APPENDIX 4-9

ENGINEERING SERVICES

REPORT

 \mathbf{O}

Meats

Engineering Services Report

PRIMARY CARE CENTRE & NURSING HOME

For Sky Castle Ltd

PROJECT NO. S665 26 August 2022





Multidisciplinary Consulting Engineers

Engineering Services Report

PRIMARY CARE CENTRE & NURSING HOME

for Sky Castle Ltd

in in it is a result of the interval of the in

Engineering Services Report

ses on

for

PRIMARY CARE CENTRE & NURSING HOME,

at Moygaddy, Co. Meath.



Multidisciplinary Consulting Engineers

Meath

NOTICE

This document has been produced by O'Connor Sutton Cronin & Associates for its client, Sky Castle Ltd. It may not be used for any purpose other than that specified by any other person without the written permission of the authors.



DOCUMENT CONTROL & HISTORY

	ocsc	t	ator	Ċ		be	ype	La	`	ility	uo
	Job No.:	Project Code	Originator	Zone Volume	Level	File Type	Role Type	Number	Status	Suitability Code	Revision
	S665	S665	ocsc	1B	хх	RP	С	0002		54	P06
	_									_	
	Rev.	Status	Auth	nors	Ch	ecked		Authoris	ed	Issu	e Date
							-				
	P06	S4	EH		м	K		AH		24.0	8.2022
	P05	S2	EH			IK		AH			7.2022
	P04	S4	ZB		Μ	IK		AH		27.0	4.2022
X	P03	S2	ZB		Μ	IK		AH			4.2022
	P02	S2	ZB		A	Н		AH		09.1	2.2021
	P01	S2	MK		A	Н		AH		08.1	.0.2021
Ne											

PAGE

Engineering Services Report

TABLE OF CONTENTS

ABL	OF CONT	<u>ENIS</u>	AGE	
1 INT	RODUCTION	4		
1.1	Appointme	nt	4	1.
1.2	Administrat	tive Jurisdiction	4	
1.3	Site Locatio	n	4	
1.4	Existing Site	e Overview	5	
1.5	Proposed D	evelopment Context	6	
1.6	Further Dev	velopment Context	8	
		ERING SERVICES REPORT DRAINAGE		
3.1	Surface Wa	ter Design Overview	10	
3.1	.1	Design Guidelines Overview	10	
3.2	Surface Wa	ter Management Strategy Overview	11	
3.3	Consultatio	n	11	
3.4	Existing Site	e Drainage	11	
3.4	.1	Existing Site Catchment Areas	11	
3.4	.2	Existing Surface Water Drainage Infrastructure	13	
3.4	.3	Existing Site Rainfall Runoff	14	
3.5	Proposed S	urface Water Drainage Design Strategy	15	
3.5	.1	Proposed Surface Water Strategy Overview	15	
3.5	.2	Climate Change Allowance	15	
3.5	.3	Proposed Surface Water Network Strategy	16	
C	3.5.3.1	Pervious Paving	16	
	3.5.3.2	Trapped Road Gullies	17	
	3.5.3.3	Underground Pipe Network		
:	3.5.3.4	Silt Traps		
:	3.5.3.5	Attenuation Storage Systems	19	





	3.	5.3.6	Flow Control Device	20
	3.	5.3.7	Oil Separator	20
	3.6	Proposed Su	urface Water Network Detailed Design	21
	3.6.1	L	Software Design Criteria	21
	3.6.2	2	Proposed Surface Water Catchment Areas	22
	3.6.3	3	Proposed Development Rainfall Runoff	22
	3.6.4	1	Proposed Surface Water Pipe Network Design	23
	3.7	Proposed Su	urface Water Attenuation Storage	23
	3.8	Surface Wat	er Outfall Locations	24
	3.9	-	t of the R157 Maynooth – Dunboyne Road	
	3.10		ity	
	3.11		e	
	3.12	Surface Wat	er Impact Assessment	26
	3.12	.1	Criterion 1 – River Water Quality Protection	26
	3.12	.2	Criterion 2 – River Regime Protection	27
	3.12	.3	Criterion 3 – Level of Service (Flooding) Site	27
	3.	.12.3.1	Sub-Criterion 3.1	27
	3.	.12.3.2	Sub-Criterion 3.2	28
	3.	.12.3.3	Sub-Criterion 3.3	28
	3.	12.3.4	Sub-Criterion 3.4	28
	3.12	.4	Criterion 4 – River Flood Protection	29
	3.13	Taking in Ch	arge	29
			/ CYCLE BRIDGE STRUCTURE	
	5 WAS		NINAGE	
X	5.2		۹	-
	5.3	Existing Wa	stewater Drainage	35
No	5.4	-	/ater Infrastructure	
	5.5	Proposed W	astewater Drainage Strategy	37





5.6	Proposed Wastewater Pumping Station	39
5.7	Taking In Charge	40
6 POT	ABLE WATER SUPPLY	41
6.1	Overview	41
6.2	Consultation	41
6.3	Connection to the Existing Network	41
6.4	Water Meters	42
6.5	Taking In Charge	42
7 ROA	DS AND TRAFFIC 43	
7.6	Design Standards	43
7.7	Proposed Road Network	
7.8	Road Classification	
7.9	Road Design Speeds	46
7.10	Horizontal and Vertical Geometry	47
7.11	Road Cross Section	47
7.11	.5 Carriageway	47
7.11	.6 Footpaths	48
7.11	.7 Cycle Facilities	48
7.12	Road Junctions	
7.13	Consultation	49
7.14	Traffic Impact	50
7.15	Site Accessibility	50
PPENI	DICES	

<u>AP</u>

APPENDICES APPENDIX A. APPENDIX B. APPENDIX C. APPENDIX D.	Q _{BAR} Calculation and Rainfall Data Surface Water Design Criteria and Simulation Results Wastewater Design Calculation and Network Details Irish Water Correspondence





1 INTRODUCTION

1.1 Appointment

O'Connor Sutton Cronin & Associates (OCSC) have been appointed by *Sky Castle Ltd* to carry out the design of the civil engineering services associated with the proposed Moygaddy Health development, which shall primarily comprise a new primary care centre and nursing home at Moygaddy, Co. Meath, located north east from the town of Maynooth, Co. Kildare.

1.2 Administrative Jurisdiction

The proposed medical development is located in the jurisdiction of Meath County Council (MCC). It is noted that in order to serve the proposed development with water and wastewater infrastructure connections, extensions to and from the existing public services that are located in lands within Kildare County Council's jurisdiction will be required. Therefore, the engineering services design was carried out with reference to the following:

- Meath County Development Plan (2021 2027);
- Maynooth Environs Local Area Plan;
- Kildare County Council Development Plan (2017 2023);
- Regional Spatial and Economic Strategy;
- Greater Dublin Strategic Drainage Study (GDSDS);
- The Planning System and Flood Risk Management Guidelines for Planning Authorities (Department of Environment, Heritage and Local Government and the Office of Public Works).

1.3 Site Location

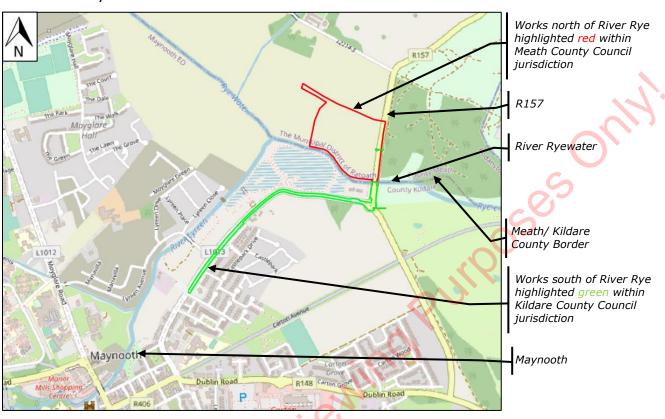
The subject site is located on the southernmost extent of County Meath, aligning with the county boundary to Co. Kildare, and is approximately 1.30km north from the Maynooth town centre, as shown in **Figure 1.1 - Site Location**, and is immediately bound by:

- R157, to the east;
- Agricultural lands to the west and north; and









• River Ryewater to the south.

Figure 1.1 - Site Location

It is noted that in order to service the site for wastewater and watermain, to and from public infrastructure, additional infrastructure works are required to be carried out on lands in County Kildare, south of the Kildare Bridge. Details of these works are subject to separate planning application to Kildare County Council.

1.4 Existing Site Overview

The overall gross site area that comprises this planning application is **c.7.9**-**hectares**, with c.4.8ha of this zoned by Meath County Council for **G1** - **Community Infrastructure**.

The site is currently greenfield and used for agricultural purposes. R157 regional road is located to the east of the subject site. Currently there is no vehicular access to the subject site off the R157. Ground levels across the site fall from northwest to southeast, with a sharp decline at the southern





boundary, which align the river Ryewater. Refer to *Section 3.4.1* for context of existing site levels.

1.5 Proposed Development Context

Planning Permission is sought by Sky Castle Limited for the development of a site which extends to 7.94 hectares, on land to the west of the R157 Dunboyne Road, County Meath, north of the town of Maynooth, in the townland of Moygaddy. This site is located in the Maynooth Environ Lands. The proposed development comprises:

1. Construction of a new two-storey Nursing Home of 156 no. bedrooms with a Gross Floor Area (GFA) of 8,576m2, including vehicular drop-off area and service road.

- 2. Construction of a new three-storey Primary Care Centre (PCC) with a Gross Floor Area (GFA) of 3,049m2, including vehicular drop-off area.
- 3. The development includes a shared surface car park providing 161 no. car parking spaces (comprising of 151 no. standard car parking spaces and 10 no. accessible car parking spaces) and approximately 160 no. bicycle parking spaces.
- 4. Provision of foul and surface water drainage including an underground wastewater pumping station.
- 5. Connection to potable water supply at Kildare Bridge.
- 6. Provision of communal (semi-private) and public open space.
- 7. Provision of hard and soft landscaping including amenity equipment, fencing and gates.
- 8. Provision of substation and public lighting.
- 9. Proposed road improvement and realignment works along the R157 which abuts the Carton Demense Wall which is a Protected Structure (RPS Ref 91556), including:
 - Construction of a new 2-way, 6m-wide access road from the R157 Dunboyne Road to include a priority T-junction on the R157 which includes a right-turn lane from the R157 into the access road,





- Upgrade works to a section of the R157 from the new site entrance south to Kildare Bridge on the R157 (representing delivery of a 15m-wide portion of the Maynooth Outer Relief Road (MOOR)), including creation of a new 2m-wide footpath, 3m-wide cycle lane and pedestrian and cycle link adjacent to Kildare Bridge,
- iii. Provision of pedestrian and cycle improvement measures.
- 10. All other site development works and services ancillary to the proposed development.
- 11. A Natura Impact Statement (NIS) and Environmental Impact Assessment Report (EIAR) will be submitted to the planning authority with the planning application.

The proposed site layout is shown in Figure 1.2 – Site Layout below.

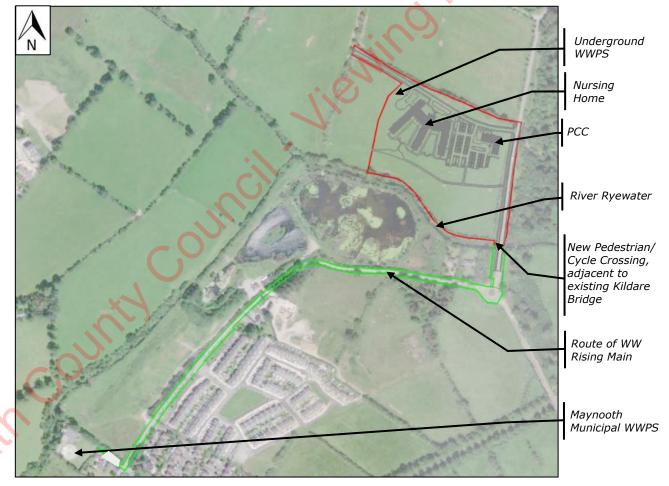


Figure 1.2 - Proposed Development Layout





1.6 Further Development Context

The developer has also committed to submitting a separate planning application to Meath County Council for the development of the Maynooth Outer Orbital Road (MOOR), which is to be routed from Moyglare Hall residential estate, on the north western extent of Maynooth, through the Applicant owned Moygaddy Environs lands and around to meet the R157 road, north from the Bridge. This is to align with the southwestern boundary of the subject application site.

Additional planning applications will be simultaneously submitted to Kildare County Council for the following two infrastructural works, which complement both the proposed development and the delivery of the MOOR:

- Moyglare Bridge i.e., new bridge structure at southwestern extent of MOOR, including associated water services for extension and connection to public infrastructure;
- 2. Kildare Bridge upgrade, and associated infrastructure connections i.e., addition of pedestrian and cycle link.

The subject site is part of a larger land-holding, held by Sky Castle Ltd, which is zoned for Residential, Strategic Employment, Tourism, and Community Infrastructure. The applicant – Sky Castle Ltd – intends to submit separate planning applications for a and a Biomedical Office Campus, and a new strategic housing development, with associated infrastructure. These projects are subject to separate, independent planning applications, which will be accompanied by site-specific Engineering Services reports, and associated design drawings.







2 SCOPE OF ENGINEERING SERVICES REPORT

The Engineering Services Report was prepared by reviewing the available data from the Local Authority sources and national bodies *i.e.*, Meath County Council, Irish Water, The OPW, and the wider Design Team. The following services are addressed within this report, with respect to the proposed development:

- Surface Water Drainage;
- Wastewater Drainage;
- Potable Water Supply;
- Roads and traffic infrastructure.

The proposed design for the above engineering services have been carried out in accordance with the following technical guidelines and information:

- Meath County Council Development Plan;
- Kildare County Development Plan;
- Greater Dublin Strategic Drainage Study (GDSDS);
- Greater Dublin Regional Code of Practice for Drainage Works (GDRCOP);
- Irish Water Code of Practice for Wastewater, IW-CDS-5030-03;
- Irish Water Code of Practice for Water Supply, IW-CDS-5020-03;
- The Building Regulations Technical Guidance Document Part H;
- BE EN 752 Drainage Outside Buildings;
- BS 7533-13 Guide for Design of Permeable Pavements;
- CIRIA C753 The SuDS Manual;
- The Office of Public Works, the Planning System and Flood Risk Management;
- Irish Water Drainage & Watermain Records;
- Design Manual for Urban Roads and Streets.





3 SURFACE WATER DRAINAGE

3.1 Surface Water Design Overview

3.1.1 Design Guidelines Overview

Any planning permission sought on the subject lands are required to adhere to the Local Authority requirements i.e., the Meath County Council Development Plan, the Maynooth Environs Local Area Plan, and as such, the Greater Dublin Strategic Drainage Study (2005).

New development must ensure that a comprehensive Sustainable Drainage System (SuDS), is incorporated into the development. SuDS requires that post development run-off rates be maintained at equivalent, or lower, levels than pre-development levels. Thus, the development must be able to retain, within its boundaries, surface water volumes from extreme rainfall events up to a 1 in 100-year rainfall event, more commonly expressed as a 1.0% AEP (Annual Exceedance Probability), while also allowing for an additional climate change factor of 20% increase in rainfall intensity. Any new development must also have the physical capacity to retain surface water volumes as directed under the Greater Dublin Strategic Drainage Strategy (GDSDS) and, if necessary, release these attenuated surface water volumes to an outfall at a controlled flow rate, not greater than the greenfield runoff equivalent.

A further component of the SuDS protocol is to increase the overall water quality of surface water runoff before it enters a natural watercourse or a public sewer, which ultimately discharges to a water body. This is to ensure the highest possible standard of surface water quality.

The surface water strategy for the proposed development is to include a number of Sustainable Drainage Systems, prior to discharging an attenuated and treated flow to the existing watercourses that align to the southern and eastern boundaries of the main development site. Development discharge rates are to be restricted to less than the calculated greenfield runoff equivalent.





3.2 Surface Water Management Strategy Overview

The proposed surface water network is to consist of a single catchment, in order to best integrate Sustainable Drainage Systems. This catchment area will look to provide treatment to the rainfall runoff, either at source or through site design. Infiltration systems are provided as part of the integrated SuDS network, however, as a results of the failed soakaway tests during site investigation, no infiltration is considered as part of the design. The main functions of the SuDS provided will be for interception and treatment of the rainfall runoff, in order to reduce the runoff volume and increase the runoff quality, prior to discharge from the new development.

The proposed surface water networks are to typically comprise a gravity pipe network, with significant Sustainable Drainage Systems implemented, where practicable.

The attenuation system is to be located within the carpark area due to the site topography, development layout and the flood zone boundary, and the design intent is to reduce the rainfall runoff from the proposed development to **less than** the greenfield runoff equivalent; thus, resulting in no adverse impact on the receiving watercourse.

3.3 Consultation

The proposed strategy has been discussed in detail with Meath County Council's (MCC) Drainage Department prior to submission, with all item discussion points addressed as part of the design submission.

3.4 Existing Site Drainage

3.4.1 Existing Site Catchment Areas

The c7.5-hectares that forms this planning application for a new Primary Care Centre and Nursing Home, has a development boundary of approximately 6.6hectares that does not include works to existing public infrastructure area. The site itself currently has existing hedges and ditches, along its northern and western boundary that acts as a surface water catchment boundary. The entire





site is then graded towards the river Ryewater, which aligns with its southern boundary. Refer to *Figure 3.1* for overview of site contours, indicated at 0.25m interval.

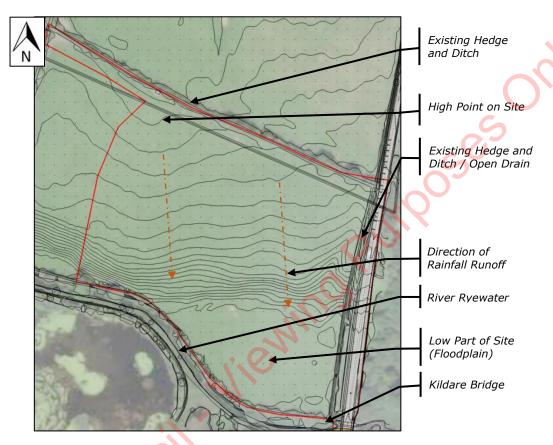


Figure 3.1 – Site Levels and Contour Overview

The subject site itself is currently an unused agriculture field, as shown in the aerial image in Figure 3.2.



leat

Project: S665 Issued: 26-Aug-22

theounty



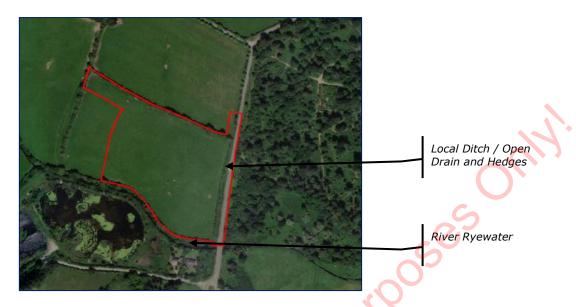


Figure 3.2 - Aerial Image of Subject Development Site

3.4.2 Existing Surface Water Drainage Infrastructure

There is currently no existing public surface water drainage infrastructure in the immediate vicinity of the site that can serve the proposed development.

The river Ryewater runs along the southern site boundary. The site currently drains naturally to this watercourse, either overland, or via the agricultural drainage ditches that bound the site; refer to **Figure 3.3** for overview of existing natural watercourse in the vicinity of the proposed development.



Figure 3.3 - Local Watercourses





3.4.3 Existing Site Rainfall Runoff

All surface water runoff, on the existing site, currently infiltrates to the ground or discharges excess runoff to the river Ryewater, located along the southern site boundary. Refer to *Section 3.4.1* for further details of existing site catchment area context.

A Site investigation was carried out on site in July 2021, with 3nr. soakaway tests performed to BRE Digest 365 requirements, at locations in the vicinity of open space in the new development. All 3nr. tests failed, with little to no infiltration observed. The existing subsoil was determined to be of stiff clayey substance, consistently across the site. It is noted that groundwater was not observed at the location of SuDS structures, including attenuation systems.

A copy of the site investigation has been submitted as part of this planning application.

Therefore, as a result of the above, **Soil Type 4** has been assigned for rainfall runoff calculations, as discussed and agreed with Meath County Council.

The Standard Average Annual Rainfall (SAAR) value for the development site, as sourced from Met Éireann, is **799mm**.

Using the ICPSuDS Input, (Flood Studies Report, FSR) Method, the rainfall runoff discharging from the total greenfield site area that is to be developed has been estimated at QBAR_{RURAL} **5.6 l/s/ha**, in its existing condition.

Refer to **Figure 3.4** for an excerpt of the results from the MicroDrainage Runoff Calculator, which provides the calculated QBAR (*per hectare*) runoff rate, along with the discharge rate (*per hectare*) for varying Annual Recurrence Intervals (ARI).





🚆 Rural Runoff Ca	alculator								\times]
a 🛍 🕅										
	ICP SUDS									
Micro Drainage	ICP SUDS Input (FSR		Resu	ults						
cicinage	Return Period (Years)	2	Partly l	Jrbanised Ca	tchment (QBA	IR)	QB/	AR rural (/s)	
	Area (ha)	1.000	Urban		0.000			5.6		
-	SAAR (mm) Map	799	Region	Ireland East	~		QBA	R urban	(l/s)	
	Soil	0.470			_			5.6		
	Growth Curve		(None)		Calcul	ate				
IH 124										
										C
ICP SUDS	Return Period Flood									0,-
ADAS 345		QBAR	Q (2yrs)	Q (1 yrs)	Q (30 yrs)	Q (100)	rs)		2	
FEH	Region	(l/s)	(l/s)	(l/s)	(l/s)	(l/s)		(
ReFH2	Ireland East	5.6	5.4	4.8	9.2		0.7	5		
Greenfield Volume	Ireland South	5.6	5.4	4.8	9.0		0.4	X		
Greenfield Volume (ReFH2)	Ireland Greater Dublin	5.6	5.2	4.8	12.0		4.7		*	
					ОК	Car	ncel	Н	elp	
		Enter Return Pe	riod between 1	1 and 1000					.:	8



3.5 **Proposed Surface Water Drainage Design Strategy**

3.5.1 Proposed Surface Water Strategy Overview

It is proposed to separate the surface water and wastewater drainage networks, which will serve the proposed development, and provide independent connections to the adjacent watercourse (for surface water only) and local wastewater sewer network respectively. Refer to *Section 5* for details of the proposed wastewater drainage design.

3.5.2 Climate Change Allowance

As indicated in **Figure 3.11**, the proposed network is to be designed to allow for an additional 20% increase in rainfall intensity, to allow for Climate Change projections, in accordance with the Meath County Council Development Plan and the GDSDS.

All discussion within this report, with regards to surface water network design calculation and results, include for the allowance of an increase of <u>20%</u> in rainfall intensity, as required.





3.5.3 Proposed Surface Water Network Strategy

The proposed surface water network is to consist of a single catchment, in order to best integrate Sustainable Drainage Systems. This catchment area will look to provide treatment to the rainfall runoff, either at source or through site design. Infiltration systems are provided as part of the integrated SuDS network, however, as a results of the failed soakaway tests during site investigation, no infiltration is considered as part of the design. The main functions of the SuDS provided will be for interception and treatment of the rainfall runoff, in order to reduce the runoff volume and increase the runoff quality, prior to discharge from the new development.

The proposed surface water networks are to typically comprise a gravity pipe network, with significant Sustainable Drainage Systems implemented, where practicable.

The attenuation system is to be located within the carpark area due to the site topography, development layout and the flood zone boundary, and the design intent is to reduce the rainfall runoff from the proposed development to **less than** the greenfield runoff equivalent; thus, resulting in no adverse impact on the receiving watercourse.

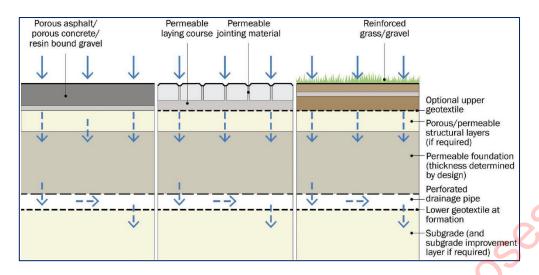
The typical traditional and Sustainable Drainage Systems (SuDS) to be provided, all of which will be designed in accordance with CIRIA C753, the SuDS Manual, and the design guidance material listed in *Section 2* of this report, are listed and detailed in order of general sequence within the drainage network, as follows:

3.5.3.1 Pervious Paving

Pervious pavements provide a pavement finish suitable for both pedestrian and vehicular traffic, while also allowing rainwater to infiltrate the surface layer and into the underlying pervious structural layers. Here, the rainwater is temporarily stored beneath the overlying finished surface before either infiltration to the ground or / and controlled discharge to the main surface water drainage network.









Pervious paving systems are an efficient means of treating the rainwater at source by providing initial interception of the rainwater, reducing the volume and frequency of the runoff and improving the surface water quality by providing at source treatment of the rainfall runoff leaving the site. This is achieved by helping remove and retain pollutants prior to discharge to the drainage system and / or groundwater system.

A **Type B** pervious paving, with a minimum 300mm depth of open graded crushed rock as sub-base course, is to be provided in the car park area. An overflow pipe, from the base-course, will be provided to the drainage network, which will allow for interception of initial rainfall, groundwater discharge, with an attenuated outflow to the main network in extreme rainfall events.

The finished surface of the pervious paving systems is to comprise a *porous asphalt*, or similar approved.

3.5.3.2 Trapped Road Gullies

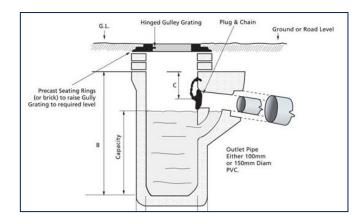
All road gullies serving the proposed development are to be trapped, to help prevent sediment and gross pollutants from entering the surface water network, and thus improving the water quality discharging from site.

The grated covers are to have a minimum load classification of D400, for frequent vehicular traffic, and shall be lockable, as required by MCC, with 150mm outlet pipes.





Ses O'





3.5.3.3 Underground Pipe Network

A traditional gravity pipe and manhole network will be provided, to convey the collected rainfall runoff as far as the development's outfall. Manholes are provided for maintenance access at branched connections, change in pipe size and gradient, and at intervals no greater than 90m distance.

3.5.3.4 Silt Traps

All manholes upstream of attenuation systems are to contain a 600mm sump, below invert level of outlet pipe, in order to trap sediment and other gross pollutants, and prevent from entering the downstream watercourse; thus, improving the water quality discharging from site.

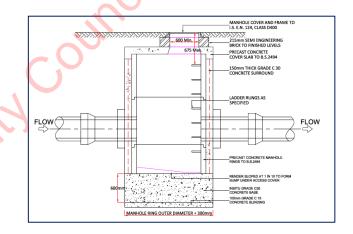


Figure 3.7 - Typical Detail of Silt Trap Manhole



C



3.5.3.5 Attenuation Storage Systems

Unlined proprietary poly-tunnel storage units (or similar approved) are to be provided, underground in the car park area, for the attenuation of rainfall runoff prior to discharge to the existing ditch at the eastern site boundary.

These systems are to provide sufficient temporary storage volume for rainfall events up to, and including, the design 1% AEP rainfall event (including climate change). Typical poly-tunnel storage systems comprise plastic arch-units with open-graded crushed rock bedding and surround. These units are arranged in rows, with an isolator row for efficient operation and maintenance.

These systems also allow for interception of initial rainfall to be provided at the base of the system, by elevating the outlet relative to the systems base.

A minimum total polytunnel storage volume of **877 m³ is** required as part of the proposed development.

The attenuation systems are to be installed in the parking area and the design was calculated to support the natural greenfield runoff rate, with the development discharge rate being restricted to a maximum flow rate less than the calculated greenfield runoff rate.

Interception storage for the first 10mm rainfall is to be provided. Volume required is 170 m³.



Figure 3.8 – Typical Poly-Tunnel Installation Arrangement





3.5.3.6 Flow Control Device

Flow Control device is to be provided immediately downstream of the attenuation system, in order to restrict the surface water discharge from site to a flow rate equivalent, or below, the natural greenfield runoff rate.

It is proposed to provide the Hydro-brake optimum vortex flow control unit (or similar approved by MCC), downstream of the attenuation systems.

Further, it is noted that the required aperture of the proposed Hydro-Brake outlets have been designed to be greater than 150mm diameter, to mitigate the risk of blockage.

Each flow control chamber is to be fitted with a penstock valve at the inlet and a bypass lever at the outlet (if required), to allow for easy access and maintenance.



Figure 3.9 - Vortex Hydro-Brake Flow Control Unit (Hydro International)3.5.3.7Oil Separator

Oil separators are designed to separate gross amounts of oil and large $(>250\mu m)$ suspended solids from the surface water, mainly through sedimentation process.

The proposed surface water network already provides sufficient mitigation measures, through the provisions listed previously (principally the pervious paving, filter drains, trapped road gullies and silt traps, and the attenuation interception layer). However, a Class 1 bypass fuel separator is to be provided as an additional and final mitigation measure, prior to surface water discharge to both the network and watercourse.







