAGE SYSTEM

3.1 Existing Foul Drainage System

PHM Consulting Site Survey and Utility Survey drawing 110-36-101 dated 01/2024, highlights an existing foul sewer the crosses the site from west to east, then makes its way up Mount Carmel Park. The size of the sewer is not provided. Please see appendix A for further information. The Uisce Éireann confirmation of feasibility includes Figure 3.1 below which shows the network external to the site and shows the Mount Carmel Park foul sewer as 225mm.

Figure 3.1 UE Existing sewers

3.2 Consultations with Uisce Éireann

It has been confirmed by Uisce Éireann for the previous planning submission, through the pre connection enquiry process, that a new connection to the existing network is feasible (CDS23004453) – see letter confirming feasibility included in Appendix D.
However, as part of the planning amendment being sought, the number of apartments has increased from 78 to 83. This incurs an average flow increase of 0.006l/s and a peak flow increase of 0.084l/s.

Due to the small nature of the increases, it is not expected to pose any additional problems to the network however this is to be confirmed by Uisce Éireann through the application process. The details of the proposed increase for wastewater are shown below in Figure 3.2. It is worth noting that occupancies have been assumed based on the number of bedrooms of the properties.

A: **FOUL WATER FLOW - STANDARD RESIDENTIAL**

The foul effluent from the proposed buildings is calculated as per the Uisce Éireann Code of Practice for Wastewater Infrastructure (July 2020 (rev. 2)).

Total apartments	83.000

(excluding circulation spaces)

Occupancy

1 bed	1.500	Persons	30.000	Quantity
2 bed	3.000	Persons	10.000	Quantity
2 bed	4.000	Persons	38.000	Quantity
3 bed	3.500	Persons	5.000	Quantity
Total Occupancy	245			Persons

Standard Residential = 150 l/p/day x 245 Persons = 36750 l/day

Daily Flow = 36750 l/day

$$\text{Average Flow} = \frac{1.1 \text{ x Daily Flow}}{\text{Flow Duration}} = \frac{40{,}425 \text{ l/day}}{24 \text{ x } 60 \text{ x } 60} = 0.468 \text{ l/s}$$

Peak Flow = Average Flow x 6

Peak Flow = 0.468 l/s x 6 = 2.807 l/s

Figure 3.2 Wastewater calculations

3.3 Proposed Foul Drainage System

3.3.1 Description

The proposed Foul Sewer layout and connections to existing public sewers have been designed in accordance with Uisce Éireann Standard Codes of Practice and in consultation with Uisce Éireann. The foul design is to bring all foul drainage our from buildings Blocks 01 and 02 into the podium area, to be slung below the roof slab in the basement. Then via gravity the network is to drain to a new proposed 225mm diameter pipe flowing from west to east around the building, picking up slung connections from the eastern side of Block 01 and then connecting into existing foul manhole F7 in Mount Carmel Park.

A minimum pipe diameter of 225mm will be used at gradients no flatter than 1 in 150.

The design is to be reviewed by Uisce Éireann and a statement of design acceptance provided in due course. See Appendix B.

3.3.2 Relevant Standards

The foul drainage network for the proposed development has been designed in accordance with the following guidelines:

- Uisce Éireann Code of Practice for Wastewater Infrastructure
- Department of the Environment's Recommendations for Site Development Works for Housing Areas
- Department of the Environment's Building Regulations "Technical Guidance Document Part H- Drainage and Waste -Water Disposal"
- BS EN 752: 2008 Drain and Sewer Systems Outside Buildings
- IS EN 12056: Part 2 (2000) Gravity Drainage Systems Inside Buildings

3.4 Basement car park Drainage

The basement carpark drainage is to be routed through a pumped rising main to ground floor level and discharge via gravity into the proposed surface water network which will be fitted with a Class 1 Kingspan NSBP003 Klargestor Bypass Separator downstream.

4. WATER SUPPLY

4.1 Existing Public Watermains

PHM Consulting drawing Watermain layout 110-36-140 dated 01/2024 shows the existing and proposed watermain layout. The existing watermain is currently located on the southern side of Firhouse Road. There is an existing smaller watermain in Mount Carmel Park.

It is proposed to divert the existing water main from Firhouse Road to the north edge of the road adjacent to the site. The watermain will feed water storage tanks in the basement, internal routing to be designed by others. It will also feed 2no. new hydrants on the north side of Firhouse Road. The diversion will then tie into the existing watermain in Mount Carmel Park.

4.2 Consultation with Uisce Éireann

It has been confirmed by Uisce Éireann, through the pre connection enquiry process, that a new connection to the existing network is feasible (CDS23004453) – see confirmation of feasibility letter included in Appendix D. However, due to the planning amendment being sought, the number of apartments has increased from 78 to 83. This equates to water demand increases of 0.018l/s and 0.086l/s for average and peak flows respectively. Uisce Éireann will need to confirm the new demand rates are feasible through the application process.
The calculations for Water Demand is set out in Figure 4.1 below. These are based on an assumed occupancy based on the numbers of bedrooms per apartment.

B: <u>WATER DEMAND - STANDARD RESIDENTIAL</u>

The water demand from the proposed buildings is calculated as per the Uisce Éireann Code of Practice for Water Infrastructure (July 2020 (rev. 2)). The average day/peak week demand is taken as 1.25 times the average daily demand. The peak demand factor is taken as 5 times the average day/peak week demand.

Standard Residential = 150 l/p/day x 245 Persons = 36750 l/day

Daily Flow = = 36750 l/day

$$\text{Average Flow} = \frac{1.25 \times \text{Daily Flow}}{\text{Flow Duration}} = \frac{45{,}938 \text{ l/day}}{24 \times 60 \times 60} = \boxed{0.532 \text{ l/s}}$$

Peak Flow = Average Flow x 5

Peak Flow = 0.532 l/s x 5 = **2.658 l/s**

Figure 4.1 Water Demand Calculation

4.3 Proposed Watermain System

4.3.1 Description

The proposed water main layout and connections to existing public water mains have been designed in accordance with Uisce Éireann Standard Codes of Practice and in consultation with Uisce Éireann.

It is proposed to divert the existing water main from Firhouse Road to the north edge of the road adjacent to the site. The watermain will feed water storage tanks in the basement, internal routing to be designed by others. It will also feed 2no. new hydrants on the north side of Firhouse Road. The diversion will then tie into the existing watermain in Mount Carmel Park.
All proposed water mains will be HDPE 100 SDR17 in accordance with Uisce Éireann Standards.

4.3.2 Hydrants

The proposed water main layout is arranged such that all buildings are a maximum of 46.0m from a hydrant in accordance with the Department of the Environment's Building Regulations "Technical Guidance Document Part B Fire Safety". Hydrants shall comply with the requirements of BS 750:2012 and shall be installed in accordance with Uisce Éireann's Code of Practice and Standard Details.

4.4 Storage & Conservation.

Water storage will be provided in header tanks (in accordance with the requirements of Uisce Éireann Code of Practice) and include provision of water conservation measures such as dual flush water cisterns and low flow taps.

