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Project Title: Drive Thru Coffee Unit, Lucan Retail Park, Lucan Road, Co. Dublin

Report Title: Engineering Services Report

Report Ref: 21192-LDE-ZZ-ZZ-RP-0002_ESR

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Client: New Ireland Assurance Company PLC

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1 Contents:

1.0 Introduction:

Lohan & Donnelly Consulting Engineers (L&D) have been appointed by New Ireland Assurance Company PLC to prepare proposals for engineering arrangements for a proposed Drive Thru Coffee Unit development within Lucan Retail Park, Lucan Road, Ballydowd, Lucan, Co. Dublin. The proposed scope of works is generally the development of a brownfield site into a coffee pod unit with a drive thru feature.

1.1 Site Location:

The subject site is located between the N4 National Primary Road and Lucan Road in Lucan as shown in Figure 1 below with national grid coordinates of E305011, N235423.

Figure 1: Site Location

1.2 Existing Site Usage:

The existing site is a brownfield site currently being used as part of the car park for Lucan Retail Park.

Figure 2: Site Aerial Plan

1.3 Proposed Development of Site:

The proposed development of the site involves the construction of a single storey drive thru coffee shop pavilion within the existing car park of the Lucan Retail Park, Lucan Road, Ballydowd, Lucan, Co. Dublin. The building will have a total floor space of 170.45m^2 and would operate for the sale and consumption of food and beverages. The development will include the reconfiguration of a section of the existing carpark, to remove 45 spaces so as to make way for the proposed building, vehicle circulation route and collection point. The existing car parking will be reduced from 285 spaces to 240 spaces. The site boundary and proposed layout of the development is shown below in Figure 3.

Figure 2: Proposed Development

2.0 Surface Water Drainage & SUDS:

2.1 Existing Surface Water Drainage Arrangements

Review of South Dublin County Council as-built records for the adjacent Lucan Retail Park shows that there is an existing surface water manhole to the north of the site located outside the carpark. From previous topography surveys (with the car park taken into consideration), it can also be seen that the existing development is served by a number of gullies which feed into an existing surface water system around the perimeter of the car park. The pipe diameters withing the existing site appear to range from 100mm to 300mm in some areas.

2.2 Site Characteristics & Design Parameters

2.2.1 Topography

The topography of the site location is such that the site generally falls from the east to the west. The western boundary of the site has an approximate level of +50.000mOD and the western boundary has an approximate level of +49.500. Thus, there is an approximate level difference of 1.000mOD across the 30.000m between the boundary's, indicating a gradient of roughly 1/60.

Figure 4: Existing site levels showing approximate falls of 1/60 from east to west

2.2.2 Soil

L&D review of FSSR Soil maps indicates that the site location is indicated as being SOIL type 2, with an associated SPR of 0.3.

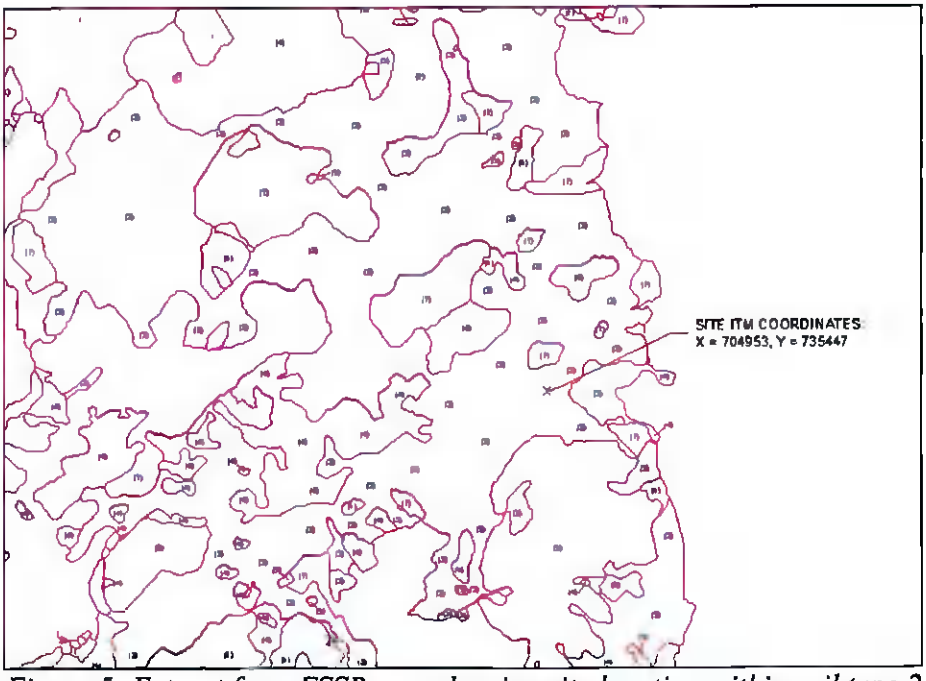

Figure 5: Extract from FSSR map showing site location within soil type 2

2.2.3 Rainfall

Site-specific rainfall data has been obtained by L&D from Met Eireann for the purposes of surface water sewer design, which indicates a M5-60 value of 16.6mm and ratio (R) of 0.276.