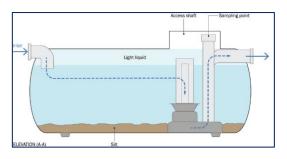


Figure 3.10 - Typical Section Detail of Fuel Separator (CIRIA C753)

3.6 Proposed Surface Water Network Detailed Design

3.6.1 Software Design Criteria

The proposed surface water network is to be designed in accordance with the regulations and guidelines outlined in *Section 2*, using MicroDrainage Network Design package, by Innovyze Inc., which simulates the performance of the integrated drainage network for varying rainfall return periods and storm durations.

The MicroDrainage Network Design software applies the Flood Studies Report (FSR) methodology for analysis of the rainfall profiles. However, the input design parameters that were used, as part of this design, were based on the available Flood Studies Update (FSU) data, *i.e.*, the return period rainfall depths for sliding durations, which determine the M_{5-60} and R values, and the standard annual average rainfall (SAAR); as sourced from Met Éireann.

UK Rainfall FSR Reinfall Return Period (vears) 5 Region Scotland and Ireland Map M5-60 (mm) 15.800 Ratio R 0.284	Design Pipes STANDARD Manholes STANDARD Level Level Inve Additional Row / Climate Change (%) Min. Backdrop Height (m)	I IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII
Inflow 5.00 Global Time of Entry (mins) 50 Max. Rainfall (mm/hr) 50 Max. Time of Conc. (mins) 30 Foul Sewage per hectare (l/s) 0.000 PIMP (%) 100 Volumetric Run-off Coeff. 0.750	Max. Backdrop Height (m) Min. Design Depth for optimisation (m) Min. Velocity for Auto Design only (m/s) Min. Slope for Optimisation (1:X)	10.000 1.200 1.00 1.70

Figure 3.11 - Surface Water Network Design Criteria (MicroDrainage Excerpt)





3.6.2 Proposed Surface Water Catchment Areas

The proposed surface water network is to consist of a single catchment, in order to best integrate Sustainable Drainage Systems. The catchment area will look to provide treatment to the rainfall runoff, either at source or through site design, with all treated rainfall runoff being directed towards the river Ryewater, as is its natural course.

3.6.3 Proposed Development Rainfall Runoff

It is proposed to reduce and restrict the rainfall runoff, discharging from the proposed development, to less than the current greenfield equivalent, QBAR_{RURAL}, runoff rate, as per the FSR ICP SuDS method, which is based on the IH124 method for catchments smaller than 25km² in area.

This is to be achieved with the provision of a flow restrictor (Hydro-Brake Optimum by Hydro-International, or similar approved) prior to discharging to the existing watercourse at the south eastern corner of the site, with the appropriate measures of attenuation provided. Sub-catchment flow-control devices and associated attenuation are also to be strategically provided, in order to maximise SuDS benefits and avail of the central open space for preliminary attenuation.

Refer to **Figure 3.4**, in *Section 3.4.3*, for an excerpt from the results MicroDrainage Runoff Calculator for the development catchment area, which indicates the greenfield equivalent, $QBAR_{RURAL} = 5.61 \text{ l/s/ha}$, along with the calculated runoff for varying Average Recurrence Intervals (ARI).

The design intent is to reduce the rainfall runoff from the proposed development to **less than** the greenfield runoff equivalent to **5.5 l/s/ha**; thus, resulting in no adverse impact on the receiving watercourse, as discussed and agreed with MCC Drainage Department.

For the purpose of the surface water network design simulation, we have considered roads and footpaths to be 100% impermeable; giving a <u>winter</u> global runoff coefficient, C_v , of 0.84, in accordance with the HR Wallingford and Modified Rational Method for runoff. The proposed parking spaces are to





comprise pervious paving above a drainage layer base course. A reduced percentage impermeable factor of 70% has been applied for these locations, which conservatively accounts for initial interception from the pervious paving build-up.

3.6.4 Proposed Surface Water Pipe Network Design

The overall surface water drainage system, serving both catchments in the proposed development, is to consist of a gravity sewer network that will convey runoff from the roofs and paved areas to the outfall manhole.

The proposed piped-network has been designed in accordance with BS EN 752 and all new infrastructure is to be compliant with the requirements of the GDSDS and the GDRCOP for Drainage Works, with minimum full-bore velocities of 1.0 m/s achieved throughout.

All main surface water carrier pipes have been sized to ensure no surcharging of the proposed drainage network for rainfall events up to, and including, the 1 in 5-year ARI event, with a projected climate change allowance of 20% increase in rainfall intensity, under normal flow conditions.

3.7 **Proposed Surface Water Attenuation Storage**

Attenuation system are to be provided within the car park area in order to temporarily store excessive rainfall runoff, during significant rainfall events, due to the restricted discharge rates (to less than greenfield equivalent runoff rates) from the development outfalls.

This will be provided initially by provision of pervious paving for car parking areas.

The main development attenuation system will be provided, comprising underground poly-tunnel system, or alternative approved to MCC's satisfaction. These will be designed for provision within the development's car park area, with adequate drainage to maintain functionality.

The polytunnel system shall contain an isolator row, and a high-level 225mm ø overflow distributor pipe.

23





A minimum total polytunnel storage volume of **877 m³** is required as part of the proposed development.

A layer of interception will also be provided under attenuation systems, in order to promote groundwater recharge during the initial 5 – 10mm rainfall periods, pending results of Site Investigation to confirm groundwater levels.

Interception storage for the first 10mm rainfall is to be provided. Volume required is 170 m³.

3.8 Surface Water Outfall Locations

The development is to discharge the treated and attenuated rainfall runoff to the existing watercourse along its southern boundary, namely the river Ryewater, with discharge to the existing land drains along the eastern boundary, which will be upgraded as part of the road design that includes new filter drains.

The discharge rates are to be restricted to a flow rate of 5.5 l/s/ha, which is less than the greenfield runoff rate equivalent (5.61 l/s/ha), as discussed and agreed with MCC Drainage Department.

The above is to ensure that there is no increase in flow rates and volumes, from the development site, being discharged to the receiving infrastructure and waterbodies; thus, causing no adverse impact on adjoining and other downstream properties.

The outfall to the river Ryewater shall have a non-return valve fitted to the headwall.

3.9 Realignment of the R157 Maynooth – Dunboyne Road

The existing R157 road currently appears to drain to an open ditch, located alongside the northbound carriageway. As part of the realignment and improvement works associated with the construction of the Maynooth Outer Orbital Road, it is proposed to replace the existing ditch with a filter drain, which will receive the runoff from the adjacent road gullies. This will allow for sustainable drainage provisions for this road upgrade, to reflect the current



condition. The new filter drain will be located along the subject development's eastern site boundary, and will also help convey the treated and attenuated development runoff as far as the river Ryewater, with no adverse impact on the river.

3.10 Water Quality

The quality of the surface water discharging from site is to be improved through the following provisions, which are being considered as part of an integrated drainage network, and each of which is discussed in greater detail in *Section 3.5.3*:

- Pervious Paving in the car park area;
- Intensive landscaping, where practical;
- Filter Trenches, where allowable;
- Trapped road gullies on all road carriageways, to trap silt and gross pollutants;
- Silt traps to be provided on manholes immediately upstream of attenuation systems, as a further preventative measure to trap silt and other gross pollutants;
- Interception provisions at attenuation systems;
- Class 1 bypass fuel separator to be provided prior to discharging from site.
- Upgrade of existing ditch along eastern boundary, to include new filter drains.

3.11 Maintenance

The proposed surface water drainage network is to be carefully designed to minimise risk of blockage throughout the network, mainly through the following provisions that limit and restrict the size of pollutants entering the network:

- Pervious paving;
- Trapped road gullies;
- Silt trap manholes;
- Interception at attenuation systems;





• Filter drains.

Road gullies, silt traps, flow control devices and attenuation systems, should be inspected regularly and maintained, as appropriate and in accordance with manufacturer's recommendations and guidelines.

Items such as the flow controls and fuel separators shall be located so as to provide easy vehicular access for inspection and maintenance.

3.12 Surface Water Impact Assessment

The design criteria for the drainage system are established in *GDSDS-RDP Volume 2*, *Section 6.3.4* and explained further in *GDSDS-RDP Volume 2*, *Appendix E*. There are four design criteria, each of which has been considered for the subject site:

- River Water Quality Protection;
- River Regime Protection;
- Level of Service (flooding) for the site and;
- River Flood Protection.

3.12.1 Criterion 1 – River Water Quality Protection

It is proposed that the overall drainage system, serving this development, will contain a range of surface water treatment methods, as outlined previously in *Section3.5.3,* which will improve the quality of surface water being discharged from the proposed development.

Gross pollutants, sediments, hydrocarbons, and other impurities, will be removed at source with the following provisions:

- a) Intensive landscaping, where practicable;
- b) Pervious paving for car parking zones;
- c) Interception storage at attenuation systems;
- d) All road gullies and linear channel drains are to be trapped;
- e) Silt-trap prior to attenuation storage area.





3.12.2 Criterion 2 – River Regime Protection

Surface water discharge from the overall development will be restricted to a maximum flow rate of **5.5 l/s/ha**, which is less than the greenfield runoff equivalent. Refer to *Section 3.6.3* for further details of the proposed development rainfall runoff calculations, as discussed and agreed with MCC Drainage Department.

This will be achieved with the provision of a flow control devices (Hydro-Brake Optimum, by Hydro-International, or similar approved) upstream of the outfall manhole.

3.12.3 Criterion 3 – Level of Service (Flooding) Site

There are four sub-criteria for the required level of service, for a new development; as set out in the *GDSDS Volume 2, Section 6.3.4 (Table 6.3).*

- No flooding on site except where planned (30-year high intensity rainfall event);
- No internal property flooding (100-year high intensity rainfall event);
- No internal property flooding (100-year river event and critical duration for site) and;
- No flood routing off site except where specifically planned. (100-year high intensity rainfall event).

3.12.3.1 Sub-Criterion 3.1

The surface water drainage systems, serving the proposed development, are yet to be designed to accommodate the 100-year return period rainfall event (including an allowance of 20% increase in rainfall intensity for climate change) without flooding. Therefore, the system has capacity for the 30-year return period rainfall event without flooding.

The performance of the proposed drainage system is yet to be analysed for design rainfall events up to, and including, the 1% AEP event (including 20% climate change allowance) using the *MicroDrainage Network Design Software*, by Innovyze Inc. Refer to **Appendix C** of this ESR for details of design criteria, calculations and results. The analyses indicate that no





flooding will occur for design rainfall events up to, and including, the 1% AEP.

3.12.3.2 Sub-Criterion 3.2

The surface water drainage systems, serving the proposed development, are yet to be designed to accommodate the 100-year return period rainfall event (including an allowance of 20% increase in rainfall intensity for climate change) without flooding.

The performance of the proposed drainage system in 100-year return period storm events (including 20% climate change allowance) is yet to be analysed – Refer **Appendix C** of this ESR for calculations. The analyses show that no flooding will occur in 100-year return period storm events.

3.12.3.3 Sub-Criterion 3.3

Details of the flood risk assessment associated with the proposed development is outlined in the Site-Specific Flood Risk Assessment (Document Nr. **S665-OCSC-1B-XX-RP-C-0010**), which is to be submitted under separate cover, as part of this application.

Furthermore, a detailed Flood Risk Assessment of the river Ryewater has been prepared by JBA Consulting, and submitted under separate cover, which assesses potential impact from development across the Applicant's wider land-holding, which makes up the masterplan area of Maynooth Environs.

These documents confirm that there is no adverse flood risk impact on the subject development, and no adverse flood risk as a result of the subject development.

3.12.3.4 Sub-Criterion 3.4

The surface water drainage systems, serving the proposed development, are designed to accommodate the 100-year return period rainfall event (including an allowance of 20% increase in rainfall intensity for climate change) without flooding, so no flood routing off site will be experienced for such a rainfall event.





The performance of the proposed drainage system in 100-year return period storm events (including 20% climate change allowance) is analysed – Refer **Appendix C** of this ESR for calculations. The analyses show that no flooding will occur in 100-year return period storm events.

Details of the flood risk assessment associated with the proposed development is outlined in the Site-Specific Flood Risk Assessment (Document Nr. **S665-OCSC-1B-XX-RP-C-0010**), which is submitted under separate cover, as part of this application.

3.12.4 Criterion 4 – River Flood Protection

As outlined in *Section 3.12.2* (Criterion 2), the surface water runoff from the development's catchment will be limited to a maximum of **5.5 I/s/ha**, which is less than the calculated greenfield equivalent.

Refer to Section 3.6.3. of this report for further details on the limiting discharge rates. The GDSDS Volume 2, Appendix E states that this practice ensures "that sufficient stormwater runoff retention is achieved to protect the river during extreme events".

Attenuation storage is to be provided for the 100-year return period rainfall event (including an increased 20% rainfall intensity; to allow for climate change). Discharge from site is to be achieved through the use of a vortex flow control device (e.g., Hydro-Brake Optimum, by Hydro-International, or similar approved), which will reduce the risk of blockage present with other flow devices.

Refer to **Appendix C** of this ESR for details of hydraulic modelling calculations of attenuation and flow control facilities, as carried out using MicroDrainage software by Innovyze Inc.

3.13 Taking in Charge

It is proposed that all of the new surface water infrastructure within the access road, **is** to be offered to be taken in charge by Meath County Council. Surface water infrastructure serving the Nursing Home, PCC, internal road, footpaths and parking spaces, **is not** to be offered to be taken in charge by Meath County





Council (refer to Figure 3.12), as these areas will be transferred to a management company that will take responsibility for management, inspection and maintenance.



Figure 3.12 - Surface Water Network Design Layout





4 NEW PEDESTRIAN / CYCLE BRIDGE STRUCTURE

There will be a new pedestrian / cycle bridge structure provided at the Kildare Bridge, in order to improve connectivity between the proposed development and Maynooth.

The new pedestrian/cycle bridge, which is to be located adjacent, and west of, to the existing Kildare Bridge will be formed of precast concrete beams sitting on an integral abutment bank seat. The clear span of the bridge is 17m between abutments, uninterrupted across the existing Kildare Bridge's arches. A 1m bearing length is provided at each end, resulting in a 19m long precast MY7 beam. A concrete infill is to be placed in between and over the top of the beams to complete the full depth of the deck, measuring 725mm.

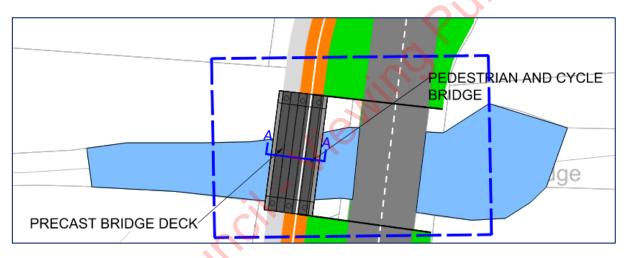


Figure 4.1 - Schematic Plan of new Pedestrian and Cycle Bridge Structure

The soffit of the precast beams matches the crown of the intrados of the adjacent masonry arch road bridge. The abutments are built-up on the existing embankments and sit outside the existing walled banks of the watercourse so as not to affect the current flood catchment area. There is no skew on the bridge deck.

A pedestrian parapet forms the edge of the bridge deck.





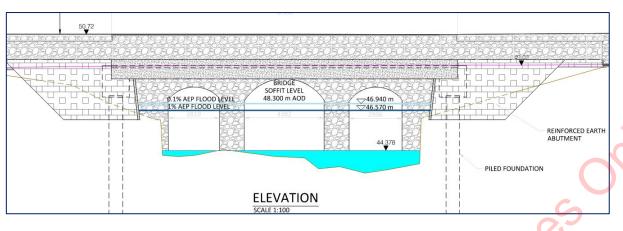
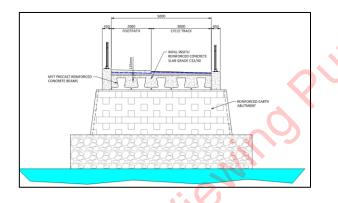


Figure 4.2 - Proposed Pedestrian / Cycle Bridge (Elevation)





The abutment bank seats are supported off a single row of 750mm diameter CFA piles. The connection between the precast bridge beams and the abutment is integral. To minimise maintenance, no bearings or expansion joints are required. The abutment will be finished with earthwork retaining panels on all sides.

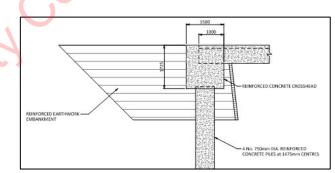


Figure 4.4 - Proposed Pedestrian / Cycle Bridge (Integral Abutments)





The surfacing material consists of a mortar build-up to drainage falls, a waterproofing course and an anti-slip wearing course, Eliminator and Safetrack SC or similar approved.

There are no proposed services in the bridge deck. However, further to our discussions with Irish Water, we understand that they are to tunnel underneath the river Ryewater's bed, in order to install a new high pressure wastewater transmission line under the river Ryewater, to the west of the existing bridge. This is located approximately 20m away from the existing bridge structure, and the new pedestrian / cycle structure has been sited in a location that is sufficiently far away from Irish Water's proposed work zone, so as not to cause any impact. An additional wastewater rising main is to be provided, serving new development in the Moygaddy area, and routed alongside the new bridge infrastructure, in order to facilitate routed connection to the existing Maynooth Municipal Wastewater Pumping Station. Refer to Section 6 for further information.

Durability to the bridge structure is provided by the concrete cover and the concrete mix design in accordance with IS EN 1992 and DN-STR-03012-03. All steel elements including fixings are to be fully galvanised.

Refer to engineering design drawings S665-OCSC-XX-XX-DR-S-1707 & 1708 for design information. Refer to OCSC Bridge Options Report, S665-OCSC-XX-XX-RP-C-0010, submitted separately to this ESR, for detailed discussion on the proposed bridges.

Furthermore, due to the single span nature of construction, there will be no increased risk of blockage to the Kildare Bridge once the cycleway / pedestrian bridge has been installed.

As a precautionary design measure, the potential impact of the proposed pedestrian / cycle bridge structure was further assessed by JBA Consulting, as part of a wider flood study of the Moygaddy Environs, with the conclusions from JBA indicating that the proposed bridge structure has '*no impact on flood following its construction*'.

Refer to JBA Consulting's Masterplan Flood Risk Assessment for further details.





5 WASTEWATER DRAINAGE

5.1 Overview

All proposed wastewater sewer design is to be carried out in accordance with Irish Water's Code of Practice for Wastewater Infrastructure. The existing site is currently greenfield, with no existing wastewater infrastructure in the immediate vicinity, however appropriate connection points have been identified at Maynooth municipal wastewater pumping station, in county Kildare, south of the river Ryewater/Kildare Bridge.

5.2 Consultation

A Pre-Connection Enquiry Form has been submitted to Irish Water for review, for both the proposed development, as well as for the Applicant's wider land holding, which forms part of the masterplan development for the Maynooth Environs lands. Irish Water (IW) issued a Confirmation of Feasibility Letter (Refer Appendix D) for the proposed development, subject to upgrade works being carried out.

OCSC and the applicant have had continued correspondence and meetings with Irish Water with respect to required upgrade works, and have committed to working with Irish Water in order to provide a strategic Wastewater Pumping Station (WWPS) within the applicant owned lands, at Moygaddy. The provision of strategic WWPS, centralised on the Maynooth Environs lands, will allow for new development in this area to be served by wastewater infrastructure, and subsequently allow expansion in order to serve the entire Maynooth Environs lands, as future phasing of development is brought on board.

The strategy of providing a WWPS, as noted, includes provision of rising main infrastructure to specifically serve the subject development, and the pipe will be routed along the Dunboyne Road, and routed across (under) the river Ryewater, adjacent to the Kildare Bridge, so that a connection to the gravity infrastructure upstream of the Maynooth municipal WWPS can be achieved.

Further consultation between the Applicant and Irish Water has been had in relation to Irish Water's Capital Project, which is for the provision of new high





pressure rising main infrastructure to serve Maynooth Town from the Maynooth municipal WWPS, as far as Leixlip wastewater treatment plant. These ongoing works are to greatly improve the performance and capacity of the municipal WWPS, with a section of the new pipeline infrastructure to be provided in Applicant-owned lands. This is discussed further in *Section 5.4*.

5.3 Existing Wastewater Drainage

There is currently no existing wastewater infrastructure in the immediate vicinity of the site. The nearest public wastewater infrastructure is Maynooth's public Wastewater Pumping Station (WWPS).

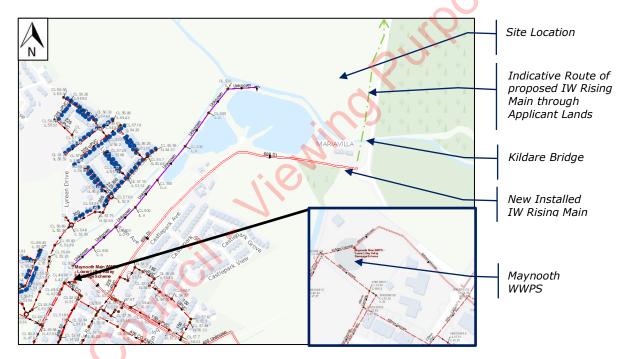


Figure 5.1 – Existing Wastewater Network and Maynooth WWPS

It is noted that Irish Water have separate designs in place to install a high pressure rising main from the existing public WWPS at Maynooth, to the Leixlip Wastewater Treatment Plant, in order to significantly increase the capacity and performance of the Maynooth WWPS.

The route of this new Irish Water infrastructure is to align with the eastern boundary of the subject site, and discussions are ongoing between the applicant, Irish Water and the Local Authorities to ensure that this new





strategic infrastructure can be delivered by Irish Water in conjunction with the wider masterplan for Maynooth Environs.

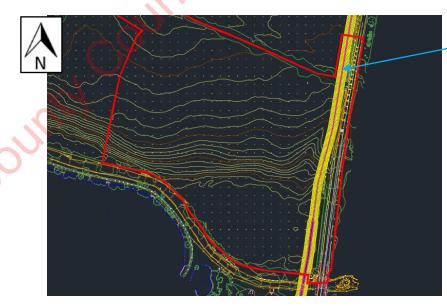
Maynooth Town is served by a municipal WWPS, at its eastern extent, which discharges wastewater effluent to Leixlip Wastewater Treatment Plant. There is a gravity wastewater network on the Dunboyne Road, adjacent to the Maynooth WWPS.

5.4 New Irish Water Infrastructure

As part of Irish Water's Strategic Capital Investment Programme, Irish Water are currently undergoing design and construction of a new wastewater rising main that will improve the capacity and performance of the nearby Maynooth public Wastewater Pumping Station, and the associated capacity improvements will also serve the proposed development.

The proposed rising main is to be routed north and east, towards the public Wastewater Treatment Plant at Leixlip, with a section of the route located within the eastern part of the Moygaddy Environ's LAP lands, including this subject development site, which are owned by the Applicant as part of their wider land-holding.

A section of the new wastewater rising main is to be accommodated just inside the eastern boundary of the site, as indicated in **Figure 5.2.**



Wastewater Transmission Line (Magenta) with 10m Wayleave







The Developer has been in detailed consultation with Irish Water, for design development of the section of new wastewater rising main, in order to help accommodate the new strategic infrastructure within their lands, and the subject development has been sufficiently set back from the centreline of the rising main route, at a distance greater than the required 5m, so as not to impact on its route and future operation.

5.5 Proposed Wastewater Drainage Strategy

It is proposed to separate the wastewater and surface water drainage networks, which will serve the proposed development independently.

Refer to Section 3 for details of the proposed surface water drainage design strategy.

Wastewater, within the development, will flow by gravity towards the proposed new wastewater pumping station, which will be located to the west of the nursing home, on the north-western side of the subject site. The proposed wastewater drainage network comprises of a series of 150mm diameter pipes.

All wastewater from the development is to discharge from the new Moygaddy WWPS to the existing Maynooth WWPS located to the south west of the proposed development. This is subject to agreement with Irish Water.



Project: S665 Issued: 26-Aug-22

Con



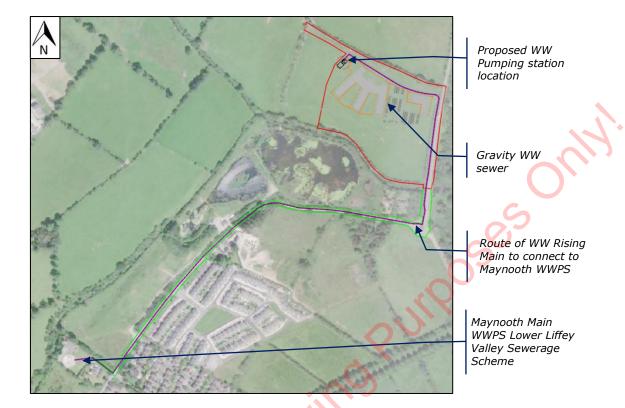


Figure 5.3 – Proposed WW Drainage Layout

The new underground WWPS shall discharge pumped effluent via rising main – with additional rising main laid alongside to accommodate for greater loadings in future phases – as far as the gravity public infrastructure upstream of the Maynooth municipal WWPS. In order to achieve this, the rising main will need to cross the river Ryewater, adjacent to the new pedestrian / cycle bridge structure that is to be constructed adjacent to the Kildare Bridge. It is proposed that this rising main is to be routed under the river Ryewater, alongside the aforementioned new strategic high pressure rising mains that are to be installed by Irish Water to upgrade the Maynooth WWPS.

Refer to **Figure 5.4** for typical detail of a rising main crossing to the west of the Kildare Bridge structure, as per Irish Water Standard Detail Drawing Nr. STD-WW-24, details of which are to be agreed with Irish Water at connection offer stage. The construction methodology proposed is aligned with Irish Water's proposals for the separate Strategic Capital Programme rising main.



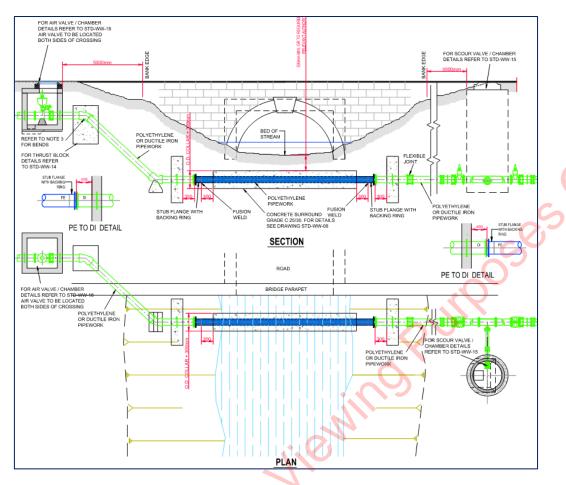


Figure 5.4 - Typical Detail of Rising Main Crossing at Bridge

All infrastructure is to be designed in accordance with the Irish Water Code of Practice for Wastewater Infrastructure, and shall be agreed at New Connection Application stage, prior to construction.

Refer to OCSC Bridge Options Report, S665-OCSC-XX-XX-RP-C-0010, submitted separately to this ESR, for detailed discussion on the proposed bridges.

5.6 Proposed Wastewater Pumping Station

The proposed underground wastewater pumping station, which is to be located west from the proposed nursing home, is to take the discharge from the gravity wastewater network of the new development site and transfer it to the Maynooth Municipal Wastewater Pumping Station initially through a 100mm diameter rising main to allow for the initial low flow rates during the early phases of the development, and then through an additional larger rising main





of 150mm diameter to allow for the future phasing of the development in the Moygaddy area.

The route of the proposed twin rising main can be seen in *Figure 5.3*, which is to cross under the river Ryewater, adjacent to the Kildare Bridge, along the Dunboyne Road to the public gravity network upstream of the Maynooth Municipal Wastewater Pumping Station.

The WWPS is to be designed to allow for future expansion as additional development phases are brought through for planning and construction and the details shall be agreed with Irish Water at new connection application stage, as required. The new WWPS and all associated infrastructure shall be provided to Irish Water for taking in charge.

5.7 Taking In Charge

County

Wastewater infrastructure serving nursing home and PCC, will be offered to be taken in charge by Irish Water. The new wastewater pumping station, and associated infrastructure, is also to be offered to be taken in charge by Irish Water.





6 POTABLE WATER SUPPLY

6.1 Overview

All proposed potable water design has been carried out in accordance with Irish Water's Code of Practice for Water Infrastructure, IW-CDS-5020-03.

6.2 Consultation

A Pre-Connection Enquiry Form has been submitted to Irish Water for review, for both the proposed development, as well as the wider land holding, which forms part of the Maynooth Environs. Irish Water issued a Confirmation of Feasibility Letter (Refer Appendix D of this ESR) for the proposed development, subject to upgrade works being carried out.

OCSC and the applicant have continued correspondence with Irish Water with respect to proposed upgrade works, and have committed to working with Irish Water to resolve all infrastructure works in order to facilitate the proposed development.

