Design Statement

Design Rationale Statement
(with Compliance Specification with Building regulations)

Based on Design r020 20 June 2020

17-100

49 Dwellings at

Commons Road
Blackpool
Cork City

QDM architecture

INTRODUCTION

This report together with the drawings and other consultant's documents comprise the planning application for the provision of much needed social housing in Cork City.

The proposed layout, unit mix and design of the scheme has had regard to:

- the requirements of the City Development Plan
- the City Architect's Design Principals
- the requirements of the Planning Authority
- the natural topography and character of the site and adjoining lands
- the provision of a visually striking, maintainable and hardy planting scheme
- the creation of a sense of pride and neighbourhood for perspective residents

DESIGN TEAM

The application has been prepared by the following :-

Architecture & Design:
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1. SCHEDULE OF ACCOMMODATION

1.1. OVERVIEW

A detailed schedule of accommodation may be found at the end of this section.

1.1.1. Residential Mix

This proposal comprises of the following mix:

Building	*1 Bed (Apt)*	*2 Bed (Apt)*
Block A	24	10
Block B	3	-
Block C	-	6
Block D	-	6
TOTALS:	**27 (60%)**	**22 (40%)**

There are no studio apartments in the proposed design.

Development Description

Development comprising the construction a total of 49 no. dwellings (27 no. 1 bedroom, 22 no. 2 bedroom apartments), all on a site of approximately 0.40 hectares at Commons Road, Blackpool, Cork.

Development Summary

	Total	%	Avg Area	Avg Living	Avg Storage	Avg Amenity
One Bed Apt	27 Apts	55%	51.8 m^2 +15.1%	25.5 m^2 +11.0%	3.5 m^2 +17.9%	8.1 m^2 +62.0%
Two Bed Apt	22 Apts	45%	75.6 m^2 +3.5%	32.5 m^2 +8.2%	6.6 m^2 +10.2%	18.4 m^2 +162.8%
Total:	**49 Dwellings**					

Site Usage Summary

	Existing	Proposed
Site Area	4017.0 m^2	4017.0 m^2
Footprint	227.4 m^2	1071.1 m^2
Development	454.8 m^2	4141.6 m^2
Site Ratio:	**11.3%**	**103.1%**
Site Coverage:	**5.7%**	**26.7%**

Development Floor Area (Totals)

	Existing	Proposed	Extension
Ground Floor	227.4 m^2	591.0 m^2	- m^2
First Floor	227.4 m^2	1071.1 m^2	- m^2
Second Floor	- m^2	1071.1 m^2	- m^2
Third Floor	- m^2	927.4 m^2	- m^2
Fourth Floor	- m^2	481.0 m^2	- m^2
Fifth Floor	- m^2	- m^2	- m^2
Totals:	**454.8 m^2**	**4141.6 m^2**	**- m^2**

Public Open Space

	Required	Proposed	Excess	
Open space	289.0 m^2	1473.0 m^2	**1184.0 m^2**	+ 409.7%

Public Open space as a percentage of site = 36.7%

DoECLG Public Space Requirement per Apartment:

One Bed:	5 m^2	27 Apts	=	135 m^2
Two Bed:	7 m^2	22 Apts	=	154 m^2
				289 m^2

Bicycle Storage

	Required	Proposed	Excess	
Bicycle storage spaces	25	48	24	+95.9%

DoECLG Requirement per Apartment:

Maximum 0.5 / Apt = 25 Spaces required

Cork City Council Development Plan Requirement:

As per DoECLG

Car Parking

	Required	Proposed	Excess	
Spaces req DoECLG	5	7	2	+8.6%
Spaces req Cork City Co	25	7	-18	-35.7%

DoECLG Requirement per Apartment:

Maximum 0.1 / Apt = 5 Spaces required

Cork City Council Development Plan Requirement:

Maximum 0.50 / Apt = 25 Spaces required

Bin & Waste

	Bins	Total
Recyclable Material	4 x 1100 l bins	4400 l
Waste	2 x 1100 l bins	2200 l
	6 bins	**6600 l**

2. SITE CHARACTERISTICS

2.1. OVERVIEW

A detailed review of the subject site, its suitability & characteristics follows.

2.1.1. Site Location

The site of 0.40 Ha (1.00 acres) at Commons Road, Blackpool, comprises of an elevated former quarry then orchard, together with disused and dilapidated buildings fronting the Commons Road.

2.1.2. Site Suitability

The site is ideally suited to an apartment development , given its central location within Blackpool, proximity to local amenities and availability of relevant services, including public transport.

2.1.3. Site Characteristics

There is an existing gate at the established vehicle entrance from Commons Road. There are no protected structures on site, as designated by Cork City Council.

There is an existing stone boundary wall in good repair to the South of the Site. The Eastern boundary is largely formed by a sound concrete retaining wall structure, which forms the rear yard wall of the adjoining dwelling fronting Commons Road. It should be noted that there is a considerable elevation drop between the subject site proper and the Commons Road of an average of 3m.

The Western and Northern boundaries are formed by a Sandstone Ridge formed during the sites operation as a quarry during the last century. The ridge portion of the site is heavily wooded, particularly along the upper and mid levels, providing a strong visual screen from the Commons Road. This is considered a historic and ecologically important boundary.

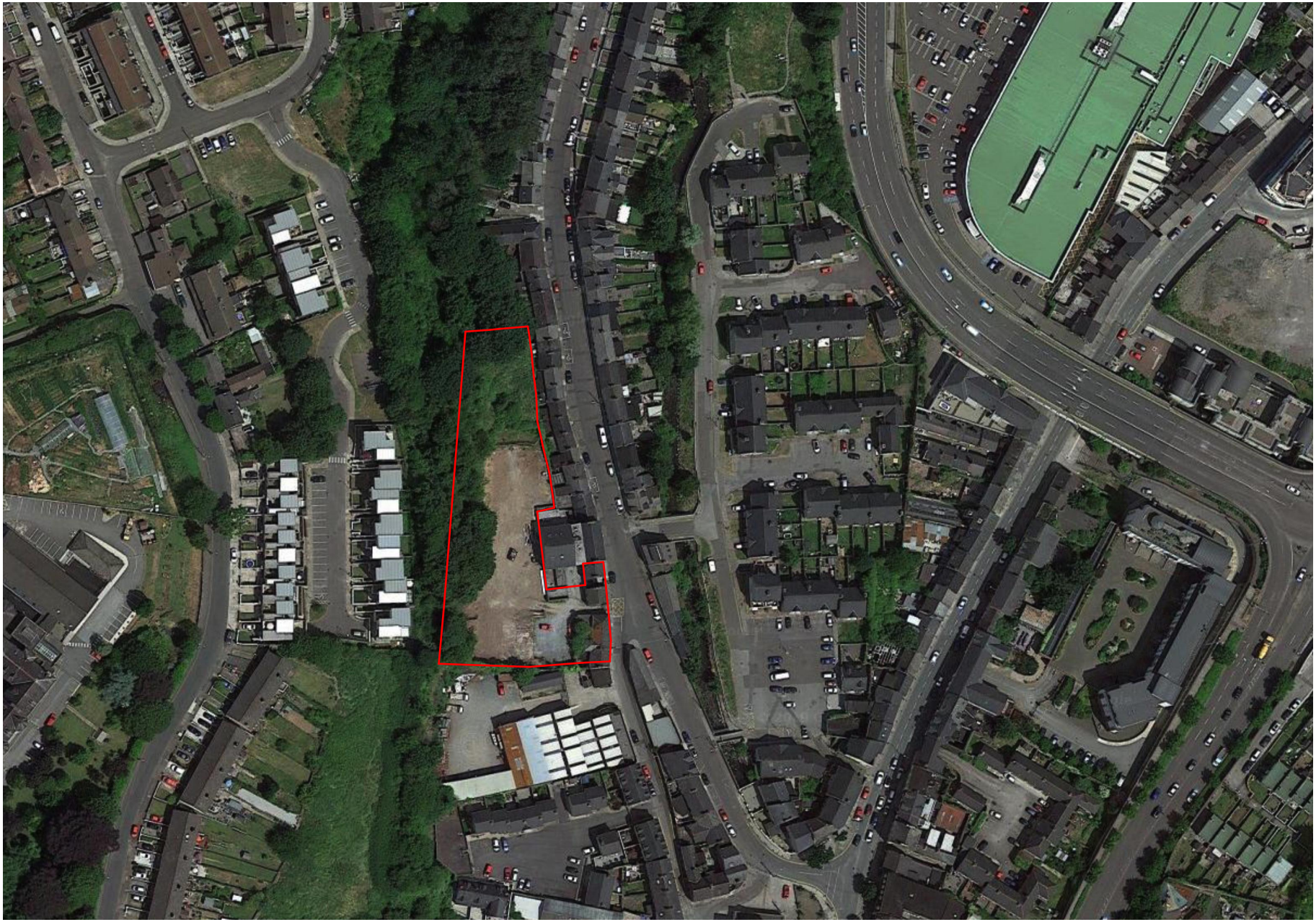
The site levels slope in the order of 0.0 – 0.75m from the upper Southern end up to the Northern boundary.

2.1.4. Site and Context

The site is well served by public transport, including 3 public bus routes (5 minutes walk).

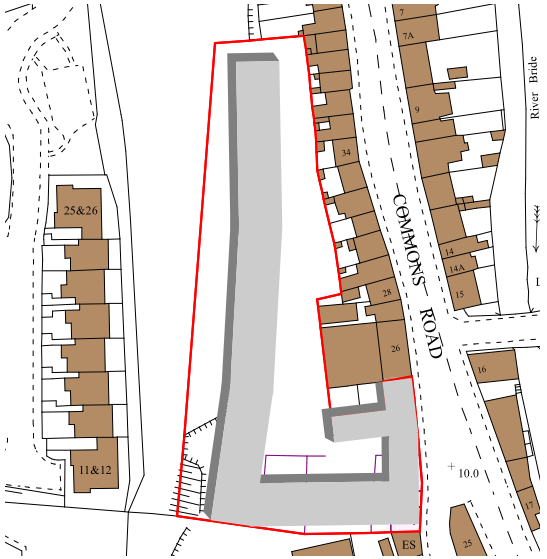
The site itself is a 25 minute walk from Patrick Street.

A full range of local amenities, shops, restaurants, schools, creche, cinema etc. are also within walking distance of the site, which is adjacent to the established Blackpool Shopping Centre.



3. SITE STRATEGY

The site has been identified as being suitable for the development of housing, specifically in the form of an apartment development.



3.1. CONCEPT

Following a detailed review of the subject site, its topography & characteristics it was decided to form an enclosing form with a centralised open space.

3.1. MASSING

Utilising the natural Topography of the site, we developed the massing best suited to the site as can be seen in the diagram below;

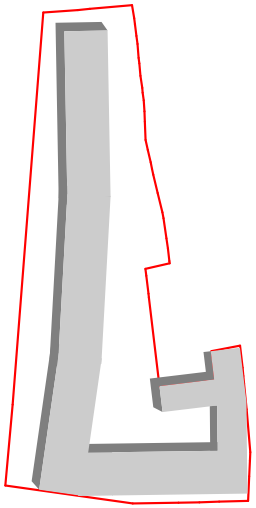
We identified the upper and lower sections of the site, and formed masses based on typical apartment dimensions, from this we developed the design organically to achieve a usable form that complimented the site and respected the existing context.

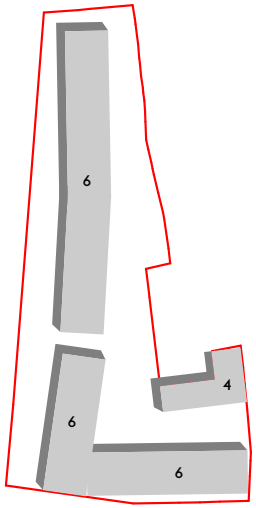
3.1. SCALE & HEIGHT

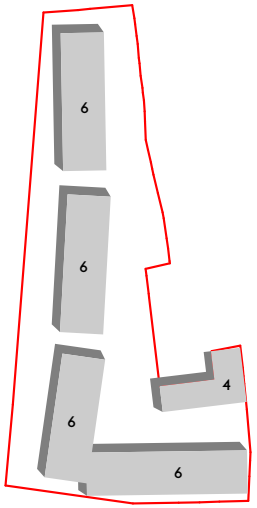
Fronting the Commons Road / Brocklesby Street it was determined that a maximum of 3 Stories would reinforce the sense of place achieved by the existing streetscape, immediately behind this the height steps up to 5 stories, and achieves an effective height of 7 stories to the rear of the site due to the existing topography.

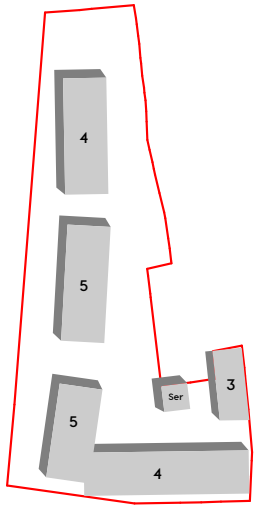
Several visual studies / photomontages were carried out to determine whether the development “fit into” the existing built environment. Consideration was given to several iterations of the photomontages, which led to the conclusion that the proposed height would not result in any significant negative impact over the permitted development, or over the existing context and would be in accordance with current planning guidance.

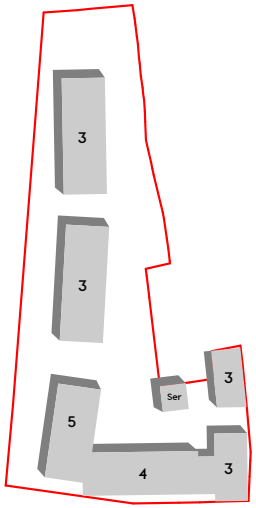
We believe the proposal utilises the site quite effectively.











4. DEVELOPMENT PLAN OBJECTIVES

The site has been identified as being suitable for the development of housing, specifically in the form of an apartment development.

4.1. PROJECT IRELAND 2040: THE NATIONAL PLANNING FRAMEWORK 2018

The National Planning Framework states that between 2018 and 2040, the annual provision of at least 25,000 new homes will need to be facilitated in Ireland every year to meet the populations needs for well-located housing. In the cities in particular, the Housing Agency has identified an aggregate need for at least 45,000 new homes in Dublin, Cork, Limerick, Galway and Waterford up to 2020. In the longer term, there will be a need for provision of at least 275,000 new homes in the cities, with half of these located in existing built up areas. One of the key goals of the National Planning framework is to secure compact and sustainable growth. The Framework highlights the significance of infill / brownfield sites especially in cities and larger towns predominantly assisting in meeting these targets.

In relation to residential development, the NPF states; “a major new policy emphasis on renewing and developing existing settlements will be required, rather than continual expansion and sprawl of cities and towns out into the countryside, at the expense of town centres and smaller villages. The target is for at least 40% of new housing to be delivered within the existing built up areas of cities, towns and villages on infill and/ or brownfield sites”.

National Policy Objective 3a seeks to deliver at least 40% of all new homes nationally, within the built-up footprint of existing settlements. National Policy Objective 3b seeks to deliver at least half (50%) of all new homes that are the subject of the national target in the five cities suburbs of Dublin, Cork, Limerick, Galway and Waterford, within their existing built-up footprints.

Cork, in particular as the State’s second largest city settlement, has an important role in meeting this national target in Objective 3(a) and also objective 3(b).

National Policy Objective 8 and Table 4.1 (Opposite) seeks to ensure that the allocation of population growth of Ireland’s cities to 2040 is in accordance with the targets set out in Table 4.1.

4.2. SUSTAINABLE URBAN HOUSING: DESIGN STANDARDS FOR NEW APARTMENTS- DECEMBER 2015

The requirements of the December 2015 guidelines take precedence over policies and objectives of development plans, local area plans or strategic development zone planning schemes. This submission will demonstrate compliance with these guidelines including:

- Internal space standards
- Dual aspect and orientation of single aspect units;
- Floor to ceiling heights
- Apartments to stair/lift core ratios
- Storage spaces
- Amenity spaces including balconies/patios
- Dimensions for living/dining/kitchens and bedrooms

4.3. CORK CITY DEVELOPMENT PLAN

The requirements of the December 2015 guidelines take precedence over policies and objectives of development plans, local area plans or strategic development zone planning schemes.

5. URBAN DESIGN CRITERIA

The site has been identified as being suitable for the development of housing, specifically in the form of an apartment development.

5.1. CONTEXT

The site is bounded by an established ridge to the West, low level housing (2 -3 Storey) to the East and a dis-used industrial holding to the South.

The site is on the periphery of Blackpool residential area, where the overwhelming pattern of development is residential.

5.2. CONNECTIONS

The site is bounded by the Commons Road, one of the main arteries that once fed North Cork City. This road has since been by passed by the upgraded N20, which goes by the same name.

Public transport is available within a 5 minute walk from Thomas Davis Street, where several buses operate, both City & Inter City. All local amenities such as shops, schools, medical centre, churches, cinema and clubs are within walking distance in the vibrant sub-urban area of Blackpool.

The existing connections available are:

- the site is located circa 400m from the a major neighbourhood centre
- the site is located adjacent to a 'Quality Bus Route' on Thomas Davis Street, and is well served by several local bus routes.
- the site is circa 400m from a 'District Centre' – the Blackpool Shopping Centre and associated commercial / office/ leisure facilities.
- schools, crèches, health centre, pubs/ restaurants and numerous other services are available in the local Blackpool area

It is proposed to provide one main entry point to the development, which shall be accessible directly off Commons Road.

National Policy Objective 8

To ensure that the targeted pattern of population growth of Ireland's cities to 2040 is in accordance with the targets set out in Table 4.1.

Table 4.1 | Ireland 2040: Targeted Pattern of City Population Growth

City	Population 2016	Population Growth to 2040[27]		Minimum Target Population 2040
		% Range	People	
Dublin - City and Suburbs	1,173,000	20-25%	235,000 - 293,000	1,408,000
Cork - City and Suburbs	209,000	50-60%	105,000 - 125,000	314,000
Limerick - City and Suburbs	94,000	50-60%	47,000 - 56,000	141,000
Galway - City and Suburbs	80,000	50-60%	40,000 - 48,000	120,000
Waterford - City and Suburbs	54,000	50-60%	27,000 - 32,000	81,000

5.3. INCLUSIVITY & PUBLIC REALM

The design has evolved around the key principal of enclosing a communal courtyard / amenity space. This will encourage interaction between residents and help develop a sense of belonging.

A total of 1,473 sqM (37% of the site) of public open space has been provided, divided into courtyards, landscaped areas and open space areas suitable for children to play whilst being supervised by adults.

All open spaces have been orientated to maximise sun light, while benefiting from passive surveillance of the residents so as to avoid the spectre of anti-social behaviour.

5.4. DENSITY OF DEVELOPMENT

This permission is for 49 units on a site 0.40 Ha in size. This generates a density of 122.5 units/hectare.

The density is based on a number of site–specific considerations which permit higher density development, in principle, under the Development Plan.

Due to the excellent public transport and the nearby town centre facilities, including substantial commercial / retail/ restaurant/ parking provision, together with high design quality, we assert that the higher density of 122 units/hectare is consistent with the sustainable planning and development of this area.

5.5. APARTMENT BLOCK DESIGN STANDARDS

5.5.1. Apartment Floor Area

The minimum floor areas required are as follows:

1 bedroom apartment 45 sq. m.
2 bedroom apartment 73 sq. m.

In addition to these minimum floor area requirements the December 2015 Guidelines set out requirements for percentage of the units to exceed the minimum floor area standard by 10%, depending on the scale of the development and the number of units being provided.

1 bedroom apartment 51.8 sq. m. (15% increase)
2 bedroom apartment 75.6 sq. m. (4% increase)

Refer to the attached Project Summary sheet for the sizes of each individual apartment.

5.5.2. Dual Aspect Rations

Each of the proposed dwellings enjoys dual aspect design, where the majority of private amenity spaces have a Southern or Eastern facing orientation, which benefits from views over the city of Cork.

Access routes have been oriented to the North & Western boundaries in order to maximise usable natural light in habitable rooms.

5.5.3. Floor to Ceiling Heights

The floor to floor height of 3000mm. This allows all units to achieve a 2.7m floor to ceiling height. All ground floor units shall have a minimum floor to ceiling height of 2.7m.

5.5.4. Stair and Lift Cores

There are 2 no. stair and lift cores with a maximum of 3 no. apartments per floor served by an individual core.

5.5.5. Internal Storage

All units comply with the minimum storage space requirements of the December 2015 guidelines.

One bedroom 3 sq. m.
Two bedroom 6 sq. m

The storage provision is in addition to the kitchen presses, bedroom furniture and hot presses. No storage space exceeds 3.5 sq. m. in area. For convenience of the occupants the storage areas have been distributed throughout the unit accessed off hallways, living spaces and bedrooms. Where possible in the larger units, utility rooms have been provided, with access off the kitchens. The hot water cylinders have been illustrated on the floorplans and their areas haven been recorded separately in the Project Summary sheet.

5.5.6. Privacy & Amenity Space

Balconies/ Terraces in apartments are generally located on the south-east and south-west facades for maximum daylight and sunlight and are primarily accessed from the living space. Terraces and balconies constitute private open space, and have been designed in accordance with the minimum sizes in the December 2015 guidelines:

One bedroom 5 sq. m.
Two bedroom 7 sq. m

All terraces and balconies are a minimum 1.5m in depth to accommodate chairs and a small table. Refer to Schedule of Statistics in Appendix A for the area of private amenity space for each apartment.

5.5.7. Dimensions for Living / Dining / Kitchens and Bedrooms

All apartments have been designed in accordance with the minimum room areas, dimensions and aggregate areas as set out in the December 2015 guidelines. Project Summary sheet lists the floor areas for the principal rooms for individual unit and also identifies the unit type, level and description. All floor areas scheduled are the gross internal areas. The general arrangement floorplans indicate these areas as well as the principal dimensions of each individual room, demonstrating compliance with the guidelines.

5.5.8. Communal Rooms

Not applicable.

5.5.9. Car and Bicycle Parking

Due to the nature of the site, it being long and narrow, provision of car parking would be difficult unless a costly excavation to include a basement was envisaged. Also, the proximity of th site to local public transport, and pedestrian accessible amenities, determined that no provision was to be made for car usage. Hence, no car spaces for apartment residents are provided.

Up to 96 secure, covered bicycle spaces are provided for residents. The bicycle parking has been located throughout the development to be conveniently accessible to residents.

5.5.10. Refuse Storage

A communal bin store has been provided to accommodate 6 x 1100l bins.

For the purpose of bin capacity calculation, occupancy has be calculated using figures suggested in the development Plan, as follows :

2 persons for 1-Bed = 25 units x 2 = 50 occupants

2 persons for 2-Bed units = 28 units x 3 = 84 occupants

Total 92 occupants requiring 1 bin/15 occupants = 84/15 = 6 bins required.

6 no. standard 1,100 litre wheeled waste bins can be accommodated in the ground floor bin store. Sorting of waste may be done within the Bin Store.

5.6. LONG TERM RUNNING AND MAINTENANCE COSTS

The design proposals contained within this application have considered the ongoing costs both to the residents and management company. In this particular instance, the built form, scale and height of building was established through an earlier planning permission. These proposals are therefore constrained by this established building arrangement.

- Site planning provides access to all facades for cleaning and maintenance
- Provision has been made in the basement for storage of maintenance equipment.
- Materials and finishes have been selected for their robustness and low-maintenance characteristics
- The external building envelop has good surface area to volume ratio
- Living rooms where possible have a south east or south west aspect to avail of passive and active solar gain
- Bedrooms are generally located to north-west of north east to minimise heat loss through their smaller windows.
- Insulation standards and thermal bridging/air infiltration detailing will comply and exceed the Building Regulations Part L (Conservation of Fuel & Energy) requirements and related ‘Acceptable Construction Details’
- There is provision in the design for the apartments to be heated by individual boilers, centralised boilers or CHP unit in the basement plant room. These systems will be assessed during detail design to select the optimum solution considering efficiency, performance and maintenance.
- Solar thermal panels, contributing to the water heating load, are provided at roof level, to work in conjunction with any of these systems.
- The guiding principles of energy efficiency will be achieved with a high level of specification and workmanship on site. It is envisaged that a combination of specification, supervision and certification will deliver a high standard of performance to the end user, minimising heating and electrical running costs.
- Each unit will be provided with a Building Energy Rating (BER) cert to confirm its performance with an operation manual to ensure occupants are informed of the heating system operation.

6. SITE SERVICES

A report has been prepared by CLC Consulting Engineers in relation to site services.

The synopsis of this report is that all public services are available and a Pre-Connection Agreement has been obtained from Irish Water.

SCHEDULE OF ACCOMMODATION

Accomodation Summary

Unit Number & Type		Floor Area	Living Area	Bedroom 1	Bedroom 2	Bedroom 3	Storage	Private Amenity Space	Room Widths: Living Room	Room Widths: Narrowest Bed Room
Block A	*Total Apartments this Block = 34*									
L0	Unit 1 - Two Bed Apt	77.0 m² +5.5%	30.9 m² +3.0%	11.7 m² +2.6%	11.6 m² +63.4%	m² -	6.5 m² +8.3%	6.9 m²	3.9 m +8.3%	2.8 m
	Unit 2 - One Bed Apt	51.6 m² +14.7%	24.0 m² +4.3%	10.3 m²	m² -	m² -	3.7 m² +23.3%	6.9 m² +38.0%	5.5 m +65.2%	3.4 m +19.6%
	Unit 3 - Two Bed Apt	73.5 m² +0.7%	35.6 m² +18.7%	13.3 m² +16.7%	7.6 m² +7.0%	m² -	6.0 m²	34.6 m² +394.3%	6.1 m +69.4%	2.8 m
	Unit 4 - Two Bed Apt	78.4 m² +7.4%	40.7 m² +35.7%	13.3 m² +16.7%	7.6 m² +7.0%	m² -	6.0 m²	22.0 m² +214.3%	6.1 m +69.4%	2.8 m
	Unit 5 - One Bed Apt	49.6 m²	23.3 m² +1.3%	11.5 m² +0.9%	m² -	m² -	3.0 m²	16.4 m²	4.4 m +33.3%	2.8 m
L1	Unit 6 - One Bed Apt	58.6 m²	30.3 m² +31.7%	12.7 m² +11.4%	m² -	m² -	3.4 m² +13.3%	7.9 m²	3.9 m +18.2%	2.8 m
	Unit 7 - One Bed Apt	46.8 m² +4.0%	22.5 m² -+2.2%	12.7 m² +11.4%	m² -	m² -	3.4 m² +13.3%	5.6 m² +12.0%	6.1 m +84.8%	2.8 m
	Unit 8 - One Bed Apt	46.8 m² +4.0%	22.5 m² -+2.2%	12.7 m² +11.4%	m² -	m² -	4.1 m² +36.7%	5.6 m² +12.0%	6.1 m +84.8%	2.8 m
	Unit 9 - Two Bed Apt	75.0 m² +2.7%	32.3 m² +7.7%	14.5 m² +27.2%	12.1 m² +70.4%	m² -	6.5 m²	6.9 m²	5.5 m +51.4%	3.4 m +19.6%
	Unit 10 - One Bed Apt	50.7 m² +12.7%	28.2 m² +22.6%	10.6 m²	m² -	m² -	3.0 m²	6.9 m² +38.0%	3.6 m +9.1%	3.0 m +7.1%
	Unit 23 - One Bed Apt	51.5 m² +14.4%	23.3 m² +1.3%	15.0 m² +31.6%	m² -	m² -	3.4 m² +13.3%	10.1 m² +102.0%	5.5 m +66.7%	3.2 m +14.3%
	Unit 24 - One Bed Apt	49.8 m² +10.7%	23.8 m² +3.5%	12.9 m² +13.2%	m² -	m² -	3.7 m² +23.3%	9.6 m² +92.0%	4.6 m +39.4%	3.0 m +7.1%
	Unit 25 - Two Bed Apt	73.8 m² +1.1%	30.0 m²	12.3 m² +7.9%	11.5 m² +62.0%	m² -	6.0 m²	33.1 m²	4.5 m +25.0%	3.2 m +14.3%
L2	Unit 11 - One Bed Apt	58.6 m²	30.3 m² +31.7%	12.7 m² +11.4%	m² -	m² -	3.4 m² +13.3%	7.9 m²	3.9 m +18.2%	2.8 m
	Unit 12 - One Bed Apt	46.8 m² +4.0%	22.5 m² -+2.2%	12.7 m² +11.4%	m² -	m² -	3.4 m² +13.3%	5.6 m² +12.0%	6.1 m +84.8%	2.8 m
	Unit 13 - One Bed Apt	46.8 m² +4.0%	22.5 m² -+2.2%	12.7 m² +11.4%	m² -	m² -	4.1 m² +36.7%	5.6 m² +12.0%	6.1 m +84.8%	2.8 m
	Unit 14 - Two Bed Apt	75.0 m² +2.7%	32.3 m² +7.7%	14.5 m² +27.2%	12.1 m² +70.4%	m² -	6.5 m²	6.9 m²	5.5 m +51.4%	3.4 m +19.6%
	Unit 15 - One Bed Apt	50.7 m² +12.7%	28.2 m² +22.6%	10.6 m²	m² -	m² -	3.0 m²	6.9 m² +38.0%	3.6 m +9.1%	3.0 m +7.1%
	Unit 26 - One Bed Apt	51.5 m² +14.4%	23.3 m² +1.3%	15.0 m² +31.6%	m² -	m² -	3.4 m² +13.3%	10.1 m² +102.0%	5.5 m +66.7%	3.2 m +14.3%
	Unit 27 - One Bed Apt	49.8 m² +10.7%	23.8 m² +3.5%	12.9 m² +13.2%	m² -	m² -	3.7 m² +23.3%	9.6 m² +92.0%	4.6 m +39.4%	3.0 m +7.1%
	Unit 28 - Two Bed Apt	73.8 m² +1.1%	30.0 m²	12.3 m² +7.9%	11.5 m² +62.0%	m² -	6.0 m²	33.1 m²	4.5 m +25.0%	3.2 m +14.3%
L3	Unit 16 - One Bed Apt	58.6 m²	30.3 m² +31.7%	12.7 m² +11.4%	m² -	m² -	3.4 m² +13.3%	7.9 m²	3.9 m +18.2%	2.8 m
	Unit 17 - One Bed Apt	46.8 m² +4.0%	22.5 m² -+2.2%	12.7 m² +11.4%	m² -	m² -	3.4 m² +13.3%	5.6 m² +12.0%	6.1 m +84.8%	2.8 m
	Unit 18 - One Bed Apt	46.8 m² +4.0%	22.5 m² -+2.2%	12.7 m² +11.4%	m² -	m² -	4.1 m² +36.7%	5.6 m² +12.0%	6.1 m +84.8%	2.8 m
	Unit 19 - Two Bed Apt	77.2 m² +5.8%	30.9 m² +3.0%	14.2 m² +24.6%	11.9 m² +67.6%	m² -	6.0 m²	52.2 m² +645.7%	5.0 m +38.9%	3.2 m +14.3%
	Unit 29 - One Bed Apt	51.5 m² +14.4%	23.3 m² +1.3%	15.0 m² +31.6%	m² -	m² -	3.4 m² +13.3%	10.1 m² +102.0%	5.5 m +66.7%	3.2 m +14.3%
	Unit 30 - One Bed Apt	49.8 m² +10.7%	23.8 m² +3.5%	12.9 m² +13.2%	m² -	m² -	3.7 m² +23.3%	9.6 m² +92.0%	4.6 m +39.4%	3.0 m +7.1%
	Unit 31 - Two Bed Apt	73.8 m² +1.1%	30.0 m²	12.3 m² +7.9%	11.5 m² +62.0%	m² -	6.0 m²	33.1 m²	4.5 m +25.0%	3.2 m +14.3%
L4	Unit 20 - One Bed Apt	58.6 m²	30.3 m² +31.7%	12.7 m² +11.4%	m² -	m² -	3.4 m² +13.3%	7.9 m²	3.9 m +18.2%	2.8 m
	Unit 21 - One Bed Apt	46.8 m² +4.0%	22.5 m² -+2.2%	12.7 m² +11.4%	m² -	m² -	3.4 m² +13.3%	5.6 m² +12.0%	6.1 m +84.8%	2.8 m
	Unit 22 - One Bed Apt	46.8 m² +4.0%	22.5 m² -+2.2%	12.7 m² +11.4%	m² -	m² -	4.1 m² +36.7%	5.6 m² +12.0%	6.1 m +84.8%	2.8 m
	Unit 32 - One Bed Apt	51.5 m² +14.4%	23.3 m² +1.3%	15.0 m² +31.6%	m² -	m² -	3.4 m² +13.3%	10.1 m² +102.0%	5.5 m +66.7%	3.2 m +14.3%
	Unit 33 - One Bed Apt	49.8 m² +10.7%	23.8 m² +3.5%	12.9 m² +13.2%	m² -	m² -	3.7 m² +23.3%	9.6 m² +92.0%	4.6 m +39.4%	3.0 m +7.1%
	Unit 34 - Two Bed Apt	73.8 m² +1.1%	30.0 m²	12.3 m² +7.9%	11.5 m² +62.0%	m² -	6.0 m²	33.1 m²	4.5 m +25.0%	3.2 m +14.3%

