TALLAGHT INNOVATION CENTRE

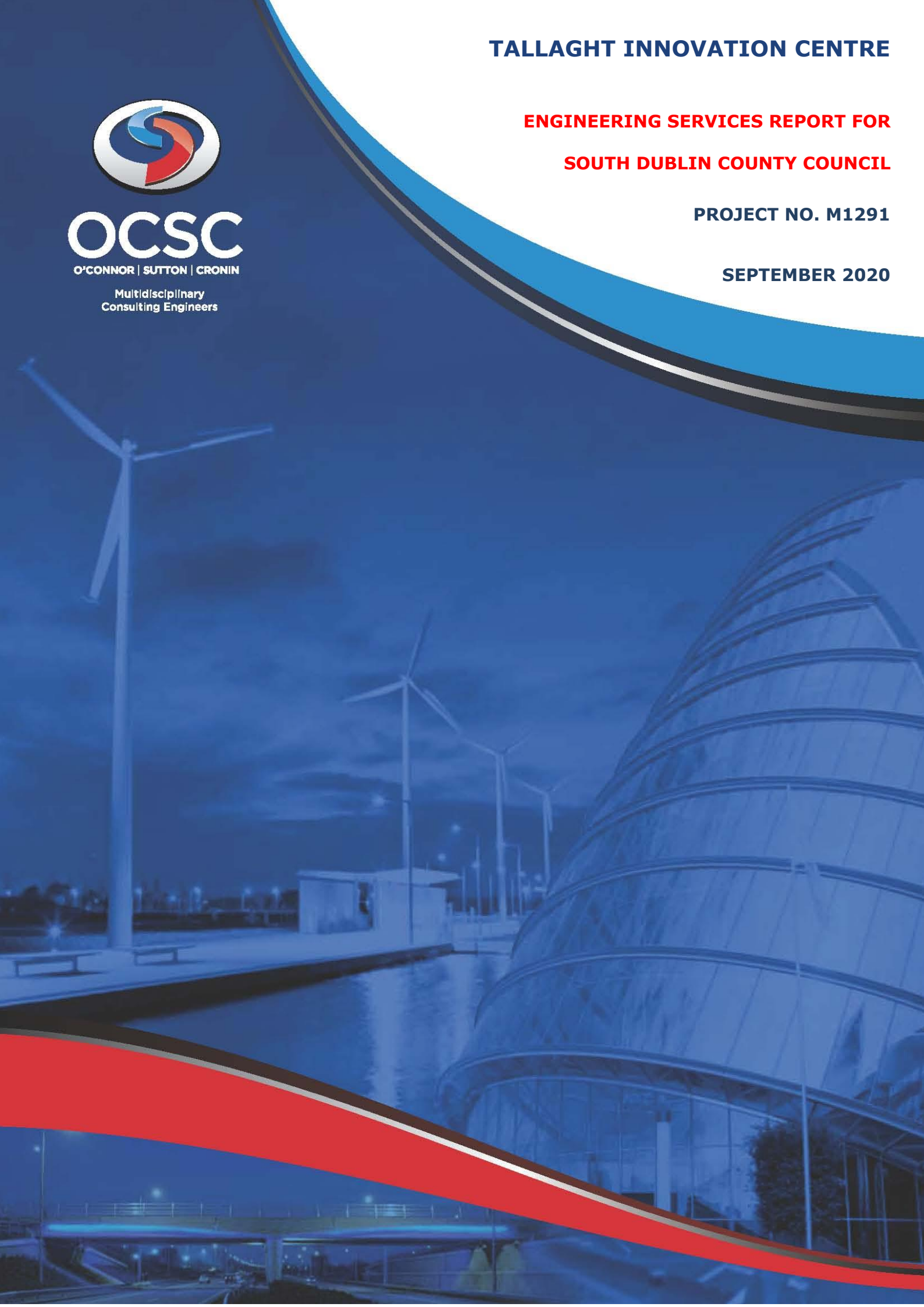
ENGINEERING SERVICES REPORT FOR

SOUTH DUBLIN COUNTY COUNCIL

PROJECT NO. M1291

SEPTEMBER 2020

OCSC
O'CONNOR | SUTTON | CRONIN
Multidisciplinary
Consulting Engineers



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REPORT

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for

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NOTICE

DOCUMENT CONTROL & HISTORY

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SEPTEMBER 2020

1 INTRODUCTION

1.1 Overview

O'Connor Sutton Cronin have been appointed as Civil & Structural Engineers as part of the Architect led design team for the proposed development of an Innovation Centre at Tallaght, Dublin 24 for South Dublin County Council.

1.2 Site Location

The site of the proposed development is located to the north of County Hall in Tallaght. The site is indicated in Figure 1 below.

Figure 1-Site Location

1.3 Site Overview

The site is located to the north of County Hall in Tallaght. It is bounded to the north and north west by industrial units within Cookstown Industrial Estate. Disused industrial units are located to the east of the site-this area has current planning for a large-scale residential development. The areas to the south of the proposed development are in the ownership of South Dublin County Council with plans for a school and a landscaped park to be provided in this area. A new link road is currently being constructed along the western boundary of the site in a north south direction.

The existing site is relatively flat with levels of c.103.25-103.5m OD across the site. The existing ground to the south of the site is flat at first before falling gradually towards Belgard Square North. The site is brownfield in nature having been previously used as Traveller Accommodation.

1.4 Proposed Development

The Tallaght Innovation Centre is a landmark building for Tallaght Town Centre, under the procurement of South Dublin County Council. It will sit at the head of a new park / urban plaza on lands north of Belgard Road North and provide a civic focus for this area, that will be developed in other lots to include housing and a school. The Tallaght Innovation Centre is an exciting new initiative aimed at bringing start-up companies to the area by providing office space of differing scales that can be rented for a fixed period of time. The building is a taut metal and glass-clad box that commands the northern end of the site and will be highly visible, with a night and day presence. 4 storeys high, the ground floor is open and inviting, with public interface: you can see through the building from side to side. Above this there are three floors of lettable units that vary in size and look out over Tallaght Town Centre and to the mountains beyond. A void over the Town Hall area, flooded with natural light, allows for visual connections between the levels. A south facing outdoor terrace opens out from the café, availing of the amenity of the park. A small amount of parking will be provided to the north of the site. The proposed development is adjacent to the new Belgard Link Road, currently nearing completion of construction on site.

Figure 2-Proposed Development

Figure 3-3-D Visualisation of Proposed Development

2 SCOPE OF REPORT

This report has been prepared to describe the proposed civil engineering aspects of the development and will form part of the planning application documentation. This report has been prepared by reviewing available data from Local Authority records and national bodies, ie South Dublin County Council (SDCC), Irish Water as well as the wider design team and client body. The report addresses

- Storm drainage proposals;
- Foul drainage proposals;
- Potable water supply;
- Traffic & Transportation.

All design and calculations will be in accordance with;

- Local Authority Requirements;
- BS EN 752 – Drainage Outside Buildings;
- The Building Regulations – Technical Guidance Document Part 'H';
- The Building Regulations – Technical Guidance Document Part 'M';
- Recommendations for Site Development works for housing Areas, Dept. of Environment, 1998;
- Design Manual for Urban Roads and Streets (DMURS);
- Traffic Signs Manual;
- DETR Guidance on the use of Tactile Paving Surfaces;
- Greater Dublin Strategic Drainage Study (GDSDS);
- BS EN 12056-2:2000 Gravity drainage systems inside buildings;
- The SuDS Manual (CIRIA C753);
- Irish Water Code of Practice for Water Infrastructure;
- Irish Water Code of Practice for Wastewater Infrastructure;

Other aspects of the site development strategy relating to architectural design, landscaping, ecology, conservation, visual quality and planning compliance are covered by other members of the design team.

This report should be read in conjunction with the following documents also prepared by OCSC:

- Drawing M1291-OCSC-XX-XX-DR-S-0001 Existing Drainage & Watermain Layout;
- Drawing M1291-OCSC-XX-XX-DR-S-0002 Proposed Drainage Layout;
- Drawing M1291-OCSC-XX-XX-DR-S-0003 Proposed Watermain Layout;
- Report M1291-OCSC-XX-XX-RP-S-0003 Mobility Management Plan.

3 STORM DRAINAGE

3.1 Existing Drainage Infrastructure

The proposed site is served by existing drainage infrastructure. A review of local authority records has identified separate foul and storm drainage lines to the south of the site along Belgard Road North as well as within Cookstown Industrial Estate to the north of the site.

A copy of the Local Authority record drawings are included in Appendix A of this report with an extract included as Figure 4 below.

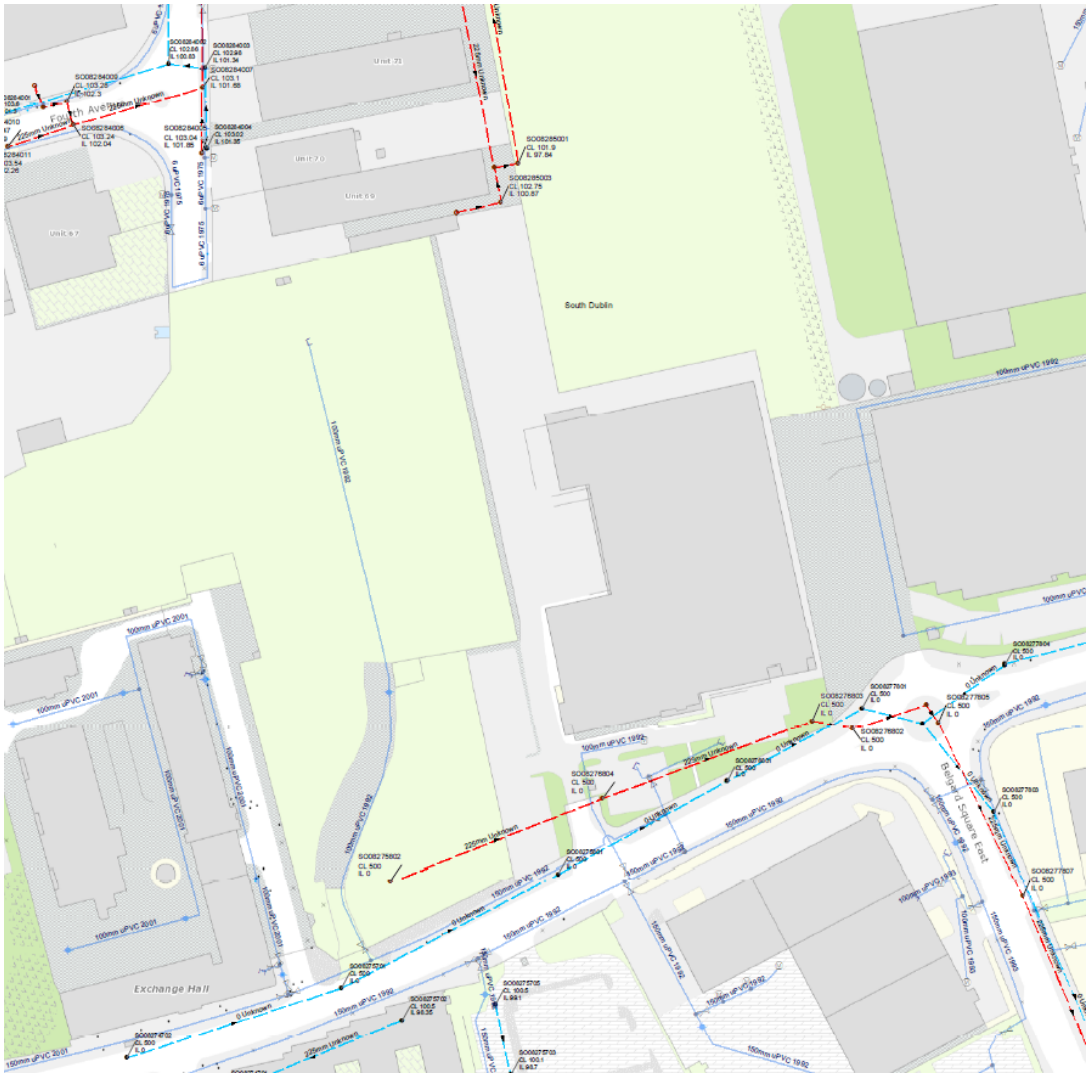

Figure 4-Extract of Local Authority Drainage Records

In addition to the existing drainage infrastructure, new storm and foul drainage lines are being provided as part of the current extension to the Link Road Extension works which is nearing completion on site. This contract, awarded by South Dublin County Council, has included the following:

- New 450mm diameter storm sewer serving the new link road;
- Attenuation for the new link road;
- A new section of 225mm diameter foul sewer travelling in a north south direction.

Details of same are indicated in Figure 5 below and included as Appendix B of this report.