6.3 Connection to the Existing Network

There is a 200mm watermain just south from the Kildare bridge, south of the proposed development. An extension from the existing 200mm watermain is to be provided along the MOOR road, to the connection point at the site boundary. It is anticipated that a metered 150mm high density polyethylene connection will be required to serve each building, each of which will have their own individual water meter. Internal distribution network of 150mm HDPE watermain will be provided to serve the proposed nursing home and primary care centre.

The proposed development will be subject to a New Connection Agreement with Irish Water, with all details in accordance with their requirements.

An individual connection agreement will be sought for each of the Primary Care Centre and the Nursing Home, to reflect the fact that they will be operated independently of each other.





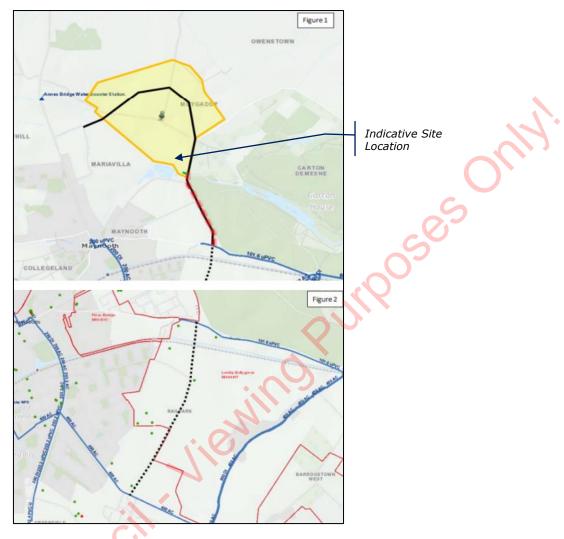


Figure 6.1 – Extract from the CoF

6.4 Water Meters

A bulk water meter is to be provided at the connection to the public watermain, at the development entrance, with individual meters provided at the connection to each of the Primary Care Centre and the Nursing Home. All metering is to be provided in accordance with Irish Water's requirements.

6.5) Taking In Charge

It is proposed new watermain infrastructure within the access road, is to be offered to be taken in charge by Irish Water. Watermain infrastructure serving the Nursing Home and PCC, will be offered to be taken in charge by Irish Water.





7 ROADS AND TRAFFIC

7.6 Design Standards

The proposed development will incorporate a series of design measures, which will be detailed hereinafter, to promote more sustainable modes of transport and support vulnerable road users in line with the core principles of the Design Manual for Urban Roads and Streets (DMURS).

While DMURS is the principle design guideline for the roads elements of this project, the extended list of the main standard documents relied on is:

- National Cycle Manual;
- Traffic Signs Manual 2019;
- DN-PAV-03021: Pavement & Foundation Design;
- GE-STY-01024: Road Safety Audit;
- DN-GEO-03060: Geometric Design of Junctions;
- Traffic Management Guidelines
- NRA IAN 02/11 Interim Requirements for the Use of Eurocodes for the Design of Road Structures Amendment No. 1.

7.7 Proposed Road Network

The proposed development provides for the upgrade of the R157 from Kildare Bridge south of the proposed site to the proposed development entrance along the R157 as well as the creation of new internal access roads and car parking.

A separate application will be made to Kildare County Council for the upgrade of the R157 south of the Kildare bridge. This overlap of applications will ensure unimpeded access to the proposed development lands along the R157 for pedestrian and cyclists.

The upgrade of the proposed section of the R157 will take cognisance of the existing approved Part VIII design by Meath County Council Reference P8/10011, and the strategic plan for the Maynooth Outer Relief Road (MOOR), and will ensure this design implements the latest design standards in agreement with Meath County Council Transportation Section.







The internal road layout and carpark access route will consist of a 6.0m wide carriageway that allows for access to perpendicular parking in line with section 4.4.9 of DMURS. The development will access off a new priority type junction to the R157. The proposed development entrance will take the form of a simple priority T-Junction. This junction was assessed in detail within the final Traffic Impact Assessment.

7.8 Road Classification

The development entrance and internal roads are being designed in accordance with the DMURS, with specific consideration given to the sections including:

- Section 4.3.1 Footways, Verges and Strips
- Section 4.3.2 Pedestrian Crossings
- Section 4.3.3 Corner Radii
- Section 4.3.5 Cycle Facilities
- Section 4.4.1 Carriageway Widths
- Section 4.4.2 Carriageway Surfaces
- Section 4.4.3 Junction Design
- Section 4.4.4 Forward Visibility
- Section 4.4.9 On-Street Parking and Loading

The internal access roads will initially be a cul-de-sac and will be used exclusively by the development and not for local traffic. It is noted, however, that as the masterplan envisages the development of adjoining lands in the future, the carriageway widths in the development have been upsized to cater for occasional larger vehicles and all other design parameters have been chosen under DMURS.

Table 3.1 of DMURS illustrates how this road hierarchy relates to other relevant documents. An extract of DMURS can be seen in *Figure 7.1*, following.





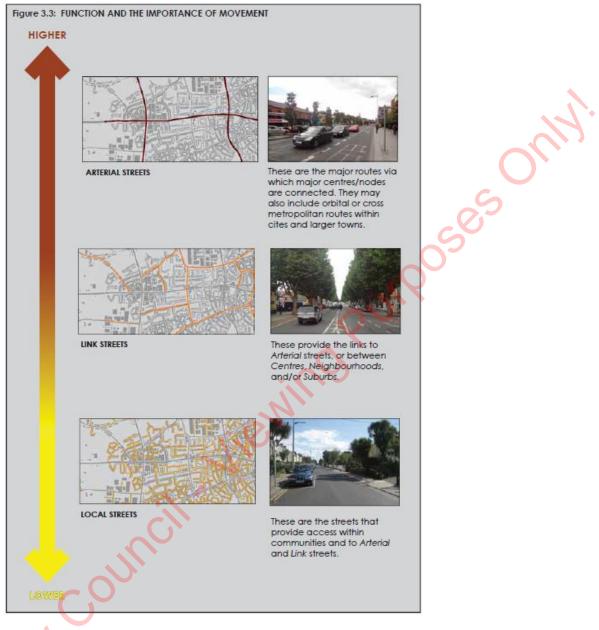


Figure 7.1 – DMURS Street Classification





C

,*

DMURS Description	Roads Act/NRA DMRB	Traffic Management Guidelines	National Cycle Manual										
Arterial	National	Primary Distributor Roads	Distributor										
Link	Regional (see note 1)	District Distributor Local Collector (see Notes 1 and 2)	Local Collector										
Local	Local	Access	Access										
Local Access Access Notes Note 1: Larger Regional/District Distributors may fall into the category of Arterial where they													

Table 3.1: Terminology used within this Manual compared with other key publications.

Figure 7.2 – DMURS Street Hierarchy

7.9 Road Design Speeds

The internal road has been designed to a Design Speed of 10-30 kph with geometric parameters chosen under DMURS. This is reflected in Table 4.1 below extracted from DMURS

		PEDESTRI	AN PRIORITY	VEHI	CLE PRIORITY	Internal Road
	ARTERIAL	30-40 KM/H	40-50 KM/H	40-50 KM/H	50-60 KM/H	60-80 KM/H
CTION	LINK	30 KM/H	30-50 KM7H	30-50 KM/H	50-60 KM/H	60-80 KM/H
FUNG	LOCAL	10-30 KM/H	10-30 KM/H	10-30 KM/H	30-50 KM/H	60 KM/H
		CENTRE	N'HOOD	SUBURBAN	BUSINESS/ INDUSTRIAL	RURAL FRINGE
			С	ONTEXT		

Table 4.1: Design speed selection matrix indicating the links between place, movement and speed that need to be taken into account in order to achieve effective and balanced design solutions.

Figure 7.3 – DMURS Design Speeds





It is envisaged at this stage that a Design Speed of 50kph will be chosen for the upgrade of the R157 to tie in with the design of the Maynooth Outer Relief Road and the wider strategic road network including the recently approved Maynooth Eastern Ring Road planning reference P82019-08.

7.10 Horizontal and Vertical Geometry

The internal road alignments will be designed so that the geometric elements, including horizontal and vertical curvature, super elevation and sight distance will be in line with DMURS, having values consistent with the design speeds.

The relevant horizontal and vertical geometric design values are shown in DMURS *Table 4.3* below. A standard carriageway cross fall of 2.5% will be adopted throughout with super elevation applied if necessary, noting that adverse camber is allowable under DMURS designs in accordance with *Table 4.3*. A cross fall of 2.5% will also be used for footpaths and cycle facilities.

	ŀ	HORIZONTAL	. CURVATUR											
Design Speed (km/h)	10	20	30	40	50	60								
Minimum Radius with adverse camber of 2.5%	-	11	26	56	104	178								
Minimum Radius with superelevation of 2.5 %	-	-	-	46	82	136								
VERTICAL CURVATURE														
Design Speed (km/h) 10 20 30 40 50 60														
Crest Curve K Value	N/A	N/A	N/A	2.6	4.7	8.2								
Sag Curve K Value	N/A	N/A	2.3	4.1	6.4	9.2								

Table 4.3: Carriageway geometry parameters for horizontal and vertical curvature.

Figure 7.4 – DMURS Geometric Parameters

7.11 Road Cross Section

7.11.5 Carriageway

As mentioned previously, the internal road layout will consist of a 6.0m wide carriageway that allows for access to perpendicular parking within the proposed carpark in line with section 4.4.9 of DMURS.





7.11.6 Footpaths

The width of the footpaths has been determined by reference to DMURS *Section 4.3.1* with a minimum required width of 1.8 m based on the space needed for two wheelchairs to pass each other.

7.11.7 Cycle Facilities

The cycle lanes along the R157 will be designed in accordance with the National Cycle Manual (NCM). Based on the Cycle Width Calculator in the NCM the appropriate cycle path width will be 1.75m giving room for a single file lane with overtaking room. The cycle paths will be separated from traffic by a kerb and verge and there will be a vertical separation on the inside, between the cycle path and footpath.

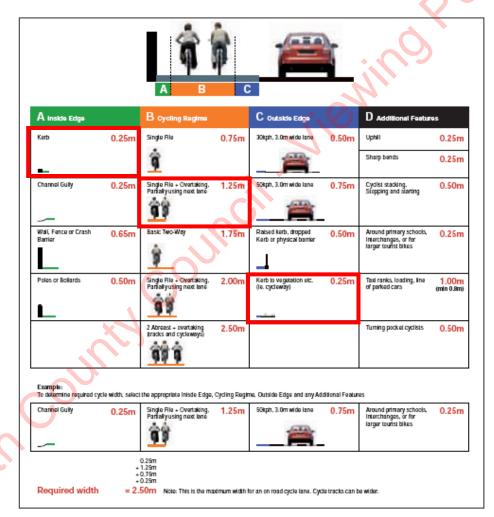


Figure 7.5 – NCM Width Calculator





7.12 Road Junctions

The development's junction with the R157 has been designed with the primary principle of providing safe and consistent layouts in order to present a uniformity of approach to drivers and other road users. In addition, junctions will have sufficient capacity to accommodate design year peak traffic flows thus optimising network capacity. The primary junction strategy objectives has been:

- To optimise road safety by ensuring adequate visibility and consistency;
- To ensure capacity for the design year;
- To function as traffic calming measures;
- To provide safe crossing facilities for pedestrians and cyclists.

The operation of the junction is assessed using traffic modelling software and is detailed in a standalone Traffic Impact Assessment.

Junctions have been sized and designed to accommodate future elements of the Moygaddy Masterplan.

7.13 Consultation

OCSC have had interactions with Kildare County Council and Meath County Council on this scheme in relation to the transportation related elements of the scheme, as detailed below:

- OCSC met with Meath County Council on 19 July 2021 to open preliminary discussions on the design of the MOOR. In attendance was Martin Murry (Director of Services for Infrastructure) and Nicholas Whyatt (Senior Engineer Transportation). Since this meeting, a Traffic Modelling Scoping Report has been issues to MCC.
- As noted previously, although the scheme is planned within the Meath County Council jurisdiction, a separate application will be made to KCC for infrastructure within the County. It is however noted that as the largest nearby urban centre is within KCC jurisdiction, they have been consulted as a stakeholder. OCSC met with KCC on 9 August 2021, and 23 September 2021. In attendance was Brigette Rea, Daragh Conlan,



George Willoughby, Jonathan Hennessy, and Lisa Kirwan, all from KCC. The same Traffic Modelling Scoping Report has also been issues to KCC.

- A submission was made on the Maynooth Transport Strategy as part of public consultation no. 1 on the 12th of November 2021. This submission outlines the proposed plans for the area and noted that it should be considered as part of the future Transport Strategy.
- A submission was made to BusConnects on the 15th of November 2021 noting the upcoming proposals as part of the MOOR that noted the BusConnects project should take cognisance of the upcoming works.

OCSC received a number of comments from Meath County Council's Transportation Department as part of their Opinion Report. Following this, further workshopping was done on the MOOR. A meeting was held on 14/07/2022 with various stakeholders at MCC, after which a number of comments were received. Subsequent to this, these comments have been incorporated into the design.

Annexure A details the responses to the comments from the Opinion Report, as well as the comments received and addressed as part of the subsequent MOOR design meeting.

7.14 Traffic Impact

A Traffic Impact Assessment was carried out which considers the current traffic flows and capacity in accordance with the Traffic and Transport Assessment Guidelines May 2014 from Transport Infrastructure Ireland. The Traffic Impact Assessment was done by means of Vissim Micro-Simulation software at the request of Kildare County Council. More details of the TIA can be found in the TIA document submitted under separate cover.

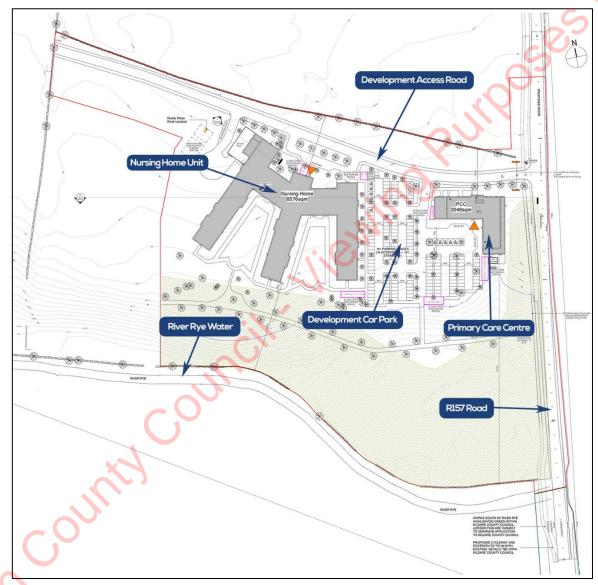
7.15 Site Accessibility

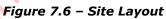
The Moygaddy site is located within walking distance of the town centre of Maynooth that is well serviced by a number of existing public transport options.





The proposed site is a 26 minute walk (2.1km) from the existing Maynooth Train Station that provides convenient access along the Dublin Sligo train line that provides intermediate stops at Carrick on Shannon, Longford, Mullingar, Enfield and Drumcondra. The imminent DART+ Programme will also provide higher frequency connections and capacity to the Maynooth line connecting to Dublin Connolly & Dockland stations.





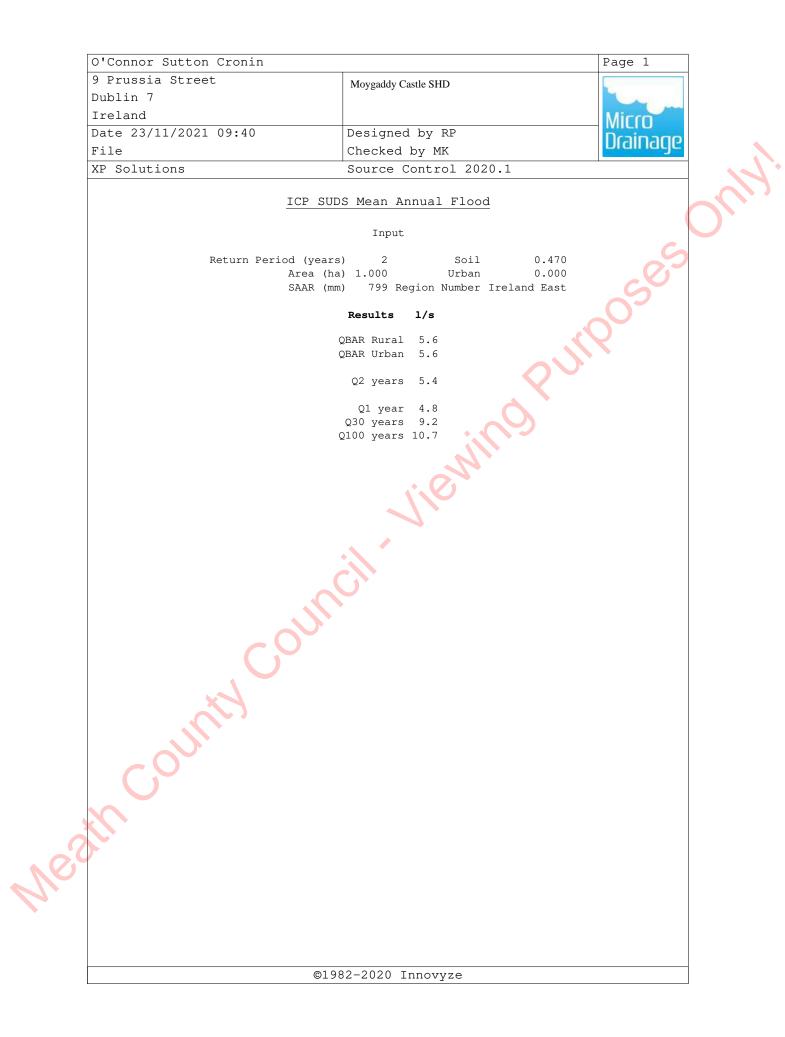


NTENTIONALLY BLANK Meath Meath



3

ecunity of the second s APPENDIX A. Q_{BAR} Calculation and Rainfall Data



	6	1														
		ſ	ſ		щ		-		-							
		Ц.	Keturn reri Irish Grio	d: Easting:	Ν	Deptns for 294126, Nor	or sılaın Northing:	g Jura 23915	T,							
	Inte	Interval						Years								
DURATION	6months,	lyear,	5,	, З,		5,	10,	20,	30,	50,	75,	100,	150,	200,	250,	500,
5 mins	2.4,	3.4,	4.0		5.4,	5.9,	7.4,	9.2,	10.3,	12.0,	13.4,	14.6,	16.4,	17.8,	18.9,	N/A ,
10 mins	3.3,	4.8,	5.6,	×		8.2,	10.3,	12.8,	14.4,	16.7,	18.7,	20.3,	22.8,	24.8,	26.4,	N/A ,
15 mins	3.9,	5.6,	6.5,			9.7,	12.2,	15.0,	16.9,	19.6,	22.0,	23.9,	26.9,	29.1,	31.0,	N/A ,
30 mins	5.1,	7.3,	8.5,	10.2,		12.3,	15.4,	18.8,	21.1,	24.3,	27.2,	29.4,	32.9,	35.6,	37.8,	N/A ,
1 hours	6.8,	9.5,	10.9,	, 13.1,		15.7	19.4,	23.6,	26.3,	30.2,	33.6,	36.2,	40.3,	43.4,	46.1,	N/A ,
2 hours	.0.6	12.3,	14.1,	, 16.8,		20.0,	24.5,	29.5,	32.8,	37.4,	41.4,	44.6,	49.3,	53.0,	56.1,	N/A ,
3 hours	10.5,	14.4,	16.4,	, 19.5,		23.0,	28.1,	33.7,	37.3,	42.4,	46.9,	50.3,	55.6,	59.6,	63.0,	N/A ,
4 hours	11.8,	16.1,	18.3,	. 21.6,		25.5,	30.9,	37.0,	40.9,	46.4,	51.1,	54.8,	60.5,	64.8,	68.3,	N/A
6 hours	13.9,	18.7,	21.3,	, 25.0,		29.4,	35.4,	42.2,	46.5,	52.6,	57.9,	61.9,	68.1,	72.8,	76.7,	N/A
9 hours	16.3,	21.9,	24.7,	, 28.9,		33.8,	40.6,	48.1,	52.9,	59.6,	65.4,	69.9,	76.7,	81.9,	86.1,	N/A ,
12 hours	18.3,	24.4,	27.5,	, 32.1,		37.4,	44.8,	52.8,	58.0,	65.2,	71.4,	76.2,	83.4,	88.9,	93.5,	N/A ,
18 hours	21.6,		32.0,			43.1,	51.3,	60.3,	66.0,	73.9,	80.8,	86.0,	93.9,	100.0,	104.9,	N/A ,
24 hours	24.2,		35.6,			47.7,	56.6,	66.2,	72.4,	80.8,	88.2,	93.8,	102.2,	108.6,	113.9,	131.9,
2 days	30.0,	38.5,	42.7,			55.8,	65.2,	75.3,	81.7,	90.3,	97.8,	103.4,	111.9,	118.3,	123.5,	141.2,
3 days	35.0,	44.2,	48.8,			62.7,	72.6,	83.2,	89.8,	98.8,	106.5,	112.2,	120.9,	127.4,	132.7,	150.5,
4 days	39.4,	49.2,	54.1,	, 61.0,		68.9,	79.3,	90.3,	97.2,	106.4,	114.3,	120.3,	129.1,	135.8,	141.2,	159.3,
6 days	47.2,	58.3,	63.7,			79.8,	91.1,	102.9,	110.2,	120.0,	128.4,	134.6,	143.9,	150.8,	156.4,	175.2,
8 days	54.3,	66.4,	72.2,			89.6,	101.6,	114.1,	121.8,	132.2,	140.9,	147.4,	157.1,	164.3,	170.1,	189.5,
10 days	61.0,	73.9,	80.2,	, 88.9,		98.6,	111.3,	124.4,	132.5,	143.3,	152.4,	159.1,	169.2,	176.6,	182.6,	202.6,
	67.3,	•	87.6,	, 96.8,	-	107.0,	120.3,	134.1,	142.5,	153.7,	163.1,	170.1,	180.5,	188.2,	194.4,	214.9,
16 days	79.1,	94.3,	101.6,	, 111.7,	118.1,	122.8,	137.2,	152.0,	161.0,	173.0,	183.0,	190.4,	201.4,	209.5,	9	237.6,
	90.3,	106.8,	114.7,	, 125.6,	132.4,	. 137.5,	152.9,	168.5,	178.1,	190.8,	201.3,	209.1,	220.6,	229.1,	235.9,	258.4,
25 days	103.6,	121.6,	130.2,	, 141.9,	149.3,	154.7,	171.2,	187.9,	198.1,	211.5,	222.7,	230.9,	243.0,	251.9,	259.1,	282.6,
NOTES:																
N/A Data not	not available	ble														
These values		are derived from a Dept	m a Deptl	h Durati	Duration Frequency (DDF) Model	uency (I	DDF) Mod	lel		¢						
For detai.	For details refer to	:0														

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_IN61.pdf purposes only



seign C. **APPENDIX B.** Surface Water Design Criteria and Simulation Results

Mez		[
O'Connor Sutton Cronin	Page 0	
9 Prussia Street Dublin 7 Ireland	PRIMARY CARE CENTRE AND NURSING HOME	
Date 24/08/2022 15:56	Designed by EH	
File S665-OCSC-1B-MH-M3-C-0001.01.MDX	Checked by MK	
XP Solutions	Network 2020.1.3	
STORM SEWER DESI	DESIGN by the Modified Rational Method	
	Design Criteria for Storm	
Pipe Sizes	<mark>S</mark> izes STANDARD Manhole Sizes STANDARD	
	for Destriction in troland	
Return Period (years) 5 ME-60 (mm) 15 000 11	Maximum Backdrop Height (m) 10.000 Maximum Backdrop Height (m) 10.000	
LJ.000	PULTE RUNDIL COELL. 0./30 MIN DESIGN DEPUN LO UPLINIESALION (N) PIMP (%) 100 Min Vel for Auto Design only (m/s)	
Maximum Rainfall (mm/hr) 50 Add Flow / Maximum Time of Concentration (mins) 30 Minimum I	Climate Change (%) 20 Backdrop Height (m) 0.000	
De	Designed with Level Inverts	
Networ	Network Design Table for Storm	
FN Length Fall Slope I.Area (m) (1:X) (ha)	a T.E. Base K HYD DIA Section Type Auto (mins) Flow (1/s) (mm) SECT (mm) Design	
SB1.000 24.053 0.466 51.6 0.121	5.00 0.0	
Ne	Network Results Table	
PN Rain T.C. US/IL : (mm/hr) (mins) (m)	Σ I.Area Σ Base Foul Add Flow Vel Cap Flow (ha) Flow (1/s) (1/s) (π/s) (1/s) (1/s)	
SB1.000 50.00 5.29 53.508	0.121 0.0 0.0 3.3 1.40 24.8 19.7	
	©1982-2020 Innovyze	
	oniv	

TTTTOT DALLOT DALLOT												Page 1
9 Prussia Street				Щ	PRIMARY CARE CENTRE	ARE CEN	TRE					
Dublin 7 Ireland	C			ζ.	AND NURSING	NG HOME						Mirco
Date 24/08/2022 15:56	C				Designed by	ЬУ ЕН						
File S665-OCSC-1B-MH-M3-C-0001		.01.MDX		U	Checked b	by MK						חומוו ומלוב
XP Solutions		C		N	Network 2	2020.1.3						
		α	~1	Network	Design T	Table fo	or Storm	L L L				
	PN Length (m)	gth Fall n) (m)	1 Slope (1:X)	I.Area (ha)	T.E. I (mins) Flov	Base Flow (1/s)	k (mm) Si	HYD D] SECT (m	DIA Sec (mm)	Section Type	a Auto Design	
	SB1.001 39.872 SB1.002 25.646	872 0.235 646 0.151	5 170.0	0.036	0.00	0.0	0.600 0.600	0 0	225 Pir 225 Pir	Pipe/Conduit Pipe/Conduit	66	
	SB2.000 25.922 SB2.001 27.486	922 0.377 486 0.478	7 68.8 8 57.5		5.00	0.0	0.600 0.600	0 0	<mark>150</mark> Pir 150 Pir	Pipe/Conduit Pipe/Conduit	€	
10 10	SB1.003 13.169 SB1.004 18.395	169 0.259 395 0.078	50.8 8 235.8	0.009 0.007	0.00	0.0	0.600	0 0	225 Pir 300 Pir	Pipe/Conduit Pipe/Conduit	66	
	SB3.000 23.734	734 0.653	3 36.3	0.046	5.00	0.0	0.600	0	50	Pipe/Conduit	Ð	
				Net	Network Resul	ts	Table					
) Na	Rain (mm/hr)	T.C. ((mins)	US/IL E (m)	I.Area ΣF (ha) Flow	Σ Base .ow (1/s)	Foul Add Flow (1/s) (1/s)	Add Flc (1/s)	ow Vel (m/s)	1 Cap s) (1/s)	Flow (l/s)	
	SB1.001 SB1.002	50.00 50.00	5.95 6.38 5	53.042 52.807	0.157 0.162	0.0	0.0	44	4.3 1.00 4.4 1.00	00 39.8 00 39.8	25.5 26.4	
	SB2.000 SB2.001	50.00 50.00	5.36 <mark>5</mark> 5.70 5	<mark>53.587</mark> 53.210	0.048 0.096	0.0	0.0	⊢ ∩	1.3 1.3 2.6 1.	.21 21.5 .33 23.5	7.8 15.6	
	SB1.003 SB1.004	50.00 50.00	6.505 6.805	52.657 <mark>52.397</mark>	0.267 0.274	0.0	0.0	7.2 7.4	.2 1.84 4 1.02	84 73.1 02 72.1	43.4 44.5	
	SB3.000	50.00	5.24 <mark>5</mark>	53.487	0.046	0.0	0.0	ц.	.2	67 29.6	7.5	
				©1	@1982-2020	Innovyz	Ze				þ	