Met Eireann
Return Period Rainfall Depths for sliding Durations
Irish Grid: Easting: 305011, Northing: 235423,

DURATION	Interval 6months,	1year,	Years 2,	3,	4,	5,	10,	20,	30,	50,	75,	100,	150,	200,	250,	500,
5 mins	2.3,	3.5,	4.1,	5.0,	5.7,	6.2,	7.9,	9.9,	11.2,	13.1,	14.9,	16.2,	18.4,	20.0,	21.4,	N/A ,
10 mins	3.3,	4.8,	5.7,	7.0,	7.9,	8.6,	11.0,	13.8,	15.6,	18.3,	20.7,	22.6,	25.6,	27.9,	29.9,	N/A ,
15 mins	3.8,	5.7,	6.7,	8.2,	9.3,	10.1,	12.9,	16.2,	18.4,	21.5,	24.4,	26.6,	30.1,	32.8,	35.1,	N/A ,
30 mins	5.1,	7.4,	8.7,	10.6,	11.9,	13.0,	16.4,	20.4,	23.0,	26.8,	30.2,	32.9,	37.1,	40.3,	43.0,	N/A ,
1 hours	6.7,	9.6,	11.2,	13.6,	15.3,	16.6,	20.8,	25.6,	28.8,	33.4,	37.5,	40.7,	45.6,	49.5,	52.7,	N/A ,
2 hours	8.9,	12.6,	14.6,	17.6,	19.6,	21.2,	26.3,	32.2,	36.1,	41.6,	46.5,	50.3,	56.2,	60.7,	64.5,	N/A ,
3 hours	10.5,	14.7,	17.0,	20.4,	22.7,	24.4,	30.3,	36.9,	41.2,	47.3,	52.8,	57.0,	63.4,	68.5,	72.6,	N/A ,
4 hours	11.7,	16.4,	18.9,	22.6,	25.1,	27.1,	33.4,	40.5,	45.2,	51.8,	57.7,	62.2,	69.2,	74.6,	79.0,	N/A ,
6 hours	13.8,	19.2,	22.0,	26.2,	29.0,	31.2,	38.4,	46.4,	51.6,	58.9,	65.4,	70.4,	78.1,	84.0,	89.0,	N/A ,
9 hours	16.3,	22.4,	25.6,	30.4,	33.6,	36.1,	44.1,	53.0,	58.9,	67.0,	74.2,	79.7,	88.2,	94.7,	100.1,	N/A ,
12 hours	18.3,	25.0,	28.5,	33.7,	37.2,	39.9,	48.6,	58.3,	64.6,	73.4,	81.1,	87.1,	96.2,	103.2,	108.9,	N/A ,
18 hours	21.5,	29.2,	33.2,	39.1,	43.1,	46.1,	55.9,	66.7,	73.7,	83.4,	92.0,	98.6,	108.6,	116.3,	122.6,	N/A ,
24 hours	24.2,	32.6,	37.0,	43.4,	47.7,	51.0,	61.6,	73.3,	80.9,	91.4,	100.6,	107.6,	118.4,	126.6,	133.4,	156.8,
2 days	30.2,	39.7,	44.6,	51.7,	56.4,	59.9,	71.2,	83.5,	91.4,	102.2,	111.6,	118.7,	129.5,	137.8,	144.5,	167.6,
3 days	35.0,	45.4,	50.7,	58.3,	63.3,	67.1,	79.0,	91.9,	100.1,	111.3,	120.9,	128.2,	139.2,	147.6,	154.5,	177.7,
4 days	39.3,	50.5,	56.1,	64.1,	69.4,	73.4,	85.8,	99.2,	107.7,	119.2,	129.1,	136.6,	147.9,	156.4,	163.3,	186.9,
6 days	46.8,	59.2,	65.4,	74.2,	79.9,	84.2,	97.6,	111.9,	120.9,	133.0,	143.4,	151.2,	162.9,	171.8,	178.9,	203.1,
8 days	53.5,	66.9,	73.6,	83.0,	89.1,	93.7,	107.9,	123.0,	132.4,	145.0,	155.9,	164.0,	176.1,	185.2,	192.6,	217.4,
10 days	59.5,	73.9,	81.0,	91.0,	97.5,	102.3,	117.2,	132.9,	142.7,	155.9,	167.1,	175.5,	188.0,	197.3,	204.9,	230.3,
12 days	65.2,	80.5,	88.0,	98.5,	105.2,	110.3,	125.9,	142.2,	152.3,	165.9,	177.4,	186.1,	198.9,	208.5,	216.3,	242.2,
16 days	75.8,	92.6,	100.7,	112.1,	119.4,	124.9,	141.6,	159.0,	169.7,	184.1,	196.3,	205.3,	218.7,	228.8,	236.9,	263.8,
20 days	85.6,	103.7,	112.4,	124.6,	132.4,	138.2,	155.9,	174.2,	185.5,	200.6,	213.3,	222.7,	236.7,	247.1,	255.5,	283.3,
25 days	97.1,	116.6,	126.1,	139.1,	147.4,	153.6,	172.4,	191.8,	203.7,	219.5,	232.8,	242.7,	257.2,	268.1,	276.8,	305.6,

NOTES:
N/A Data not available
These values are derived from a Depth Duration Frequency (DDF) Model
For details refer to:
'Fitzgerald D. L. (2007), Estimates of Point Rainfall Frequencies, Technical Note No. 61, Met Eireann, Dublin',
Available for download at www.met.ie/climate/dataproducts/Estimation-of-Point-Rainfall-Frequencies_TN61.pdf

Figure 6: Return period rainfall depths for site location from Met Eireann

A site-specific Standard Average Annual Rainfall (SAAR) figure of 782mm from Met Eireann datasets has been adopted by L&D, based on the Eastings and Northings site coordinates, for detailed design with regard to determination of greenfield runoff and stormwater storage volumes.

305000	233000	777
305000	234000	780
305000	235000	782
305000	236000	784
305000	237000	789

Figure 7: Standard Average Annual Rainfall figure for the site location. Met Eireann

2.2.4 *Sewer Design*

All sewers are designed in accordance with IS 752:2008 and building regulations TGD Part H. All drainage works shall be in accordance with the requirements of South Dublin County Council and Irish water.