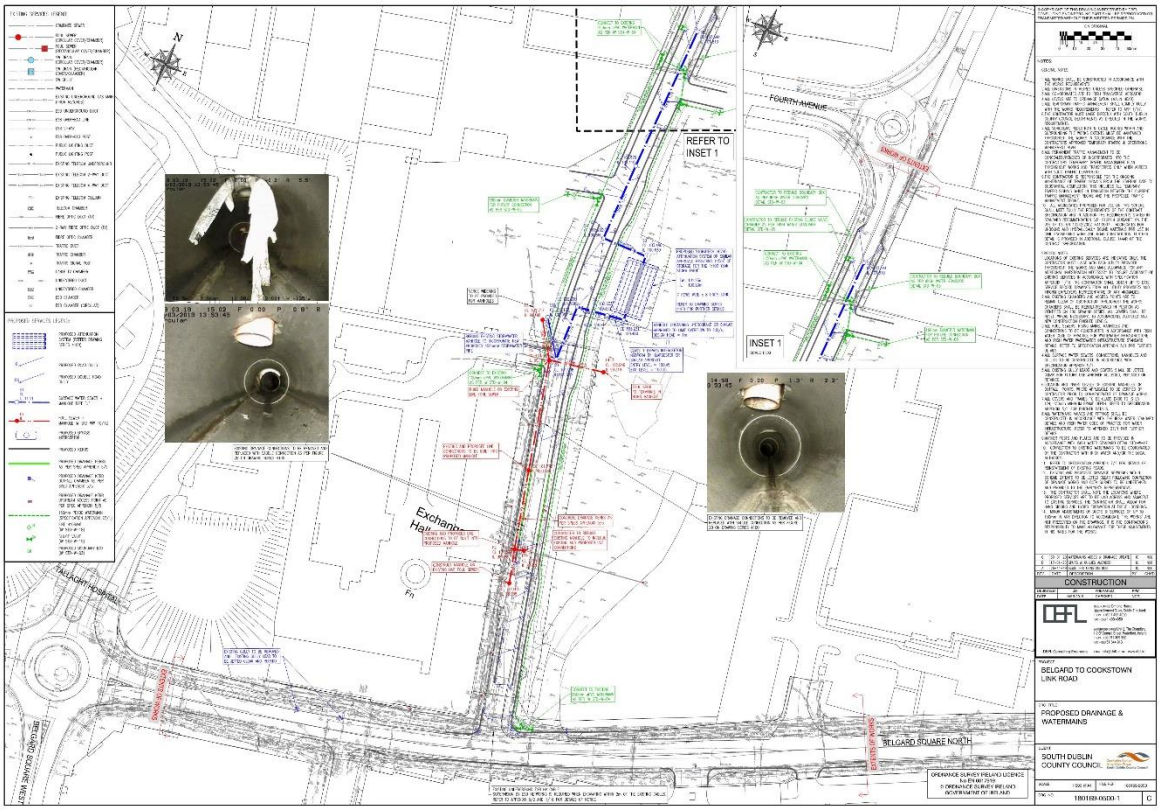

Figure 5-Link Road-Drainage & Watermain Layouts
(DBFL Drawing No. 180169-0500-1)

The existing drainage infrastructure in the vicinity of the site is shown on drawing M1291-OCSC-XX-XX-DR-S-0001 included as Appendix C of this report.

3.2 Public Realm-Proposed Drainage Works

A recent Part 8 planning application has been submitted for a proposed Public Realm scheme to the south of the proposed Innovation Centre Site and is described below (extract from Punch Consulting Engineers Engineering Planning Report):

"Public realm works totalling approximately 1.2ha to include proposed new public space at Innovation Square, proposed Pedestrian Crossing on Belgard Cookstown Link Street; proposed new Belgard Square North/Airton East West Pedestrian Link Street; Pedestrian crossings at Belgard Square North and Belgard Cookstown Link Street, redevelopment of County Hall Pedestrian Link; redevelopment and reprofiling of levels within Chamber Square. Proposed works to include the reconfiguration of existing County Council carpark including widening of County Hall Pedestrian Link with additional planting, seating and relocation of wheelchair accessible parking spaces, a new pedestrian crossing and associated amendments to the carpark. Proposed works to include a new advertising totem in Innovation Square extending to a maximum height of 2.4m x 1.5m.

Proposed works to include all ancillary site development and landscaping works, including public lighting, play equipment, furniture and sports equipment, cycle parking, seating, pathways, planting, surface water drainage and boundaries."

Both the Public Realm project and the Innovation Centre Project are being developed by South Dublin County Council. The proposed Innovation Centre layout is indicated in Figure 6 over in the context of the wider Public Realm project.

Figure 6-Proposed Public Realm Scheme with Innovation Centre

It is noted that the surface water drainage design for the Public Realm scheme has included the catchment of the Innovation Centre site within the overall design and drainage requirement, with the drainage layout within the Innovation Centre site to be developed by OCSC as part of the design. Details of the catchment areas used are included in Figure 7 below with the drawings included in Appendix D of this report.

Figure 7-Public Realm Drainage-Catchment Areas

The proposed Innovation Centre site covers 0.24 hectares, which has been assumed to be fully impervious within the Punch Consulting Engineers attenuation requirements as in Figure 8 over.

Thus, the attenuation requirement for the overall site calculated by Punch Consulting Engineers includes the attenuation requirement of the Innovation Centre site.

Table 2: Impervious Area Contribution

Description of Area	Actual Area (m²)	Permeable	Soil Proportionate Value Applied	Equivalent Impervious Area Used (m²)
Proposed External Rain Garden	405	Yes	0.45	182
Proposed Permeable Paving	1,238	No	1	1,238
Proposed Impermeable Paving	6,815	No	1	6,815
Proposed Swales with Filter Drain	3,574	Yes	0.45	1,608
Innovation Centre Runoff (full impervious assumed)	2,400	No	1	2,400
Total Area used for Qbar calculation	**14,432**		**Total Area used in drainage model**	**12,243**

Please refer to PUNCH Drawings 192232-003 & 004 for the catchment map including area locations and finish types.

Figure 8-Public Realm Drainage-Catchment Areas

(Table 2 from Punch Consulting Engineers Engineering Report)

The proposed attenuation system for the Public Realm scheme is to consist of a *"below ground combined arch and gravel system (e.g stormtech)."* The analysis undertaken by Punch Consulting Engineers has identified an overall run-off rate from the site of 7.1l/s given an attenuation storage requirement of 780m^3.

The proposed storm drainage layout for the Public Realm scheme is indicated on Punch Consulting Engineers Drawings 192232-001 & 192232-002, part reproduced in Figure 9 and included in Appendix C of this report for reference. The proposed layout in the vicinity of the Innovation Centre site consist of 375mm diameter sewers to the south and the to west of the proposed development. These sewers combine to a 450mm diameter before travelling into the first of two attenuation tanks within the scheme. This first tank limits provides the flow to 3.5l/s and provides 525m^3 of the overall storage requirement thus limiting the required volume of the second tank.

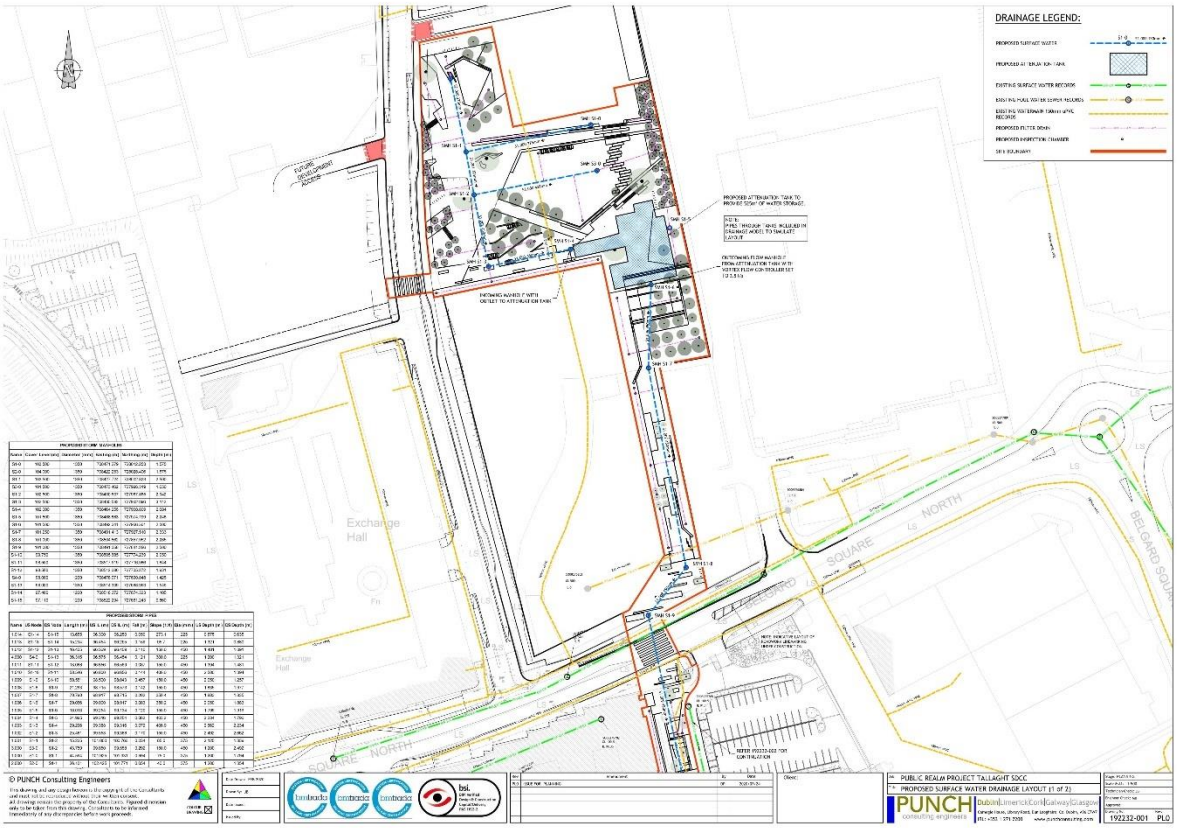

Figure 9-Public Realm Drainage-Proposed Layout

3.3 Storm Drainage Proposals

A separate dedicated storm drainage network will be provided to serve the proposed development. The rainwater will be gathered at roof level and brought to ground level via downpipes. These downpipes will be combined with outlets from drainage channels at door thresholds and gathered in a 225mm diameter sewer. Drainage from the new access road will be gathered in a separate 225mm diameter pipe and passed through a Class 1 petrol interceptor before being combined with run-off from the roof.

The proposed drainage layout for the Public Realm provides a manhole (SMH S1-0) adjacent to the south-eastern corner of the Innovation Centre site as indicated in Figure 10 over. It is proposed that the drainage from the Innovation Centre site discharge to this manhole.

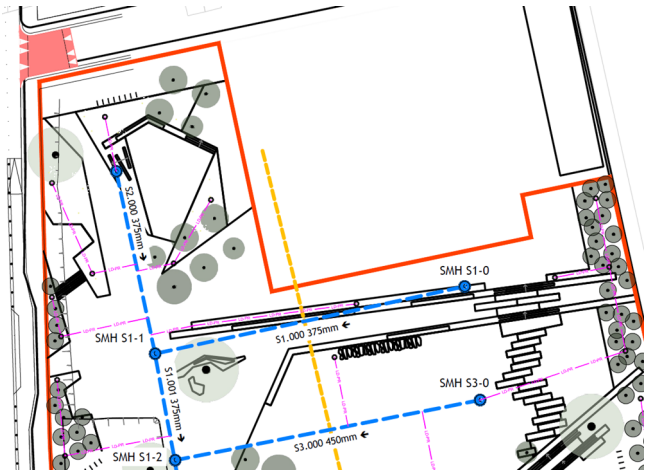

Figure 10-Public Realm Scheme-Storm Drainage at Innovation Centre

The proposed storm drainage layout is shown on OCSC drawing M1291-OCSC-XX-XX-DR-S-0002 with part shown in Figure 11 below and included as Appendix E of this report. It is noted that a consultation process on the storm drainage proposals for the Innovation Centre has been followed with the Drainage Department of South Dublin County Council.

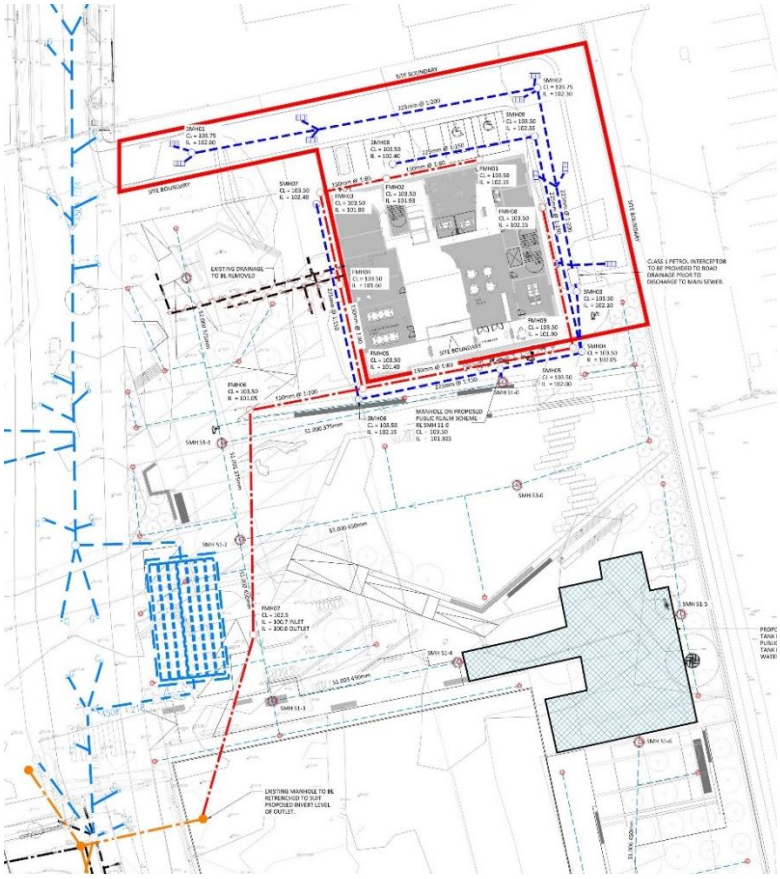

Figure 11-Proposed Drainage Layouts

3.4 Proposed Specific SuDS Measures

It is proposed to provide a Sustainable Urban Drainage System (SuDS) in accordance with the Greater Dublin Strategic Drainage Study Regional Drainage Policy Volume 2 - New Development (GDSDS-RDP Volume 2). Specific design requirements for SuDS components are established by the Construction Industry Research and Information Association's publication CIRIA C753-SuDS Manual (C753).