In 1 AND NURSING HOME In 2 AND NURSING HOME 24/08/2022 15:56 Besigned by RH 24/08/2022 15:56 Besigned by RH 24/08/2022 15:56 Besigned by RH 5665-CSC-1B-MH-M3-C-0000.01.MIX Besigned by RH 5665-CSC-1B-MH-M3-C-0001.01.MIX Besigned by RH 5665-CSC-1B-MH-M3-C-0001.01.MIX Besigned by RH 5665-CSC-1B-MH-M3-C-0001.01.MIX Besigned by RH 5665-CSC-1B-MH-M3-C-0001.01.MIX Besigned by RH 581.001 24.970 0.366 6.00 0.01 0.00 0.01 0.600 0.15 0.16 0.001 583.001 24.970 0.366 6.00 0.00 0.00 0.00 0.600 0.16 0.600 0.16 0.600 581.001 24.970 0.366 7.00 0.00 0.00 0.00 0.01 0.600 0.30 0.196/Conduit 0 581.001 24.970 0.366 7.00 0.00 0.00 0.01 0.600 0.30 0.196/Conduit 0 581.001 24.970 0.366 7.30 0.00 0.00 0.00 0.01 0.600 0.30 0.196/Conduit 0 581.001 24.970 0.366 7.37 11.1 0.011 0.00 0.00 0.00 0.00 0.01 0.600 0.30 0.196/Conduit 0 581.001 24.970 9.321 1.31 0.310 0.00 0.00 0.00 0.00 0.00 0.01 0.600 0.01 0.600 0.00 0.01 0.60	Network CARE CENTRE PATIMARY CARE CENTRE 15:56 AND NURSING HOXE 15:56 Designed by EH IB-MH-M3-CC-0001.01.MIX Checked by XK Network 2020.11.3 Network 2020.11.3 SB3.001.21.970 0.300 SEct of the Main No (in) (in) 0.00 0.00 0.00 SB3.001.21.970 0.335 SE1.4 0.00 0.00 0.00 0.00 SB3.001.21.970 0.355 SE1.4 0.00	O'Connor Sutton Cronin				Page 2
In 7 AND NURSING HOME 565-0520-118:16 5 AND NURSING HOME 565-0520-118:16 5 Network Network Network 3665-0520-118:16 Network Network Network Network 3665-0520-118:16 Network Network Network Network 3665-0520-118:16 Network Network Network Network 381001 (m) (m) (m) (m) Network Network 881.005 25.657 0.135 6.0 0.01 0.00 0 100 Network 881.007 24.957 0.301 24.90 0.01 0.00 0 100 Network 981.002 24.577 0.301 0.010 0.010 0.010 10.010 Network 981.007 24.657 0.301 20.01 10.01 0.000 10.01 Network 981.007 24.657 0.301 20.01 0.01 10.01 10.01 <th>$\belower the the the the the the the the the the$</th> <th></th> <th>PRIMARY</th> <th>CARE CENTRE</th> <th></th> <th></th>	$\belower the the the the the the the the the the$		PRIMARY	CARE CENTRE		
24/08/2022 15:56 Designed by EH Enertied by MK 5665-0CSC-1B-MH-M3-C-0001.01.MIX Cinecked by MK Cinecked by MK Cinecked by MK 5665-0CSC-1B-MH-M3-C-0001.01.MIX Metwork 2020.1.3 Metwork 2020.1.3 Metwork 2020.1.3 PN Image in initial stope i range Network 2020.1.3 Network 2020.1.3 Data PN Image initial stope i range T.N. Network 2020.1.3 Network 2020.1.3 SB3.001 24.370 0.366 0.00 0.0 0.00 0.10 Data Data SB3.001 24.370 0.353 66.4 0.00 0.00 0.00 0.00 Data Data SB3.001 24.370 0.351 34.0 0.00 0.00 0.00 0.00 Data Data SB4.001 24.451 0.41 2.1 0.01 0.00 0.00 Data Data SB1.007 19.31 24.35 0.01 0.00 0.00 Data Data Data SB1.007 19.31 <t< td=""><td>Zuldat/2022 15:56 Derigned by Eil 5665-003C-11-M01-M03-C-0001.01.MDX Network Design Table for Storm 5665-003C-11-M01-M03-C-0001.01.MDX Network Design Table for Storm Network 2020.1.3 Network Design Table for Storm FM anti in M in M Main in M <</td><td></td><td>AND NUF</td><td>SING HOME</td><td></td><td></td></t<>	Zuldat/2022 15:56 Derigned by Eil 5665-003C-11-M01-M03-C-0001.01.MDX Network Design Table for Storm 5665-003C-11-M01-M03-C-0001.01.MDX Network Design Table for Storm Network 2020.1.3 Network Design Table for Storm FM anti in M in M Main in M <		AND NUF	SING HOME		
Secsed by NK Tetwork 2020.1.3 Network 2020.1.3 Network 2020.1.3 Network 2020.1.3 Network 2020.1.3 Network 1000 Network 1000.1.3 Network 1000 Network 1000.1.3 Network 1000 Network 1000.1.3 Network 1000 Network 1000.1.3 Network 1000 Network 1000<	Sector LB-MHI-M3-C-0001.01.MDX Metwork 2020.11.3 Intrions Metwork Design Table for Storn PN Image for for one of the for storn Mathematic for storn PN Image for for one of the for storn Mathematic for storn Mathematic for storn S33.001 24.970 0.355 64.4 0.00 0.10 0.00 130 File/conduit Mathematic for storn S33.001 24.970 0.355 64.4 0.00 0.00 0.00 0.10 File/conduit Mathematic S33.001 24.577 0.552 0.433 0.00 0.00 0.10 0.00 130 File/conduit Math S33.001 24.57 0.33 0.011 0.00 0.00 0.00 130 File/conduit Math S33.001 24.567 0.33 0.011 0.00 0.00 0.00 File/conduit Math S33.001 24.567 0.33 0.010 0.00 0.00 130 File/conduit Math S33.001	ate 24/08/2022 15:56	Desiane	d bv EH		
Solutions Network Design Table for Storm Network Design Table for Storm Name Nam Nam Name	Solutions Network Design Table for Storm Network Design Table for Storm Name Network Design Table for Storm Name Network Design Table for Storm Name Structure Structure Section Type Name Structure Structure Section Type Structure Structure Section Type Section Type S		Checked	l by MK		nrainage
Image: Image:<	Image: Interverte Design Table for Storm Image: Table for Storm Image: (m) (m) (m) (m) Store m Mathematical Rate R. Mathematical Rate Mathematical Rate Mathematical Rate Mathematical Rate <		Network	2020.1.		_
Length Fall Slope I. Area T. Base k HYD DIA Section Type (m) (m) (n) (1:X) (ha) (mins) Flow (1/s) (mu) Section Type 24.970 0.365 68.4 0.019 0.00 0.00 0.00 0.00 pipe/conduit 25.657 0.735 34.9 0.019 0.00 0.0 0.0 0.0 pipe/conduit 24.651 0.847 29.2 0.011 0.00 0.0 0.0 0.0 pipe/conduit 24.651 0.847 29.2 0.011 0.00 0.0 0.0 150 pipe/conduit 13.126 0.257 51.1 0.011 0.00 0.0 0.0 1600 375 pipe/conduit 13.126 0.257 51.1 0.011 0.00 0.0 0.0 0.0 0.0 0.0 0.0 0.0 1/4 1/4 1/4 1/4 1/4 1/4 <td>Image: Image: Image:</td> <td>Net</td> <td></td> <td>Table for</td> <td>orm</td> <td></td>	Image:	Net		Table for	orm	
(m) (m) (m) (m) (m) SEC! (m) (m) <td>(m) (m) (L/S) (m) SECT (m) 24.970 0.365 68.4 0.046 0.00 0.0 600 0 150 Pipe/Conduit 25.657 0.735 34.9 0.019 0.00 0.0 0.0 600 0 150 Pipe/Conduit 24.691 0.847 29.2 0.011 0.00 0.0 0.0 0.00 0 150 Pipe/Conduit 24.691 0.847 29.2 0.011 0.00 0.0 0.00 0 150 Pipe/Conduit 13.126 0.257 51.1 0.011 0.00 0.00 0.00 0 0 0 150 Pipe/Conduit 13.126 0.257 51.1 0.011 0.00 0.00 0.010 0.010 0.010 0.010 0.00 150 Pipe/Conduit 13.126 0.257 51.1 0.011 0.00 0.00 0.00 0.00 0.00 0.00 1.00 <td< td=""><td>Length Fall Slope</td><td></td><td></td><td>DIA Section Type</td><td></td></td<></td>	(m) (m) (L/S) (m) SECT (m) 24.970 0.365 68.4 0.046 0.00 0.0 600 0 150 Pipe/Conduit 25.657 0.735 34.9 0.019 0.00 0.0 0.0 600 0 150 Pipe/Conduit 24.691 0.847 29.2 0.011 0.00 0.0 0.0 0.00 0 150 Pipe/Conduit 24.691 0.847 29.2 0.011 0.00 0.0 0.00 0 150 Pipe/Conduit 13.126 0.257 51.1 0.011 0.00 0.00 0.00 0 0 0 150 Pipe/Conduit 13.126 0.257 51.1 0.011 0.00 0.00 0.010 0.010 0.010 0.010 0.00 150 Pipe/Conduit 13.126 0.257 51.1 0.011 0.00 0.00 0.00 0.00 0.00 0.00 1.00 <td< td=""><td>Length Fall Slope</td><td></td><td></td><td>DIA Section Type</td><td></td></td<>	Length Fall Slope			DIA Section Type	
25.657 0.735 34.9 0.019 0.00 0.0 0.00 0.600 0 300 Pipe/Conduit 24.577 0.564 43.6 0.046 5.00 0.0 0.0 0.600 0 150 Pipe/Conduit 13.126 0.257 51.1 0.011 0.00 0.0 0.600 0 375 Pipe/Conduit 13.126 0.257 51.1 0.011 0.00 0.0 0.600 0 375 Pipe/Conduit 13.126 0.257 51.1 0.011 0.00 0.0 0.600 0 375 Pipe/Conduit 13.126 0.257 51.1 0.011 0.00 0.0 0.600 0 375 Pipe/Conduit 13.126 0.257 51.1 0.011 0.00 0.0 0.600 0 375 Pipe/Conduit 13.126 0.257 0.245 0.011 0.00 0.0 0.600 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	25.657 0.735 34.9 0.019 0.00 0.0 0.600 0 300 Pipe/Conduit 24.691 0.847 29.2 0.046 5.00 0.0 0.600 0 150 Pipe/Conduit 13.126 0.257 51.1 0.011 0.00 0.0 0.600 0 300 Pipe/Conduit 13.126 0.257 51.1 0.011 0.00 0.0 0.600 0 300 Pipe/Conduit 13.126 0.257 51.1 0.011 0.00 0.0 0.600 0 300 Pipe/Conduit 13.126 0.257 51.1 0.011 0.00 0.0 0.600 0 2.35 Pipe/Conduit 13.126 0.257 51.1 0.011 0.00 0.0 0.0 0.600 0 2.35 Pipe/Conduit 13.126 0.257 51.1 0.011 0.00 0.0 0.0 0.600 0 2.35 Pipe/Conduit 13.126 0.257 51.1 0.011 0.00 0.0 0.0 0.600 0 2.5 14 14. 2. 2.21 15. 14 15. 2.00 5.58 52.834 0.032 0.0 0.0 0.0 0.0 2.5 1.22 21.5 14 01 50.00 5.49 52.319 0.385 0.0 0.0 0.0 10.4 2.67 188.7 62 00 50.00 5.49 52.581 0.488 0.0 0.0 0.0 12.2 1.57 33.1 14 0.5 50.00 7.34 51.327 0.499 0.0 0.0 132.2 2.21 156.9 79 0.7 50.00 7.34 51.327 0.499 0.0 0.0 0.0 132.2 2.21 156.9 79 0.7 50.00 7.34 51.327 0.499 0.0 0.0 0.0 132.2 2.21 156.9 79 0.7 50.00 7.34 51.327 0.499 0.0 0.0 0.0 132.2 2.21 156.9 79 0.7 50.00 7.34 51.327 0.499 0.0 0.0 0.0 132.2 2.21 156.9 79 0.7 50.00 7.34 51.327 0.499 0.0 0.0 0.0 132.2 2.21 156.9 79 0.7 50.00 7.34 51.327 0.499 0.0 0.0 0.0 132.2 1.157 17.4 81	(m) (m) (1.3. 24.970 0.365 68.4			(mm) 150 Pipe/Conduit	
24.577 0.564 43.6 0.046 5.00 0.0 0.600 0 150 Pipe/Conduit 13.126 0.257 51.1 0.011 0.00 0.00 0.600 0 300 Pipe/Conduit 13.126 0.257 51.1 0.011 0.00 0.00 0.00 0.00 0 300 Pipe/Conduit 19.382 0.079 245.0 0.011 0.00 0.00 0.00 0 300 Pipe/Conduit 19.382 0.079 245.0 0.011 0.00 0.00 0.00 0.00 0 10 1	24.577 0.564 43.6 0.046 5.00 0.0 0.600 0 150 Fipe/Conduit 13.126 0.257 51.1 0.011 0.00 0.0 0.600 0 307 Fipe/Conduit 19.382 0.079 245.0 0.011 0.00 0.0 0.600 0 307 Fipe/Conduit 19.382 0.079 245.0 0.011 0.00 0.00 0.600 0 307 Fipe/Conduit 19.382 0.079 245.0 0.011 0.00 0.00 0.600 0 307 Fipe/Conduit 19.382 0.079 245.0 0.011 0.00 0.00 0.600 0 307 Fipe/Conduit 19.382 0.079 245.0 0.011 0.00 0.00 0.600 0 375 Fipe/Conduit 19.382 0.079 245.0 0.011 0.00 0.0 0.0 0 375 Fipe/Conduit 19.382 0.00 5.58 52.834 0.092 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	25.657 0.735 34.9			300 Pipe/Conduit	
13.126 0.257 51.1 0.011 0.00 0.0	13.126 0.257 51.1 0.011 0.00 0.0 0.0 0.0 300 Pipe/Conduit 19.382 0.079 245.0 0.011 0.00 0.00 0.0 0.0 300 Pipe/Conduit Network Results Table Rain T.C. US/II E I.Area E Base Foul Add Flow Vel Cap Flo (mm/hr) (mins) (m) (ha) Flow (1/s) (1/s) (m/s) (1/s) (1	24.577 0.564 43.6 24.691 0.847 29.2			150 Pipe/Conduit 150 Pipe/Conduit	
Network Results Table Rain T.C. US/LI E I.Area E Base Foul Add Flow Vel Cap Flo 001 50:00 5.58 52.834 0.092 0.0 0.0 2.5 1.22 21.5 14 001 50:00 5.58 52.834 0.092 0.0 0.0 2.5 1.22 21.5 14 005 50:00 6.96 52.319 0.385 0.0 0.0 2.5 1.88.7 62 000 50:00 5.145 0.046 0.0 0.0 1.2 1.53 27.0 7 001 50:00 5.1581 0.092 0.0 0.0 2.5 1.87 33.1 14 006 50:00 7.06 51.584 0.488 0.0 0.0 2.5 1.87 33.1 14 006 50:00 7.0488 0.0 0.0 0.0 2.5 1.87 33.1 14	Rain (mm/hr) T.C. US/LI (m) T.Area (mm/hr) E Base (mm/hr) Flow (1/s) (m/s) Mod Flow (1/s) Vel (1/s) Cap (1/s) Flow (1/s)	13.126 0.257 51.1 19.382 0.079 245.0			375 Pipe/Conduit	
Rain T.C. US/II Diametry indication Value	Rain T.C. Us/II E I.Area E Base Foul Add Flow Vel Cap I (mm/hr) (mins) (m) (m) (n/s) (1/s) (1/s) <td></td> <td></td> <td></td> <td></td> <td></td>					
RainT.C.US/IIID. I.AreaD. BaseFoulAdd FlowVelCap(mm/hr)(mins)(m)(m)(ha)Flow(l/s)(l/s)(l/s)(l/s)(l/s) 50.00 5.58 52.834 0.092 0.00 0.0 2.5 1.22 21.5 50.00 5.58 52.319 0.385 0.00 0.0 2.5 1.22 21.5 50.00 6.96 52.319 0.385 0.00 0.0 10.4 2.67 188.7 50.00 5.27 53.145 0.0046 0.0 0.0 10.4 2.67 188.7 50.00 5.49 52.581 0.0922 0.0 0.0 10.2 1.53 27.0 50.00 5.49 52.581 0.0922 0.0 0.0 10.2 1.53 27.0 50.00 7.06 51.584 0.488 0.0 0.0 13.2 1.15 127.4 50.00 7.34 51.327 0.499 0.0 0.0 13.2 1.15 127.4	RainT.C.US/IID. I.AreaE BaseFoulAdd FlowVelCap(mm/hr)(mins)(m)(m)(na)Flow(l/s)(l/s)(l/s)(l/s)(l/s) 50.00 5.58 52.834 0.092 0.00 0.0 2.5 1.22 21.55 50.00 6.96 52.319 0.385 0.00 0.0 2.67 188.7 50.00 5.49 52.3145 0.046 0.0 0.0 10.4 2.67 188.7 50.00 5.49 52.581 0.092 0.0 0.0 1.22 1.87 33.1 50.00 7.06 51.584 0.4488 0.0 0.0 1.22 1.87 33.1 50.00 7.06 51.584 0.488 0.0 0.0 13.2 1.15 127.4 50.00 7.34 51.327 0.499 0.0 0.0 13.5 1.15 127.4 50.00 7.34 51.327 0.499 0.0 0.0 13.5 1.15 127.4 50.00 7.34 51.327 0.499 0.0 0.0 13.5 1.15 127.4 50.00 7.34 51.327 0.499 0.0 0.0 13.5 1.15 127.4 50.00 7.34 51.327 0.499 0.0 0.0 13.5 1.15 127.4					
50.00 5.58 52.834 0.092 0.0 0.0 2.5 1.22 21.5 50.00 6.96 52.319 0.385 0.0 0.0 10.4 2.67 188.7 50.00 5.27 53.145 0.046 0.0 0.0 10.4 2.67 188.7 50.00 5.49 52.581 0.092 0.0 0.0 2.5 1.87 33.1 50.00 5.49 52.581 0.092 0.0 0.0 2.5 1.87 33.1 50.00 7.06 51.584 0.488 0.0 0.0 13.2 1.155 177.4 50.00 7.34 51.327 0.499 0.0 0.0 13.5 1.15 127.4	50.00 5.58 52.834 0.092 0.0 0.0 2.5 1.22 21.5 50.00 6.96 52.319 0.385 0.0 0.0 10.4 2.67 188.7 50.00 5.27 53.145 0.046 0.0 0.0 1.2 1.53 27.0 50.00 5.49 52.581 0.092 0.0 0.0 1.2 1.53 27.0 50.00 7.06 51.584 0.488 0.0 0.0 13.2 2.21 155 9 50.00 7.34 51.327 0.499 0.0 0.0 13.5 1.15 127.4	Rain T.C. (mm/hr) (mins)	ы		Add Flow Vel Cap (1/s) (m/s) (1/s)	
50.006.9652.3190.3850.00.010.42.67188.750.005.27 53.145 0.0460.00.01.2 1.53 27.050.005.4952.5810.0920.00.02.5 1.87 33.150.007.0651.5840.4880.00.013.22.21 155.9 50.007.3451.3270.4990.00.013.51.15127.4	50.00 6.96 52.319 0.385 0.0 0.0 10.4 2.67 188.7 50.00 5.27 53.145 0.046 0.0 0.0 1.2 1.53 27.0 50.00 5.49 52.581 0.092 0.0 0.0 2.5 1.87 33.1 50.00 7.06 51.584 0.488 0.0 13.2 2.21 155.9 50.00 7.34 51.327 0.499 0.0 0.0 13.5 1.15 127.4 50.00 7.34 51.327 0.499 0.0 0.0 13.5 1.15 127.4	50.00 5.58			2.5 1.22 21.5	
50.00 5.27 53.145 0.046 0.0 0.0 1.2 1.53 27.0 50.00 5.49 52.581 0.092 0.0 0.0 2.5 1.87 33.1 50.00 7.06 51.584 0.488 0.0 0.0 13.2 2.21 155.9 50.00 7.34 51.327 0.499 0.0 0.0 13.5 1.15 127.4	50.00 5.27 53.145 0.046 0.0 0.0 1.2 1.53 27.0 50.00 5.49 52.581 0.092 0.0 0.0 2.5 1.87 33.1 50.00 7.06 51.584 0.488 0.0 0.0 13.2 2.21 155 .9 50.00 7.34 51.327 0.499 0.0 0.0 13.5 1.15 127.4 @1982-2020 Innovyze	50.00 6.96	0		10.4 2.67 188.7	
50.00 7.06 51.584 0.488 0.0 0.0 13.2 2.21 155.9 50.00 7.34 51.327 0.499 0.0 0.0 13.5 1.15 127.4	50.00 7.06 51.584 0.488 0.0 0.0 13.2 2.21 155 9 50.00 7.34 51.327 0.499 0.0 0.0 13.5 1.15 127.4 ©1982-2020 Innovyze	50.00 5.27 50.00 5.49			1.53 27.0 1.87 33.1	
		50.00 7.06 50.00 7.34			13.2 2.21 155.9 13.5 1.15 127.4	
			©1982-20		5	

										Page 3
9 Prussia Street		1	PRIMARY CARE CENTRE	E CENT	RE					
Dublin 7 Ireland		۲۰	AND NURSING	HOME						
Date 24/08/2022 15:56			Designed by EH	ЕН						
File S665-OCSC-1B-MH-M3-C-0001	.01.MDX)	Checked by MK	MK						חומוו ומקב
Solutions	, ,		Network 2020.	0.1.3						
	9	Network	t Design Table	le for	: Storm	<u>-</u> -				
Le Le	Length Fall (m) (m)	Slope I.Area (1:X) (ha)	T.E. Base (mins) Flow (1/s)		k HYD (mm) SECT	DIA (mm) T		Section Type	Auto Design	
SB5.000 21 SB5.001 22	21.663 0.790 22.017 0.790	27.4 0.046 27.9 0.046	5.00	0 0 0 0	0.600 0.600	0 <mark>150</mark> 0 150		Pipe/Conduit Pipe/Conduit	€ ¶	
SB1.008 34	34.047 0.908	37.5 0.007	0.00	0.0	0.600	o 375		Pipe/Conduit	°D	
SB6.000 70	70.000 2.139	32.7 0.168	5.00	0.0	0.600	o 225		Pipe/Conduit	Ð	
SB1.009 16	16.685 0.201	83.0 0.000	0.00	•	0.600	o 375		Pipe/Conduit	6	
SB7.000 67.004	7.004 1.922	34.9 0.095	5.00	0.	0.600	o 225		Pipe/Conduit	Ð	
		Net	Network Results	ts Table	Пе					
NA	Rain T (mm/hr) (m	T.C. US/IL D (mins) (m)	I.Area Σ Base (ha) Flow (1/s)		Foul Add Flow (1/s) (1/s)	ld Flow (1/s)	vel (m/s)	Cap (1/s)	Flow (l/s)	
SB5.000 SB5.001	50.00 50.00	5.19 <mark>53.042</mark> 5.38 52.252	0.046 0.092	0.0	0.0	1.2	1.93 1.91	34.1 33.8	7.5 14.9	
SB1.008	50.00	7.53 51.248	0.597	0.0	0.0	16.2	2.97	327.7	97.1	
SB6.000	50.00	5.51 52.629	0.168	0.0	0.0	4.5	2.29	91.3	27.3	
SB1.009	50.00	7.67 50.340	0.765	0.0	0.0	20.7	1.99	219.8	124.4	
SB7.000	50.00	5.50 52.211	0.095	0.0	0.0	2.6	2.22	88.4	15.4	
		0	©1982-2020 Ir	Innovyz	Ø				D	

	Page 4		,	Micro	Drainane																		any.
										Type Auto Design	nduit đ nduit đ		nduit nduit nduit G	nduit 🔒		Cap Flow (1/s) (1/s)	141.1 139.8 202.2 147.1		39.8 24.4		61.3 6.7	5	
										DIA Section Type (mm)	375 Pipe/Conduit 375 Pipe/Conduit	225 Pipe/Conduit	225 Pipe/Conduit 300 Pipe/Conduit 300 Pipe/Conduit	225 Pipe/Conduit		Vel (m/s)	1.28 1.83	1.00	4.1 1.00	2.05	.1 1.54 (
		\Е						Storm		k HYD D (mm) SECT (n	0.600 0	0	0.600 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.600 0	Φ	Foul Add Flow (1/s) (1/s)	0.0 23.0	0.0		Η	0.0 1	Ð	
		CARE CENTRE	SING HOME	:	и ру Ен	-	ZUZU.I.3	Table for		Base Flow (1/s) (n	0.0	0	0.00.0	0.0	sults Table	Σ Base F Flow (1/s) (1	0.0	0.0	0.0	0.0	0.0	Innovyz	
		PRIMARY	AND NURSING		Designed	Checked	Network	rk Design		T.E. (mins)	C		0.00 9.00 0.00	1 5.00	Network Re	Σ I.Area (ha) F	0.860 0.915	0.070			0.041	©1982-2020	
								Network	(Slope I.Area (1:X) (ha)	200.1 0.000 98.0 0.055	0	170.0 0.080 245.0 0.221 58.8 0.049	72.2 0.041	4	T.C. US/IL (mins) (m)	7.85 50.139 8.08 50.070	6.00 54.017	7.41 53.664 8 88 53 167		5.26 52.195		
						. U L . MDX		2		Length Fall (m) (m)	13.805 0.069 25.404 0.259	60.000 0.353	84.563 0.497 88.000 0.359 37.833 0.643	24.262 0.336		Rain T (mm/hr) (m	50.00 49.45		50.00	46.64	50.00		
	u.		C	5	'	-M3-C-0001.0				PN Le	SB1.010 13 SB1.011 25		SB8.001 84 SB8.002 88 SB8.003 37	SB9.000 24		NA	SB1.010 SB1.011	SB8.000	SB8.001	SB8.003	SB9.000		
Mer	O'Connor Sutton Cronin	9 Prussia Street	Dublin 7	and 24/00/2022			XF SOLUTIONS																

PRIMARY CARE CENTRE AND NURSING HOME Designed by EH	
AND NURSING HOME Designed by EH	
Designed by EH	Mirch
S665-OCSC-1B-MH-M3-C-0001.01.MDX Checked by MK	חומווומלוב
Network 2020.1.3	-
Network Design Table for Storm	
<pre>PN Length Fall Slope I.Area T.E. Base k HYD DIA Section Type (m) (m) (1:X) (ha) (mins) Flow (1/s) (mm) SECT (mm)</pre>	e Auto Design
SB9.001 37.376 0.220 170.0 0.104 0.00 0.0 0.0 0.600 0 225 Fipe/Conduit	t
SB8.004 39.874 0.123 325.0 0.031 0.00 0.0 0.0 0.600 o 375 Pipe/Conduit	t
SB10.000 31.788 0.318 100.0 0.097 5.00 0.0 0.0 0.600 0 150 Fipe/Conduit	t
SB8.005 12.648 0.039 325.0 0.015 0.00 0.0 0.0 0.600 0 375 Fipe/Conduit	t
SB1.012 15.620 0.026 590.0 0.000 0.00 0.00	t
Network Results Table	
PN Rain T.C. US/IL Σ I.Area Σ Base Foul Add Flow Vel Cap (mm/hr) (mins) (m) (ha) Flow (l/s) (l/s) (l/s) (m/s) (l/s)	Flow (1/s)
SB9.001 50.00 5.89 51.859 0.145 0.0 0.0 3.9 1.00 39.8	23.6
SB8.004 45.13 9.85 51.639 0.596 0.0 0.0 14.6 1.00 110.4	87.4
SB10.000 50.00 5.53 51.521 0.097 0.0 0.0 2.6 1.01 17.8	15.8
SB8.005 44.68 10.06 49.844 0.708 0.0 0.0 17.1 1.00 110.4 102.8	102.8
SB1.012 44.13 10.32 49.805 1.623 0.0 0.0 38.8 1.00 281.4	232.8
©1982-2020 Innovyze	5

	Page 6 PRIMARY CARE CENTRE AND NURSING HOME	MDX Designed by EH Checked by MK Metwork 2020 1 3	Table f	th Fall Slope I.Area T.E. Base k HYD DIA Section Type Auto (m) (1:X) (ha) (mins) Flow (1/s) (mm) SECT (mm) Design	0.732 60.0 0.035 0.214 100.0 0.026 0.117 100.0 0.000	0.159 170.0 0.069	0.104 170.0 0.026	32 0.002 590.0 0.014 0.00 0.00 0.600 0 600 Pipe/Conduit 💣 77 0.003 590.0 0.000 0.00 0.00 0.600 0 600 Pipe/Conduit 💣	Network Results Table	Rain T.C. US/IL I I.Area I Base Foul Add Flow Vel Cap Flow (mm/hr) (mins) (m) (ha) Flow (1/s) (1/s) (1/s) (m/s) (1/s) (1/s)	50.00 5.56 51.502 0.035 0.0 0.0 0.0 1.30 23.0 5.7 50.00 5.92 50.770 0.061 0.0 0.0 1.7 1.00 17.8 9.9 50.00 6.11 50.556 0.061 0.0 0.0 1.7 1.00 17.8 9.9	50.00 5.45 49.985 0.069 0.0 0.0 1.9 1.00 39.8 11.2	50.00 6.40 49.826 0.156 0.0 0.0 4.2 1.00 39.8 25.3	44.09 10.34 48.565 1.794 0.0 0.0 42.8 1.00 281.4 257.0 44.03 10.37 48.563 1.794 0.0 0.0 42.8 1.00 281.4 257.0	©1982-2020 Innovyze	
Mea	O'Connor Sutton Cronin 9 Prussia Street Dublin 7 Treland	Date 24/08/2022 15:56 File S665-OCSC-1B-MH-M3-C-0001.01.MDX XP Solutions		PN Length (m)	SB11.000 43.920 (SB11.001 21.365 SB11.002 11.708 SB11.002 500 SB11.0000 SB11.00000 SB11.0000 SB11.00000 SB11.00000 SB11.00000 SB11.00000 SB11.00000 SB11.0	SB12.000 27.057	SB11.003 17.601	SB1.013 1.082 (SB1.014 1.977)		PN Rain (mm/b	SB11.000 50. SB11.001 50. SB11.002 50.	SB12.000 50.	SB11.003 50.	SB1.013 44. SB1.014 44.		