2.2.5 *Climate Change*

L&D stormwater attenuation designs include for 20% increase in rainfall rates due to climate change and urban expansion as set out in the GDSDS.

2.2.6 *Greenfield Runoff Rate (Q_{BAR})*

A Greenfield run off rate for the site has been calculated in Figure 8 based on a standard average annual rainfall of 782mm, a soil index value of 0.3 and a linear interpolation from a 50-hectare catchment to the actual impermeable site area of 1406.5m^2. The resulting QBAR calculated for the site is 0.292 litres/second.

QBAR Calc for 50ha

AREA in sq km	0.5	
SAAR in mm	782	
SOIL	0.3	
QBARrural	103.732	l/s

QBAR Calc interpolated for 1406.5 m²

AREA in sq km	0.001406	
QBARrural	**0.292**	l/s

Figure 8: QBAR calculation

2.2.7 *Flow Control*

Flow from the site shall be restricted by a proprietary flow control device located downstream of the attenuation system. A site-specific design for a hydrobrake flow control device is included in Figure 9 below. As the greenfield runoff rate for the site is quite low at 0.940 litres/second, suppliers of such devices generally express concern that the reduced orifice size required for such a low flow rate will be prone to blockages and therefore do not recommend sizing for flow rates less than 2 litres/second. On this basis, a set discharge rate of 2 litres/second will be adopted for the determination of the attenuation storage.

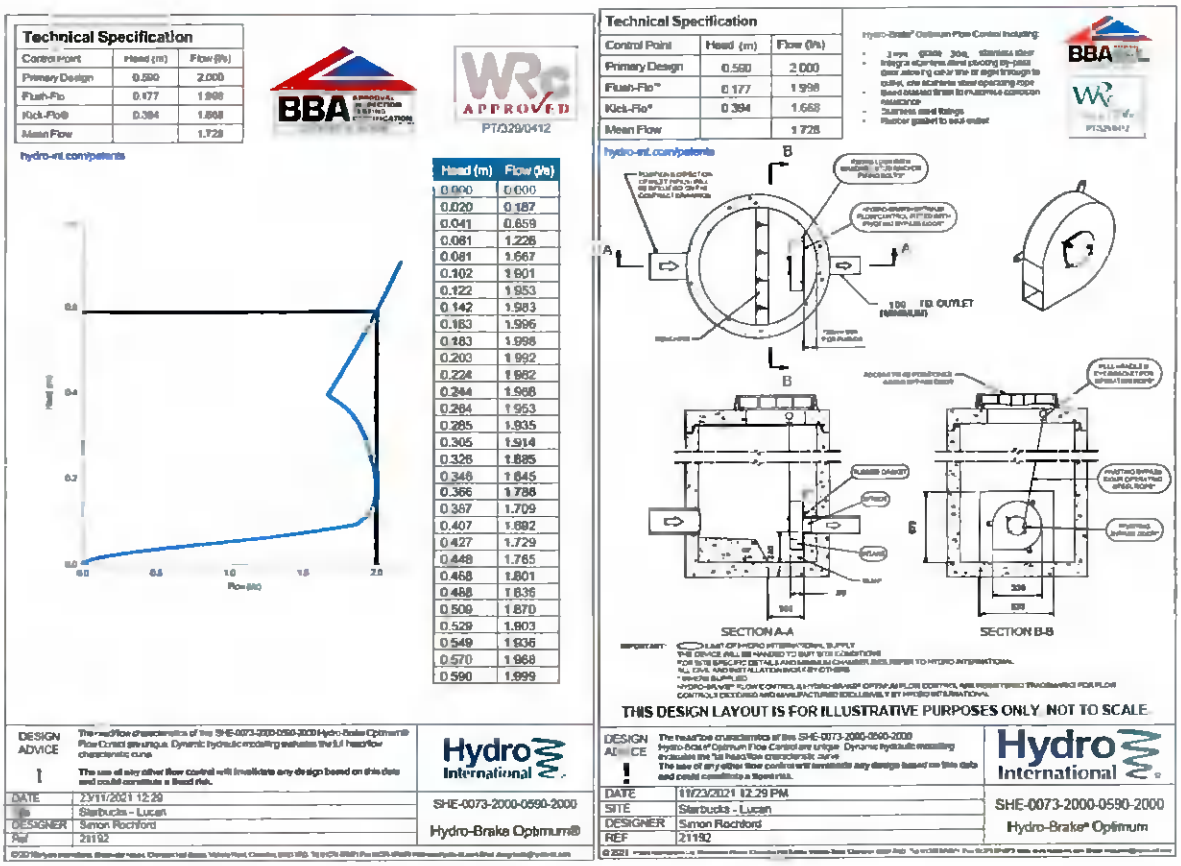

Figure 9: Hydrobrake flow control device

2.2.8 *Surface Water Outfall*

It is proposed to discharge surface water to the existing surface water sewer system which currently serves the Lucan Retail Park.

It can also be stated that there will be no additional flow and therefore strain placed on the existing system as the subject site is currently being served by this system. The redeveloped area

will also include a flow control device before joining the existing system to further protect the system.

2.2.9 SuDS Measures Considered

L&D have reviewed and considered what SuDS measures are feasible for incorporation into the proposed development. The below table presents the SuDS options considered and why certain design features are chosen over others.