APPENDIX A
SITE INFORMATION

Apartment Legend

- Studio
- 1 Bed
- 2 Bed (3p)
- 2 Bed (4p)
- 3 Bed
- Bicycle Store
- Bin Store
- Duplex (1b)
- Duplex (2b3p)
- Communal Open Space
- Creche
- Duplex (2b4p)
- Basement
- Circulation
- Commercial
- Plant/Store
- Plant/Bin Store
- POS
- Services
- Parking

Motorcycle Parking Schedule			
Type	Parking Type	Parking Location	Parking Spaces
Motorcycle Bay	Residential	Internal	5
Grand total			5

Bicycle Parking Schedule			
Type	Parking Type	Parking Location	Parking Spaces
Sheffield Bike Stand	Public	External	18
Sheffield Bike Stand	Residential	Internal	36
Sheffield Bike Stand	Residential	Internal	2
Two Tier Bike Rack	Residential	Internal	111
Grand total			167

Car Parking Schedule			
Type	Parking Type	Parking Location	Parking Spaces
Accessible*	Commercial/Residential	External	2
Typical Car Parking Space	Commercial/Creche Drop Off	External	2
Typical Car Parking Space*	Commercial	External	9
Accessible	Residential	Internal	1
Typical Car Parking Space	Residential	Internal	48
Typical Car Parking Space	Residential Go Car Space	Internal	1
Grand total			63

SITE BOUNDARY SHOWN IN RED

ORDNANCE SURVEY
Licence Number **CYAL50442655**
Sheet 3390-14, Sheet 3390-15,

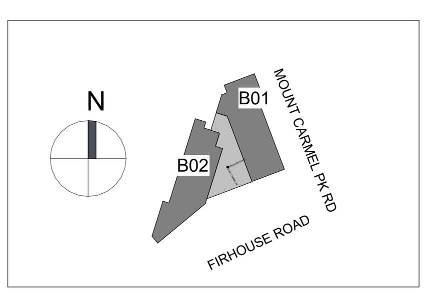
X,Y=711273.023236,727545.263206

POS — Private Open Space

ENTRANCE MARKERS

- Building Entrance / Egress
- Basement Entrance / Egress (Vehicular)

Proposed GA Plan - Level 00



Revision Description	Date	Rev. No.	Issued by
32B Submission	13.06.25	A3-C01	LS
S247 Submission 02	08.08.25	A3-C02	MN
Car Parking Layout Amendment	03.10.25	P01	MN
Draft Planning Set	09.10.25	S0-P01	MN
Draft Planning Set - Tree Survey Amended	10.10.25	S0-P02	MN
Draft Planning Set - Road Markings Amended	15.10.25	S0-P03	MN

Any reference to fire safety design or performance is presented for coordination purposes only. Refer only to the granted Fire Safety Certificate, and fire consultant's information for fire safety design, specification and performance.

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Dublin
The Chapel
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Milltown, Dublin 6
D06 XN52 Ireland

Cork
One South Mall
Cork City
Co. Cork
T12 CCN3 Ireland

Project Code: 20022B
Project Lead: MH
Drawn By: LS
Job No.: 20022B
Purpose: Planning

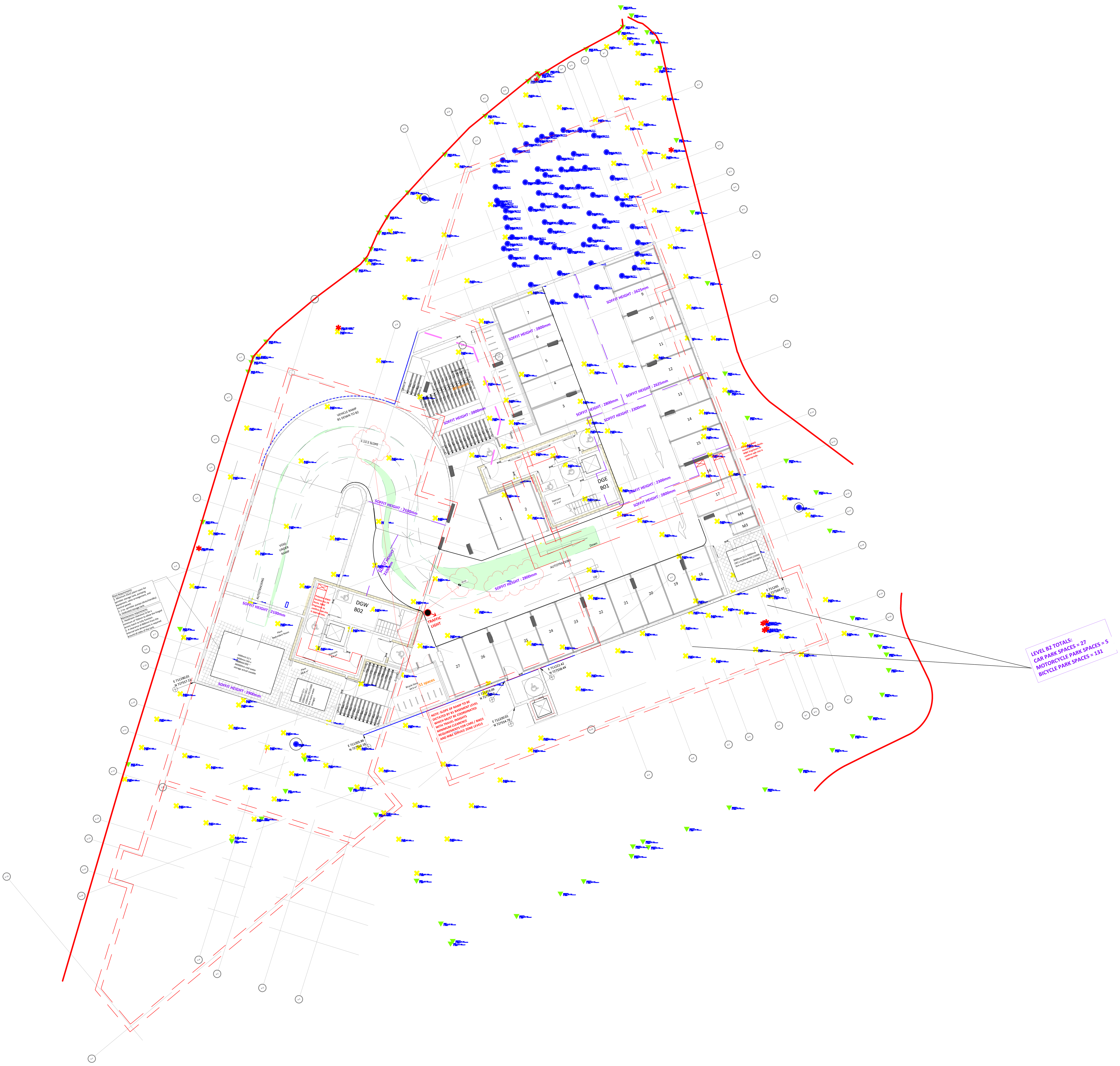
Scale @ A1: 1 : 200
Date: 15.10.25
Revision: S0-P03
Status: A3

Project: Firhouse
Location: Firhouse Road, Firhouse, Dublin 24
Client: Bluemont Developments (Firhouse) Limited

Drawing Title: Proposed GA Plan - Level 00
Drawing No.: 20022B-OMP-ZZ-00-DR-A-1000