	Page 7		Mirro		חומוומאב														up.
		PRIMARY CARE CENTRE AND NURSING HOME		Designed by EH	M3-C-0001.01.MDX Checked by MK	Network 2020.1.3	Network Design Table for Storm	<pre>PN Length Fall Slope I.Area T.E. Base k HYD DIA Section Type Auto (m) (m) (1:X) (ha) (mins) Flow (1/s) (mm) SECT (mm) Design</pre>	1.270 0.002 590.0 0.000 0.00 0.00 0.0 0.600 0 600 Pipe/Conduit	28.561 0.048 590.0 0.000 0.00 0.00 0.00 0.000 0.000 0.000 Pipe/Conduit	0.024 1/0.0 0.000 1.361 50.0 0.000	Network Besults Table	PN Rain T.C. US/IL DI.Area Dase Foul Add Flow Vel Cap Flow (mm/hr) (mins) (m) (ha) Flow (1/s) (1/s) (1/s) (1/s) (1/s) (1/s)	43.03 10.87 48.558 1.794 0.0 0.0 42.8 1.00 281.4 50 0.0 50.7 48.509 0.000 10.1 0.0 17 1.00 281.4	5.68 48.485 0.000 10.1 0.0 2.0	, P	JIC	©1982-2020 Innovyze	
Mez	O'Connor Sutton Cronin	9 Prussia Street Dublin 7	7	Date 24/08/2022 15:56	File S665-OCSC-1B-MH-M3	XP Solutions													

Street PRIMARY CARE CENTRE AND NUESTRG HOME 9/2022 15:56 Designed by EH -OCSC-IB-MH-W3C-0001.01.MIX Designed by WK Number Type Name (%) Area (ha) Area 1001 - - 1003 As Zoned Hardstanding 1003 As Zoned Hardstanding 0.012 1003 As Zoned Hardstanding 0.016 0.046 1003 Distribution 0.016 0.046 0.046 1003 As Zoned Hardstanding 100 0.016 0.046	In 7 RINIARY GRE CENTRE In 7 AND NURSING HOKE In 7 Designed by EH S655-CSC-IB-MH-M3-C-0001.01,MDX Designed by EH S655-CSC-IB-MH-M3-C-0001.01,MDX Cost S655-CSC-IB-MH-M3-C-0001.01,MDX Designed by MK S655-CSC-IB-MH-M3-C-0001.01,MDX Cost S655-CSC-IB-MH-M3-COST Cost S655-CSC-IB-MH-M3-C-0001.01,MDX Cost S655-CSC-IB-MH-M3-COST Cost S655-CSC-IB-MH-M3-CSC Cost S655-CSC-IB-MH-M3-CSC Cost S655 Cost S650 Cost S650 Cost <t< th=""><th>Initial And Nutristing Activity Care Cantrel and and Set-062/2012 15:56 And Nutristing Activity Activity Care Cantrel Activity Set-002/2014.MX And Nutristing Activity Activity Set-002/2014.MX Initial Set-062/2012 15:56 Designed by Nit Set-002/2014.MX Designed by Nit Activity Set-002/2014.MX Designed by Nit Set-002/2014. Activity Set-002/2014.MX Initial Set-002/2014.MX Designed by Nit Activity Set-002/2014.</th><th>(1)</th><th></th><th></th><th></th><th></th><th></th><th>Page 8</th></t<>	Initial And Nutristing Activity Care Cantrel and and Set-062/2012 15:56 And Nutristing Activity Activity Care Cantrel Activity Set-002/2014.MX And Nutristing Activity Activity Set-002/2014.MX Initial Set-062/2012 15:56 Designed by Nit Set-002/2014.MX Designed by Nit Activity Set-002/2014.MX Designed by Nit Set-002/2014. Activity Set-002/2014.MX Initial Set-002/2014.MX Designed by Nit Activity Set-002/2014.	(1)						Page 8
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	In 7 AND WREING HOME Ind 7 24/08/2022 15:56 Designed by EH 5665-coSc-1B-MH-M3-C-0001.01.KIX LencxK 2020.1.3 Set5-coSc-1B-MH-M3-C-0001.01.KIX Retwork 2020.1.3 Jultions Area Summary for Storn Retwork 2020.1.3 Retwork 2020.1.3 Submary for storn Retwork 2020.1.3 Submary for storn Retwork 2020.1.3 Area Summary for storn Retwork 2020.1.3 Number Type Number Type 1000 - 001.01.KIX Retwork 2020.1.3 Retwork 2020.1.3 Area Summary for storn Retwork 2020.1.3 Number Type Number Type 1001 - 001.01.KIX 1002 - 001.	In 7 AND URE TIG HOR In 7 Extend 19 EH 24/00/2022 15:56 Designed by EK 5663-5CS5-1B-MH-M33-COOL, 31, MX Extended by EK 5663-5CS5-1B-MH-M34-F Extended by EK 5663-5CS5-1B-MH-M34-F Extended by EK 5664 Extended by EK 5664 Extended by Extended by EK 5664 Extended by Extended by EK 5664 Extended by Extended by Extended by Extended by Extended by EK 1003 Extended by Extended by Extended by Extended by EK 1003 Extended by Extend by Extended by Extended by Exten	70		PRIMARY	CARE CENTRE			
24/06/2022 15:56 Designed by EH S665-0CSC-1B-MH-M3-C-000(.01, MDX Interced by MK Se65-0CSC-1B-MH-M3-C-000(.01, MDX Area Summary for Storm Pipe PMM PIMP Cores Long T1000 - - 100 T2001 - - 100 - Mumber Type PIMP Cores Immary for Storm Number Type Name (9) Area (ha) Area (ha) 1000 - - 100 - 1001 - - 100 0.121 0.121 1001 - - 100 0.131 0.121 1000 - - 100 0.131 0.121 1001 - - 100 0.131 0.121 1001 - - 100 0.131 0.131 2.0001 - - 100 0.131 0.148 2.001 - - 100 0.146 0.146 2.001 - - 100 0.146 0.146 2.001 - - 100 0.146 0.146 1.005 - - 100 0.016 2.001 - -	$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	olin 7 eland		AND NURS	ING HOME			Mirch
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Sef65C3C-1B-Mei-W3-C-0001.01. MC interval for Storm interval interval for Storm interval interval for Storm interval for Store interval interval for Store interval interval interval for Store interval	24/08/2022	0	Designed	ЬУ ЕН			
Solutions Metwork 2020.1.3 Area Number Type PINP Cross Imp. Number Type Name [4] Area [4] Area Number Type Name [4] Area [4] Area Number Type Name [4] Area [4] Area 1000 1.0001 As Zoned Hardstanding 100 0.0135 0.0135 2.000 As Zoned Hardstanding 100 0.0146 0.046 3.001 As Zoned Hardstanding 100 0.016 0.046 3.001 As Zoned Hardstanding 100 0.046 0.046 3.001 As Zoned Hardstanding 100 0.046 0.046 3.001 A Zoned Hardstanding 100 0.046 0.046 1.005 As Zoned Hardstanding 100 0.046	Pipe Network 2020.1.3 Pipe Zink Area Summary for Storm Number Type Number Type Number Type Area Lup. Pipe Pipe Number Type Number Type Number Fine Gross Imp. Pipe 1.000 - - 100 0.121 0.121 0.121 1 1.001 - - 100 0.136 0.046 0.046 0.046 0.046 0.046 0.046 0.046 0.046 0.046 0.046 0.046 0.046 0.046 0.046 0.046 0.046 0.046 0.046 0.046 0.	Solutions Area Summary for storm Page Page Page Page Page Page Page Page Page Page Page Page Page Number Type Number Type Number Page Page Page Page Number Type Number Find Find Cores Tup. Oil 1.000 As Somed Hardstanding 100 0.035 0.035 0.035 2.001 As Somed Hardstanding 100 0.046 0.046 2.001 As Somed Hardstanding 100 0.046 0.046 2.001 As Somed Hardstanding 100 0.046 <td< th=""><th></th><th>-0001.01.MDX</th><th></th><th>by MK</th><th></th><th></th><th>חומוומלב</th></td<>		-0001.01.MDX		by MK			חומוומלב
PINP Area Summary for Storm Pipe Type PIMP PIMP PIMP PIMP PIMP PIMP Pipe Pipe Type Name (a) Area (ha) Area (ha) Pipe Type Name (a) Area (ha) Area (ha) (ha) As Zoned Hardstanding 100 0.0121 0.121 0.121 As Zoned Hardstanding 100 0.046 0.046 0.046 As Zoned Hardstanding 100 0.046 0.046 0.046 As Zoned Hardstanding 100 0.046 0.046 0.046 As Zoned Hardstanding 100 0.046 0.046 0.046 0.046 0.046 0.046 0.046 0.046 0.046 0.046 0.046 0.046 0.046 0.046 0.046 0.046 0.046 0.046 0.046 0.0	Area Summary for Storm PINP PINP FINP Finp<	Area Summary for Summary for Storm PINE PINE PINE FINE PINE			Network	•			
FIMEF	FINEFINEFINEFINEGrossImp.Pine <thp< th=""><th>FIMEFIMEFIMECrossImp.PimeFimeFimeFimeFimeFimeFimeFine</th><th></th><th></th><th></th><th>for</th><th>ц</th><th></th><th></th></thp<>	FIMEFIMEFIMECrossImp.PimeFimeFimeFimeFimeFimeFimeFine				for	ц		
TypeName(*)Area(ha)Area(ha)(h	TypeName(%)Area(ha)Area(ha)(ha)(ha)(ha) $ -$ <th>TypeName(%)Area(ha)Area(ha)(h</th> <th></th> <th></th> <th></th> <th></th> <th>Imp.</th> <th>Pipe Total</th> <th></th>	TypeName(%)Area(ha)Area(ha)(h					Imp.	Pipe Total	
100 0.121 0.121 100 0.036 100 0.036 0.036 100 0.048 0.048 100 0.048 0.048 100 0.046 0.046 As2cnedHardstanding100 0.046 100 0.046 0.046 100 0.046 0.046 As2cnedHardstanding100 0.006 0.046 As100 0.046 <	As Zoned Hardstanding 100 0.121 0.121 100 0.036 0.036 100 0.048 0.048 100 0.048 0.048 100 0.046 0.046 As Zoned Hardstanding 100 0.046 0.046 100 0.0005 0.005 100 0.006 0.006 100 0.006 0.006 	As Zoned Hardstanding 100 0.121 0.121 - 100 0.036 0.036 As Zoned Hardstanding 100 0.048 0.048 As Zoned Hardstanding 100 0.011 0.011 As Zoned Hardstanding 100 0.046 0.046 - 100 0.046 0.046 As Zoned Hardstanding 100 0.006 As Zoned Hardstanding 100 0.0006 0.0006 0.006 As Zoned Hardstanding 100 0.0006 0.0006 0.0006 As Zoned Hardstanding 100 0.0006 0.0006 0.006 As Zoned Hardstanding 100 0.0006 0.0006 0.0006 0.0006 As Zoned Hardstanding 100 0.0006					Area	(ha)	
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	As Zoned Hardstanding 100 0.036 0.036 100 0.048 0.048 100 0.048 0.048 As Zoned Hardstanding 100 0.046 0.046 100 0.0006 100 0.0006 0.006 100 0.006 0.006 100 0.000 0.000 100 0.000 0.000 	As Zoned Hardstanding 100 0.036 0.036 As Zoned Hardstanding 100 0.048 0.048 As Zoned Hardstanding 100 0.011 0.011 As Zoned Hardstanding 100 0.046 0.046 As Zoned Hardstanding 100 0.005 As Zoned Hardstanding 100 0.006 0.046 As Zoned Hardstanding 100 0.005 0.046 As Zoned Hardstanding 100 0.0006 0.046 As Zoned Hardstanding 100 0.0006 0.046 As Zoned Hardstanding 100 0.0006 0.0006 As Zoned Hardstanding 2000 0.0000 0.0006 As Zoned Hardstanding 2000 0.0000 0.0006 As Zoned Hardstanding 2000 0.0006 0.0006 As Zoned Hardstand			T				
As Zoned Hardstanding 100 0.005 0.005 100 0.048 0.048 As Zoned Hardstanding 100 0.011 0.011 As Zoned Hardstanding 100 0.046 0.046 100 0.046 0.046 As Zoned Hardstanding 100 0.010 0.016 As Zoned 10 0.046 0.046 As Zoned 10 0.009 0.009 As Zoned 10 0.006 0.046 As Zoned 10 0.006 0.046 As Zoned 10 0.006 0.046 As Zoned 10 0.006 0.046 As Zoned 10 0.006 0.006 As Zoned 0.006 As Zoned 0.006 0.006 As Zoned 0.0	As Zoned Hardstanding 100 0.005 0.005 - 100 0.048 0.048 As Zoned Hardstanding 100 0.011 0.011 As Zoned Hardstanding 100 0.046 0.046 - 100 0.046 0.046 As Zoned Hardstanding 100 0.046 0.046 As Zoned Hardstanding 100 0.046 0.046 As Zoned Default 100 0.046 0.046 As Zoned Hardstanding 100 0.046 0.046 As Zoned Hardstanding 100 0.046 0.046 As Zoned Hardstanding 100 0.006 0.006 As Zoned Default 100 0.0006 0.0006 As Zoned Default 100 0.0006 0.0006 As Zoned Default 100 0.0006 0.0006 As Zoned Default 200 0.000 0.0006 0.0006 As Zoned Default 200 0.000 0.0006 0.0006 As Zoned Default 200 0.0000 0.0006 0.0006 As Zoned Default 200 0.0000 0.0006 0.0006 As Zoned Default 200 0.0000 0.0006 0.0006 As Zoned Default 200 0.0000 0.0006 As Zoned Default 200 0.0000 0.0006 As Zoned Default 200 0.0000 0.0000 0.0006 As Zoned Default 200 0.0000 0.00000 0.00000 As Zoned Default 200 0.0000 0.0000 0.0000 0.00000000000	As zoned Hardstanding 100 0.005 0.005 - 100 0.048 0.048 As zoned Hardstanding 100 0.011 0.011 As zoned Hardstanding 100 0.016 0.046 - 100 0.046 0.046 - 100 0.046 0.046 As zoned Hardstanding 100 0.010 0.016 Hardstanding 100 0.046 0.046 - 100 0.046 0.046 As zoned Hardstanding 100 0.010 Hardstanding 100 0.046 0.046 As zoned Hardstanding 100 0.006 As zoned Hardstanding 100 0.005 As zoned Hardstanding 100 0.006 As zoned Hardstanding 100 0.0006 As zoned Hardstanding 100 0.0006 As zoned Hardstanding 2000 As zoned 20000			' S				
As Zoned Hardstanding 100 0.046 0.048 As Zoned Hardstanding 100 0.011 0.011 As Zoned Hardstanding 100 0.046 0.046 - $-$ 100 0.046 0.046 As Zoned Hardstanding 100 0.046 0.046 - $-$ 100 0.046 0.046 Hardstanding 100 0.046 0.046 - $-$ 100 0.046 0.046 As Zoned Hardstanding 100 0.046 0.046 As Zoned Default 100 0.046 0.046 Hardstanding 100 0.005 As Zoned Default 100 0.006 Hardstanding 100 0.006 0.046 0.046 As Zoned Hardstanding 100 0.006 As Zoned Default 100 0.005 As Zoned Default 2005 0.	As Zoned Hardstanding 100 0.046 0.048 As Zoned Hardstanding 100 0.011 0.011 As Zoned Hardstanding 100 0.046 0.046 100 0.046 0.046 As Zoned Hardstanding 100 0.046 0.046 As Zoned Default 100 0.046 0.046 As Zoned Hardstanding 100 0.046 0.046 As Zoned Default 100 0.0006 0.005 As Zoned Default 100 0.0006 0.0006 As Zoned Default 100 0.0006 0.0006 As Zoned Default 100 0.0006 0.0006 0.005 As Zoned Default 100 0.0006 0.0006 As Zoned Default 100 0.0006 0.0006 0.0006 As Zoned Default 200 0.0000 0.0006 0.0006 As Zoned Default 200 0.0000 0.0006 0.0006 As Zoned Default 200 0.000 0.0006 0.0006 As Zoned Default 200 0.0006 0.0006 As Zo	As Zoned Hardstanding 100 0.046 0.048 As Zoned Hardstanding 100 0.011 0.011 As Zoned Hardstanding 100 0.046 0.046 100 0.046 0.046 - 100 0.046 0.046 - 100 0.046 0.046 As Zoned Hardstanding 100 0.010 0.010 Hardstanding 100 0.046 0.046 As Zoned Default 100 0.046 0.046 As Zoned Hardstanding 100 0.046 0.046 As Zoned Default 100 0.046 0.046 As Zoned Default 100 0.006 0.006 As Zoned Default 200 0.000 0.0006 0.0006 As Zoned Default 200 0.000 0.0006 As Zoned Default 200 0.0006 0.		As					
As Zoned Hardstanding 100 0.011 0.011 As Zoned Hardstanding 100 0.046 0.046 100 0.046 0.046 As Zoned Hardstanding 100 0.010 0.010 Hardstanding 100 0.010 0.016 As Zoned Hardstanding 100 0.046 0.046 As Zoned Hardstanding 100 0.006 0.046 As Zoned Hardstanding 100 0.046 0.046 As Zoned Default 100 0.006 0.006 Hardstanding 100 0.006 0.006 As Zoned Default 100 0.006 0.006 Hardstanding 100 0.006 0.006 As Zoned Default 100 0.006 0.006 As Zoned 100 0.006 0.006 As Zoned 100 0.006 0.006 As Zoned 100 0.006 0.006 As Zoned Default 100 0.006 0.006 As Zoned Default 100 0.006 0.006 As Zoned 100 0.006 0.006 As Zoned Default 100 0.005 0.055 As Zoned 0.000 0.000 0.006	As Zoned Hardstanding 100 0.011 0.011 As Zoned Hardstanding 100 0.046 0.046 100 0.046 0.046 As Zoned Hardstanding 100 0.010 0.010 Hardstanding 100 0.010 0.010 As Zoned Default 100 0.046 0.046 As Zoned Hardstanding 100 0.046 0.046 As Zoned Hardstanding 100 0.046 0.046 As Zoned Hardstanding 100 0.006 0.006 Hardstanding 100 0.006 0.006 As Zoned Hardstanding 100 0.000 0.006 As Zoned Hardstanding 100 0.000 0.000 As Zoned Hardstanding 100 0.000 0.000 0.000 0.000 As Zoned Hardstanding 100 0.0	As Zoned Hardstanding 100 0.011 0.011 As Zoned Hardstanding 100 0.046 0.046 100 0.010 0.010 As Zoned Hardstanding 100 0.010 0.010 Hardstanding 100 0.010 0.010 Hardstanding 100 0.046 0.046 As Zoned Default 100 0.046 0.046 As Zoned Default 100 0.046 0.046 Hardstanding 100 0.046 0.046 As Zoned Default 100 0.005 0.005 As Zoned Default 100 0.006 0.046 Hardstanding 100 0.006 0.006 As Zoned Default 100 0.005 0.055 As Zoned Default 100 0.006 0.006 As Zoned Default 100 0.006 0.005 As Zoned Default 100 0.006 0.005 As Zoned Default 100 0.005 0.055 As Zoned Default 100 0.000 0.000 As Zoned Default 100 0.000 0.000 As Zoned Default 100 0.000 As Zoned Default 200 0.000 As Zoned Zoned Zone 200 0.000 As Zoned 200 0.000 As Zoned 200 0.000 As Zone 200 0			1 1				
As Zoned Hardstanding 100 0.046 0.046 - - - 100 0.046 0.046 As Zoned Default 100 0.010 0.016 0.046 As Zoned Hardstanding 100 0.010 0.016 0.016 As Zoned Hardstanding 100 0.010 0.016 0.016 As Zoned Hardstanding 100 0.046 0.046 0.046 As Zoned Default 100 0.006 0.006 0.006 As Zoned Hardstanding 100 0.006 <td>As Zoned Hardstanding 100 0.046 0.046 100 0.046 0.046 As Zoned Hardstanding 100 0.010 0.010 Hardstanding 100 0.009 0.009 100 0.046 0.046 As Zoned Hardstanding 100 0.046 0.046 As Zoned Default 100 0.006 0.006 Hardstanding 100 0.006 0.006 As Zoned Default 100 0.006 0.006 As Zoned 100 0.006 0.006 As Zoned 0.046 0.046 - 100 0.000 0.006 Hardstanding 100 0.006 - 100 0.006 0.006 As Zoned 100 0.000 As Zoned 0.046 0.046 - 100 0.000 - 100 0.000 - 100 0.000 - 100 0.000 - 100 0.000 - 168 0.168 - 100 0.000 - 100</td> <td>As Zoned Hardstanding 100 0.046 0.046 - 100 0.046 0.046 As Zoned Default 100 0.010 0.010 Hardstanding 100 0.046 0.046 As Zoned Default 100 0.006 0.006 Hardstanding 100 0.006 0.006 As Zoned Default 200 0.000 0.006 As Zoned Default 200 0.006 0.006 As Zoned Default 200 0.000 0.000 As Zoned Default 200 0.0</td> <td></td> <td>As</td> <td></td> <td></td> <td></td> <td></td> <td></td>	As Zoned Hardstanding 100 0.046 0.046 100 0.046 0.046 As Zoned Hardstanding 100 0.010 0.010 Hardstanding 100 0.009 0.009 100 0.046 0.046 As Zoned Hardstanding 100 0.046 0.046 As Zoned Default 100 0.006 0.006 Hardstanding 100 0.006 0.006 As Zoned Default 100 0.006 0.006 As Zoned 100 0.006 0.006 As Zoned 0.046 0.046 - 100 0.000 0.006 Hardstanding 100 0.006 - 100 0.006 0.006 As Zoned 100 0.000 As Zoned 0.046 0.046 - 100 0.000 - 100 0.000 - 100 0.000 - 100 0.000 - 100 0.000 - 168 0.168 - 100 0.000 - 100	As Zoned Hardstanding 100 0.046 0.046 - 100 0.046 0.046 As Zoned Default 100 0.010 0.010 Hardstanding 100 0.046 0.046 As Zoned Default 100 0.006 0.006 Hardstanding 100 0.006 0.006 As Zoned Default 200 0.000 0.006 As Zoned Default 200 0.006 0.006 As Zoned Default 200 0.000 0.000 As Zoned Default 200 0.0		As					
- - 100 0.046 0.046 As Zoned Default 100 0.010 0.046 0.046 - - - 100 0.046 0.046 0.046 - - - 100 0.046 0.046 0.046 - - - - 100 0.046 0.046 - - - 100 0.046 0.046 0.046 As Zoned Default 100 0.066 0.006 0.006 As Zoned Default 100 0.066 0.006 0.006 As Zoned Hardstanding 100 0.046 0.046 0.046 As Zoned Default 100 0.016 0.006 0.006 As Zoned Hardstanding 100 0.016 0.016 0.016 As Zoned Hardstanding 100 0.006 0.006 0.006 As Zoned Hardstanding 100 0.016 0.016 0.016 As Zoned Hardstanding 100 0.006 0	- - 100 0.046 0.046 As Zoned Default 100 0.010 0.046 0.046 As Zoned Hardstanding 100 0.046 0.046 0.046 - - 100 0.046 0.046 0.046 - - 100 0.046 0.046 0.046 - - 100 0.046 0.046 0.046 - - 100 0.005 0.046 0.046 As Zoned Hardstanding 100 0.006 0.046 0.046 As Zoned Hardstanding 100 0.006 0.005 0.005 As Zoned Hardstanding 100 0.046 0.046 0.046 As Zoned Hardstanding 100 0.006 0.005 0.055 As Zoned Hardstanding 100 0.046 0.046 0.046 As Zoned Hardstanding 100 0.006 0.046 0.046 0.046 As Zoned Default 100 0.006 0.006 0.006	As Zoned Default 100 0.046 0.046 As Zoned Default 100 0.010 0.010 Hardstanding 100 0.009 0.009 As Zoned Hardstanding 100 0.046 0.046 As Zoned Hardstanding 100 0.046 0.046 As Zoned Hardstanding 100 0.006 0.006 As Zoned 100 0.006 0.006 As Zoned 100 0.006 0.006 Hardstanding 100 0.006 0.006 As Zoned 100 0.006 0.006 100 0.046 0.046 As Zoned 100 0.006 0.006 100 0.006 0.046 100 0.006 0.006 100 0.006 0.006 100 0.006 0.006 100 0.000 0.000 100 0.000 0.000		As				0	
As Zoned Default 100 0.010 0.010 - Hardstanding 100 0.009 0.009 100 0.046 0.046 As Zoned Hardstanding 100 0.006 0.046 As Zoned Hardstanding 100 0.006 0.006 Hardstanding 100 0.006 0.006 As Zoned Default 100 0.006 0.006 Hardstanding 100 0.006 0.006 As Zoned 100 0.006 0.006 Hardstanding 100 0.006 0.006 - 100 0.016 0.046 - 100 0.016 0.046 - 100 0.016 0.046 - 100 0.006 0.006 - 100 0.005 0.005 - 100 0.006 0.006 - 100 0.000 0.006	As Zoned Default 100 0.010 0.010 - Hardstanding 100 0.009 0.006 - 100 0.046 0.046 As Zoned Default 100 0.006 0.006 Hardstanding 100 0.005 0.005 As Zoned Default 100 0.006 0.006 Hardstanding 100 0.006 0.006 As Zoned Default 100 0.006 0.006 Hardstanding 100 0.006 0.006 As Zoned Default 100 0.005 0.005 - 100 0.006 0.046 As Zoned Default 100 0.005 0.005 - 100 0.006 0.046 As Zoned Default 100 0.005 0.005 - 100 0.006 0.046 As Zoned Default 100 0.007 0.005 - 100 0.000 0.006 - 100 0.000 0.006 - 100 0.000 0.000 - 100 0.000 0.000 0.000 0.000 - 100 0.00	As Zoned Default 100 0.010 0.010 - Hardstanding 100 0.046 0.046 - 100 0.046 0.046 As Zoned Default 100 0.066 0.006 As Zoned Hardstanding 100 0.066 0.006 As Zoned Hardstanding 100 0.006 0.006 As Zoned 100 0.006 0.006 Ardstanding 100 0.016 0.046 - 100 0.016 0.046 - 100 0.016 0.046 As Zoned Default 100 0.016 0.046 - 100 0.016 0.046 - 100 0.006 0.006 - 100 0.000 0.000 - 100 0.000 - 100 0.000 0.000 - 100 0.0							
Hardstanding 100 0.009 0.009 - - 100 0.046 0.046 As Zoned Default 100 0.046 0.046 As Zoned Hardstanding 100 0.046 0.046 0.046 As Zoned Default 100 0.005 0.006 0.006 As Zoned Default 100 0.006 0.006 0.006 As Zoned Default 100 0.006 0.006 0.006 As Zoned Hardstanding 100 0.006 0.006 0.006 As Zoned Hardstanding 100 0.016 0.046 0.046 As Zoned Hardstanding 100 0.001 0.016 0.006 As Zoned Hardstanding 100 0.006 0.006 0.006 As Zoned Hardstanding 100 0.006 0.006 0.006 - - - 100 0.006 0.006 0.006 0.006	Hardstanding 100 0.009 0.009 - - 100 0.046 0.046 - - - 100 0.046 0.046 - - - 100 0.046 0.046 0.046 As Zoned Default 100 0.005 0.006 0.006 As Zoned Default 100 0.006 0.006 0.006 As Zoned Default 100 0.006 0.006 0.006 As Zoned Default 100 0.006 0.006 0.006 As Zoned Default 100 0.001 0.006 0.006 As Zoned Default 100 0.001 0.001 0.006 As Zoned Hardstanding 100 0.006 0.006 0.006 As Zoned Hardstanding 100 0.007 0.006 0.006 As Coned 0.006 0.006 0.006 0.006 0.006 As Coned	Hardstanding 100 0.009 0.009 - - 100 0.046 0.046 - - 100 0.046 0.046 - - 100 0.046 0.046 As Zoned Default 100 0.005 0.006 As Zoned Hardstanding 100 0.006 0.006 As Zoned Default 100 0.006 0.006 As Zoned Hardstanding 100 0.006 0.006 As Zoned Hardstanding 100 0.046 0.046 As Zoned Hardstanding 100 0.016 0.046 As Zoned Hardstanding 100 0.016 0.046 As Zoned Hardstanding 100 0.016 0.0168 As Zoned Hardstanding 100 0.006 0.006 As Indot 0.0168 0.046 0.046 F - 100 0.006 0.006 F <t< td=""><td></td><td>As</td><td>Ť</td><td></td><td></td><td></td><td></td></t<>		As	Ť				
- 100 0.046 0.046 As Zoned Default 100 0.046 0.046 As Zoned Default 100 0.046 0.046 As Zoned Hardstanding 100 0.005 0.006 As Zoned Default 100 0.005 0.006 As Zoned Default 100 0.006 0.006 As Zoned Default 100 0.006 0.006 As Zoned Hardstanding 100 0.016 0.046 As Zoned Hardstanding 100 0.016 0.016 As Zoned Hardstanding 100 0.001 0.016 As Zoned Hardstanding 100 0.006 0.006 As Zoned Hardstanding 100 0.006 0.006 As Zoned Hardstanding 100 0.055 0.055 - 100 0.055 0.055 0.055	- 100 0.046 0.046 As Zoned Default 100 0.046 0.046 As Zoned Default 100 0.005 0.006 As Zoned Hardstanding 100 0.006 0.005 As Zoned Default 100 0.006 0.005 As Zoned Default 100 0.006 0.005 As Zoned Hardstanding 100 0.006 0.046 0.046 As Zoned Default 100 0.0146 0.046 0.046 As Zoned Hardstanding 100 0.001 0.046 0.046 As Zoned Hardstanding 100 0.006 0.046 0.046 As Zoned Hardstanding 100 0.001 0.046 0.046 Hardstanding 100 0.006 0.006 0.066 0.066 - - 100 0.006 0.006 0.006 0.006 - - - 100 0.006 0.006 0.006 - - - -	<pre>- 100 0.046 0.046 0.046 0.046 0.046 As Zoned Default 100 0.006 0.006 0.006 0.006 As Zoned Hardstanding 100 0.006 0.006 0.006 0.006 0.006 0.006 0.006 0.006 0.006 0.006 0.006 0.040 0.046 0.</pre>				2			
As Zoned Default 100 0.006 0.006 As Zoned Hardstanding 100 0.005 0.005 As Zoned Hardstanding 100 0.006 0.006 - Default 100 0.006 0.006 - 100 0.0046 0.005 As Zoned Default 100 0.001 0.001 As Zoned Default 100 0.001 0.001 - 100 0.006 0.006 - 100 0.005 0.005 - 100 0.000 0.000 - 100 0.005 0.005 - 100 0.000 0.000	As Zoned Default 100 0.005 0.006 As Zoned Hardstanding 100 0.005 0.006 As Zoned Hardstanding 100 0.006 0.006 As Zoned Hardstanding 100 0.0046 0.046 As Zoned Default 100 0.001 0.001 As Zoned Default 100 0.001 0.001 As Zoned 0.006 0.006 As Zoned Default 100 0.001 0.001 As Zoned Hardstanding 100 0.006 0.006 As Zoned 100 0.000 0.000 A Default 200 0.000 A De	As Zoned Default 100 0.005 0.006 As Zoned Bardstanding 100 0.005 0.005 As Zoned Default 100 0.005 0.005 Hardstanding 100 0.006 0.046 - 100 0.046 0.046 As Zoned Bardst 100 0.001 0.001 As Zoned Default 100 0.006 0.006 - 100 0.006 0.005 - 100 0.000 0.000 - 100 0.000 0.000 - 100 0.005 0.095 - 100 0.000 0.000 - 100 0.000 - 100 0.000 0.000 - 100 0.000			1				
As Zoned Hardstanding 100 0.005 0.005 As Zoned Default 100 0.006 0.005 - Default 100 0.005 0.005 - - 100 0.005 0.005 - - 100 0.006 0.005 - - 100 0.046 0.046 As Zoned Default 100 0.016 0.016 Hardstanding 100 0.016 0.016 0.016 - - 100 0.005 0.006 0.006 - - 100 0.005 0.006 0.006 - - - 100 0.005 0.006 - - - 100 0.006 0.006 - - - 100 0.005 0.006 - - - 100 0.055 0.055 - - 100 0.055 0.055 0.055	As Zoned Hardstanding 100 0.005 0.005 As Zoned Default 100 0.006 0.006 Hardstanding 100 0.005 0.005 - 100 0.046 0.046 As Zoned Default 100 0.01 0.001 Hardstanding 100 0.016 0.006 0.066 0.006 - 100 0.000 0.000 0.006 0.005 - 100 0.000 0.000 - 100 0.005 0.005 - 100 0.000 0.000 - 100 0.000 0.000 - 100 0.005 0.005 - 100 0.000 0.000 - 100 0.000 0.	As Zoned Hardstanding 100 0.005 0.005 As Zoned Default 100 0.006 0.006 Hardstanding 100 0.006 0.006 Hardstanding 100 0.046 0.046 As Zoned Default 100 0.01 0.001 Hardstanding 100 0.016 0.006 C 0.066 0.006 0.006 C 0.006 0.006 0.006 C 0.006 0.006 C 0.006 0.006 C 0.006 0.006 C 0.006 0.006 C 0.006 0.000 C 0.005 0.095 C 0.055 0.055 C 0.070 0.070 C 0.070 0.070 C 0.070		N A					
As Zoned Default 100 0.006 0.006 Hardstanding 100 0.005 0.005 100 0.046 0.046 As Zoned Default 100 0.001 0.001 Hardstanding 100 0.006 0.006 100 0.006 0.006 100 0.006 0.006 100 0.000 0.000 100 0.005 0.095 100 0.000 0.000	As Zoned Default 100 0.006 0.006 Hardstanding 100 0.005 0.005 100 0.046 0.046 As Zoned Default 100 0.001 0.001 Hardstanding 100 0.006 0.006 100 0.006 0.006 100 0.006 0.006 100 0.000 0.000 100 0.000 0.000 	As Zoned Default 100 0.006 0.006 Hardstanding 100 0.005 0.005 100 0.046 0.046 As Zoned Default 100 0.001 0.001 Hardstanding 100 0.006 0.006 100 0.006 0.006 100 0.006 0.006 100 0.000 0.000 100 0.000 0.000 							
Hardstanding 100 0.005 0.005 - - 100 0.046 0.046 - - 100 0.046 0.046 - - 100 0.046 0.046 As Zoned Default 100 0.011 0.011 As Zoned Default 100 0.006 0.006 - - 100 0.168 0.168 - - 100 0.168 0.168 - - 100 0.000 0.000 - - 100 0.055 0.055 - - 100 0.055 0.055	Hardstanding 100 0.005 0.005 - - 100 0.046 0.046 - - 100 0.046 0.046 - - 100 0.046 0.046 - - 100 0.016 0.001 - - 100 0.006 0.006 - - 100 0.168 0.168 - - 100 0.168 0.168 - - 100 0.000 0.005 - - 100 0.005 0.055 - - 100 0.005 0.055 - - 100 0.070 0.070 - - 100 0.077 0.070 - - 100 0.077 0.070	Hardstanding 100 0.005 0.005 - - 100 0.046 0.046 - - 100 0.046 0.046 - - - 100 0.046 0.046 As Default 100 0.001 0.001 0.001 Hardstanding 100 0.006 0.006 0.006 - - 100 0.168 0.168 - - 100 0.006 0.000 - - 100 0.005 0.005 - - 100 0.005 0.055 - - 100 0.070 0.070 - - 100 0.077 0.070 - - 100 0.077 0.070 - - 100 0.077 0.070 - - 100 0.077 0.070 - - 100 0.077 0.070 - - 100 0.077 0.070		As	Default		C		
- 100 0.046 0.046 - 100 0.046 0.046 As Zoned Default 100 0.001 0.046 Hardstanding 100 0.006 0.006 0.006 - 100 0.168 0.168 0.168 - 100 0.006 0.006 0.006 - 100 0.006 0.000 0.000 - 100 0.000 0.000 0.000 - 100 0.055 0.005 0.005 - 100 0.055 0.055 0.055	As Zoned Default 100 0.046 0.046 As Zoned Default 100 0.001 0.001 Hardstanding 100 0.006 0.006 0.006 - - 100 0.006 0.006 0.006 - - 100 0.006 0.006 0.006 - - 100 0.000 0.006 0.006 - - 100 0.000 0.000 0.005 - - 100 0.000 0.005 0.055 0.055 - - 100 0.070 0.070 0.070 0.070 - - 100 0.077 0.077 0.070	As Zoned Default 100 0.046 0.046 As Zoned Default 100 0.001 0.001 Hardstanding 100 0.006 0.006 0.006 - - 100 0.006 0.006 0.006 - - 100 0.006 0.006 0.006 - - 100 0.006 0.006 0.006 - - 100 0.006 0.006 0.006 - - 100 0.005 0.005 0.005 - - 100 0.007 0.000 0.000 - - 100 0.005 0.005 0.055 - - 100 0.070 0.070 0.070 - - 100 0.077 0.077 0.0770			Hardstanding		>		
As Zoned Default 100 0.001 0.001 - Hardstanding 100 0.006 0.006 - 100 0.168 0.168 - 100 0.000 0.000 - 100 0.000 0.000 - 100 0.005 0.095 - 100 0.000 0.000	As Zoned Default 100 0.001 0.001 Hardstanding 100 0.006 0.006 - 100 0.168 0.168 - 100 0.000 0.000 - 100 0.000 0.000 - 100 0.005 0.095 - 100 0.005 0.095 - 100 0.070 0.000 - 100 0.070 0.070	As Zoned Default 100 0.001 0.001 Hardstanding 100 0.006 0.006 - 100 0.168 0.168 - 100 0.000 0.000 - 100 0.000 0.000 - 100 0.005 0.095 - 100 0.070 0.070 - 100 0.070 0.070			1 1				
Hardstanding 100 0.006 0.006 - 100 0.168 0.168 - 100 0.000 0.000 - 100 0.000 0.000 - 100 0.005 0.095 - 100 0.000 0.000 - 100 0.055 0.055	Hardstanding 100 0.006 0.006 Hardstanding 100 0.168 0.168 - 100 0.168 0.168 - 100 0.000 0.000 - 100 0.000 0.000 - 100 0.000 0.000 - 100 0.070 0.070 0.070 0.070 0.070	Hardstanding 100 0.006 0.006 - - 100 0.168 0.168 - - 100 0.168 0.168 - - 100 0.000 0.000 - - 100 0.005 0.095 - - 100 0.000 0.000 - - 100 0.070 0.070 - - 100 0.070 0.070 - - 100 0.070 0.070 - - 100 0.070 0.070		As				0	
- 100 0.168 0.168 - 100 0.000 0.000 - 100 0.095 0.095 - 100 0.000 - 100 0.000 - 100 0.055 0.055	- 100 0.168 0.168 0.168 - 100 0.000 0.000 - 100 0.095 0.095 - 100 0.000 0.005 - 100 0.070 0.070 - 100 0.070 0.070 - 100 0.070	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$						Ś	
- 100 0.095 0.095 - 100 0.000 0.095 - 100 0.000 0.000 - 100 0.055 0.055	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	- - 100 0.005 0.005 - - 100 0.005 0.005 - - 100 0.005 0.005 - - 100 0.005 0.005 - - 100 0.070 0.070 - - 100 0.070 0.070 - - 100 0.070 0.070 - - 100 0.070 0.070 - - 100 0.070 0.070							
- 100 0.000 0.000 - 100 0.005 0.055									
100 0.055 0.055									
		100 0.070 0.070 0 ©1982-2020 Innovyze			I				
- 100 0.070 0.070 0	-2020	-2020			I			0.070	
-2020	C	onin			©1982-202			0	