Unit Number & Type		Floor Area	Living Area	Bedroom 1	Bedroom 2	Bedroom 3	Storage	Private Amenity Space	Living Room	Narrowest Bed Room
Block B	*Total Apartments this Block = 3*									
L0	Unit 2 - One Bed Apt	60.7 m² +34.9%	32.0 m² +39.1%	11.9 m² +4.4%	m² -	m² -	3.6 m² +20.0%	8.8 m² +76.0%	3.5 m +6.1%	3.2 m +14.3%
L1	Unit 3 - One Bed Apt	60.7 m² +34.9%	32.0 m² +39.1%	11.9 m² +4.4%	m² -	m² -	3.6 m² +20.0%	8.8 m² +76.0%	3.5 m +6.1%	3.2 m +14.3%
L2	Unit 4 - One Bed Apt	60.7 m² +34.9%	32.0 m² +39.1%	11.9 m² +4.4%	m² -	m² -	3.6 m² +20.0%	8.8 m² +76.0%	3.5 m +6.1%	3.2 m +14.3%

Unit Number & Type		Floor Area	Living Area	Bedroom 1	Bedroom 2	Bedroom 3	Storage	Private Amenity Space	Living Room	Narrowest Bed Room
Block C	*Total Apartments this Block = 6*									
L0	Unit 1 - Two Bed Apt	76.1 m² +4.2%	32.6 m² +8.7%	11.5 m² +0.9%	8.0 m² +12.7%	m² -	7.0 m²	11.9 m² +70.0%	5.5 m +52.8%	3.2 m +14.3%
	Unit 2 - Two Bed Apt	76.1 m² +4.2%	32.6 m² +8.7%	11.5 m² +0.9%	8.0 m² +12.7%	m² -	7.0 m²	11.9 m² +70.0%	5.5 m +52.8%	3.2 m +14.3%
L1	Unit 3 - Two Bed Apt	73.1 m² +0.1%	32.6 m² +8.7%	11.4 m²	8.5 m² +19.7%	m² -	7.0 m²	11.9 m² +70.0%	5.5 m +52.8%	3.2 m +14.3%
	Unit 4 - Two Bed Apt	73.1 m² +0.1%	32.6 m² +8.7%	11.4 m²	8.5 m² +19.7%	m² -	7.0 m²	11.9 m² +70.0%	5.5 m +52.8%	3.2 m +14.3%
L2	Unit 5 - Two Bed Apt	78.5 m² +7.5%	32.6 m² +8.7%	12.3 m² +7.9%	8.0 m² +12.7%	m² -	7.0 m²	11.9 m² +70.0%	5.5 m +52.8%	3.2 m +14.3%
	Unit 6 - Two Bed Apt	78.5 m² +7.5%	32.6 m² +8.7%	12.3 m² +7.9%	8.0 m² +12.7%	m² -	7.0 m²	11.9 m² +70.0%	5.5 m +52.8%	3.2 m +14.3%

Unit Number & Type		Floor Area	Living Area	Bedroom 1	Bedroom 2	Bedroom 3	Storage	Private Amenity Space	Living Room	Narrowest Bed Room
Block D	*Total Apartments this Block = 6*									
L0	Unit 1 - Two Bed Apt	76.1 m² +4.2%	32.6 m² +8.7%	11.5 m² +0.9%	8.0 m² +12.7%	m² -	7.0 m²	11.9 m² +70.0%	5.5 m +52.8%	3.2 m +14.3%
	Unit 2 - Two Bed Apt	76.1 m² +4.2%	32.6 m² +8.7%	11.5 m² +0.9%	8.0 m² +12.7%	m² -	7.0 m²	11.9 m² +70.0%	5.5 m +52.8%	3.2 m +14.3%
L1	Unit 3 - Two Bed Apt	73.1 m² +0.1%	32.6 m² +8.7%	11.4 m²	8.5 m² +19.7%	m² -	7.0 m²	11.9 m² +70.0%	5.5 m +52.8%	3.2 m +14.3%
	Unit 4 - Two Bed Apt	73.1 m² +0.1%	32.6 m² +8.7%	11.4 m²	8.5 m² +19.7%	m² -	7.0 m²	11.9 m² +70.0%	5.5 m +52.8%	3.2 m +14.3%
L2	Unit 5 - Two Bed Apt	78.5 m² +7.5%	32.6 m² +8.7%	12.3 m² +7.9%	8.0 m² +12.7%	m² -	7.0 m²	11.9 m² +70.0%	5.5 m +52.8%	3.2 m +14.3%
	Unit 6 - Two Bed Apt	78.5 m² +7.5%	32.6 m² +8.7%	12.3 m² +7.9%	8.0 m² +12.7%	m² -	7.0 m²	11.9 m² +70.0%	5.5 m +52.8%	3.2 m +14.3%

DoECLG Requirement:	Area Required:	Living Space:	Main Bedroom Size:	Minimum 2nd Bedroom:	Minimum 3rd Bedroom:	Storage Space:	Private Amenity Space:	Min. Living Width:	Min. Bedroom Width:
One Bed Apartment:	45 m²	23 m²	11.4 m²	7.1 m²	7.1 m²	3 m²	5 m²	3.3 m	2.8 m
Two Bed Apartment:	73 m²	30 m²	11.4 m²	7.1 m²	7.1 m²	6 m²	7 m²	3.6 m	2.8 m
Three Bed Apartment:	90 m²	34 m²	11.4 m²	7.1 m²	7.1 m²	9 m²	9 m²	3.6 m	2.8 m

As can be seen the bulk of the development shall be “tucked into” the rear of the existing Commons Road streetscape, so as to be effectively invisible to the pedestrian in most locations.

The part of the development presented to Commons Road enjoys a traditional design, mirroring the scale of the existing “Wolsey Apartment” facade.

A simple palette of materials has been chosen, to again reflect the surrounding developments.

Great care has been taken to balance the most efficient use of the site with protection of the few remaining undeveloped ridge zones.

The entrance of the site has been defined by the use of selected brick to the end of Block B, and the lower level of Block A.

We have created a gateway to the development.

The use of brick shall also discourage idle graffiti.

Care has been taken to preserve the view to the ridge above.

The site as viewed from the car park area of Ard Patrick.

EXECUTIVE SUMMARY

The following specification indicates minimum compliance with Building Regulation. Considerable effort shall be made by both the appointed design team, the contractor and the developer to provide sustainable, comfortable dwellings which shall ultimately be uses as a primary residences by the future occupants.

The following specification is non-exhaustive, it should be used as a reference for minimum expected standards. The goal and intent of this specification is that at all time minus standards should be exceeded, that all efforts should be made by all parties to ensure the delivery of dwellings of an outstanding quality through shared experience, workmanship and quality materials.

INTRODUCTION

The purpose of this report is to ensure compliance with relevant Building Regulations with the subject dwellings.

We shall consider the following topics;

Part A - Structure
Part B - Fire Safety
Part C - Site Preparation
Part D - Materials & Workmanship
Part E - Sound
Part F - Ventilation
Part G - Hygiene
Part H - Drainage & Waste Water Disposal
Part J - Heat Producing Appliances
Part K - Stairways, Ramps & Ladders.
Part L - Conservation of Fuel & Energy [Dwellings]
Part M - Disabled Access

SCOPE OF THIS SPECIFICATION

This report will focus solely on matters relating to domestic dwelling houses. Specifically focus will be paid with regard to compliance with The Building Control Acts 1990 - 2014.

Issues such as compliance with standards of any relevant Development Plan are beyond the scope of this report.

DESCRIPTION OF THE DEVELOPMENT

This is a development of 49 dwellings, consisting of 27No. 1 Bed Apartments, 22No. 2 Bed Apartments, arranged in four building blocks. The development is located in a suburb of Cork City, Blackpool which is under the remit of Cork City Council.

The building blocks range in height form 3 - 5 storeys with the provision of balconied private space for each individual unit.

A. PART A STRUCTURE

We shall consider the specification relating to a multi occupancy apartment building required to comply with Part A of The Building Control Acts 1990 - 2014 relating to aspects of Structure.

A.1. MAIN METHODS OF CONSTRUCTION

The buildings shall be constructed in precast reinforced concrete, with internal metal stud work partition walls. Interim floors shall be pre-cast concrete finished with a light weight concrete screed.

A.2. FOUNDATIONS & GROUND FLOOR MAKEUP

Foundations will consist of concrete raft foundations designed by the appointed structural Engineers, CLC Consulting Engineers of Blackrock, Cork.

The ground floor slab consist of a 75mm screed on 100mm insulation on Radon barrier, with associated sumps on a sand blinding on graded SR16 specified hardcore laid on the raft foundation.

A.3. EXTERIOR WALLS

Walls consist of a 200mm precast reinforced concrete panel with exterior insulation of 150mm. The exterior is finished with ~20mm sand and cement render, paint finish.

A.4. PARTY WALLS

Party walls consist of a 200mm precast reinforced concrete panel with 75mm noise reducing insulation either side.

A.5. INTERNAL WALLS & PARTITIONS

Internal Walls consist of 75mm metal stud work, with a single 12.5mm gypsum plasterboard each side, with a skim coat and paint finish.

Wet areas such as bathroom & the kitchen utilise the same construction with the standard Gypsum board upgraded to Moisture resistant (blue) Gypsum boards.

A.6. ROOF

The roof is constructed in pre-formed trusses.

A good quality breather membrane fixed to the outer faces of the trusses to achieve a breathable water and weatherproof membrane. Chosen insulated roofing panels provide the roof finish.

Flat roofs shall be of warm roof construction, with tapered insulation finished with selected single ply roofing membrane.

B. PART B - FIRE SAFETY

We shall consider the specification relating to a multi occupancy apartment building required to comply with Part B of The Building Control Acts 1990 - 2014 relating to aspects of Fire Safety [Dwellings].

A formal application for a Fire Safety Certificate shall be made on successful grant of permission.

B.1. MEANS OF ESCAPE

Each dwelling is provided with thumb turns on all external door. All windows have been designed to accommodate escape by the provision of minimum openings and cill heights.

Protected stairwells have been provided in Blocks A, B, C & D. All apartments have been designed so as to be accessible via open air access decks constructed in non-combustible materials.

B.2. INTERNAL FIRE SPREAD (LININGS)

No combustible linings have been specified in the development.

B.3. INTERNAL FIRE SPREAD (STRUCTURE)

Each dwelling has been compartmented by building the party walls to the underside of the shared floor structure.

B.4. EXTERNAL FIRE SPREAD

No combustible external finishes have been specified in the development.

B.5. ACCESS FACILITIES FOR FIRE SERVICES

The buildings are located directly off a public road. Fire hydrants are available within working distance of the proposed structures.

C. SITE PREPARATION & RESISTANCE TO MOISTURE

We shall consider the specification relating to a multi occupancy apartment building required to comply with Part C of The Building Control Acts 1990 - 2014 relating to aspects of Site Preparation & Resistance to Moisture [Dwellings].

C.1. DRAINAGE LOCATION

Site services have been designed by CLC Consulting Engineers, Blackrock, Cork.

All drainage has been sited external to each dwelling, routed around the sides for a final connection to the Public drainage system located on the public road.

C.2. DANGEROUS SUBSTANCES

A Radon barrier shall be provided to each individual apartment block with according sumps and ventilation points.

C.3. RESISTANCE TO WEATHER AND GROUND MOISTURE

A Radon barrier shall be provided to individual apartment block which acts as the primary moisture barrier of the ground floor slabs.

DPC shall be provided in accordance with best practice to external walls and where deemed necessary under internal partitions.

Cavity trays shall be provided over all opes.

Lead flashings shall be provided at all roof penetrations.

D. MATERIALS & WORKMANSHIP

We shall consider the specification relating to a multi occupancy apartment building required to comply with Part D of The Building Control Acts 1990 - 2014 relating to aspects of Materials & Workmanship [Dwellings].

D.1. MATERIALS

All materials shall have relevant Irish, European and British specifications and Agreement certification for suitability of use in Ireland.

D.2. WORKMANSHIP

All trades shall be fully insured, competent and experienced.

E. SOUND

We shall consider the specification relating to a multi occupancy apartment building required to comply with Part E of The Building Control Acts 1990 - 2014 relating to aspects of Sound [Dwellings].

E.1. PERFORMANCE

Dwellings have been designed to achieve a minimum airborne sound insulation of 53dB.

Dwellings have been designed to achieve a minimum impact sound insulation of 58dB.

E.2. TESTING

A registered competent independent tester shall be employed to complete an unbiased report with regard to relevant standard achieved. This shall include:

- Airborne test of separating walls.
- Airborne test of separating floors.
- Impact test of separating walls.
- Impact test of separating floors.

F. VENTILATION

We shall consider the specification relating to a multi occupancy apartment building required to comply with Part F of The Building Control Acts 1990 - 2014 relating to aspects of Ventilation [Dwellings].

F.1. REQUIREMENTS

Calculations have been made by the appointed M&E consultant, EDC Consulting Engineers, using the example as follows:

Room details				REQUIREMENTS		
No	Room/area	Room ID	Room type	floor area (m2)	Permanent Equivalent area A1 (mm2)	Purge opening clear area A2 (m2)	Mechanical ventilation (L/s)
1	Living room	1	H	18.4	7,000	0.920	Na
2	Kitchen Dining	2	H	24.6	7,000	1.230	Na
3	Hall	3	G	9.95	Na	Na	Na
4	WC	4	W	2.7	3,500	Any opening	Na
5	Bedroom 1	7	H	14.12	7,000	0.706	Na
6	En-suite B1	8	B	2.72	3,500	Any opening	15.0
7	Bedroom 2	9	H	16.7	7,000	0.835	Na
8	Bedroom 3	10	H	8.5	7,000	0.425	Na
9	Landing	11	G	6.6	Na	Na	Na
10	Bathroom	12	B	4.3	3,500	Any opening	15.0

Total required minimum equivalent area (< 5m3/h.m2) : **63,000** mm2

Total floor area :	108.6	m2
No of occupants :	5	No.
No floor levels :	2	No.
Level of ground floor	1	No.
Average storey height :	2.55	m
Volume :	276.9	m3

This shall be achieved using a combination of window mounted trickle vents and humidity controlled wall vents.

G. HYGIENE

We shall consider the specification relating to a multi occupancy apartment building required to comply with Part G of The Building Control Acts 1990 - 2014 relating to aspects of Hygiene [Dwellings].

G.1. BATHROOMS & KITCHENS IN DWELLINGS

Each apartment shall be provided with an accessible toilet, a first floor shared bathroom including a bath & shower. In some 2 bedroomed units, the Master Bedroom has been provided with an ensuite washroom, consisting of a WC, sink & shower.

Each duplex apartment shall be provided with a lower floor accessible toilet, and an upper floor shared bathroom including a bath & shower.

G.2. COLD WATER SUPPLY

Each dwelling shall be provided with a cold water supply fitted in accordance with Diagram 1.

G.3. COLD WATER CISTERN

Each dwelling shall be provided with a cold water cistern fitted in accordance with Diagram 3.

H. DRAINAGE & WASTE WATER DISPOSAL

We shall consider the specification relating to a multi occupancy apartment building required to comply with Part H of The Building Control Acts 1990 - 2014 relating to aspects of Drainage & Waste Disposal [Dwellings].

H.1. DRAINAGE SYSTEM

Each apartment building shall be provided with a drainage system designed by the appointed Engineers, CLC Consulting Engineers of Blackrock, Cork, to ensure the proper discharge of relevant wastes to the Public drainage system located adjacent to the subject site on the public road.

H.2. WASTE WATER TREATMENT SYSTEM

Not applicable, all waste shall discharge to the Public drainage system located adjacent to the dwelling on the public road.

J. HEAT PRODUCING APPLIANCES

We shall consider the specification relating to a multi occupancy apartment building required to comply with Part J of The Building Control Acts 1990 - 2014 relating to aspects of Heat Producing Appliances [Dwellings].

J.1. DESCRIPTION OF SYSTEM

Each apartment shall be provided with a gas fired combo boiler located in the kitchen of each individual apartment which provides both domestic hot water and heating via aluminium radiators.

J.2. PROVISION OF FLUES

Each boiler shall be vented by means of a balanced flue which leads horizontally directly through the external wall. Balanced flues shall be sited accordingly to avoid issues relating to exhaust fumes.

J.3. PROVISION OF AIR SUPPLY TO APPLIANCES

Each boiler shall be augmented by a non combustible air vent located at floor level immediately adjacent the boiler.

J.4. STORAGE OF FUELS

Not applicable. Gas shall be provided via a centralised connection to the gas network, individual consumption meters shall be provided for each dwelling.

K. STAIRWAYS, RAMPS AND LADDERS

We shall consider the specification relating to a multi occupancy apartment building required to comply with Part K of The Building Control Acts 1990 - 2014 relating to aspects of Stairways, ramps & Ladders [Dwellings].

K.1. DESCRIPTION OF STAIRS

Each building is provided with a precast concrete access stairway, designed for compliance with “public” access stairs.

Each duplex is provided with an internal timber single straight flight stairs which provides access between Ground and First Floors, designed for compliance with “private” access stairs.

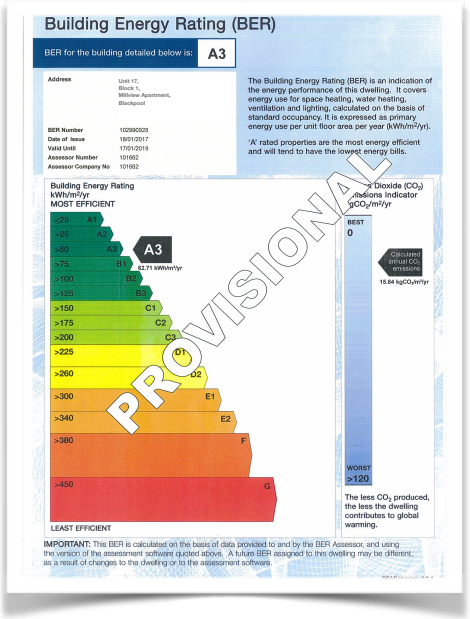
All pedestrian ramps shall have a gradient that res not exceed 1:10.

L. CONSERVATION OF FUEL AND ENERGY

We shall consider the specification relating to a multi occupancy apartment building required to comply with Part L of The Building Control Acts 1990 - 2014 relating to aspects of Conservation of Fuel & Energy [Dwellings].

L.1. GENERAL DESIGN CONSIDERATIONS

Each dwelling has been designed to achieve a minimum BER rating of A3.



L.2. RENEWABLE TECHNOLOGIES

Only rain water harvesting has been specified due to the nature of the development.

L.3. ELECTRICAL INSTALLATION - LIGHTING

Access corridors and each dwelling shall be fitted PIR motion detectors to control non essential lighting to circulation areas.

M. ACCESS & USE

We shall consider the specification relating to a multi occupancy apartment building required to comply with Part M of The Building Control Acts 1990 - 2014 relating to aspects of Access & Use [Dwellings].

M.1. GENERAL DESIGN CONSIDERATIONS

Each building shall be designed so as to allow unhindered ease of access.

Lifts shall be provided in accordance with Section 1.3.4.1.1.

All external stairs shall be designed designed for compliance with “public” access stairs.

All pedestrian ramps shall have a gradient that shall not exceed 1:10.

Each dwelling has been designed to allow unhindered ease of access. All occupants may safely and conveniently approach the dwellings in order to gain access.

M.2. MAIN ENTRANCE (TO DWELLINGS)

Each dwelling shall be fitted with a main entrance door with a clear ope of 900mm.

Level access shall be provided at each entrance door.

Handles, locks and opening devices shall be positioned so as to be functional from a wheel chair should the need arise.

M.3. INTERNAL CIRCULATION

Each dwelling shall be fitted with internal doors with a minimum clear ope of of between 775 -800mm depending on situation in accordance with Diagram 33.

M.4. VERTICAL CIRCULATION

The stairs of each dwelling shall be fitted with continuous handrails in accordance with relevant guidance.

M.5. SANITARY FACILITIES

Each dwelling has been fitted with a ground floor accessible WC in accordance with Diagram 34.

M.6. SWITCHED & SOCKETS

Each dwelling shall be fitted with switches and sockets between 400mm and 1200mm above finished floor levels.

CONCLUSION

Once the preceding specification has been followed the proposed dwellings shall be compliant with current Building Regulations, and more importantly provide sustainable, comfortable homes to the respective occupant in the immediate and foreseeable future.

1. EUROPEAN SITE DATA

Great Island Channel candidate Special Area Of Conservation (site code 001058)	
Conservation objective	To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected.
Qualifying interests	Annex I listed habitats: mudflats, sandflats not covered by seawater at low tide, estuaries, spartina swards, Atlantic salt meadows.
References and further information	*Conservation Objectives for Great Island Channel SAC [001058]* (NPWS), *Natura 2000 Standard Data Form* (NPWS), *Site Synopsis Great Island Channel Site Code 001058* (NPWS) (see www.npws.ie for further details)

Cork Harbour Special Protection Area (site code 004030)	
Conservation objective	To maintain or restore the favourable conservation condition of the bird species listed as special conservation interests for this SPA.
Qualifying interests	Annex I-listed bird species: bar-tailed godwit, common tern (breeding), golden plover, ruff, whooper swan. Other birds of special conservation interest include black-headed gull, black-tailed godwit, common gull, curlew, dunlin, great crested grebe, grey heron, grey plover, lapwing, lesser black-backed gull, little grebe, oystercatcher, pintail, red-breasted merganser, redshank, shelduck, shoveler, teal, and widgeon. This site is an internationally important wetland site supporting > 20,000 wintering waterfowl.
References and further information	*Conservation Objectives for Cork Harbour SPA [004030]* (NPWS), *Natura 2000 Standard Data Form* (NPWS), *Site Synopsis Cork Harbour SPA Site Code 004030* (NPWS) (see www.npws.ie for further details)

2. DETAILS OF PROPOSED DEVELOPMENT

Reference no.	Lot 1A Wolsey Court
Development consent type	*Part 8 Planning Application*
Development location	*Wolsey Court, located at the Commons, Road, Blackpool, Cork*
Description of development	*The demolition of existing structures, the construction of 49 no. apartments in the form of 27 no. 1 bed units and 22 no. 2 bed units in 6 no. three to four storey blocks, the provision of landscaping and amenity areas, all associated ancillary development works including lighting, drainage, boundary treatments, bicycle parking and bin storage.*
Distance from cSAC	*8.97km*
Distance from SPA	*4.15km*
Relevant strategies or policies	*City Development Plan*
EIS submitted?	*N/A*

3. ASSESSMENT OF LIKELY DIRECT, INDIRECT AND CUMULATIVE EFFECTS

	Yes / No
1. Is the proposed development directly connected to or necessary for the conservation management of the SPA and/or cSAC? *(If yes, no further assessment required. If no, screening required.)*	*No*
2. Is the proposed development located within or partly within the SPA?	*No*
3. Is the proposed development located within 100m of the SPA?	*No*
4. Does the proposed project involve the development, extension or upgrade of a cycleway or walkway within 200m of the SPA?	*No*
5. Does the proposed development involve development in the intertidal or coastal zone within the potential impact zone of the SPA?	*No*
6. Could the proposed project increase the level of recreational or other use of marine or intertidal areas within the potential impact zone of the SPA?	*No*
7. Does the proposed development involve the excavation of previously undeveloped land within an area that has been identified to be at risk of flooding within the potential impact zone of the SPA?	*No*
8. Does the proposed development involve the removal of significant amounts of topsoil within 100m of the SPA?	*No*
9. Does the existing wastewater treatment system have the capacity to treat any additional loading?	*Yes*

3. ASSESSMENT OF LIKELY DIRECT, INDIRECT AND CUMULATIVE EFFECTS

	Yes / No
10. Would the proposed development result in direct surface water or other discharge to water bodies in or feeding into the SPA or cSAC? Would it result in additional storm flows into a combined sewer and subsequently into a combined sewer overflow (CSO), resulting in increased frequency, quantity and/or duration of overflow from the CSO to watercourses feeding into the European sites?	*Yes*
11. Would the proposed development involve dredging or could it result in the mobilisation of marine sediments in the Harbour area?	*No*
12. Could the proposed development give rise to increased risk of oil or chemical spillage or leaks within the marine environment or watercourse within the potential impact zone for the SPA or cSAC?	*No*
13. Are there relevant plans or projects which, in combination with the proposed development, are likely to give rise to any cumulative effects?	*No*

Comments or notes

3.10 * The proposed works area, does not lay within the Great Island Channel SAC and the Cork Harbour SPA and does not support the species or habitats for which these Natura 2000 sites were selected. Both surface and wastewater emissions from the site will be managed to ensure that the water quality of the nearby waters is not compromised and will remain compliant with the Surface Water Regulations S.I. 272 of 2009. The proposed development will not have any significant impact on Carrigrennan WWTP and its ability to maintain with ELV's therefore no cumulative impacts on water quality have been identified. Based on the above, the project does not present any risk of a direct adverse effect on either the habitats or species for which this Natura 2000 site was selected.

4. SCREENING CONCLUSION STATEMENT

In view of the above it is considered that *(tick one box only)**:*

☐ **Appropriate Assessment is not required**
The proposed development is directly connected / necessary to the conservation management of a site.

X **Appropriate Assessment is not required**
It can be excluded through screening that the proposed development will have significant effects on the sites.

☐ **Further information is required**
Potential impacts have been identified through initial screening and/or there is insufficient information to enable the planning authority to screen out impacts, but on balance it is determined that the issues could be resolved through minor modifications to the proposed development or by appropriate conditions. The information required is specified below.

☐ **Appropriate Assessment is required**
Significant issues have been identified and/or significant effects are certain, likely or uncertain, and the submission of a Natura Impact Statement (NIS) is required, or the proposed development must be rejected.

Further information required / Comments or Notes

This Appropriate Assessment Screening therefore concludes that the proposed development would not be likely to have a significant effect on any Natura 2000 site.

Please refer to Appendix A for report titled; Appropriate Assessment Screening Report on behalf of Culclan Construction prepared by Dixon Brosnan Environmental Consultants, dated May 2020.

Name:	*Declan Roche*
Position:	***Acting Director of Services, Housing Directorate***
Date:	May 2020

Appendix A

Appropriate Assessment Screening Report on behalf of Culclan Construction

Appropriate Assessment Screening Report on behalf of Culclan Construction.

Proposed Residential Development at Commons Road, Blackpool, Cork.

May 2020

Prepared by

DixonBrosnan

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DixonBrosnan

environmental consultants

Project	**Appropriate Assessment Screening Report for a proposed residential development at Commons Road, Blackpool, Cork.**
Client	**Culclan Construction**

Project ref	**Report no**	**Client ref**
1932	1932	-

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Date	**Rev**	**Status**	**Prepared by**
28/3/19	0	Issue to client	Carl Dixon MSc.
			Ian McDermott MSc
30/4/19	1	Revision to design	Carl Dixon MSc.
			Ian McDermott MSc
05/12/19	2	Revision to design	Carl Dixon MSc.
			Ian McDermott MSc
25/05/20	3	Revision to design	Carl Dixon MSc.
			Ian McDermott MSc

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Executive Summary

DixonBrosnan has been requested to undertake an Appropriate Assessment Screening (AA Screening) on behalf of Culclan Construction for a proposed residential development comprising 49 No. apartments located on a disused site at Commons Road, Blackpool, Cork, in accordance with Article 6 of the Habitats Directive.

The AA screening was undertaken on all Natura 2000 sites located within a 15km radius of the proposed works. The screening process identified two Natura 2000 sites, namely the Great Island Channel SAC (site code 001058) and the Cork Harbour SPA (site code 004030) which could potentially be impacted by the proposed development

A number of potential direct, indirect and cumulative impacts associated with the development were assessed which included loss of habitat, impacts on water quality and fauna, and spread of invasive species. In particular potential impacts focused on water quality and the capacity of the Carrigrennan WWTP and Lough Mahon to accommodate the increase in flows and nutrients.

As part of the proposed development it is planned to discharge waste water to the Carrigrennan Waste Water Treatment Plant (WWTP) which will discharge to the transitional waters of Lough Mahon. The waste water emissions from the proposed development will have a commensurate increase in a number of the parameters for which the Emission Limit Values (ELV's) are in place under Waste Water Discharge licence (D0033-01).

The WWTP Emission Limit Values (ELV's) are based on maximum design levels (P.E. 413,200) to ensure a high degree of protection to the receiving water body. The proposed development will increase the plants projected P.E. to 325,908 and should not compromise its ability to meet these demands as there would be a residual 21.13% capacity. Therefore, it has been determined that the plant has sufficient capacity to treat the effluent volumes which will arise from the proposed development such that emissions from the WWTP.

The most recent available Annual Environmental Report for the Carrigrennan WWTP (2017) indicates a high level of compliance with ELV's set in the wastewater discharge licence. A total of 40 samples non-compliant with the ELVs in relation to Total P (mg/l) and Total N (mg/l). This however resulted in no observable negative impact on the water quality of the receiving waters.

The water quality of the transitional waters of Lough Mahon is noted as being of moderate status and hence does not pose a significant threat to the Great Island Channel SAC and the Cork Harbour SPA and associated qualifying interests within these Natura 2000 sites.

The screening report concludes that the proposed development is not directly connected with or necessary to the management of Natura 2000 sites. It can be excluded on the basis of objective scientific information, that the development, individually or in combination with other plans or projects, will not have a significant effect on the conservation objectives of the Great Island Channel SAC and the Cork Harbour SPA, and accordingly that a Natura Impact Statement (NIS) is not required.

1. Introduction

An Appropriate Assessment (AA) Screening was undertaken by DixonBrosnan Environmental Consultants to determine the potential impacts, if any, of the proposed development on nearby sites with European conservation designations (i.e. Natura 2000 sites).

1.1 Purpose of this Report

The purpose of this Appropriate Assessment Screening Report is to determine, the appropriateness, or otherwise, of the proposed development with respect to any direct or indirect impacts on nearby Natura 2000 sites in the context of their conservation status. This report identifies whether the proposed development is likely to have a significant effect on Natura 2000 site(s).