DRAFT

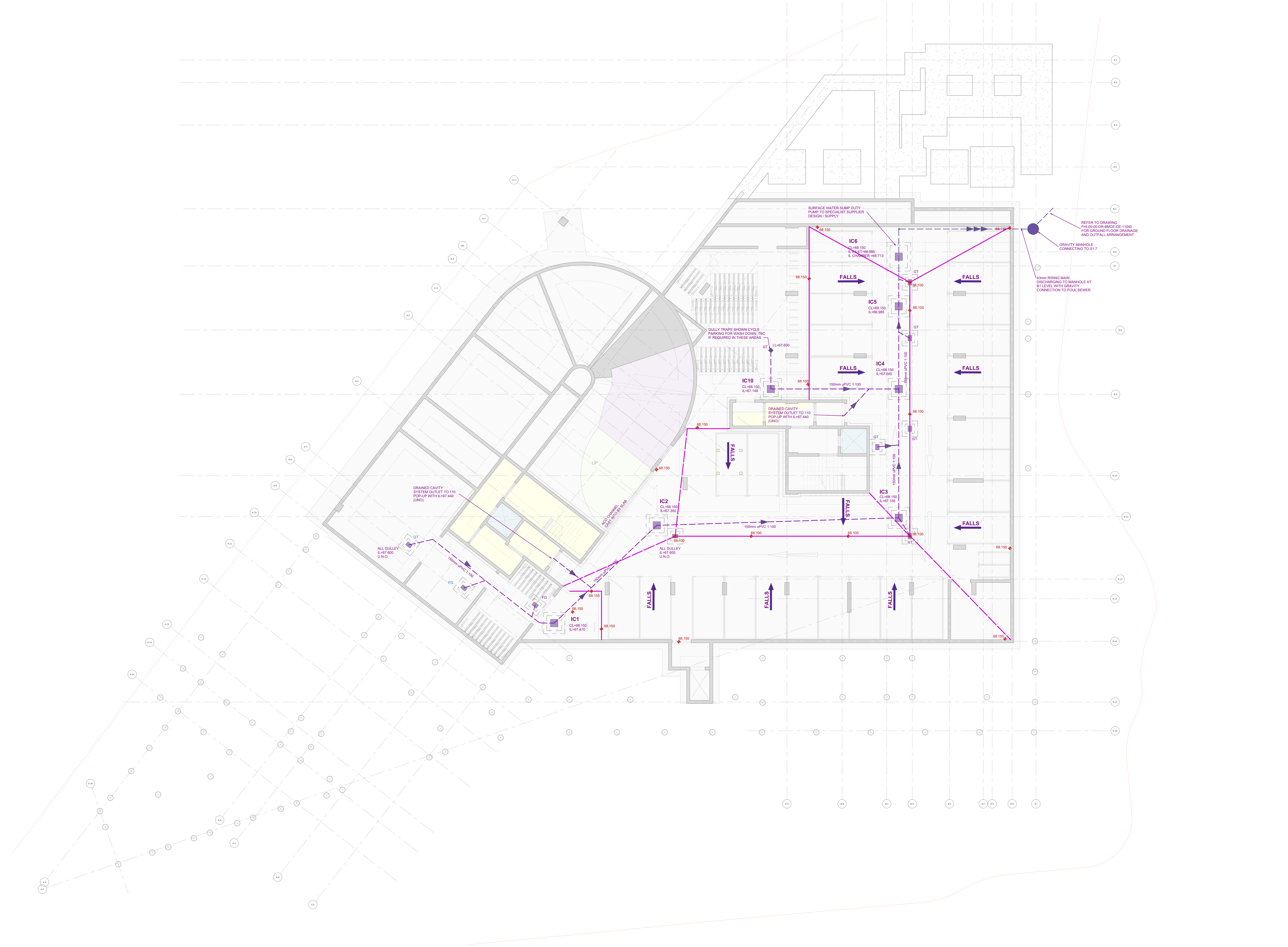
Source file: 20022B-OMP-ZZ-ZZ-M3-A-0003.rvt


LEVEL B2 TOTALS:
CAR PARK SPACES = 27
MOTORCYCLE PARK SPACES = 5
BICYCLE PARK SPACES = 131
DGE B01
DGW B02
TRAFFIC LIGHT

APPENDIX B

DRAINAGE LAYOUT AND MODELLING

A0



NOTES

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2. CONSULTANTS TO BE INFORMED IMMEDIATELY OF ANY DISCREPANCIES BEFORE WORK PROCEEDS.

ISSUE	DATE	DESCRIPTION	DRN
P01	23.10.25	ISSUED FOR PLANNING	EC

Project Engineer: Darragh O' Rourke
Project Director: Stephen O' Connor

STAGE
PLANNING

BARRETT MAHONY
Dublin Office:
Sandwith House, 52-54 Lower Sandwith Street, Dublin 2, Ireland.
Tel: (01) 677 3200
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5th Floor, Mill House, 8 Mill Street, London SE1 2BA, United Kingdom.
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Consulting Engineers, Civil . Structural . Project Management.E-mail: bmce@bmce.ie Web: www.bmce.ie