Prussia Structure 001107 200 WIDGING GOUE 001107 200 WIDGING GOUE related 200 WIDGING GOUE relation 200 WIDGING GOUE	and and and sets after the and and set-orscall set-orscall set-orscall and and and set-orscall sets and and set-orscall and and and and and and and and and and	0'Connor Sutton Cronin							Page 9
n 7 AND NURSTIG AND NURSTIG </th <th>ATD T ATD ATD ATD ATD ATD ATD ATD 24/108/2022 15:156 Bestgreet by KK Bestgreet by KK Bestgreet by KK 5665-ccss-LB+redH-c5-c0001.01.MX Atta Burnary for storn Atta Burnary for storn 14110.01a Atta Burnary for storn Atta Burnary for storn 24/108/2022 Atta Burnary for storn Atta Burnary for storn 100 Atta Burnary for storn Atta Burnary for storn 101 Atta Burnary for storn Atta Burnary for storn 101 Atta Burnary for storn Atta Burnary for storn 101 Atta Burnary for storn Atta Burnary for storn 101 0.001 0.001 0.001 101 0.001 0.001 0.001 102 0.001 0.001 0.001 103 Atta Stord 0.001 0.001 100 0.001 0.001 0.001 100 0.001 0.001 0.001 100 0.001 0.001 0.001 100 0.001 0.001 0.001 100 0.001 0.001 0.001 100 0.001 0.001 0.001 100 0.001 0.001 <</th> <th>sia</th> <th></th> <th>PRIMARY</th> <th>CARE (</th> <th>ENTRE</th> <th></th> <th></th> <th></th>	ATD T ATD ATD ATD ATD ATD ATD ATD 24/108/2022 15:156 Bestgreet by KK Bestgreet by KK Bestgreet by KK 5665-ccss-LB+redH-c5-c0001.01.MX Atta Burnary for storn Atta Burnary for storn 14110.01a Atta Burnary for storn Atta Burnary for storn 24/108/2022 Atta Burnary for storn Atta Burnary for storn 100 Atta Burnary for storn Atta Burnary for storn 101 Atta Burnary for storn Atta Burnary for storn 101 Atta Burnary for storn Atta Burnary for storn 101 Atta Burnary for storn Atta Burnary for storn 101 0.001 0.001 0.001 101 0.001 0.001 0.001 102 0.001 0.001 0.001 103 Atta Stord 0.001 0.001 100 0.001 0.001 0.001 100 0.001 0.001 0.001 100 0.001 0.001 0.001 100 0.001 0.001 0.001 100 0.001 0.001 0.001 100 0.001 0.001 0.001 100 0.001 0.001 <	sia		PRIMARY	CARE (ENTRE			
24/08/2022 15:56 Designed by EH 5665-CCSC-1E-MH-M3-C-0001.01.MX Checked by MK 5665-CCSC-1E-MH-M3-C-0001.01.MX Checked by MK 5665-CCSC-1E-MH-M3-C-0001.01.MX Checked by MK Area Summary For Storm Number Type for 10.000 0.080 0	34/38/2022 15:56 Designed by EH 5669-0001.01.MDX Retrocted by MX 5669-0001.01.MDX Retrocted by MX 1utitions Retrocted by MX Allor See Summary for Stand Partial Partial Partia Partial Partial	Dublin 7 Ireland		AND NUR		ME			Mirch
Si65-Corso-LB-MH-W3-C-0000_01_MTX Checked by MK Number Type Pate Pate Pate Pate Pate Pate Pate Pate Pate <	SetG5-003C-1B-MH-M3-C-0001.01.MX Checked by MK Area Namery For Network 2020.1.3 Area Singe Ray Pare Gross Tarp Area Singe Ray Pare Gross Tarp Area Singe Pare Cons Cons Cons Area Singe Pare Cons Cons Cons Singe Cons Cons Cons Cons C	24/08/2022		Designed	bγ				
Solutions Network 2020.1.3 Price Price Prine For Storm Prine Prine Prine For Storm Number Type Prine For Storm Number Type Number Type Number Type Prine For Storm Number Type Prine For Storm Number Type Prine For Storm Number Type Number Type Number Type Prine For Storm Number Type Number Type Number Type Number Type Number Type Number Type Sold Construction Construction Stored Default Construction Number Default Do Number Default Do Number Do Do Stored Do Do Number Do Nu	Solutions Network 2020.1.3 Pipe Pine Area Summary for Storm Pipe Pipe Pipe Pine Pine Pine Pipe Pipe Number Pipe Pine Pine Cores Inp Pipe Number Pipe Pine Pine Cores Inp Pipe Number Pipe Pine Pine Cores Inp Pipe 9.001 9.001 9.001 0.001 0.001 0.001 0.001 9.001 0.011 0.011 0.011 0.011 0.011 0.011 9.002 0.01 0.011 0.011 0.010 0.010 0.010 10.00 0.010 0.001 0.001 0.001 0.000 0.000 0.000 11.001 1 1 1 1 0.014 0.014 0.014 11.002 1 1 1 1 1 0.014 0.014 11.000	Le S665-OCSC-1B-MH-M3-C-0001		Checked	by MK				חומוומלב
Area Summary for Storm Prive Prive Fine Timp. Prive Type Name Fine Gross Imp. Prive Type Name Fine Gross Imp. Prive Type Name Fine Gross Imp. Prive Type Name (%) Area Ana Airea Air Type 0.001 0.001 0.001 0.001 Airea Air Airea Air Type 100 0.0110 0.0110 0.0110 0.0111 0.0111 Type 100 0.0010 0.0010 0.0010 0.0010 0.0010 Type 100 0.0010 0.0010 0.0010 0.0010 As Zoned Bervious Paving 70 0.0010 0.0010 0.0010 Pervious Paving 70 0.0010 0.0000 0.0000 0.0000 Pervious Paving 70 0.0010 0.0010 0.0010 0.0010 Pervious Paving 70 0.0000 0.0000 0.0000<	Area Summary for Storm Prive Prive Time Gross Imp. Pipe Type Name (%) Area (ha) Area Ano. Pipe Type Name (%) Area (ha) Area Pipe Top Name (%) Area (ha) Area Pipe Top Name (%) Area (ha) Area Pipe Top Name Name Name Name Name Name Top Name Name Name Name Name Name Name As Zoned Default Name Namo <td>XP Solutions</td> <td></td> <td>Network</td> <td>•</td> <td>•</td> <td></td> <td></td> <td></td>	XP Solutions		Network	•	•			
PINE FINE 1	PINE PINE FINE FINE <t< td=""><td></td><td>त्य</td><td></td><td></td><td>Storm</td><td></td><td></td><td></td></t<>		त्य			Storm			
TypeName(%)Area(ha)Area(ha) I 1000.0800.0800.0800.0801000.2210.2210.2211000.0410.0410.0411000.0150.0310.0311000.0150.0150.0311000.0150.0150.0151000.0000.0000.0001000.0000.0001000.0010.0011000.0010.0011000.0000.0001000.0010.0011000.0010.0011000.0010.0011000.0000.0001000.0000.0001000.0000.0001000.0000.0001000.0000.0001000.0000.0001000.0000.0001000.0000.0001000.0000.0001000.0001000.0001000.000 <th>Type Name (%) Area (ha) Area (ha) Area (ha) Area (ha) Area (ha) (ha)</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>ipe Total</th> <th></th>	Type Name (%) Area (ha) Area (ha) Area (ha) Area (ha) Area (ha)							ipe Total	
- 100 0.080 0.080 - 100 0.221 0.221 - 100 0.049 0.049 - 100 0.041 0.041 - 100 0.041 0.041 - 100 0.041 0.041 - 100 0.015 0.041 - 100 0.015 0.031 - 100 0.015 0.015 - 100 0.000 0.001 - 100 0.001 0.015 - 100 0.015 0.015 - 100 0.000 0.000 - 100 0.000 0.000 - 100 0.000 0.000 - 100 0.0014 0.001 - 100 0.0014 0.0026 - 100 0.0014 0.0026 - 100 0.0014 0.0014 - 100 0.0014 0.0026 - 100 0.0014 0.0014 </th <th>As Zoned Default 100 0.000 0.000 0.080 Pervious Paving 70 0.001 0.001 Pervious Paving 70 0.000 0.000 Pervious Paving 70 0.000 0.0000 0.0000 Pervious Paving 70 0.000 0.0000 0.0000 Pervious Paving 70 0.000 0.0000 0.0000 0.0000 Pervious Paving 70 0.000 0.0000</th> <th></th> <th>C</th> <th></th> <th></th> <th></th> <th></th> <th>-r</th> <th></th>	As Zoned Default 100 0.000 0.000 0.080 Pervious Paving 70 0.001 0.001 Pervious Paving 70 0.000 0.000 Pervious Paving 70 0.000 0.0000 0.0000 Pervious Paving 70 0.000 0.0000 0.0000 Pervious Paving 70 0.000 0.0000 0.0000 0.0000 Pervious Paving 70 0.000 0.0000		C					-r	
 a 100 b 100 c 100 c 100 c 100 c 104 <lic 104<="" li=""> c 104 c 104 c 104 <lic 104<="" li=""> c 104 c 104 c 104 c 106 <lic 104<="" li=""> c 106 c 106 c 106 <li< td=""><td>$\begin{array}{cccccccccccccccccccccccccccccccccccc$</td><td>8,001</td><td>5</td><td>I</td><td>100</td><td>0.080</td><td>0.080</td><td>0.080</td><td></td></li<></lic></lic></lic>	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	8,001	5	I	100	0.080	0.080	0.080	
As Zoned Default 100 0.0049 0.049 As Zoned 0.00141 0.041 Pervious Paving 70 0.0015 0.000 As Zoned 100 0.0004 0.000 Pervious Paving 70 0.000 0.0004 Pervious Paving 70 0.000 0.0004 Pervious Paving 70 0.0004 0.0004 0.0004 0.0004 Pervious Paving 70 0.0004 0.000	As Zoned Default 100 0.001 0.041 0.041 - 100 0.011 0.041 0.041 - 100 0.015 0.031 0.037 - 100 0.015 0.035 - 100 0.005 0.035 - 100 0.000 0.000 - 100 0.000 0.000	8 . 002		I	100	0.221	0.221	0.221	
- 100 0.041 0.041 - 100 0.104 0.104 - 100 0.031 0.031 - 100 0.015 0.015 - 100 0.015 0.015 - 100 0.000 0.035 - 100 0.000 0.000 - 100 0.000 0.000 - 100 0.000 0.000 - 100 0.000 0.000 - 100 0.001 0.004 - 100 0.001 0.004 - 100 0.001 0.004 - 100 0.001 0.004 - 100 0.001 0.001 - 100 0.000 0.000 - 100 0.000 0.000 - 100 0.000 0.000 - 100 0.000 0.000 - 100 0.000 0.000 - 100 0.000 0.000 </td <td>$\begin{array}{cccccccccccccccccccccccccccccccccccc$</td> <td>8.003</td> <td>I</td> <td>I</td> <td>100</td> <td>0.049</td> <td>0.049</td> <td>0.049</td> <td></td>	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	8.003	I	I	100	0.049	0.049	0.049	
- 100 0.104 0.104 - 100 0.031 0.031 - - 100 0.031 0.031 - - 100 0.015 0.015 - - 100 0.005 0.035 0.035 - - 100 0.035 0.035 0.035 - - 100 0.000 0.000 0.000 - - 100 0.026 0.026 0.026 - - 100 0.001 0.001 0.001 - - 100 0.001 0.001 0.001 - - 100 0.001 0.001 0.001 - - 100 0.001 0.001 0.001 - - 100 0.001 0.001 0.001 - - - 100 0.000 0.001 - - - 100 0.000 0.000 - - - 100 0.000 0.000	As Zoned As Zoned Totol 1000000000000000000000000000000000000	0000	I		100	0.041	0.041	0.041	
- 100 0.097 0.097 - - 100 0.015 0.015 - - 100 0.000 0.000 - - 100 0.005 0.005 - - 100 0.006 0.006 - - 100 0.006 0.006 - - 100 0.006 0.006 - - 100 0.004 0.006 - - 100 0.001 0.004 - - 100 0.001 0.004 - - - 100 0.014 0.016 - - 100 0.001 0.001 0.001 - - 100 0.014 0.010 0.001 - - 100 0.000 0.000 0.000 - - 100 0.000 0.000 0.000 - - 100 0.000 0.000 0.000 - - 100 0.000 0.000	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	9.004 8.004	1 1		100	0.031	0.031	0.031	
<pre> - 100 0.015 0.015 - 0.000 0.000 - 0.000 0.000 - 0.035 0.035 - 0.026 0.026 - 0.000 0.000 - 0.000 0.000 - 0.000 0.000 - 0.000 0.000 - 0.000 0.000 - 0.001 0.000 - 0.001 0.000 - 0.000 0.000 - 0.000 0.000 - 0.000 0.000 - 0.000 0.000 - 0.000 0.000 - 0.000 0.000 - 0.000 0.000 - 0.000 0.000 - 0.000 0.000 - 0.000 0.000 - 0.000 0.000 - 0.000 0.000 - 0.000 - 0.000 0.000 - 0.000 - 0.000 0.000 - 0.000 - 0.000 - 0.000 0.000 - 0.000</pre>	As Zoned A Zoned 0.000 0.015 0.015 As Zoned Default 100 0.000 0.000 Pervious Paving 70 0.014 0.010 Pervious Paving 70 0.014 0.010 Pervious Paving 70 0.014 0.010 Pervious Paving 70 0.014 0.010 Pervious Paving 70 0.000 0.000 Pervious Paving 70 0.014 0.010 Pervious Paving 70 0.000 0.000 Pervious Paving 70 0.000 0.000 0.000 Pervious Paving 70	10.000	I	•	100	0.097	0.097	0.097	
- 100 0.000 0.005 - 100 0.035 0.035 - 100 0.006 0.006 - 100 0.006 0.006 - 100 0.006 0.006 - 100 0.004 0.006 - 100 0.004 0.004 - 100 0.001 0.004 - 100 0.001 0.004 - 100 0.001 0.004 - 100 0.001 0.004 - 100 0.001 0.004 - 100 0.001 0.001 - 100 0.000 0.000 - 100 0.000 0.000 - 100 0.000 0.000 - 100 0.000 0.000 - 100 0.000 0.000 - 100 0.000 0.000 - 100 0.000 0.000 - - 100 0.000 0	- - 100 0.000 0.035 0.035 - - - 100 0.035 0.035 0.035 - - - 100 0.000 0.000 0.005 - - - 100 0.006 0.006 0.006 - - 100 0.004 0.004 0.004 - - 100 0.001 0.004 0.001 - - 100 0.001 0.001 0.001 - - 100 0.001 0.001 0.001 - - 100 0.001 0.001 0.001 - - 100 0.000 0.000 0.001 - - 100 0.000 0.000 0.000 - - 100 0.000 0.000 0.000 - - 100 0.000 0.000 0.000 - - 100 0.000 0.000 0.000 - - 100 0.000	8.005	I	I		0.015	0.015	0.015	
As Zoned Default 100 0.000 0.000 As Zoned Default 100 0.001 0.069 Pervious Paving 70 0.014 0.010 Pervious Paving 70 0.014 0.010 0.000 0.000 0.000 Pervious Paving 70 0.014 0.010 0.000 0.000 0.000 1.100 0.000 0.000 1.794 1.794 0.1794 2.100 0.000 0.000 0.000 1.794 1.794 1.794	As Zoned Default 100 0.006 0.006 As Zoned Default 100 0.069 0.066 As Zoned Default 100 0.004 0.004 Pervious Paving 70 0.014 0.010 - 100 0.000 0.000 - 100 0.000 - 100 0.000 0.000 - 100	210-11 210-1	1 1	1 1		0.035	0.000	0.000	
- 100 0.000 0.006 - - 100 0.069 0.069 - - 100 0.004 0.004 As Zoned Default 100 0.001 0.004 Pervious Paving 70 0.014 0.010 - - 100 0.000 0.000 - - 100 0.014 0.010 Pervious Paving 70 0.014 0.010 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000	As Zoned Default 100 0.000 0.006 100 0.069 0.069 100 0.004 0.004 Road 100 0.001 0.001 Pervious Paving 70 0.014 0.010 - 100 0.000 0.000 - 100	11.001	I	I	100	0.026	0.026	0.026	
As Zoned Default 100 0.069 0.069 As Zoned Default 100 0.004 0.004 Read 100 0.001 0.001 Pervious Paving 70 0.014 0.010 - 100 0.000 0.000 - 100 0.000 0.000 0.000 - 100 0.000 0.000 0.000 - 100 0.000 0.000 - 100 0.000 0.000 0.000 - 100 0.000 0.000 - 1000	As Zoned Default 100 0.069 0.069 As Zoned Default 100 0.001 0.001 Pervious Paving 70 0.011 0.010 Pervious Paving 70 0.000 0.000 1 100 0.000 0.000 0.000 1 1.794 1.794 0.1982-2020 Innovyze	11.002	I	I	100	000.0	0.000	0.000	
As Zoned Default 100 0.004 0.004 Road 100 0.001 0.001 Pervious Paving 70 0.014 0.010 - 100 0.000 0.000 - 1.794 1.839 1.794	As Zoned Default 100 0.004 Road 100 0.001 Pervious Paving 70 0.014 0.010 0.000 0.000 Pervious Paving 70 0.014 0.010 0.000 0.000 1 100 0.000 0.000 1 100 0.000 0.000 1 1794 1.794 1.794 1.794 1.794	12.000	I	I	100	0.069	0.069	0.069	
Road 100 0.001 0.001 - - 100 0.014 0.010 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 1339 1.794 01982-2020 Innovyze 0.000 0.000	Road 100 0.001 0.010 - - 100 0.014 0.010 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 1.00 0.000 0.000 - - 100 0.000 0.000 - - 1.00 0.000 0.000 - - - 1.033 1.794 - - - 1.00 0.000 <td< td=""><td>As</td><td>ned -</td><td>- Default</td><td>100</td><td>0.004</td><td>0.004</td><td>0.004</td><td></td></td<>	As	ned -	- Default	100	0.004	0.004	0.004	
Pervious Paving 70 0.014 0.010 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 1.033 1.794 0.1982-2020 1.novyze 0.1000 0.000	Fervious Paving 70 0.014 0.010 - 100 0.000 0.000 0.000 - - 100 0.000 0.000 0.000 - - 100 0.000 0.000 0.000 0.000 - - 100 0.000 0.000 0.000 0.000 - - 100 0.000 0.000 0.000 0.000 - - 100 0.000 0.000 0.000 0.000 - - 100 0.000 0.000 0.000 0.000 - - 100 0.000 0.000 0.000 0.000 - - 100 0.000 0.000 0.000 0.000 - - 100 0.000 0.000 0.000 0.000 - - - 100 0.000 0.000 0.000 - - - 100 0.000 0.000 0.000 - - - - 1.794 1.794			Road	100	0.001	0.001	0.004	
 - 100 0.000 0.000 - 100 1.794 1.839 1.794 0.982-2020 Innovyze 	- 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 1.839 1.794 1.839 1.794 1.794 1.794 - - 0.000 0.000 - - 0.000 0.000 - - - - - - - - - - <td></td> <td></td> <td>ous Paving</td> <td>70</td> <td>0.014</td> <td>0.010</td> <td>0.014</td> <td></td>			ous Paving	70	0.014	0.010	0.014	
 - 100 0.000 0.000 - 100 0.000 0.000 - 100 0.000 0.000 - 100 0.000 0.000 - 100 1.000 0.000 - 1.794 1.839 1.794 1.794 0.1982-2020 Innovyze 	- - 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000 - - 100 0.000 0.000 - - - 1.794 1.794 1.794 1.839 1.794 1.794 0.1982-2020 Innovyze - -	L.014 1 015	1 1	1 1	100				
		1.016	I	I	100	0.000	0.000	0.000	
		1.017	I	I	100	0.000	0.000	0.000	
Total Total 1.839 1.794 Innovyze	Innovyze	1.018	I	I	100	0.000	0.000	0.000	
Innovyze	Innovyze					Total 1 830	Total 1 70/	Total 1 70A	
							н Ч		
								2	
				©1982-202		vyze		5	
									3