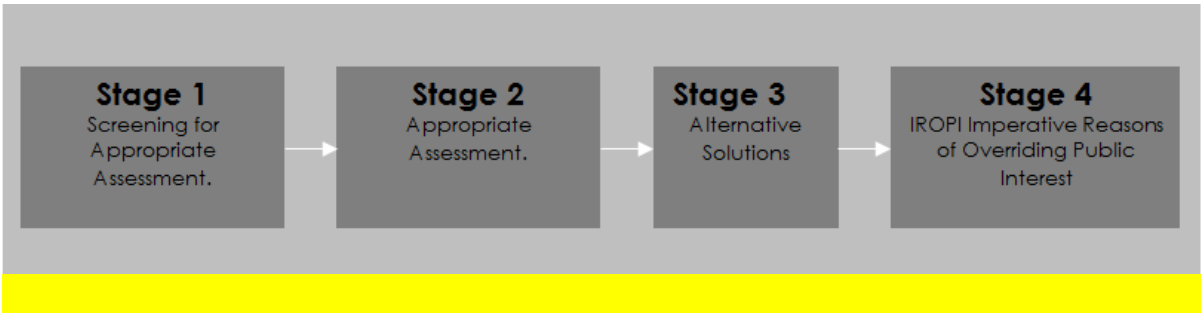
2. Background and legislative context

Article 6(3) of Council Directive 92/43/EEC of 21 May 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora (as amended) (hereafter 'the Habitats Directive') requires that, any plan or project not directly connected with or necessary to the management of a designated site, but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. For the purposes of the application for permission in respect of the proposed project, the requirements of Article 6(3) have been transposed into Irish law by Part XAB of the Planning and Development Act 2000, as amended.

The possibility of there being a significant effect on a designated or "European" site will generate the need for an appropriate assessment to be carried out by the competent authority for the purposes of Article 6(3). As set out in Section 177U of the Planning and Development Act 2000 as amended, a screening for appropriate assessment of an application for consent for the proposed development must be carried out by the competent authority to assess, in view of best scientific knowledge, if the proposed development, individually or in combination with another plan or project is likely to have a significant effect on any European site. A Stage Two Appropriate Assessment is required if it cannot be excluded, on the basis of objective information, that the proposed development, individually or in combination with other plans or projects, will have a significant effect on a European site. The first (Screening) Stage for appropriate assessment operates merely to determine whether a (Stage Two) Appropriate Assessment must be undertaken on the implications of the plan or project for the conservation objectives of relevant European sites.

2.2 Appropriate Assessment Procedure

The assessment requirements of Article 6(3) establish a stage-by-stage approach. This assessment follows the stages outlined in the 2001 European Commission publications "Assessment of plans and projects significantly affecting Natura 2000 sites: methodological guidance on the provisions of Articles 6(3) and 6(4) of the Habitats Directive 92/43/EEC" (2001) and Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (Draft) Office for Official Publications of the European Communities, Luxembourg (EC, 2015);



The stages are as follows:

Stage One: Screening — the process which identifies any appreciable impacts upon a Natura 2000 site of a project or plan, either alone or in combination with other projects or plans, and considers whether these impacts are likely to be significant;

Stage Two: Appropriate assessment — the consideration of the impact on the integrity of the Natura 2000 site of the project or plan, either alone or in combination with other projects or plans, with respect to the site's structure and function and its conservation objectives. Additionally, where there are adverse impacts, an assessment of the potential mitigation of those impacts;

Stage Three: Assessment of alternative solutions: The process which examines alternative ways of achieving the objectives of the project or plan that avoid adverse impacts on the integrity of the Natura 2000 site. It is confirmed that no reliance is placed by the developer on Stage Three in the context of this application for development consent;

Stage Four: Assessment where no alternative solutions exist and where adverse impacts remain — an assessment of compensatory measures where, in the light of an assessment of imperative reasons of overriding public interest (IROPI), it is deemed that the project or plan should proceed (it is important to note that this guidance does not deal with the assessment of imperative reasons of overriding public interest). Again, for the avoidance of doubt, it is confirmed that no reliance is placed by the developer on Stage Four in the context of this application for development consent

Documentation/guidelines of relevance to this screening report include the following:

- European Commission, 2001. Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Articles 6(3) and (4) of the Habitats Directive 92/43/ EEC. Office for Official Publications of the European Communities, Brussels (EC, 2001);
- European Commission, 2000a. Communication from the Commission on the Precautionary Principle., Office for Official Publications of the European Communities, Luxembourg (EC, 2000a);
- Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (Draft) Office for Official Publications of the European Communities, Luxembourg (EC, 2015);
- Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (EC, 2000)
- Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC – Clarification of the concepts of: alternative solutions, imperative reasons of overriding public interest, compensatory measures, overall coherence, opinion of the commission; (EC, 2007);
- Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities. Department of the Environment, Heritage and Local Government, Dublin (DEHLG, 2010a);

- Department of Environment Heritage and Local Government Circular NPW 1/10 and PSSP 2/10 on Appropriate Assessment under Article 6 of the Habitats Directive – Guidance for Planning Authorities (DEHLG, 2010b);
- Interpretation Manual of European Union Habitats. Version EUR 28. European Commission (EC, 2013);
- CJEU Case C 164/17 Edel Grace Peter Sweetman v An Bord Pleanála

2.3 Screening of Proposed Development

In accordance with the Department of Environment Heritage and Local Government (DoEHLG) Guidelines screening is the process that addresses two tests of Article 6(3) of the Habitats Directive:

I. *whether a plan or project is directly connected to or necessary for the management of the site, and*

II. *whether a plan or project, alone or in combination with other plans and projects, is likely to have significant effects on a Natura 2000 site in view of its conservation objectives*.

If the effects are deemed to be significant, potentially significant, or uncertain, or if the screening process becomes overly complicated, then the process must proceed to Stage 2. The screening assessment for the operations follows the following steps in accordance with the DoEHLG guidelines.

3. Methodology

3.1 Study Area and Scope of Appraisal

Natura 2000 sites (European sites) are only at risk from significant effects where a source-pathway-receptor link exists between a proposed development and a Natura 2000 site(s). This can take the form of a direct impact (e.g. where the proposed development and/or associated construction works are located within the boundary of the Natura 2000 site(s) or an indirect impact where impacts outside of the Natura 2000 site(s) affect ecological receptors within (e.g. impacts to water quality which can affect riparian habitats at a distance from the impact source).

Considering the Natura 2000 sites present in the region, their Qualifying Interests (QIs) and conservation objectives, and any potential impact pathways that could link those sites to the proposed development area, a distance of 15km was considered appropriate to encompass all Natura 2000 sites potentially within the Zone of Influence (ZoI) of the proposed development.

Thus, any appreciable direct, indirect or cumulative impacts which could arise from the proposed development in relation to the designated sites within this zone were considered.

3.2 Desktop Study

A desktop review facilitates the identification of the baseline ecological conditions and key ecological issues relating to Natura 2000 sites and facilitates an evaluation assessment of potential in-combination impacts. Sources of information used for this screening report include reports prepared for the Cork City area, information from statutory and non-statutory bodies. The sources of information and relevant documentation utilised are as follows:

- National Parks & Wildlife Service (NPWS) - www.npws.ie including qualifying interests and conservation objectives for Natura 2000 sites.

- Environmental Protection Agency (EPA) – www.epa.ie
- BirdWatch Ireland - http://www.birdwatchireland.ie/
- National Biodiversity Data Centre – www.biodiversityireland.ie
- Information on the status of EU protected habitats in Ireland (National Parks & Wildlife Service, 2013a & 2013b)
- Cork City Biodiversity Action Plan 2009-2014
- The Cork Area Strategic Plan [CASP]

3.3 Author of Report for Screening and Appropriate Assessment

This ecological screening report provides the relevant ecological information on the proposed project to assist the relevant Planning Authority to screen the project, to determine if an Appropriate Assessment is required and ultimately to make a determination in relation to the likely impact on Natura 2000 sites. This report was prepared by Carl Dixon MSc. (Ecological Monitoring) and Ian McDermott MSc. (Ecological Monitoring). Both have worked on Screening/NIS's for a range of small and large-scale projects, including assessments of aquatic impacts.

4. Screening of proposed development

4.1 Proposed development

As part of the application for the Cork City Council Social Housing Programme, a total of 49 no of 1 & 2 bed apartments are proposed for a disused site at Commons Road, Blackpool, Cork. The proposed development consists of one & two-bedroom apartments with ancillary storage, car parking and amenity space. Access to the proposed dwellings will be achieved via an existing entrance leading from Commons Road.

The site is in a prominent location and is in close proximity to Blackpool Shopping Centre, St Church of the Annunciation Blackpool and Cork City Centre. It is mainly a residential area with local nearby shops, schools and amenities and is a 15-minute walk from the city centre. Currently on site there are a group of vacant and occupied buildings that are to be demolished.

Effluent from the proposed development will be conveyed to Carrigrennan Waste Water Treatment Plant (WWTP) for treatment prior to discharging into the transitional waters of Lough Mahon. The quantity and unit type for the proposed development is outlined below,

- 1 Bedroom Apartment – 27 apartments in total
- 2 Bedroom Apartment – 22 apartments in total

Overall, the associated population equivalent (P.E.) of the proposed development is 150P.E.

Roads & footpaths will be drained by road gullies, discharging to a surface water sewer, with gullies provided at a minimum rate 1 per 200m² of impermeable entrances. A 2m wide footpath will be provided to the front of the housing development adjacent to the public road.

Foul water

The proposed development shall discharge to the public sewer by means of a gravity connection to the public sewer adjacent to the site, this connection shall be made via an existing connection that is extended into the site.

The proposed foul water sewerage system shall be designed and constructed in accordance BS EN 752-2008 and Irish Water Wastewater Infrastructure Standard Documents.

Storm Water

It is proposed to discharge the storm water from the development to a combined sewer located on the adjoining roadway. It is further proposed to provide four attenuation tanks throughout the site for the management of storm water in accordance with SUDS.

It is proposed to discharge the storm water to the existing combined sewer located on the public roadway adjoining the site. The storm water network shall be constructed as a separate system until the point of discharge to the main sewer.

It is proposed to construct the attenuation areas underground using Wavin Aquacell Plus units or similar approved. Grit traps shall be provided at all road gullies and all dwelling gullies shall be trapped. A grit trap shall be provided at the final manhole before the soakaway/attenuation area as part of the Klargester seperators.

A NSB 10 class 1 bypass separator by Klargester or similar approved will be provided prior to the connection of the storm water drainage into an attenuation area.

Storm water discharge from the attenuation tanks shall be controlled by Hydro-break Vortex flow control valves

The proposed storm water sewerage system shall be designed and constructed in accordance BS EN 752-2008. The attenuation design is based on the discharge from the site shall match the runoff rate of the predevelopment site conditions. The greenfield runoff rate is calculated based on a 1 in 30-year storm event and the attenuation areas are calculated on the basis of a 1:30 year storm event.

The habitats which were present within the study site were of a low ecological value at a local level. A site location is provided in **Figure 1.**A detailed drawing of the proposed development is provided as **Appendix 2** of this report.

Figure 1 site location

5. Designated sites

Natura 2000 sites within a 15km radius of the proposed development site are listed below in **Table 1** and shown in **Figure 2**. It is noted that use of a 15km radius is a precautionary measure, as impacts at this distance from the proposed development are highly unlikely in the absence of recognisable pathways.

The proposed development is not directly connected with, or necessary for, the management of any Natura 2000 site. No habitat loss will occur within any Natura 2000 site as a result of this proposed development. Given the limited scale of this proposed development, any adverse impacts on Natura 2000 sites are considered highly unlikely.

The proposed development is not located within any Natura 2000 site; however, a potential source-pathway-receptor link has been identified between the source (the proposed development site) and the receptor (Great Island Channel SAC (site code 001058) and the Cork Harbour SPA (site code 004030)) via potential pathways (Discharge of surface water run-off during construction and operation and wastewater during operation). Wastewater discharging from the proposed development will be conveyed to the Carrigrenan WWTP for treatment prior to discharging into the waters of the Lough Mahon Estuary/River Lee. Protected species/ habitats within the Great Island Channel SAC & Cork Harbour SPA could be potentially be impacted via a reduction in water quality.

Surface waters generated during construction could potentially carry silt, oils or other contaminants into the local combined sewer network which discharges to Lough Mahon Estuary/River Lee via Carrigrenan WWTP.

Overall, the Great Island Channel SAC and the Cork Harbour SPA are of conservation significance for the occurrence of good examples of habitats that are listed on Annex I of the E.U. Habitats Directive and being recognised under the E.U. Birds Directive as being of international importance by regularly supporting in excess of 20,000 wintering waterfowl including Annex I listed species under the E.U. Birds Directive. Further information on these sites are provided below. A full site synopsis for the Great Island Channel SAC and the Cork Harbour SPA is included **Appendix 1**.

Given the limited scale of the proposed development, the lack of a hydrological connection, the dilution provided in the estuarine environment and the distances involved, no potential impact on other designated sites has been identified.

It is noted that the proposed development site does not support any of the habitats or species listed as conservation interests for the Great Island Channel SAC and the Cork Harbour SPA. An ecological appraisal of the site indicates that it supports common habitats which are not of high value in the context of the Natura 2000 designation.

Table 1. Designated sites and their location relative to the proposed works area.

Natura 2000 sites within the Zone of Influence (ZoI)	Code	Potential source-pathway-receptor links within 15km. Distance at closest point (As the crow flies)
Special Area of Conservation (SAC)		
Great Island Channel	001058	8.97km east of the proposed works area. Although improbable, a potential impact on this SAC has been identified from discharges in stormwater during construction and stormwater and wastewater during operation via discharge from the Carrigrenan WWTP to the waters of Lough Mahon which lies within this SAC
Blackwater River (Cork/Waterford)	002170	13.89km north – no potential pathway identified.
Special Protection Area (SPA)		
Cork Harbour	004030	4.15km east of the proposed works area. Although improbable, a potential impact on this SPA has been identified from discharges in stormwater during construction and stormwater and wastewater during operation via discharge from the Carrigrenan WWTP to the waters of Lough Mahon which lies within this SPA

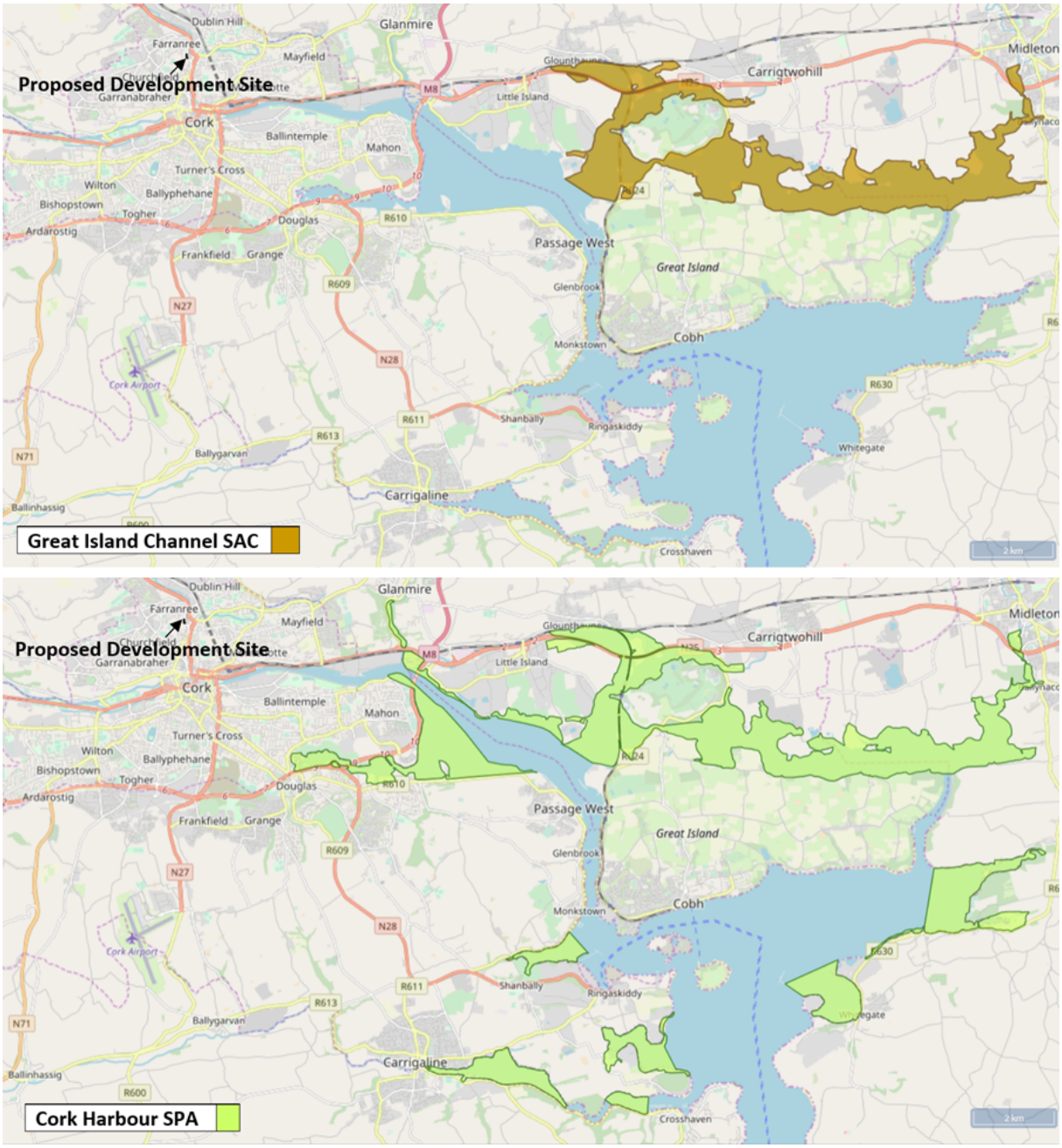


Figure 2 shows the approximate location of the proposed development site in relation to the Great Island Channel SAC and the Cork Harbour SPA.

5.1 Great Island Channel SAC

This Great Island Channel SAC comprises the north-eastern part of Cork Harbour. It includes all of the Great Island Channel, the intertidal areas between Fota Island and Little Island, and also the estuary of the Dungourney and Owennacurra Rivers as far as Midleton. The North Channel is on average 1 km wide but extends for about 9 km from east to west. The area is well sheltered and the intertidal sediments are predominantly fine muds. In addition to the estuarine habitats, the site includes some wet grassland areas which are used by roosting birds, as well as some broad-leaved woodland at Fota Island. Compared to the rest of Cork Harbour, the Great Island Channel is relatively undisturbed, with aquaculture the main activity.

The site is of ecological importance for its examples of intertidal mud and sand flats and Atlantic salt meadows of the estuarine type. Both habitats are fairly extensive in area and of moderate to good quality. Site has high

ornithological importance, supporting regularly c.50% of the wintering waterfowl of Cork Harbour. Significant proportions of the internationally important populations of *Limosa limosa* and *Tringa totanus* which winter in Cork Harbour utilise the site and it supports nationally important populations of a further 12 species, including *Pluvialis apricaria* and *Limosa lapponica*, both listed on Annex I of the EU Birds Directive.

5.2 Cork Harbour SPA

Cork Harbour is a large, sheltered bay system, with several river estuaries - principally those of the Rivers Lee, Douglas, Owenboy and Owenacurra. The site comprises the main intertidal areas of Cork Harbour, including all of the North Channel, the Douglas Estuary, inner Lough Mahon, Monkstown Creek, Lough Beg, the Owenboy Estuary, Whitegate Bay and the Rostellan inlet. Owing to the sheltered conditions, the intertidal flats are often muddy in character. Salt marshes are scattered through the site and these provide high tide roosts for the birds. Otherwise, birds roost on stony shorelines and in some areas fields adjacent to the shore. Some shallow bay water is included in the site. Cork Harbour is adjacent to a major urban centre and a major industrial centre.

Cork Harbour is an internationally important wetland site, regularly supporting in excess of 20,000 wintering waterfowl, for which it is amongst the top five sites in the country. It supports an internationally important population of *Tringa totanus*. A further 15 species have populations of national importance, with particularly notable numbers of *Tadorna tadorna* (9.6% of national total), *Anas clypeata* (4.5% of total), *Anas acuta* (4.2% of total) and *Phalacrocorax carbo* (4.1% of total) occurring. It has regionally important populations of *Pluvialis apricaria* and *Limosa lapponica*. Passage waders are regular, including *Philomachus pugnax* and *Tringa erythropus*. It is an important site for gulls in winter and autumn, especially *Larus canus* and *Larus fuscus*. The site provides both feeding and roosting areas for the waterfowl species. The quality of most of the estuarine habitats is good. The wintering birds have been well-monitored since the 1970s. The site has a breeding colony of *Sterna hirundo* which is of national importance. The colony is monitored annually and the chicks ringed.

5.3 Natura 2000 sites – Features of interests and conservation objectives.

The EU Habitats Directive contains a list of habitats (Annex I) and species (Annex II) for which SACs must be established by Member States. Similarly, the EU Birds Directive contains lists of important bird species (Annex I) and other migratory bird species for which SPAs must be established. Those that are known to occur at a site are referred to as ‘qualifying interests’ and are listed in the Natura 2000 forms which are lodged with the EU Commission by each Member State. A ‘qualifying interest’ is one of the factors (such as the species or habitat that is present) for which the site merits designation. The National Parks and Wildlife Service (NPWS) are responsible for the designation of SACs and SPAs in Ireland.

The conservation objectives for the site are detailed in: NPWS (2014) Conservation Objectives: Great Island Channel SAC 001058. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht and NPWS (2014) Conservation Objectives: Cork Harbour SPA 004030. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht. The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of habitats and species of community interest. These habitats and species are listed in the Habitats and Birds Directives and Special Areas of Conservation and Special Protection Areas are designated to afford protection to the most vulnerable of them. These two designations are collectively known as the Natura 2000 network. European and national legislation places a collective obligation on Ireland and its citizens to maintain at favourable conservation status sites designated as Special Areas of Conservation and Special Protection Areas. The Government and its agencies are responsible for the implementation and enforcement of regulations that will ensure the ecological integrity of these sites.

The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. Favourable conservation status of a habitat is achieved when its natural range, and area it covers within that range, is stable or increasing, and the ecological factors that are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and the conservation status of its typical species is favourable.

The favourable conservation status of a species is achieved when population data on the species concerned indicate that it is maintaining itself, and the natural range of the species is neither being reduced or likely to be reduced for the foreseeable future, and there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis. The species and habitats listed as qualifying interests for the Great Island Channel SAC and the Cork Harbour SPA and specific conservation objectives are included in **Table 2** and **3**.

Table 2. Qualifying habitats for the Great Island Channel SAC

Habitat Code	Habitat	Conservation objective
1140	Mudflats and sandflats not covered by seawater at low tide	Maintain
1330	Atlantic salt meadows (Glauco-Puccinellietalia maritimae)	Restore

Restore = Restore favourable conservation condition, Maintain = Restore favourable conservation condition

Table 3: Features of Interest for the Cork Harbour SPA

Species code	Species	Scientific name	Conservation objective
A004	Little Grebe	*Tachybaptus ruficollis*	Maintain
A005	Great Crested Grebe	*Podiceps cristatus*	Maintain
A017	Cormorant	*Phalacrocorax carbo*	Maintain
A028	Grey Heron	*Ardea cinerea*	Maintain
A048	Shelduck	*Tadorna tadorna*	Maintain
A050	Wigeon	*Anas penelope*	Maintain
A052	Teal	*Anas crecca*	Maintain
A054	Pintail	*Anas acuta*	Maintain
A056	Shoveler	*Anas clypeata*	Maintain
A069	Red-breasted Merganser	*Mergus serrator*	Maintain
A130	Oystercatcher	*Haematopus ostralegus*	Maintain
A140	Golden Plover	*Pluvialis apricaria*	Maintain
A141	Grey Plover	*Pluvialis squatarola*	Maintain
A142	Lapwing	*Vanellus vanellus*	Maintain
A149	Dunlin	*Calidris alpina*	Maintain
A156	Black-tailed Godwit	*Limosa limosa*	Maintain

A157	Bar-tailed Godwit	*Limosa lapponica*	Maintain
A160	Curlew	*Numenius arquata*	Maintain
A162	Redshank	*Tringa totanus*	Maintain
A179	Black-headed Gull	*Chroicocephalus ridibundus*	Maintain
A182	Common Gull	*Larus canus*	Maintain
A183	Lesser Black-backed Gull	*Larus fuscus*	Maintain
A193	Common Tern	*Sterna hirundo*	Maintain
A999	Wetland and Waterbirds		Maintain

Restore = Restore favourable conservation condition, Maintain = Restore favourable conservation condition

To acknowledge the importance of Ireland's wetlands to wintering waterbirds, “Wetland and Waterbirds” may be included as a Special Conservation Interest for some SPAs that have been designated for wintering waterbirds and that contain a wetland site of significant importance to one or more of the species of Special Conservation Interest. Thus, a further objective is to maintain or restore the favourable conservation condition of the wetland habitat within the Cork Harbour SPA as a resource for the regularly-occurring migratory waterbirds that utilise it.

6. Status of qualifying species and habitats for the Great Island Channel SAC & Cork Harbour SPA.

6.1 Status of qualifying interests for the Great Island Channel SAC

A number of surveys on the qualifying interests of the Great Island Channel SAC were conducted in 2014 on behalf of Cork County Council (F.H. O’Neill, *et. al.,* 2014). The objective of these surveys was to determine the current conservation status of these features, and to assess the likely impacts on the SAC in relation to increased waste water loadings generated by the 2022 population targets given in the draft Cork County Development Plan 2013.

It was concluded that Mudflats and sandflats are currently at an unfavourable/bad condition, however the prospects of recovery are good, if detailed recommendations are followed. The main issues relating to the conservation status of the habitat are pollution and *Spartina* invasion (F.H. O’Neill, *et. al.,* 2014).

With regard to Atlantic salt meadows, the current condition was deemed to be unfavourable to Inadequate, however, the prospects of recovery are good to fair, if the recommendations outlined are followed.; the time frame is uncertain due to complexity of processes involved and insufficient data on the physical sedimentary and tidal processes in the SAC. The main issues relating to the conservation status of the habitat are coastal squeeze, Spartina invasion and erosion (F.H. O’Neill, *et. al.,* 2014).

6.2 Status of qualifying interests for the Cork Harbour SPA

The species listed as Special Conservation Interests of the Cork Harbour SPA are shown below in **Table 4.**

Table 4. Species listed as Special Conservation Interests of the Cork Harbour SPA and their Conservation status.

Species		Birds Directive Annex			BOCCI	
		I	II	III	Red List	Amber List
Phalacrocorax carbo	Cormorant					X
Numenius arquata	Curlew		X		X	
Limosa limosa	Black-tailed Godwit					X
Limosa lapponica	Bar-tailed Godwit	X				X
Tringatotanus	Redshank				X	
Anas penelope	Wigeon		X	X	X	
Anas crecca	Teal		X	X		X
Tachybaptus ruficollis	Little Grebe					X
Larus ridibundus	Black-headed Gull				X	
Larus canus	Common Gull					X
Larus fuscus	Lesser black-backed Gull					X
Vanellus vanellus	Lapwing		X		X	
Haematopus ostralegus	Oystercatcher					X
Tadorna tadorna	Shelduck					X
Ardea cinerea	Grey Heron					
Podiceps cristatus	Great Crested Grebe					X
Anas acuta	Pintail		X	X	X	
Anas cylpeata	Shoveler		X	X	X	
Mergus serrator	Red-breasted Merganser		X			
Pluvialis apricaria	Golden Plover	X	X	X	X	
Pluvialis squatarola	Grey Plover					X
Calidris alpina	Dunlin	X			X	
Sterna hirundo	Common Tern	X				X

Symbol	Description
I	**Annex 1**: species and sub-species are particularly threatened. Member States must designate Special Protection Areas (SPAs) for their survival and all migratory bird species.
II	**Annex 2**: bird species can be hunted. However, the hunting periods are limited and hunting is forbidden when birds are at their most vulnerable: during their return migration to nesting areas, reproduction and the raising of their chicks.

III	**Annex 3**: overall, activities that directly threaten birds, such as their deliberate killing, capture or trade, or the destruction of their nests, are banned. With certain restrictions, Member States can allow some of these activities for species listed here.

7. Water Quality data

7.1 EPA Water Quality Data

The Environmental Protection Agency carries out a biological assessment of most river channels in the country on a regular basis. The assessments are used to derive Q values, indicators of the biological quality of the water. The biological health of a watercourse provides an indication of long-term water quality. The EPA Q value scheme is summarised in **Table 5**. The relationship between the Q-rating system and the Water Framework Directive classification as defined by the Surface Waters Regulations 2009 (S.I. 272 of 2009) is shown in **Table 6**.

The Q Value system, which is used by the Environmental Protection Agency, describes the relationship between water quality and the macro-invertebrate community in numerical terms. The presence of pollution causes changes in flora and fauna of rivers. Well documented changes occur in the macro-invertebrate community in the presence of organic pollution: sensitive species are progressively replaced by more tolerant forms as pollution increases. Q5 waters have a high diversity of macro-invertebrates and good water quality, while Q1 have little or no macro-invertebrate diversity and unsatisfactory water quality.

The intermediate ratings Q1-2, Q2-3, Q3-4 and Q4-5 are used to denote transitional conditions, while ratings within parenthesis indicate borderline values. Great importance is attached to the EPA biotic indices, and consequently it is these data that are generally used to form the basis of water quality management plans for river catchments.

There are no watercourses within the proposed development site. Both the River Bride (approximately 30m east) and the Glen River (approximately 220m east) occur in the vicinity of the proposed development. It is noted however, that both watercourses are heavily culverted and are not biologically monitored by the EPA. Therefore, the closest biologically monitored watercourse is the transitional waters of the Lee (Cork) Estuary Upper. Both the waters of the River Bride and Glen River ultimately discharge into the transitional waters of the Lee (Cork) Estuary Upper. Results indicate that the Lee (Cork) Estuary Upper was of an intermediate quality during the period 2010 – 2012 which is indicative of some water quality impairment.

The EPA also monitors both coastal and transitional water bodies. Transitional waters can be assigned a classification of; High, Good, Moderate, Poor or Bad based on their WFD status. The former three are considered to be acceptable, while the latter two water quality ratings are considered as unsatisfactory.

Treated waste water from the proposed development site will ultimately be discharged to the waters of Lough Mahon via a primary discharge point from the Carrigrennan WWTP. Results indicate that the water quality within the transitional waters of the River Lee, within Lough Mahon is of an acceptable quality (EPA Transitional Water Quality 2010-2015 – moderate status) (**Figure 3**). The 2017 AER for the Carrigrennan WWTP also notes that the discharge from the wastewater treatment plant does not have an observable negative impact on water quality.

Table 5. EPA biotic index scheme.

Q value	Water quality	Pollution	Condition
5	Good	Unpolluted	Satisfactory
4	Fair	Unpolluted	Satisfactory
3	Doubtful	Moderately polluted	Unsatisfactory
2	Poor	Seriously polluted	Unsatisfactory
1	Bad	Seriously polluted	Unsatisfactory

Source: EPA

Table 6. Correlation between the WFD classification and Q values

Ecological status WFD	Q Values
High	Q5, Q4-5
Good	Q4
Moderate	Q3-4
Poor	Q3, Q2-3
Bad	Q2, Q1

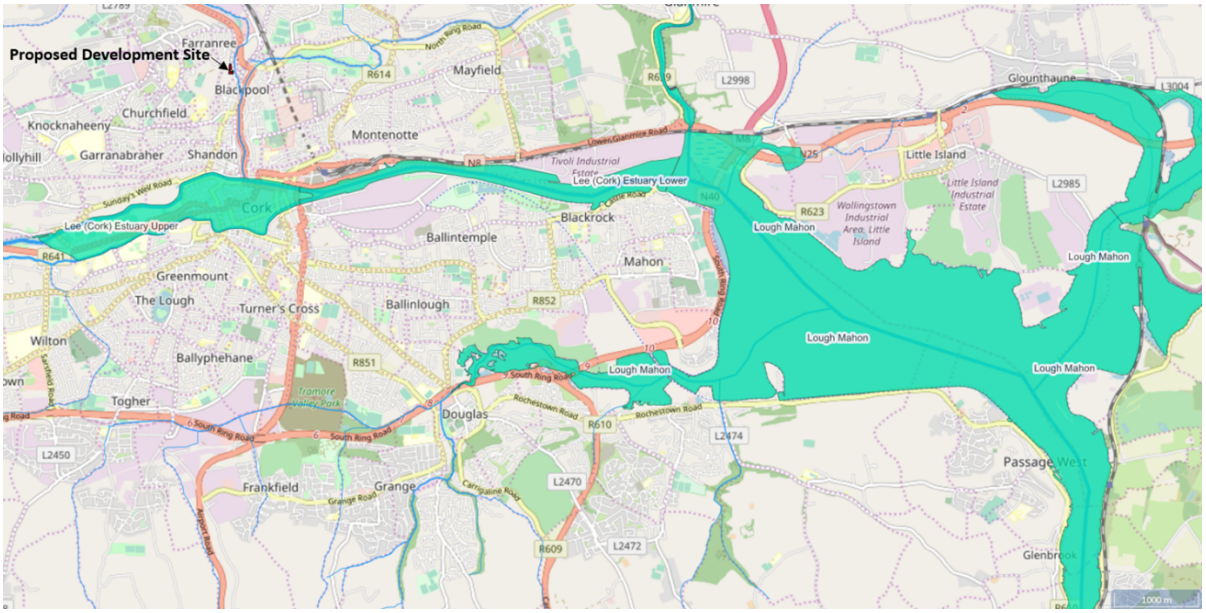


Figure 3: EPA water quality monitoring location in relation to the proposed development site.