CLIENT
BLUEMONT DEVELOPMENTS LIMITED

BM PROJECT No.
24.309

PROJECT TITLE
No.2 FIRHOUSE ROAD

MODEL REFERENCE	STATUS	REVISION
FHI-BMD-ZZ-ZZ-M3-S-20000	P1	0

DRAWING TITLE
BASEMENT LEVEL 2 DRAINAGE LAYOUT

DRAWING REFERENCE	STATUS	REVISION
FHI-00-B2-DR-BMCE-CE-11030	P8	P01

PROJECT ID - ZONE - LEVEL - TYPE - ORIGINATOR - ROLE - NUMBER

NOTES

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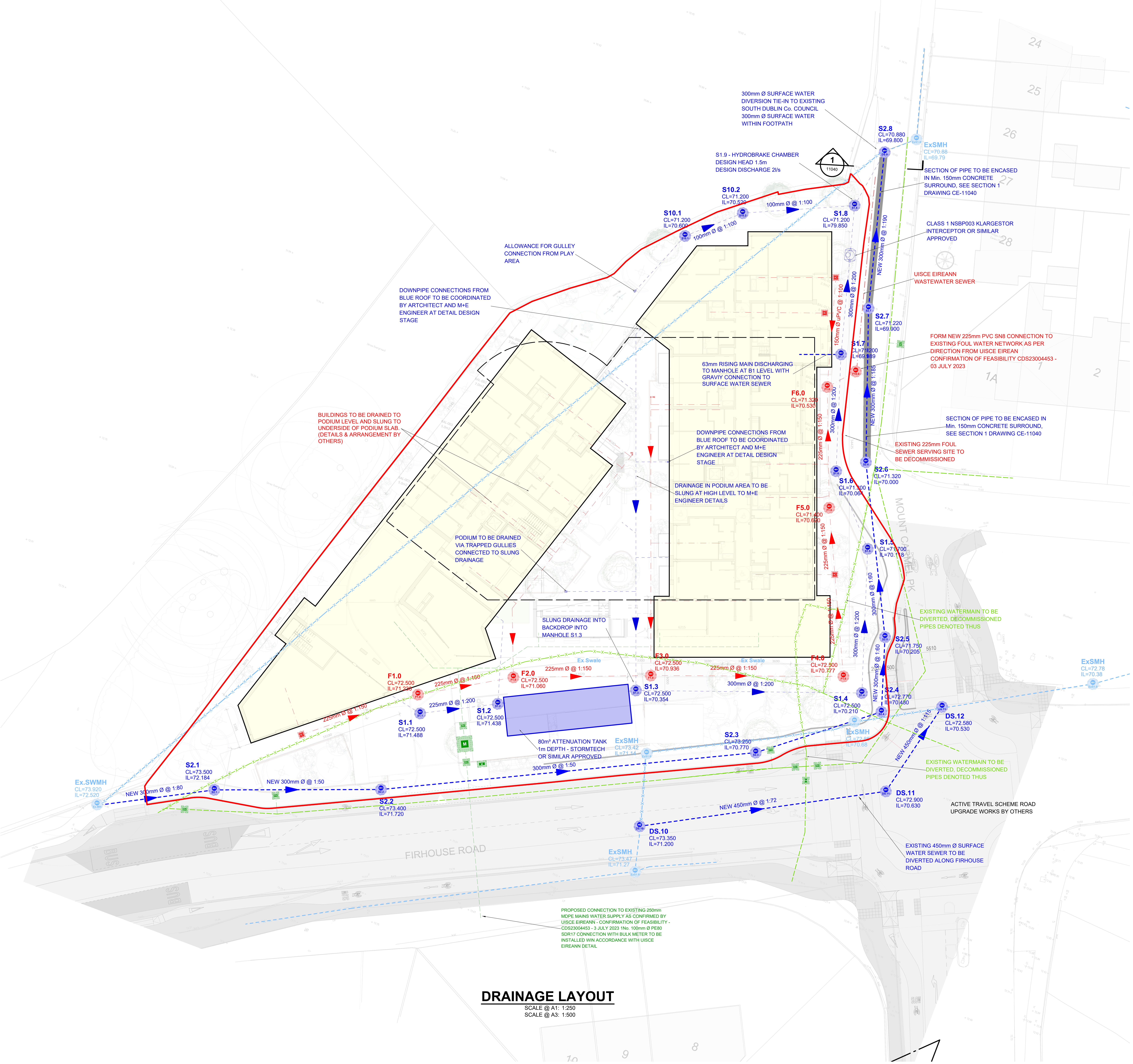
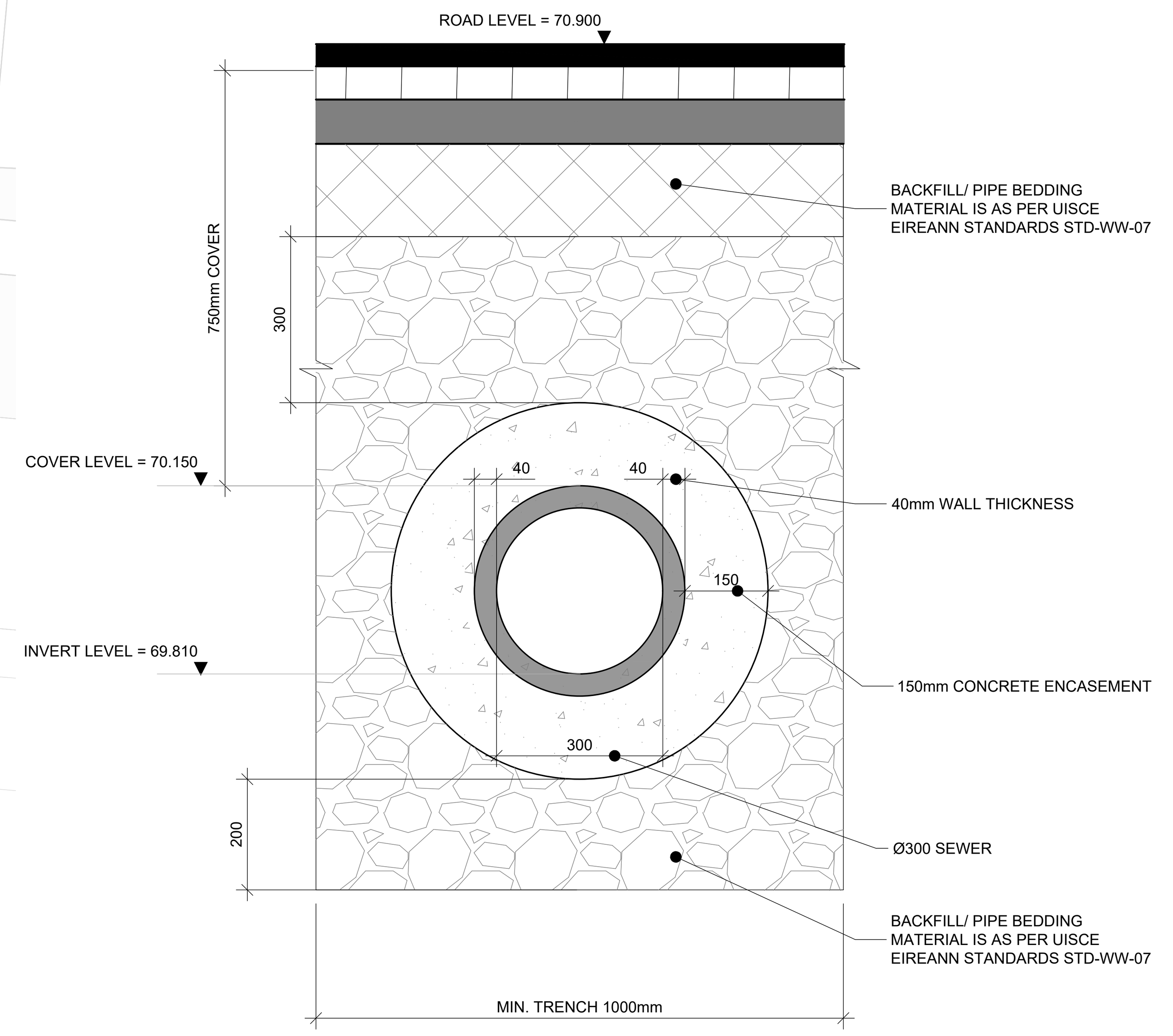
2. CONSULTANTS TO BE INFORMED IMMEDIATELY OF ANY DISCREPANCIES BEFORE WORK PROCEEDS.
3. THRUST BLOCKS ARE TO BE LOCATED AND INSTALLED AS PER UISCE ÉIREANN DETAILS.
4. REFER TO DRAWINGS FHI-00-XX-DR-BMCE-CE-10000 FOR GENERAL NOTES AND LEGENDS



DRAINAGE LAYOUT

SCALE @ A1: 1:250
SCALE @ A3: 1:500



1 SECTION (11040)

SCALE @ A1: 1:10
SCALE @ A3: 1:20

ISSUE	DATE	DESCRIPTION	BY
P01	23.10.25	ISSUED FOR PLANNING	E.C.

Project Engineer: Darragh O'Rourke
Project Director: Stephen O'Connor

BM STAGE: **PLANNING**

BM BARRETT MAHONY
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Consulting Engineers, Civil . Structural . Project Management E-mail: bmce@bmce.ie Web: www.bmce.ie

The Institution of Structural Engineers ACEI FIDIC International Federation of Consulting Engineers

CLIENT: **BLUEMONT DEVELOPMENTS LIMITED**

PROJECT TITLE: **No.2 FIRHOUSE ROAD**

BM PROJECT No.: **24.309**

MODEL REFERENCE: -
SUITABILITY: -
REVISION: -

DRAWING TITLE: **PROPOSED DRAINAGE AND WATERMAIN LAYOUT**

DWG DRAWING REFERENCE: **FHI-00-00-DR-BMCE-CE-11040**
STATUS: **P8**
REVISION: **P01**

SURFACE WATER SUDS LAYOUT

SCALE @ A1: 1:250
SCALE @ A3: 1:500

NOTES

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2. CONSULTANTS TO BE INFORMED IMMEDIATELY OF ANY DISCREPANCIES BEFORE WORK PROCEEDS.
3. REFER TO DRAWINGS FHI-00-XX-DR-BMCE-CE-10000 FOR GENERAL NOTES AND LEGENDS

P01	23.10.25	ISSUED FOR PLANNING	E.C.
ISSUE	DATE	DESCRIPTION	BY

Project Engineer: Darragh O'Rourke
Project Director: Stephen O'Connor

BM STAGE
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CLIENT
BLUEMONT DEVELOPMENTS LIMITED

PROJECT TITLE
No.2 FIRHOUSE ROAD

BM PROJECT No.
24.309

MODEL | REFERENCE | SUITABILITY | REVISION

DRAWING TITLE
PROPOSED SURFACE WATER SUDS LAYOUT

DWG	DRAWING REFERENCE	STATUS	REVISION
	FHI-00-ZZ-DR-BMCE-CE-11050	P8	P01

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	100	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	20	Minimum Velocity (m/s)	0.75
FSR Region	England and Wales	Connection Type	Level Soffits
M5-60 (mm)	14.000	Minimum Backdrop Height (m)	0.200
Ratio-R	0.300	Preferred Cover Depth (m)	0.900
CV	0.750	Include Intermediate Ground	✓
Time of Entry (mins)	4.00	Enforce best practice design rules	x

Simulation Settings

Rainfall Methodology	FSR	Summer CV	0.750	Drain Down Time (mins)	240
FSR Region	England and Wales	Winter CV	0.840	Additional Storage (m^3/ha)	20.0
M5-60 (mm)	14.000	Analysis Speed	Normal	Check Discharge Rate(s)	x
Ratio-R	0.300	Skip Steady State	x	Check Discharge Volume	x

Storm Durations

15	30	60	120	180	240	360	480	600	720	960	1440

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)	Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
1	0	0	0	30	0	0	0
5	0	0	0	100	20	10	0
10	0	0	0				

