

Stage 2: Appropriate Assessment - Natura Impact Statement Strategic Housing Development



On behalf of
Bellmount Developments Limited
Redforge Road, Blackpool, Co.
Cork.





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Strategic Housing Development
Bellmount Developments Limited
Redforge Road, Blackpool, Co. Cork.

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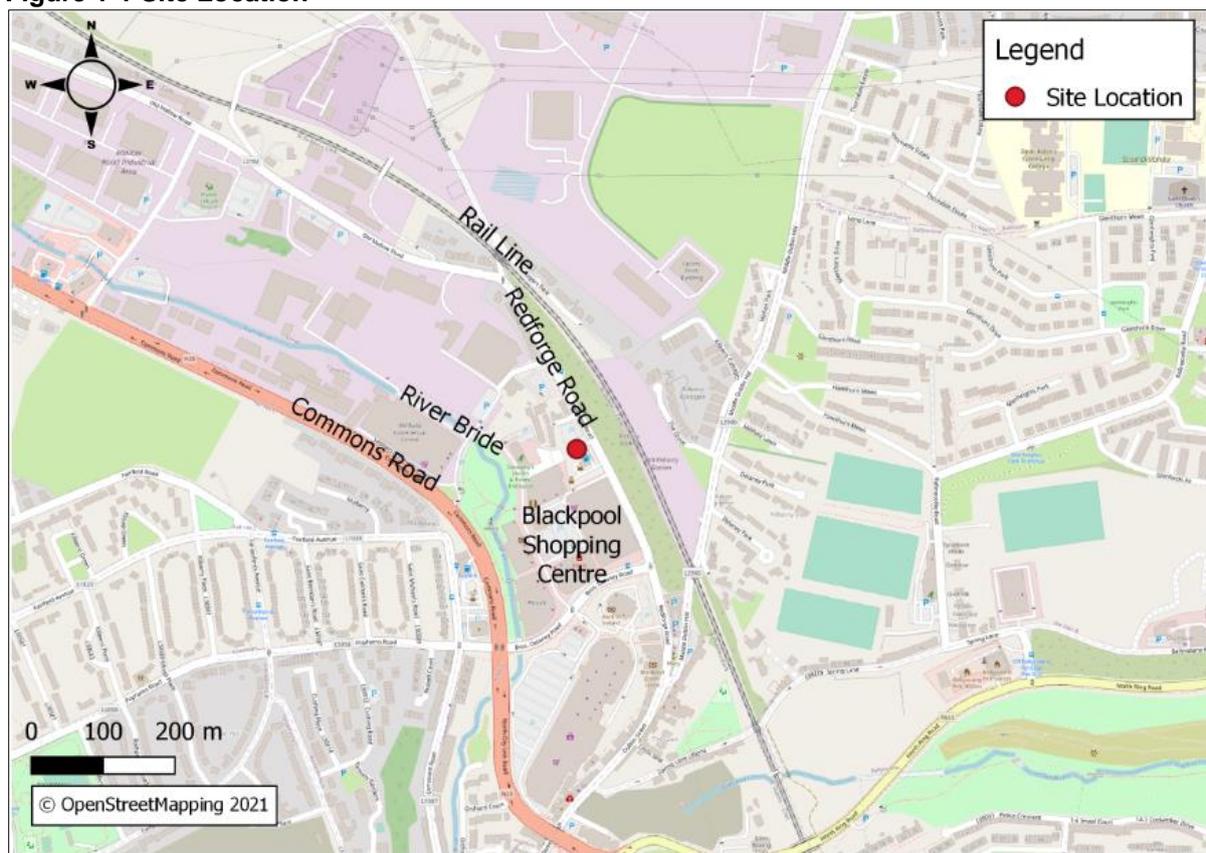
1 INTRODUCTION

1.1 Background

Malone O'Regan Environmental (MOR) was commissioned by Bellmount Developments Limited ('the Applicant') to undertake an Appropriate Assessment to assess the potential adverse effects, if any, of the proposed Strategic Housing Development (SHD) and all associated works on lands at Redforge Road, Blackpool, Co. Cork. (OS Reference W 67582 74022) on nearby sites with European conservation designations (i.e., Natura 2000 sites).

The location of the proposed development ('the Site') is shown in Figure 1-1.

Figure 1-1 Site Location



The purpose of this assessment was to determine the appropriateness, or otherwise, of the proposed development in the context of the conservation objectives of such sites.

1.2 Statement of Authority

The report was reviewed and approved by Mr. Dyfrig Hubble, Principal Ecologist. Dyfrig is a full member of the Chartered Institute of Ecology and Environmental Management. Dyfrig has over 15 years' experience working in the ecological consultancy sector, including habitat surveys and appraisals and specialist protected species surveys in support of Appropriate Assessments.

1.3 Regulatory Context

This Natura Impact Statement (NIS) was prepared in accordance with Article 33 of the Planning and Development Regulations 2001 and in compliance with the following legislation:

The Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Flora and Fauna better known as "The Habitats Directive". This provides the framework for legal

protection for habitats and species of European importance. Articles 3 to 9 provide the legislative means to protect habitats and species of community interest through the establishment and conservation of an EU-wide network of sites known as Natura 2000. These are Special Areas of Conservation (SACs) designated under the Habitats Directive and Special Protection Areas (SPAs) designated under the Conservation of Wild Birds Directive (79/409/EEC as amended 2009/149/EC) (better known as “The Birds Directive”).

Article 6(3) and 6(4) of the Habitats Directive sets out the decision-making tests for plans and projects likely to affect Natura 2000 sites (Annex 1.1). Article 6(3) establishes the requirement for Appropriate Assessment (now termed Natura Impact Statement):

“Any plan or project not directly connected with or necessary to the management of the [Natura 2000] site but likely to have a significant effect thereon, either individually or in combination with other plans and projects, shall be subjected to appropriate assessment of its implications for the site in view of the site’s conservation objectives. In light of the conclusions of the assessment of the implication for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.”

The Habitats Directive promotes a hierarchy of avoidance, mitigation, and compensatory measures. First, the project should aim to avoid any negative impacts on European sites by identifying possible impacts early in the planning stage and designing the project in order to avoid such impacts. Second, mitigation measures should be applied, if necessary, during the Appropriate Assessment (AA) process to the point, where no adverse impacts on the site(s) remain. If the project is still likely to result in adverse effects, and no further practicable mitigation is possible, it is rejected. If no alternative solutions are identified and the project is required for imperative reasons of overriding public interest (IROPI test) under Article 6 (4) of the Habitats Directive, then compensation measures are required for any remaining adverse effect.

1.4 Stages of Appropriate Assessment

There are four distinct stages to undertaking an AA as outlined in current European Union (EU) and Department of Environment, Heritage and Local Government (DOEHLG) guidance:

Stage 1: Screening

This process identifies the potential impacts of a plan or project on a Natura site, either alone or in combination with other plans and projects and considers whether these impacts are likely to be significant. If potential significant impacts are identified the plan or project cannot be screened out and must proceed to Stage 2.

Stage 2: Appropriate Assessment

Where potential significant impacts are identified, an assessment of the potential mitigation of those impacts is required; this stage considers the appropriateness of those mitigation measures in the context of maintaining the integrity of the Natura 2000 sites. If potential significant impacts cannot be eliminated with appropriate mitigation measures, the assessment must proceed to Stage 3.

Stage 3: Assessment of Alternatives Solutions

This process examines alternative ways to achieve the objectives of the plan or project that avoid adverse impacts on the integrity of the Natura 2000 site if mitigation measures are deemed insufficient.

Stage 4: Imperative Reasons of Overriding Public Interest (IROPI)

Assessment where no alternative solution exists for a plan or project and where adverse impacts remain. This includes an assessment of compensatory measure where in the case of projects or plans which can be considered to be necessary for IROPI.