- Attenuation Storage-is provided within the overall Public Realm scheme
- Limiting discharges to ensure that the site discharge rate is maintained below the equivalent green field run-off rate for the site is achieved through the Public Realm scheme.
- Permeable paving is proposed to the car parking on the northern boundary of the proposed development.

It is noted that the feasibility of incorporating green roofs within the proposed development was examined but was not viable as the roof areas may be used as additional space for hosting events as and when required.

3.5 GDSDS Storm Water Review

3.5.1 Criterion 1-River Water Protection

All surface water drainage will pass through the attenuation tank before discharging to the local authority combined sewer. A petrol interceptor will be provided on any drainage from the new access road and carparking areas car park areas before reaching the attenuation tank.

3.5.2 Criterion 2-River Regime Protection

The site discharge will be made to the public network via the proposed attenuation and controlled outflow. The limiting discharge will restrict the discharge to a rate of **7.1l/s** for the entire site prior to entering to the public system-this is equivalent to greenfield runoff for the site.

The GDSDS-RDP Volume 2, Appendix E Section E2.4 states that this ensures "that sufficient stormwater runoff retention is achieved to protect the river during extreme events."

3.5.3 Criterion 3-Level of Service (Flooding) Site

There are 4 sub-criteria for level of service, as set out in the GDSDS-RDP Volume 2, Section 6.3.4 (Table 6.3):

(i) No flooding on site except where planned (30-year high intensity rainfall event);

(ii) No internal property flooding (100-year high intensity rainfall event);

(iii) No internal property flooding (100-year river event and critical duration for site) and;

(iv) No flood routing off site except where specifically planned, (100-year high intensity rainfall event).

It is proposed that storm water runoff from the development will typically be collected in pipes of diameter 225mm diameter. The proposed drainage layout is shown on drawing M1291-OCSC-XX-XX-DR-S-0002.

Please refer to section 3.6 of this report for a site specific flood risk assessment.

Sub Criterion 3.1

The proposed drainage system has been designed to safely convey the run-off for a 30-year return period storm event.

Sub Criterion 3.2

The proposed drainage system has been designed to safely convey the run-off for a 100-year return period storm event.

Sub Criterion 3.3

Reference to the flood hazard mapping has identified that the site of the proposed development is not within the predicted 100-year river event of any local water course.

Sub Criterion 3.4

The drainage system has been designed to meet the requirements of the 100-year return period storm event. Sufficient storage will be provided to prevent flooding in the 100-year return period storm event. The surface water strategy will not provide for off-site overland flow in the 100-year return period storm event.

3.5.4 Criterion 4-River Flood Protection

In accordance with sub-criterion 4.3, runoff from the site will be limited to the green-field runoff level. By limiting the runoff to this flow rate, the GDSDS-RDP Volume 2, Appendix E Section E2.4 states that this ensures "that sufficient stormwater runoff retention is achieved to protect the river during extreme events". Attenuation storage is provided for the 100-year return period storm event for the entire site through the Public Realm scheme. Control of runoff rates will be achieved through the use of a vortex controlled discharge from the attenuation tank.

3.6 Flood Risk Assessment

A Flood Risk Assessment is the identification, quantification and communication of flood risk using the source-pathway-receptor model. It examines the source of flooding and the pathways by which floodwaters might reach receptors, such as people, property and environment to determine the likelihood of them being affected by flooding. It also examines the flood hazards that are likely to arise and the vulnerability of receptors to such hazards. The principles of the source pathway receptor model are outlined in Figure 12 below.

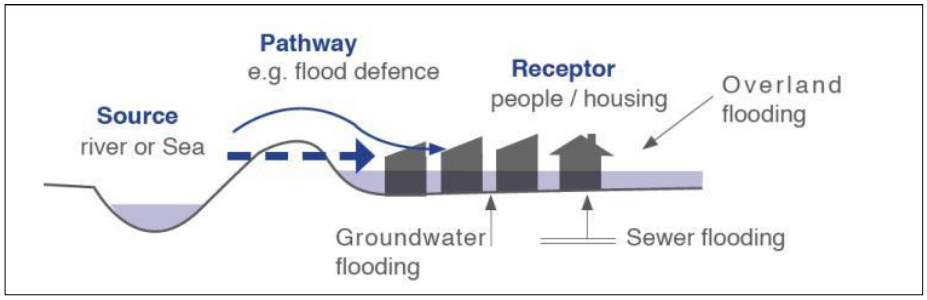

Figure 12-Source-Pathway-Receptor Model

3.6.1 Level of Service

The risk of a flood event is a function of the probability of occurrence in any given year. Traditionally, this has been expressed as a return period (e.g 1-in 100-year return period). However, this has led to misconceptions about the likelihood of repeat occurrences. A less ambiguous expression of probability is the Annual exceedance Probability (AEP), which may be defined as the probability of a flood event being exceeded in any given year. A 1-in-100-year return period flood event is therefore expressed as a 1% AEP flood event. Likewise, a 1-in-100 return year period flood event is expressed as a 100% AEP flood event.

The Greater Dublin Strategic Drainage Study (published by the Local Authorities in the greater Dublin Region) and The Planning System and Flood Risk Management, Guidelines for Planning Authorities set out the best practice standards for flood risk in Ireland. These are summarised in Table 1 over.

Use	**Flood Source**		
	Drainage	River	Tidal/Coastal
Residential	1% AEP	0.1% AEP	0.1% AEP
Commercial	1% AEP	1% AEP	0.5% AEP
Water-compatible	-	>1% AEP	>0.5%AEP

Table 1-Summary of Level of Service-Flooding Source

Both the Greater Dublin Strategic Drainage Study and The Planning System and Flood Risk Management, Guidelines for Planning Authorities require that account be taken of the effects of climate change over the design life of a development, normally 100 years. Flood risk will therefore change over the lifetime of a development. The Flood Risk Assessment therefore considers "present day" flood risk and "future" flood risk.

The proposed development would be classed as Commercial Development and thus requires the level of service to be 1% AEP for drainage, 1% AEP for river flooding and 0.5% AEP for tidal/coastal flooding.

3.6.2 Flood Risk & Mitigation Measures

Fluvial Flooding

A review of the OPW portals Floodinfo.ie and Floodmaps.ie have been undertaken in reviewing the risk of fluvial flooding at the site of the proposed development. There is no record of flooding at the site and a review of mapping shows the site of the proposed development to be outside of the 1% AEP for fluvial flooding. Please refer to Figure 13 over.

Thus, it is considered that the risk of fluvial flooding is low.

Figure 13-Extract from Floodinfo.ie

Tidal/Coastal Flooding

The site is located approximately 12km from the sea. Thus, it is considered that the risk of tidal/coastal flooding is low.

Pluvial Flooding

A review of the OPW website Floodinfo.ie and Floodmaps.ie does not show any records of flood events in the vicinity of the site. Thus, it is considered that the risk of pluvial flooding is low.

Groundwater Flooding

There is no basement structure proposed as part of the development. The proposed ground floor level is at or above the existing at grade level on the site. Thus, it is considered that the risk of groundwater flooding is low.

4 FOUL WATER DRAINAGE

4.1 Overview

The existing drainage infrastructure in the vicinity of the site is discussed in Section 3.1 of this report. Of greatest significance from a foul drainage perspective is the 225mm diameter foul sewer to the south west of the site constructed as part of the Link Road Extension works.. This construction works included the provision of a dedicated manhole to the east of the road to facilitate tie in from the Innovation Centre site without impacted upon the newly constructed road.

4.2 Proposed Foul Drainage Layout

The foul drainage from the proposed development will be gathered from pop-up connections in a 150mm diameter sewer. This dedicated foul sewer will travel in a similar direction to the storm sewer to tie into the new foul sewer constructed as part of the Link Road Extension works.

The proposed foul drainage layout is shown on OCSC drawing M1291-OCSC-XX-XX-DR-S-0002 included as Appendix E of this report.

4.3 Foul Flow Calculations

An assessment has been undertaken on the proposed foul flow once the development has been completed. Details of same are included in Table 2 below. It is noted that the foul flow rates have been based on the rates set out in Irish Water Code of Practice for Wastewater (Appendix C)

	Occupancy	**Rate (l/day/person)**	**Total (l/day)**	**1DWF (l/s)**	**6DWF (l/s)**
Proposed	300	50	15,000	0.174	1.04

Table 2- Foul Flow

4.4 Consultation

A pre-connection enquiry for the proposed development has been submitted to Irish Water for discharge to the foul sewer. A confirmation on feasibility has been received from Irish Water. A copy of this confirmation is included in Appendix F of this report.

5 POTABLE WATER SUPPLY

5.1 Overview

The site is well served by existing mains water infrastructure. Existing local authority records identify:

- An existing 150mm diameter uPVC pipe to the south of the site along Belgard Road North;
- A 6inch supply to the industrial estate to the north of the site;
- A 100mm diameter uPVC pipe to the adjoining residential development to the west of the site;
- A 100mm uPVC supply to the site (now redundant)

In addition, a new section of 160mm diameter watermain has been provided to the west of the site as part of a recent Link Road construction project. Details of same are shown in on DBFL drawing no. 180169-0500-1 included in Appendix B of this report.

5.2 Watermain Proposals

It is proposed that the water supply to the proposed development be provided via the spur from the 160mm diameter watermain provided as part of the recent Link Road construction works. A new 80mm diameter main will be provided to serve the new building.

It is also proposed to remove an existing watermain crossing the site. This watermain was a supply to previous use on the site and is now redundant. It is proposed to cap this watermain at its connection adjacent to Belgard Road and remove same from site.

The proposed watermain layout is shown on OCSC drawing M1291-OCSC-XX-XX-DR-S-0003 included in Appendix G of this report.

5.3 Water Demand

An assessment on the proposed water demand of the development on the local network has been undertaken. It is noted that the water demand rates have

been based on the rates as referenced in Irish Waster Code of Practice for Wastewater Infrastructure (Appendix C) to match foul flow daily rates.

	Occupancy	Rate (l/day/person)	Total (l/day)	Average (l/s)	Peak (l/s)
Proposed	300	50	15,000	0.174	1.09

Table 3- Water Demand

5.4 Water Saving Devices

In accordance with best practice, new water saving devices (low water usage appliances and aerated taps etc.) will be fitted into the proposed new buildings on site.

5.5 Consultation

A pre-connection enquiry for the proposed development has been submitted to Irish Water for connection to the public watermain. A confirmation on feasibility has been received from Irish Water. A copy of this correspondence is included in Appendix F of this report.

6 TRAFFIC & TRANSPORATION

6.1 Existing Public Transport, Cycle & Pedestrian Facilities

There are a wide variety of existing public transport, cycle and pedestrian facilities in the vicinity of the proposed development.

The site is well serviced by public transport. The LUAS red line service terminates to the south of the site and serves from Tallaght to the Point Depot, linking Tallaght to the City Centre. The area is well served by public bus with the numbers 27, 49, 56A, 65, 75, 76 and 76a routes all passing in close proximity to the site, with a number of these routes terminating at The Square Shopping Centre.

A range of cycle and pedestrian infrastructure is in place around the site. A number of cycle routes with either dedicated or shared cycle lanes exist along Belgard Road, Cookstown Road and the N81. There are existing footpaths along all roadways in close proximity to the site.

6.2 Future Public Transport, Cycle & Pedestrian Facilities

The BusConnects proposals for the Greater Dublin Area propose a series of 16 core bus corridors. Included within these proposals is a corridor form Greenhills to the south west of the site to City Centre route. This will serve the site of the proposed development.

The Cycle Network Plan for the Greater Dublin Area includes upgrades to the cycle infrastructure around the site. These include a number of feeder routes around the site providing linkages to a both a primary route along Belgard Road and a minor greenway linkage to the main Dodder Greenway.

An extract from the proposals is include in Figure 14 over with the site location identified.