Node SW9 HB Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	69.835	Product Number	CTL-SHE-0061-2000-1500-2000
Design Depth (m)	1.500	Min Outlet Diameter (m)	0.075
Design Flow (l/s)	2.0	Min Node Diameter (mm)	1200

Node Block1 Terrace Online Orifice Control

Flap Valve	x	Invert Level (m)	79.850	Design Flow (l/s)	0.3	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Design Depth (m)	0.100	Diameter (m)	0.021		

Node Block1 NBR Online Orifice Control

Flap Valve	x	Invert Level (m)	84.250	Design Flow (l/s)	0.3	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Design Depth (m)	0.150	Diameter (m)	0.019		

Node Block1 SBR Online Orifice Control

Flap Valve	x	Invert Level (m)	87.625	Design Flow (l/s)	0.3	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Design Depth (m)	0.150	Diameter (m)	0.019		

Node Block2 NBR Online Orifice Control

Flap Valve	x	Invert Level (m)	87.300	Design Flow (l/s)	0.3	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Design Depth (m)	0.150	Diameter (m)	0.019		

Node Block2 SBR Online Orifice Control

Flap Valve	x	Invert Level (m)	83.950	Design Flow (l/s)	0.3	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Design Depth (m)	0.150	Diameter (m)	0.019		

Node Block1 Terrace Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	79.970
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	

Depth (m)	Area (m^2)	Inf Area (m^2)	Depth (m)	Area (m^2)	Inf Area (m^2)	Depth (m)	Area (m^2)	Inf Area (m^2)
0.000	159.0	0.0	0.030	159.0	0.0	0.031	0.0	0.0

Node Block1 NBR Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	84.315
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	404.0	0.0	0.085	404.0	0.0	0.086	0.0	0.0

Node Block1 SBR Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	87.690
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	348.0	0.0	0.085	348.0	0.0	0.086	0.0	0.0

Node Block2 NBR Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	87.365
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	692.0	0.0	0.085	692.0	0.0	0.086	0.0	0.0

Node Block2 SBR Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	84.015
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	254.0	0.0	0.085	254.0	0.0	0.086	0.0	0.0

Node SW3 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	70.200
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	80.0	0.0	1.000	80.0	0.0	1.001	0.0	0.0

Results for 1 year Critical Storm Duration. Lowest mass balance: 94.84%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	SW1	10	71.634	0.034	1.9	0.0523	0.0000	OK
15 minute winter	SW2	10	71.364	0.064	6.1	0.1178	0.0000	OK
180 minute winter	SW3	168	70.277	0.077	3.9	6.2765	0.0000	OK
180 minute winter	SW4	168	70.277	0.141	4.0	0.1732	0.0000	OK
180 minute winter	SW5	168	70.277	0.174	3.7	0.2009	0.0000	OK
180 minute winter	SW6	168	70.277	0.208	3.6	0.2416	0.0000	OK
180 minute winter	SW7	168	70.277	0.263	3.6	0.3068	0.0000	OK
180 minute winter	SW8	168	70.277	0.350	3.2	0.4100	0.0000	SURCHARGED
180 minute winter	SW9 HB	168	70.277	0.442	2.7	0.5248	0.0000	SURCHARGED
15 minute summer	EXT. OF	1	69.801	0.000	1.6	0.0000	0.0000	OK
60 minute winter	Block1 Terrace	44	79.972	0.122	0.9	0.6483	0.0000	FLOOD RISK
60 minute winter	DP1	45	74.014	0.014	0.3	0.0003	0.0000	OK
15 minute winter	Slung1	10	73.710	0.032	1.7	0.0464	0.0000	OK
15 minute winter	Slung2	10	71.352	0.052	4.0	0.0659	0.0000	OK
240 minute winter	Block1 NBR	220	84.321	0.071	0.9	2.9438	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	SW1	4.002	SW2	1.8	0.479	0.049	0.0840	
15 minute winter	SW2	4.003	SW3	6.0	0.670	0.164	0.1157	
60 minute winter	SW3	1.004	SW4	4.6	0.497	0.073	0.3016	
60 minute winter	SW4	1.005	SW5	5.0	0.509	0.078	0.2899	
60 minute winter	SW5	1.006	SW6	5.1	0.569	0.079	0.4006	
60 minute winter	SW6	1.007	SW7	5.1	0.589	0.065	0.5628	
30 minute winter	SW7	1.008	SW8	4.9	0.497	0.062	0.9833	
30 minute summer	SW8	1.009	SW9 HB	4.7	0.264	0.061	1.0311	
15 minute winter	SW9 HB	Hydro-Brake®	EXT. OF	1.6				12.5
60 minute winter	Block1 Terrace	Orifice	DP1	0.3				
60 minute winter	DP1	1.001	Slung1	0.3	0.468	0.041	0.0084	
15 minute winter	Slung1	1.002	Slung2	1.6	0.462	0.043	0.0702	
15 minute winter	Slung2	1.003	SW3	3.9	0.589	0.107	0.0598	
240 minute winter	Block1 NBR	Orifice	DP2	0.2				

Results for 1 year Critical Storm Duration. Lowest mass balance: 94.84%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute winter	DP2	220	74.007	0.007	0.2	0.0001	0.0000	OK
120 minute winter	Block1 SBR	100	87.693	0.068	0.8	1.3780	0.0000	OK
120 minute winter	DP3	100	74.008	0.008	0.2	0.0001	0.0000	OK
240 minute winter	Block2 SBR	184	84.021	0.071	0.7	1.8930	0.0000	OK
240 minute winter	DP5	184	71.643	0.013	0.2	0.0002	0.0000	OK
480 minute winter	Block2 NBR	432	87.372	0.072	0.8	5.4738	0.0000	OK
480 minute winter	DP4	432	71.611	0.011	0.2	0.0002	0.0000	OK
15 minute winter	SW10	10	70.320	0.020	0.6	0.0251	0.0000	OK
180 minute winter	SW11	172	70.277	0.097	0.5	0.1195	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
240 minute winter	DP2	2.001	Slung1	0.2	0.650	0.004	0.0010	
120 minute winter	Block1 SBR	Orifice	DP3	0.2				
120 minute winter	DP3	3.001	Slung2	0.2	0.664	0.011	0.0009	
240 minute winter	Block2 SBR	Orifice	DP5	0.2				
240 minute winter	DP5	4.001	SW1	0.2	0.337	0.031	0.0011	
480 minute winter	Block2 NBR	Orifice	DP4	0.2				
480 minute winter	DP4	5.001	SW2	0.2	0.327	0.011	0.0063	
15 minute winter	SW10	6.000	SW11	0.6	0.358	0.037	0.0241	
15 minute winter	SW11	6.001	SW9 HB	1.0	0.512	0.063	0.0939	