7.2 River Basin Management Plan for Ireland 2018 – 2021 (2nd Cycle)

The Water Framework Directive (WFD) sets out the environmental objectives which are required to be met through the process of river basin planning and implementation of those plans. Specific objectives are set out

for surface water, groundwater and protected areas. The challenges that must be overcome in order to achieve those objectives are very significant. Therefore, a key purpose of the River Basin Management Plan (RBMP) is to set out priorities and ensure that implementation is guided by these priorities.

The second-cycle RBMP aims to build on the progress made during the first cycle. Key measures during the first cycle included the licensing of urban waste-water discharges (with an associated investment in urban waste-water treatment) and the implementation of the Nitrates Action Programme (Good Agricultural Practice Regulations). The former measure has resulted in significant progress in terms both of compliance levels and of the impact of urban waste-water on water quality. The latter provides a considerable environmental baseline which all Irish farmers must achieve and has resulted in improving trends in the level of nitrates and phosphates in rivers and groundwater. It is acknowledged, however, that sufficient progress has not been made in developing and implementing supporting measures during the first cycle.

Overall, RBMP assesses the quality of water in Ireland and presents detailed scientific characterisation of our water bodies. The characterisation process also takes into account wider water quality considerations, such as the special water-quality requirements of protected areas. The characterisation process identifies those water bodies that are *At Risk* of not meeting the objectives of the WFD, and the process also identifies the significant pressures causing this risk. Based on an assessment of risk and pressures, a programme of measures has been developed to address the identified pressures and work towards achieving the required objectives for water quality and protected areas. Data relating to aquatic habitats within the study area is provided in **Table 7**.

Table 7. Water Framework Directive Data – Relevant data

Catchment: Lee, Cork Harbour and Youghal Bay (Code 19) – 2nd Cycle

This catchment includes the area drained by the River Lee and all streams entering tidal water in Cork Harbour and Youghal Bay and between Knockaverry and Templebreedy Battery, Co. Cork, draining a total area of 2,153km². The largest urban centre in the catchment is Cork City. The other main urban centres in this catchment are Ballincollig, Macroom, Carrigaline, Crosshaven, Blarney, Glanmire, Midleton, Carrigtohill, Cobh, Passage West and Belvelly. The total population of the catchment is approximately 328,854 with a population density of 153 people per km².

Several small coastal rivers drain the area to the southeast of Cork Harbour and the area at the eastern extreme of the catchment is drained by the Womanagh River which flows into the sea on the western side of Youghal Bay.

The Lee-Cork Harbour catchment comprises 18 sub-catchments with 92 river water bodies, three lakes, 13 transitional, six coastal water bodies and 16 groundwater bodies. There are five heavily modified and no artificial water bodies in the catchment.

The catchment assessment notes that:

- Twenty-two river water bodies and all three lake water bodies in the catchment are At Risk of not meeting their water quality objectives. Measures will be needed in these water bodies to improve the water quality outcomes. Of these the waterbodies listed below are not included.

- There are eight Transitional and coastal water bodies in the catchment that are At Risk of not meeting their water quality objectives. Measures will be needed in these water bodies to improve the water quality outcomes. Of these the waterbodies listed

- Lough Mahon and Owennacurra Estuary both declined from Good to Moderate status - Waste from the proposed development will ultimately be discharged to the waters of Lough Mahon post treatment.

- There are five Special Areas of Conservation (SACs) in the catchment, not all of which have water quality and/or quantity conservation objectives for their qualifying interests. The one river water body (Lee (Cork)_050) with water dependent qualifying interests within these SACs has met its WFD Protected area objective.

- Diffuse urban pressures, caused, for example, by misconnections, leaking sewers and runoff from paved and unpaved areas, have been identified as a significant pressure in five river water bodies; which includes the Bride (Cork City)_020, and five transitional water bodies, which includes the Lee (Cork) Estuary Upper and Lower.

- Urban Waste Water Treatment Plants (WWTPs) and agglomeration networks have been highlighted as a significant pressure in seven At Risk water bodies; which includes the Lee (Cork) Estuary Upper and Lower and Lough Mahon.

- Alteration of hydromorphological (or physical) conditions is one of the most significant issues in rivers in the Lee-Cork Harbour. This includes inputs of excess fine sediment and alteration of the morphology of the river channel, which in turn alter habitat conditions. This can occur because of, for example, implementing river and field drainage schemes, forestry activities, animal access, and discharge from quarries.

Lee, Cork Harbour and Youghal Bay – River Waterbodies relevant to the proposed project

Waterbody	Status	Risk	Objective
Bride (Cork City)_020 – Encompasses both the River Bride and Glen River. The proposed development lacks any hydrological connection to either river.	Unassigned	At risk	Unassigned
Lough Mahon - Treated wastewater discharging from the proposed development will be conveyed to the Carrigrennan WWTP for treatment prior to discharging into transitional waters of Lough Mahon.	Moderate	At risk – significant pressures identified for the transitional waters of Lough Mahon consist of urban waste water.	Unassigned
Lee (Cork) Estuary Lower	Moderate	At risk	Unassigned
Lee (Cork) Estuary Upper	Moderate	At risk	Unassigned

Source: wfdireland map system & www.catchments.ie

7.3 Urban Waste Water Treatment Directive

The Waste Water Discharge (Authorisation) Regulations 2007 (S.I. 684 of 2007) gives effect to the requirements of the Urban Waste Water Treatment Directive (Directive 91/271/EEC) and the Water Framework Directive (2000/60/EC) in Ireland. The Urban Waste Water Treatment Directive (UWWTD) lays down the requirements for the collection, treatment and discharge of urban waste-water and specifies the quality standards which must be met — based on agglomeration size — before treated waste-water is released into the environment.

The priority objective for this river basin planning cycle is to secure compliance with the Urban Waste Water Treatment Directive and to contribute to the improvement and protection of waters in keeping with the water-quality objectives established by this Plan. Achieving this objective entails addressing waste-water discharges and overflows where protected areas (i.e. designated bathing waters, shellfish waters and Freshwater Pearl-Mussel sites) or high-status waters are at risk from urban waste-water pressures.

8. Site inspection

A site inspection was carried out on the 19th of March 2019 to identify the habitats, flora and fauna present at the site. The terrestrial and aquatic habitats within or adjacent to the proposed development site were classified using the classification scheme outlined in the Heritage council publication *A Guide to Habitats in Ireland* (Fossitt, 2000) and cross referenced with Annex 1/qualifying habitats, where required. No rare species were noted, nor are they expected to occur given that the habitats within the study area are common and highly modified.

The site consists of a mosaic of habitats, that are mostly in a transitional state. Scrub is encroaching on large proportions of the site. The general pattern of succession from recolonising bare ground to scrub with patches of grassland to woodland would be expected to continue within the site in the absence of development. Habitats noted within the proposed works area are described below in **Table 8.**

Table 8: Habitats recorded within the proposed development site.

Habitat	Description
Recolonising bare ground (ED3) / Spoil and bare ground (ED2)	This habitat dominates the site due to previous site clearance works. The site has become invaded by grasses, ruderals and herbaceous species. This is highly modified and disturbed ground habitat of minimal ecological value which does not correspond to an Annex 1 habitat or qualifying habitat of the Great Island Channel SAC.
Buildings and artificial surfaces (BL3)	As part of the proposed development it is planned to demolish four dwellings along the eastern boundary of the site. This is a low value habitat which does not correspond to an Annex 1 habitat or qualifying habitat of the Great Island Channel SAC.
Scrub (WS1)	The northern section of the site is composed of scrub habitat or emerging scrub habitat. Willow (*Salix spp*.) and Butterfly Bush/Buddleja (*Buddleja davidii*) dominate along with small pockets of Brambles (*Rubus fruticosus agg*.) scrub. This scrub habitat represents a low value habitat at a local level and does not correspond to an Annex 1 habitat or qualifying habitat of the Great Island Channel SAC.
(Mixed) broadleaved woodland (WD1)	Situated on a large, rockface embankment/cliff along the western boundary of the site, is a band of broadleaved woodland. This woodland band has potential value as a wildlife corridor for local wildlife.. This woodland habitat is of value at a local level but does not correspond to an Annex 1 habitat or qualifying habitat of the Great Island Channel SAC. It will be unaffected by the proposed works.

The habitats impacted by the proposed development are highly modified and disturbed habitats, with low species diversity and minimal ecological value. None of the habitats recorded within the proposed works area are listed as qualifying habitats for the Great Island Channel SAC or correspond with Annex I habitats of the Habitats Directive.

8.1 Mammals

A mammal survey was undertaken of the site and surrounding area during the site inspection. The main focus of the mammal survey was otter which is listed on Annex II of the Habitats Directive and is known to occur within the Great Island Channel SAC and within the River Bride (National Biodiversity Data Centre records). No signs of otter were recorded within the proposed development site or in proximity to it. No habitats suitable for otter were recorded within the proposed development site.

The vacant and occupied buildings within the development site boundary that are to be demolished do provide limited potential roosting sites for bats. No signs of bats were noted, however not all buildings were accessible and it is noted that the survey was conducted outside the summer breeding season.

8.2 Birds

During the site survey, all birds seen or heard within the development site were recorded. The majority of birds utilising the site were common in the local landscape. Certain bird species are listed by BirdWatch Ireland as Birds of Conservation Concern in Ireland (BOCCI). These are bird species suffering declines in population size. BirdWatch Ireland and the Royal Society for the Protection of Birds have identified and classified these species by the rate of decline into Red and Amber lists. Red List bird species are of high conservation concern and the Amber List species are of medium conservation. Green listed species are regularly occurring bird species whose conservation status is currently considered favourable. Birds species listed in Annex I of the Birds Directive (2009/147/EC) are considered a conservation priority. No Annex I bird species were recorded during the site visit. Species recorded within the site are shown in **Table 9.**

Table 9: Bird Species recorded during site survey on the 19th of March 2019

Species		**Birds Directive Annex**			**BOCCI**	
		I	**II**	**III**	**Red List**	**Amber List**
Erithacus rubecula	Robin					X
Troglodytes troglodytes	Wren					
Corvus frugilegus	Rook					
Columba palumbus	Woodpigeon		X	X		
Turdus merula	Blackbird					
Streptopelia decaocto	Collared Dove					
Parus caeruleus	Blue Tit					
Parus major	Great Tit					
Corvus monedula	Jackdaw					
Symbol	**Description**					
I	**Annex 1**: species and sub-species are particularly threatened. Member States must designate Special Protection Areas (SPAs) for their survival and all migratory bird species.					
II	**Annex 2**: bird species can be hunted. However, the hunting periods are limited and hunting is forbidden when birds are at their most vulnerable: during their return migration to nesting areas, reproduction and the raising of their chicks.					
III	**Annex 3**: overall, activities that directly threaten birds, such as their deliberate killing, capture or trade, or the destruction of their nests, are banned. With certain restrictions, Member States can allow some of these activities for species listed here.					

Overall, the study area is of a local value for a range of terrestrial bird species that are common in the Irish countryside. There may be a short-term impact on feeding patterns during construction but the long-term impact is predicted to be negligible. It is noted that the loss of habitat associated with this project will be negligible in the context of similar habitat available in the wider landscape. The habitat affected is of minimal value for birds.

8.3 Invasive Species

Due to the nature of the site and the high levels of disturbance/abandonment, two non-native/invasive species were noted e.g. Butterfly Bush/Buddleja (*Buddleja davidii*) and Travellers Joy/Old Man's Beard (*Clematis vitalba*). Both Butterfly Bush and Travellers Joy are regarded as potentially problematic with regard to the project, due to their abundance on site, their potentially invasive capabilities

Both species are classified as Amber Threat species by Invasive Species Ireland. Under the right ecological conditions these species may have a negative impact on native species or habitats. Theoretically, the spread of such species could impact on Natura 2000 sites although it is noted that the ecological risk from the spread of these species is minimal.

Both Butterfly Bush/Buddleja and Travellers Joy/Old Man's Beard are also listed as invasive under NRA Guidelines on the Management of Noxious Weeds and Non-native Species on National Roads (NRA, 2010).

Buddleja is abundant and scattered throughout the site but is primarily concentrated in the recolonising bare ground area. Stands and shrubs of various sizes and ages were recorded. Some plants were noted growing from the external structures of the buildings on site. Travellers Joy was recorded growing in within the scrub habitat to the north of the site, in addition to Butterfly bush. Although a management programme is recommended, it is noted that given the distance involved and the lack of a dispersal pathway, no potential impact on Natura 2000 sites from invasive species has been identified.

9. Assessment of Potential Impacts

All potential impacts would relate to direct and indirect impacts to relevant habitats and fauna of the Great Island Channel SAC and the Cork Harbour SPA. Impacts are based on the EC Article 6 Guidance Document (2001), professional judgement and criteria or standards where available.

The potential impacts associated with the proposed development are discussed in the following section with respect to their likelihood to have significant impacts on Natura 2000 sites. As part of the assessment direct, indirect and cumulative impacts were considered. Direct impacts refer to habitat loss or fragmentation arising from land-take requirements for development. Indirect and secondary impacts do not have a straight-line route between cause and effect, and it is potentially more challenging to ensure that all the possible indirect impacts of the project/plan - in combination with other plans and projects have been established.

As part of the assessment the potential for impacts associated with the development were reviewed as outlined below:

- Loss of Habitat
- Impacts from noise and disturbance
- Impacts on Water Quality including Potential Increase in the Discharges from Carrigrennan WWTP
- Spread of Invasive Species
- Cumulative Impacts

9.1 Loss of habitat

The proposed development will not result in any loss of habitat within Natura 2000 sites. The affected habitats are considered of low value at a local level and are common in the surrounding landscape. No potential for habitat fragmentation has been identified. Overall, no habitats of significant ecological value will be affected.

The proposed works area is not located within a designated site and the habitats recorded within the works area do not correspond to habitats listed on Annex 1 of the Habitats Directive or to qualifying habitats for the Great Island Channel SAC.

No foraging habitat of significant value for species listed as qualifying interests for the Cork Harbour SPA will be affected. No breeding habitat for species listed as qualifying interests for the Cork Harbour SPA will be affected. Therefore, the proposed development will not result in any significant deterioration in habitat quality or loss of habitat within the Cork Harbour SPA.

9.2 Impacts from noise and disturbance

Potentially increased noise and disturbance associated with the site works or with the occupancy of the completed dwellings, could cause disturbance/displacement of fauna. If of sufficient severity, there could be impacts on reproductive success. With respect to birds, the Cork Harbour SPA is located 4.15km east of the site and habitats within the proposed development area are not considered of value for any of the bird species listed as qualifying interests for this SPA. Given the distance involved, no impact on bird populations within the SPA is predicted to occur.

9.3 Impacts on Water Quality

Potential impacts on aquatic habitats which can arise from this type of development include increased silt levels in surface water run-off, inadvertent spillages of hydrocarbons from fuel and hydraulic fluid and increased nutrients from treated waste water.

If of sufficient severity, adult fish could theoretically be affected by increased silt levels as gills may become damaged by exposure to elevated suspended solids levels. Aquatic plant communities may also be affected by increased siltation. Elevated silt levels could theoretically, if of sufficient magnitude, result in changes in the ecology of aquatic habitats.

Given the location of the works, the distance of the proposed development from the estuarine environment, the robust nature of qualifying habitats (Mudflats and sandflats not covered by seawater at low tide [1140] and Atlantic salt meadows (*Glauco−Puccinellietalia maritimae*) [1330]) and the dilution provided in the estuarine environment, no impact on water quality due to elevated silt levels during construction and thus on qualifying habitats will occur.

Inadvertent spillages of hydrocarbons during construction could introduce toxic chemicals into the aquatic environment via surface water run-off or groundwater contamination and have a direct toxicological impact on habitats and fauna. Given the distance from estuarine environment, the robust nature of qualifying habitats and the dilution provided in the estuarine environment no impacts on water quality due to such spills during construction will occur.

The construction stage of the proposed development will not impact surface water quality or impact on the conservation objectives of the Great Island Channel SAC and the Cork Harbour SPA. There are no high value habitats in proximity to the proposed works and the habitats recorded on site do not correspond to the habitats listed as qualifying interests for the Great Island Channel SAC. Therefore, no significant impacts on Natura 2000 sites will occur.

9.3.1 Potential Increase in the Discharges from Carrigrennan WWTP (Indirect Impact)

Once constructed, surface and wastewater from the proposed development will be conveyed for treatment to Carrigrennan Waste Water Treatment Plant (WWTP) which is located approximately 10km east of the proposed development site. The location of Carrigrennan WWTP relative to the proposed development and the Great Island Channel SAC and the Cork Harbour SPA is illustrated in **Figure 4.**

Figure 4: Location of Carrigrennan WWTP in relation to the Great Island Channel SAC and the Cork Harbour SPA.

The proposed development has the potential to have an indirect impact on the water quality of the River Lee (Lough Mahon Estuary) via discharges to Carrigrennan (WWTP). The WWTP obtained a discharge licence (Reg: D0033-01) from the Environmental Protection Agency in 2009 and has assigned emission limit values (ELV's) for a range of parameters to ensure a high degree of protection to Lough Mahon.

The agglomeration (populated area consisting of a city and its suburbs) comprises of Cork City and adjacent areas in Cork County, including Tramore Valley, Douglas, and Rochestown, and also includes Glanmire, Glounthaune and Little Island adjacent to the Waste Water Treatment Plant. A total pipe network of over 550Km is in place in the City network comprising approximately 40% Combined Sewers, and 30% each, separated, Foul and Surface Water Sewers. In addition, there are approximately 28 km of Rising Mains. There are 34 Pumping Stations in total on the wastewater works, (27 in the City Council Network), a number of which have pumped overflows in the event of storm events, and the majority of which have gravity overflows in the event of emergencies associated with the operation of the pumps. In addition, there are approximately fifty other stormwater overflow locations, largely associated with 62 Combined Sewer Overflows (CSO's) and including an untreated Secondary discharge into the River Lee North Channel adjacent to St. Patrick's Bridge in the City Centre. A central collection chamber, incorporating screening and grit removal, gathers the flows from the City and adjacent areas, including Tramore Valley, Douglas, and Rochestown. Twin 1200mm diameter siphons are laid from this, the Ballinure Header Chamber, under Lough Mahon to the Treatment plant at Carrigrennan, a distance of over 4.5km. Local flows from Glanmire, Glounthaune and Little Island run directly to the plant at Carrigrennan.

The agglomeration is served by a wastewater treatment plant with a Plant Capacity PE of 413,200. The Waste Water Treatment Plant (WWTP) consists of two treatment activities, namely wastewater treatment and solid treatment. The various wastewater treatment stages include the following:

- Screening (5mm) and De-gritting: Local flows only, flow from City previously screened and de-gritted at Ballinure Header Chamber.
- Inflow Measurement & Sampling
- Storm Water Treatment: 4 Tanks (storage/settlement/return/overflow)

- Pre-Aeration, with odour control treatment of removed gases
- Primary Clarification: 2 Settlement Tanks, (covered) sedimentation/ removal of settable solids
- Secondary Treatment: Sequencing Batch Reactor, 8 Rectangular basins
- Outflow Measurement & Sampling
- Effluent Discharge

The solid treatment stages include the following:

- Sludge Treatment
- Thickening
- Digestion
- Dewatering and Drying

The sludge is anaerobically digested during which Biogas is produced. This Biogas is used on site to mix the sludge in the digestors, heat the sludge as it is re-circulated, and pasteurise and dry the sludge to 90% dry solids. The sludge contains 5% Nitrogen, 5% Phosphorous and it has no significant heavy metals making it ideal for agricultural use.

The agglomeration consists of one primary discharge point (SW001) which discharges into Lough Mahon. The discharge licence assigns a number of ELV's for biochemical oxygen demand (BOD), chemical oxygen demand (COD), total suspended solids (TSS), total P, total N and pH. The ELVs are set based on the full design capacity (P.E. 413,200) and are aimed at providing a high degree of protection to the receiving water body. The design capacity of the plant was based on 53% of total load coming from industrial sources. The WWTP currently has an average population equivalent (P.E) of 325,748.

It is noted that the proposed occupancy of the housing development is 160 persons. This would increase the WWTP P.E. from 325,748 to 325,895 which is well within the 413,200 P.E. design capacity. Therefore, with the addition of emissions from the proposed housing development to the WWTP, it would increase its operational load to 78.87% of its design capacity with a residual capacity of 21.13%. Thus, given the limited scale of the proposed development and the ability of the WWTP to cater for the additional loading, no impact on water quality or the qualifying interests and conservation objective for Natura 2000 sites will occur.

The most recent Annual Environmental Report for Carrigrennan WWTP (D0033-01) was reviewed. **Table 10** provides a summary of the current operating conditions for the WWTP from the main effluent discharge (SW001) obtained from the most recent Environmental Protection Agency Annual Environment Report (2017).

Table 10: Effluent Monitoring

	BOD (mg/l) [2]	COD (mg/l) [2]	T S S (mg/l) [2]	Total P (mg/l)	Total N (mg/l)	pH
WWDL ELV (Schedule A1)	25	125	35	2.5	10	6-9
E L V w i t h C o n d i t i o n 2 Interpretation	50	250	87.58	3	12	6-9
No. of Samples	260	260	260	27	27	260
No. sample results above WWDL ELV	9	10	10	13	27	0
No Samples above ELV with condition 2 interpretation	0	0	0	8	27	0
Annual Mean (For parameters ELV)	13.71	87.38	18.41	2.61	26.00	N/A
Overall Compliance	Pass	Pass	Pass	Fail	Fail	Pass

The AER noted that the non-compliances relating to Total Phosphorus and Total Nitrogen were due to the WWTP not being designed for nutrient removal. The EPA have identified that the limiting nutrient in the receiving waters is total phosphorus. It is expected that the ELV for total nitrogen will be amended in the licence.

Ambient monitoring results for the Carrigrennan WWTP are shown in **Table 11**.

Table 11. Ambient Water Quality Monitoring Results

Ambient Monitoring Point from WWDL (or as agreed with EPA)	Irish Grid Reference		EPA Feature Coding Tool Code	Current WFD Status
	Easting	Northing		
Inland Surface Water				
M01 Curraheen Road Bridge	162,843	69,176	RS19T050890	Poor
M02 Carrigrohane Bridge	162,863	71,034	RS19C120110	Poor
M03 County Hall	165,003	71,212	RS19C120740	Poor
M04 Bandon Road	164,101	68,782	RS19G040140	Poor
M05 Woodhaven Estate	164,344	69,415	RS19G04019	Poor
M06 Glasheen (Cork City) - Sandbrook Estate	165,278	69,503	RS19G040300	Poor
M07 Clashduv Road	165,697	70,336	RS19G040490	Poor
M08 Glasheen Bridge	165,401	70,768	RS19G040700	Poor
M09 Blackstone Bridge	165,691	74,463	RS19B140110	Moderate

M10 Kilnap	166,291	74,796	RS19G880990	Moderate
M11 Bride (Cork City) - Fitz's Boreen	166,925	74,246	RS19B140300	Moderate
M12 Blackpool (Bride RS19B14)	167,422	73,340	RS19B140800	Moderate
M13 Glen Rec. Park	168,942	73,453	RS19G090400	Moderate
M14 Spring Lane	167,868	73,539	RS19G090800	Moderate
M15 leitrim Street	167,496	72,342	RS19K750900	Moderate
Transitional & Coastal Waters				
C9 Tivoli	170,242	72,195	TW04003159LE2006	Moderate
C7 Blackrock Castle	172,537	72,182	TW05003157LE4004	Moderate
C8 Mid Lough Mahon	174,650	70,440	TW04003159LE2005	Moderate
C6 End Lough Mahon	177,040	69,408	TW05003157LE4005	Moderate
C5 Haulbowline	178,090	65,386	CW05003150LE8004	Moderate

As can be seen from **Table 11**, water quality status at monitoring stations within the agglomeration ranges from poor to moderate. It is noted however that the Lough Mahon transitional waters have a large assimilative capacity and the Mid Lough Mahon monitoring point is located in close proximity to the Primary Discharge location and the water quality is of moderate status.

Overall, the discharge from the Wastewater Treatment Plant does not have an observable negative impact on receiving water quality nor a negative impact on the Water Framework Directive Status.

The addition of the effluent discharge from the proposed housing development to the Carrigrennan WWTP is well within its design capacity and will not comprise the operational capability of the WWTP to treat effluent to comply with emission limit values. No impact from the proposed development will occur given current operating condition of the WWTP.

9.4 Spread of Invasive Species

The invasive species Travellers Joy and Butterfly Bush/Buddleja were noted within the site. These species are classified as an Amber Threat species by Invasive Species Ireland which under the right ecological conditions may have an impact native species or habitats. No risk of invasive species spreading and impacting on the qualifying interests for Natura 2000 has been identified due to the low risk associated with species recorded within the proposed development site, the distance involved and the absence of direct connection pathway. Overall no risk to the qualifying interests and conservation objectives for Natura 2000 sites has been identified.

9.5 Cumulative Impacts

Cumulative impacts refer to a series of individually impacts that may, in combination, produce a significant impact. The underlying intention of this in combination provision is to take account of cumulative impacts from existing or proposed plans and projects and these will often only occur over time.

High negative threats, pressures and activities identified for the Great Island Channel SAC and the Cork Harbour SPA include roads, motorways, port areas, industrial or commercial areas, urbanised areas, human habitation, marine and freshwater aquaculture and reclamation of land from sea, estuary or marsh.

The landscape in proximity to the proposed development is heavily urbanised. Wastewater is also discharged from other settlements into Cork Harbour (e.g. Midleton) and from local industries. However, in the absence of any significant impact associated with this project no cumulative impacts on water quality have been identified. Similarly, no significant cumulative impacts in relation to noise and disturbance have been identified.

10. Conclusion

According to the guidance published by the NPWS (DoEHLG, 2009), Screening for Appropriate Assessment can either identify that a Natura Impact Statement (NIS) is not required where:

(1) A project/proposal is directly related to the management of the site.

(2) There is no potential for significant effects affecting the Natura 2000 network

Where the screening process identifies that significant effects are certain, likely or uncertain the project must either proceed to Stage 2 Appropriate Assessment or be rejected.

The proposed works area, does not lay within the Great Island Channel SAC and the Cork Harbour SPA and does not support the species or habitats for which these Natura 2000 sites were selected. Both surface and wastewater emissions from the site will be managed to ensure that the water quality of the nearby waters is not compromised and will remain compliant with the Surface Water Regulations S.I. 272 of 2009. The proposed development will not have any significant impact on Carrigrennan WWTP and its ability to maintain with ELV's therefore no cumulative impacts on water quality have been identified.

Based on the above, the project does not present any risk of a direct adverse effect on either the habitats or species for which this Natura 2000 site was selected.

The likely impacts that will arise from the proposed works have been examined in the context of a number of factors that could potentially impact upon the integrity of the Natura 2000 network. On the basis of the findings of this Screening for Appropriate Assessment, it is concluded that the development:

(1) Is not directly connected with or necessary to the management of a Natura 2000 site and

(2) Will not have significant impacts on the Natura 2000 network.

The Appropriate Assessment Screening concluded that the proposed development would not be likely to have a significant effect on any Natura 2000 site.

11. Reference List

Environmental Protection Agency Ireland (http://www.epa.ie/)

Invasivespecies Ireland (http://invasivespeciesireland.com/)

National Biodiversity Data Centre (http://www.biodiversityireland.ie/)

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Appendix 1 Site synopses

Cork Harbour Special Protection Area (Site Code 004030)

Cork Harbour is a large, sheltered bay system, with several river estuaries - principally those of the Rivers Lee, Douglas, Owenboy and Owennacurra. The SPA site comprises most of the main intertidal areas of Cork Harbour, including all of the North Channel, the Douglas River Estuary, inner Lough Mahon, Monkstown Creek, Lough Beg, the Owenboy River Estuary, Whitegate Bay and the Rostellan and Poulnabibe inlets.

Owing to the sheltered conditions, the intertidal flats are often muddy in character. These muds support a range of macro-invertebrates, notably Macoma balthica, Scrobicularia plana, Hydrobia ulvae, Nepthys hombergi, Nereis diversicolor and Corophium volutator. Green algae species occur on the flats, especially Ulva lactua and Enteromorpha spp. Cordgrass (Spartina spp.) has colonised the intertidal flats in places, especially where good shelter exists, such as at Rossleague and Belvelly in the North Channel. Salt marshes are scattered through the site and these provide high tide roosts for the birds. Salt marsh species present include Sea Purslane (Halimione portulacoides), Sea Aster (Aster tripolium), Thrift (Armeria maritima), Common Saltmarsh-grass (Puccinellia maritima), Sea Plantain (Plantago maritima), Laxflowered Sea-lavender (Limonium humile) and Sea Arrowgrass (Triglochin maritima). Some shallow bay water is included in the site. Cork Harbour is adjacent to a major urban centre and a major industrial centre. Rostellan Lake is a small brackish lake that is used by swans throughout the winter. The site also includes some marginal wet grassland areas used by feeding and roosting birds.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Little Grebe, Great Crested Grebe, Cormorant, Grey Heron, Shelduck, Wigeon, Teal, Pintail, Shoveler, Red-breasted Merganser, Oystercatcher, Golden Plover, Grey Plover, Lapwing, Dunlin, Blacktailed Godwit, Bar-tailed Godwit, Curlew, Redshank, Black-headed Gull, Common Gull, Lesser Black-backed Gull and Common Tern. The site is also of special conservation interest for holding an assemblage of over 20,000 wintering waterbirds. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.

Cork Harbour is an internationally important wetland site, regularly supporting in excess of 20,000 wintering waterfowl, for which it is amongst the top five sites in the country. The two-year mean of summed annual peaks for the entire harbour complex was 55,401 for the period 1995/96 and 1996/97. Of particular note is that the site supports internationally important populations of Black-tailed Godwit (905) and Redshank (1,782) - all figures given are average winter means for the two winters 1995/96 and 1996/97. At least 18 other species have populations of national importance, as follows: Little Grebe (51), Great Crested Grebe (204), Cormorant (705), Grey Heron (63), Shelduck (2,093), Wigeon (1,852), Teal (922), Pintail (66), Shoveler (57), Red-breasted Merganser (88), Oystercatcher (1,404), Golden Plover (3,653), Grey Plover (84), Lapwing (7,688), Dunlin (10,373), Bartailed Godwit (417), Curlew (1,325) and Greenshank (26). The Shelduck population is the largest in the country (over 10% of national total). The site has regionally or locally important populations of a range of other species, including Whooper Swan (10), Pochard (145) and Turnstone (79). Other species using the site include Gadwall (13), Mallard (456), Tufted Duck (113), Goldeneye (31), Coot (53), Mute Swan (38), Ringed Plover (34) and Knot (38). Cork Harbour is a nationally important site for gulls in winter and autumn, especially Black-headed Gull (4,704), Common Gull (3,180) and Lesser Black-backed Gull (1,440).