	Page 10	Drainage					onit.
	FRIMARY CARE CENTRE AND NURSING HOME	Designed by EH Checked by MK Network 2020.1.3	Free Flowing Outfall Details for Storm fall Outfall C. Level I. Level Min D,L W Number Name (m) (m) I. Level (mm) (mm) (m)	48.000 47.125	ewinos	urpose	©1982-2020 Innovyze
Mes	O'Connor Sutton Cronin 9 Prussia Street Dublin 7 Ireland	The second secon	Free Outfall Pipe Number	SB1.018			

O'Connor Sutton Orania	Т Васе 11	
		[
n 🗤		
Dublin 7	AND NURSING HOME	
Ticitation Date 24/08/2022 15:56	Designed by EH	
s665-0CSC-1	Checked by MK	IJe
XP Solutions	Network 2020.1.3	
Onl	Online Controls for Storm	
C		
Hydro-Brake® Optimum Manhole:	le: SB-MH42, DS/PN: SB1.017, Volume (m ³): 13.0	
MD-SHE	_	
Design Flow (1/s)	Diameter (mm) Invert Level (m) 48.	
_	culated Minimum Outlet Pipe Diameter (mm)	
Objective Minimise ups Application	upstream storage Suggested Manhole Diameter (mm) 1500 Surface	
Control Points Head (m)	Flow (l/s) Control Points Head (m) Flow (l/s)	
00	10.1	
693.0 *Lush-Flow	9.6 Mean Flow over Head Range	
The hydrological calculations have been based on the Head/Discharge another type of control device other than a Hydro-Brake Optimum® be	the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should -Brake Optimum® be utilised then these storage routing calculations will be invalidated	d idated
Depth (m) Flow (1/s) Depth (m) Flow (1/s) Depth (m)	Flow (1/s) Depth (m) Flow (1/s) Depth (m) Flov	
0.600 9.6	8.9 2.600 11.2 5.000 15.2 7.500	ۍ. ۲
8.1 0.800 9.4	9.4 3.000 11.9 5.500 15.9 8.000	1
0.300 9.0 1.000 8.8 2.000 0.400 9.4 1.200 7.8 2.000	9.9 3.500 12.9 6.000 16.6 8.500 10.3 4.000 13.7 6.500 17.3 9.000	0 0
9.6 1.400 8.3	10.7 4.500 14.5 7.000 17.9	L.
	058	
	©1982-2020 Innovyze	
	onin	

	Page 12	Drainage		cosity 0.95	0. 0	onity
	PRIMARY CARE CENTRE AND NURSING HOME	Designed by EH Checked by MK Network 2020.1.3	Storage Structures for Storm Storage Manhole: SB-MH42, DS/PN: SB1.017			©1982-2020 Innovyze
Mez	<pre>0'Connor Sutton Cronin 9 Prussia Street Dublin 7 Ireland</pre>	Date 24/08/2022 15:56 File S665-OCSC-1B-MH-M3-C-0001.01.MDX XP Solutions	Cellular	Infiltration Coefficient Base (m/	0.00 423.4	

	Page 13		Mirco	Drainage			cage 2.000 ient 0.800					er 0,	280 20 20			LSK		aup.
		ы				zel (Rank 1) for Storm	ia 0.500 MADD Factor * 10m ³ /ha Storage 0.000 Inlet Coefficcient	0 Number	1 Number of Real Time Controls	<u>s</u> 15.800 Cv (Summer) 0.750 0.284 Cv (Winter) 0.840	us ON Inertia Status OFF us OFF	Summer and V 960, 1440, 2160,	4320, 5760, 7200, 8640, 10080 1, 30, 100 20, 20, 20	Surcharged	<pre>1 Depth Flow / Flow (m) Cap. (1/s) Status</pre>	3 0.725 1.42 33.4 FLOOD RISK 8 0.181 1.10 41.5 SURCHARGED	5	
		PRIMARY CARE CENTRE AND NURSING HOME		Designed by EH	Network 2020.1.3	itical Results by Maximum Tevel	Simulation Criteria 00 Manhole Headloss Coeff (Global) 0.500 0 Foul Sewage per hectare (1/s) 0.000	0 Number of Offline Cont	1 Number o	Synthetic Rainfall DetailsFSR M5-60 (mm) 15.800Scotland and Ireland Ratio R 0.284	Margin for Flood Risk Warning (mm) 300.0 DTS Status Analysis Timestep Fine DVD Status	15, 30, 60, 120, 180, 240, 360, 4		Water	US/CL Level Event (m) (m)	100 year Winter I+20% 54.408 54.383 100 year Winter I+20% 54.467 53.448	©1982-2020 Innovyze	
Mez	O'Connor Sutton Cronin	9 Prussia Street Dublin 7	nd	Date 24/08/2022 15:56	Jutions	Summary of Crit	Areal Reduction Factor 1.000 Ma Hot Start (mins) 0 Hot Start 10001 (mm) 0 AAA	Number of Input H	Number of Online Controls	Rainfall Model Region	Margin for Floc	<pre>Profile(s) Duration(s) (mins)</pre>	Return Period(s) (years) Climate Change (%)		US/MH PN Name	SB1.000 SB-MH1 15 minute 100 SB1.001 SB-MH2 15 minute 100		

Раде 14	١	Drainage																								
							Status	SURCHARGED			OK		OK SURCHARGED			SURCHARGED		FLOOD RISK	SURCHARG	SURCHARGED SURCHARGED		SURCHARGED	SURCHARGED	0	0	
				or Storm		Pipe w / Flow	p. (1/s)	1.11 40.6 0 72 14 8		.11 69.1		0.60 101.9	0.66 17.1 0.99 31.1							1.38 241.5 0.56 21.6		.82	.25			
				(Rank 1) fo		Surcharged Depth Flow /	(m) Cap.	0.156 1 0.198 0								<u>н</u> с				0.600 1 0.361 0		-0.092 0				
	PRIMARY CARE CENTRE AND NURSING HOME	Designed by EH	Ulecked by MN Network 2020.1.3	lts by Maximum Level		Water Su US/CL Level	(m) (m)	r I+20% 54.580 53.188 r I+20% 54 613 53 035	T+20% 54.536	I+20% 54.042	T+20% 54.537 T+20% 54.184	I+20% 53.819	I+20% 54.495 I+20% 53.931	T+20% 53.084	I+20% 54.322	T+20% 53.706 T+20% 53.706	I+20% 54.054	I+20% 51.915	I+20% 51.714	:r I+20% 51.645 51.045 :r I+20% 55.442 54.603	T+20% 55.314	rr I+20% 55.095 53.973 rr I+20% 54.244 53.016	I+20% 53.620	©1982-2020 Innovyze		
	PI			ary of Critical Results	C	0	Event	15 minute 100 year Winter 15 minute 100 year Winter	5 minute 100 year	minute	minute 100	minute 100 year	15 minute 100 year Winter 15 minute 100 year Winter	minute 100	minute 100 year minute 100 year	minute 100	minute 100 year minute 100 year	minute 100	minute 100 year	15 minute 100 year Winter 15 minute 100 vear Winter	5 minute 100 year	15 minute 100 year Winter 15 minute 100 year Winter	minute 100	©19		
Sutton Granin	4	15:56 15-MH_M2_C_0001	TOOO-O-CM-UM-GT-OC	Summary		HW/SU	PN Name	SB1.002 SB-MH3 SR2 000 SR-MH4			SB3.000 SB-MH8 SB3.001 SB-MH9	S	SB4.000 SB-MH11 SB4.001 SB-MH12	900		SB5.001 SB-MH16 SB1 000 SB-MH17		SB1.009 SB-MH19		SB1.011 SB-MH22 SB8.000 SB-MH23	.001 SB-MH2	SB8.002 SB-MH25 SB8.003 SB-MH26	SB9.000 SB-MH27			
O'Connor Sur	đ	Date 24/08/2022																								

O'Connor Sutton Gronin		Page 15
9 Prussia Street Dublin 7 Treland	PRIMARY CARE CENTRE AND NURSING HOME	
Date 24/08/2022 15:56 File S665-OCSC-1B-MH-M3-C-0001.01.MDX	Designed by EH Checked by MK	MICro Drainage
XP Solutions		
Summary of Critical Re	Results by Maximum Level (Rank 1) for Storm Water Surcharged Pipe	
US/MH PN Name Event	<pre>L Depth Flow / (m) Cap.</pre>	
SB9.001 SB-WH28 I5 minute 100 year SB10.000 SB-WH30 I5 minute 100 year SB10.000 SB-WH31 I5 minute 100 year SB1.001 SB-WH31 I5 minute 100 year SB1.002 SB-WH31 I5 minute 100 year SB1.001 SB-WH32 I5 minute 100 year SB1.001 SB-WH33 I5 minute 100 year SB11.001 SB-WH36 I5 minute 100 year SB11.001 SB-WH36 I5 minute 100 year SB11.001 SB-WH36 I5 minute 100 year SB1.013 SB-WH37 720 minute 100 year SB1.015 SB-WH41 720 minute <t< td=""><td>year Winter I+20% 52.984 52.528 0.444 1.20 45.0 SURCHARGED year Winter I+20% 53.365 52.194 0.180 1.61 162.0 SURCHARGED year Winter I+20% 52.871 52.372 0.701 1.78 30.4 SURCHARGED year Winter I+20% 52.936 50.794 0.575 2.38 195.5 SURCHARGED year Winter I+20% 52.828 50.576 0.171 0.44 63.7 SURCHARGED year Winter I+20% 53.340 51.585 0.067 0.58 12.8 0.0 year Winter I+20% 51.585 0.067 0.58 12.8 0.0 year Winter I+20% 51.585 0.067 0.58 12.8 0.0 year Winter I+20% 51.100 50.577 0.166 1.21 20.3 SURCHARGED year Winter I+20% 52.883 50.576 0.117 0.17 6.1 SURCHARGED year Winter I+20% 52.835 50.576 0.171 0.17 6.1 SURCHARGED year Winter I+20% 52.835 50.576 0.171 0.17 6.1 SURCHARGED year Winter I+20% 52.835 50.576 0.171 0.13 69.9 SURCHARGED year Winter I+20% 52.816 50.574 1.417 0.31 69.3 SURCHARGED year Winter I+20% 51.540 50.572 1.4110 0.29 70.1 SURCHARGED year Winter I+20% 51.540 50.572 1.4110 0.29 9.9 SURCHARGED year Winter I+20% 51.540 50.572 1.4117 0.31 69.3 SURCHARGED year Winter I+20% 50.240 48.541 1.417 0.31 69.3 SURCHARGED year Winter I+20% 50.240 48.541 0.170 0.14 9.9 SURCHARGED year Winter I+20% 50.240 48.541 0.170 0.14 9.9 SURCHARGED</td><td></td></t<>	year Winter I+20% 52.984 52.528 0.444 1.20 45.0 SURCHARGED year Winter I+20% 53.365 52.194 0.180 1.61 162.0 SURCHARGED year Winter I+20% 52.871 52.372 0.701 1.78 30.4 SURCHARGED year Winter I+20% 52.936 50.794 0.575 2.38 195.5 SURCHARGED year Winter I+20% 52.828 50.576 0.171 0.44 63.7 SURCHARGED year Winter I+20% 53.340 51.585 0.067 0.58 12.8 0.0 year Winter I+20% 51.585 0.067 0.58 12.8 0.0 year Winter I+20% 51.585 0.067 0.58 12.8 0.0 year Winter I+20% 51.100 50.577 0.166 1.21 20.3 SURCHARGED year Winter I+20% 52.883 50.576 0.117 0.17 6.1 SURCHARGED year Winter I+20% 52.835 50.576 0.171 0.17 6.1 SURCHARGED year Winter I+20% 52.835 50.576 0.171 0.17 6.1 SURCHARGED year Winter I+20% 52.835 50.576 0.171 0.13 69.9 SURCHARGED year Winter I+20% 52.816 50.574 1.417 0.31 69.3 SURCHARGED year Winter I+20% 51.540 50.572 1.4110 0.29 70.1 SURCHARGED year Winter I+20% 51.540 50.572 1.4110 0.29 9.9 SURCHARGED year Winter I+20% 51.540 50.572 1.4117 0.31 69.3 SURCHARGED year Winter I+20% 50.240 48.541 1.417 0.31 69.3 SURCHARGED year Winter I+20% 50.240 48.541 0.170 0.14 9.9 SURCHARGED year Winter I+20% 50.240 48.541 0.170 0.14 9.9 SURCHARGED	
	©1982-2020 Innovyze	



0505

reson APPENDIX C. Wastewater Design Calculation and Network Details

Page 0	Drainage	op Height (m) 1.500 imisation (m) 1.200 gn only (m/s) 0.75 isation (1:X) 500	Auto Design	3 7 ⁰	oniti
0'Connor Sutton Cronin 9 Prussia Street Dublin 7 Ireland Ireland	Date 24/08/2022 15:57 Designed by EH File S665-OCSC-1B-MH-M3-C-0001.01.MDX Checked by MK XP Solutions Network 2020.1.3	FOUL SEWERAGE DESIGN Design Criteria for Foul Network 1 Pipe Sizes STANDARD Manhole Sizes STANDARD Industrial Flow (1/s/ha) 0.00 Maximum Backdrop Height (m) Industrial Peak Flow Factor 6.00 Min Design Depth for Optimisation (m) Calculation Method BS 8301 Add Flow / Climate Change (%) 0 Min Vel for Auto Design only (m/s) Frequency Factor 0.00 Minimum Backdrop Height (m) 0.200 Min Slope for Optimisation (1:X) Designed with Level Inverts	Network Design Table for Foul Network 1 PN Length Fall Slope Area Units Base k HYD DIA Section Type Ar (m) (m) (m) (1:X) (ha) Flow (1/s) (mm) SECT (mm) Des WB1.000 45.652 0.761 60.0 0.000 11.0 0.0 1.500 0 150 Pipe/Conduit WB1.001 57.443 0.427 134.5 0.000 10.0 0.0 1.500 0 150 Pipe/Conduit	Network Results Table PN US/II E Area E Base E Units Add Flow P.Vel Vel Flow MB1.000 51.881 0.000 0.0 11.0 0.0 2.4 WB1.000 51.120 0.000 0.0 11.0 0.0 35 0.76 1.13 20.0 2.4 WB1.001 51.120 0.000 0.0 21.0 0.0 47 0.59 0.75 13.3 2.8	©1982-2020 Innovyze

Mez		
0'Connor Sutton Cronin		Page 1
9 Prussia Street	PRIMARY CARE CENTRE	
Dublin 7 Ireland	AND NURSING HOME	
Date 24/08/2022 15:57	Designed by EH	
File S665-OCSC-1B-MH-M3-C-0001.01.MDX	Checked by MK	
XP Solutions	Network 2020.1.3	
Network De	Design Table for Foul Network 1	
PN Length Fall Slope Area (m) (m) (1:X) (ha)	Units Base k HID DIA (Flow (1/s) (mm) SECT (mm)	section Type Auto Design
WB2.000 20.181 0.336 60.0-0.000 WB2.001 33.974 0.252 135.0 0.000 WB2.002 24.019 0.188 127.8 0.000	0.0 1.500 0 150 0.0 1.500 0 150 0.0 1.500 0 150	Pipe/Conduit 👶 Pipe/Conduit 🤳 Pine/Conduit 🎜
46.886 0.347	1.500 0 150	
43.158 0.719 60.0 38.381 0.471 81.4	0.0 1.500 0 150 0+0 1.500 0 150	
	Network Results Table	
PN US/IL E Årea E Base (m) (ha) Flow (1/s)	<pre>Z Units Add Flow P.Dep P.Vel (1/s) (mm) (m/s)</pre>	Vel Cap Flow (m/s) (l/s) (l/s)
C C S L		
WBZ.000 51.469 0.000 WBZ.000 51.133 0.000	7.0 0.0 34 0.14 24.0 0.0 47 0.60	1.13 20.0 2.2 0.75 13.3 2.9
WB2.002 50.881 0.000	47 0.61	13.7
WB1.002 50.693 0.000	0.0 45.0 0.0 51 0.62 (0.75 13.3 3.3
51.536	0.0 48.0 0.0 42 0.84	1.13 20.0 3.3
000.0 / 18.0C 100.29M	12.0 4.1 0.0	7.11
	©1982-2020 Innovyze	5
		onin

O'Connor Sutton Cronin	Page 2	
9 Prussia Street	PRIMARY CARE CENTRE	
Dublin 7 Ireland	AND NURSING HOME	
Date 24/08/2022 15:57	Designed by EH	
File S665-OCSC-1B-MH-M3-C-0001.01.MDX	by MK	א מווים הא
XP Solutions	Network 2020.1.3	
Network	k Design Table for Foul Network 1	
PN Length Fall Slope A	Area Units Base k HYD DIA Section Type Auto	
(m) (1:X)	Flow (l/s) (mm) SECT (mm)	
WB1.003 63.440 0.470 135.00 WB1.004 35.782 0.265 135.00 WB1.005 17.703 0.140 126.5 0	0 0.000 11.0 0.0 1.500 0 150 Pipe/Conduit 0 0.000 0.0 0.0 1.500 0 150 Pipe/Conduit 5 0.000 26.0 0.0 1.500 0 150 Pipe/Conduit	
WB4.000 49.297 0.822 60.0 0. WB4.001 30.889 0.229 135.0 0.	0.000 73.0 0.0 1.500 o 150 Pipe/Conduit 👌 0.000 0.0 0.0 1.500 o 150 Pipe/Conduit 🚽	
WB5.000 29.201 0.658 44.4 0. WB5.001 23.965 0.715 33.5 0.	0.000 38.0 0.0 1.500 o <mark>150</mark> Pipe/Conduit 👌 0.000 39.0 0.00 o 1.500 o 150 Pipe/Conduit 💣	
	Network Results Table	
PN US/IL ΣArea Σ (m) (ha) Flow	Σ Base Σ Units Add Flow P.Dep P.Vel Vel Cap Flow Flow (1/s) (1/s) (mm) (m/s) (n/s) (1/s) (1/s)	
WB1.003 50.346 0.000 WB1.004 49.876 0.000 WB1.005 49.611 0.000	0.0 131.0 0.0 58 0.67 0.75 13.3 4.2 0.0 131.0 0.0 58 0.67 0.75 13.3 4.2 0.0 131.0 0.0 58 0.67 0.75 13.3 4.2 0.0 157.0 0.0 58 0.69 0.78 13.8 4.4	
WB4.000 52.881 0.000 WB4.001 52.059 0.000	0.0 73.0 0.0 44 0.86 1.13 20.0 3.7 0.0 73.0 0.0 54 0.64 0.75 13.3 3.7	
WB5.000 53.203 0.000 WB5.001 52.545 0.000	0.0 38.0 0.0 38 0.92 1.32 23.3 3.2 0.0 77.0 0.0 38 1.06 1.52 26.8 3.7	
	©1982-2020 Innovyze	
	1	

In 7 In 7 In 7 Ind 24/08/2022 15:57 S665-OCSC-1B-MH-M3-C-0001.01.MDX S665-OCSC-1B-MH-M3-C-0001.01.MDX S665-OCSC-1B-MH-M3-C-0001.01.MDX S665-OCSC-1B-MH-M3-C-0001.01.MDX S665-OCSC-1B-MH-M3-C-0001.01.MDX Intions	O'Connor Sutton Cronin							Page 3
n_1^7 AND NURSING HOHE and Mathematical part of the conduction of the conduc		PRIMARY	CARE CENTRI	ы				
24/08/2022 15:57 S665-0CSC-1B-WH-M3-C-0001.01.WDX S665-0CSC-1B-WH-M3-C-0001.01.WDX S665-0CSC-1B-WH-M3-C-0001.01.WDX Metwork 2020.1.3 Network 2020.0.3 Network 2020.1.3 Network 2020.1.3 Network 2020.0.3 Network 2020.0.3	Dublin 7 Ireland	AND NURS						Micco
IB-WHH-M3-C-0001.01.WDX Checked by MK Network 2020.11.3 Network Design Table for Foul Network Not on 0.00 100 0.01 1500 0.015 Pipe/Conduit Network Result Table Network Result Table Network Result Table Network Design Table (not 1/26) Not 0.000 0.00 0.00 0.00 0.00 0.00 0.00 0		Designed	by EH					
Solutions Network Design Table for Foul Network I Natwork Design Table for Foul Network I Fun Langth Fall Slope Area Units Base K HND DI Scr (um) Section Fype WM4.002 25.646 0.190 135.00.000 0.0 O.0 1.500 0 150 Pipe/Conduit WM4.002 25.646 0.190 135.00.000 0.0 0.0 1.500 0 150 Pipe/Conduit WM4.002 25.646 0.190 135.70.000 0.00 0.0 1.500 0 150 Pipe/Conduit WM4.002 25.618 0.693 38.9 0.001 135.0 0 0.0 1.500 0 150 Pipe/Conduit WM4.001 25.581 1.066 0.000 40.0 0.0 0 0.0 1.500 0 150 Pipe/Conduit WM4.001 24.303 0.101 24.303 0.0000 40.0 0.0 0 0.0 1.500 0 150 Pipe/Conduit WM4.001 24.303 0.100 0.000 40.0 0.0 0.0 11500 0 0.150 Pipe/Conduit WM7.001 24.303 0.100 0.000 40.0 0.0 0.0 11500 0 150 Pipe/Conduit WM4.02 51.810 0.000 0.0 0.0 0.0 0.0 11500 0 150 Pipe/Conduit WM4.02 51.833 0.0 0.000 0.0 0.0 0.0 11500 0 150 Pipe/Conduit WM4.02 51.830 0.0000 0.0 0.0 0.0 0.0 11500 0 150 Pipe/Conduit WM4.02 51.830 0.0000 0.0 0.0 0.0 0.0 11500 0 150 Pipe/Conduit WM4.02 51.833 0.0000 0.00 0.0 0.0 0.0 11500 0 150 Pipe/Conduit WM4.02 51.833 0.0000 0.0 0.0 150 Pipe/Pipe/Pipe/P	S665-OCSC-1B-MH-M3-C-0001	Checked	- by MK					namati
Network Design Table for Foul Network I	XP Solutions		1.					-
Length Fall Slope Area Units Base k HXD DIA Section Type (m) (m) (1:X) (ha) Flow (1) Section Type 25.646 0.190 135.0 0.000 40.0 0.0 1.500 0 150 Pipe/Conduit 26.968 0.693 38.9 0.0000 40.0 0.0 1.500 0 150 Pipe/Conduit 12.309 0.091 135.0 0.000 40.0 0.0 1.500 0 150 Pipe/Conduit 12.309 0.091 135.0 0.000 40.0 0.0 1.500 0 150 Pipe/Conduit 12.309 0.911 135.0 0.000 40.0 0.0 1.500 150 Pipe/Conduit 12.309 0.810 30.0 0.000 40.0 0.0 1.500 Pipe/Conduit 12.309 0.810 30.0 0.000 40.0 0.0	Network		for					
Length Fill Slope Area Units Base k HYD DIA Section Type (m) (m) (1:X) (ha) Flow (1/s) (mm) SECT (mm) Section Type Conduit 25:646 0.190 135:0 0.000 40.0 0.0 1.500 0 150 Pipe/Conduit 26:968 0.899 30:0 0.000 40.0 0.0 1.500 0 150 Pipe/Conduit 19:794 0.155 1277 0.000 40.0 0.0 1.500 0 150 Pipe/Conduit 19:794 0.155 1277 0.000 40.0 0.0 1.500 Pipe/Conduit 19:794 0.150 0.000 40.0 0.0 1.500 Pipe/Conduit 19:794 0.150 0.000 40.0 0.0 1.500 Pipe/Conduit 21:333 0.810 30.0 0.000 40.0 0.0 1.500								
25.646 0.190 135.0 0.000 0.0 0.0 1.500 0 150 Pipe/Conduit 26.968 0.693 38.9 0.000 40.0 0.0 1.500 0 150 Pipe/Conduit 19.794 0.155 1277 0.000 0.0 0.0 1.500 0 150 Pipe/Conduit 19.794 0.155 1277 0.000 40.0 0.0 1.500 0 150 Pipe/Conduit 24.303 0.810 30.0 0.000 40.0 0.0 1.500 0 150 Pipe/Conduit 22.531 1.086 30.0 0.000 40.0 0.0 1.500 0 150 Pipe/Conduit 22.533 0.810 30.0 0.000 40.0 0.0 1.500 0 150 Pipe/Conduit 22.533 0.810 30.0 0.000 40.0 0.0 1.500 0 150 Pipe/Conduit 22.533 0.810 30.0 0.000 40.0 0.0 1.500 0 150 Pipe/Conduit 22.533 0.810 30.0 0.000 40.0 0.0 1.500 0 150 Pipe/Conduit 23.558 1.086 30.0 0.000 40.0 0.0 1.500 0 150 Pipe/Conduit 23.558 0.000 0 0.0 1.500 0.0 150 0 150 Pipe/Conduit 0.0 1.500 0 150 0 0.0 1.500 0 150 1.500 0 150 Pipe/Conduit 0.0 1.500 0 1.500 0 0.0 1.500 0 150 1.500 0 150 Pipe/Conduit 0.0 251.830 0.000 0 0.0 150.0 0 0 0 29 0.67 0.75 13.3 4. 000 53.232 0.0000 0 0 0 150.0 0 0 0 39 1.01 1.41 24.9 3. 001 52.333 0.0000 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Length Fall Slope (m) (m) (1:X)							ıto sign
26:968 0.899 30.0 0.000 40.0 0.0 1.500 0 150 Pipe/Conduit 26.968 0.693 38.9 0.000 40.0 0.0 1.500 0 150 Pipe/Conduit 12.309 0.091 135.0 0.000 0.0 0.0 1.500 0 150 Pipe/Conduit 19.794 0.155 127.7 0.000 0.0 0.0 1.500 0 150 Pipe/Conduit 32.581 1.086 30.0 0.000 40.0 0.0 1.500 0 150 Pipe/Conduit 32.581 1.086 30.0 0.000 40.0 0.0 1.500 0 150 Pipe/Conduit 32.581 1.086 30.0 0.000 40.0 0.0 1.500 0 150 Pipe/Conduit 32.581 1.086 30.0 0.000 40.0 0.0 1.500 0 150 Pipe/Conduit 0.0 1.500 0 150 20 150 0 0 150 0 0 150 0 150 Pipe/Conduit 0.0 1.500 0 150 20 150 0 0 150 0 0 150 0 150 150 Pipe/Conduit 0.0 150 21.830 0.000 0.0 10 150.0 0.0 59 0.67 0.75 13.3 4. 000 53.232 0.000 0.0 40.0 0.0 34 1.00 1.41 24.9 3. 001 52.333 0.000 0.0 230.0 0.0 63 0.67 0.77 13.7 4. 000 53.230 0.000 0.0 40.0 0.0 34 1.00 1.60 28.3 3. 001 52.333 0.000 0.0 230.0 0.0 63 0.69 0.77 13.3 4. 000 53.230 0.000 0.0 80.0 0.0 34 1.00 1.60 28.3 3. 001 52.234 0.000 0.0 80.0 0.0 34 1.01 1.41 24.9 3. 001 52.234 0.000 0.0 0.0 230.0 0.0 63 0.69 0.77 13.3 4. 001 52.232 0.000 0.0 0.0 230.0 0.0 63 0.69 0.77 13.3 4.	25.646 0.190 135.0							G
12.309 0.091 135.0 0.000 0.0 0.0 1.500 0 150 Pipe/Conduit 19.794 0.155 127.7 0.000 0.0 0.0 0.0 1.500 0 150 Pipe/Conduit 32.581 1.086 30.0 0.000 40.0 0.0 1.500 0 150 Pipe/Conduit 24.303 0.810 30.0 0.000 40.0 0.0 1.500 0 150 Pipe/Conduit (m) (ha) Flow (1/s) (m) (m/s) (m/s) (1/s) (1/s	26.968 0.899 30.0 26.968 0.693 38.9							19 1
32.581 1.086 30.0 0.000 40.0 0.0 1.500 0 150 Pipe/Conduit 24.303 0.810 30.0 0.000 40.0 0.0 1.500 0 150 Pipe/Conduit (m) (na) Flow (1/s) (1/s) (m) (n/s) (1/s) (1/s	12.309 0.091 135.0 19.794 0.155 127.7	0.0.0						
Network Results Table Us/II. State Network Results Table Us/II. State S Units Add Flow P.Dep P.Vel Vel Cap Fi (m) (ha) Flow (1/s) (m/s) (m/s) (1/s) (1/s) (32.581 1.086 30.0 0 24.303 0.810 30.0 0	40.0 40.0						•••
US/III Z Area Z Base Z Units Add Flow P.Dep P.Vel Vel Cap F. (m) (ha) Flow (1/s) (1/s) (m) (m/s) (m/s) (1/s)	Ne		to	٥I				
51.830 0.000 0.0 150.0 0.0 59 0.67 0.75 13.3 53.232 0.000 0.0 40.0 0.0 34 1.06 1.60 28.3 52.333 0.000 0.0 80.0 0.0 33 1.01 1.41 24.9 51.640 0.000 0.0 230.0 0.0 63 0.69 0.75 13.3 51.549 0.000 0.0 230.0 0.0 62 0.71 0.77 13.7 53.290 0.000 0.0 40.0 0.0 34 1.06 1.60 28.3 52.204 0.000 0.0 80.0 0.0 37 1.11 1.60 28.3 \bigcirc	US/IL ^D Area (m) (ha)	ы	Add Flow (1/s)		P.Vel (m∕s)			
53.232 0.000 0.0 40.0 0.0 34 1.06 1.60 28.3 52.333 0.000 0.0 80.0 0.0 39 1.01 1.41 24.9 51.640 0.000 0.0 230.0 0.0 63 0.75 13.3 51.549 0.000 0.0 230.0 0.0 62 0.71 13.7 53.290 0.000 0.0 40.0 0.0 34 1.06 1.60 28.3 52.204 0.000 0.0 80.0 0.0 37 1.11 1.60 28.3 52.204 0.000 0.0 80.0 0.0 37 1.11 1.60 28.3	51.830 0.000			59	0.67	13		
51.640 0.000 0.0 230.0 0.0 63 0.69 0.75 13.3 51.549 0.000 0.0 230.0 0.0 62 0.71 0.77 13.7 53.290 0.000 0.0 40.0 0.0 34 1.06 1.60 28.3 52.204 0.000 0.0 80.0 0.0 37 1.11 1.60 28.3	<mark>53.232</mark> 0.000 52.333 0.000			34 39	1.06 1.01	28 24		
53.290 0.000 0.0 40.0 0.0 34 1.06 1.60 28.3 52.204 0.000 0.0 80.0 0.0 37 1.11 1.60 28.3 ©1982-2020 Innovyze	51.640 0.000 51.549 0.000			63 62	0.69 0.71			
	53.290 0.000 52.204 0.000			34 37	1.06 1.11	. 60 28 . 60 28	C	
		1982-202	0 Innovyze					
								5