Results for 5 year Critical Storm Duration. Lowest mass balance: 94.84%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	SW1	10	71.643	0.043	3.0	0.0659	0.0000	OK
15 minute winter	SW2	10	71.383	0.083	9.9	0.1536	0.0000	OK
360 minute winter	SW3	344	70.404	0.204	3.9	16.5661	0.0000	OK
360 minute winter	SW4	352	70.404	0.268	3.6	0.3288	0.0000	OK
360 minute winter	SW5	352	70.404	0.301	3.1	0.3473	0.0000	SURCHARGED
360 minute winter	SW6	352	70.405	0.336	2.9	0.3902	0.0000	SURCHARGED
360 minute winter	SW7	352	70.404	0.390	2.7	0.4549	0.0000	SURCHARGED
360 minute winter	SW8	352	70.404	0.477	2.3	0.5590	0.0000	SURCHARGED
360 minute winter	SW9 HB	352	70.404	0.569	2.0	0.6758	0.0000	SURCHARGED
15 minute summer	EXT. OF	1	69.801	0.000	1.6	0.0000	0.0000	OK
60 minute winter	Block1 Terrace	48	79.976	0.126	1.5	1.3375	0.0000	FLOOD RISK
60 minute winter	DP1	49	74.014	0.014	0.3	0.0003	0.0000	OK
15 minute winter	Slung1	10	73.718	0.040	2.5	0.0573	0.0000	OK
15 minute winter	Slung2	10	71.366	0.066	6.3	0.0845	0.0000	OK
480 minute winter	Block1 NBR	440	84.327	0.077	0.9	5.5627	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	SW1	4.002	SW2	2.9	0.550	0.079	0.1174	
15 minute winter	SW2	4.003	SW3	9.8	0.765	0.268	0.1659	
30 minute winter	SW3	1.004	SW4	8.6	0.572	0.135	0.4695	
30 minute winter	SW4	1.005	SW5	8.9	0.586	0.140	0.3924	
30 minute winter	SW5	1.006	SW6	8.9	0.650	0.139	0.5070	
30 minute winter	SW6	1.007	SW7	8.3	0.653	0.105	0.6603	
15 minute winter	SW7	1.008	SW8	7.8	0.490	0.100	1.1325	
15 minute summer	SW8	1.009	SW9 HB	5.9	0.238	0.076	1.1169	
15 minute summer	SW9 HB	Hydro-Brake®	EXT. OF	1.6				17.7
60 minute winter	Block1 Terrace	Orifice	DP1	0.3				
60 minute winter	DP1	1.001	Slung1	0.3	0.471	0.042	0.0085	
15 minute winter	Slung1	1.002	Slung2	2.4	0.522	0.067	0.0952	
15 minute winter	Slung2	1.003	SW3	6.3	0.671	0.172	0.0843	
480 minute winter	Block1 NBR	Orifice	DP2	0.2				

Results for 5 year Critical Storm Duration. Lowest mass balance: 94.84%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
480 minute winter	DP2	440	74.007	0.007	0.2	0.0001	0.0000	OK
180 minute winter	Block1 SBR	168	87.697	0.072	1.0	2.7550	0.0000	OK
180 minute winter	DP3	168	74.008	0.008	0.2	0.0001	0.0000	OK
180 minute winter	Block2 SBR	172	84.028	0.078	1.3	3.7194	0.0000	OK
15 minute winter	DP5	10	71.644	0.014	0.2	0.0002	0.0000	OK
600 minute winter	Block2 NBR	570	87.379	0.079	1.1	10.4774	0.0000	OK
600 minute winter	DP4	570	71.611	0.011	0.2	0.0002	0.0000	OK
360 minute winter	SW10	344	70.404	0.104	0.2	0.1325	0.0000	OK
360 minute winter	SW11	344	70.404	0.224	0.5	0.2760	0.0000	SURCHARGED

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
480 minute winter	DP2	2.001	Slung1	0.2	0.659	0.004	0.0010	
180 minute winter	Block1 SBR	Orifice	DP3	0.2				
180 minute winter	DP3	3.001	Slung2	0.2	0.671	0.012	0.0009	
180 minute winter	Block2 SBR	Orifice	DP5	0.2				
15 minute summer	DP5	4.001	SW1	0.2	0.337	0.034	0.0029	
600 minute winter	Block2 NBR	Orifice	DP4	0.2				
600 minute winter	DP4	5.001	SW2	0.2	0.332	0.011	0.0066	
15 minute winter	SW10	6.000	SW11	1.1	0.431	0.068	0.0616	
15 minute winter	SW11	6.001	SW9 HB	1.8	0.603	0.111	0.2393	

Results for 10 year Critical Storm Duration. Lowest mass balance: 94.84%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	SW1	10	71.647	0.046	3.4	0.0708	0.0000	OK
15 minute winter	SW2	10	71.390	0.090	11.3	0.1653	0.0000	OK
360 minute winter	SW3	352	70.465	0.265	4.5	21.5036	0.0000	OK
360 minute winter	SW4	344	70.464	0.328	3.6	0.4032	0.0000	SURCHARGED
360 minute winter	SW5	360	70.464	0.361	3.1	0.4175	0.0000	SURCHARGED
360 minute winter	SW6	344	70.464	0.395	2.8	0.4593	0.0000	SURCHARGED
360 minute winter	SW7	360	70.464	0.450	2.7	0.5256	0.0000	SURCHARGED
360 minute winter	SW8	344	70.464	0.537	2.4	0.6298	0.0000	SURCHARGED
360 minute winter	SW9 HB	352	70.464	0.629	2.0	0.7474	0.0000	SURCHARGED
15 minute summer	EXT. OF	1	69.801	0.000	1.6	0.0000	0.0000	OK
60 minute winter	Block1 Terrace	50	79.978	0.128	1.7	1.6173	0.0000	FLOOD RISK
60 minute winter	DP1	51	74.014	0.014	0.3	0.0003	0.0000	OK
15 minute winter	Slung1	10	73.720	0.042	2.8	0.0607	0.0000	OK
15 minute winter	Slung2	10	71.371	0.071	7.1	0.0901	0.0000	OK
480 minute winter	Block1 NBR	368	84.330	0.080	1.0	6.7767	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	SW1	4.002	SW2	3.3	0.571	0.090	0.1296	
15 minute winter	SW2	4.003	SW3	11.2	0.791	0.305	0.1825	
30 minute winter	SW3	1.004	SW4	10.5	0.590	0.165	0.5798	
30 minute winter	SW4	1.005	SW5	10.4	0.604	0.163	0.4507	
30 minute winter	SW5	1.006	SW6	10.0	0.661	0.156	0.5622	
30 minute summer	SW6	1.007	SW7	9.1	0.676	0.116	0.6685	
30 minute summer	SW7	1.008	SW8	8.9	0.484	0.113	1.2015	
15 minute winter	SW8	1.009	SW9 HB	6.9	0.233	0.088	1.1169	
15 minute summer	SW9 HB	Hydro-Brake®	EXT. OF	1.6				19.6
60 minute winter	Block1 Terrace	Orifice	DP1	0.3				
60 minute winter	DP1	1.001	Slung1	0.3	0.472	0.042	0.0085	
15 minute winter	Slung1	1.002	Slung2	2.7	0.540	0.075	0.1035	
15 minute winter	Slung2	1.003	SW3	7.1	0.693	0.194	0.0921	
480 minute winter	Block1 NBR	Orifice	DP2	0.2				

Results for 10 year Critical Storm Duration. Lowest mass balance: 94.84%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
480 minute winter	DP2	368	74.007	0.007	0.2	0.0001	0.0000	OK
240 minute winter	Block1 SBR	224	87.699	0.074	1.0	3.4701	0.0000	OK
240 minute winter	DP3	224	74.008	0.008	0.2	0.0001	0.0000	OK
180 minute winter	Block2 SBR	168	84.031	0.081	1.5	4.5840	0.0000	OK
15 minute summer	DP5	10	71.646	0.016	0.2	0.0003	0.0000	OK
480 minute winter	Block2 NBR	448	87.382	0.082	1.5	12.5425	0.0000	OK
480 minute winter	DP4	448	71.611	0.011	0.2	0.0002	0.0000	OK
360 minute winter	SW10	352	70.466	0.166	0.2	0.2121	0.0000	SURCHARGED
360 minute winter	SW11	352	70.465	0.285	0.5	0.3519	0.0000	SURCHARGED

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
480 minute winter	DP2	2.001	Slung1	0.2	0.663	0.004	0.0010	
240 minute winter	Block1 SBR	Orifice	DP3	0.2				
240 minute winter	DP3	3.001	Slung2	0.2	0.674	0.012	0.0009	
180 minute winter	Block2 SBR	Orifice	DP5	0.2				
15 minute summer	DP5	4.001	SW1	0.3	0.337	0.051	0.0034	
480 minute winter	Block2 NBR	Orifice	DP4	0.2				
480 minute winter	DP4	5.001	SW2	0.2	0.334	0.011	0.0067	
15 minute winter	SW10	6.000	SW11	1.2	0.432	0.074	0.0831	
60 minute winter	SW11	6.001	SW9 HB	2.2	0.482	0.135	0.3226	