A range of passage waders occurs regularly in autumn, including such species as Ruff (5-10), Spotted Redshank (1-5) and Green Sandpiper (1-5). Numbers vary between years and usually a few of each of these species over-winter.

The wintering birds in Cork Harbour have been monitored since the 1970s and are counted annually as part of the I-WeBS scheme.

Cork Harbour has a nationally important breeding colony of Common Tern (3-year mean of 69 pairs for the period 1998-2000, with a maximum of 102 pairs in 1995). The birds have nested in Cork Harbour since about

1970, and since 1983 on various artificial structures, notably derelict steel barges and the roof of a Martello Tower. The birds are monitored annually and the chicks are ringed.

Extensive areas of estuarine habitat have been reclaimed since about the 1950s for industrial, port-related and road projects, and further reclamation remains a threat. As Cork Harbour is adjacent to a major urban centre and a major industrial centre, water quality is variable, with the estuary of the River Lee and parts of the Inner Harbour being somewhat eutrophic. However, the polluted conditions may not be having significant impacts on the bird populations. Oil pollution from shipping in Cork Harbour is a general threat. Recreational activities are high in some areas of the harbour, including jet skiing which causes disturbance to roosting birds.

Cork Harbour is of major ornithological significance, being of international importance both for the total numbers of wintering birds (i.e. > 20,000) and also for its populations of Black-tailed Godwit and Redshank. In addition, there are at least 18 wintering species that have populations of national importance, as well as a nationally important breeding colony of Common Tern. Several of the species which occur regularly are listed on Annex I of the E.U. Birds Directive, i.e. Whooper Swan, Golden Plover, Bar-tailed Godwit, Ruff and Common Tern. The site provides both feeding and roosting sites for the various bird species that use it.

Great Island Channel Special Area of Conservation (Site Code 001058)

The Great Island Channel stretches from Little Island to Midleton, with its southern boundary being formed by Great Island. It is an integral part of Cork Harbour which contains several other sites of conservation interest. Geologically, Cork Harbour consists of two large areas of open water in a limestone basin, separated from each other and the open sea by ridges of Old Red Sandstone. Within this system, Great Island Channel forms the eastern stretch of the river basin and, compared to the rest of Cork Harbour, is relatively undisturbed. Within the site is the estuary of the Owennacurra and Dungourney Rivers. These rivers, which flow through Midleton, provide the main source of freshwater to the North Channel. The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes):

- [1140] Tidal Mudflats and Sandflats
- [1330] Atlantic Salt Meadows

The main habitats of conservation interest in Great Island Channel SAC are the sheltered tidal sand and mudflats and the Atlantic salt meadows. Owing to the sheltered conditions, the intertidal flats are composed mainly of soft muds. These muds support a range of macro-invertebrates, notably Macoma balthica, Scrobicularia plana, Hydrobia ulvae, Nepthys hombergi, Nereis diversicolor and Corophium volutator. Green algal species occur on the flats, especially Ulva lactua and Enteromorpha spp. Cordgrass (Spartina spp.) has colonised the intertidal flats in places, especially at Rossleague and Belvelly.

The saltmarshes are scattered through the site and are all of the estuarine type on mud substrate. Species present include Sea Purslane (Halimione portulacoides), Sea Aster (Aster tripolium), Thrift (Armeria maritima), Common Saltmarsh-grass (Puccinellia maritima), Sea Plantain (Plantago maritima), Greater Sea-spurrey (Spergularia media), Lax-flowered Sea-lavender (Limonium humile), Sea Arrowgrass (Triglochin maritimum), Sea Mayweed (Matricaria maritima) and Red Fescue (Festuca rubra).

The site is extremely important for wintering waterfowl and is considered to contain three of the top five areas within Cork Harbour, namely North Channel, Harper's Island and Belvelly-Marino Point. Shelduck is the most frequent duck species with 800-1,000 birds centred on the Fota/Marino Point area. There are also large flocks of Teal and Wigeon, especially at the eastern end. Waders occur in the greatest density north of Rosslare, with Dunlin, Godwit, Curlew and Golden Plover the commonest species. A population of about 80 Grey Plover is a notable feature of the area. All the mudflats support feeding birds; the main roost sites are at Weir Island and

Brown Island, and to the north of Fota at Killacloyne and Harper's Island. Ahanesk supports a roost also but is subject to disturbance. The numbers of Grey Plover and Shelduck, as given above, are of national importance.

The site is an integral part of Cork Harbour which is a wetland of international importance for the birds it supports. Overall, Cork Harbour regularly holds over 20,000 waterfowl and contains internationally important numbers of Black-tailed Godwit (1,181) and Redshank (1,896), along with nationally important numbers of nineteen other species. Furthermore, it contains large Dunlin (12,019) and Lapwing (12,528) flocks. All counts are average peaks, 1994/95 – 1996/97. Much of the site falls within Cork Harbour Special Protection Area, an important bird area designated under the E.U. Birds Directive.

While the main land use within the site is aquaculture (oyster farming), the greatest threats to its conservation significance come from road works, infilling, sewage outflows and possible marina developments.

The site is of major importance for the two habitats listed on Annex I of the E.U. Habitats Directive, as well as for its important numbers of wintering waders and wildfowl. It also supports a good invertebrate fauna.

SUB THRESHOLD EIS SCREENING REPORT
CD2 –WOLSEY COURT

Criteria for determining whether a development would or would not be likely to have significant effects on the environment as per the requirements of Article 120 of the Planning and Development Regulations 2001 as amended

1. CHARACTERISTICS OF PROPOSED DEVELOPMENT	
Size of Proposed Development	The ***CD2 – Wolsey Court*** proposed development comprises of *the demolition of existing structures, the construction of 49 no. apartments in the form of 27 no. 1 bed units and 22 no. 2 bed units in 6 no. three to four storey blocks, the provision of landscaping and amenity areas, all associated ancillary development works including lighting, drainage, boundary treatments, bicycle parking and bin storage. The site is located at Commons Road, Blackpool, Cork.* The development site area is approximately 0.40 hectares.
Cumulation with other Proposed Development	*No significant cumulative impacts or air during construction or operation will occur. No significant cumulative impacts with respect to visual impact have been identified.*
The nature of any associated demolition works (* see article 8 of SI 235 of 2008)	*The development includes site clearance works including removal of vegetation and the demolition of 4 roadside dwellings (3 vacant and 1 currently occupied) i.e. no 1,2,3,4 Millview cottages.*
Use of Natural Resources	*The use of natural resources associated with this development is limited to the materials to be used for its construction.*
Production of Waste	*Waste production is limited to the construction phase and will consist of the following:* *- General building waste* *- excavated soil-based fill material, with small pieces of waste material such as brick, glass, plastics, timber, wire and ceramics. No contamination of fill material detected during site investigations.* *- Reinforced concrete foundations.* *All waste material will be subject to segregation and appropriate disposal.*
Pollution and Nuisances	*No significant pollution and nuisances. Any impact is commensurate with that of the normal residential development associated with what is an existing residential suburban area of the city.*
Risk of Major Accidents	*No significant risk of major accidents or disasters.*
Risk to Human Health	*No significant risks to human health have been identified*

2. LOCATION OF PROPOSED DEVELOPMENT	
Existing Land Use	*Existing structures; 1,2,3,4 Millview cottages.*
Relative Abundance, Quality and regenerative Capacity of Natural Resources in the Area	*The development will not directly impact on important habitats. Impacts from noise, air and aqueous emissions and disturbance during construction works are not predicted to be significant.*
Absorption Capacity of the Natural Environment	*No buildings of significant architectural value will be impacted by the proposed development. No archaeological sites are located within the proposed development area and impacts on cultural heritage are predicted to be negligible. No significant impact on landscape has been identified*

3. CHARACTERISTICS OF POTENTIAL IMPACTS	
Extent of the Impact	*The proposed density of development is appropriate, given the level of services, amenities, infrastructure and public transport available in the areas. No significant negative impacts are likely.*
Transfrontier nature of the Impact	*N/A*
Magnitude and Complexity of the Impact	*The magnitude of the impacts will be minor to negligible. No significant cumulative impacts been identified.*
Probability of the Impact	*The probability of significant impacts on ecology are negligible.*
Duration, Frequency and Reversibility of the Impact	*There will be a net loss of low value habitat which is a non-reversible minor impact. No other significant permanent impacts have been identified.*

SCREENING CONCLUSION STATEMENT
The Environmental Impact Assessment Screening therefore concludes that there is no real likelihood of significant effects and therefore an Environmental Impact Assessment is not required. *Please refer to Appendix A for report titled; Environmental Impact Assessment Report (EIAR) Screening Report for a proposed development at Commons Road, Blackpool, Cork, prepared by Dixon Brosnan Environmental Consultants, dated May 2020.*

Name:	*Declan Roche*
Position:	*Acting Director of Services, Housing Directorate*
Date:	*May 2020*

Appendix A

Environmental Impact Assessment Report (EIAR) Screening Report for a proposed development at Commons Road, Blackpool, Cork

DixonBrosnan

environmental consultants

Project	**Environmental Impact Assessment Report (EIAR) Screening Report for a proposed development at Commons Road, Blackpool, Cork.**
Client	Culclan Construction

Project ref	Report no	Client ref	
1932.1	1932.1	-	

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Date	Rev	Status	Prepared by	
28/3/19	0	Issue to client	Carl Dixon MSc.	
			Ian McDermott MSc	
30/4/19	1	Revision to design	Carl Dixon MSc.	
			Ian McDermott MSc	
5/12/19	2	Revision to design	Carl Dixon MSc.	
			Ian McDermott MSc	
25/05/20	3	Revision to design	Carl Dixon MSc.	
			Ian McDermott MSc	

v180907

1. Background

DixonBrosnan was commissioned by Culclan Construction to prepare an Environmental Impact Assessment Report (EIAR) Screening Report for the construction of a residential development as part of the Cork City Council Social Housing Programme for a site at Commons Road, Blackpool, Cork.

The proposed development does not exceed the threshold above which an EIAR is mandatory. This EIAR screening report will facilitate the local authority in determining if the proposed development is likely to have a significant effect on the environment thus warranting the completion of a sub-threshold Environmental Impact Assessment Report (formerly EIS).

This report gives due regard to the provisions outlined in the Planning and Development Regulations, 2001 (as amended) and the document "*Guidance for Consent Authorities regarding Sub-Threshold Development" (DOE, 2003).* This report takes into account the EPA document *Guidelines on the information to be contained in Environmental Impact Assessment Reports Draft August 2017.* The publication of the guidelines followed the transposition deadline of 16 May 2017 set down in Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment. The amended Directive uses the term Environmental Impact Assessment Report for what was formerly referred to in Irish legislation as an Environmental Impact Statement. These guidelines use the new term and its acronym; EIAR.

This report was prepared by Carl Dixon MSc and Ian McDermott who have worked on EISs for a range of small- and large-scale infrastructural projects including housing developments, quarries, gas pipelines, industrial facilities, windfarms etc.

2. Site location and context

As part of the application for the Cork City Council Social Housing Programme, a total of 49 no of 1 & 2 bed apartments are proposed for a disused site at Commons Road, Blackpool, Cork. The proposed development consists of one & two-bedroom apartments with ancillary storage, car parking and amenity space. Access to the proposed dwellings will be achieved via an existing entrance leading from Commons Road.

The site is in a prominent location and is in close proximity to Blackpool Shopping Centre, St Church of the Annunciation Blackpool and Cork City Centre. It is mainly a residential area with local nearby shops, schools and amenities and is a 15-minute walk from the city centre. Currently on site there are a group of vacant and occupied buildings that are to be demolished.

Effluent from the proposed development will be conveyed to Carrigrennan Waste Water Treatment Plant (WWTP) for treatment prior to discharging into the transitional waters of Lough Mahon. The quantity and unit type for the proposed development is outlined below,

- 1 Bedroom Apartment – 27 apartments in total
- 2 Bedroom Apartment – 22 apartments in total

Overall, the associated population equivalent (P.E.) of the proposed development is 150P.E.

Roads & footpaths will be drained by road gullies, discharging to a surface water sewer, with gullies provided at a minimum rate 1 per 200m² of impermeable entrances. A 2m wide footpath will be provided to the front of the housing development adjacent to the public road.

Foul water

The proposed development shall discharge to the public sewer by means of a gravity connection to the public sewer adjacent to the site, this connection shall be made via an existing connection that is extended into the site.

The proposed foul water sewerage system shall be designed and constructed in accordance BS EN 752-2008 and Irish Water Wastewater Infrastructure Standard Documents.

Storm Water

It is proposed to discharge the storm water from the development to a combined sewer located on the adjoining roadway. It is further proposed to provide four attenuation tanks throughout the site for the management of storm water in accordance with SUDS.

It is proposed to discharge the storm water to the existing combined sewer located on the public roadway adjoining the site. The storm water network shall be constructed as a separate system until the point of discharge to the main sewer.

It is proposed to construct the attenuation areas in underground concrete storage tanks using Wavin Aquacell Plus units or similar approved. Grit traps shall be provided at all road gullies and all dwelling gullies shall be trapped. A grit trap shall be provided at the final manhole before the soakaway/attenuation area as part of the Klargester seperators.

A NSB 10 class 1 bypass separator by Klargester or similar approved will be provided prior to the connection of the storm water drainage into an attenuation area.

Storm water discharge from the attenuation tanks shall be controlled by Hydro-break Vortex flow control valves

The proposed storm water sewerage system shall be designed and constructed in accordance BS EN 752- 2008. The attenuation design is based on the discharge from the site shall match the runoff rate of the predevelopment site conditions. The greenfield runoff rate is calculated based on a 1 in 30-year storm event and the attenuation areas are calculated on the basis of a 1:30 year storm event. The location of the proposed development is shown in Figure 1 and details on the proposed development are provided in **Appendix 1.**

Figure 1 location of proposed development.

2. Requirement for an EIAR

The proposed development does not exceed the threshold above which an EAIR (EIS) is mandatory.

3. Requirement for sub-threshold EIAR

Where a project is of a specified type but does not meet, or exceed, the applicable threshold then the likelihood of the project having significant effects on the environment needs to be considered. Both the adverse and beneficial effects are considered. There is a requirement to carry out EIA where the competent/consent authority considers that a development would be likely to have significant effects on the environment. In particular, in the case of sub-threshold development on sites of conservation sensitivity, the competent/consent authority must formally decide whether or not a project would or would not be likely to have significant effects on the environment.

A small-scale project can have significant effects on the environment if it is in a location of particular environmental sensitivity. Consideration of “significant effects” should not therefore be determined by reference to size only. The nature and location of a project must also be taken into account. This screening assessment has been carried out in accordance with the ‘*Criteria for determining whether a development would or would not be likely to have significant effects on the environment’ as set out in the Appendix of the Environmental Impact Assessment (EIA) Guidance for Consent Authorities regarding Sub-Threshold Development* and *Guidelines on the information to be contained in Environmental Impact Assessment Reports Draft August 2017.*

The screening assessment has been carried out in relation to the Characteristics of Proposed Development, Location of Proposed Development and Characteristics of Potential Impacts as detailed below in **Table 1.**

Table 1. Assessment of potential impacts

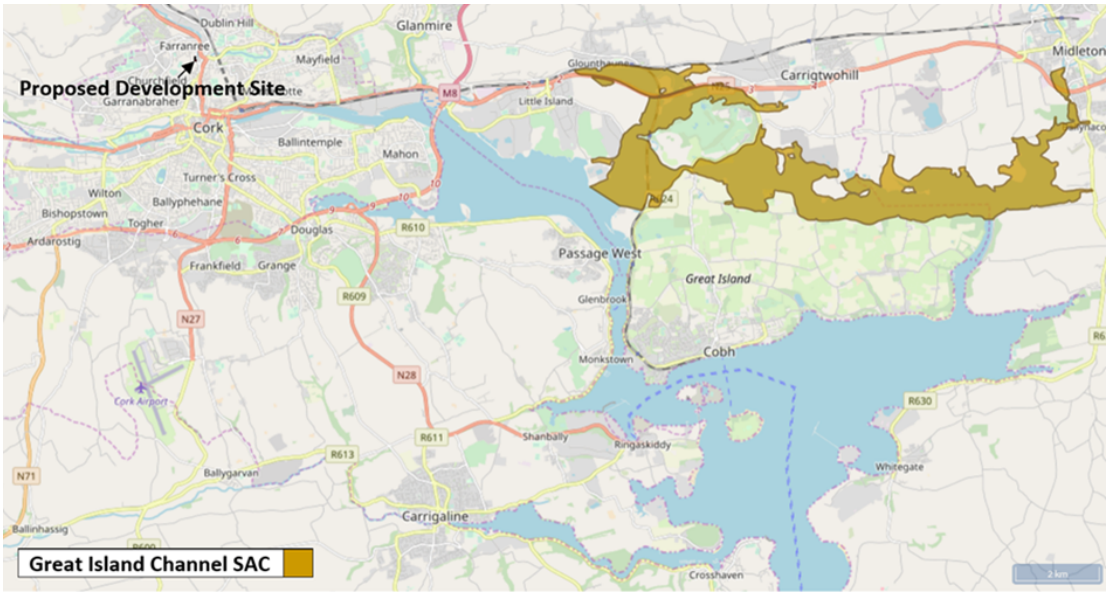
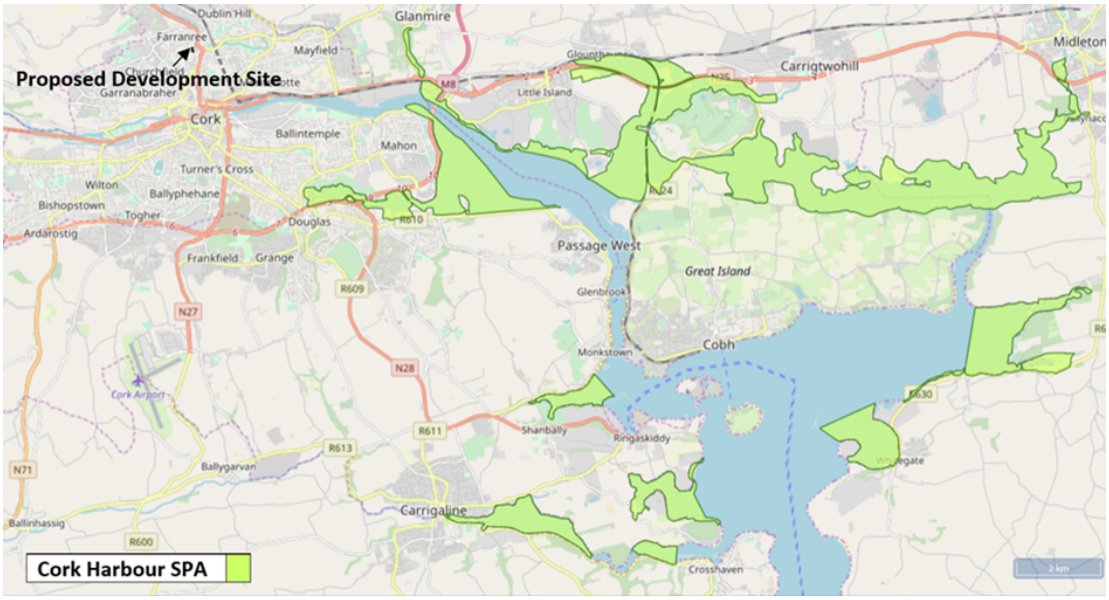
1. Characteristics of proposed development **The characteristics of proposed development, in particular:**	
– the size of the proposed development,	The site for which the development relates has an area of 0.40ha, which includes an open space percentage of 36.8%
– the cumulation with other proposed development	The proposed development site is located in an urban area within Cork City. Cumulative impacts could potentially arise with respects to air quality, visual impacts, noise and waste disposal. Noise levels from the facility will not be significant at the development site boundary and will not cumulatively impact with pre-existing noise sources in the surrounding environment. No significant cumulative impacts or air during construction or operation will occur. No significant cumulative impacts with respect to visual impact have been identified.
– the nature of any associated demolition works,	The development includes site clearance works including removal of vegetation and the demolition of 4 roadside dwellings (3 vacant and 1 currently occupied) i.e. no 1,2,3,4 Millview cottages. This will be carried out in line with the provisions of a detailed Environmental, Construction & Waste Management Plan which will be prepared prior to construction and which will incorporate any planning conditions. A detailed traffic management will be implemented, and works will comply with health and safety legislation and with a specific risk assessment which will be prepared for the site.
– the use of natural resources,	Water will be provided by local authority supply. No significant additional use of natural resources required.
– the production of waste,	**Construction waste** All wastes generated as part of the construction process will be controlled and managed to ensure environmental protection. All site wastes (hazardous and non-hazardous), will be stored in designated areas and taken off site frequently to prevent large quantities accumulating. Careful ordering of materials will be undertaken to minimise quantities present on-site. The waste management plan shall form part of the general housekeeping of the site. Prior to commencement of works the Main Contractor and all sub-contractors shall be informed of their obligation to reduce the amount of waste material being generated on site and also to keep the site clean and segregate waste materials. Waste materials shall be segregated. The employment of good construction management practices will minimise the risk of pollution of soil, storm water run-off, seawater or groundwater. The Construction Industry Research and Information Association (CIRIA) in the UK has issued a guidance note on the control and management of water pollution from construction sites, Control of Water Pollution from Construction Sites, guidance for consultants and contractors (Masters-Williams et al 2001). All site personnel will be trained and aware of the appropriate action in the event of an emergency, such as the spillage of potentially polluting substances. Spill kits are to be kept on site.

– pollution and nuisances,	**Air** As the site is located within a built-up area there are sensitive receptors (occupied dwellings) with respect to air quality in close proximity to the proposed development site. Most of the dust would be deposited close to the potential source and any impacts from dust deposition would typically be within 100 meters or so of the construction area. As part of the Environmental, Construction & Waste Management Plan dust minimisation mitigation measures will be specified. Such measures i.e. vehicles within the site shall have their speeds restricted where there is a potential for dust generation, material handling systems and site stockpiling of materials shall be designed and laid out to minimise exposure to wind etc. are effective at minimising dust levels. No impediments to the successful implementation of these measures have been identified. In this context no significant impact from dust is predicted to occur during construction or during operation. **Noise** Best practice noise and vibration control measures will be employed by the contractor. The best practice measures set out in BS 5228 (2009) Parts 1 and 2 will be complied with. This includes guidance on several aspects of construction site environmental measures, including, but not limited to the following: • The potential for any item of plant to generate noise will be assessed prior to the item being brought onto the site. The least noisy item should be selected. • If replacing a noisy item of plant is not a viable or practical option, consideration will be given to noise control "at source". This refers to the modification of an item of plant or the application of improved sound reduction methods in consultation with the supplier. For example, resonance effects in panel work or cover plates can be reduced through stiffening or application of damping compounds; rattling and grinding noises can often be controlled by fixing resilient materials in between the surfaces in contact. • Mobile plant will be switched off when not in use and will not be left idling. • All items of plant will be subject to regular maintenance. Such maintenance can prevent unnecessary increases in plant noise and can serve to prolong the effectiveness of noise control measures. There will be a short-term increase in noise levels during construction which will be minimised by appropriate mitigation measures. In the context of existing noise levels in the existing environment, the impact from noise during construction is predicted to be minor and short-term. During operation the increase in noise levels will be negligible. **Discharges of wastewater and surface water** The proposed development comprises the construction a total of 49 no. dwellings (27no. 1 bedroom and 22 no. 2 bedroom apartments.) Surface water will be discharge to the local authority storm water network. The proposed development has the potential to have an indirect impact on the water quality of the River Lee (Lough Mahon Estuary) via discharges to Carrigrennan (WWTP). As noted in the Habitats Directive screening report for this project the proposed occupancy of the development is 147 persons. This would increase the WWTP P.E. from 325,748 to 325,895 which is well within the 413,200 P.E. design capacity. Therefore, with the addition of emissions from the proposed housing development to the WWTP, it would increase its operational load to 78.87% of its design capacity with a residual capacity of 21.13%. Overall, the discharge from the Wastewater Treatment Plant does not have an observable negative impact on receiving water quality and does not have a negative impact on the Water Framework Directive Status. The addition of the effluent discharge from the proposed development to the Carrigrennan WWTP is well within its design capacity and will not comprise the operational capability of the WWTP to treat effluent to comply with emission limit values. Therefore, the impacts from the proposed development will be negligible given current operating condition of the WWTP and the residual capacity post development.

– the risk of accidents, having regard to substances or technologies used.	No risk of accidents above those which occur on standard buildings sites have been identified. Standard mitigation measures will be specified by the detailed Environmental, Construction & Waste Management Plan including the following: All equipment will be maintained in good condition to prevent impacts on water quality. All equipment and machinery will have regular checking for leakages and quality of performance. Oil, petrol and other fuel containers will be double-skinned and bunded to be able to contain 110% volume to guard against potential accidental spills or leakages. Bund specification will conform to the current best practice for oil storage such as Enterprise Irelands Best Practice Guidelines. All construction support activities will be controlled within the site construction compound including office facilities, toilets, canteen etc. materials and waste handling. Refuelling of machinery will occur in designated areas on an impermeable surface away from any drains or watercourses. Adequate spill kits will be available in the event of an accident and staff will be made aware of how to respond to an incident. No significant risk to hydrology, hydrogeology or soils has been identified.

2. Location of proposed development. The environmental sensitivity of geographical areas likely to be affected by proposed development, having regard in particular to:

- the existing land use,	The site was surveyed by DixonBrosnan Environmental Consultants to determine if habitats or species of ecological value occur within the development site boundary. The site in question is composed of highly modified habitats. These habitats are of low ecological value. No high-risk invasive species were recorded within the works area. The proposed facility will not be located within a designated site and the habitats recorded within the proposed development boundary do not correspond to habitats listed on Annex 1 of the Habitats Directive. Natura 2000 sites within a 15km radius of the proposed development site are listed below in **Table 1**. It is noted that use of a 15km radius is a precautionary measure, as impacts at this distance from the proposed development are highly unlikely in the absence of significant emissions to the environment. The closest Natura 2000 sites are shown in **Figure 1** below. Of these sites, a pathway has only been identified for the Great Island Channel SAC (site code 001058) and the Cork Harbour SPA (site code 004030). Wastewater discharges from the proposed development will be conveyed to the Carrigrennan WWTP for treatment prior to discharging into the transitional waters of Lough Mahon, within which the two aforementioned Natura 2000 sites are located. The locations of these Natura 2000 sites in relation to the proposed development are shown in **Figure 1**. Given the limited scale of the proposed development, the lack of a hydrological connection and the distances involved no potential risk to other designated sites has been identified. **Table 1. Designated sites and their location relative to the proposed work site.** **Natura 2000 sites within the Zone of Influence (ZoI) Code Potential source-pathway-receptor links within 15km. Distance at closest point (As the crow flies)** **Special Area of Conservation (SAC)** Great Island Channel 001058 8.97km east of the proposed works area. Although improbable, a potential impact on this SAC has been identified from discharges in wastewater during operation via the Carrigrenan WWTP to the waters of Lough Mahon which lies within this SAC Blackwater River (Cork/Waterford) 002170 13.89km north – no potential pathway identified. **Special Protection Area (SPA)** Cork Harbour 004030 4.15km east of the proposed works area. Although improbable, a potential impact on this SAC has been identified from discharges in wastewater during operation via the Carrigrenan WWTP to the waters of Lough Mahon which lies within this SPA

	  **Figure 1 shows the approximate location of the proposed Respond! development in relation to nearby Natura 2000 sites.** A Habitats Directive report was prepared which specifically assessed the potential impacts on the Great Island Channel SAC (site code 001058) and the Cork Harbour SPA (site code 004030). This report concluded that: *The likely impacts that will arise from the proposed works have been examined in the context of a number of factors that could potentially impact upon the integrity of the Natura 2000 network. On the basis of the findings of this Screening for Appropriate Assessment, it is concluded that the development:* *(1) Is not directly connected with or necessary to the management of a Natura 2000 site and* *(2) Will not have significant impacts on the Natura 2000 network.* *It is concluded therefore that the proposed development will not have a significant impact on qualifying interests and conservation objectives for Natura 2000 sites, and that the integrity of these sites will not be adversely affected. No significant direct, indirect or cumulative impacts on Natura 2000 sites have been identified. A stage 2 Appropriate Assessment is not considered necessary.*
- the relative abundance, quality and regenerative capacity of natural resources in the area,	The development will not directly impact on important habitats. Impacts from noise, air and aqueous emissions and disturbance during construction works are not predicted to be significant.

- the absorption capacity of the natural environment, paying particular attention to the following areas: (a) wetlands, (b) coastal zones, (c) mountain and forest areas, (d) nature reserves and parks, (e) areas classified or protected under legislation, including special protection areas designated pursuant to Directives 79/409/ EEC and 92/43/ EEC, (f) areas in which the environmental quality standards laid down in legislation of the EU have already been exceeded, (g) densely populated areas, (h) landscapes of historical, cultural or archaeological significance.	The subject site is located just outside the 'Blackpool Architectural Conservation Area', which runs from Old Chapel Lane and Cathedral Street to Thomas Davis Street and the Link Road. It is bounded to the east by the western boundary of Watercourse Road and to the west by the rear of properties fronting onto the area's central spine of Gerald Griffin Street, Great William O'Brien Street and Thomas Davis Street. No buildings of significant architectural value will be impacted by the proposed development. No archaeological sites are located within the proposed development area and impacts on cultural heritage are predicted to be negligible. No significant impact on landscape has been identified.

4. Characteristics of potential impacts	
The potential significant effects of proposed development in relation to criteria set out under paragraphs 1 and 2 above, and having regard in particular to:	
- the extent of the impact (geographical area and size of the affected population),	The total site area is 0.40ha. There will be no detrimental impacts on human populations.
- the trans-frontier nature of the impact,	There will be no trans-frontier impacts
- the magnitude and complexity of the impact,	The magnitude of the impacts will be minor to negligible. No significant cumulative impacts been identified.
- the probability of the impact,	The probability of significant impacts on ecology are negligible.
- the duration, frequency and reversibility of the impact.	There will be a net loss of low value habitat which is a non-reversible minor impact. No other significant permanent impacts have been identified.

5. Conclusions

Potential impacts on human beings will be short-term and not significant and there will be mitigation measures in place to control traffic, noise, and dust. No significant impacts on cultural heritage or landscape will occur and no significant impacts with respect to waste or discharges or wastewater were identified. Most of the potential impacts will be mitigated by the preparation of a Construction Environmental Management Plan (CEMP). No significant cumulative impact between this development and other elements with the surrounding landscape has been identified. There will be net positive benefit resulting from the proposed project due to increased housing and regeneration of the local area. The Environmental Impact Assessment Screening concluded that there is no real likelihood of significant effects therefore an Environmental Impact Assessment is not required.

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- Fire Safety Engineers
- Project Managers
- Assigned Certifiers

CONSTRUCTION, DEMOLITION AND ENVIRONMENTAL

MANAGEMENT PLAN

Apartment Development @

Commons Road,

Blackpool,

Cork

On behalf of:

Culclan Construction Limited

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Revision	Date	Issue	Prepared By	Checked By
0	27.05.2020	Issue for Part 8	GOS	CC

1 **Introduction**

CLC & Associates has prepared this Construction, Demolition Waste & Environmental Management Plan (CEMP) for a proposed development which consists of the following

Development comprising the construction a total of 49 no. dwellings (21 no. 1 bedroom, 20 no. 2 bedroom and 8 no. 3 bedroom apartments), all on a site of approximately 0.40 hectares at Commons Road, Blackpool, Cork.