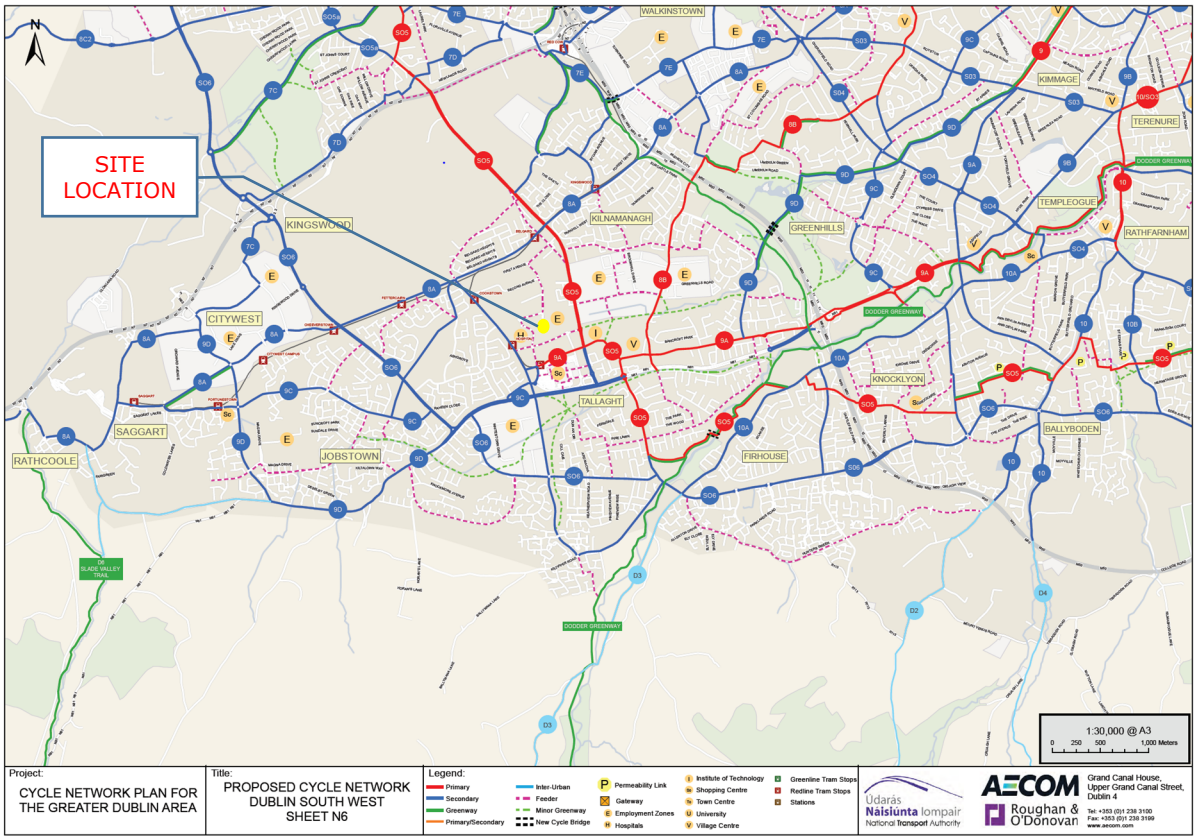

Figure 14-Proposed Cycle Network

6.3 Servicing of Proposed Development

The proposed development is to be accessed off the new extended Link Road to the west of the south. A new road for deliveries to the developments is proposed from the Link Road to the north of the site, travelling down the eastern side of the development to provide access for fire tenders. Given the location of the proposed development and its proximity to a wide range of transport infrastructure, the provision of carparking at the development will be limited to 14no. in total with 2no. of these spaces consisting of disabled parking spaces. It is noted that there are a number of alternative parking options for users or visitors to the Innovation Centre including public car parking facilities at Belgard Square West approximately 150m from the site with a daily charge of €4.

Please refer to Figure 15 over which shows the proposed site layout.

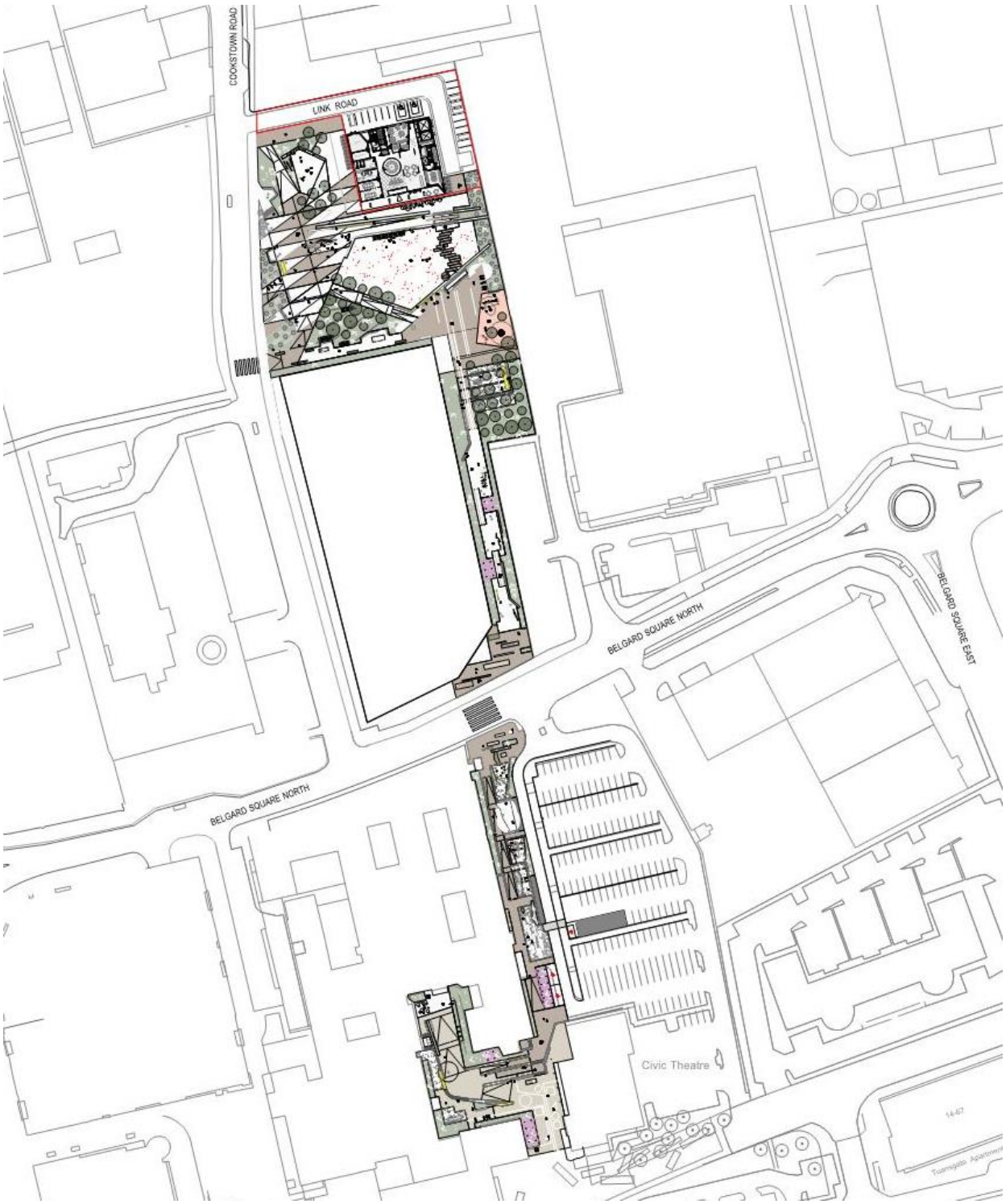

Figure 15-Overall Site Plan

Bicycle parking with 30no spaces is to be provided under the north west corner of the building as highlighted in Figure 16 below, with additional bicycle provision included in the public realm area.

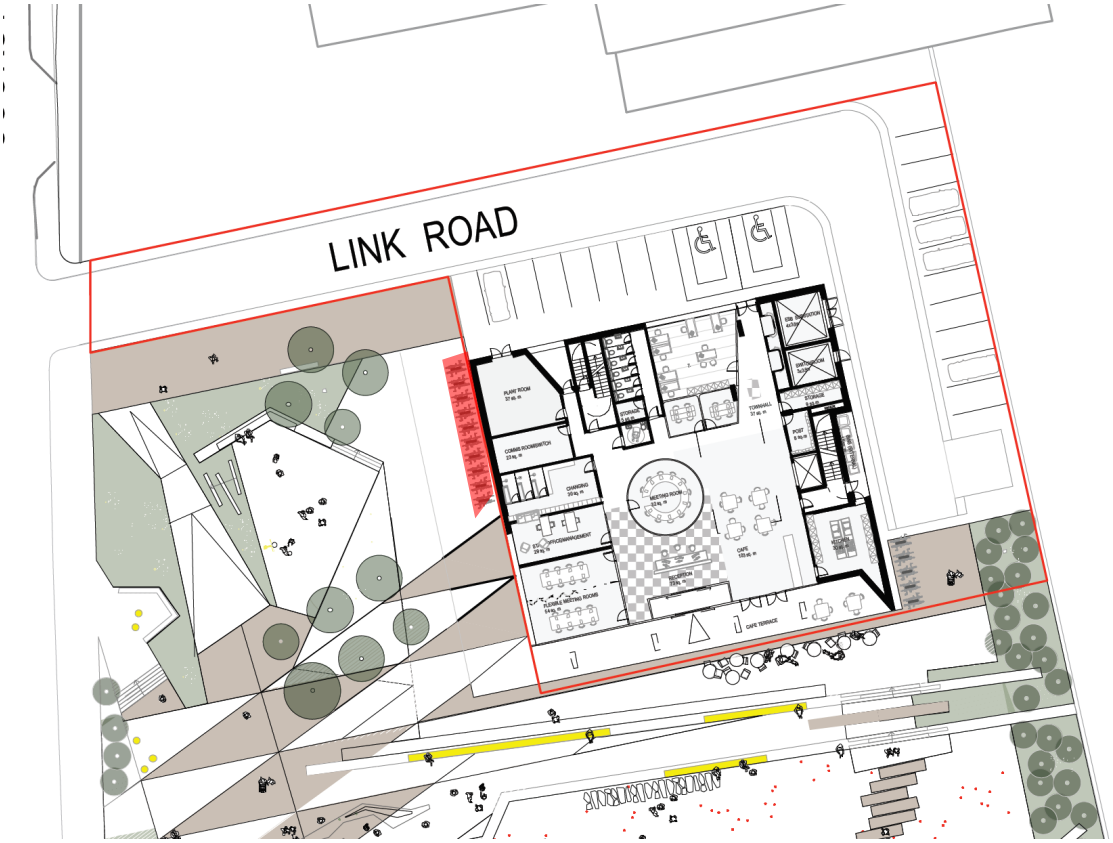

Figure 16-Areas for Designated Bicycle Parking

6.4 Mobility Management Plan

It is noted that a separate Mobility Management Plan has been prepared as part of the documentation supporting the planning application. This is included as document M1291-OCSC-XX-XX-RP-S-0003 Mobility Management Plan and should be consulted for further detail with regards to Mobility Management.

IAN CREHAN BE, CEng, MIEI, MIStructE, RConsEI
OCSC MULTIDISCIPLINARY CONSULTING ENGINEERS

APPENDIX A. LOCAL AUTHORITY RECORDS

UISCE ÉIREANN : IRISH WATER

Legend

- Pump Stations
- Irish Water
- Private
- Irish Water
- Non IW
- Gravity - Combined
- Gravity - Foul
- Gravity - Overflow
- Gravity - Unknown
- Pumping - Combined
- Pumping - Foul
- Pumping - Overflow
- Pumping - Unknown
- Syphon - Combined
- Syphon - Foul
- Syphon - Overflow
- Overflow
- Gravity - Combined
- Gravity - Foul
- Gravity - Overflow
- Gravity - Unknown
- Pumping - Combined
- Pumping - Foul
- Pumping - Overflow
- Pumping - Unknown
- Syphon - Combined
- Syphon - Foul
- Syphon - Overflow
- Overflow
- Surface Gravity Mains
- Surface Gravity Mains Private
- Surface Water Pressurised Mains
- Surface Water Pressurised Mains Private

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Consulting Engineers

APPENDIX B. LINK ROAD DRAINAGE & WATERMAIN LAYOUT

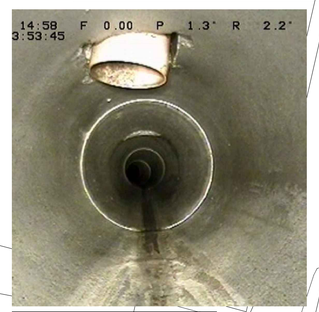
EXISTING SERVICES LEGEND:

- COMBINED SEWER
- FOUL SEWER (CIRCULAR COVER/CHAMBER)
- FOUL SEWER (RECTANGULAR COVER/CHAMBER)
- SW DRAIN (CIRCULAR COVER/CHAMBER)
- SW DRAIN (RECTANGULAR COVER/CHAMBER)
- SW GULLY
- WATERMAIN
- EXISTING UNDERGROUND GAS MAIN (FROM RECORDS)
- ESB UNDERGROUND DUCT
- ESB OVERHEAD LINE
- ESB 2-WAY
- ESB OVERHEAD POST
- PUBLIC LIGHTING DUCT
- PUBLIC LIGHTING POST
- EXISTING TELECOM UNDERGROUND
- EXISTING TELECOM 2-WAY DUCT
- EXISTING TELECOM 4-WAY DUCT
- EXISTING TELECOM COLUMN
- TELECOM CHAMBER
- FIBRE OPTIC DUCT (TV)
- 2-WAY FIBRE OPTIC DUCT (TV)
- FIBRE OPTIC CHAMBER
- TRAFFIC DUCT
- TRAFFIC CHAMBER
- TRAFFIC SIGNAL POST
- CABLE TV CHAMBER
- UNIDENTIFIED DUCT
- UNIDENTIFIED CHAMBER
- ESB CHAMBER
- ESB CHAMBER (CIRCULAR)

PROPOSED SERVICES LEGEND:

- PROPOSED ATTENUATION SYSTEM (REFFER DRAWING SERIES 4100)
- PROPOSED ROAD GULLY
- PROPOSED DOUBLE ROAD GULLY
- SURFACE WATER SEWER + MANHOLE TYPE "J"
- FOUL SEWER + MANHOLE IW-STD-WW-10/12
- PROPOSED BYPASS INTERCEPTOR
- PROPOSED KERBS
- PROPOSED DRAINAGE KERBS AS PER SPEC APPENDIX 5/5
- PROPOSED DRAINAGE KERB OUTFALL CHAMBER AS PER SPEC APPENDIX 5/5
- PROPOSED DRAINAGE KERB UPSTREAM ACCESS POINT AS PER SPEC APPENDIX 5/5
- 150mm PE100 WATERMAIN (SPECIFICATION APPENDIX 27/1)
- FIRE HYDRANT (IW STD-W-18)
- SLUICE VALVE (IW STD-W-15)
- PROPOSED BOUNDARY BOX (IW STD-W-03)

EXISTING DRAINAGE CONNECTIONS TO BE REMOVED AND REPLACED WITH SADDLE CONNECTION AS PER FIGURE 2B ON DRAWING SERIES 4100



EXISTING DRAINAGE CONNECTIONS TO BE REMOVED AND REPLACED WITH SADDLE CONNECTION AS PER FIGURE 2B ON DRAWING SERIES 4100

REFER TO INSET 1

INSET 1
SCALE 1:500

CONNECT TO EXISTING 150mm uPVC WATERMAIN AS PER IW STD-W-04

160mm DIAMETER WATERMAIN FOR FUTURE CONNECTION AS PER STD-W-05

VERGE WIDENING TO BE PROVIDED FOR MANHOLES

PROPOSED STORMTECH SC740 ATTENUATION SYSTEM OR SIMILAR APPROVED PROVIDING 115m³ OF STORAGE FOR THE 1:100 YEAR STORM EVENT

TWL: 101.53m
IL: 100.53m

7 ROWS WIDE x 8 UNITS LONG

REFER TO DRAWING SERIES 4100 FOR FURTHER DETAILS

MANHOLE CONTAINING HYDROBRAKE OR SIMILAR APPROVED TO LIMIT OVERFLOW TO 2.0/s. DESIGN HEAD = 1m

REBUILD EXISTING STORMWATER MANHOLE TO INCORPORATE NEW PROPOSED 450mmø STORMWATER PIPE

CLASS 1 BYPASS INTERCEPTOR NSBP004 BY KLARGESTER OR SIMILAR APPROVED
ENTRY LEVEL = 100.45
EXIT LEVEL = 100.35

CONNECT TO EXISTING 100mm uPVC WATERMAIN AS PER IW STD-W-04

BUILD MANHOLE ON EXISTING LIVE FOUL SEWER

FOUL SPUR TO TERMINATE IN BLIND MANHOLE

EXISTING AND PROPOSED LIVE CONNECTIONS TO BE BUILT INTO PROPOSED MANHOLE

CONCRETE DRAINAGE KERBS AS PER SPECS APPENDIX 5/5

CONTRACTOR TO REBUILD EXISTING MANHOLE TO INCLUDE EXISTING AND PROPOSED LIVE CONNECTIONS

CONSTRUCT MANHOLE ON EXISTING LIVE FOUL SEWER

EXISTING GULLY TO BE REMOVED AND EXISTING GULLY LEAD TO BE JETTED CLEAR AND REUSED

CONNECT TO EXISTING 150mm uPVC WATERMAIN AS PER IW STD-W-04

EXISTING UNDERGROUND ESB HV CABLE.
SUPERVISION BY ESB NETWORKS IS REQUIRED WHEN EXCAVATING WITHIN 2m OF THE EXISTING CABLES.
REFER TO APPENDIX 5/2 AND 1/16 FOR DETAILS OF NOTICE

FOURTH AVENUE

EXTENTS OF WORKS

CONTRACTOR TO REBUILD BOUNDARY BOX AS PER IRISH WATER STANDARD DETAIL STD-W-03

CONTRACTOR TO REBUILD EXISTING SLUICE VALVE CHAMBER AS PER IRISH WATER STANDARD DETAIL STD-W-15

CONNECT TO EXISTING 150mm uPVC WATERMAIN AS PER IW STD-W-04

CONTRACTOR TO REBUILD BOUNDARY BOX AS PER IRISH WATER STANDARD DETAIL STD-W-03

160mm DIAMETER WATERMAIN FOR FUTURE CONNECTION AS PER STD-W-05

TALLAGHT HOSPITAL

BELGARD SQUARE WEST

BELGARD SQUARE NORTH

EXTENTS OF WORKS

ON ORIGINAL

0 5 10 15 20 25 30 40 50mm

NOTES:

GENERAL NOTES:

1. ALL WORKS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE WORKS REQUIREMENTS.
2. ALL DIMENSIONS IN METRES UNLESS SPECIFIED OTHERWISE.
3. ALL CO-ORDINATES ARE TO IRISH TRANSVERSE MERCATOR.
4. ALL LEVELS ARE TO ORDNANCE DATUM (MALIN HEAD).
5. ALL TEMPORARY TRAFFIC MANAGEMENT SHALL COMPLY FULLY WITH THE WORKS REQUIREMENTS – REFER TO APP 1/17.
6. THE CONTRACTOR MUST LIAISE DIRECTLY WITH SOUTH DUBLIN COUNTY COUNCIL DEPARTMENTS AS DIRECTED IN THE WORKS REQUIREMENTS.
7. ALL VEHICULAR, PEDESTRIAN & CYCLE ROUTES WITHIN AND SURROUNDING THE WORKS EXTENTS MUST BE MAINTAINED THROUGHOUT THE WORKS IN ACCORDANCE WITH THE CONTRACTORS APPROVED TEMPORARY TRAFFIC & OPERATIONS MANAGEMENT PLAN.
8. ALL PERMANENT TRAFFIC MANAGEMENT TO BE CONCEALED/REMOVED OR INCORPORATED INTO THE CONTRACTORS TEMPORARY TRAFFIC MANAGEMENT PLAN THROUGHOUT WORKS AND TRANSFERRED ONLY WHEN AGREED WITH SDCC TRAFFIC DEPARTMENT.
9. THE CONTRACTOR IS RESPONSIBLE FOR THE ONGOING MAINTENANCE OF TRAFFIC SIGNALS FROM THE STARTING DATE TO SUBSTANTIAL COMPLETION. THIS INCLUDES ALL TEMORARY TRAFFIC SIGNALS WHILE IN TRANSITION BETWEEN THE CURRENT TRAFFIC MANAGEMENT REGIME AND THE PROPOSED TRAFFIC MANAGEMENT REGIME.
10. ALL AGGREGATES PROPOSED FOR USE ON THIS SCHEME SHALL MEET FULLY THE REQUIREMENTS OF THE CONTRACT SPECIFICATION AND IN ADDITION THE REQUIREMENTS STATED IN STANDARD RECOMMENDATION S.R. 21:2014 GUIDANCE ON THE USE OF I.S. EN 13242:2002 +A1:2007 - AGGREGATES FOR UNBOUND AND HYDRAULICALLY BOUND MATERIALS FOR USE IN CIVIL ENGINEERING WORK AND ROAD CONSTRUCTION. FURTHER DETAIL IS PROVIDED IN ADDITONAL CLAUSE 144AR OF THE CONTRACT SPECIFICATION.

SPECIFIC NOTES:

1. LOCATIONS OF EXISTING SERVICES ARE INDICATIVE ONLY, THE CONTRACTOR MUST LIAISE WITH EACH UTILITY PROVIDER THROUGHOUT THE WORKS AND MAKE ALLOWANCE FOR ANY ADDITIONAL INVESTIGATION NECESSARY TO ENSURE AVOIDANCE OF EXISTING SERVICES IN ACCORDANCE WITH SPECIFICATION APPENDIX 1/16. THE CONTRACTOR SHALL OBTAIN UP TO DATE SERVICE RECORD DRAWINGS FROM ALL UTILITY PROVIDERS AND INFORM EMPLOYERS REPRESENTATIVE OF ANY ANOMALIES.
2. ALL EXISTING CHAMBERS AND ACCESS POINTS ARE TO REMAIN CLEAR OF OBSTRUCTION THROUGHOUT THE WORKS. CHAMBERS SHALL BE REBUILT/RETAINED IN POSITION AS IDENTIFIED ON 200 DRAWING SERIES. ALL COVERS SHALL BE RESET, WHERE NECESSARY, TO ACCOMMODATE ADJUSTED AND NEW CONSTRUCTION FINISHED LEVELS.
3. ALL FOUL SEWERS, RISING MAINS, MANHOLES AND CONNECTIONS TO BE CONSTRUCTED IN ACCORDANCE WITH IRISH WATER CODE OF PRACTICE FOR WASTEWATER INFRASTRUCTURE AND IRISH WATER WASTEWATER INFRASTRUCTURE STANDARD DETAILS, REFER TO SPECIFICATION APPENDIX 5/1 FOR FURTHER DETAILS.
4. ALL SURFACE WATER SEWERS, CONNECTIONS, MANHOLES AND GULLIES TO BE CONSTRUCTED IN ACCORDANCE WITH SPECIFICATION APPENDIX 5/1.
5. ALL EXISTING GULLY LEADS AND SEWERS SHALL BE JETTED CLEAR FOR FUTURE USE WHETHER ADJUSTED, REPLACED OR RETAINED.
6. LOCATION AND INVERT LEVELS OF EXISTING MANHOLES OR OUTFALL POINTS, WHERE APPLICABLE TO BE VERIFIED BY CONTRACTOR PRIOR TO COMMENCEMENT OF DRAINAGE WORKS.
7. ALL COVERS AND FRAMES TO BE CLASS D400 TO IS EN 124, 150mm MINIMUM FRAME DEPTH. REFER TO SPECIFICATION APPENDIX 5/1 FOR FURTHER DETAILS.
8. ALL WATERMAINS VALVES AND FITTINGS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE IRISH WATER STANDARD DETAILS AND IRISH WATER CODE OF PRACTICE FOR WATER INFRASTRUCTURE. REFER TO APPENDIX 27/1 FOR FURTHER DETAILS.
9. MARKER POSTS AND PLATES ARE TO BE PROVIDED IN ACCORDANCE WITH IRISH WATER STANDARD DETAIL STD-W-27.
10. CONNECTION TO EXISTING WATERMAINS TO BE COORDINATED BY THE CONTRACTOR WITH IRISH WATER AND/OR THE LOCAL AUTHORITY.
11. REFER TO SPECIFICATION APPENDIX 7/2 FOR DETAILS OF REINSTATEMENT OF EXISTING ROADS.
12. EXISTING AND PROPOSED DRAINAGE NETWORKS WITHIN SCHEME EXTENTS TO BE JETTED CLEAR FOLLOWING COMPLETION OF DRAINAGE WORKS AND CCTV SURVEY TO BE UNDERTAKEN AND PROVIDED TO THE EMPLOYER'S REPRESENTATIVE.
13. THE CONTRACTOR SHALL NOTE THE LOCATIONS WHERE PROPOSED SERVICES ARE TO BE LAID ACROSS AND ADJACENT TO EXISTING SERVICES. THE CONTRACTOR SHALL ALLOW FOR HAND DIGGING AND HYDRO EXCAVATION AT THESE LOCATIONS.
14. MINOR ADJUSTMENTS OF DUCTS & SERVICES OF UP TO 150mm IN ANY DIRECTION TO ACCOMMODATE "THE WORKS" ARE NOT PRESENTED ON THE DRAWINGS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAKE ALLOWANCE FOR THESE ADJUSTMENTS IN HIS RATES FOR THE WORKS.