SuDS Measure	Incorporated within Design?	Comments
Extensive Green Roof	N	Not suitable due to roof structure type
Intensive Green Roof	N	Not suitable due to roof structure type
Swales, Filter Drains, Infiltration trenches	N	Not suitable due to the space constraints of the site
Permeable Paving	Y	Permeable paving is proposed for the paved areas in the site area as well as a number of parking spaces
Petrol Interceptor	N	It is assumed that the existing surface water sewer system routes through a petrol interceptor prior to exiting the system
Surface Water Attenuation	Y	Attenuation storage is achieved through use of Stormtech SC-740 underground chamber system
Site Run-off Rates	Y	L&D Design follows approach 2 outlined in Section 3.3.1 *Ciria SuDS Manual 2015*, which indicates that where controlling runoff to greenfield volumes is considered unachievable then calculations should utilise a set discharge rate of 2 litres/second/hectare or $Q_{bar(rural)}$, whichever is greater, is adopted for determination of attenuation storage. As Q_{BAR} is less than 2.0 litres/second/hectare, this is adopted for use in L&D Design.
Rainwater Harvesting	N	No rainwater harvesting proposed within development
Detention Basins, Retention Ponds, Stormwater Wetlands	N	Not suitable due to space constraints
Bio-retention Systems	N	Not suitable due to space constraints
Tree pits	Y	Sunken tree pits are proposed in a number of locations around the site with local dropped kerbs to influence the flow of surface water into the tree pits.

2.2.10 SuDS Measures Not Applied

- Green Roof:

  It is proposed that the subject site will not include an intensive or extensive green roof system due to the intended structural form. The building is designed as a portal frame structure to achieve long spans without intermediate column supports, which prohibits the placing of excessive loadings at roof level without making the overall structure uneconomical. The prospective tenant preference is also to not utilise green roof infrastructure into the design as the roof falls required for green roof systems are not

compatible with the tenant preference for roofing systems and such falls also give rise to long term maintenance issues on a roof area that is not readily accessible by virtue of its drive-thru design approach. The site SuDS design instead provides alternate means of incorporating quality SuDS devices into the scheme to improve water quality and promote evapotranspiration.

- Detention Basins:

  Detention basins cannot be incorporated in the subject site due to the lack of available open space area: the majority of the site area is utilised by paved circulations areas for both cars and pedestrians. Where there are green areas available, these will incorporate less spatially impactful SuDS features such as tree pits.

- Swales:

  Swales cannot be incorporated in the subject site due to the lack of available open space area; the majority of the site area is utilised by paved circulations areas for both cars and pedestrians. Where there are green areas available, these will incorporate other SuDS features such as tree pits.

- Bio-Retention Planters:

  Bio-retention areas cannot be incorporated in the subject site due to the lack of available open space area: the majority of the site area is utilised by paved circulations areas for both cars and pedestrians. Where there are green areas available, these will incorporate other SuDS features such as tree pits.

2.2.11 *SuDS Measures Applied*

- Permeable Paving:

  It is proposed to incorporate permeable paving throughout the site for all pavement areas across the site including the accessibility spaces and the large order wait space in the east of the site. These systems allow for the capturing of surface water and storage of same within the sub-base buildup, promoting interception storage and facilitating evapotranspiration. The filtering process of surface water through the paving and sub-base also improves water quality and filters out hydrocarbons and suspended solids. Excess water that is not lost to evapotranspiration or infiltration will join the surface water drainage system and flow to the attenuation tank.

- Surface Water Attenuation:

  It is proposed to attenuate surface water on-site through the use of a Stormtech attenuation tank at below ground level. The proposed attenuation tank shall achieve a storage capacity of 41.613m^3 and shall also be positioned to achieve in excess of the minimum 500mm freeboard to the lowest FFL as required by GDSDS. The attenuation system shall incorporate a Stormtech isolator row through which all incoming surface water must pass through. The system will also be unlined to allow for a small amount of infiltration to take place in lighter periods of rainfall. This allows for the removal of silts and suspended solids, thus improving water quality, and also protects the granular voids stone surrounding the attenuation system from being clogged with silt over time. The

isolator row shall contain manholes at the start of the run to facilitate jetting and clearing of the isolator row.

- Tree Pits

  It is proposed to incorporate a number of tree pits across the site through the use of granular voids stones beneath the structural soil and root ball of the tree. The tree pits will have an overflow drainage system which will connect into the main surface water drainage system. This allows the intercepted rainfall to permeate through the strata of the tree system and to be captured for natural irrigation of the tree and facilitating evapotranspiration, but also allowing for overflow of surface water into sewers and to the attenuation tank in periods of heavy rainfall. A number of the tree pits will also include a dropped kerb feature to influence the flow of water from the roadways into the tree pits.

2.2.12 Volume Storage

The overall area of the site is 1406.5m^2 and consists of different surfaces as outlined in Figure 10 below. For long term storage, GDSDS Appendix E advises a runoff coefficient of 0.8 for impervious surfaces, however South Dublin County Council has previously stated a coefficient of 0.9 should be used for impervious areas so this is adopted for all roof areas and paved areas. For landscaped areas, a runoff coefficient of 0.3 is used and a coefficient of 0.5 is taken for permeable paving areas where applicable.

Area Ref	Quantity	Plan Area	Runoff Coefficeint	Total Area for Long Term Storage
		sqm		
Impermeable Roads & Footpaths	1	526.2	0.9	473.6
Impermeable Roofs	1	267.8	0.9	241.0
Permeable Parking Areas	1	386.1	0.5	193.1
Grass/Landscaped Areas	1	226.4	0.3	
SUM		**1406.5**		**907.7**

Figure 10: Site Area Summary

Incorporating the resulting areas and runoff coefficients, and accounting for 20% increase for climate change and urban expansion, a total required attenuation volume of 39.56m^3 is calculated for the proposed development based on a 100-year return period.