The purpose of this plan is to provide information necessary to ensure that the management of construction and demolition (C&D) waste at the site is undertaken in accordance with the current legal and industry standards. In particular, this Plan aims to ensure maximum recycling, reuse and recovery of waste with diversion from landfill, wherever possible. It also seeks to provide guidance on the appropriate collection and transport of waste from the site to prevent issues associated with litter or more serious environmental pollution (e.g. contamination of soil and/or water).

This CEMP includes information on the legal and policy framework for C&D waste management in Ireland, estimates of the type and quantity of C&D waste to be generated by the proposed development and makes recommendations for management of different waste streams.

2 **Construction & Demolition Waste Management in Ireland**

The Irish Government issued a policy statement in September 1998 known as *'Changing Our Ways'* , which identified objectives for the prevention, minimisation, reuse, recycling, recovery and disposal of waste in Ireland. The target for C&D waste in this report was to recycle at least 50% of C&D waste within a five year period (by 2003), with a progressive increase to at least 85% over fifteen years (i.e. 2013).

In response to the *Changing Our Ways* report, a task force (Task Force B4) representing the waste sector of the already established Forum for the Construction Industry, released a report entitled '*Recycling of Construction and Demolition Waste'* concerning the development and implementation of a voluntary construction industry programme to meet the Government's objectives for the recovery of C&D waste.

The most recent national policy document was published in July 2012, entitled '*A Resource Opportunity - Waste Management Policy in Ireland'* [7]. This document stresses the environmental and economic benefits of better waste management, particularly in relation to waste prevention. The document sets out a number of actions in relation to C&D waste and commits to undertake a review of specific producer responsibility requirements for C&D projects over a certain threshold.

The National Construction and Demolition Waste Council (NCDWC) was launched in June 2002, as one of the recommendations of the Forum for the Construction Industry, in the Task Force B4 final report. The NCDWC subsequently produced '*Best Practice Guidelines for the Preparation of Waste Management Plans for Construction and Demolition Projects'* in July 2006 in conjunction with the then Department of the Environment, Heritage and Local Government (DoEHLG). The guidelines outline the issues that need to be addressed at the pre-planning stage of a development all the way through to its completion. These guidelines have been followed in the preparation of this document and include the following elements:

- Predicted C&D wastes and procedures to prevent, minimise, recycle and reuse wastes;
- Waste disposal/recycling of C&D wastes at the site;
- Provision of training for waste manager and site crew;
- Details of proposed record keeping system;
- Details of waste audit procedures and plan; and
- Details of consultation with relevant bodies i.e. waste recycling companies, City Council etc.

3 Project Description

3.1 Location, Size and Scale of the Development

The proposed development consists of the construction a total of 49 no. dwellings (21 no. 1 bedroom, 20 no. 2 bedroom and 8 no. 3 bedroom apartments), all on a site of approximately 0.40 hectares at Commons Road, Blackpool, Cork.

3.2 Details of the Non-Hazardous Wastes to be produced

There are a number of 2 storey dwellings along the Commons Road boundary that are to be demolished and this will result primarily in concrete, masonry, plasterboard, timber and slate / tile waste.

Topsoil and subsoil will be excavated during the construction phase to facilitate construction of the building foundations, underground services and access routes. Excavated material will be reused on site where possible with the remainder made available for re-use off-site. During the construction phase there will be a surplus of building materials, such as timber off-cuts, broken concrete blocks, cladding, plastics, metals and tiles generated. There may also be excess concrete during construction which will need to be disposed of. Plastic and cardboard waste from packaging and supply of materials will also be generated.

Waste will also be generated from construction workers e.g. organic/food waste, dry mixed recyclables (waste paper, newspaper, plastic bottles, packaging, aluminium cans, tins and Tetra Pak cartons), mixed non-recyclables and potentially sewage sludge from temporary welfare facilities provided onsite during the construction phase. Waste printer/toner cartridges, waste electrical and electronic equipment (WEEE) and waste batteries may also be generated infrequently from site offices.

3.3 Potential Hazardous Wastes to be produced

3.3.1 Contaminated Soil

A site investigation will be carried out including an environmental analysis to check that all materials are below the inert threshold concentration for waste as per Waste Acceptance Criteria (WAC) specified in the *European Communities (EC) Council Decision 2003/33/EC)*. All excavations will be carefully monitored by a suitably qualified person to ensure that potentially contaminated soil is identified and segregated, if encountered.

In the event that any potentially contaminated material is encountered, it will need to be segregated from clean/inert material, tested and classified as either non-hazardous or hazardous in accordance with the EPA publication entitled *'Waste Classification: List of Waste & Determining if Waste is Hazardous or Non-Hazardous'* using the *HazWasteOnline* application (or similar approved classification method). The material will then need to be classified as inert, non-hazardous or hazardous in accordance with the *EC Council Decision 2003/33/EC*, which establishes the criteria for the acceptance of waste at landfills.

3.3.2 Fuel/Oils

As fuels and oils are classed as hazardous materials, any on-site storage of fuel/oil, all storage tanks and all draw-off points will be bunded (or stored in double-skinned tanks) and located in a dedicated, secure area of the site. Provided that these requirements are adhered to and site crew are trained in the appropriate refuelling techniques, it is not expected that there will be any fuel/oil wastage at the site.

3.3.3 Other known Hazardous Substances

Paints, glues, adhesives and other known hazardous substances will be stored in designated areas. They will generally be present in small volumes only and associated waste volumes generated will be kept to a minimum.

3.3.4 Main C&D Waste Categories

The main non-hazardous and hazardous waste streams that could be generated by the construction and demolition activities at a typical site are shown in Table 3.1. The List of Waste (LoW) code (as effected from 1 June 2015) (also referred to as the European Waste Code or EWC) for each waste stream is also shown.

Waste Material	**LoW Code**
Concrete, bricks, tiles, ceramics	17 01 01-03 & 07
Wood, glass and plastic	17 02 01-03
Bituminous mixtures	17 03 02
Metals (including their alloys)	17 04 01-07
Soil and stones	17 05 04
Gypsum-based construction material	17 08 02
Paper and cardboard	20 01 01
Mixed C&D waste	17 09 04
Green waste	20 02 01
Electrical and electronic components	20 01 35 & 36
Batteries and accumulators	20 01 33 & 34
Liquid fuels	13 07 01-03
Chemicals (solvents, pesticides, paints, adhesives, detergents etc.)	20 01 13, 19, 27-30
Insulation materials	17 06 04

Table 3.3

4 Waste Management

4.1 Construction Waste Generation

Table 4.1 shows the breakdown of C&D waste types produced on a typical site based on data from the EPA *National Waste Reports*.

Waste Types	**%**
Mixed C&D	33
Timber	28
Plasterboard	10
Metals	8
Concrete	6
Other	15
Total Waste	**100**

Table 4.1

4.2 Proposed Waste Management Options

Waste materials generated will be segregated on site, where it is practical. Where the on-site segregation of certain wastes types is not practical, off-site segregation will be carried out. There will be skips and receptacles provided to facilitate segregation at source. All waste receptacles leaving site will be covered or enclosed. The appointed waste contractor will collect and transfer the wastes as receptacles are filled.

All waste arisings will be handled by an approved waste contractor holding a current waste collection permit. All waste arisings requiring removal off-site will be reused, recycled, recovered or disposed of at a facility holding the appropriate registration, permit or licence, as required.

Some of the sub-contractors on site will generate waste in relatively low quantities. The transportation of non-hazardous waste by persons who are not directly involved with the waste business, at weights less than or equal to 2 tonnes, and in vehicles not designed for the carriage of waste, are exempt from the requirement to have a waste collection permit (Ref. Article 30 (1) (b) of the Waste Collection Permit Regulations 2007 as amended). Any sub-contractors engaged that do not generate more than 2 tonnes of waste at any one time can transport this waste offsite in their work vehicles (which are not designed for the carriage of waste). However, they are required to ensure that the receiving facility has the appropriate COR / permit / licence.

Written records will be maintained by the contractor(s) detailing the waste arising throughout the construction phases, the classification of each waste type, waste collection permits for all waste contractors who collect waste from the site and COR/permit or licence for the receiving waste facility for all waste removed and disposed off-site.
Dedicated bunded storage containers will be provided for hazardous wastes which may arise such as batteries, paints, oils, chemicals etc., if required.

The management of the main waste streams are detailed as follows:

<u>Top Soil & Sub Soils:</u>
The Waste Management Hierarchy states that the preferred option for waste management is prevention and minimisation of waste, followed by preparing for reuse and recycling/recovery, energy recovery (i.e. incineration) and, least favoured of all, disposal. The excavations are required to facilitate construction works so the preferred option (prevention and minimisation) cannot be accommodated for the bulk excavation phase.
The next option (beneficial reuse) may be appropriate for the excavated material pending environmental testing to classify the material as hazardous or non-hazardous in accordance with the EPA *Waste Classification – List of Waste & Determining if Waste is Hazardous or Non-Hazardous* publication. Clean material may be used as fill material in other construction projects or engineering fill for waste licensed sites. Beneficial reuse of surplus excavation

material as engineering fill may be subject to further testing to determine if materials meet the specific engineering standards for their proposed end-use.

Any nearby sites requiring clean fill/capping material will be contacted to investigate reuse opportunities for clean and inert material. If any of the material is to be reused on another site as a by-product (and not as a waste), this will be done in accordance with Article 27. Similarly, if any soils/stones are imported onto the site from another construction site as a by-product, this will also be done in accordance with Article 27.

If the material is deemed to be a waste, then removal and reuse/recycling/ recovery/disposal of the material will be carried out in accordance with the *Waste Management Acts 1996 – 2011* as amended, the *Waste Management (Collection Permit) Regulations 2007* as amended and the *Waste Management (Facility Permit & Registration) Regulations 2007* as amended. The volume of waste removed will dictate whether a COR, permit or licence is required by the receiving facility. Once all available beneficial reuse options have been exhausted, the options of recycling and recovery at waste permitted and licensed sites will be considered.

In the event that contaminated material is encountered and subsequently classified as hazardous, this material will be stored separately to any non-hazardous material. It will require off-site treatment at a suitable facility or disposal abroad via Transfrontier Shipment of Wastes (TFS).

Bedrock

Trial holes dug on site indicate that there is rock at a shallow depth on the site, particularly near the development entrance. Bedrock will be encountered during excavation works. It will be removed from the site for off-site reuse or disposal. If it is to be reused on another site as by-product(and not as a waste), this will need to be done in accordance with Article 27 of the *EC (Waste Directive) Regulations 2011*

Silt & Sludge

During the construction phase, standard construction phase silt and petrochemical interception should be carried out on all runoff and pumped water from site works.

Concrete Blocks, Bricks, Tiles & Ceramics

The majority of concrete blocks, bricks, tiles and ceramics generated as part of the construction and demolition works are expected to be clean, inert material and should be recycled, where possible.

Hard Plastic

As hard plastic is a highly recyclable material, much of the plastic generated will be primarily from material off-cuts. All recyclable plastic will be segregated and recycled, where possible.

Timber

Timber that is uncontaminated, i.e. free from paints, preservatives, glues etc., will be disposed of in a separate skip and recycled off-site.

Metal

Metals will be segregated into mixed ferrous, aluminium cladding, high grade stainless steel, low grade stainless steel etc., where practical and stored in skips. Metal is highly recyclable and there are numerous companies that will accept these materials.

Plasterboard

There are currently a number of recycling services for plasterboard in Ireland. Plasterboard from the construction phase will be stored in a separate skip, pending collection for recycling. The site manager will ensure that oversupply of new plasterboard is carefully monitored to minimise waste.

Glass

Glass materials will be segregated for recycling, where possible.

Waste Electrical and Electronic Equipment (WEEE)

Any WEEE will be stored in dedicated covered cages/receptacles/pallets pending collection for recycling.

Other Recyclables

Where any other recyclable wastes such as cardboard and soft plastic are generated, these will be segregated at source into dedicated skips and removed off-site.

Non-Recyclable Waste

C&D waste which is not suitable for reuse or recovery, such as polystyrene, some plastics and some cardboards, will be placed in separate skips or other receptacles. Prior to removal from site, the non-recyclable waste skip/receptacle will be examined by a member of the waste team (see Section 6.0) to determine if recyclable materials have been placed in there by mistake. If this is the case, efforts will be made to determine the cause of the waste not being segregated correctly and recyclable waste will be removed and placed into the appropriate receptacle.

Hazardous Wastes

On-site storage of any hazardous wastes produced (i.e. contaminated soil if encountered and/or waste fuels) will be kept to a minimum, with removal off-site organised on a regular basis. Storage of all hazardous wastes on-site will be undertaken so as to minimise exposure to on-site personnel and the public and to also minimise potential for environmental impacts. Hazardous wastes will be recovered, wherever possible, and failing this, disposed of appropriately.

It should be noted that until a construction contractor is appointed it is not possible to provide information on the specific destinations of each waste stream. Prior to commencement of

development and removal of any waste offsite, details of the proposed destination of each waste stream will be provided to Cork City Council.

4.3 Tracking and Documentation Procedures for Off-Site Waste

All waste will be documented prior to leaving the site. Waste will be weighed by the contractor, either by weighing mechanism on the truck or at the receiving facility. These waste records will be maintained on site by the nominated project Waste Manager.

All movement of waste and the use of waste contractors will be undertaken in accordance with the *Waste Management Acts 1996 - 2011*, *Waste Management (Collection Permit) Regulations 2007* and Amendments and *Waste Management (Facility Permit & Registration) Regulations 2007* and Amendments. This includes the requirement for all waste contractors to have a waste collection permit issued by the NWCPO. The nominated project waste manager will maintain a copy of all waste collection permits on-site.

If the waste is being transported to another site, a copy of the Local Authority waste COR/permit or EPA Waste/IED Licence for that site will be provided to the nominated project waste manager. A receipt from the final destination of the material will be kept as part of the on-site waste management records.

All information will be entered in a waste management recording system to be maintained on site.

5 Training Provisions

A member of the construction team will be appointed as the project waste manager to ensure commitment, operational efficiency and accountability during the construction phase of the project.

5.1 Waste Manager Training and Responsibilities

The nominated waste manager will be given responsibility and authority to select a waste team if required, i.e. members of the site crew that will aid him/her in the organisation, operation and recording of the waste management system implemented on site. The waste manager will have overall responsibility to oversee, record and provide feedback to the client on everyday waste management at the site. Authority will be given to the waste manager to delegate responsibility to sub-contractors, where necessary, and to coordinate with suppliers, service providers and sub-contractors to prioritise waste prevention and material salvage.

The waste manager will be trained in how to set up and maintain a record keeping system, how to perform an audit and how to establish targets for waste management on site. The waste manager will also be trained in the best methods for segregation and storage of

recyclable materials, have information on the materials that can be reused on site and be knowledgeable in how to implement this C&D WMP.

5.2 Site Crew Training

Training of site crew is the responsibility of the waste manager and, as such, a waste training program should be organised. A basic awareness course will be held for all site crew to outline the C&D WMP and to detail the segregation of waste materials at source. This may be incorporated with other site training needs such as general site induction, health and safety awareness and manual handling.

This basic course will describe the materials to be segregated, the storage methods and the location of the Waste Storage Areas (WSAs). A sub-section on hazardous wastes will be incorporated into the training program and the particular dangers of each hazardous waste will be explained.

6 **Record Keeping**

Records will be kept for all waste material which leaves the site, either for reuse on another site, recycling or disposal. A recording system will be put in place to record the construction waste arisings on site. A copy of the Waste Collection Permits, CORs, Waste Facility Permits and Waste Licences will be maintained on site at all times.

The waste manager or delegate will record the following;
1. Waste taken for reuse off-site;
2. Waste taken for recycling;
3. Waste taken for disposal; and
4. Reclaimed waste materials brought on-site for reuse.

For each movement of waste off-site, a signed docket will be obtained by the Waste Manager from the waste collection contractor, detailing the weight and type of the material and the source and destination of the material. This will be carried out for each material type. This system will also be linked with the delivery records. In this way, the percentage of C&D waste generated for each material can be determined.

The system will allow the comparison of these figures with the targets established for the recovery, reuse and recycling of C&D waste presented earlier and to highlight the successes or failures against these targets.

7 Waste Audit Procedure

7.1 Responsibility for Waste Audit

The appointed waste manager will be responsible for conducting a waste audit at the site during the construction phase of the development.

7.2 Review of Records and Identification of Corrective Actions

A review of all the records for the waste generated and transported off-site should be undertaken mid-way through the project. If waste movements are not accounted for, the reasons for this should be established in order to see if and why the record keeping system has not been maintained. The waste records will be compared with the established recovery/reuse/recycling targets for the site.

Each material type will be examined, in order to see where the largest percentage waste generation is occurring. The waste management methods for each material type will be reviewed in order to highlight how the targets can be achieved. Waste management costs will also be reviewed.

Upon completion of the construction phase, a final report will be prepared, summarising the outcomes of waste management processes adopted and the total recycling/reuse/recovery figures for the development.

8 Consultation with the Relevant Bodies

8.1 Local Authority

Once a construction contractor has been appointed and prior to removal of any waste materials offsite, details of the proposed destination of each waste stream will be provided to Cork City Council
Cork City Council will also be consulted, as required, throughout the excavation and construction phases in order to ensure that all available waste reduction, reuse and recycling opportunities are identified and utilised and that compliant waste management practices are carried out.

8.2 Recycling/Salvage Companies

Companies that specialise in C&D waste management will be contacted to determine their suitability for engagement. Where a waste contractor is engaged, each company will be audited in order to ensure that relevant and up-to-date waste collection permits and facility COR/permits/licences are held.

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- Chartered Consulting Engineers
- Fire Safety Engineers
- Project Managers
- Assigned Certifiers

Feasibility Stage Fire Safety Compliance Report

Apartment Development,

Commons Road,

Blackpool,

Cork

On Behalf of

Culclan Construction Limited

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1 Introduction

CLC & Associates have been appointed by Culclan Construction Limited to carry out an initial fire safety compliance review on a proposed apartment complex development. The brief of the compliance review is to confirm that following detailed design, the proposed development can be constructed in full compliance with Technical Guidance Document B 2006 and Recommendations for Site Development works for Housing Areas (Department of Environment and Local Government 1998)

The proposed development consists of the construction of 49 No. apartments located on a disused site.

The proposed development consists of one and two-bedroom apartments with ancillary storage, and amenity space. The proposed development is access via an existing entrance leading from Commons Road.

A Fire Safety Compliance assessment of the feasibility stage proposal has been carried out and the summary of this assessment is included within this report.

2 **Summary**

The proposed development consists of an apartment development of forty-nine dwellings. The site is accessed from the public roadway and contains a central road network through the site.

It is proposed to install various fire hydrants throughout the site. The requirement for water for fire fighting purposes was included in a pre-development application submission to Irish Water and confirmation has been received from Irish Water that the required water supply is available.

The proposed development contains four different buildings.

The following is a summary of the buildings:

- Building No.1 – Block A
    - Part three storey to five storey building with access provided at ground and first floor level
    - Containing mix of single level apartments accessed from protected stairways
- Building No.2 – Block B
    - Three storeys building with access at ground floor level
    - Containing single level apartments accessed from a central stairway with mid floor access provided for top floor apartment
- Building No.C
    - Three storeys building with access at ground floor level
    - Containing single level apartments accessed from a central stairway with mid floor access provided for top floor apartment
- Building No.D
    - Three storeys building with access at ground floor level
    - Containing single level apartments accessed from a central stairway with mid floor access provided for top floor apartment

Each building will require a separate Fire Safety Certificate application to be lodged.

3 **Fire Safety Compliance**

The current proposal was reviewed for compliance with Technical Guidance Document B 2006. In addition, compliance with BS 9991 2015 was also reviewed as per Section 1.0 of Technical Guidance Document B.

Each of the buildings on the site have different layouts and access points. The assessment carried out by CLC & Associates found that following detailed design the layouts of the proposed development can achieve compliance with the following:

- Section 2 and Section 5 of BS 9991 2015 to allow for adequate means of escape to include the provision of the following:
    - Protected entrance corridors to apartments
    - Protected stairways within apartments
    - Internal planning of flats and maisonettes in accordance with Paragraph 9.1-9.5 and Annex D of BS 9991:2015
- Section 1.4 of Technical Guidance Document B 2006
- Section 2 of Technical Guidance Document B 2006
    - Construction to prevent internal spread of fire via linings
- Section 3 of Technical Guidance Document B 2006 to include the provision of the following:
    - Compartmentation to each individual unit to prevent internal spread of fire via structure
- Section 4 of Technical Guidance Document B 2006 to include:
    - Suitable space separation to prevent external spread of fire
- Section 5 of Technical Guidance Document B 2006 to include:
    - Perimeter access requirements to perimeter of building in accordance with Table 5.1 of Technical Guidance Document B 2006
    - High reach access to buildings over 10 meters from ground level
    - Adequate water supply for firefighting purposes to be provided from Irish Water

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- Assigned Certifiers

INFRASTRUCTURE REPORT

Apartment Development,

Commons Road,

Blackpool,

Cork

On Behalf of

Culclan Construction Limited

Table of Contents

Document Revision Table

Revision	Date	Issue	Prepared By	Checked By
0	26.05.2020	Issue for Part 8	GOS	CC

1 Introduction

1.1 Objectives

CLC & Associates are engaged as the Consulting Engineers for a proposed development at Commons Road, Cork which consists of the following

Development comprising the construction a total of 49 no. dwellings (21 no. 1 bedroom, 20 no. 2 bedroom and 8 no. 3 bedroom apartments), all on a site of approximately 0.40 hectares at Commons Road, Blackpool, Cork.

This report details the engineering services associated with the planning application and should be read in conjunction with the relevant engineering drawings.

1.2 Site Location

The site is located on Commons Road, close to the junction with Brocklesby Street. The site is bounded by

- Commons Road to the east,
- A steep rock face to the west and the north and
- A yard with industrial units to the south. This is the subject of a current planning application, 20/39048.

The site area is circa 0.40 hectare.

1.3 Site Topography

The topography of the site varies. There is a steep rock face to the western boundary. The ground level to the northern section of the site is circa 14.0m and the ground level reduces at the access to the Commons Road to circa 10.0m.

2 Foul Sewer

2.1 Existing Foul Sewer

There is an existing combined sewer on the Commons Road outside the site.

2.2 Proposed Foul Sewer

It is proposed to construct a new gravity foul sewer within the site draining to the entrance of the development from where it will connect to the existing combined sewer.

A pre connection application was submitted to Irish Water. This application was in June 2019 and was for 69 units. The current no. of proposed units is 49. A confirmation of feasibility was received from Irish Water, see Appendix A for details.

The design flow rates from the development will be as per Appendix D of the Irish Water Code of Practice for Wastewater Infrastructure, December 2017 Revision 1, see Appendix A for calculations

All gravity pipe runs shall be designed to achieve a minimum self-cleansing velocity of 0.75 m/s with a maximum velocity of 3.0 m/s. The proposed foul water sewerage system shall be designed and constructed in accordance BS EN 752-2008 and Irish Water Wastewater Infrastructure Standard Documents.

The minimum pipework size shall be 150mm internal diameter with minimum falls of 1:100. The cover to the pipework within traffic areas shall be 1200mm and in non-traffic areas shall be 900mm. In the event that this cover cannot be achieved, all pipework shall be encased in leanmix concrete.

3 Storm Water

3.1 Existing Storm Sewer

Cork City Council have confirmed that there is no stormwater network adjacent to the development.

3.2 Surface Water Drainage Management

It is proposed to discharge the storm water to the River Bride which runs approximately parallel to the Commons Road on the far side of the road.

Within the development, it is proposed to use a sustainable urban drainage system (SuDS) approach to stormwater management. The overall strategy aims to provide an effective system to mitigate the adverse effects of stormwater runoff on the environment by reducing run-off rates, volumes and frequency, reducing pollutant concentrations in stormwater and allow for the maximum collection of rainwater for re-use where possible.

SuDS proposals were evaluated under site specific constraints for use in the proposed development site. The summary is as follows:

Storage Pond

The creation of a pond would require large volume excavations and due to the steep topography of the site, it was not considered suitable. There is also the issue regarding the health and safety associated with ponds in a development of this type.

Permeable Paving

Porous surfacing (paving block or open graded material) can treat rainwater, at source, and allow infiltration through an underlying porous sub-base to the existing ground. Site investigation show rock at or near the ground level, so the site is not suitable for infiltration.

Stormwater Attenuation

Underground stormwater attenuation will be provided to limit the discharge from the development to greenfield rates. Refer to Section 3.4 for details of the attenuation design.

Petrol Interceptor

Proprietary oil/water separators which prevents hazardous chemical and petroleum products from entering watercourses and public sewers will be provided within the development.

3.3 Surface Water Network Design

The proposed surface water drainage network will collect runoff from all impermeable areas and drain by gravity to the attenuation storage tanks. The minimum pipework size shall be 225mm internal diameter with minimum falls of 1:200. The cover to the pipework within traffic areas shall be 1200mm and in non-traffic areas shall be 900mm. In the event that this cover cannot be achieved, all pipework shall be encased in leanmix concrete.

The surface water drainage will be designed in accordance with the following criteria

- BS EN752:2008 – Drain and Sewer Systems outside Buildings
- Greater Dublin Strategic Drainage Study (GDSDS) Volume 2 – New Development
- All pipe runs shall be designed to achieve a minimum self cleansing velocity of 1 m/s.
- A roughness value (k) of 0.6mm is used in the network design

Surface water run off has been calculated in accordance with the Modified Rational Method (Wallingford procedure) with intensities of 50 mm/hr.

Refer to Appendix B for storm water network calculations.

3.4 Surface Water Attenuation

3.4.1 Greenfield Flow Rate

The permissible outflow is calculated using the Institute of Hydrology Report No. 124: Flood estimation for small catchments.

$QBAR = 0.00108 \times (AREA)^{0.89} \times (SAAR)^{1.17} \times (SOIL)^{2.17}$

QBAR = The Mean Annual Peak Flow (Permissible outflow in m3.sec

AREA = Area of the Catchment (site) in km^2

SAAR = Standard Annual Average Rainfall

SOIL = Soil index

As the development is smaller than 50 ha, the analysis for determining the permissible outflow uses 50 ha in the formula and linearly interpolates the flow rate value based on the ratio of the development to 50 ha.

QBAR is calculated as 1.20 litres / sec and the allowable discharge is set to the 2-year return period or 2 l/s/ha, whichever is greater.

Hydrological Region: 13

Return period: 2 years

Growth curve factor: 0.95

Allowable discharge: 1.20 litres / sec = 3 litres / sec / ha

It is proposed to split the development into 2 no. catchment areas for drainage purposes, see Figure 1. Each area will have its own attenuation storage and the limited discharge.

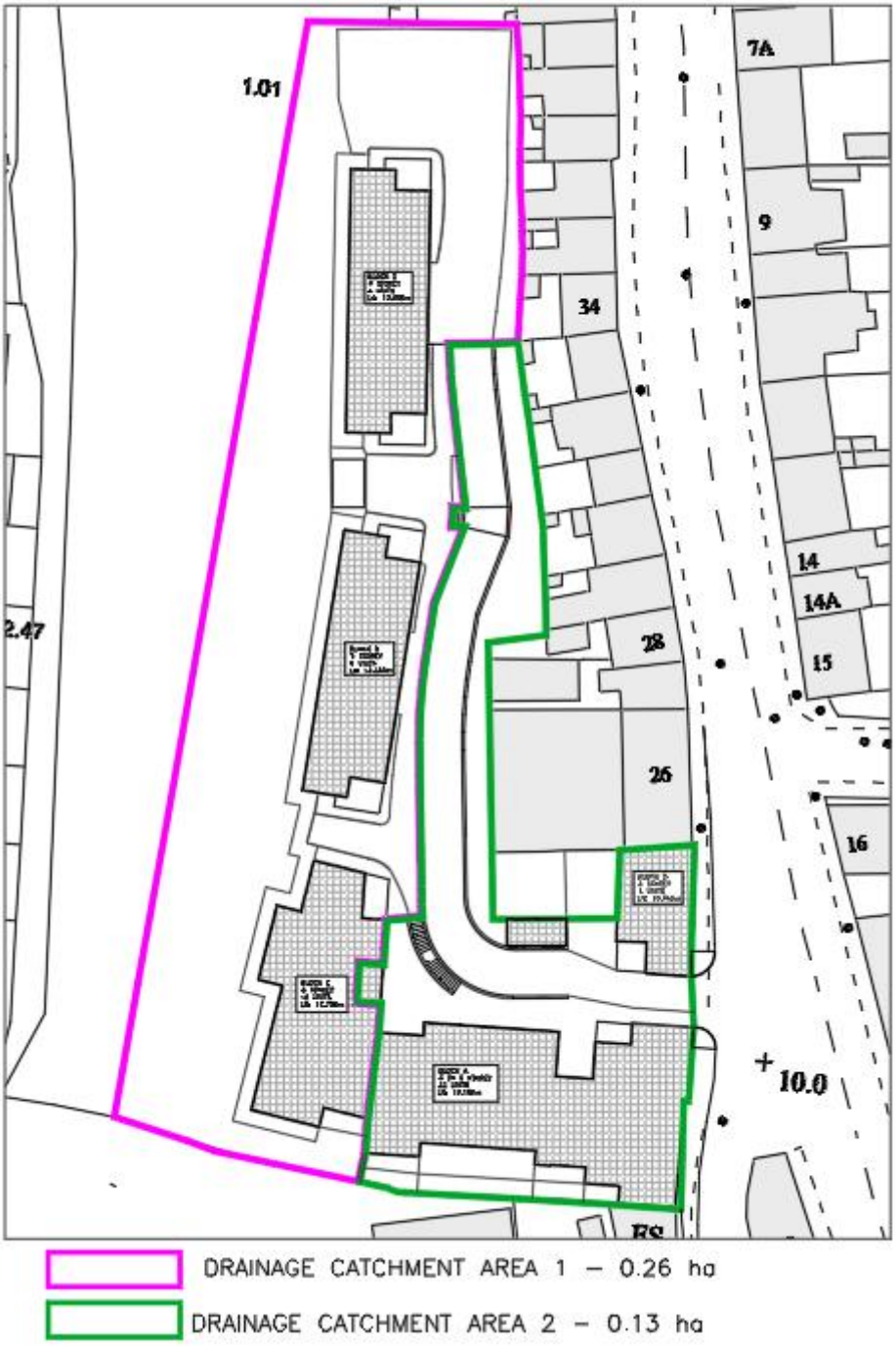


Figure 1 – Drainage Catchment Areas

Figure 2 shows the impermeable roof and hardstanding areas associated with each catchment area.

Figure 2

Individual greenfield flow rates have been calculated for each catchment area, see Appendix B for details. Table 1 below shows the permissible outflow from each catchment area

	Permitted Outflow (litres / sec)
Catchment Area 1	0.80
Catchment Area 2	0.40

Table 1

3.4.2 Attenuation Storage Design

The tanks will be designed for storage for a 1 in 100-year event. The rainfall figures used are from Met Eireann with a 10% allowance for climate change. See Appendix B for the Met Eireann figures.

The discharge from each attenuation tank is limited by a flow control valve with the discharge limits as per Table 2 below

	Discharge limit (litres / sec)
Attenuation Tank 1	0.80
Attenuation Tank 2	0.80 + 0.40 = 1.20

Table 2

See Appendix B for the attenuation storage design.

4 **Water Supply**

It is proposed to serve the development by means of a connection to the existing watermain located on the public roadway adjacent to the site.

It is proposed to provide a watermain network within the new development consisting of a 100mm watermain. The networks shall be looped where feasibly possible. The system shall be design and constructed in accordance with Irish Water Infrastructure Standard Documents.

Please see enclosed in Appendix A confirmation from Irish Water that sufficient capacity is available to service the development.

Water supply for Fire Fighting purposes shall be provided at a rate of 20 litres per second for two hours in accordance with National Guidance on Water for Fighting published by Water UK.