This report has been prepared to inform the planning authority with regard to Stage 1 (Screening) and Stage 2 (Appropriate Assessment) of the proposed development through the research and interpretation of available scientific, geographic and engineering knowledge. This report seeks to determine whether the installation of the proposed development will, on its own or in combination with other plans / projects have a significant effect on Natura 2000 sites within a defined radius of the subject Site.

2 METHODOLOGY

2.1 Desk Based Study

A desk-based review of information sources was completed, which included the following sources of information:

- The National Parks and Wildlife Service (NPWS) website was consulted to obtain the most up to date detail on conservation objectives for the Natura 2000 sites relevant to this assessment [1];
- The National Biodiversity Data Centre (NBDC) website was consulted with regard to species distributions within 2km of the Site [2]; and,
- The EPA Envision website was consulted to obtain details about watercourses in the vicinity of the Site (<https://gis.epa.ie/EPAMaps/>) [3].

2.2 Field Based Studies

In order to establish baseline conditions at the Site, a field survey was undertaken by two (2 No.) MOR Ecologists on the 19th of May 2021 to assess the on-site habitats.

2.2.1 Habitat Survey

A Habitat Survey was undertaken for the Site using the Fossitt's Guide to Habitats for Ireland [4]. The survey aimed to identify the extent and quality of habitats present on the Site.

2.2.2 Invasive Species

The Site was also assessed for the presence of any noxious / invasive species such as Japanese knotweed (*Fallopia japonica*) and any other invasive species within the Site and adjacent area.

2.3 Survey Limitations

There were no limitations to the survey.

3 DESCRIPTION OF THE PROJECT

3.1 Site Context and Description

The Site is located in Cork City, within a predominately urban landscape. The Site is approximately 0.73ha hectares (ha) in size. The Site is currently occupied by a petrol station, carwash, and car parking area.

The existing ground profile is generally flat with a slight north to south fall. Levels vary from 13.5m to 15m OD. The proposed floor level is 14.1m OD.

The Site is predominately made up of hardstanding with a petrol filling station and associated roof with some limited trees, bushes, and vegetation along the majority of the site boundary.

The key infrastructure at the Site includes the following:

- A car park which covers the north area of the Site;
- A “Gala” petrol filling station/grocers and associated filling station roof with pumps;
- A carwash area adjacent in the south-east of the Site; and
- A small yard area for deliveries and waste storage located to the west of the Site behind the petrol station.

3.1.1 Surrounding Land Uses

The Site is located in an area of mixed commercial and residential land use. It is zoned as “*District Centres*” and surrounded by areas zoned as “*Residential, Local Services and Institutional Uses*” and “*Public Open Space*”.

The objectives of “*District Centres*” are outlined in the Cork City Development Plan 2015-2021 [3] as follows: “*To support the vitality and viability of Suburban District Centres to ensure that such centres provide an appropriate range of retail and non-retail functions to serve the needs of the community and respective catchment areas, with an emphasis on convenience and appropriate (lower order) comparison shopping, in order to protect the primacy of Cork City Centre.*”

The Site is adjoined to the north by residential premises, to the east by railway cuttings and a railway line, by a multi-storey car park to the south and by a gym and Blackpool park to the east. Large commercial buildings are located to the northwest of the Site off Commons Road, including a large area of apparent brownfield land adjacent to the North of the Site. Refer to Table 3-1 below for a breakdown of adjacent land uses.

Table 3-1 Adjacent Land Use

Boundary/Direction	Land Use
North	Residential properties
South	Multi-Storey Car Parking
West	Commercial premises (Retail Park) and then bounded by Passive Open Space (Blackpool Park)
East	Railway Line and then residential properties

3.2 Watercourses within the Vicinity of the Site

The Site and adjacent watercourses are located within the Kiln_SC_010 sub-catchment, forming part of the overall Lee, Cork Harbour and Youghal Bay WFD Catchment [5].

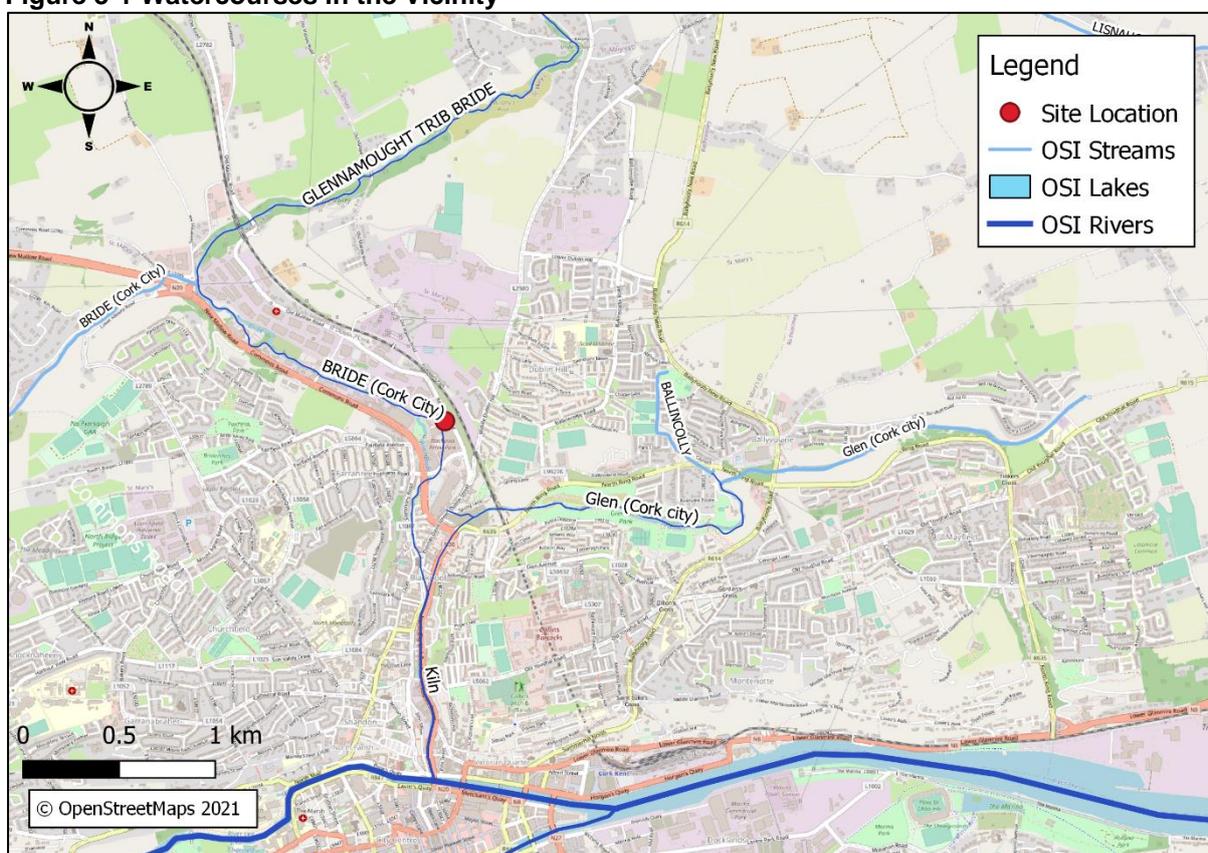
The Bride (Cork City) River is the closest watercourse to the Site, located ca. 80m west of the Site at its closest point. The river has been redirected above ground in Blackpool Park, to the west of the Site.

The Glen (Cork City) River is located ca. 500m south of the Site. The Bride River converges with the Glen River ca. 750m south of the Site to form the Kiln River. The Kiln River then continues in a southerly direction for ca. 1km before joining the River Lee (North Channel). The River Lee then travels for ca. 5.6km before discharging in Cork Harbour.

According to the Water Framework Directive 2013–2018 (WFD), the status of all of the above-mentioned river watercourses are currently 'unassigned' but they are all considered to be 'at risk.'

The location of the key surface water features in the vicinity of the Site are illustrated in Figure 3-1 below.

Figure 3-1 Watercourses in the Vicinity



3.3 Proposed Development

The proposed development will include demolition of existing petrol station and construction of residential apartments.