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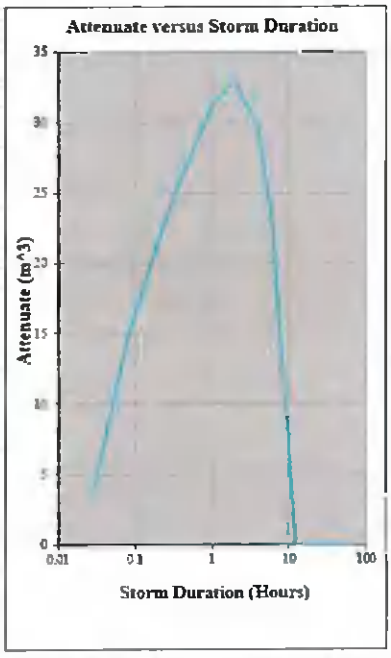
Project:	Coffee Unit Drive Thru			Job No:	21192
				Page No:	1
Date:	Nov 21	Calc'd by:	SR	Checked by:	

Impermeabl I. Factor:	794 m² 0.90	Permeable I. Factor:	386 1 m² 0.50	Grass/Land I. Factor:	226 4 m² 0.15	Equivalent Impermeable Area:	941.61 m²	Attenuated Flow Rate:	2 l/s

Storm Duration (Hours)	Rainfall (mm)	Total Surface Water (m³)	Allowable Discharge (m³)	Attenuate (m³)
0.03	4.52	4.26	0.216	4.04
0.08	16.20	15.25	0.576	14.68
0.166	22.60	21.28	1.1952	20.09
0.25	26.60	25.05	1.8	23.25
0.50	32.90	30.98	3.6	27.38
1.00	40.70	38.32	7.2	31.12
2.00	50.30	47.36	14.4	32.96
4.00	62.20	58.57	28.8	29.77
6.00	70.40	66.29	43.2	23.09
12.00	87.10	82.01	86.4	0
24.00	107.60	101.32	172.8	0
48.00	118.70	111.77	345.6	0
72.00	128.20	120.71	518.4	0



Maximum Volume of Attenuate: 32.96 m³ Climate Change = 1.2 Required Attenuation Volume = 39.56 m³

Note: This spreadsheet calculates the Volume of Attenuate based on a Return Period of 100 years

Figure 11: Stormwater attenuation volume calculation for 100 year event

2.2.13 Volume Runoff

L&D assessment indicates that post-development runoff volumes will exceed pre-development runoff volumes. As the greenfield runoff rate for the site is quite low at 0.292 litres/second, suppliers of such devices generally express concern that the reduced orifice size required for such a low flow rate will be prone to blockages and therefore do not recommend sizing for flow rates less than 2 litres/second. On this basis, a set discharge rate of 2 litres/second will be adopted for the determination of the attenuation storage.

2.2.14 Treatment Volume, Water Quality Improvement & Treatment Train

Interception storage requirements as set out in the GDSDS (interception of the first 5mm of rainfall on at least 80% of the site) are achieved through the use of permeable paving areas around the site.

For the total paved area of the site considered as an impermeable area of 1406.5m^2, a maximum interception volume is calculated as:

$$1406.5 \times 0.005 = 7.03m^3$$

The Plan area for the proposed permeable paving areas amounts to 330.2m^2. It is proposed to include a minimum 250mm thick layer of coarse aggregate below the hydropave and grit and above the perforated pipe which will carry the water into the surface water system. It is proposed

to use a coarse aggregate with a voids ratio in the order of 30% or higher. The volume of interception storage provided by the permeable paving across the site would be equivalent to:

$$386.1 \times 0.3 \times 0.25 = 28.96m^3$$

An amount of interception will also occur in the tree pits due to the presence of a drainage substrate at the bottom of each tree pit location. In all tree pits in the site there will be a 300mm drainage layer with a 30% voids ratio. The total area for tree pits across the site amasses to $14.15m^2$.

$$14.15 \times 0.3 \times 0.3 = 1.27m^2$$

This is in excess of the interception storage required by the GDSDS. The provisions of permeable paving and tree pits across the site will also improve the water quality through a treatment train of filtration through the respective substrate, following which all surface water runoff shall also pass through a Stormtech isolator row, which will further separate oils and silts from the water before it discharges to the public sewers. The attenuation tank will also be unlined to allow an amount of rainfall to infiltrate into the ground during periods of light rainfall.

2.2.15 Health & Safety and Maintenance Issues

It is recommended that maintenance of SuDS systems should be carried out at in 6-month intervals. L&D recommend that a bi-annual maintenance regime be put in place for all elements of the stormwater drainage system, inclusive of all SuDS devices.

L&D notes that the proposed stormwater drainage system comprises proprietary permeable paving areas, below-ground attenuation system and flow control device, underground manholes and underground pipes. These elements are generally considered acceptable from a Health & Safety perspective once supplier/manufacturers guides are followed and complied with during the detailed design, construction and operation.

All manholes and underground pipes shall be designed in accordance with the recommendations of the GDSDS and IS EN 752 to ensure safe means of access to all chambers.

For the design of the stormwater attenuation system, it is proposed to construct a below-ground proprietary Stormtech tunnel system with an isolator row. The access manholes into the chamber will include ground level access hatches for inspection and maintenance of the storage chamber and jetting of the isolator row to remove silts.

The flow control device chamber immediately downstream of the tank shall include a penstock gate valve and a flow control device. Regular maintenance of the flow control device is required to remove any blockages, particularly in the wake of heavy rainfall events or local floods. The flow control chamber penstock valve can be used to prevent water ingress during maintenance and the manhole benching includes a local silt trap to facilitate removal of silt from the flow control chamber.

3.0 Foul Water Drainage

3.1 Existing Foul Water Drainage Arrangements

Review of Irish Water and South Dublin County Council records shows that there is a foul sewer manhole just past the northern boundary of the site on the Lucan Road which is currently served by a 225mm diameter foul pipe. It is assumed that the existing developments in the Lucan Retail Park discharge at some point along this line of foul sewer.