9 Frussis Street 19 Frussis Street 10 Junit Junit Junit Junit Street 10 Junit Juni Junit Juni Junit Junit Junit Junit Jun	Normation PRIMARY CARE CENTRE AND NURSING HOME PRIMARY CARE CENTRE AND NURSING HOME 88/2022 15:57 Designed by EH Sector Name Designed by EH Sector Name	I CENTRE
AND NURSING HOME AND NURSING HOME 15:57 Designed by EH 15:57 Designed by EH IB-WH-W3-C-000101.MIX Retwork Design Table for Foul Network 1 Network Design Table for Foul Network 1 Network 2020.1.3 Network Design Table for Foul Network 1 Network 2020.1.3 Network Design Table for Foul Network 1 Network 2020.1.3 Name Unix 000 0.01.01.MIX Network 2020.1.3 Name Network Design Table for Foul Network 1 Network 2020.1.3 Name Name Unix 1000 0.01.00.000 0.0 0.0.1500 0.1500 0.150 Name 0.01120 7.000 0.000 0.0 0.0.1500 0.000 0.00 0.0.1500 0.1500 0.1500 0.1500 0.1500 0.1500 0.1500 0.1500 0.1500 0.1500 0.1500 0.1500 0.1500 0.1500 0.1500 0.150 0.000 0.00 0.	AND NURSING HOME AND NURSING HOME 15:57 Designed by EH ID-MIN-M3-C-0010.1.MIX Designed by EH ID-MIN-M3-C-0010.1.MIX Metwork 2020.1.3 Network Design able for Foul Network Designed by EH Network Design rable for Foul Network Designed by EN May 100 May 1120 May 1120 May 1120 May 100 State Nit Nit Nit May 100 State Units Base Nit Nit May 100 State Units May 100 State Nit May 100 State Units May 100 State Nit Nit May 100 State Units May 100 O O O State Nit May 100 State State O O State May 100 Nit Nit May 100 State State O O State May 100 Nit Nit May 100 State O O </td <td></td>	
15:57 Designed by EH IB-MH-M3-C-0001.01.MDX Checked by MK Retwork Design Table for Foull Network I Network Design Table for Foull Network I PN Length Fall Slope Area Units Base K HTD DIA Section Type Auto (m) N84.005 25:646 0.427 60:00.000 0.0 1:500 1:500 Auto (m) Dial N84.005 25:646 0.427 60:000 0.0 0.0 1:500 0 1:500 Auto (m) Dial N84.005 25:646 0.427 60:000 0.0 0.0 1:500 0 1:500 1:500 1:500 Auto (m) Dial W34.005 25:646 0.427 60:000 0.0 0.0 1:500 0.0 1:500 1:500 1:500 0.0 1:500 1:500 1:500 1:500 1:500 1:500 0:501 1:500 1:5	15:57 Designed by EH IB-MH-M3-C-0001.01.MDX Designed by MK NEtwork Design Table for Foul Network 1 Nation (m) (m) (m) (m) (m) Extra Nation Sector Appendic Nation Sector Appendint Nation Sector Appendic Nation Sector Appendic Nation	
Checked by MK Network 2020.1.3 Network 10.1.3 NH4.005 25.464 0.427 60.0129 0.000 0.00 0.011:500 0.01 NH4.005 25.464 0.427 60.0129 0.000 0.00 0.011:500 0.01 NH4 NH4.005 25.464 0.427 60.0129 0.000 0.00 0.011:500 0.01 NH4 NH4.007 10.000 0.001 0.001 0.001 0.001 0.001 1.000 0.00 0.011:500 0.010 NH4 NH4.007 10.000 0.001 0.001 0.00 0.00 0.011:500 0.010 0.001 NH4 NH4.007 10.000 0.001 0.001 0.001 0.001 1.001 1.000 NH4 NH4 NH4.007 10.000 0.001 1.001 1.000 NH4 NH4 NH4.007 10.000 0.001 1.001 1.000 NH4 NH4	Sc-IB-MH-M3-C-0001.01.MDX Checked by MK Network 2020.13 Network 2020.13 Network 2020.13 Network 1000 Table for Foul Network 1 Network 2020.13 Network 2020.13 Nation 1 (m)	
Network Design Table for Foull Network I PN Length Fall Slope Area Units Base k HYD DIA Section Type PN Length Fall Slope Area Units Design Table for Foull Network I DIA DIA Section Type PN Length Fall Slope Area Units Design (1:X) (ha) Flow (1/4) DIA Section Type PN Length Fall Slope Area Units Design (1:X) (ha) Flow (1/5) DIA Section Type MB4.005 25.646 0.427 60.0 0.00 0.0 150 Pipe/Conduit WB4.007 13.182 0.1178 75.0 0.00 0.0 150 Pipe/Conduit WB4.007 13.182 0.118 75.0 0.00 0.0 150 Pipe/Conduit WB4.007 13.182 0.118 75.0 0.00 0.0 1.50 Pipe/Conduit WB4.007 9.21182 0.118 75.0 0.00 0.0 1.50 Pipe/Conduit WB1.007 9.2118 0.001 0.0 0.0 1.500 1.50 Pipe/Conduit <t< td=""><td>Network Design Table for Foul Network 1 Network Design Table for Foul Network 1 Nature Network Design Table for Foul Network 1 Nature Network Design Table for Foul Network 1 Nature Nature</td><td>.MDX Checked by MK</td></t<>	Network Design Table for Foul Network 1 Network Design Table for Foul Network 1 Nature Network Design Table for Foul Network 1 Nature Network Design Table for Foul Network 1 Nature	.MDX Checked by MK
Network Design Table for Foul Network I Length Full Section Type Length Full Section Type Section Type (m) (ii:X) (m) (i:X) (m) Flow (1/s) (m) Section Type (m) (ii:X) (m) (i:X) (m) Flow (1/s) (m) Section Type 255.646 0.427 60.0 0.000 45.0 0.001 45.0 0.01 1500 pipe/conduit 13.382 0.118 75.0 0.0000 45.0 0.01 1.500 0 150 Pipe/Conduit 13.382 0.118 75.0 0.0000 0.0 0.0 1.500 1.50 Pipe/Conduit 10.000 0.067 150.0 0.000 0.0 0.0 1.500 Pipe/Conduit 10.000 0.061 150.0 0.000 0.0 1.500 1.50 Pipe/Conduit 10.000 0.061 <th< td=""><td>Network Design Table For Foul Network I Length R11 Slope Area Units Base k HYD DIA Section Type (m) (m) (1:X) (ha) Flow (1/s) (m) SECT (m) Section Type 25:646 0.427 60.0 0.000 0.0 0.0 0.0 1:500 0.150 1:500</td><td>2020.1.</td></th<>	Network Design Table For Foul Network I Length R11 Slope Area Units Base k HYD DIA Section Type (m) (m) (1:X) (ha) Flow (1/s) (m) SECT (m) Section Type 25:646 0.427 60.0 0.000 0.0 0.0 0.0 1:500 0.150 1:500	2020.1.
Langth Flow Area Units Base k HYD DIA Section Type (m) (m) (m) (m) Flow (l/s) mode Section Type (m) (m) (m) (m) Flow (l/s) (m) Section Type 25:646 0.427 60:0 0.000 45:0 0.001 50:0 160:0 160:0	Langth Fall Slope Area Units Base k HYD DIA Section Type (m) (m) (1:X) (ha) Flow (1/s) (m) Section Type Section Type 25<646 0.427 60.0 0.000 45.0 0.015500 0 150 Pipe/Conduit 13.182 0.118 75.0 0.000 45.0 0.0115500 0 150 Pipe/Conduit 13.182 0.118 75.0 0.000 0.0 0.0 1.550 0 150 Pipe/Conduit 13.182 0.118 75.0 0.000 0.0 0.0 1.550 0 150 Pipe/Conduit 13.182 0.118 75.0 0.000 0.0 0.0 1.500 1.500 1.500 1.500 1.500 1.500 1.500 1.50 1.50 9.217 0.067 1500 0.000 0.0 1.500 0.0 1.50 1.50 </td <td>Design Table for Foul Network</td>	Design Table for Foul Network
<pre>25.646 0.427 60.0 0.00 0.0 0.0 1.500 0 150 Pipe/Conduit 68.237 1.137 60.0 0.000 45.0 0.0 1.500 0 150 Pipe/Conduit 13.182 0.1180 73.2 0.000 45.0 0.0 1.500 0 150 Pipe/Conduit 13.380 0.178 75.0 0.000 0.0 0.0 1.500 0 150 Pipe/Conduit 9.217 0.067 150.0 0.000 0.0 0.0 1.500 0 150 Pipe/Conduit 10.000 0.067 150.0 0.000 0.0 0.0 1.500 0 150 Pipe/Conduit 10.000 0.067 150.0 0.000 0.0 0.0 1.500 0 150 Pipe/Conduit 10.000 0.067 150.0 0.000 0.0 0.0 1.500 0 150 Pipe/Conduit 10.000 0.067 150.0 0.000 0.0 0.0 1.500 0 150 Pipe/Conduit 10.000 0.067 150.0 0.000 0.0 0.0 1.500 0 150 Pipe/Conduit 10.000 0.067 150.0 0.000 0.0 0.0 1.500 0 150 Pipe/Conduit 10.000 0.067 150.0 0.000 0.0 0.0 1.500 0 1.01 17.9 5. 000 49.471 0.000 0.0 0.0 4400.0 0.0 58 0.91 1.02 18.1 5. 000 49.471 0.000 0.0 0.0 557.0 0.0 76 0.72 0.71 12.6 6. 000 49.490 0.000 0.0 557.0 0.0 76 0.72 0.71 12.6 6. 000 49.490 0.000 0.0 557.0 0.0 76 0.72 0.71 12.6 6. 000 49.491 0.000 0.0 557.0 0.0 0.0 76 0.72 0.71 12.6 6. 000 49.491 0.000 0.0 557.0 0.0 0.0 76 0.72 0.71 12.6 6. 000 49.491 0.000 0.0 0.0 557.0 0.0 0.0 76 0.72 0.71 12.6 6. 000 49.491 0.000 0.0 0.0 1400.0 0.0 0.0 76 0.72 0.71 12.6 6. 000 49.491 0.000 0.0 0.0 1400.0 0.0 0.0 76 0.72 0.71 12.6 6. 000 49.491 0.000 0.0 0.0 1400.0 0.0 0.0 76 0.72 0.71 12.6 6. 000 49.49 0.000 0.0 0.0 0.0 0.0 0.0 76 0.72 0.71 12.6 6. 000 49.49 0.000 0.0 0.0 0.0 0.0 0.0 76 0.72 0.71 12.6 6. 000 49.49 0.000 0.0 0.0 0.0 0.0 0.0 76 0.72 0.71 12.6 6. 000 49.49 0.000 0.0 0.0 0.0 0.0 0.0 0.0 76 0.72 0.71 12.6 6. 000 49.49 0.000 0.0 0.0 0.0 0.0 0.0 0.0 76 0.72 0.71 12.6 6. 000 49.49 0.000 0.0 0.0 0.0 0.0 0.0 0.0 76 0.72 0.71 12.6 6. 000 49.49 0.000 0.0 0.0 0.0 0.0 0.0 0.0 76 0.72 0.71 12.6 6. 000 49.49 0.000 0.0 0.0 0.0 0.0 0.0 76 0.72 0.71 12.6 6. 000 49.49 0.000 0.0 0.0 0.0 0.0 0.0 0.0 76 0.72 0.71 12.6 6. 000 49.49 0.000 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0</pre>	25.646 0.427 60.0 0.0 0.0 1.500 0 150 Pipe/Conduit 68.237 1.137 60.0 0.00 45.0 0.0 1500 0 150 Pipe/Conduit 13.182 0.180 73.2 0.000 45.0 0.0 1.500 0 150 Pipe/Conduit 13.182 0.180 73.2 0.000 0.0 0.0 1.500 0 150 Pipe/Conduit 13.380 0.178 75.0 0.000 0.0 0.0 1.500 0 150 Pipe/Conduit 13.380 0.178 75.0 0.000 0.0 0.0 0.0 1.500 0 1.500 0 1.500 0 1.500 0 1.500 0 1.500 0 1.500 0 1.500 0 1.500 0 1.500 0 1.500 0 1.500 1.500 1.500 1.500 1.500 1.500 1.500 1.500 1.500 1.500 1.500 1.500 1.500 1.500 1.500 1.500 1.500	Fall Slope Area Units Base k HYD DIA Section Type (m) (1:X) (ha) Flow (1/s) (mm) SECT (mm)
9.217 0.061 150.0 0.000 0.0 0.0 0.0 1.500 0 150 Pipe/Conduit 10.0000 0.067 150.0 0.000 0.0 0.0 1.500 0 150 Pipe/Conduit Metwork Results Table Motion (1/s) (9.217 0.061 150.0 0.000 0.0 0.0 0.0 1.500 0 150 Pipe/Conduit 10.000 0.067 150.0 0.000 0.0 0.0 1.500 0 150 Pipe/Conduit Metwork Results Table (m) (ha) Flow (l/s) (1/s) (m) (m/s) (m/s) (1/s) (1/s) (1/s) 005 51.334 0.000 0.0 310.0 0.0 53 0.95 1.13 20.0 5. 006 50.966 0.000 0.0 310.0 0.0 54 0.96 1.13 20.0 5. 007 49.829 0.000 0.0 400.0 0.0 58 0.91 1.02 18.1 5. 008 49.649 0.000 0.0 400.0 0.0 58 0.91 1.02 18.1 5. 008 49.649 0.000 0.0 557.0 0.0 76 0.72 0.71 12.6 6.	0.427 60.0 0.00 0.0 0.0 1.500 0 150 Pipe/Conduit 1.137 60.0 0.000 45.0 0.0 1.500 0 150 Pipe/Conduit 0.1180 73.2 0.000 45.0 0.0 1.500 0 150 Pipe/Conduit 0.178 75.0 0.000 0.0 0.0 1.500 0 150 Pipe/Conduit
Network Results Table Us/II Z Area D Base D Units Add Flow P.Dep P.Vel Vel Cap Fi (m) (ha) Flow (l/s) (m) (m/s) (m/s) (m/s) (l/s) (l	Network Results Table US/II Z Area D letwork Results Table P.Vel Vel Cap F. (m) (ha) Flow (1/s) Units Add Flow P.Dep P.Vel Vel Cap F. 51.394 0.000 0.0 310.0 0.0 53 0.95 1.13 20.0 51.394 0.000 0.0 310.0 0.0 54 0.96 1.13 20.0 50.966 0.000 0.0 355.0 0.0 0.0 53 0.99 1.13 20.0 49.499 0.0000 0.0 400.0 0.0 58 0.99 1.01 17.9 49.471 0.0000 0.0 557.0 0.0 0.0 0.71 12.6 49.471 0.0000 0.0 557.0 0.0 0.0 0.71 12.6	0.061 150.0 0.000 0.0 0.0 1.500 0 150 Pipe/Conduit 0.067 150.0 0.000 0.0 0.0 1.500 0 150 Pipe/Conduit
(m)(ha)Flow(1/s)(1/s)(m/s)(m/s)(1/	(m)(ha)Flow $(1/s)$	Network Results Table 2 Area 2 Base 2 Units Add Flow P.Dep P.Vel Vel Cap
51.394 0.000 0.0 310.0 0.0 53 0.95 1.13 20.0 50.966 0.000 0.0 355.0 0.0 54 0.96 1.13 20.0 49.829 0.000 0.0 400.0 0.0 58 0.91 1.02 18.1 49.649 0.000 0.0 400.0 0.0 76 0.72 0.71 12.6 49.471 0.000 0.0 557.0 0.0 76 0.72 0.71 12.6 49.409 0.000 0.0 557.0 0.0 76 0.72 0.71 12.6	51.394 0.000 0.0 310.0 0.0 53 0.95 1.13 20.0 50.966 0.000 0.0 355.0 0.0 64 0.96 1.13 20.0 49.829 0.000 0.0 400.0 0.0 58 0.91 1.02 18.1 49.649 0.000 0.0 400.0 0.0 58 0.90 1.01 17.9 49.649 0.000 0.0 400.0 0.0 76 0.72 0.71 12.6 49.471 0.000 0.0 557.0 0.0 0.0 76 0.72 0.71 12.6 49.409 0.000 0.0 557.0 0.0 0.0 76 0.72 0.71 12.6	(ha) Flow (1/s) (1/s) (mm) (m/s) (m/s) (1/s)
49.471 0.000 0.0 557.0 0.0 76 0.72 0.71 12.6 49.409 0.000 0.0 557.0 0.0 76 0.72 0.71 12.6 @1982-2020 Innovyze	49.471 0.000 0.0 557.0 0.0 76 0.72 0.71 12.6 49.409 0.000 0.0 557.0 0.0 76 0.72 0.71 12.6	0.000 0.0 310.0 0.0 53 0.95 1.13 20.0 0.000 0.0 355.0 0.0 54 0.96 1.13 20.0 0.000 0.0 400.0 0.0 58 0.91 1.02 18.1 0.000 0.0 400.0 0.0 58 0.91 1.02 18.1 0.000 0.0 400.0 0.0 58 0.90 1.01 17.9
		0.000 0.0 557.0 0.0 76 0.72 0.71 12.6 0.000 0.0 557.0 0.0 76 0.72 0.71 12.6
	S	55
	©1982-2020 Innovyze	

	Page 5	Mirco	Drainage											onny.
	PRIMARY CARE CENTRE	FIJOTI DATOVION DATA	Designed by EH Checked by MK	Network 2020.1.3	Free Flowing Outfall Details for Foul Network 1	Outfall C. Level I. Level Min D,L W Name (m) (m) I. Level (mm) (mm) (m)	WB 54.646 49.343 4	cil	jie	sin	08	JIROS	©1982-2020 Innovvze	
Mez	0'Connor Sutton Cronin 9 Prussia Street Dublin 7	Ireland	Date 24/08/2022 15:57 File S665-OCSC-1B-MH-M3-C-0001.01.MDX	XP Solutions	Free Flo	Outfall Pipe Number	WB1.007							



urposes

rish Water **APPENDIX D.** Irish Water Correspondence

Mark Killian

9 Prussia Street Stoneybatter Dublin 7 D07KT57

20 October 2021

Re: CDS21003388 pre-connection enquiry - Subject to contract | Contract denied Connection for Business Connection of 1 unit(s) at Phase 1C, Moygaddy, Meath

Dear Sir/Madam,

Irish Water has reviewed your pre-connection enquiry in relation to a Water & Wastewater connection at Phase 1C, Moygaddy, Meath (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.

	OUTCOME OF PRE-CONNECTION ENQUIRY
SERVICE	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	There are water network capacity constraints in this catchment.
Wastewater Connection	There are wastewater network capacity constraints in this catchment.
A.	SITE SPECIFIC COMMENTS
Water Connection	In order to accommodate the proposed connection at this development, upgrade works are required to increase the capacity of the Irish Water network. Irish Water does not currently have any plans to carry out the works required to provide the necessary upgrade and capacity. Should you wish to have such upgrade works progressed, Irish Water will require you to provide a contribution of a relevant portion of the costs for the required upgrades, please contact Irish Water to discuss this further.
	 Connection main – Approx. 50m of new 250mm ID main to be laid to connect the site development (see yellow section below) to the new 300mm ID upgrade main. Connection main shown below (See green line in figure 1). Trunk/Distribution main 1 – Approx. 950m of 300mm ID main to be laid to link connection main and new 350mm ID main (see red





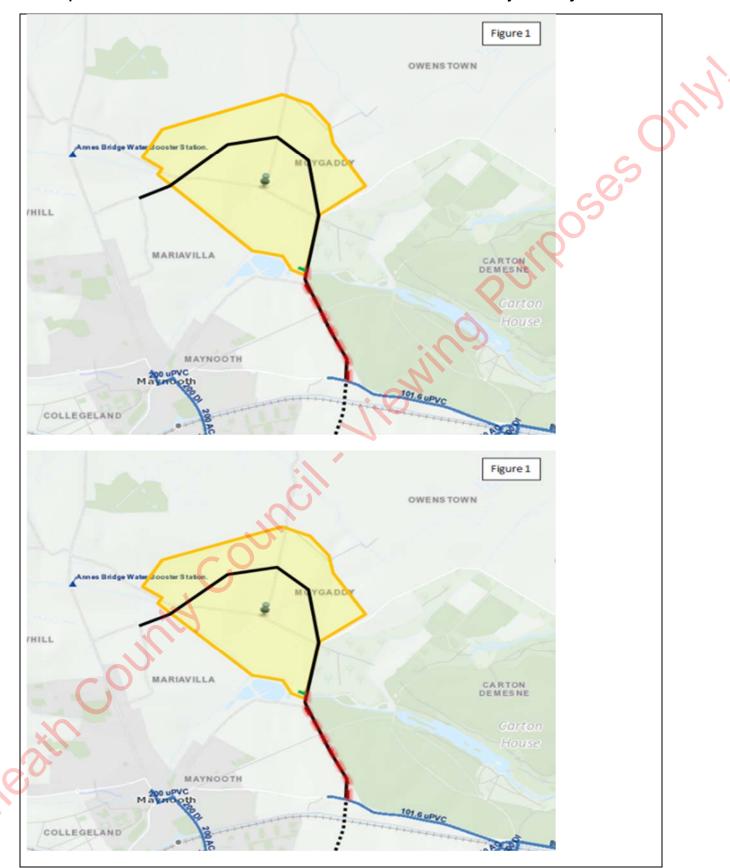
Uisce Éireann Bosca OP 448 Oifig Sheachadta na Cathrach Theas Cathair Chorcaí

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

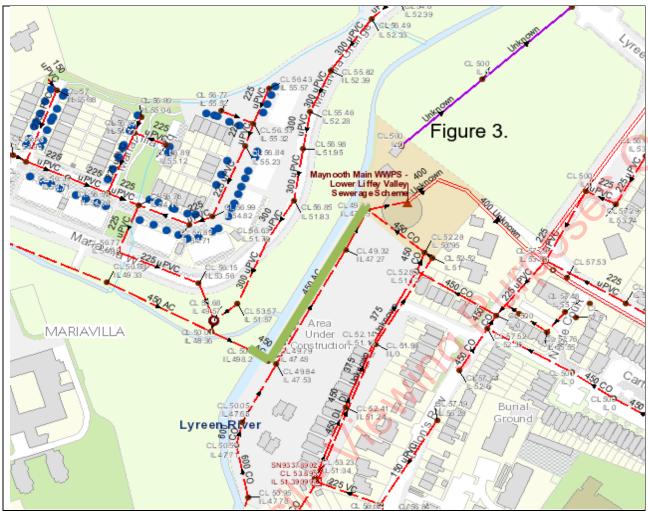
www.water.ie

	 dashed line in figure 1). To service the lands a total of 3500m of 300mm ID main (seen as black line in figure 1) which links in with Mariavilla. 3. Trunk/Distribution main 2 – Approx. 1400m of new 350mm ID main to be laid to link new 300mm ID TM 1 and the existing 400mm AC main together. 4. Onsite storage required for commercial units, 24-hour storage at ADPW demand, storage units must also be able to be refilled from empty within 12-hour period 	nH.
	IW currently have a project 'Maynooth East Ring Road' which is currently at design stage and on our current investment plan consisting of approx. 1400m of 350mm ID main (shown below (black dashed line in figure 2) and will be carried out in conjunction with Kildare County Councils 'Maynooth Eastern Ring Road' project.	
	In order to accommodate the proposed connection at the Premises, upgrade works are required to increase the capacity of the Maynooth Wastewater Pump Station and Rising Main. Irish Water currently has a project on our current investment plan which will provide the necessary upgrade and capacity. This upgrade project is currently scheduled to be completed by Q4 2025 (this may be subject to change, as planning has yet to be granted in both Kildare and Meath and the appropriate consents for the project).	
Wastewater Connection	The addition discharge would cause a back up of flows in the existing gravity network entering the pump station. Upgrade works would be required to increase the capacity of the wastewater network (upgrade of approx. 175m of network directly upstream of the Pump Station). Irish Water are currently reviewing these works which are not currently on the Capital Investment Plan. Please contact Irish Water to discuss this further.	
	Where a connection is proposed in advance of the delivery of strategic solutions in this area, Irish water are willing to review Storm Sewer Separation proposals (from the combined network) in the Maynooth area, in order to provide additional wastewater capacity. This would require co-operation and agreement from Kildare County Council, as the storm drainage authority.	
	Further measures are currently being investigated by Irish Water in this area via the Capital Maintenance Programme, including:	
	- identifying and repairing areas of infiltration	
$c \Theta$	- control of pumping stations in the catchment	
	- increasing local storage in the area	
X		

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:



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

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.
- 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 <u>https://www.water.ie/connections/information/connection-charges/</u>
- 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 <u>datarequests@water.ie</u>

Conu

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 Paul Lowry from the design team on 018230377 or email paullowr@water.ie For further information, visit **www.water.ie/connections**.

Yours sincerely,

Monne Maesis

Neath

Yvonne Harris Head of Customer Operations



Multidisciplinary Consulting Engineers

> 9 Prussia Street Dublin 7 Ireland

T | +353 (0)1 8682000 F | +353 (0)1 8682100 W | www.ocsc.ie