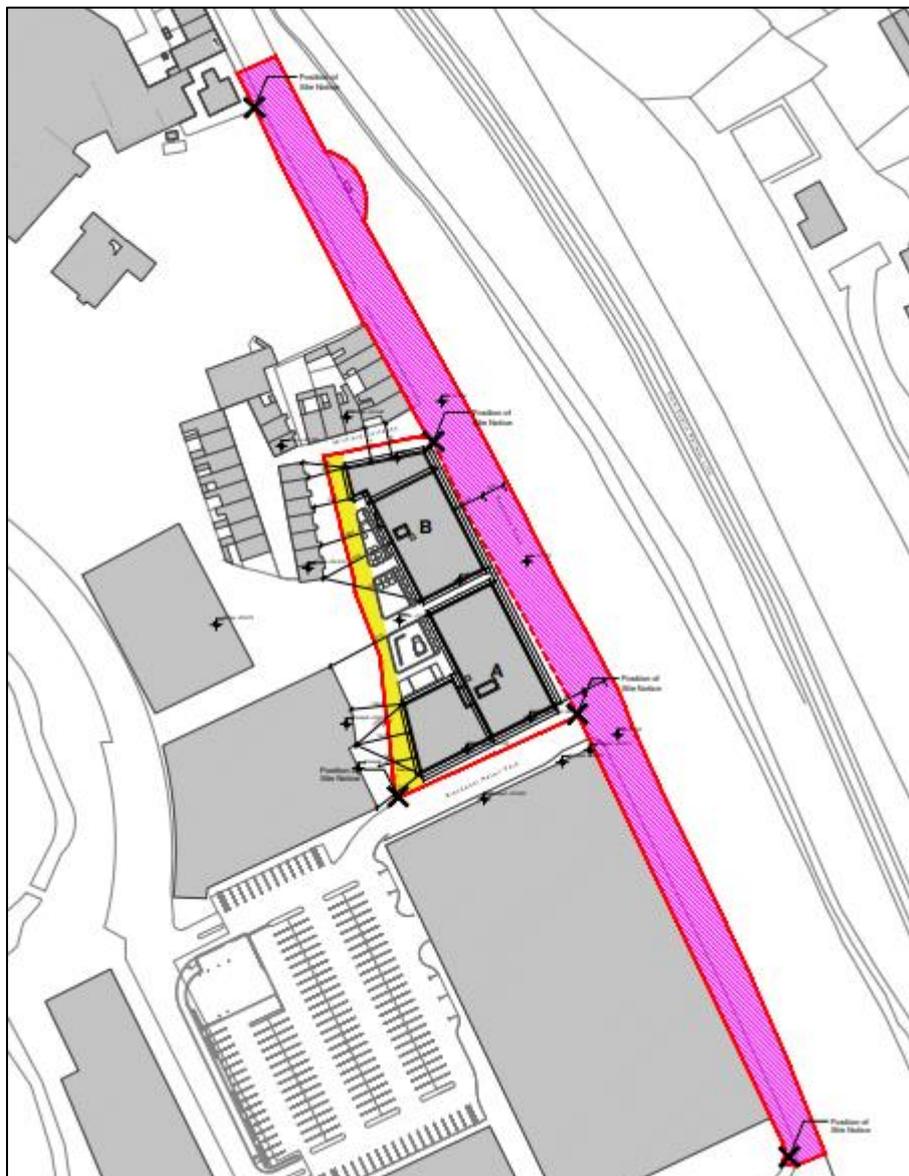
The proposed development is for a 5-year permission for a Strategic Housing Development at Millfield Service Station, Redforge Road, Blackpool, Cork comprising:

- The demolition of existing structures on site including a single storey building, pump island canopy, 4 no. fuel pumps and the decommissioning/removal of 4 no. underground fuel tanks; and
- The construction of 114 no. Build to Rent apartments (comprising a mix of 1 and 2 bed apartments) in 2 no. blocks, ranging in height from 4 to 9 storeys;

- Residential amenity facilities including a reception, residents gym, lounge area and shared workspace;
- The provision of landscaping and amenity areas including an enclosed courtyard and 1 no. rooftop garden;
- The provision of public realm improvements on Redforge Road including widened footpaths and pavement improvements, pedestrian crossing, tree planting, raised tables/planters and seating areas; and,
- All associated ancillary development including pedestrian/cyclist facilities, lighting, drainage, boundary treatments, bin and bicycle storage, ESB Sub-station and plant at ground floor level.

Full details of the proposed development are provided as part of the overall Planning Application. Figures 3-2 below shows the Site Layout of the proposed development.

Figure 3-2: Proposed Development Site Layout



3.3.1 Drainage

The foul and storm drainage network for the proposed development will connect to existing services already on the Site.

Surface Water Drainage

The existing Site is comprised of buildings and hardstanding's with un-attenuated outflow to the public drainage network and Bride River system. There is an existing 750mm diameter surface water drainage pipe running along Redforge road, east of the proposed site and returns along the southern perimeter.

The surface water drainage design for the proposed development has been carried out in accordance with SuDS and Cork City Council requirements.

The proposed surface water drainage system will collect storm-water run-off generated from the residential roofs and impermeable hard surfaces via gullies. The storm water will then drain to an on-site, below ground level attenuation facility. Attenuation capacity is designed for a 1 in 30-year storm event + 10% allowance for climate change. The attenuation tank capacity required is 40.8m³. Surface water outfall from the attenuation tank is to be restricted by a Hydro brake to limit the flow to the existing public storm drainage system. This surface water will then be discharged to the existing public drainage system, east of the site.

The proposed discharge rate from the site will be lower than the pre-development run-off levels in line with the SUDS requirement. Provision has also been made for an area of soft landscaping including grass, planting, and trees, at ground floor externally to the west of the complex to improve the sustainability of the scheme. Petrol interceptors have not been included as there is no hardstanding car park proposed within the site.

Foul Water Drainage

There is an existing 375mm diameter foul sewer pipe running along Redforge road, east of the proposed site. The existing network then returns along the southern perimeter of the site beneath the public roadway. An existing combined sewer is located to the west of the proposed site. A 10 meters way leave is associated with this combined sewer and this right of access is to be retained as required by Irish Water to inspect and maintain the pipeline and chambers.

The wastewater discharge for the development is calculated in accordance with Irish Water's Code of Practice for Wastewater Infrastructure. The pipework will be 225mm diameter. The foul sewer will discharge to the existing system. All foul sewers and manholes will be constructed in accordance with the Irish Water Standard Details and the Irish Water Code of Practice for Wastewater.

The foul sewer will be discharged to the existing system which is main UWWTP for Cork City at Carrigrennan.

Irish Water have confirmed that based on the size of the proposed development and on the capacity currently available, that subject to a valid connection agreement being put in place, the proposed connection to the Irish Water network can be facilitated. Foul water design calculations will be submitted with planning application.

3.3.2 Water Supply

Irish Water have advised that the existing 100mm diameter watermain on Redforge Road is not sufficient for supplying the proposed development. Therefore, in order to accommodate the proposed connection to Irish Water network at the premises, approx. 175m of the existing 100mm watermain needs to be upgraded to 150mm diameter.

The proposed water main design and layout is in accordance with the Irish Water Code of Practice for Water Infrastructure and The Irish Water Infrastructure Standard Details. The total peak water demand of the proposed development is estimated to be 3.3 l/s. In accordance with best practice, new water saving devices (low water usage appliances and aerated taps etc.) will be fitted as per standard into the proposed new units. Individual water meters for each apartment will be fitted on the incoming watermain in a designated area of the proposed development.

3.4 Internal Access/Circulation

This existing use of the site generates a high number of access and egress vehicular movements each day. This movement is related to customers, staff, and service/delivery personnel.

There will be a reduction to the current vehicle traffic movements surrounding the site from the proposed development. There is no provision for vehicular parking spaces to be provided within the site boundary. Once occupied, the traffic to the site will likely from pedestrians, cyclists, residential tenants as well as occasional delivery and refuse collection. Therefore, the level of vehicle trip generation from the proposed accommodation development will be relatively low. As a result of this, there will be no material impact on the operational performance of the surrounding road network and any change will be minimal.