Aside from this single manhole, the site is otherwise a carpark with no buried foul water drainage infrastructure in place.

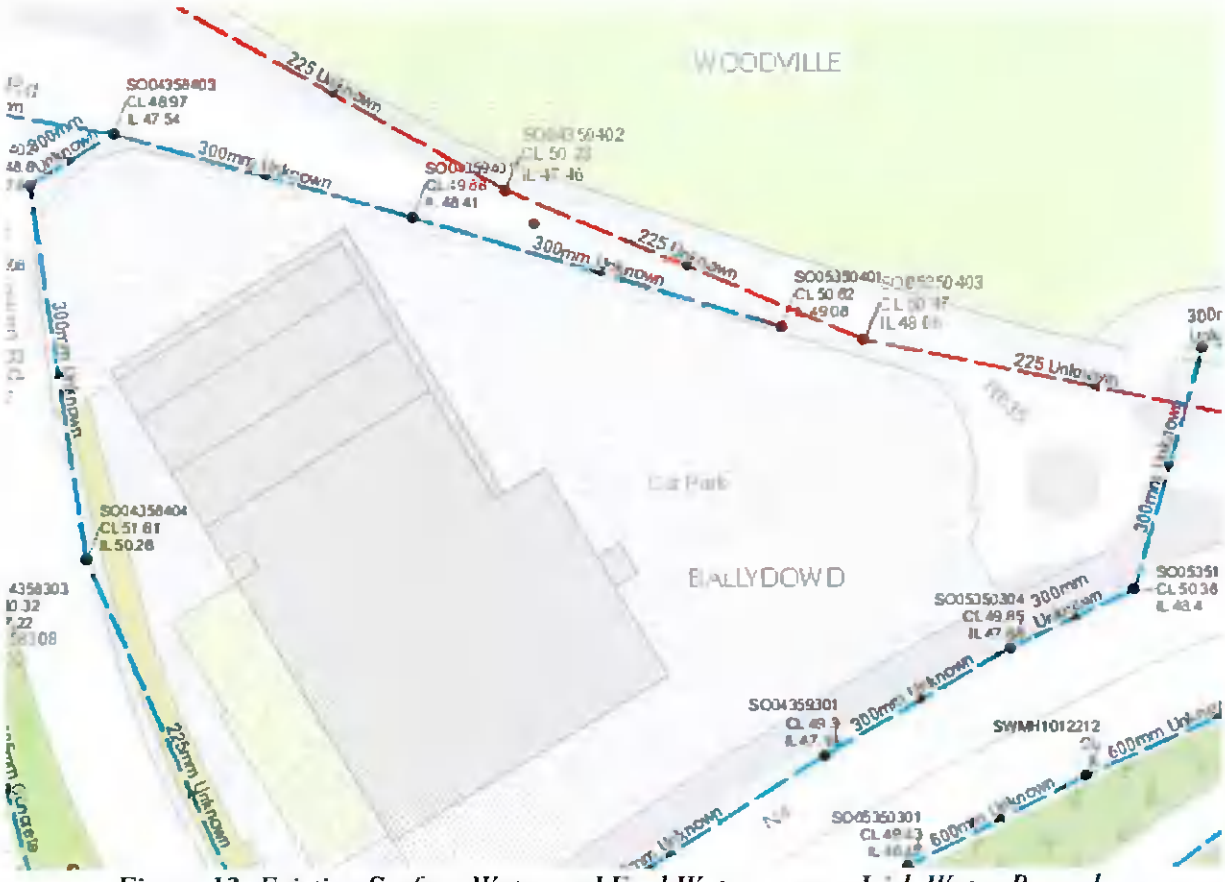


Figure 12: Existing Surface Water and Foul Water sewers. Irish Water Records

3.2 Proposed Foul Water Drainage Arrangements

3.2.1 Foul Sewer Design

All sewers are designed in accordance with IS 752: 2008 and Building Regulations TGD Part H. All drainage works shall be in accordance with the requirements of Irish Water and South Dublin County Council.

3.2.2 Daily Wastewater Discharge

A pre-connection enquiry application has been made to Irish Water detailing the proposed wastewater discharges. Reference number CDS21007003 has been allocated for the application

and a Confirmation of Feasibility Letter from Irish Water has been received indicating that the proposed connection can be facilitated, as per the appended correspondence within Appendix A.

3.2.3 Foul Sewer Outfall

It is proposed to discharge waste water to the existing foul sewer at the north of the site which currently runs along Lucan Road and serves the Lucan Retail Park.

4.0 Water Supply

4.1 Existing Water Usage and Watermain Arrangement

As the site is a carpark, there are currently no watermains within the site boundary. From review of Irish Water records, the nearest watermain services runs down Lucan Road along the near the northern boundary of the site. There is also a 100mm uPVC pipe to the west of the subject site which currently serves the rest of the Lucan Retail Park.