Results for 30 year Critical Storm Duration. Lowest mass balance: 94.84%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	SW1	10	71.652	0.052	4.3	0.0788	0.0000	OK
15 minute winter	SW2	10	71.401	0.101	14.0	0.1871	0.0000	OK
600 minute winter	SW3	570	70.585	0.385	4.0	31.3183	0.0000	SURCHARGED
480 minute winter	SW4	464	70.587	0.451	3.3	0.5535	0.0000	SURCHARGED
600 minute winter	SW5	570	70.587	0.484	2.9	0.5593	0.0000	SURCHARGED
480 minute winter	SW6	464	70.588	0.519	3.1	0.6033	0.0000	SURCHARGED
600 minute winter	SW7	570	70.589	0.575	2.7	0.6709	0.0000	SURCHARGED
600 minute winter	SW8	570	70.589	0.662	2.5	0.7759	0.0000	SURCHARGED
600 minute winter	SW9 HB	570	70.590	0.755	2.3	0.8970	0.0000	SURCHARGED
15 minute summer	EXT. OF	1	69.801	0.000	1.6	0.0000	0.0000	OK
120 minute winter	Block1 Terrace	94	79.982	0.132	1.4	2.3507	0.0000	FLOOD RISK
120 minute winter	DP1	94	74.014	0.014	0.3	0.0003	0.0000	OK
15 minute winter	Slung1	10	73.724	0.046	3.3	0.0661	0.0000	OK
15 minute winter	Slung2	10	71.379	0.079	8.6	0.1002	0.0000	OK
360 minute winter	Block1 NBR	344	84.337	0.087	1.6	9.7159	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	SW1	4.002	SW2	4.1	0.605	0.112	0.1507	
15 minute winter	SW2	4.003	SW3	13.9	0.835	0.379	0.2144	
30 minute winter	SW3	1.004	SW4	13.0	0.603	0.204	0.8038	
30 minute summer	SW4	1.005	SW5	13.1	0.631	0.206	0.5018	
15 minute winter	SW5	1.006	SW6	12.2	0.685	0.191	0.5499	
15 minute winter	SW6	1.007	SW7	10.8	0.707	0.137	0.7002	
15 minute winter	SW7	1.008	SW8	9.2	0.497	0.117	1.2218	
15 minute summer	SW8	1.009	SW9 HB	5.4	0.183	0.069	1.1169	
15 minute summer	SW9 HB	Hydro-Brake®	EXT. OF	1.6				22.6
120 minute winter	Block1 Terrace	Orifice	DP1	0.3				
120 minute winter	DP1	1.001	Slung1	0.3	0.475	0.043	0.0086	
15 minute winter	Slung1	1.002	Slung2	3.3	0.568	0.089	0.1169	
15 minute winter	Slung2	1.003	SW3	8.6	0.730	0.235	0.1062	
360 minute winter	Block1 NBR	Orifice	DP2	0.2				

Results for 30 year Critical Storm Duration. Lowest mass balance: 94.84%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute winter	DP2	344	74.007	0.007	0.2	0.0001	0.0000	OK
360 minute winter	Block1 SBR	336	87.703	0.078	1.0	4.9062	0.0000	OK
360 minute winter	DP3	336	74.008	0.008	0.2	0.0001	0.0000	OK
240 minute winter	Block2 SBR	228	84.039	0.089	1.6	6.5338	0.0000	OK
15 minute summer	DP5	10	71.652	0.022	0.2	0.0004	0.0000	OK
720 minute winter	Block2 NBR	675	87.389	0.089	1.4	17.4283	0.0000	OK
720 minute winter	DP4	675	71.612	0.012	0.2	0.0002	0.0000	OK
600 minute winter	SW10	570	70.591	0.291	0.5	0.3719	0.0000	SURCHARGED
600 minute winter	SW11	570	70.591	0.411	0.8	0.5068	0.0000	SURCHARGED

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
360 minute winter	DP2	2.001	Slung1	0.2	0.672	0.004	0.0011	
360 minute winter	Block1 SBR	Orifice	DP3	0.2				
360 minute winter	DP3	3.001	Slung2	0.2	0.681	0.012	0.0010	
240 minute winter	Block2 SBR	Orifice	DP5	0.2				
15 minute winter	DP5	4.001	SW1	0.4	0.340	0.063	0.0044	
720 minute winter	Block2 NBR	Orifice	DP4	0.2				
720 minute winter	DP4	5.001	SW2	0.2	0.339	0.012	0.0069	
15 minute winter	SW10	6.000	SW11	1.5	0.465	0.092	0.1206	
60 minute summer	SW11	6.001	SW9 HB	2.7	0.504	0.168	0.3226	

Results for 100 year +20% CC +10% A Critical Storm Duration. Lowest mass balance: 94.84%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	SW1	10	71.667	0.067	6.9	0.1049	0.0000	OK
15 minute winter	SW2	10	71.439	0.139	23.2	0.2675	0.0000	OK
960 minute winter	SW3	915	71.027	0.827	5.1	67.2135	0.0000	SURCHARGED
960 minute winter	SW4	915	71.027	0.891	2.9	1.1031	0.0000	SURCHARGED
960 minute winter	SW5	915	71.027	0.924	2.8	1.0688	0.0000	SURCHARGED
960 minute winter	SW6	915	71.027	0.958	3.1	1.1156	0.0000	SURCHARGED
960 minute winter	SW7	900	71.027	1.013	2.8	1.1857	0.0000	FLOOD RISK
960 minute winter	SW8	915	71.027	1.100	2.7	1.2934	0.0000	FLOOD RISK
960 minute winter	SW9 HB	915	71.027	1.192	2.6	1.4215	0.0000	FLOOD RISK
15 minute summer	EXT. OF	1	69.801	0.000	1.6	0.0000	0.0000	OK
240 minute winter	Block1 Terrace	188	80.000	0.149	1.6	5.1608	0.0000	FLOOD RISK
240 minute winter	DP1	188	74.015	0.015	0.3	0.0003	0.0000	OK
15 minute winter	Slung1	10	73.736	0.058	5.2	0.0855	0.0000	OK
15 minute winter	Slung2	10	71.404	0.104	14.0	0.1337	0.0000	OK
480 minute winter	Block1 NBR	472	84.362	0.112	2.2	19.8534	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	SW1	4.002	SW2	6.8	0.699	0.185	0.2170	
15 minute winter	SW2	4.003	SW3	23.2	0.949	0.633	0.3153	
15 minute summer	SW3	1.004	SW4	20.0	0.647	0.313	0.9112	
15 minute winter	SW4	1.005	SW5	20.1	0.673	0.316	0.6594	
15 minute summer	SW5	1.006	SW6	17.7	0.694	0.277	0.6936	
15 minute winter	SW6	1.007	SW7	15.1	0.736	0.193	0.7684	
15 minute winter	SW7	1.008	SW8	9.0	0.518	0.115	1.2268	
15 minute summer	SW8	1.009	SW9 HB	7.4	0.184	0.095	1.1169	
960 minute winter	SW9 HB	Hydro-Brake®	EXT. OF	1.8				109.5
240 minute winter	Block1 Terrace	Orifice	DP1	0.3				
240 minute winter	DP1	1.001	Slung1	0.3	0.484	0.046	0.0091	
15 minute winter	Slung1	1.002	Slung2	5.2	0.647	0.141	0.1629	
15 minute winter	Slung2	1.003	SW3	14.0	0.827	0.383	0.1527	
480 minute winter	Block1 NBR	Orifice	DP2	0.2				