3.4.1 Pedestrian Access

It is expected that many of the tenants living in the residence will access the development by foot. Footpath infrastructure surrounding the site and its environs is well developed due to the existing neighbouring retail units. Footpaths are considered an acceptable approach to the proposed residential development.

3.4.2 Cycle Access

Bicycle storage bays will be provided within the development to encourage travel by bicycle. The provision for appropriate level of bicycle parking for proposed development is provided in accordance with Cork City Council requirements.

3.4.3 Emergency Vehicle and Refuse Collection Access

The existing vehicular entrance along Redforge Road will be removed. The proposed new vehicular entrance will be to the west of the site, between blocks A and B, and the proposed new vehicular exit will be to the north of the site. The new entrance/exit and internal road layout is designed to accommodate a fire tender vehicle and a refuse heavy goods vehicle. The internal pathway providing access to the western section of the site will be designed and constructed to handle emergency vehicle traffic loading.

3.5 Earthworks

Earthworks will include the excavation for the proposed attenuation tank and drainage system. Four (4No.) of existing fuel tanks, related fuel lines and existing hydrocarbon interceptor will also need to be excavated. Foundations for the buildings will be piled, minimising earthworks requirements. Excavations across the site will be required to a depth of 0.4m which will be backfilled with 0.5m of clean engineering fill material.

3.6 Landscaping

A Landscape Plan has been developed for the Site and incorporates supplementary plantings of native species. The Landscape Plan can be seen in Appendix B.

3.7 Demolition and Construction Procedures

During the demolition and construction phases of the proposed development potential environmental effects will be short-term and localised. Nonetheless, all works will comply with the relevant legislation, construction industry guidelines and best practice in order to reduce potential environmental impacts associated with the works. Where remaining potential impacts have been identified, additional mitigation measures will be employed to reduce, as far as practicable potential impacts.

All potential demolition phase environmental impacts will be addressed through the implementation of a comprehensive Demolition and Construction Waste Management Plan (D&CWMP) in accordance with current best practice guidelines. This plan will be agreed with Cork City Council (CCC) and relevant statutory bodies for the proposed works.

A Construction Environmental Management Plan (CEMP) will be prepared by the appointed contractor and will be submitted to the planning authority in advance of works commencing at the Site. The following guidance will be referred to and will be followed during the demolition and construction phases of the project to prevent water pollution that may occur within the area:

- C532 – Control of Water Pollution from Construction Sites. Guidance for Consultants and Contractors [7];
- C741 - Environmental Good Practice on Site (4th edition) [7];
- Guidance for the Treatment of Otters Prior to the Construction of National Road Schemes [13];
- All works will be undertaken in accordance with the 'Requirements for the Protection of Fisheries Habitat during Construction and Development' [9]; and,
- The recommendations included within the NRA Guidelines for the Crossing of Watercourses, where appropriate [11].

The full scope and what is to be included in the CEMP will be refined following detailed design and construction tender stages with regards to the proposed development.

Duration and Timing of Works

The proposed works will take approximately 24 months to complete. Working hours will generally be restricted to between 08:00 and 18:00 Monday to Friday and between 08:00 and 14:00 on Saturdays.

3.7.1 Construction Compound

To ensure the efficient management of the construction works, a Temporary Construction Compound will be set up for the duration of the construction works. The compound will be located in the western portion of the Site. A temporary sewer and water supply connection will be put in place for personnel facilities for the duration of the works with prior approval from Irish Water.

During the initial stages of construction works, construction vehicles (i.e., Heavy Goods Vehicles (HGVs) are proposed to access the site via the existing entrances off Redforge Road which bounds the site to the east for the initial stages of the works. Once the buildings have progressed above ground level access will be from the south of the site.

3.7.2 Waste Management

A preliminary Construction and Demolition Waste Management Plan (C&DWMP) has been submitted with the planning application.

4 IDENTIFICATION OF NATURA 2000 SITES

In accordance with the European Commission Methodological Guidance [11] a list of European sites that can be potentially affected by the proposed development has been compiled. Guidance for Planning Authorities prepared by the Department of Environment Heritage and Local Government [12] states that defining the likely zone of impact for the screening and the approach used will depend on the nature, size, location, and the likely effects of the project. The key variables determining whether or not a particular Natura 2000 site is likely to be negatively affected by a project are:

- the physical distance from the project to the site;
- the presence of impact pathways the sensitivities of the ecological receptors; and,
- the potential for in-combination effects.

Adopting the precautionary principle, all SAC and SPA sites within a 15km radius of the proposed development Site have been considered (Refer to Figure 4-1).

Three (3No.) Natura 2000 designated sites were identified within 15km of the Site (Table 4-1, Figure 4-1).

Table 4-1: Designated Natura 2000 Sites within 15km of the Site

Site Name	Site Code	Distance (km)	Direction from the Site
Special Area of Conservation (SAC)			
Great Island Channel SAC	001058	8.8km	E
Blackwater River (Cork/Waterford) SAC	002170	13.3km	N
Special Protection Area (SPA)			
Cork Harbour SPA	004030	4.7km	E

The Site is not located within or directly adjacent to any Natura 2000 sites, however, the boundaries of two (2No.) SAC and one (1No.) SPA are located within 15km of the Site.

There is a hydrological connection between the Site the Great Island Channel SAC and Cork Harbour SPA, located approximately 7.4km downstream of the Site, (refer to section 3.2 and Figure 4-2) as storm water runoff will discharge into the Bride River. Further consideration will therefore be given to these Natura 2000 sites, to assess potential adverse effects resulting from the proposed development. Further details are provided below.