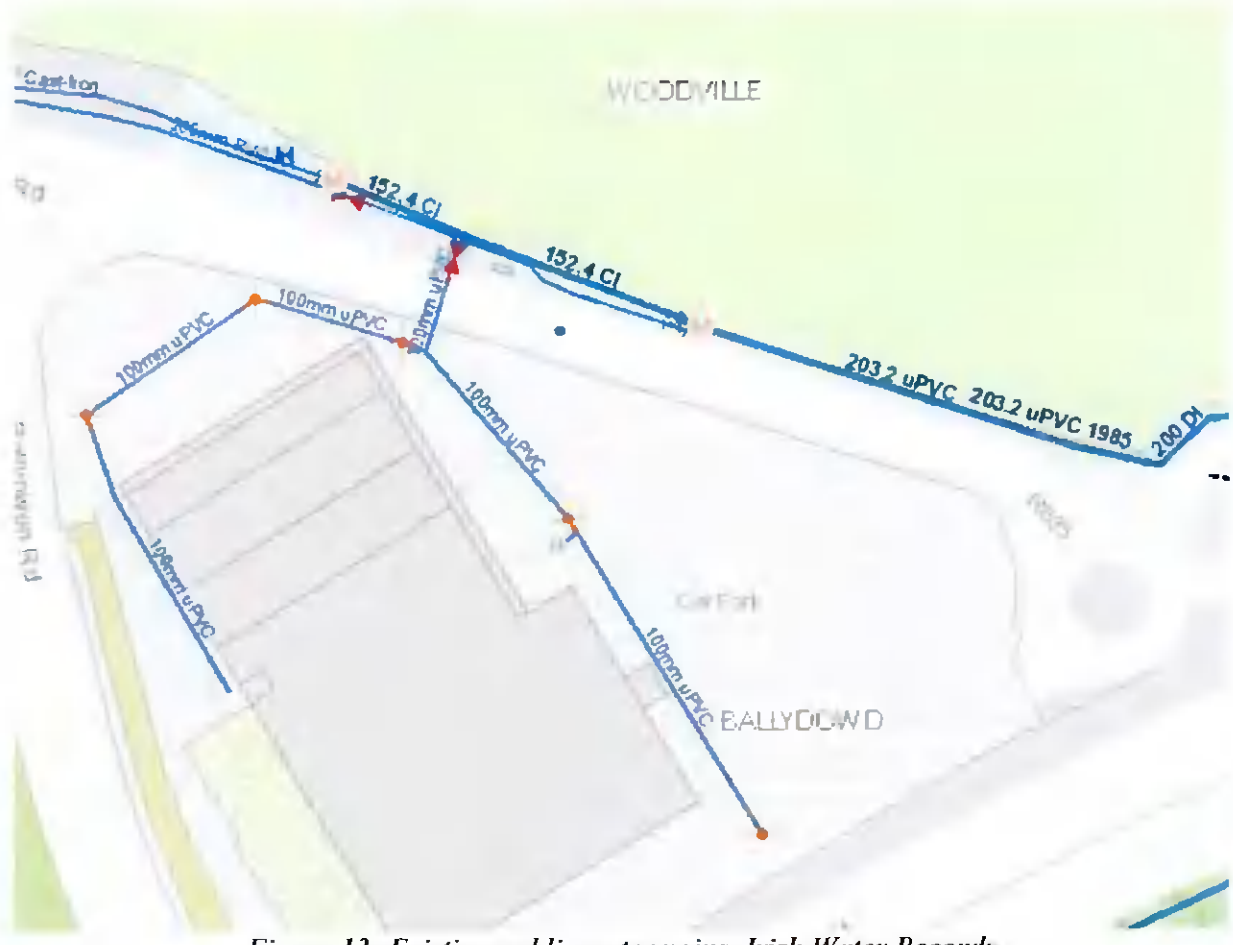


Figure 13: Existing public watermains, Irish Water Records

4.2 Proposed Water Usage and Watermain Arrangement

4.2.1 Watermain Connection

It is proposed to connect to the watermains to the west of the site to service the new development. A pre-connection enquiry application has been made to Irish Water detailing the proposed water usages. Reference number CDS21007003 has been allocated for the application and a Confirmation of Feasibility Letter from Irish Water has been received indicating that the proposed connection can be facilitated, as per the appended correspondence within Appendix A. As per Irish Waters comments the watermain connection will be brought to the west of the site and the connection will be made onto the existing 100mm uPVC pipe currently serving the retail units in Lucan Retail Park.

4.2.2 Hydrants

There are a currently 2 existing hydrants located along the watermains line which stretches along the east side of the existing structures; however, it is anticipated that these would not reach the subject site. Therefore. a new hydrant must be added along the new connection line to fully cover the new development and meet the requirements as set out in accordance with Building Regulations TGD Part B. This will also be subject to approval by the local Fire Officer.

4.2.3 Watermeters

A watermeter shall be installed at the watermains connection point in accordance with the requirements of South Dublin County Council and Irish Water.

Alex Daly

Date: 23rd November 2021

Alex Daly B.E., M.I.E.I.
Senior Engineer

For Lohan & Donnelly Civil & Structural Consulting Engineers

Appendix A

Ki Hing Chan

13 Gardiner Place
Mountjoy Square
Dublin 1
Co. Dublin
D1V0T8

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

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

www.water.ie

12 October 2021

Re: CDS21006448 pre-connection enquiry - Subject to contract | Contract denied

Connection for Multi/Mixed Use Development of 1 unit(s) at Lucan Retail Park, Ballydowd, Co. Dublin