Results for 100 year +20% CC +10% A Critical Storm Duration. Lowest mass balance: 94.84%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
480 minute winter	DP2	472	74.008	0.008	0.2	0.0001	0.0000	OK
480 minute winter	Block1 SBR	400	87.718	0.093	1.4	10.2773	0.0000	OK
480 minute winter	DP3	400	74.008	0.008	0.2	0.0002	0.0000	OK
480 minute winter	Block2 SBR	464	84.066	0.116	1.7	13.5323	0.0000	FLOOD RISK
15 minute winter	DP5	10	71.667	0.037	0.3	0.0007	0.0000	OK
960 minute winter	Block2 NBR	930	87.414	0.114	2.0	35.3399	0.0000	OK
960 minute winter	DP4	930	71.612	0.012	0.2	0.0002	0.0000	OK
960 minute winter	SW10	915	71.027	0.727	0.6	0.9415	0.0000	FLOOD RISK
960 minute winter	SW11	915	71.027	0.847	0.9	1.0537	0.0000	FLOOD RISK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
480 minute winter	DP2	2.001	Slung1	0.2	0.699	0.005	0.0012	
480 minute winter	Block1 SBR	Orifice	DP3	0.2				
480 minute winter	DP3	3.001	Slung2	0.2	0.702	0.014	0.0010	
480 minute winter	Block2 SBR	Orifice	DP5	0.2				
15 minute summer	DP5	4.001	SW1	0.4	0.344	0.066	0.0074	
960 minute winter	Block2 NBR	Orifice	DP4	0.2				
960 minute winter	DP4	5.001	SW2	0.2	0.354	0.014	0.0076	
30 minute winter	SW10	6.000	SW11	3.5	0.502	0.215	0.2529	
15 minute winter	SW11	6.001	SW9 HB	5.3	0.745	0.330	0.3226	

APPENDIX C

FOUL WATER AND WATER DEMAND CALCULATIONS

Dublin | London | Sofia
Sandwith House,
52-54 Lower Sandwith Street,
Dublin 2, D02 WR26, Ireland

Phone +353 1 6773200
Email bmce@bmce.ie
www.bmce.ie

PROJECT TITLE:	No. 2 Firhouse Road, Dublin	BY: RH
CALCULATION:	FOUL WATER FLOW & WATER DEMAND	PAGE: 1
APPENDIX:	D	DATE: 17/04/2025

A: FOUL WATER FLOW - STANDARD RESIDENTIAL

The foul effluent from the proposed buildings is calculated as per the Uisce Éireann Code of Practice for Wastewater Infrastructure (July 2020 (rev. 2)).

Total apartments 83.000

(excluding circulation spaces)

Occupancy

1 bed	1.500	Persons	30.000	Quantity
2 bed	3.000	Persons	10.000	Quantity
2 bed	4.000	Persons	38.000	Quantity
3 bed	3.500	Persons	5.000	Quantity
Total Occupancy	**245**			Persons

Standard Residential = 150 l/p/day x 245 Persons = 36750 l/day

Daily Flow = **36750** l/day

Average Flow = 1.1 x Daily Flow / Flow Duration = 40,425 l/day / 24 x 60 x 60 = **0.468 l/s**

Peak Flow = Average Flow x 6
Peak Flow = 0.468 l/s x 6 = **2.807 l/s**

A1: FOUL WATER FLOW - PUMPING STATION EMERGENCY STORAGE

Sized as per Uisce Éireann Code of Practice for Wastewater Infrastructure (July 2020 (rev. 2)) section 5.11
24 hours storage required

36.750 m^3

B: WATER DEMAND - STANDARD RESIDENTIAL

The water demand from the proposed buildings is calculated as per the Uisce Éireann Code of Practice for Water Infrastructure (July 2020 (rev. 2)). The average day/peak week demand is taken as 1.25 times the average daily demand. The peak demand factor is taken as 5 times the average day/peak week demand.

Standard Residential = 150 l/p/day x 245 Persons = 36750 l/day

Daily Flow = 36750 l/day

Average Flow = 1.25 x Daily Flow / Flow Duration = 45,938 l/day / 24 x 60 x 60 = **0.532 l/s**

Peak Flow = Average Flow x 5
Peak Flow = 0.532 l/s x 5 = **2.658 l/s**

APPENDIX D

UISCE EIREANN CONFIRMATION OF FEASIBILITY

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

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

www.water.ie

CONFIRMATION OF FEASIBILITY

Philip O'Regan

11 Mallow Street
Limerick
Limerick
Limerick
V94WRN4
Ireland

3 July 2023

Our Ref: CDS23004453 Pre-Connection Enquiry
Firhouse Inn, Firhouse Road, Tallaght, Dublin

Dear Applicant/Agent,

We have completed the review of the Pre-Connection Enquiry.

Irish Water has reviewed the pre-connection enquiry in relation to a Water & Wastewater connection for a Multi/Mixed Use Development of 106 unit(s) at Firhouse Inn, Firhouse Road, Tallaght, Dublin, (the **Development)**.

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

• **Water Connection**	- Feasible without infrastructure upgrade by Irish Water - Please note that according to our records there is an existing water main & sewer running through this site (see drawing attached). It will not be permitted to build over any Irish Water infrastructure. The layout of the development must ensure that this pipe is protected and adequate separation distances are provided between Irish Water infrastructure and any structures on site. Alternatively you may enter into a diversion agreement with Irish Water and divert the pipe to accommodate your development. If you wish to proceed with this option please contact Irish Water at Diversions@water.ie and submit detailed

design drawings before submitting your planning application.

- It will be necessary to provide a wayleave over this pipe to the benefit of Irish Water and ensure that it is accessible for maintenance.

- **Wastewater Connection** - Feasible without infrastructure upgrade by Irish Water

This letter does not constitute an offer, in whole or in part, to provide a connection to any Irish Water 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 Irish Water.

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 Irish Water's Network(s)

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

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

Yours sincerely,

Yvonne Harris
Head of Customer Operations

Section A - What is important to know?

What is important to know?	Why is this important?
Do you need a contract to connect?	• Yes, a contract is required to connect. This letter does not constitute a contract or an offer in whole or in part to provide a connection to Irish Water's network(s). • Before the Development can connect to Irish Water's network(s), you must submit a connection application and be granted and sign a connection agreement with Irish Water.
When should I submit a Connection Application?	• A connection application should only be submitted after planning permission has been granted.
Where can I find information on connection charges?	• Irish Water connection charges can be found at: https://www.water.ie/connections/information/charges/
Who will carry out the connection work?	• All works to Irish Water's network(s), including works in the public space, must be carried out by Irish Water*. *Where a Developer has been granted specific permission and has been issued a connection offer for Self-Lay in the Public Road/Area, they may complete the relevant connection works
Fire flow Requirements	• The Confirmation of Feasibility does not extend to fire flow requirements for the Development. Fire flow requirements are a matter for the Developer to determine. • **What to do?** - Contact the relevant Local Fire Authority
Plan for disposal of storm water	• The Confirmation of Feasibility does not extend to the management or disposal of storm water or ground waters. • **What to do?** - Contact the relevant Local Authority to discuss the management or disposal of proposed storm water or ground water discharges.
Where do I find details of Irish Water's network(s)?	• Requests for maps showing Irish Water's network(s) can be submitted to: datarequests@water.ie

What are the design requirements for the connection(s)?	• The design and construction of the Water & Wastewater pipes and related infrastructure to be installed in this Development shall comply with ***the Irish Water Connections and Developer Services Standard Details and Codes of Practice,*** available at www.water.ie/connections
Trade Effluent Licensing	• Any person discharging trade effluent** to a sewer, must have a Trade Effluent Licence issued pursuant to section 16 of the Local Government (Water Pollution) Act, 1977 (as amended). • More information and an application form for a Trade Effluent License can be found at the following link: https://www.water.ie/business/trade-effluent/about/ **trade effluent is defined in the Local Government (Water Pollution) Act, 1977 (as amended)

Section B – Details of Irish Water's Network(s)

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

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Note: The information provided on the included maps as to the position of Irish Water'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 Irish Water.

Whilst every care has been taken in respect of the information on Irish Water's network(s), Irish Water 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 Irish Water's underground network(s). The onus is on the parties carrying out excavations or any other works to ensure the exact location of Irish Water'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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