Figure 4-1 Natura 2000 Sites within 15km

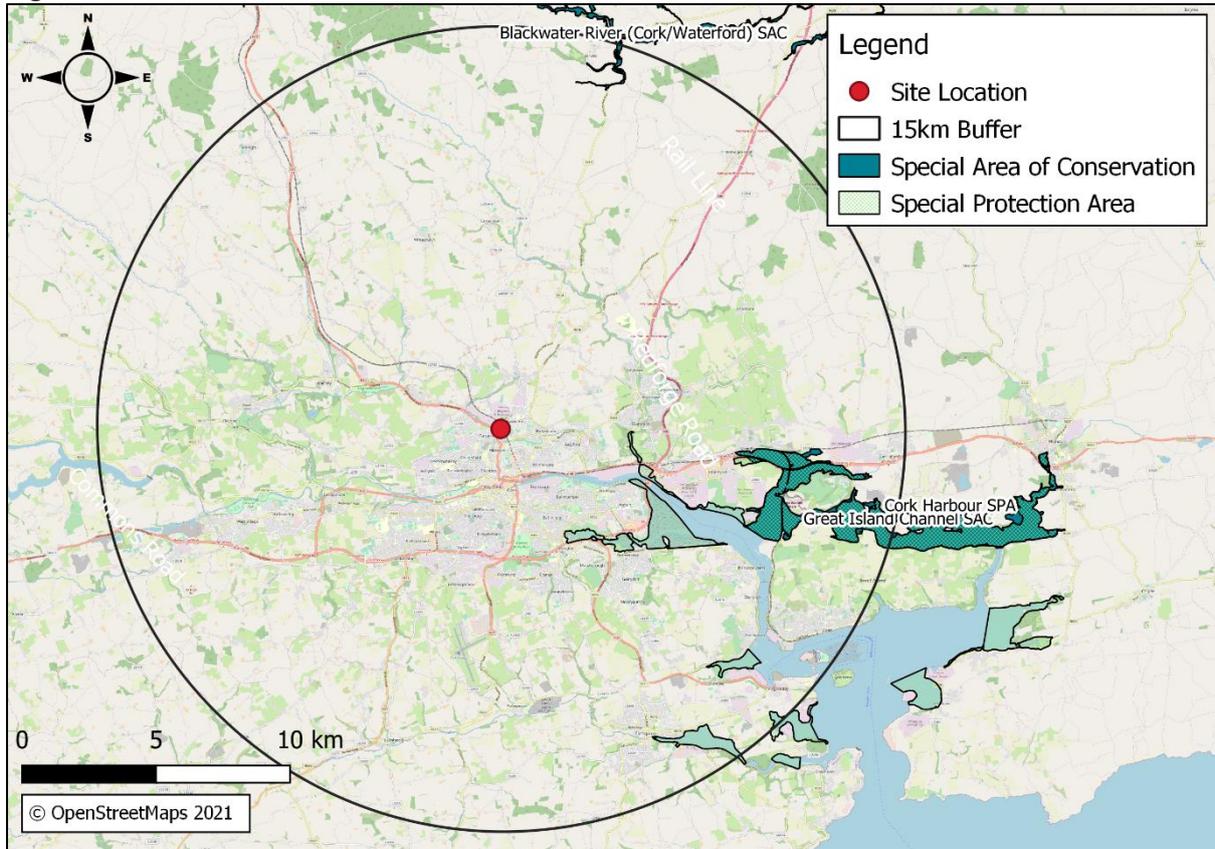
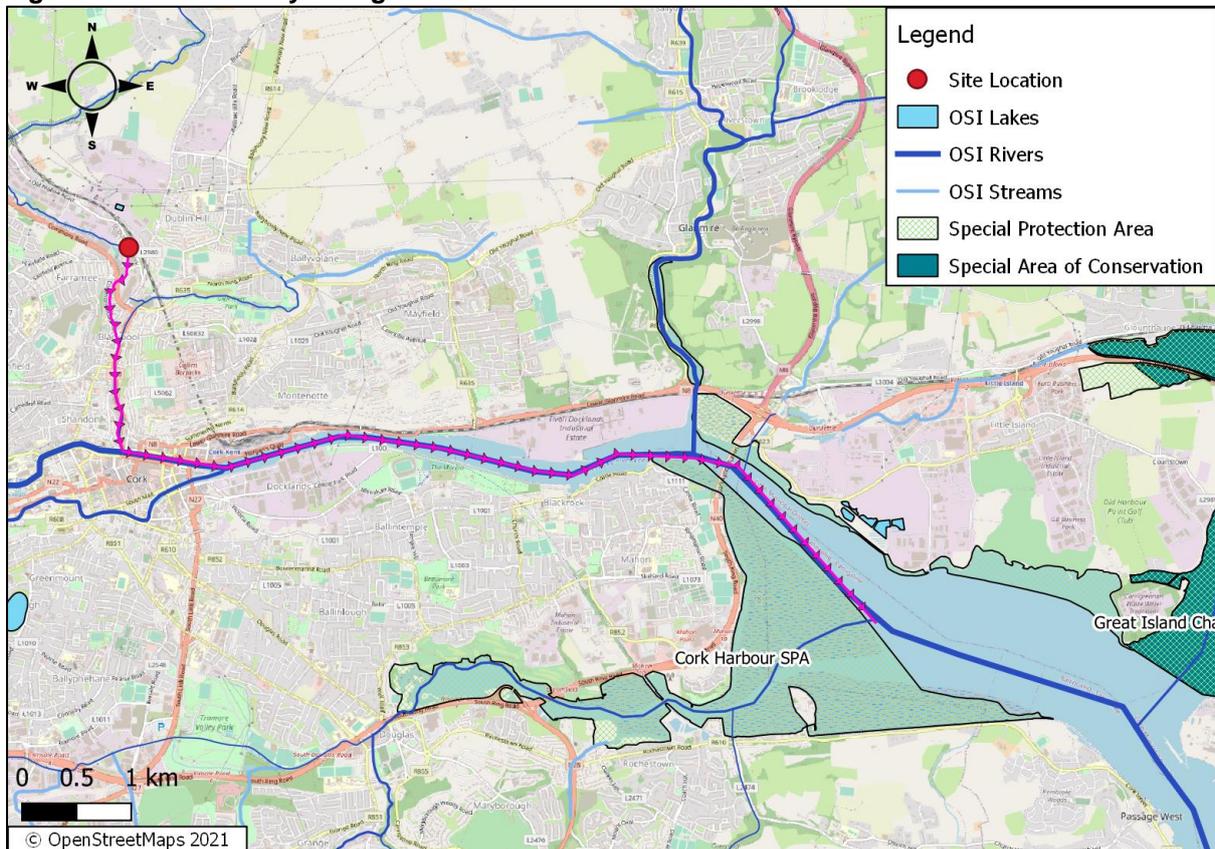


Figure 4-2: Potential Hydrological Connection between the Site and Natura 2000 sites



4.1 Great Island Channel SAC (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.

The main habitats of conservation interest are the sheltered tidal sand and mudflats and the Atlantic salt meadows. Both of these habitats are listed on Annex I of the E.U. Habitats Directive (Refer to Table 4-2).

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*, and *Scrobicularia plana* as well as green algal species particularly *Ulva lactua* and *Enteromorpha* spp. The saltmarshes scattered throughout the SAC support a number of species including Sea Purslane (*Halimione portulacoides*), Sea Aster (*Aster tripolium*), Thrift (*Armeria maritima*) and Common Saltmarsh-grass (*Puccinellia maritima*).

The site is extremely important for wintering waterfowl and supports large populations of Shelduck, Teal and Grey Plover. In addition, much of the site falls within Cork Harbour Special Protection Area, an important bird area designated under the E.U. Birds Directive.

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

Table 4-2: Qualifying Annex I Habitats for the Great Island Channel SAC

Qualifying Habitats	Code
Mudflats and sandflats not covered by seawater at low tide	1140
Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>)	1330

4.2 Cork Harbour SPA (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, Ringabella Creek and the Rostellan and Poul nabibe inlets.

The site is a SPA under the E.U. Birds Directive, of special conservation interest for a number of species including Little Grebe, Great Crested Grebe, Cormorant, Grey Heron, Shelduck, Wigeon, Teal, Mallard, Pintail and Shoveler (Refer to Table 4-3). 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 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, it supports nationally important wintering populations of 22 species, as well as a nationally important breeding colony of Common Tern.

Cork Harbour is also a Ramsar Convention site, part of Cork Harbour SPA, and is a Wildfowl Sanctuary.

Table 4-3: Qualifying Annex I Species of Birds for Cork Harbour SPA

Species Name	Scientific Name	Code
Little Grebe	<i>Tachybaptus ruficollis</i>	A004
Great Crested Grebe	<i>Podiceps cristatus</i>	A005
Cormorant	<i>Phalacrocorax carbo</i>	A017
Grey Heron	<i>Ardea cinerea</i>	A028
Shelduck	<i>Tadorna tadorna</i>	A048
Wigeon	<i>Anas penelope</i>	A050
Teal	<i>Anas crecca</i>	A052
Pintail	<i>Anas acuta</i>	A054
Northern Shoveler	<i>Anas clypeata</i>	A056
Red-breasted Merganser	<i>Mergus serrator</i>	A069
Oystercatcher	<i>Haematopus ostralegus</i>	A130
Golden Plover	<i>Pluvialis apricaria</i>	A140
Grey Plover	<i>Pluvialis squatarola</i>	A141
Lapwing	<i>Vanellus</i>	A142
Dunlin	<i>Calidris alpina</i>	A149
Black-tailed Godwit	<i>Limosa</i>	A156
Bar-tailed Godwit	<i>Limosa lapponica</i>	A157
Curlew	<i>Numenius arquata</i>	A160
Redshank	<i>Tringa totanus</i>	A162
Black-headed Gull	<i>Chroicocephalus ridibundus</i>	A179
Common Gull	<i>Larus canus</i>	A182
Lesser Black-backed Gull	<i>Larus fuscus</i>	A183
Common Tern	<i>Sterna hirundo</i>	A193
Wetland and Waterbirds		A999

4.3 Conservation Objectives of Natura 2000 sites

European and national legislation places a collective obligation in Ireland and its citizens to maintain at favourable conservation status areas designated as Special Areas of Conservation and Special Protection Areas. The Irish Government and its agencies are responsible for the implementation and enforcement of regulations that will ensure the ecological integrity of these sites.