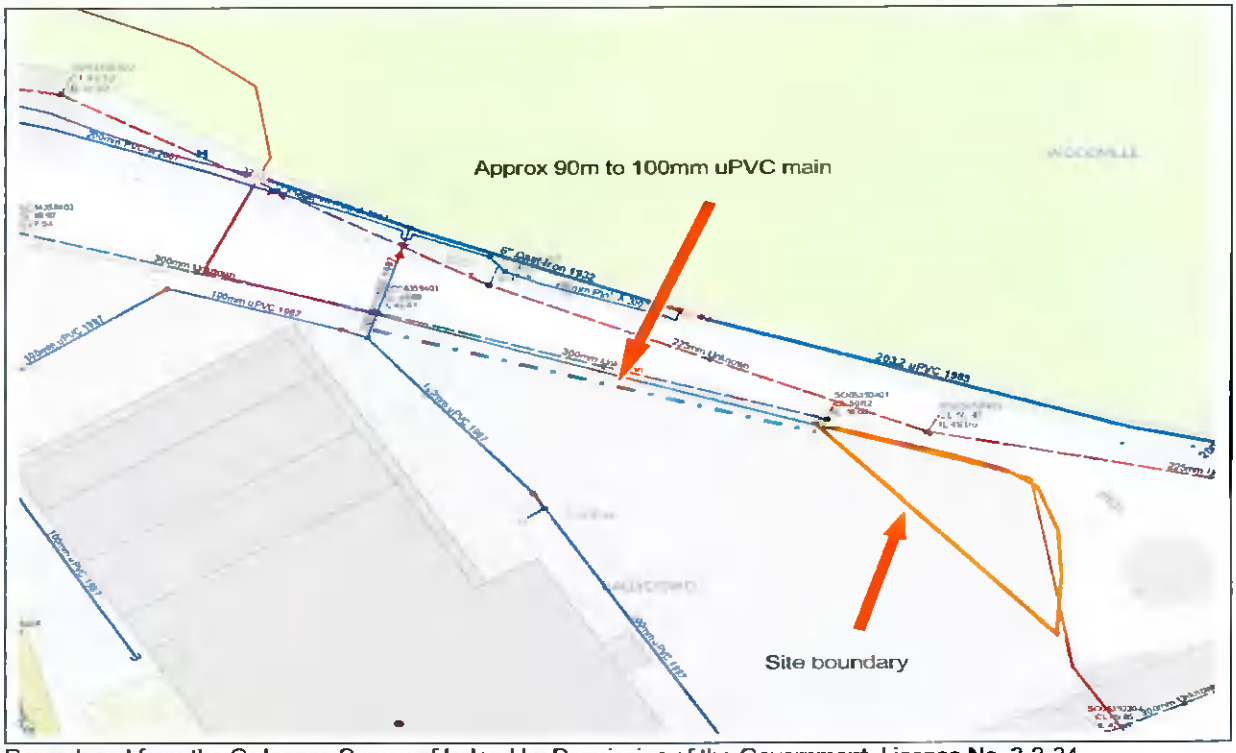
Dear Sir/Madam,

Irish Water has reviewed your pre-connection enquiry in relation to a Water & Wastewater connection at Lucan Retail Park, Ballydowd, Co. Dublin (the **Premises**). Based upon the details you have provided with your pre-connection enquiry and on our desk top analysis of the capacity currently available in the Irish Water network(s) as assessed by Irish Water, we wish to advise you that your proposed connection to the Irish Water network(s) can be facilitated at this moment in time.

SERVICE	OUTCOME OF PRE-CONNECTION ENQUIRY THIS IS NOT A CONNECTION OFFER. YOU MUST APPLY FOR A CONNECTION(S) TO THE IRISH WATER NETWORK(S) IF YOU WISH TO PROCEED.
Water Connection	Feasible without infrastructure upgrade by Irish Water
Wastewater Connection	Feasible without infrastructure upgrade by Irish Water
SITE SPECIFIC COMMENTS	
Water Connection	Connection to the water network will be carried out via the 100mm uPVC water main approximately 90m from the site boundary. It is the responsibility of the applicant to obtain all relevant permissions required to connect to the IW network through third party lands prior to the connection works taking place. A Pressure Reducing Valve may be required This confirmation of feasibility to connect to the Irish Water infrastructure does not extend to your fire flow requirements.

Wastewater Connection	Connection to the wastewater network can be facilitated. Storm water to be discharged to the adjacent storm water network.
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 that are available on the Irish Water website. Irish Water reserves the right to supplement these requirements with Codes of Practice and these will be issued with the connection agreement.	

The map included below outlines the current Irish Water infrastructure adjacent to your site:



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Whilst every care has been taken in its compilation Irish Water gives this information as to the position of its underground network as a general guide only on the strict understanding that it is based on the best available information provided by each Local Authority in Ireland to Irish Water. Irish Water can assume no responsibility for and give no guarantees, undertakings or warranties concerning the accuracy, completeness or up to date nature of the information provided and does not accept any liability whatsoever arising from any errors or omissions. This information should not be relied upon in the event of excavations or any other works being carried out in the vicinity of the Irish Water underground network. The onus is on the parties carrying out excavations or any other works to ensure the exact location of the Irish Water underground network 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.

General Notes:

1) The initial assessment referred to above is carried out taking into account water demand and wastewater discharge volumes and infrastructure details on the date of the assessment. **The availability of capacity may change at any date after this assessment.**
2) This feedback does not constitute a contract in whole or in part to provide a connection to any Irish Water infrastructure. All feasibility assessments are subject to the constraints of the Irish Water Capital Investment Plan.
3) The feedback provided is subject to a Connection Agreement/contract being signed at a later date.
4) A Connection Agreement will be required to commencing the connection works associated with the enquiry this can be applied for at https://www.water.ie/connections/get-connected/
5) A Connection Agreement cannot be issued until all statutory approvals are successfully in place.
6) Irish Water Connection Policy/ Charges can be found at https://www.water.ie/connections/information/connection-charges/
7) Please note the Confirmation of Feasibility does not extend to your fire flow requirements.
8) Irish Water is not responsible for the management or disposal of storm water or ground waters. You are advised to contact the relevant Local Authority to discuss the management or disposal of proposed storm water or ground water discharges
9) To access Irish Water Maps email datarequests@water.ie
10) All works to the Irish Water infrastructure, including works in the Public Space, shall have to be carried out by Irish Water.

If you have any further questions, please contact Kevin McManmon from the design team at kmcmanmon@water.ie For further information, visit **www.water.ie/connections.**

Yours sincerely,

Yvonne Harris

Yvonne Harris

Head of Customer Operations