5 Site Access & Levels

The development entrance will be from the Commons Road. Sightlines of 23m in each direction can be achieved at a 2m set back. This is in compliance with DMURS for a 30 km/hr speed limit.

There is a shared surface ramp to provide access to the upper section of the site. This ramp is at a gradient of 1 in 22. This is proposed to be the maximum gradient on the site

Hardstanding surfaces will be constructed with 1:40 camber generally & footpaths will be laid with a 1:50 crossfall draining towards the roadways.

The proposed levels of apartment entry and roads will be designed to ensure compliance with Part M of the Building Regulations will be achieved.

6 Flood Risk Assessment

Further to review of flood mapping for the area, it was noted that the site is identified as being outside of flood zones mapped for the area. In this context a Full Flood Risk Assessment (FRA) Report is deemed not to be required to support the planning application.

The flood maps are included in Appendix C.

It is noted that the storm water drainage from the development is proposed to discharge to the River Bride adjacent to the site. This river is subject to flooding. In the event of a flood, discharge will not be possible due to the non-return valve that will be installed as part of the outfall. The storm event requiring the maximum storage in attenuation tank 2 is the 6-hour storm event. It is therefore proposed that the attenuation storage provided in tank no.2 be for the full run off amount for this 6-hour duration. All stormwater will be stored on site for this 6-hour duration.

7 Appropriate Assessment

The location of the proposed development on Commons Road would be considered to be in an areas of Cork Harbour SPA (Site Code 004030) and the Great Island Channel cSPA (Site Code 001058). At the current stage of the development it is considered that the scale and nature of the proposal would not merit the requirement for an Appropriate Assessment Screening Report. On completion of the Planning Application for the development, this matter shall be reviewed.

8 Environmental Impact Statement

The location, scale and nature of the proposed development would not merit the requirement for an Environmental Impact Statement Screening Report.

9 Historic Map of Site

Below is an extract from the OSI website with the historic 6" first edition OS map as the base layer. The site location is highlighted

Appendix A

Uisce Éireann
Bosca OP 6000
Baile Átha Cliath 1
Éire

Irish Water
PO Box 6000
Dublin 1
Ireland

T: +353 1 89 25000
F: +353 1 89 25001
www.water.ie

Ger O' Sullivan
Acorn Business Park
Blackrock
Co. Cork

7 June 2019

Dear Ger O' Sullivan,

Re: Connection Reference No CDS19003589 pre-connection enquiry - Subject to contract | Contract denied

Connection for Housing Development of 69 unit(s) at Commons Road, Blackpool, Co. Cork.

Irish Water has reviewed your pre-connection enquiry in relation to a water connection at Commons Road, Blackpool, Co. Cork.

Based upon the details that you have provided with your pre-connection enquiry and on the capacity currently available in the network(s), as assessed by Irish Water, we wish to advise you that, subject to a valid connection agreement being put in place, your proposed connection to the Irish Water network(s) can be facilitated.

In the case of wastewater connections this assessment does not confirm that a gravity connection is achievable. Therefore a suitably sized pumping station may be required to be installed on your site. All infrastructure should be designed and installed in accordance with the Irish Water Code of Practice.

Please note the confirmation of feasibility to connect to the Irish Water infrastructure does not extend to your fire flow requirements. In order to determine the flow rate currently available in the event of a fire, a pressure/flow test on the existing network is required. If you wish to undertake a test, please liaise with Cork City Council (Agents to Irish Water). While flows in excess of your required demand may be achieved in the Irish Water network and could be utilised in the event of a fire, Irish Water cannot guarantee a flow rate to meet your fire flow requirement.

All infrastructure should be designed and installed in accordance with the Irish Water Codes of Practice and Standard Details. A design proposal for the water and/or wastewater infrastructure should be submitted to Irish Water for assessment. Prior to submitting your planning application, you are required to submit these detailed design proposals to Irish Water for review.

You are advised that this correspondence does not constitute an offer in whole or in part to provide a connection to any Irish Water infrastructure and is provided subject to a connection agreement being signed at a later date.

A connection agreement can be applied for by completing the connection application form available at **www.water.ie/connections**. Irish Water's current charges for water and wastewater connections are set out in the Water Charges Plan as approved by the Commission for Regulation of Utilities.

If you have any further questions, please contact Brian O'Mahony from the design team on 022 52205 or email bomahony@water.ie. For further information, visit **www.water.ie/connections.**

Yours sincerely,

Maria O'Dwyer

Connections and Developer Services

Project: Commons Road
Project No: 18002
Foul Drainage Calculation Rev: 0

MH Nr	Pipe Length (m)	U/S C.L. (mOD)	D/S C.L. (mOD)	U/S I.L. (mOD)	D/S I.L. (mOD)	Cover to U/S MH	Cover to D/S MH	Pipe Diameter (m)	Pipe Gradient (1 in -)	Pipe Gradient (m/m)	Drop (m)
Main Network											
F8-F7	24	13.30	13.30	12.25	11.95	0.90	1.20	0.15	80.0	0.013	0.300
F7-F6	10	13.30	13.35	11.95	11.85	1.20	1.35	0.15	100.0	0.010	0.100
F6-F5	26	13.35	13.35	11.85	11.59	1.35	1.61	0.15	100.0	0.010	0.260
F5-F4	5	13.35	11.40	11.59	10.04	1.61	1.21	0.15	100.0	0.010	1.550
F4-F3	13	11.40	10.70	10.04	9.50	1.21	1.05	0.15	24.0	0.042	0.542
F3-F2	21	10.70	10.00	9.50	8.62	1.05	1.23	0.15	24.0	0.042	0.875
F2-Exist	5	10.00	10.00	8.62	8.57	1.23	1.28	0.15	100.0	0.010	0.050
Branch 1											
F1-F2	26	10.00	10.00	8.95	8.63	0.90	1.23	0.15	80.0	0.013	0.325

MH	C.L. (mOD)	I.L. (mOD)
F1	10.00	8.95
F2	10.00	8.62
F3	10.70	9.50
F4	11.40	10.04
F5	13.35	11.59
F6	13.35	11.85
F7	13.30	11.95
F8	13.30	12.25
Exist	10.00	8.57

F5 Backdrop = 1.5

Hydraulic Loading

Proposed Hydraulic Loading:

49 dwellings | 447 litres/ dwelling per person = 21.903 m^3 / day

Peak Flow

Hours of operation = 24
Proposed DWF = 0.254 litres / sec
Proposed 6 x DWF = 1.521 litres / sec

Pipe Size Check

Pipe roughness = 1.5 mm
Self cleansing velocity = 0.75 m/s
Pipe diameter = 0.15 mm
Pipe Gradient (1 in -) 100.0
Pipe Capacity = 15.47 l/s > 6 DWF — **OK**
Pipefull Velocity = 0.88 m/s > 0.75 m/s — **OK**

Appendix B

Project: Commons Road
Project No: 18002
Storm Drainage Calculation Rev: 0

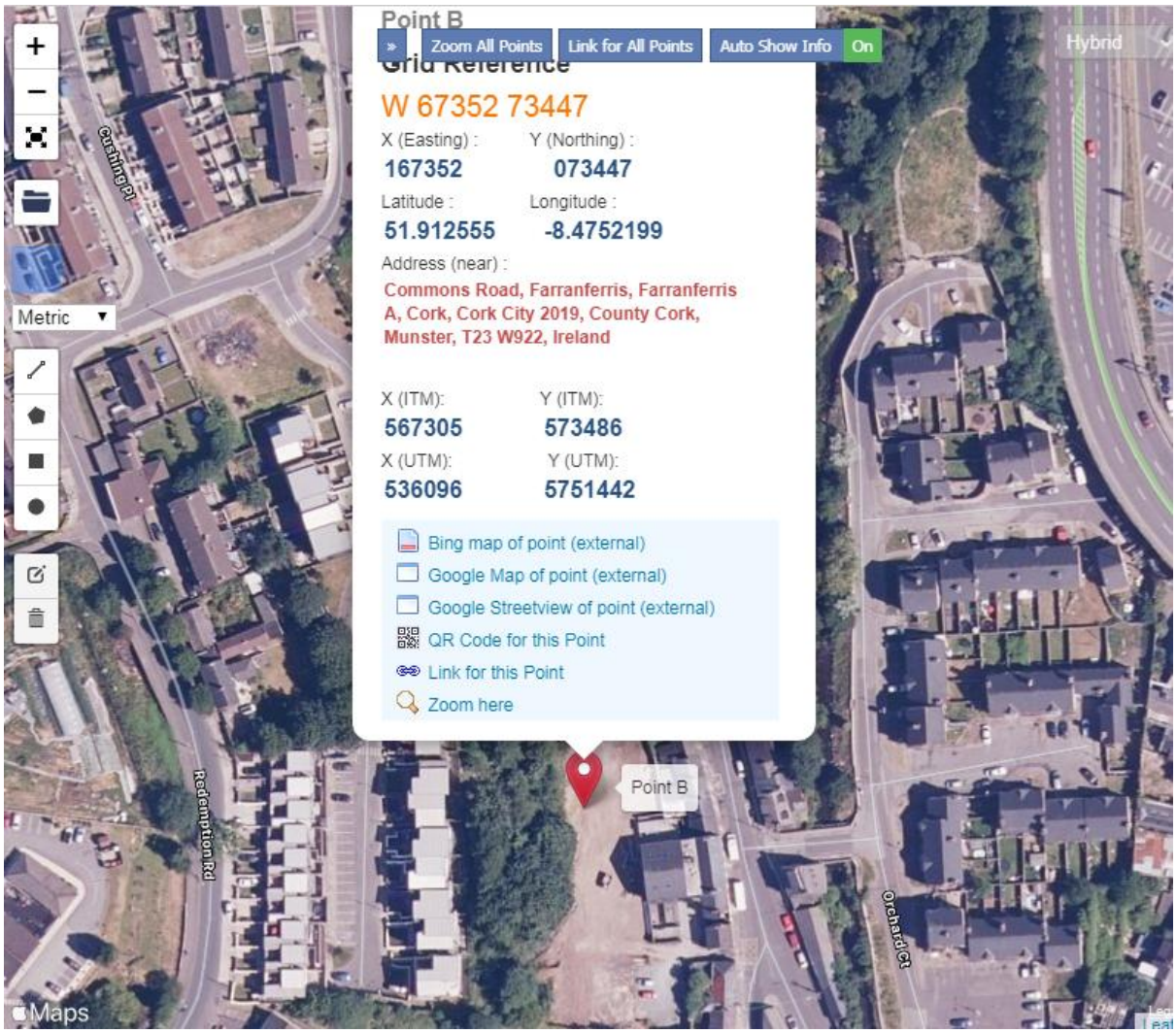
STORM NETWORK

Pipe roughness = 0.6 mm
Rainfall intensity = 50.0 mm/hr

MH Nr	Pipe Length (m)	U/S C.L. (mOD)	D/S C.L. (mOD)	U/S I.L. (mOD)	D/S I.L. (mOD)	Cover to U/S MH	Cover to D/S MH	Pipe Diameter (m)	Pipe Gradient (1 in -)	Pipe Gradient (m/m)	Drop (m)	Pipe Capacity (l/s)
Branch 1												
S1 - S2	7.2	13.60	13.40	12.48	12.44	0.90	0.74	0.225	200.0	0.005	0.036	36.56
S2 - S3	28.5	13.40	13.40	12.44	12.30	0.74	0.88	0.225	200.0	0.005	0.143	36.56
S3 - S5	5	13.40	13.40	12.30	12.25	0.88	0.93	0.225	100.0	0.010	0.050	51.93
S5 - S6	33	13.40	13.60	12.25	11.92	0.93	1.46	0.225	100.0	0.010	0.330	51.93
S6 - S7		13.60	13.60	11.92	11.02	1.68					0.900	
S7 - S8	34	13.60	12.70	11.02	10.68	2.36	1.80	0.225	100.0	0.010	0.340	51.93
S8 - S9	32	12.70	11.40	10.68	9.61	1.80	1.57	0.225	30.0	0.033	1.067	95.28
S9 - S10	13	11.40	10.75	9.61	9.18	1.57	1.35	0.225	30.0	0.033	0.433	95.28
S10 - S11	12	10.75	10.25	9.18	8.78	1.35	1.25	0.225	30.0	0.033	0.400	95.28
S11 - S13	5	10.25	10.20	8.78	8.68	1.25	1.30	0.225	50.0	0.020	0.100	73.67
S13 - S14	5	10.20	10.00	8.68	8.58	1.30	1.20	0.225	50.0	0.020	0.100	73.67
S14 - S15		10.00	10.00	8.58	8.38	1.42					0.200	
S15 - S16	17	10.00	9.80	8.38	8.21	1.40	1.37	0.225	100.0	0.010	0.170	51.93
S16 - S17	28	9.80	9.40	8.21	7.93	1.37	1.25	0.225	100.0	0.010	0.280	51.93
S17 - Outfall	5	9.40		7.93	7.88	1.25		0.225	100.0	0.010	0.050	51.93
Branch 2												
S4 - S5	6	13.50	13.40	12.38	12.32	0.90	0.86	0.225	100.0	0.010	0.060	51.93
Branch 2												
S12 - S13	17	10.00	10.20	8.88	8.71	0.90	1.27	0.225	100.0	0.010	0.170	51.93

MH	C.L. (mOD)	I.L. (mOD)
S1	13.60	12.48
S2	13.40	12.44
S3	13.40	12.30
S4	13.50	12.38
S5	13.40	12.25
S6	13.60	11.92
S7	13.60	11.02
S8	12.70	10.68
S9	11.40	9.61
S10	10.75	9.18
S11	10.25	8.78
S12	10.00	8.88
S13	10.20	8.68
S14	10.00	8.58
S15	10.00	8.38
S16	9.80	8.21
S17	9.40	7.93
Outfall		7.88

Irish Grid Coordinates for Met Eiresann Rainfall Figures



Met Eireann
Return Period Rainfall Depths for sliding Durations
Irish Grid: Easting: 167352, Northing: 73447,

	Interval		Years											
DURATION	6months,	1year,	2,	3,	4,	5,	10,	20,	30,	50,	75,	100,	150,	200,	250,	500,
5 mins	3.2,	4.4,	5.0,	5.9,	6.5,	6.9,	8.4,	10.0,	11.0,	12.5,	13.8,	14.7,	16.2,	17.4,	18.3,	N/A ,
10 mins	4.5,	6.1,	7.0,	8.2,	9.0,	9.6,	11.7,	13.9,	15.4,	17.4,	19.2,	20.5,	22.6,	24.2,	25.5,	N/A ,
15 mins	5.3,	7.2,	8.2,	9.6,	10.6,	11.3,	13.7,	16.4,	18.1,	20.5,	22.6,	24.2,	26.6,	28.5,	30.0,	N/A ,
30 mins	7.1,	9.4,	10.6,	12.4,	13.6,	14.5,	17.4,	20.6,	22.7,	25.5,	28.0,	29.8,	32.7,	34.9,	36.7,	N/A ,
1 hours	9.4,	12.3,	13.9,	16.1,	17.5,	18.6,	22.1,	25.9,	28.4,	31.7,	34.7,	36.9,	40.2,	42.8,	44.9,	N/A ,
2 hours	12.5,	16.1,	18.0,	20.7,	22.5,	23.8,	28.1,	32.7,	35.6,	39.5,	43.0,	45.6,	49.5,	52.5,	54.9,	N/A ,
3 hours	14.7,	18.9,	21.0,	24.1,	26.1,	27.6,	32.3,	37.4,	40.6,	45.0,	48.7,	51.6,	55.9,	59.1,	61.7,	N/A ,
4 hours	16.5,	21.1,	23.5,	26.8,	28.9,	30.5,	35.7,	41.1,	44.6,	49.2,	53.3,	56.3,	60.9,	64.3,	67.1,	N/A ,
6 hours	19.5,	24.8,	27.4,	31.1,	33.5,	35.3,	41.0,	47.0,	50.8,	56.0,	60.4,	63.7,	68.7,	72.5,	75.5,	N/A ,
9 hours	23.1,	29.0,	31.9,	36.1,	38.8,	40.8,	47.1,	53.8,	58.0,	63.7,	68.5,	72.1,	77.6,	81.6,	85.0,	N/A ,
12 hours	26.0,	32.4,	35.6,	40.2,	43.1,	45.3,	52.1,	59.2,	63.7,	69.8,	74.9,	78.8,	84.5,	88.9,	92.4,	N/A ,
18 hours	30.7,	38.0,	41.6,	46.6,	49.9,	52.3,	59.9,	67.8,	72.7,	79.3,	85.0,	89.2,	95.4,	100.1,	103.9,	N/A ,
24 hours	34.5,	42.5,	46.4,	51.9,	55.4,	58.0,	66.1,	74.6,	79.9,	86.9,	92.9,	97.4,	104.0,	109.0,	113.0,	126.4,
2 days	43.6,	52.9,	57.4,	63.8,	67.8,	70.8,	80.1,	89.6,	95.5,	103.4,	110.1,	115.0,	122.4,	127.8,	132.2,	146.9,
3 days	51.1,	61.6,	66.6,	73.7,	78.1,	81.4,	91.6,	102.1,	108.6,	117.2,	124.4,	129.7,	137.7,	143.6,	148.3,	164.0,
4 days	57.7,	69.2,	74.7,	82.4,	87.3,	90.9,	101.8,	113.1,	120.1,	129.3,	137.0,	142.8,	151.2,	157.5,	162.5,	179.3,
6 days	69.7,	82.9,	89.2,	97.9,	103.4,	107.5,	120.0,	132.7,	140.4,	150.7,	159.3,	165.7,	175.1,	182.1,	187.7,	206.1,
8 days	80.4,	95.2,	102.2,	111.8,	117.9,	122.4,	136.1,	150.0,	158.6,	169.8,	179.2,	186.1,	196.3,	203.9,	209.9,	229.9,
10 days	90.4,	106.5,	114.2,	124.7,	131.3,	136.2,	151.0,	166.0,	175.2,	187.3,	197.4,	204.8,	215.8,	223.9,	230.3,	251.6,
12 days	99.9,	117.3,	125.5,	136.8,	143.9,	149.1,	165.0,	181.1,	190.9,	203.7,	214.5,	222.4,	234.0,	242.6,	249.4,	272.0,
16 days	117.7,	137.4,	146.7,	159.5,	167.4,	173.3,	191.1,	209.0,	219.9,	234.2,	246.1,	254.9,	267.8,	277.2,	284.8,	309.6,
20 days	134.4,	156.3,	166.6,	180.6,	189.4,	195.9,	215.4,	235.0,	246.9,	262.5,	275.5,	285.1,	299.0,	309.3,	317.5,	344.4,
25 days	154.4,	178.7,	190.1,	205.7,	215.4,	222.5,	244.0,	265.6,	278.7,	295.8,	310.0,	320.4,	335.6,	346.8,	355.8,	385.0,

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

CLC & Associates Unit 2c, The Atrium Blackpool Retail Park Cork	Project: Commons Road No: 18002 Ref: Storm Water Attenuation	Date: 22.05.20 By: GOS Rev: 0

SURFACE WATER STORAGE - CATCHMENT AREA 1

Greenfield Flow Rate

Area =	0.260	ha	Ref: Site Plan
SAAR =	1144	mm	Ref: UK SuDS
SOIL =	0.3		

Note that IH24 requires the site area to be 50ha,
the result will be pro-ratad to the actual site area

$Q_{bar} = 0.00108 \times Area^{0.89} \times SAAR^{1.17} \times SOIL^{2.17}$

= 161.89 l / s / 50ha

= 0.84 l / s

Hydrological Region: 13

T (Years)	Q_T/QBAR
1	0.87
2	0.95
5	1.20
20	1.54
30	1.64
100	1.96

Maximum allowable discharges

Return period	2 year	30 year	100 year
Growth factor	0.95	1.64	1.96
Allowable discharge (l/s)	0.80	1.38	1.65
Allowable discharge (l/s/ha)	3.08	5.31	6.35

Set the allowable discharge for the 2 year return period or 2 l/s/ha, whichever is greater

Allowable discharge = 0.80 l/s

Attenuation Storage

Storm Return Period =	100	Years			
Total Site Area =	0.260	ha			
Proposed Impermeable Area (Roof) =	0.06	ha	.....@	100	% Impermeable
Proposed Impermeable Area (Hardstanding) =	0.17	ha	.....@	90	% Impermeable
Proposed Open Space =	0.03	ha	.....@	20	% Impermeable
Allowable Outflow =	0.80	Litres/sec			

[ ] denotes rainfall return figures from Met Eireann

Allow an additional 10% to the rainfall depths for climate change

Duration (min)		Rainfall (mm)	Rainfall allowed (mm)	Intensity (mm/hr)	Rainfall (m^3/ha)	Proposed Runoff (m^3)	Allowable Outflow (m^3)	Storage Req'd (m^3)
15		24.20	26.62	106.48	266.20	58.04	0.72	57.32
30		29.80	32.78	65.56	327.80	71.47	1.44	70.03
60		36.90	40.59	40.59	405.90	88.49	2.88	85.62
120	2 hours	45.60	50.16	25.08	501.60	109.36	5.76	103.60
240	4 hours	56.30	61.93	15.48	619.30	135.02	11.52	123.50
360	6 hours	63.70	70.07	11.68	700.70	152.77	17.27	135.49
720	12 hours	78.80	86.68	7.22	866.80	188.98	34.55	154.43
1440	24 hours	97.40	107.14	4.46	1,071.40	233.59	69.10	164.49
2880	2 days	115.00	126.50	2.64	1,265.00	275.80	138.19	137.60

Calculated storage volume required = 164 m^3

CLC & Associates Unit 2c, The Atrium Blackpool Retail Park Cork	Project: Commons Road No: 18002 Ref: Storm Water Attenuation	Date: 22.05.20 By: GOS Rev: 0

SURFACE WATER STORAGE - CATCHMENT AREA 2

Greenfield Flow Rate

Area =	0.130	ha	Ref: Site Plan
SAAR =	1144	mm	Ref: UK SuDS
SOIL =	0.3		

Note that IH24 requires the site area to be 50ha, the result will be pro-ratad to the actual site area

$Q_{bar} = 0.00108 \times Area^{0.89} \times SAAR^{1.17} \times SOIL^{2.17}$

= 161.89 l / s / 50ha

= 0.42 l / s

Maximum allowable discharges

Hydrological Region: 13

Return period	2 year	30 year	100 year
Growth factor	0.95	1.64	1.96
Allowable discharge (l/s)	0.40	0.69	0.82
Allowable discharge (l/s/ha)	3.08	5.31	6.35

T (Years)	$Q_T/QBAR$
1	0.87
2	0.95
5	1.20
20	1.54
30	1.64
100	1.96

Set the allowable discharge for the 2 year return period or 2 l/s/ha, whichever is greater

This storage tank also accepts the discharge from the attenuation tank at the higher level of the site so the allowable discharge is taken as the full discharge from the site = 0.80 + 0.40 = 1.20 l/s

Attenuation Storage

Storm Return Period =	100	Years			
Total Site Area =	0.13	ha			
Proposed Impermeable Area (Roof) =	0.048	ha	.....@	100	% Impermeable
Proposed Impermeable Area (Hardstanding) =	0.065	ha	.....@	90	% Impermeable
Proposed Open Space (incl permeable paving) =	0.02	ha	.....@	20	% Impermeable
Allowable Outflow =	1.20	Litres/sec			

[ ] denotes rainfall return figures from Met Eireann

Allow an additional 10% to the rainfall depths for climate change

Duration (min)		Rainfall (mm)	Rainfall allowed (mm)	Intensity (mm/hr)	Rainfall (m^3/ha)	Proposed Runoff (m^3)	Allowable Outflow (m^3)	Storage Req'd (m^3)
15		24.20	26.62	106.48	266.20	29.16	1.08	28.08
30		29.80	32.78	65.56	327.80	35.91	2.16	33.75
60		36.90	40.59	40.59	405.90	44.46	4.32	40.14
120	2 hours	45.60	50.16	25.08	501.60	54.95	8.64	46.31
240	4 hours	56.30	61.93	15.48	619.30	67.84	17.28	50.56
360	6 hours	63.70	70.07	11.68	700.70	76.75	25.92	50.83
720	12 hours	78.80	86.68	7.22	866.80	94.95	51.84	43.11
1440	24 hours	97.40	107.14	4.46	1,071.40	117.36	103.68	13.68
2880	2 days	115.00	126.50	2.64	1,265.00	138.57	207.36	- 68.79

Calculated storage volume required = 51 m^3

Note: The outlet from this attenuation tank discharges to the River Bride. In the event of a flood, discharge will not be possible due to the non return valve that will be installed as part of the outfall. The storm event requiring the maximum storage is the 6 hour storm. It is proposed that the attenuation storage provided be for the full run off amount for this 6 hour duration

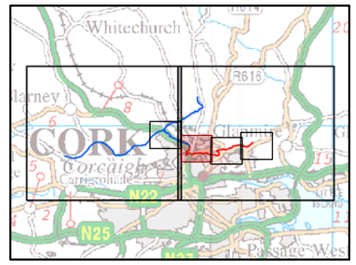
Stoarge volume provided = 77 m^3

Appendix C

N

0,1 0,05 0 0,1 0,2 0,3 0,4
Kilometres

Location Plan :



DEPTH MAP 10% AEP

Legend Depth Grid:

- 0 - 0.25 m
- 0.25 - 0.50 m
- 0.50 - 1.00 m
- 1.00 - 1.50 m
- 1.50 - 2.00 m
- > 2.00 m
- River Centreline

USER NOTE :

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Project :
LEE CATCHMENT FLOOD RISK ASSESSMENT AND MANAGEMENT STUDY

Map :
CORK CITY NORTH

Map Type :	DEPTH	
Return Period :	10% AEP EVENT	
Source :	FLUVIAL FLOODING	
Map area :	URBAN AREA	
Scenario :	CURRENT	
Figure By :	Valeria Medina	Date : 19 January 2010
Checked By :	Juan Fernandez	Date : 19 January 2010
Approved By :	Jenny Pickles	Date : 19 January 2010

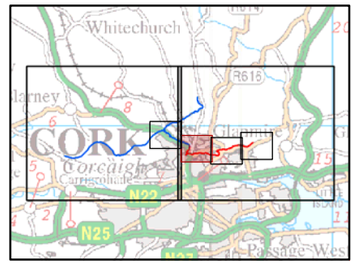
Figure No. : M7/UA/DEP/10/002
Revision : 0

Drawing Scale : 1:5,000
Plot Scale : 1:1 @ A3

N

0,1 0,05 0 0,1 0,2 0,3 0,4
Kilometres

Location Plan :



DEPTH MAP 1% AEP

Legend Depth Grid:

- 0 - 0.25 m
- 0.25 - 0.50 m
- 0.50 - 1.00 m
- 1.00 - 1.50 m
- 1.50 - 2.00 m
- > 2.00 m
- River Centreline

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Project :
LEE CATCHMENT FLOOD RISK ASSESSMENT AND MANAGEMENT STUDY

Map :
CORK CITY NORTH

Map Type :	DEPTH	
Return Period :	1% AEP EVENT	
Source :	FLUVIAL FLOODING	
Map area :	URBAN AREA	
Scenario :	CURRENT	
Figure By :	Valeria Medina	Date : 20 January 2010
Checked By :	Juan Fernandez	Date : 20 January 2010
Approved By :	Jenny Pickles	Date : 20 January 2010

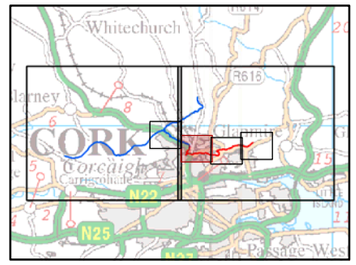
Figure No. : M7/UA/DEP/100/002
Revision : 0

Drawing Scale : 1:5,000
Plot Scale : 1:1 @ A3

N

0,1 0,05 0 0,1 0,2 0,3 0,4
Kilometres

Location Plan :



DEPTH MAP 0.1% AEP

Legend Depth Grid:

- 0 - 0.25 m
- 0.25 - 0.50 m
- 0.50 - 1.00 m
- 1.00 - 1.50 m
- 1.50 - 2.00 m
- > 2.00 m
- River Centreline

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Project :
LEE CATCHMENT FLOOD RISK ASSESSMENT AND MANAGEMENT STUDY

Map :
CORK CITY NORTH

Map Type :	DEPTH	
Return Period :	0.1% AEP EVENT	
Source :	FLUVIAL FLOODING	
Map area :	URBAN AREA	
Scenario :	CURRENT	
Figure By :	Valeria Medina	Date : 20 January 2010
Checked By :	Juan Fernandez	Date : 20 January 2010
Approved By :	Jenny Pickles	Date : 20 January 2010

Figure No. : M7/UA/DEP/1000/002
Revision : 0

Drawing Scale : 1:5,000
Plot Scale : 1:1 @ A3

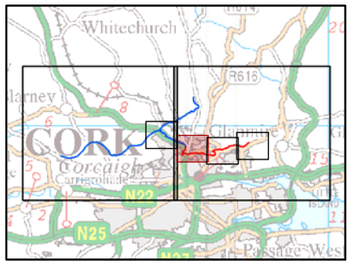
N

7BRI_1161
7BRI_991
7BRI_847
7BRI_743
7BRI_630
7BRI_548
7BRI_487
7BRI_374
7BRI_290
7BRI_188
7BRI_93
7BRI_0
7BR2_0
7BR2_104
7BR2_228
7BR2_389
7BR2_520
7BR2_667
7BR2_873

0.1 0.05 0 0.1 0.2 0.3 0.4 Kilometres

	Water Level (mOD) per AEP		
Node Label	WL 10%	WL 1%	WL 0.1%
7BRI_1161	14.58	14.85	15.02
7BRI_991	14.00	14.45	14.78
7BRI_847	12.80	13.12	13.55
7BRI_743	12.60	12.99	13.48
7BRI_630	12.06	12.61	13.03
7BRI_548	11.80	12.32	12.79
7BRI_487	11.41	11.81	12.17
7BRI_374	9.78	10.10	10.33
7BRI_290	9.32	9.68	9.80
7BRI_188	8.49	8.84	9.13
7BRI_93	7.50	7.80	8.15
7BRI_0	7.29	7.63	7.90
7BR2_0	15.02	15.24	15.44
7BR2_104	16.55	16.67	16.78
7BR2_228	18.15	18.42	18.70
7BR2_389	24.50	24.69	24.84
7BR2_520	25.83	26.02	26.19
7BR2_667	30.41	30.49	30.57
7BR2_873	33.27	33.59	33.85

Location Plan :



EXTENT MAP

Legend:

- 10 % AEP Flood Extent (1 in 10 chance in any given year)
- 1 % AEP Flood Extent (1 in 100 chance in any given year)
- 0.1 % AEP Flood Extent (1 in 1000 chance in any given year)
- High Confidence (<20m) (10% AEP)
- Medium Confidence (<40m) (10% AEP)
- Low Confidence (>40m) (10% and 0.1% AEP)
- High Confidence (<20m) (1% AEP)
- Medium Confidence (<40m) (1% AEP)
- Low Confidence (>40m) (1% AEP)
- River Centreline
- Node Point
- 7BR2_3160 Node Label (refer to table)

USER NOTE :

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Project :
LEE CATCHMENT FLOOD RISK ASSESSMENT AND MANAGEMENT STUDY

Map :
CORK CITY NORTH

Map Type :	FLOOD EXTENT		
Source :	FLUVIAL FLOODING		
Map area :	URBAN AREA		
Scenario :	CURRENT		
Figure By :	Valeria Medina	Date :	21 June 2012
Checked By :	Paul Dunne	Date :	21 June 2012
Approved By :	Clare Dewar	Date :	21 June 2012