According to the EU Habitats Directive, favourable conservation status of a habitat is achieved when:

- Its natural range, and area it covers within that range, is stable or increasing;
- The specific structure and functions which 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 as defined below.

The favourable conservation status of a species is achieved when:

- Population data on the species concerned indicate that it is maintaining itself;
- 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 full report for the conservation objectives for the Great Island Channel SAC¹ and the Cork Harbour SPA² can be found on the NPWS website.

¹ https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO001058.pdf

² https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004030.pdf

5 STUDY RESULTS

5.1 Desk Based Results

Table 5-1 provides a summary of records of protected species that occur within a 2km grid square of the Site that are designated under Cork Harbour SPA [2].

Table 5-1: Cork Harbour SPA designated Species within 2km of the Site [2]

Common Name	Scientific Name	Date of last record	Designation
Designated Bird Species			
Great Cormorant	<i>Phalacrocorax carbo</i>	30/09/2016	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List
Eurasian Oystercatcher	<i>Haematopus ostralegus</i>	02/11/2017	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List
Lesser Black-backed Gull	<i>Larus fuscus</i>	29/10/2012	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List
Black-tailed Godwit	<i>Limosa</i>	19/11/2016	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List
Wetland and Waterbirds [A999]			
Common Coot	<i>Fulica atra</i>	18/04/2011	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List
Common Snipe	<i>Gallinago</i>	02/02/2016	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List
Little Egret	<i>Egretta garzetta</i>	31/12/2011	EU Birds Directive Annex I Bird Species Wildlife Acts 1976 / 2000
Black-tailed Godwit	<i>Limosa</i>	19/11/2016	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List
Great Black-backed Gull	<i>Larus marinus</i>	29/10/2012	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List

Common Name	Scientific Name	Date of last record	Designation
Mute Swan	<i>Cygnus olor</i>	30/09/2016	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List
Common Kingfisher	<i>Alcedo atthis</i>	31/12/2011	EU Birds Directive Annex I Bird Species Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List
Eurasian Oystercatcher	<i>Haematopus ostralegus</i>	02/11/2017	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List
Mew Gull	<i>Larus canus</i>	05/11/2017	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List
Herring Gull	<i>Larus argentatus</i>	08/10/2012	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Red List
Mallard	<i>Anas platyrhynchos</i>	19/11/2016	Wildlife Acts 1976 / 2000
Little Gull	<i>Larus minutus</i>	05/11/2017	Wildlife Acts 1976 / 2000 Annex I Bird Species

Note that only species recorded within the past 10 years were included in this table.

5.2 Field Studies Results

5.2.1 Habitat Survey

Site Context and Surrounding Habitats

The Site is located in Cork City, and the Site and surrounding areas are heavily built-up with urban development. The Site is bordered to the east and Redforge Road by railway cuttings and a railway line, to the north by residential premises, to the west by a retail park and then Blackpool Park and to the south by a multi-storey car park.

Buildings and Artificial Surfaces (BL3)

The majority of the Site is made of an existing carpark, hard surfacing, concrete and the existing petrol station buildings.

Flower Beds and Borders - BC4

A cinderblock planting box is partially lined along the eastern boundary of the Site. Species within these boxes include typical landscaping species.

Treeline (WL1)

Mature treelines occur along the northern and western boundaries of the Site. The tree species within these treelines include oak (*Quercus robur*), beech (*Fagus sylvatica*), sycamore (*Acer pseudoplatanus*).

Ornamental / Non-native Shrub (WS3)

Landscaped areas occur along the southern boundary of the Site and there are also pockets of small, landscaped spaces within the Site.

Species within these landscaped areas include evergreen spindle (*Euonymus japonicus*), cedar (*Cedrus spp.*), beech, daisy (*Bellis perennis*), lesser trefoil (*Trifolium dubium*), creeping buttercup (*Ranunculus repens*), sweet vernal grass (*Anthoxanthum odoratum*), beech, scarlet firethorn (*Pyracantha coccinea*), sycamore, Japanese cherry (*Prunus serrulata*), holly (*Ilex aquifolium*) and laurustinus (*Viburnum tinus*).

Scrub (WS1)

There is a small area of scrub along the western boundary of the Site. This area may have been landscaped at one point but is now overgrown. There is an old diesel tank within the overgrown scrub. Species include beech, bramble (*Robus spp.*), ivy (*Hedera helix*), ragwort (*Jacobaea vulgaris*), dandelion (*Taraxacum officinale*), bull thistle (*Cirsium vulgare*), cleavers (*Galium aparine*), daisy and butterfly bush (*Buddleja davidii*).

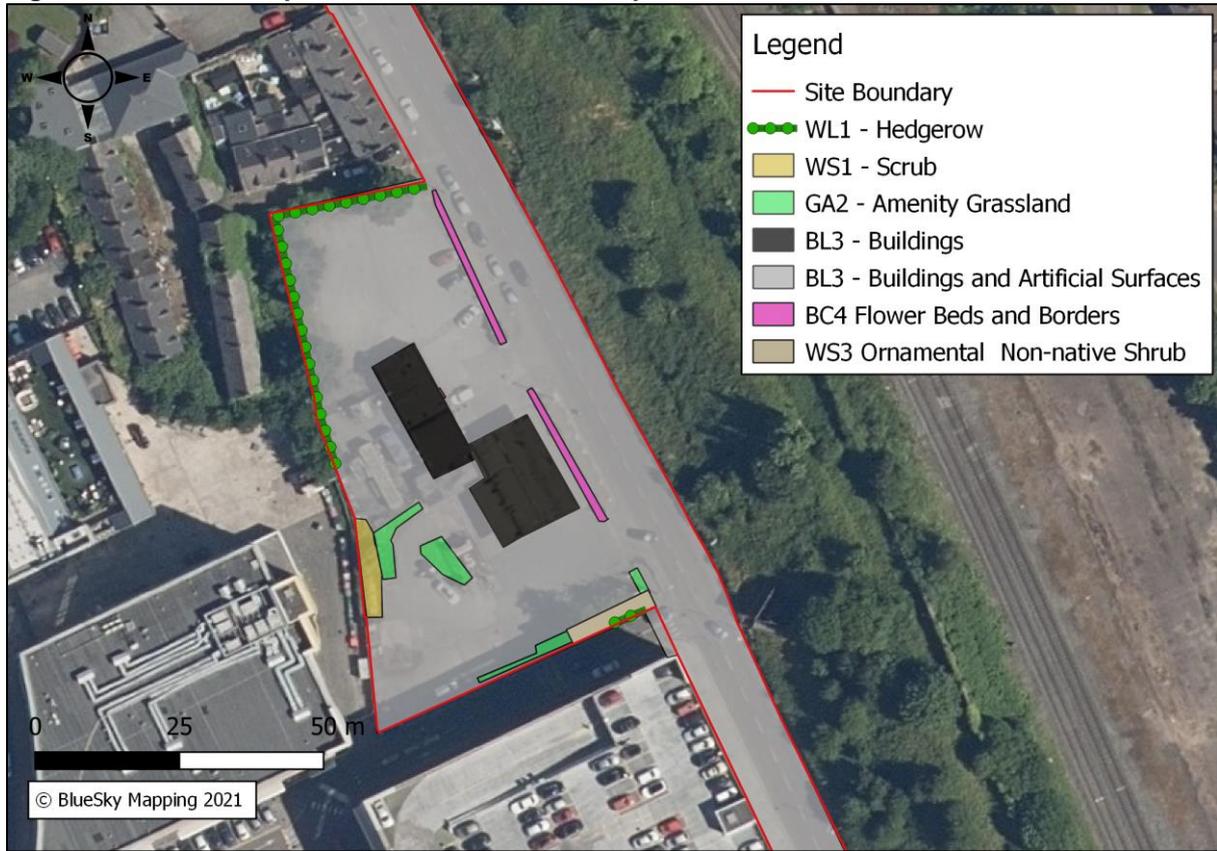
Amenity Grassland (GA2)

There are small areas of amenity grassland along the boundaries of the Site and dotted through the Site. These small areas are of low biodiversity and consisted mainly of short cut grass and dandelions or daisies.