REV.	DATE	DESCRIPTION	BY	CHKD
C	30-01-20	WATERMAINS ADDED & DRAINAGE UPDATE	IC	NCG
B	17-01-20	SPURS & GULLIES AMENDED	IC	NCG
A	26-11-19	ISSUE FOR CONSTRUCTION	IC	NCG

CONSTRUCTION

DESIGNED	JM	PREPARED	PPM
DATE	MAR 2019	CHECKED	NCG

DBFL Consulting Engineers
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WATERFORD OFFICE Unit 2, The Chandlery, 1-2 O'Connell Street, Waterford, Ireland. PHONE +353 51 309 500 FAX +353 51 844 913
EMAIL info@dbfl.ie SITE www.dbfl.ie

PROJECT
BELGARD TO COOKSTOWN LINK ROAD

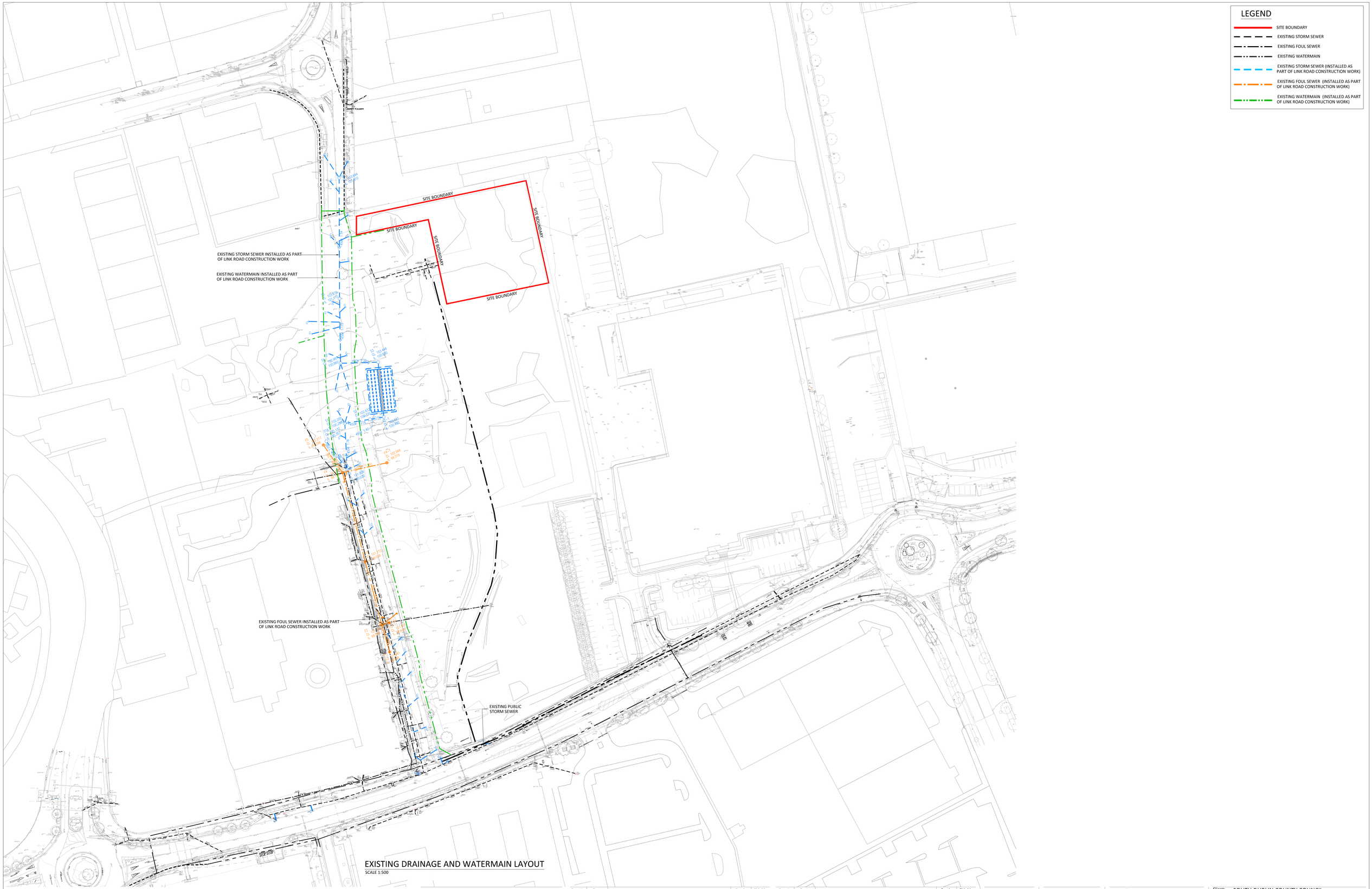
DRG. TITLE
PROPOSED DRAINAGE & WATERMAINS

CLIENT
SOUTH DUBLIN COUNTY COUNCIL
Comhairle Contae Átha Cliath Theas South Dublin County Council

SCALE	1:500 @A1	FILE REF.	180169-2050

DRG. NO. 180169-0500-1 C

APPENDIX C. EXISTING DRAINAGE & WATERMAIN LAYOUT



EXISTING DRAINAGE AND WATERMAIN LAYOUT

SCALE 1:500

- FOR SETTING OUT REFER TO ARCHITECT'S DRAWINGS.
- THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER ARCHITECTURAL AND ENGINEERING DRAWINGS AND ALL OTHER RELEVANT DRAWINGS AND SPECIFICATIONS.
- DO NOT SCALE THIS DRAWING. USE FIGURED DIMENSIONS ONLY.
- NO PART OF THIS DOCUMENT MAY BE REPRODUCED OR TRANSMITTED IN ANY FORM OR STORED IN ANY RETRIEVAL SYSTEM OF ANY NATURE WITHOUT THE WRITTEN PERMISSION OF O'CONNOR SUTTON CRONIN AS COPYRIGHT HOLDER EXCEPT AS AGREED FOR USE ON THE PROJECT FOR WHICH THE DOCUMENT WAS ORIGINALLY ISSUED.

Rev No.	Date	Revision Note	Drn by	Chkd by
P01	16/09/20	SUITABLE FOR CO-ORDINATION	NP	IC
P02	28/09/20	SUITABLE FOR STAGE APPROVAL-PLANNING	IC	IC

Rev No.	Date	Revision Note	Drn by	Chkd by

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OCSC
Multidisciplinary Consulting Engineers

Dublin | London | Belfast | Galway | Cork | Birmingham

Client: SOUTH DUBLIN COUNTY COUNCIL
Project: TALLAGHT INNOVATION CENTER
Title: EXISTING DRAINAGE & WATERMAIN LAYOUT

Code	Originator	Zone	Level	Type	Role	Number	Status	Revision
M1291	OCSC	XX	XX	DR	S	0001	S0	P02

Date: SEP' 20 Scale: 1:500 @ A1 Drn by:NP Chkd by:IC Aprvd by:PH

APPENDIX D. PUBLIC REALM PROPOSED DRAINAGE & WATERMAIN LAYOUT

DRAINAGE LEGEND:

- PROPOSED SURFACE WATER — S1-0 — S1.000 150mm
- PROPOSED ATTENUATION TANK
- EXISTING SURFACE WATER RECORDS — SW-EX — SW-EX
- EXISTING FOUL WATER SEWER RECORDS — FS-EX — FS-EX
- EXISTING WATERMAIN 150mm uPVC RECORDS
- PROPOSED FILTER DRAIN — LDR — LDR — LDR — LDR — LDR
- PROPOSED INSPECTION CHAMBER
- SITE BOUNDARY

FUTURE DEVELOPMENT ACCESS

S2.000 375mm

SMH S1-0

SMH S1-1

S1.000 375mm

SMH S3-0

SMH S1-2

S3.000 450mm

S1.001 375mm

SMH S1-4

SMH S1-3

S1.002 450mm

SMH S1-5

PROPOSED ATTENUATION TANK TO PROVIDE 525m³ OF WATER STORAGE.

NOTE:
PIPES THROUGH TANKS INCLUDED IN DRAINAGE MODEL TO SIMULATE LAYOUT

OUTCOMING FLOW MANHOLE FROM ATTENUATION TANK WITH VORTEX FLOW CONTROLLER SET TO 3.5 l/s

INCOMING MANHOLE WITH OUTLET TO ATTENUATION TANK

SMH S1-6

S1.004 450mm

SMH S1-7

S1.005 450mm

SMH S1-8

S1.006 450mm

SMH S1-9

S1.007 450mm

100mm uPVC 1992

100mm uPVC

150mm uPVC

150mm uPVC 1992

225 Un known

225mm Unknown

0 Unknown

SO08277801
CL 500
IL 0

SO08276804
CL 500
IL 0

SO08275802
CL 500
IL 0

SO08274702
CL 500
IL 0

SO08275702
CL 100.5
IL 98.35

SO08275705
CL 100.5
IL 91.1

NOTE: INDICATIVE LAYOUT OF ROADWORK LINEMARKING UNDER CONSTRUCTION

REFER 192232-002 FOR CONTINUATION

COMPOSITE SURVEY

Exchange Hall

NORTH SQUARE

BELGARD SQUARE

LS

Fn

PROPOSED STORM MANHOLES

Name	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
S1-0	103.500	1350	708471.279	728012.253	1.575
S2-0	104.000	1350	708422.253	728028.406	1.575
S1-1	103.500	1350	708427.724	728002.823	2.500
S3-0	101.500	1350	708473.462	727996.319	1.650
S1-2	102.500	1350	708430.537	727987.865	2.942
S1-3	102.500	1350	708435.582	727962.896	3.112
S1-4	102.000	1350	708464.256	727968.899	2.684
S1-5	101.500	1350	708488.683	727974.199	2.246
S1-6	101.500	1350	708492.341	727956.561	2.500
S1-7	101.250	1350	708491.413	727927.510	2.333
S1-8	101.000	1350	708504.562	727857.952	2.285
S1-9	101.000	1350	708491.358	727841.286	2.500
S1-10	99.750	1350	708505.685	727774.239	2.950
S1-11	98.500	1350	708517.919	727716.986	1.844
S1-12	98.500	1350	708512.080	727705.272	1.931
S4-0	98.000	1200	708478.071	727690.848	1.425
S1-13	98.000	1350	708514.339	727688.993	1.546
S1-14	97.400	1200	708518.372	727674.323	1.105
S1-15	97.110	1200	708522.294	727661.243	0.860

PROPOSED STORM PIPES

Name	US Node	DS Node	Length (m)	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	US Depth (m)	DS Depth (m)
1.014	S1-14	S1-15	13.655	96.300	96.250	0.050	273.1	225	0.875	0.635
1.013	S1-13	S1-14	15.214	96.454	96.295	0.159	95.7	225	1.321	0.880
1.012	S1-12	S1-13	16.435	96.569	96.459	0.110	150.0	450	1.481	1.091
4.000	S4-0	S1-13	36.315	96.575	96.454	0.121	300.0	225	1.200	1.321
1.011	S1-11	S1-12	13.088	96.656	96.569	0.087	150.0	450	1.394	1.481
1.010	S1-10	S1-11	58.546	96.800	96.656	0.144	406.6	450	2.500	1.394
1.009	S1-9	S1-10	68.561	98.500	98.043	0.457	150.0	450	2.050	1.257
1.008	S1-8	S1-9	21.263	98.715	98.573	0.142	150.0	450	1.835	1.977
1.007	S1-7	S1-8	70.790	98.917	98.715	0.202	350.4	450	1.883	1.835
1.006	S1-6	S1-7	29.066	99.000	98.917	0.083	350.2	450	2.050	1.883
1.005	S1-5	S1-6	18.013	99.254	99.134	0.120	150.0	450	1.796	1.916
1.004	S1-4	S1-5	24.995	99.316	99.254	0.062	403.2	450	2.234	1.796
1.003	S1-3	S1-4	29.296	99.388	99.316	0.072	406.9	450	2.662	2.234
1.002	S1-2	S1-3	25.481	99.558	99.388	0.170	150.0	450	2.492	2.662
1.001	S1-1	S1-2	15.225	101.000	100.766	0.234	65.0	375	2.125	1.359
3.000	S3-0	S1-2	43.750	99.850	99.558	0.292	150.0	450	1.200	2.492
1.000	S1-0	S1-1	44.564	101.925	101.331	0.594	75.0	375	1.200	1.794
2.000	S2-0	S1-1	26.161	102.425	101.771	0.654	40.0	375	1.200	1.354

COLOUR DRAWING ☒

Date Drawn:	FEB 2020
Drawn By:	JB
Date Issued:	
Issued By:	

bmtrada SYSTEM CERTIFICATION ISO 9001 CERTIFICATION

bsi. BIM Verified Design & Construction Capital/Delivery PAS 1192-2

Rev	Amendment	By	Date
PL0	ISSUE FOR PLANNING	DP	2020/07/24

Client:

Job: PUBLIC REALM PROJECT TALLAGHT SDCC

Title: PROPOSED SURFACE WATER DRAINAGE LAYOUT (1 of 2)

PUNCH consulting engineers
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Stage:	PLANNING
Scale @ A1:	1:500
Technician Check:	JB
Engineer Check:	MR
Approved:	
Drawing No:	192232-001
Rev:	PL0

DRAINAGE LEGEND:

- PROPOSED SURFACE WATER — S1-0 — S1.000 150mm
- PROPOSED ATTENUATION TANK
- EXISTING SURFACE WATER RECORDS — SW-EX — SW-EX
- EXISTING FOUL WATER SEWER RECORDS — FS-EX — FS-EX
- EXISTING WATERMAIN 150mm uPVC RECORDS
- PROPOSED FILTER DRAIN
- PROPOSED INSPECTION CHAMBER
- SITE BOUNDARY

SMH S1-8
SMH S1-9
SMH S1-10
SMH S1-11
SMH S1-12
SMH S1-13
SMH S1-14
SMH S1-15
SMH S4-0

REFER 192232-001 FOR CONTINUATION

NOTE: INDICATIVE LAYOUT OF ROADWORK LINEMARKING UNDER CONSTRUCTION

NOTE: REARRANGEMENT OF EXISTING DRAINAGE SUBJECT TO SURVEY

NOTE: PIPES THROUGH TANKS INCLUDED IN DRAINAGE MODEL TO SIMULATE LAYOUT

INCOMING MANHOLE WITH OUTLET TO ATTENUATION TANK

PROPOSED ATTENUATION TANK TO PROVIDE 255m³ OF WATER STORAGE.