Figure No. : M7/UA/EXT/CURS/002
Revision : 1

Drawing Scale : 1:5,000
Plot Scale : 1:1 @ A3

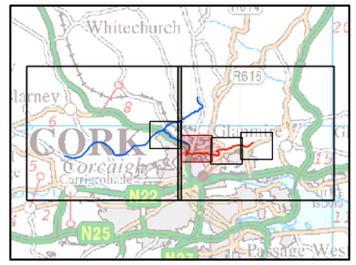
N

7BRI_1161
7BRI_991
7BRI_847
7BRI_743
7BRI_630
7BRI_548
7BRI_487
7BRI_374
7BRI_290
7BRI_188
7BRI_93
7BRI_0
7BR2_0
7BR2_104
7BR2_228
7BR2_389
7BR2_520
7BR2_667
7BR2_873

0.1 0.05 0 0.1 0.2 0.3 0.4 Kilometres

	Water Level (mOD) per AEP		
Node Label	WL 10%	WL 1%	WL 0.1%
7BRI_1161	14.75	15.05	15.52
7BRI_991	14.29	14.83	15.30
7BRI_847	12.98	13.62	13.94
7BRI_743	12.85	13.56	13.89
7BRI_630	12.41	13.10	13.66
7BRI_548	12.13	12.87	13.41
7BRI_487	11.66	12.23	12.56
7BRI_374	9.98	10.36	10.57
7BRI_290	9.55	9.83	10.00
7BRI_188	8.72	9.20	9.57
7BRI_93	7.69	8.21	8.53
7BRI_0	7.51	7.94	8.31
7BR2_0	15.27	15.55	15.87
7BR2_104	16.68	16.85	17.06
7BR2_228	18.46	18.81	19.21
7BR2_389	24.71	24.92	25.14
7BR2_520	26.05	26.28	26.53
7BR2_667	30.51	30.60	30.70
7BR2_873	33.64	33.98	34.27

Location Plan :



EXTENT MAP

Legend:

- 10 % AEP Flood Extent (1 in 10 chance in any given year)
- 1 % AEP Flood Extent (1 in 100 chance in any given year)
- 0.1 % AEP Flood Extent (1 in 1000 chance in any given year)
- High Confidence (<20m) (10% AEP)
- Medium Confidence (<40m) (10% AEP)
- Low Confidence (>40m) (10% and 0.1% AEP)
- High Confidence (<20m) (1% AEP)
- Medium Confidence (<40m) (1% AEP)
- Low Confidence (>40m) (1% AEP)
- River Centreline
- Node Point
- 7BR2_3160 Node Label (refer to table)

USER NOTE :

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Project :
LEE CATCHMENT FLOOD RISK ASSESSMENT AND MANAGEMENT STUDY

Map :
CORK CITY NORTH

Map Type :	FLOOD EXTENT		
Source :	FLUVIAL FLOODING		
Map area :	URBAN AREA		
Scenario :	MID RANGE FUTURE SCENARIO		
Figure By :	Valeria Medina	Date :	22 June 2012
Checked By :	Paul Dunne	Date :	22 June 2012
Approved By :	Clare Dewar	Date :	22 June 2012

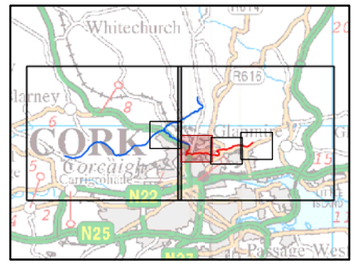
Figure No. : M7/UA/EXT/MRFS/002
Revision : 1

Drawing Scale : 1:5,000
Plot Scale : 1:1 @ A3

N

0,1 0,05 0 0,1 0,2 0,3 0,4
Kilometres

Location Plan :



HAZARD MAP 10% AEP

Legend Hazard Grid:

- Low - caution
- Moderately dangerous for some
- Significant danger for most people
- Extreme danger for all
- River Centreline

USER NOTE :

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Project :
LEE CATCHMENT FLOOD RISK ASSESSMENT AND MANAGEMENT STUDY

Map :
CORK CITY NORTH

Map Type :	HAZARD		
Return Period :	10% AEP EVENT		
Source :	FLUVIAL FLOODING		
Map area :	URBAN AREA		
Scenario :	CURRENT		
Figure By :	Valeria Medina	Date :	20 January 2010
Checked By :	Juan Fernandez	Date :	20 January 2010
Approved By :	Jenny Pickles	Date :	20 January 2010

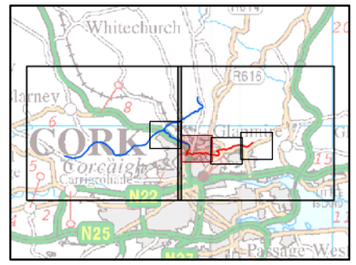
Figure No. : M7/UA/HAZ/10/002
Revision : 0

Drawing Scale : 1:5,000
Plot Scale : 1:1 @ A3

N

0,1 0,05 0 0,1 0,2 0,3 0,4
Kilometres

Location Plan :



HAZARD MAP 1% AEP

Legend Hazard Grid:

- Low - caution
- Moderately dangerous for some
- Significant danger for most people
- Extreme danger for all
- River Centreline

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Map :
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Map Type :	HAZARD		
Return Period :	1% AEP EVENT		
Source :	FLUVIAL FLOODING		
Map area :	URBAN AREA		
Scenario :	CURRENT		
Figure By :	Valeria Medina	Date :	20 January 2010
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Approved By :	Jenny Pickles	Date :	20 January 2010

Figure No. : M7/UA/HAZ/100/002
Revision : 0

Drawing Scale : 1:5,000
Plot Scale : 1:1 @ A3

N

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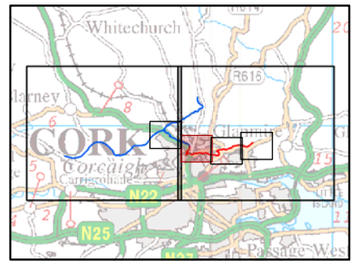
Kilometres

Location Plan :



HAZARD MAP 0.1% AEP

Legend Hazard Grid:

- Low - caution
- Moderately dangerous for some
- Significant danger for most people
- Extreme danger for all
- River Centreline

USER NOTE :

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Project :
LEE CATCHMENT FLOOD RISK ASSESSMENT AND MANAGEMENT STUDY

Map :
CORK CITY NORTH

Map Type :	HAZARD		
Return Period :	0.1% AEP EVENT		
Source :	FLUVIAL FLOODING		
Map area :	URBAN AREA		
Scenario :	CURRENT		
Figure By :	Valeria Medina	Date :	20 January 2010
Checked By :	Juan Fernandez	Date :	20 January 2010
Approved By :	Jenny Pickles	Date :	20 January 2010

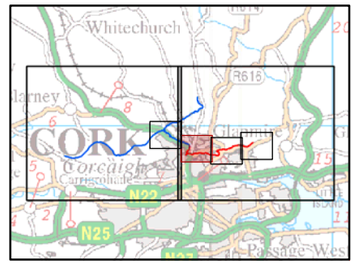
Figure No. : M7/UA/HAZ/1000/002
Revision : 0

Drawing Scale : 1:5,000
Plot Scale : 1:1 @ A3

N

0,1 0,05 0 0,1 0,2 0,3 0,4
Kilometres

Location Plan :



VELOCITY MAP 10% AEP

Legend Velocity Grid:

- 0 - 0.25 m/s
- 0.25 - 0.50 m/s
- 0.50 - 1.00 m/s
- 1.00 - 2.00 m/s
- >2.00 m/s
- River Centreline

USER NOTE :

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Project :
LEE CATCHMENT FLOOD RISK ASSESSMENT AND MANAGEMENT STUDY

Map :
CORK CITY NORTH

Map Type :	VELOCITY		
Return Period :	10% AEP EVENT		
Source :	FLUVIAL FLOODING		
Map area :	URBAN AREA		
Scenario :	CURRENT		
Figure By :	Valeria Medina	Date :	20 January 2010
Checked By :	Juan Fernandez	Date :	20 January 2010
Approved By :	Jenny Pickles	Date :	20 January 2010

Figure No. : M7/UA/VEL/10/002
Revision : 0

Drawing Scale : 1:5,000
Plot Scale : 1:1 @ A3

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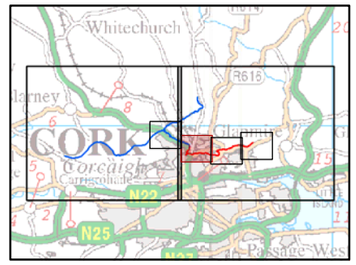
Kilometres

Location Plan :



VELOCITY MAP 1% AEP

Legend Velocity Grid:

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- 0.25 - 0.50 m/s
- 0.50 - 1.00 m/s
- 1.00 - 2.00 m/s
- >2.00 m/s
- River Centreline

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Cork
Ireland

OPW
Office of Public Works
17-19 Lower Hatch Street
Dublin 2
Ireland

Project :
LEE CATCHMENT FLOOD RISK ASSESSMENT AND MANAGEMENT STUDY

Map :
CORK CITY NORTH

Map Type :	VELOCITY		
Return Period :	1% AEP EVENT		
Source :	FLUVIAL FLOODING		
Map area :	URBAN AREA		
Scenario :	CURRENT		
Figure By :	Valeria Medina	Date :	20 January 2010
Checked By :	Juan Fernandez	Date :	20 January 2010
Approved By :	Jenny Pickles	Date :	20 January 2010

Figure No. : M7/UA/VEL/100/002
Revision : 0

Drawing Scale : 1:5,000
Plot Scale : 1:1 @ A3

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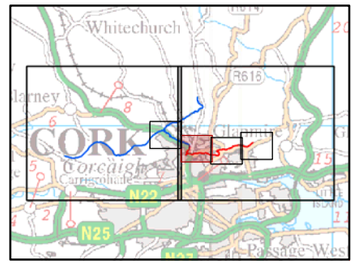
Kilometres

Location Plan :



VELOCITY MAP 0.1% AEP

Legend Velocity Grid:

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- 0.50 - 1.00 m/s
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LEE CATCHMENT FLOOD RISK ASSESSMENT AND MANAGEMENT STUDY

Map :
CORK CITY NORTH

Map Type :	VELOCITY		
Return Period :	0.1% AEP EVENT		
Source :	FLUVIAL FLOODING		
Map area :	URBAN AREA		
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Figure By :	Valeria Medina	Date :	20 January 2010
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Approved By :	Jenny Pickles	Date :	20 January 2010

Figure No. : M7/UA/VEL/1000/002
Revision : 0

Drawing Scale : 1:5,000
Plot Scale : 1:1 @ A3

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Ger O' Sullivan
Acorn Business Park
Blackrock
Co. Cork

7 June 2019

Dear Ger O' Sullivan,

Re: Connection Reference No CDS19003589 pre-connection enquiry - Subject to contract | Contract denied

Connection for Housing Development of 69 unit(s) at Commons Road, Blackpool, Co. Cork.

Irish Water has reviewed your pre-connection enquiry in relation to a water connection at Commons Road, Blackpool, Co. Cork.

Based upon the details that you have provided with your pre-connection enquiry and on the capacity currently available in the network(s), as assessed by Irish Water, we wish to advise you that, subject to a valid connection agreement being put in place, your proposed connection to the Irish Water network(s) can be facilitated.

In the case of wastewater connections this assessment does not confirm that a gravity connection is achievable. Therefore a suitably sized pumping station may be required to be installed on your site. All infrastructure should be designed and installed in accordance with the Irish Water Code of Practice.

Please note the confirmation of feasibility to connect to the Irish Water infrastructure does not extend to your fire flow requirements. In order to determine the flow rate currently available in the event of a fire, a pressure/flow test on the existing network is required. If you wish to undertake a test, please liaise with Cork City Council (Agents to Irish Water). While flows in excess of your required demand may be achieved in the Irish Water network and could be utilised in the event of a fire, Irish Water cannot guarantee a flow rate to meet your fire flow requirement.

All infrastructure should be designed and installed in accordance with the Irish Water Codes of Practice and Standard Details. A design proposal for the water and/or wastewater infrastructure should be submitted to Irish Water for assessment. Prior to submitting your planning application, you are required to submit these detailed design proposals to Irish Water for review.

You are advised that this correspondence does not constitute an offer in whole or in part to provide a connection to any Irish Water infrastructure and is provided subject to a connection agreement being signed at a later date.

A connection agreement can be applied for by completing the connection application form available at **www.water.ie/connections**. Irish Water's current charges for water and wastewater connections are set out in the Water Charges Plan as approved by the Commission for Regulation of Utilities.

If you have any further questions, please contact Brian O'Mahony from the design team on 022 52205 or email bomahony@water.ie. For further information, visit **www.water.ie/connections.**

Yours sincerely,

Maria O'Dwyer

Connections and Developer Services

Landscape

Masterplan & Design Rationale Statement
(with Landscape Specification)

r002 5 Mar 2020

17-100

49 Dwellings at

Commons Road
Blackpool
Cork City

QDM architecture

LANDSCAPE DESIGN STATEMENT

The layout, provision and design of the landscape and open space has had regard to:

- the requirements of the City Development Plan
- The City Architect's Design Principals
- the requirements of the Planning Authority
- the natural topography and character of the site and adjoining lands
- the provision of a visually striking, maintainable and hardy planting scheme
- the creation of a sense of pride and neighbourhood for perspective residents

OPEN SPACE

The landscape and open space layout is as follows:

- approx. 675 sqM of landscaped open spaces (useable space, discounting the ridge, inaccessible or sloped areas)
- each dwelling has private open space in excess of DoE&LG requirements

MASTERPLAN

The landscape masterplan includes numerous features that directly address biodiversity, sustainability and natural landscape issues including:

- the retention of mature trees and hedgerows on the western boundary of the site and for their positive integration into the overall landscape scheme
- the provision of an attractive and sustainable landscape spaces for the development given the constraints of the site area
- the use of a diverse range of native and non-native trees, shrubs and ground layer plants
- including the use of native wildflower swards and the planting of native trees and shrubs in the open space to encourage biodiversity
- the appropriate use of native flowering and fruiting plants that provide nectar and are attractive to insects and birds
- an 18 month aftercare / management programme is proposed for all landscape areas

Augmented tree planting to ridge post construction

SHARED SPACE

BORDER 1

BORDER 2

BORDER 3

BORDER 4

Permeable Tarmac Road

Border screening to avoid overlooking

Tactile paving

Grassed Amenity Area

Landscaped Border

Selected printed concrete paving

Selected printed concrete paving

Permeable Tarmac

Tactile safety concrete paving

Landscape Planting Schedule

Border 1

	Small planted border featuring a specimen tree					
	SPECIES	TREE	SHRUB	FLOWER	QUANTITY	NOTE
1.1	Betula pendula - **Birch**	X			**1 No.**	Minimum 5 year.
1.2	Iris sibrica			X	**3 Groups**	Bulbs placed at 120mm apart in groups of 12.
1.3	Bottoms umbellatus			X	**3 Groups**	Bulbs placed at 120mm apart in groups of 12.
1.4	Iris barabata			X	**3 Groups**	Bulbs placed at 120mm apart in groups of 12.
1.5	Salvia nemerosa			X	**9 Plants**	30cm plants placed at base of trees.

Border 2

	Small planted border featuring a specimen tree					
	SPECIES	TREE	SHRUB	FLOWER	QUANTITY	NOTE
2.1	Acer platanoides - **Maple**	X			**1 No.**	Minimum 5 year.
2.2	Iris sibrica			X	**3 Groups**	Bulbs placed at 120mm apart in groups of 9.
2.3	Bottoms umbellatus			X	**3 Groups**	Bulbs placed at 120mm apart in groups of 9.
2.4	Iris barabata			X	**3 Groups**	Bulbs placed at 120mm apart in groups of 9.
2.5	Salvia nemerosa			X	**6 Plants**	30cm plants placed at base of trees.
2.6	Geranium enresii			X	**18 Groups**	Bulbs placed at 120mm apart in groups of 12.
2.7	Juncus effusus			X	**21 Plants**	30cm plants placed at base of trees.

Border 3

	Main planted border to end of car park					
	SPECIES	TREE	SHRUB	FLOWER	QUANTITY	NOTE
3.1	Betula pendula - **Birch**	X			**1 No.**	Minimum 5 year.
3.2	Quercus petraea- **Oak**	X			**1 No.**	Minimum 5 year.
3.3	Iris sibrica			X	**6 Groups**	Bulbs placed at 120mm apart in groups of 12.
3.4	Bottoms umbellatus			X	**6 Groups**	Bulbs placed at 120mm apart in groups of 12.
3.5	Iris barabata			X	**6 Groups**	Bulbs placed at 120mm apart in groups of 12.
3.6	Salvia nemerosa			X	**18 Plants**	30cm plants placed at base of trees.
3.7	Geranium enresii			X	**6 Groups**	Bulbs placed at 120mm apart in groups of 12.
3.8	Juncus effusus			X	**9 Plants**	30cm plants placed at base of trees.
3.9	Euonymus europaeus - **Spindle**		X		**18 Plants**	30cm plants placed 450mm apart.
3.10	Osmanthus x burkwoodii			X	**12 Plants**	30cm plants placed 450mm apart.

Border 4

	Main planted border to end of car park					
	SPECIES	TREE	SHRUB	FLOWER	QUANTITY	NOTE
4.1	Betula pendula - **Birch**	X			**1 No.**	Minimum 5 year.
4.2	Quercus petraea- **Oak**	X			**1 No.**	Minimum 5 year.
4.3	Iris sibrica			X	**6 Groups**	Bulbs placed at 120mm apart in groups of 12.
4.4	Bottoms umbellatus			X	**6 Groups**	Bulbs placed at 120mm apart in groups of 12.
4.5	Iris barabata			X	**6 Groups**	Bulbs placed at 120mm apart in groups of 12.

Tree Planting to Amenity Areas

	Trees planted in amenity spaces					
	SPECIES	TREE	SHRUB	FLOWER	QUANTITY	NOTE
5.1	Betula pendula - **Birch**	X			**8 No.**	Minimum 5 year.
5.2	Acer platanoides - **Maple**	X			**9 No.**	Minimum 5 year.
5.3	Acer rubrum - **Maple**	X			**8 No.**	Minimum 5 year.
5.4	Quercus petraea- **Oak**	X			**6 No.**	Minimum 5 year.
5.5	Alnus incant - **Alder**	X			**3 No.**	Minimum 5 year.
5.6	Tilia x euchlora - **Lime**	X			**3 No.**	Minimum 5 year.

SPECIFICATION

1. PROTECTION

1.1. Introduction
Landscape works shall have full regard to guidance, recommendations and requirements of:

- This Landscape Design Report and associated Landscape Drawings;

1.2. Existing trees, landscaping & hedgerows
The existing landscaping & mature tree to the northern boundary will be fully protected during the course of any adjoining works.

1.3. Trees and Hedgerows
Trees and hedgerows to be retained within the site shall be fenced off in accordance with BS 5837: 2012, prior to commencement of the works. The fence will be removed at the end of the works.

2. EARTHWORKS / SOIL WORKS / CULTIVATION WORKS

2.1. General
Works will involve general site preparation and landscape reinstatement within gardens and open spaces.

2.2. Weather and Soil Conditions
Normally all work involving soil shall be carried out only when soil is dry and in dry weather. Soil shall not be stripped or moved when frozen or waterlogged.

2.3. Topsoil
Generally excavations, re-grading etc. shall only take once topsoil has been removed. Therefore topsoil shall be stripped initially and stored separately for re-use within gardens and open space.

2.4. Grading
The full extent of landscape areas shall be re-graded in a series of initial operations followed by decompaction, secondary grading and final grading. Grading and re-profiling of the landscape shall leave a free-flowing and draining surface, free of humps and hollows.

3. PLANTING

3.1. Standards of Workmanship and Materials
All landscape works to be carried out to comply with BS 4428:1989 (General Landscape Operations) and all plants to conform to BS 3936 (Nursery Stock).

3.2. Unsuitable Weather
Excavation, filling, cultivation, planting and other works will be suspended in wet weather and when conditions are unsuitable.

3.3. Plants Generally
All plants shall be well grown, sturdy and bushy according to type and free from all diseases and defects.

3.4. Materials
All plant material shall be good quality nursery stock, free from fungal, bacterial or viral infection, Aphis, Red Spider or other insect pest, and physical damage. It shall comply with the requirements of the appropriate sections of BS 3936, Specification for Nursery Stock, where applicable.

All plants shall have been nursery grown in accordance with good practice and shall be supplied through the normal channels of the wholesale nursery trade. They shall have the habit of growth that is normal for the species.

3.5. Species
All plants supplied shall be exactly true to name.

3.6. Specimen Trees, Larger Trees and Standard Trees
Trees shall conform to appropriate standards for sizes as proposed. All trees shall have a well-balanced, branching head. Trees shall be well furnished with lateral and fibrous roots, and shall be lifted without severance of major roots. Roots shall be of the habit normal for the species and size. Trees over 12-14cm girth shall be supplied rootballed.

3.7. Whips
Whips shall have a well-defined, straight and upright leader and stout, straight stem and be well furnished with strong lateral branches of balanced, feathered habit. Plants shall have been twice transplanted and shall have an extensive fibrous root system. Roots shall be of the habit normal for the species. Whips shall have a minimum height of 1.5m.

3.8. Conifers
Conifers shall be supplied root balled or container grown, with a good fibrous root system. Plants shall conform to specified height with well-developed, uniform branching systems.

3.9. Hedging, Shrubs and Climbers
Hedge plants, climbers and shrubs shall be of the minimum size specified, with several stems originating from or near ground level and of reasonable bushiness, healthy, well grown, and with a good root system. Roots shall not be deformed or restricted.

3.10. Damage
All plants are to be adequately and carefully packed and protected to survive transport, by whatever means, to the site, without damage in loading, transit or unloading.

3.11. Planting Generally
All planting operations shall be carried out in accordance with BS 4428 and good horticultural practice. Particular attention must be paid to correct depth of planting ensuring the soil is firmed in around the roots.

3.12. Herbicides
Only approved and appropriate herbicides shall be used on the site.

3.13. Tree Pits
Tree pits shall be excavated 150mm all round larger than the natural spread of the roots/rootball of the plant. The base of the pit shall be thoroughly forked to a depth of 300mm to allow roots to penetrate below the pits.

3.14. Planting of trees
All trees shall be planted according to the general directions on planting given above.

3.15. Stakes
Stakes shall be turned and pointed at one end. Sizes shall be as follows:-

- for Specimen / larger trees: 2 x 2400mm long x 75mm diameter.
- for Standard trees: 1800mm long x 50mm diameter.
- for other trees/conifers generally: 1200mm long x 50mm diameter.

Set stake(s) vertically in the pit, to the western side of the tree station. Drive stake(s) before planting to secure firmly and to leave between 600-900mm above ground. iron headed mell, not with a sledge hammer. Drive stake(s) with a drive-all, wooden maul or cast

3.16. Tree Ties
Tree ties shall be of rubber, PVC or proprietary fabric laminate composition, and shall be strong and durable enough to hold the tree securely in all weather conditions for a period of three years. They shall be flexible enough to allow proper tightening of the tie. Ties shall be minimum 35mm wide for standard trees.

3.17. Soil Conditions
Planting shall not be carried out while the ground is frozen or waterlogged.

3.18. Watering
All root balled and pot grown plants shall be well-soaked before planting. All planting shall be watered after planting, to consolidate soil around the roots, unless ground is so wet as to make additional water unnecessary.

3.19. Planting Specimen, Larger and Standard Trees
Excavate tree pits to 150mm all round larger than the natural spread of the roots of the plant. The base of the pit shall be broken up to a depth of 150mm and glazed sides roughened. Supply and drive the stake(s) as scheduled.

Trees shall be planted at the same depth as in the nursery, as indicated by the soil mark on the stem of the trees. They shall be centred in the planting pit and planted upright. The roots shall be spread to take up their normal disposition. Clean a neat circle 500 mm diameter of all grass.

3.20. Whip and Transplant Planting
Excavate tree pits to 150mm all round larger than the natural spread of the roots of the plant.
Place tree in pocket at same depth as in the nursery, spreading out roots to their natural configuration. Back fill pocket carefully incorporating ameliorated soil mix from stockpile on site.
Firm soil around roots, and rm thoroughly on completion. Any surplus soil shall be spread evenly over the surrounding area.

3.21. Planting of Shrubs and Climbers
All shrubs and climbers to be planted in excavated pits to give 100mm minimum growth space to accommodate root spread. Climbers to be fixed with adjustable ties to walls.

3.22. Planting of Hedges

All hedge plants to be planted in an excavated pit or trench to give 100mm minimum growth space to accommodate root spread. Hedgerows to be established as double staggered row. Plants to be randomly dispersed within mixed species hedgerows.

3.23. Workmanship
Whips Transplants: Leave ground free of superficial debris including all stones and debris over 35mm diameter and grass / weed within 500mm of plant.

4. GRASS SEEDING

4.1. Grass Requirements
Grassland Sward (Open Space Areas): Healthy sward of even and dense growth.
Amenity Sward (gardens, verges etc.): A closely knit, continuous ground cover of even density, height and col- our.

4.2. Seed Mixture: Grassland (Public Open Space)
The seed mixture shall be a meadow sward grassland mix – appropriate to the ground conditions as assessed and analysed pre-seeding. Ensure that the correct mixture and seed rate are used for each area of grass seeding. The grass seed mix, which shall be determined following pre-seeding soil analysis, shall be selected from:

- Bents, (Agrostis spp.)
- Meadowgrasses (Poa spp.)
- Meadow Foxtail (Alopecurus pratensis)
- Timothy (Phleum pratense)
- Fescues (Festuca spp)
- Sweet Vernal Grass (Anthoxanthum odoratum)
- Crested Dog's-tail (Cynosurus cristatus)
- Cock's-foot (Dactylis glomerata)
- Yorkshire-fog (Holcus lanatus)

The sward may also include for common broadleaved herb species such as clovers (Trifolium spp.), Yarrow (Achillea millefolium), Common Knapweed (Centaurea nigra), Selfheal (Prunella vulgaris), Common Bird's-foot Trefoil (Lotus corniculatus), Cat's-ear (Hypochoeris radicata), Lady's Bedstraw (Galium verum) and Oxeye Daisy (Leucanthemum vulgare).

4.3. Seed Mixture: Amenity Sward (General Areas, Verges, Gardens etc.)
The general high-quality low maintenance amenity seed mixture shall be used for smaller open spaces and gardens within the main development area.

4.4. Materials
All plant material shall be good quality nursery stock, free from fungal, bacterial or viral infection, Aphis, Red Spider or other insect pest, and physical damage. It shall comply with the requirements of the appropriate sections of BS 3936, Specification for Nursery Stock, where applicable.

All plants shall have been nursery grown in accordance with good practice and shall be supplied through the normal channels of the wholesale nursery trade. They shall have the habit of growth that is normal for the species.

4.5. Machinery
All machinery shall be in good and serviceable condition. Rotavators and stone-burying machines shall have their full complement of tines, which shall be sharp, effective, and set to give the specified depth of cultivation.
Tractors used for cultivation operations shall be four-wheel drive or tracked. All tractors shall be fitted with position control to ensure even cultivation, at the minimum specified depth.

4.6. Weather
Work to soil shall be carried out in dry weather and when the soil can be reduced to a friable condition, avoiding smearing or panning, and rutting and compaction.

4.7. Final Grading
Where required, areas to be grassed will be graded during cultivation with a light blade grader to bring them to a uniform and even grade to tie into surrounding levels and to remove all minor hollows and ridges.

4.8. Cultivation and Stone Burying
Cultivate the surface using rotavators so as to break up the top 100mm of soil by two passes in transverse directions to provide a fine tilth up to 25mm suitable for grass seeding. All landscape areas shall be stone-buried to remove stones and debris over 35mm from the final seeding surface.

4.9. Seeding
Grass seed shall be sown at the rates appropriate to the seed mix (circa 5-10g /sqm for the meadow grassland sward and 30g/sqm for general amenity sward). Seeding shall only be carried out on areas where cultivation and preparatory work has been approved.

Seeding shall be carried out during suitable calm weather conditions using an efficient broadcast machine for large areas or by hand in small areas and confined spaces. The operation will be carried out in equal sowings in transverse directions. After sowing, the ground will be rolled with a light-weight roller.

4.10. Quality
Grass sward shall be even and consistent in terms of height, density and growth of each sward type. Recultivate and reseed any areas that fail to germinate or are of poor quality.

4.11. Defects / Making Good
All damaged / failed grass seeded areas to be reseeded in spring and late summer following seeding, in accordance with this specification.

5. AFTERCARE

5.1. Period
All landscape works, including planting and seeded areas, shall be maintained for a minimum period of 18 months from completion of the works.

5.2. Performance Standards
Plants / Planting Areas
- All plants shall be alive, healthy, free of minor defects and free of weedkiller or cultivation damage.
- Planting areas shall be free of weeds and debris.

Grass
- Amenity grassland shall be cut to an even height four to eight times during the first twelve months to encourage dense growth.
- Grass shall be healthy, and at the end of twelve months provide a sward of even height and density appropriate to the grade of grass.

5.3. Programme
The landscape shall be reviewed quarterly during the twelve months and any defects made good immediately thereafter.

5.4. Weed killing
Protect foliage of all plants during applications of herbicides. No plant, foliage or stem, shall be directly sprayed, even in winter. Any plants affected by herbicide shall be replaced.

5.5. Watering
Water all planting as necessitated by dry weather. Apply water as a fine spray, to moisten full depth of root run. Avoid washing or compaction of the soil surface.

5.6. Grass Cutting: First Cut
A minimum of forty eight hours before the initial cut, remove surface stones over 35mm diameter. If the surface is stoney, roll with a light roller to rm grass and to bed-in any remaining stones.
When the meadow grassland sward reaches 200mm in height cut so as to leave 50mm growth. When the amenity grassland sward reaches 125mm in height cut so as to leave 50mm growth.

5.7. Grass Cutting: Follow-on
To encourage sward development, continue to cut amenity grassland sward to 50mm as and when sward reaches 150mm in height. Cut meadow grassland a second time in late August / September to leave 75mm height.

5.8. Tidiness and Clearance
All landscape areas shall be maintained free from debris, including free from all aftercare debris.

Trees

Betula pendula- **Birch**



Acer platanoides- **Maple**



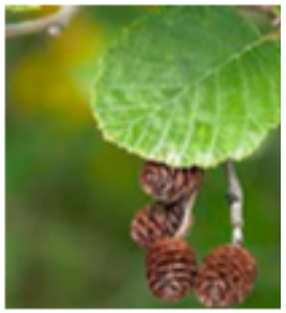
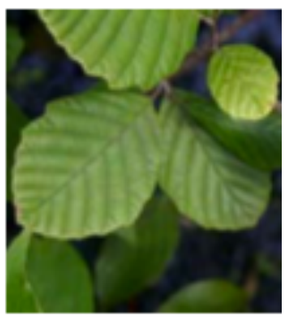
Tilia x euchlora- **Lime**



Quercus petraea- **Oak**

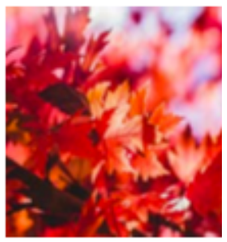


Alnus incana- **Alder**

Acer rubrum- **Red Maple**





Hedges

Osmanthus x burkwoodii- **Burkwood**

Euonymus europaeus- **Spindle**

Corylus avellana ‘Nottingham Fruehe’- **Hazel variety**

Shrubs

Amelanchier canadensis - **Mespulis**

Cornus alternifolia - **Dogwood**

Cercis canadensis- **Eastern redbud**

Magnolia stellata- **Star Magnolia**

Perennials

Iris Sibirica

Alchemilla mollis

Juncus acutiflorus

Juncus effusus

Filipendula ulmaria

Iris Barabata

Lunaria rediviva

Myosotis scorpioides

Carex pendula

Carex buchanii

Lysimachia vulgaris

Salvia nemerosa

Symphytum officinale

Bottoms umbellatus

Geranium endresii

Crocosmia hybride

Acanthus mollis

Epimedium grandiflorum