Figure 5-1 Habitat Map



Figure 5-2: Habitat Map Zoomed into Main Development Area



6 STAGE 1 SCREENING: IDENTIFICATION OF POTENTIAL SIGNIFICANT EFFECTS

Potential significant effects, if any, on the Great Island Channel SAC or Cork Harbour SPA, were considered further in this section. The key output of this stage of the assessment is the identification of the significant effects of the proposed development, either alone or in combination with other plans or projects, on relevant Natura 2000 sites so that those effects can be assessed to determine if they will have an adverse effect on the integrity of the Natura 2000 sites in view of their conservation objectives.

A number of effects were examined at this stage and dismissed due to the very low risk associated with them. Table 6-1 and 6-2 present further details and rationale of the screening assessment undertaken for each of the qualifying interests of each of the Natura 2000 sites identified as having the potential to be adversely affected.

These effects were screened in or out, based on whether or not it was concluded that they are likely to be affected by the proposed development if no mitigation measures were applied, and if progression to Stage 2 is required. The rationale for these conclusions is based on results from the aforementioned desk study, literature search and field survey result.

Table 6-1: Screening Assessment: Annex I Habitats – Great Island Channel SAC

Qualifying Feature of Interest	Baseline	Potential Adverse effects	Screening Rationale	Screening Conclusion
Mudflats and sandflats not covered by seawater at low tide	<p>The Conservation Objectives Report [13] show that this habitat is not present in the immediate vicinity of the Site.</p> <p>This habitat is limited to the intertidal reaches of the Great Island Channel SAC with the nearest habitat in excess of 10km southeast of the Site.</p>	<p>Main threats to habitat include: Adverse effects associated with pollution during the construction / operation works.</p>	<p>Adverse effects during construction such as siltation and pollution are not likely to adversely affect this habitat.</p> <p>This conclusion is based on the absence of this habitat within close proximity to the Site and the distance (>8km) separating this habitat from the Site. Therefore, it is reasonable to assume that pollutants will either dilute within the watercourse or settle to the bottom of the waterbody before reaching Cork Harbour ca. 7.4km downstream of the Site.</p> <p>Therefore, further assessment will not be required.</p>	Screened Out
Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>)	<p>The Conservation Objectives Report [13] show that this habitat is not present in the immediate vicinity of the Site.</p> <p>This habitat is limited to small stretches within the Great Island Channel SAC with nearest habitat in excess of 5km southeast of the Site.</p>	N/A	As Above.	Screened Out

Table 6-2: Screening Assessment: Cork Harbour SPA

Qualifying Feature of Interest	Baseline	Potential Impacts	Screening Rationale	Screening Conclusion
Little Grebe	<p>The NBDC holds recent records for Little Grebe within a 2km grid square of the Site [2].</p> <p>Little grebe have a preference for nesting mostly on floating plant material hidden in dense vegetation at the margins of shallow, freshwater rivers, streams, loughs and ponds. In the winter, this bird species is typically found in coastal habitats [14].</p> <p>The habitats within the Site and the watercourse directly south were considered unsuitable for this species.</p>	<p>Main / Possible threats to the species include:</p> <ul style="list-style-type: none"> • Impairment to water Quality; and, • Indirect impacts on food supply chain. 	<p>The Cork Harbour SPA is located ca.7.4km downstream of the Site. Therefore, should potential pollutants flow downstream and lead to a deterioration of water quality, this could indirectly affect the food supply and foraging habitat of bird species within the SPA and designated birds that utilise the wider river network.</p> <p>Stormwater will be discharged to the Bride River during the operational phase of the proposed development. Therefore, a precautionary approach has been taken and mitigation measures to protect local and downstream water quality will be implemented.</p> <p>As such, further consideration will be given to this species. (See Sections 7.2 and 7.3).</p>	Screened In
Great Crested Grebe	<p>The NBDC does not hold recent records for Great Crested Grebe within a 2km grid square of the Site [2].</p> <p>Great crested grebe have a preference for breeding on large, shallow eutrophic loughs, but will also nest in aquatic vegetation within open waters [15]. In the winter, this bird species is typically found in coastal habitats [15].</p> <p>The Site is considered unsuitable for this species.</p>	See above as per Little Grebe.	See above as per Little Grebe.	Screened In

Qualifying Feature of Interest	Baseline	Potential Impacts	Screening Rationale	Screening Conclusion
Cormorant	<p>The NBDC holds recent records for Cormorant within a 2km grid square of the Site [2].</p> <p>This species is known to breed in colonies around the Irish coastline. However, some birds have been noted nesting inland in trees [16]. In addition, cormorant are known to winter at sea, although this species has been observed wintering inland in Ireland [16].</p> <p>The habitats onsite are considered unsuitable for this species.</p>	See above as per Little Grebe.	See above as per Little Grebe.	Screened In
Grey Heron	<p>The NBDC does not hold recent records for Grey Heron within a 2km grid square of the Site [2]. No grey herons were observed within the mature willow tree onsite or within any of the surrounding habitats along the Bride River across from the Site.</p> <p>Grey heron are known to nest in large trees, sometimes with multiple birds in the same tree [17]. Also, grey herons are typically found wintering in the same areas they utilised for breeding purposes [17].</p> <p>Overall, the Site is considered unsuitable for this species.</p>	See above as per Little Grebe.	See above as per Little Grebe.	Screened In

Qualifying Feature of Interest	Baseline	Potential Impacts	Screening Rationale	Screening Conclusion
Shelduck	<p>The NBDC does not hold recent records for Shelduck within a 2km grid square of the Site [2].</p> <p>This species typically breeds in open areas associated with the Irish shoreline, large lakes, and rivers [18]. Similarly, Shelduck are known to winter in estuaries and along tidal mudflats [18].</p> <p>The Site is considered unsuitable for this species.</p>	See above as per Little Grebe.	See above as per Little Grebe.	Screened In
Wigeon	<p>The NBDC does not hold recent records for Wigeon within a 2km grid square of the Site [2].</p> <p>Wigeon is a wintering species that migrates from the Icelandic region to utilise the coastal marshes, lagoons, estuaries, bays, inland wetlands, lakes, rivers and turloughs [19].</p> <p>The Site is considered unsuitable for this species.</p>	See above as per Little Grebe.	See above as per Little Grebe.	Screened In
Teal	<p>The NBDC holds recent records for Teal within a 2km grid square of the Site [2].</p> <p>Small numbers of this species breed in Ireland, within thick cover in small freshwater lakes and upland streams [20]. The majority of teal migrate to Ireland in the winter to wetland areas with large reedbeds, which can include coastal lagoons, estuaries, marshes, or inland lakes, ponds and turloughs [20].</p> <p>The Site is considered unsuitable for this species.</p>	See above as per Little Grebe.	See above as per Little Grebe.	Screened In

Qualifying Feature of Interest	Baseline	Potential Impacts	Screening Rationale	Screening Conclusion
Pintail	<p>The NBDC does not hold recent records for Pintail within a 2km grid square of the Site [2].</p> <p>This species migrates to Ireland to winter in brackish lagoons, estuaries, and large inland lakes. This species is known to form large flocks of birds [21].</p> <p>The Site is considered unsuitable for this species.</p>	See above as per Little Grebe.	See above as per Little Grebe.	Screened In
Shoveler	<p>The NBDC holds recent records for Shoveler within a 2km grid square of the Site [2].</p> <p>This species is known to breed in Ireland around the Lough Neagh and the Shannon basin [22], neither of which are located within close proximity to the Site. Shoveler are known to winter in eutrophic waters that are rich in plankton, however, they can also occur on inland lakes and callows [22].</p> <p>The Site is considered unsuitable for this species.</p>	See above as per Little Grebe.	See above as per Little Grebe.	Screened In