OUTCOMING FLOW MANHOLE FROM ATTENUATION TANK WITH VORTEX FLOW CONTROLLER SET TO 7.1 l/s

CONNECT TO EXISTING SURFACE WATER DRAINAGE NETWORK

Exchange Hall
South Dublin County Council Office
Civic Theatre
Arts Centre
Tuansgate Apartments
BELGARD SQUARE NORTH
BELGARD SQUARE

PROPOSED STORM MANHOLES					
Name	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
S1-0	103.500	1350	708471.279	728012.253	1.575
S2-0	104.000	1350	708422.253	728028.406	1.575
S1-1	103.500	1350	708427.724	728002.823	2.500
S3-0	101.500	1350	708473.462	727996.319	1.650
S1-2	102.500	1350	708430.537	727987.865	2.942
S1-3	102.500	1350	708435.582	727962.896	3.112
S1-4	102.000	1350	708464.256	727968.899	2.684
S1-5	101.500	1350	708488.683	727974.199	2.246
S1-6	101.500	1350	708492.341	727956.561	2.500
S1-7	101.250	1350	708491.413	727927.510	2.333
S1-8	101.000	1350	708504.562	727857.952	2.285
S1-9	101.000	1350	708491.358	727841.286	2.500
S1-10	99.750	1350	708505.685	727774.239	2.950
S1-11	98.500	1350	708517.919	727716.986	1.844
S1-12	98.500	1350	708512.080	727705.272	1.931
S4-0	98.000	1200	708478.071	727690.848	1.425
S1-13	98.000	1350	708514.339	727688.993	1.546
S1-14	97.400	1200	708518.372	727674.323	1.105
S1-15	97.110	1200	708522.294	727661.243	0.860

PROPOSED STORM PIPES										
Name	US Node	DS Node	Length (m)	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	US Depth (m)	DS Depth (m)
1.014	S1-14	S1-15	13.655	96.300	96.250	0.050	273.1	225	0.875	0.635
1.013	S1-13	S1-14	15.214	96.454	96.295	0.159	95.7	225	1.321	0.880
1.012	S1-12	S1-13	16.435	96.569	96.459	0.110	150.0	450	1.481	1.091
4.000	S4-0	S1-13	36.315	96.575	96.454	0.121	300.0	225	1.200	1.321
1.011	S1-11	S1-12	13.088	96.656	96.569	0.087	150.0	450	1.394	1.481
1.010	S1-10	S1-11	58.546	96.800	96.656	0.144	406.6	450	2.500	1.394
1.009	S1-9	S1-10	68.561	98.500	98.043	0.457	150.0	450	2.050	1.257
1.008	S1-8	S1-9	21.263	98.715	98.573	0.142	150.0	450	1.835	1.977
1.007	S1-7	S1-8	70.790	98.917	98.715	0.202	350.4	450	1.883	1.835
1.006	S1-6	S1-7	29.066	99.000	98.917	0.083	350.2	450	2.050	1.883
1.005	S1-5	S1-6	18.013	99.254	99.134	0.120	150.0	450	1.796	1.916
1.004	S1-4	S1-5	24.995	99.316	99.254	0.062	403.2	450	2.234	1.796
1.003	S1-3	S1-4	29.296	99.388	99.316	0.072	406.9	450	2.662	2.234
1.002	S1-2	S1-3	25.481	99.558	99.388	0.170	150.0	450	2.492	2.662
1.001	S1-1	S1-2	15.225	101.000	100.766	0.234	65.0	375	2.125	1.359
3.000	S3-0	S1-2	43.750	99.850	99.558	0.292	150.0	450	1.200	2.492
1.000	S1-0	S1-1	44.564	101.925	101.331	0.594	75.0	375	1.200	1.794
2.000	S2-0	S1-1	26.161	102.425	101.771	0.654	40.0	375	1.200	1.354

COLOUR DRAWING ☒

Date Drawn: FEB 2020
Drawn By: JB
Date Issued: 24/07/2020
Issued By: DP

bsi. BIM Verified Design & Construction Capital/Delivery PAS 1192-2

Rev	Amendment	By	Date
PL0	ISSUE FOR PLANNING	DP	2020/07/24

Client:

Job: PUBLIC REALM PROJECT TALLAGHT SDCC
Title: PROPOSED SURFACE WATER DRAINAGE LAYOUT (2 of 2)

PUNCH consulting engineers
Dublin|Limerick|Cork|Galway|Glasgow
Carnegie House, Library Road, Dun Laoghaire, Co. Dublin, A96 C7W7
IRL: +353 1 271 2200 www.punchconsulting.com

Stage: PLANNING
Scale @ A1: 1:500
Technician Check: JB
Engineer Check: MR
Approved:
Drawing No: 192232-002 Rev: PL0

COLOUR DRAWING

Date Drawn:	JULY 2020
Drawn By:	JB
Date Issued:	27/07/2020
Issued By:	DP

bsi. BIM Verified Design & Construction Capital/Delivery PAS 1192-2

Rev	Amendment	By	Date
PL0	ISSUE FOR PLANNING	DP	2020/07/24

Client:

Job: PUBLIC REALM PROJECT TALLAGHT SDCC

Title: SUDS LAYOUT (1 of 2)

PUNCH consulting engineers
Dublin|Limerick|Cork|Galway|Glasgow
Carnegie House, Library Road, Dun Laoghaire, Co. Dublin, A96 C7W7
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Stage:	PLANNING
Scale @ A1:	1:500
Technician Check:	JB
Engineer Check:	MR
Approved:	
Drawing No:	192232-003
Rev:	PL0

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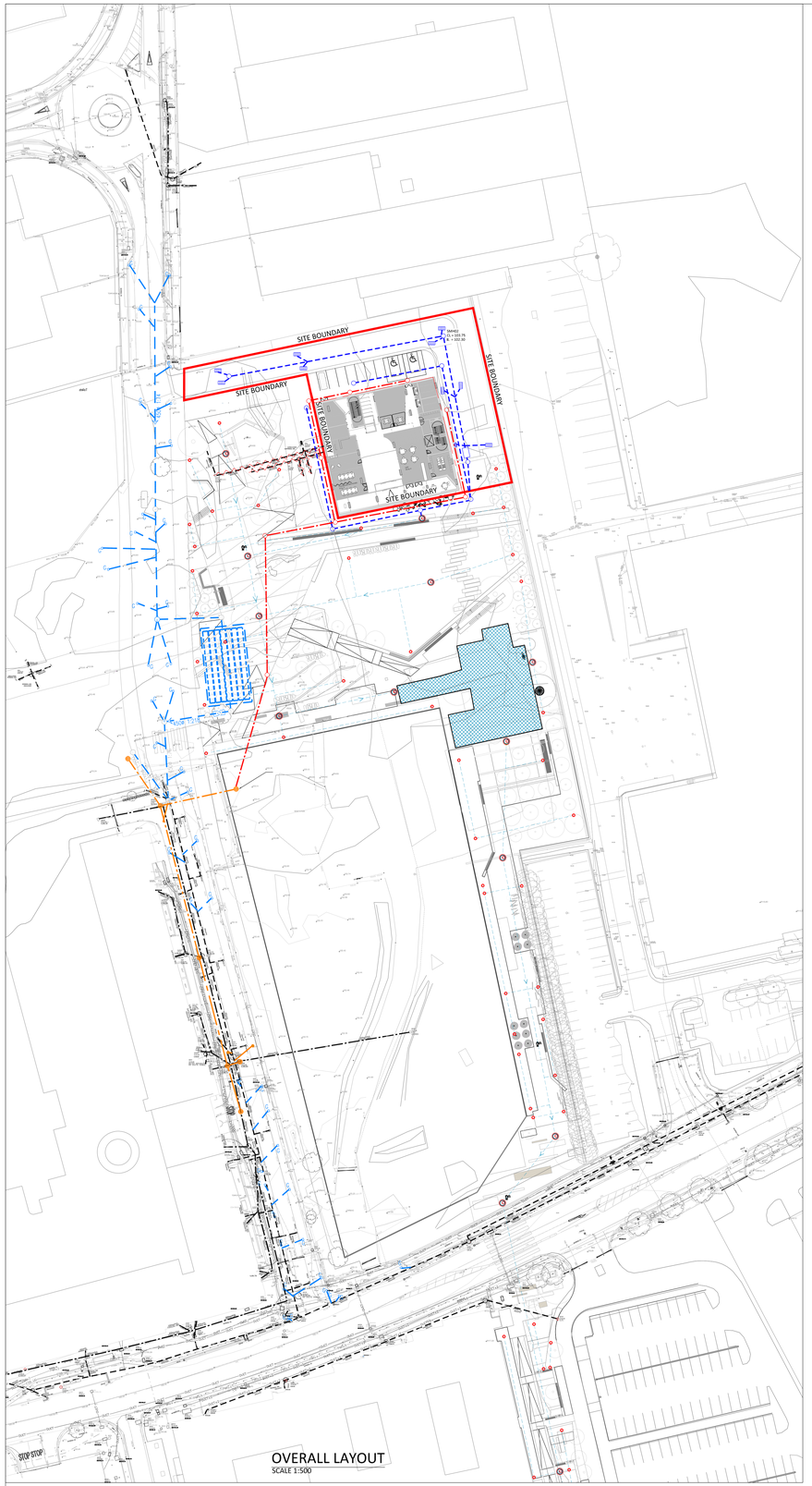
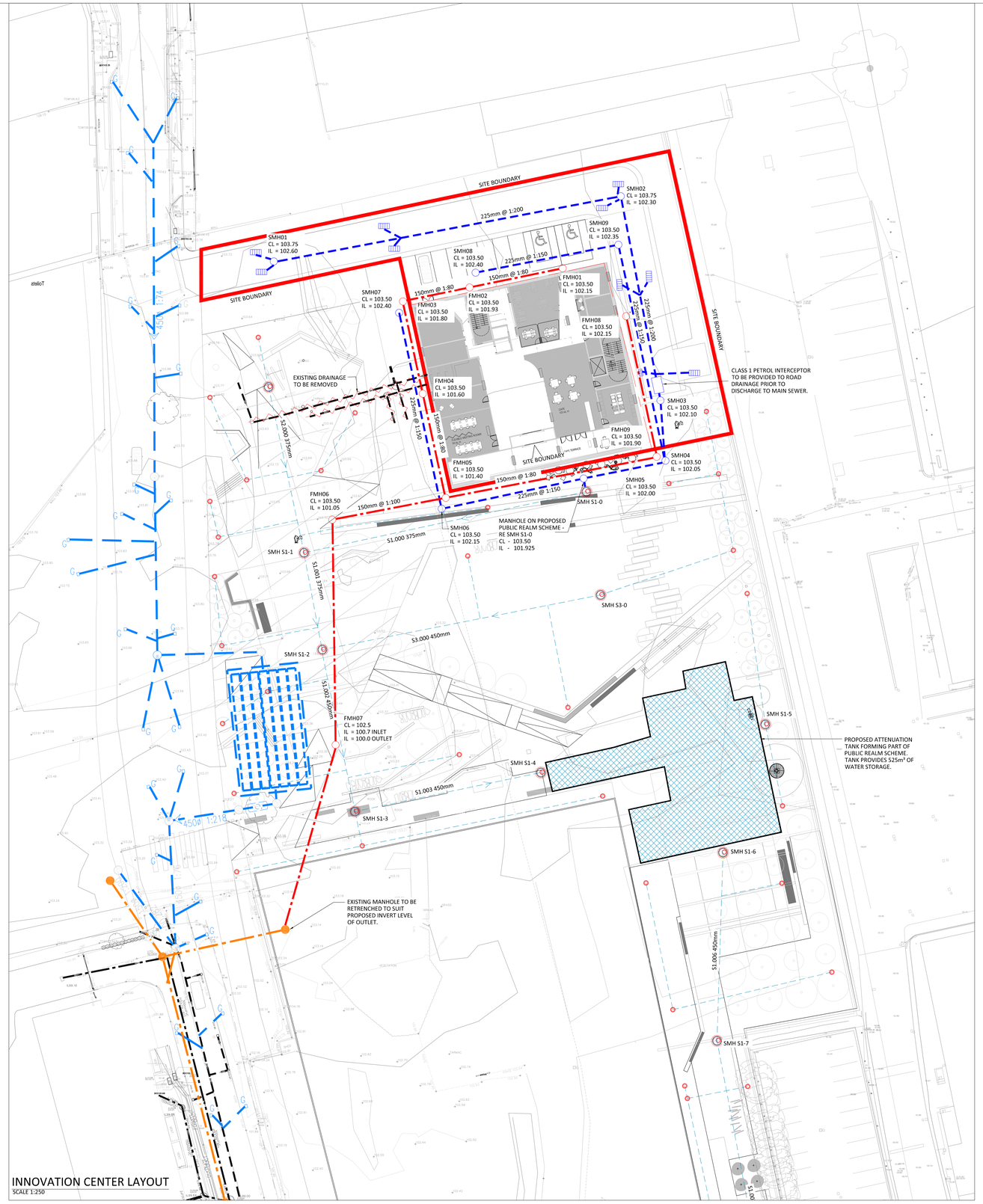
Consulting Engineers

APPENDIX E. PROPOSED DRAINAGE LAYOUT



OVERALL LAYOUT
SCALE 1:500



INNOVATION CENTER LAYOUT
SCALE 1:250

LEGEND

- SITE BOUNDARY
- EXISTING STORM SEWER
- EXISTING FOUL SEWER
- EXISTING STORM SEWER (INSTALLED AS PART OF LINK ROAD CONSTRUCTION WORK)
- EXISTING FOUL SEWER (INSTALLED AS PART OF LINK ROAD CONSTRUCTION WORK)
- PROPOSED FOUL SEWER
- PROPOSED STORM SEWER
- STORM SEWER (PUBLIC REALM SCHEME)
- EXISTING DRAINAGE TO BE REMOVED
- PROPOSED ATTENUATION TANK
- PROPOSED PETROL INTERCEPTOR
- PROPOSED ROAD GULLEY
- PROPOSED STORM MANHOLE
- PROPOSED FOUL MANHOLE

- FOR SETTING OUT REFER TO ARCHITECT'S DRAWINGS.
- THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER ARCHITECTURAL AND ENGINEERING DRAWINGS AND ALL OTHER RELEVANT DRAWINGS AND SPECIFICATIONS.
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Rev No.	Date	Revision Note	Drn by	Chkd by
P01	16/09/20	SUITABLE FOR CO-ORDINATION	NP	IC
P02	28/09/20	SUITABLE FOR STAGE APPROVAL-PLANNING	IC	IC

Rev No.	Date	Revision Note	Drn by	Chkd by

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Dublin | London | Belfast | Galway | Cork | Birmingham

Client: SOUTH DUBLIN COUNTY COUNCIL
Project: TALLAGHT INNOVATION CENTER

Title: PROPOSED DRAINAGE LAYOUT

Code	Originator	Zone	Level	Type	Role	Number	Status	Revision
M1291	OCSC	XX	XX	DR	S	0002	S4	P02

Date: SEP '20 Scale: 1:500 @ A1 Drn by:NP Chkd by:IC Aprvd by:PH

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APPENDIX F. IRISH WATER-CONFIRMATION OF FEASIBILITY

Ian Crehan

O'Connor Sutton Cronin
9 Prussia Street
Dublin 7

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

17 August 2020

Re: CDS20005146 pre-connection enquiry - Subject to contract | Contract denied

Connection for Multi/Mixed Use Development of 1 unit at Belgard Square North, Tallaght, Dublin 24

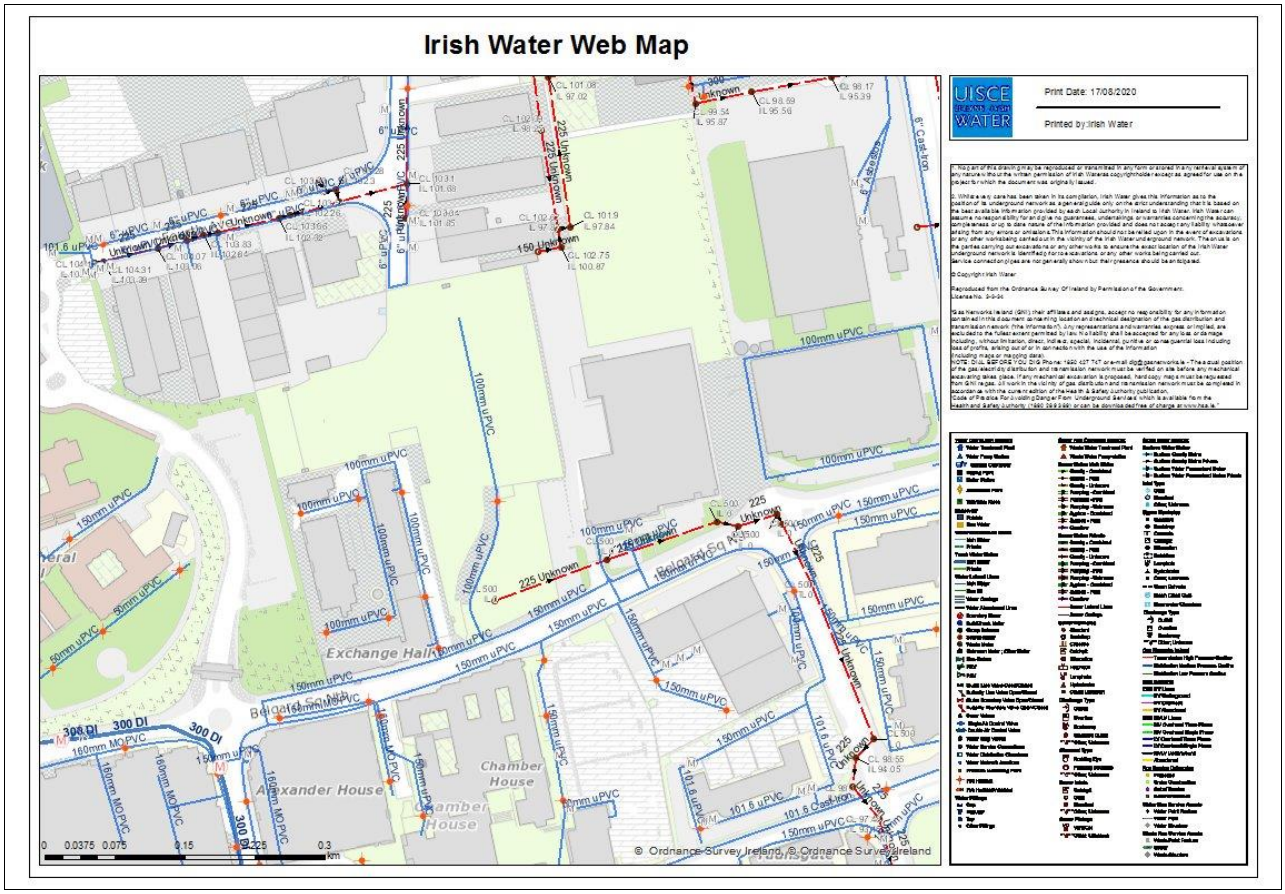
Dear Sir/Madam,

Irish Water has reviewed your pre-connection enquiry in relation to a Water & Wastewater connection at Belgard Square North, Tallaght, Dublin 24 (the **Premises**). Based upon the details you have provided with your pre-connection enquiry and on our desk top analysis of the capacity currently available in the Irish Water network(s) as assessed by Irish Water, we wish to advise you that your proposed connection to the Irish Water network(s) can be facilitated at this moment in time.

SERVICE	**OUTCOME OF PRE-CONNECTION ENQUIRY** **THIS IS NOT A CONNECTION OFFER. YOU MUST APPLY FOR A CONNECTION(S) TO THE IRISH WATER NETWORK(S) IF YOU WISH TO PROCEED.**
Water Connection	Feasible without infrastructure upgrade by Irish Water
Wastewater Connection	Feasible without infrastructure upgrade by Irish Water
SITE SPECIFIC COMMENTS	
Water Connection	Connection to the Irish Water networks may be through third party infrastructure and/or lands and all relevant wayleave and permissions would need to be obtained by the client. Please be advised that at connection application stage you have to provide written confirmation from the owner of the infrastructure that you have received legal permission to connect to and that the infrastructure is fit for purpose and has capacity to cater additional load from the Development. This Confirmation of Feasibility to connect to the Irish Water infrastructure also does not extend to your fire flow requirements. Please note that Irish Water cannot guarantee a flow rate to meet fire flow requirements and in order to guarantee a flow to meet the Fire Authority requirements, you may need to provide adequate fire storage capacity within your development. In order to determine the potential flow that could be delivered during normal operational conditions, an onsite assessment of the existing network is required.

Wastewater Connection	Connection to the Irish Water networks may be through third party infrastructure and/or lands and all relevant wayleave and permissions would need to be obtained by the client. Please be advised that at connection application stage you have to provide written confirmation from the owner of the infrastructure that you have received legal permission to connect to and that the infrastructure is fit for purpose and has capacity to cater additional load from the Development.
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.
3) The feedback provided is subject to a Connection Agreement/contract being signed at a later date.
4) A Connection Agreement will be required to commencing the connection works associated with the enquiry this can be applied for at https://www.water.ie/connections/get-connected/
5) A Connection Agreement cannot be issued until all statutory approvals are successfully in place.
6) Irish Water Connection Policy/ Charges can be found at https://www.water.ie/connections/information/connection-charges/
7) Please note the Confirmation of Feasibility does not extend to your fire flow requirements.
8) Irish Water is not responsible for the management or disposal of storm water or ground waters. You are advised to contact the relevant Local Authority to discuss the management or disposal of proposed storm water or ground water discharges
9) To access Irish Water Maps email datarequests@water.ie
10) All works to the Irish Water infrastructure, including works in the Public Space, shall have to be carried out by Irish Water.

If you have any further questions, please contact Deirdre Ryan from the design team on 022 54620 or email deiryan@water.ie. For further information, visit **www.water.ie/connections.**

Yours sincerely,

Maria O'Dwyer

Connections and Developer Services

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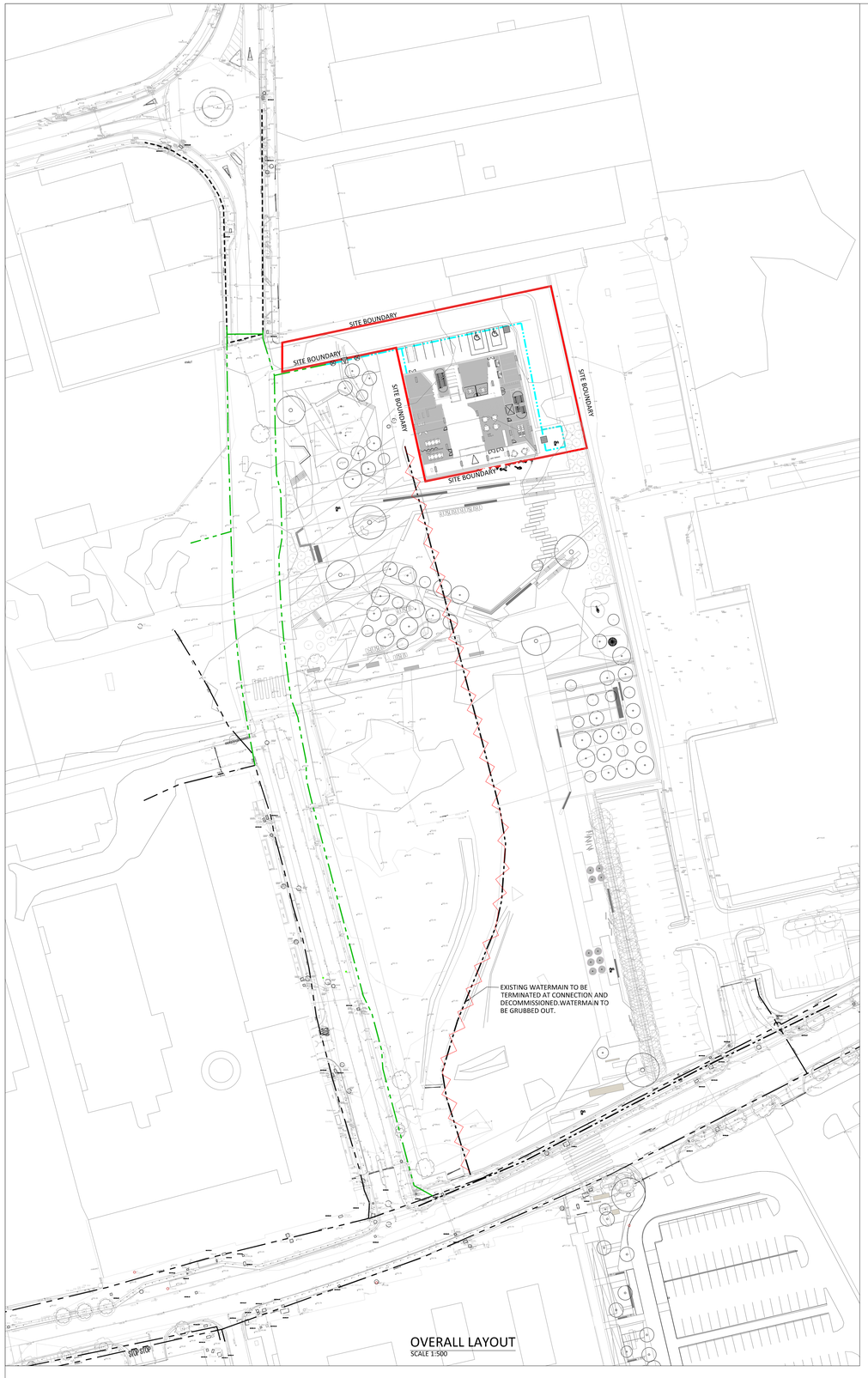
APPENDIX G. PROPOSED WATERMAIN LAYOUT



OVERALL LAYOUT
SCALE 1:500

INNOVATION CENTER LAYOUT
SCALE 1:250

LEGEND

- SITE BOUNDARY
- EXISTING WATERMAIN
- EXISTING WATERMAIN (INSTALLED AS PART OF LINK ROAD CONSTRUCTION WORK)
- PROPOSED WATERMAIN (80mmØ)
- EXISTING DRAINAGE TO BE REMOVED
- WM PROPOSED BULK WATER METER
- PROPOSED SLUICE VALVE
- H PROPOSED HYDRANT

- FOR SETTING OUT REFER TO ARCHITECT'S DRAWINGS.
- THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER ARCHITECTURAL AND ENGINEERING DRAWINGS AND ALL OTHER RELEVANT DRAWINGS AND SPECIFICATIONS.
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P02	28/09/20	SUITABLE FOR STAGE APPROVAL-PLANNING	IC	IC

Rev No.	Date	Revision Note	Drn by	Chkd by

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OCSC O'CONNOR | SUTTON | CRONIN
Multidisciplinary Consulting Engineers

Dublin | London | Belfast | Galway | Cork | Birmingham

Client: SOUTH DUBLIN COUNTY COUNCIL
Project: TALLAGHT INNOVATION CENTER

Title: PROPOSED WATERMAIN LAYOUT

Code	Originator	Zone	Level	Type	Role	Number	Status	Revision
M1291	OCSC	XX	XX	DR	S	0003	S4	P02

Date: SEP' 20 Scale: 1:500 @ A1 Drn by:NP Chkd by:IC Aprvd by:PH