Qualifying Feature of Interest	Baseline	Potential Impacts	Screening Rationale	Screening Conclusion
Red-breasted Merganser	<p>The NBDC does not hold recent records for Red-breasted Merganser within a 2km grid square of the Site [2].</p> <p>This species is known to nest in sheltered lakes and rivers typically in the west and north of Ireland and winters exclusively in brackish and marine waters [23].</p> <p>Therefore, the Site is considered unsuitable for breeding red-breasted merganser given the fact it is not located in this species typical breeding location. Similarly, as the river is freshwater, it is considered unsuitable for wintering red-breasted merganser.</p>	See above as per Little Grebe.	See above as per Little Grebe.	Screened In
Oystercatcher	<p>The NBDC holds recent records for Oystercatcher within a 2km grid square of the Site [2].</p> <p>This species breeds predominantly on the Irish coastline within beaches, dunes, salt marshes and rocky shores. However, it has been noted nesting on large inland lakes. Oystercatchers are also known to winter in coastal habitats, preferably on sandy coasts [24].</p> <p>The Site is considered unsuitable for this species.</p>	See above as per Little Grebe.	See above as per Little Grebe.	Screened In

Qualifying Feature of Interest	Baseline	Potential Impacts	Screening Rationale	Screening Conclusion
Golden Plover	<p>The NBDC does not hold recent records for Golden Plover within a 2km grid square of the Site [2].</p> <p>Golden plover are known to breed in heather moors, blanket bogs, and acidic grasslands predominantly in the west / northwest of Ireland [25]. This species typically winters in harvest fields, stubbles, mown grass, close-grazed pastures, fallows, and other open farmland including flood lands [26].</p> <p>Therefore, the Site is considered unsuitable for both breeding and wintering golden plover.</p>	See above as per Little Grebe.	See above as per Little Grebe.	Screened In
Grey Plover	<p>The NBDC does not hold recent records for Grey Plover within a 2km grid square of the Site [2].</p> <p>This species breeds in the high arctic regions of Russia and North America, and winters within coastal areas in Ireland [27].</p> <p>Therefore, the Site is considered unsuitable for breeding and wintering grey plover.</p>	See above as per Little Grebe.	See above as per Little Grebe.	Screened In
Lapwing	<p>The NBDC holds recent records for Lapwing within a 2km grid square of the Site [2].</p> <p>This species is known to breed in open farmland and winter in large flocks in predominantly wetland, pasture, and rough land [28].</p> <p>The Site is considered unsuitable for this species.</p>	See above as per Little Grebe.	See above as per Little Grebe.	Screened In

Qualifying Feature of Interest	Baseline	Potential Impacts	Screening Rationale	Screening Conclusion
Dunlin	<p>The NBDC holds recent records for Dunlin within a 2km grid square of the Site [2].</p> <p>Dunlin breed in sparse low vegetation and have shown a preference for machair habitats and typically winter along coastal areas, specifically mudflats and estuaries [29].</p> <p>Therefore, the Site is considered unsuitable for breeding and wintering Dublin.</p>	See above as per Little Grebe.	See above as per Little Grebe.	Screened In
Black-tailed Godwit	<p>The NBDC holds recent records for Black-tailed Godwit within a 2km grid square of the Site [2].</p> <p>This species breeds in lowland wet grassland and marshes, but predominantly in Iceland. In the winter, this species prefers estuarine coasts but can also be found in grasslands and river deltas [30].</p> <p>Therefore, the Site is considered unsuitable for breeding and wintering black-tailed godwit.</p>	See above as per Little Grebe.	See above as per Little Grebe.	Screened In
Bar-tailed Godwit	<p>The NBDC does not hold recent records for Bar-tailed Godwit within a 2km grid square of the Site [2].</p> <p>This species breeds in northern Europe, Norway and Finland, and winters entirely along Irish coastlines predominantly in sandy estuaries [31].</p> <p>Therefore, this Site is considered unsuitable for breeding and wintering bar-tailed godwit.</p>	See above as per Little Grebe.	See above as per Little Grebe.	Screened In

Qualifying Feature of Interest	Baseline	Potential Impacts	Screening Rationale	Screening Conclusion
Redshank	<p>The NBDC holds recent records for Redshank within a 2km grid square of the Site [2].</p> <p>Redshank are a ground nesting bird that prefer to nest in grassy tussocks in wet marshy areas. However, this species has been noted occasionally nesting in heather. Redshank prefer to winter in mudflats, estuaries, and inlets; however, small numbers have been noted in lakes and rivers [32].</p> <p>The Site is considered unsuitable for breeding redshank based on the onsite habitats.</p>	See above as per Little Grebe.	See above as per Little Grebe.	Screened In
Common Gull	<p>The NBDC holds recent records for Common Gull within a 2km grid square of the Site [2].</p> <p>The Common gull breeds in colonies predominantly along the coastline. Inland breeding can occur on islands in lakes although these populations have declined due to predation [33]. Common gulls utilise a range of wintering habitats including coastal areas, heather moorlands, meadowlands, and urban areas [34].</p> <p>The Site is considered unsuitable for this species.</p>	See above as per Little Grebe.	See above as per Little Grebe.	Screened In

Qualifying Feature of Interest	Baseline	Potential Impacts	Screening Rationale	Screening Conclusion
Common Tern	<p>The NBDC does not hold recent records for Common Tern within a 2km grid square of the Site [2].</p> <p>This ground nesting species breeds in colonies along the Irish coastline and colonies have been recorded in Co. Dublin, Co. Wexford, and Co. Galway [35]. It should be noted that some birds have been noted breeding on islets in freshwater lakes in Co. Galway and Co. Mayo. This species also winters in west and south Africa [35].</p> <p>Therefore, based on the onsite habitats, this Site is not considered suitable for breeding and wintering common tern.</p>	See above as per Little Grebe.	See above as per Little Grebe.	Screened In
Lesser Black-backed Gull	<p>The NBDC holds recent records for Lesser Black-backed Gull within a 2km grid square of the Site [2].</p> <p>This ground nesting species typically breeds in colonies often with other gulls' species. Most colonies are on the coastline; however, inland colonies have been recorded in Co. Mayo and Co. Donegal [36].</p> <p>The habitats utilised by lesser black-backed gulls include offshore islands, islands in lakes, sand dunes and coastal cliffs [36]. This species winters both inland and on coastal habitats [36].</p> <p>The Site is considered unsuitable for this species.</p>	See above as per Little Grebe.	See above as per Little Grebe.	Screened In

Qualifying Feature of Interest	Baseline	Potential Impacts	Screening Rationale	Screening Conclusion
Curlw	<p>The NBDC holds recent records for Curlw within a 2km grid square of the Site [2].</p> <p>This species is not a common breeding bird, given the decline in the breeding population. However, the habitats utilised for breeding by this ground nesting bird include rough pastures, meadows, and heather [37]. The wintering population of curlw is supplemented by Scottish and Scandinavian birds that typically winter in wetland habitats, both coastal and inland [37].</p> <p>The Site is considered unsuitable for this species.</p>	See above as per Little Grebe.	See above as per Little Grebe.	Screened In
Black-headed Gull	<p>The NBDC holds recent records for Black-headed Gull within a 2km grid square of the Site [2].</p> <p>This species typically nests in large colonies on the coasts and inland in wetland areas such as bogs, marshes, and manmade lakes [38]. However, it should be noted that inland breeding populations have declined dramatically due to predation [38]. The largest inland colonies are located in Galway, Monaghan and Mayo. This species is known to winter in both coastal and inland areas [38].</p> <p>The Site is considered unsuitable for this species.</p>	See above as per Little Grebe.	See above as per Little Grebe.	Screened In

Qualifying Feature of Interest	Baseline	Potential Impacts	Screening Rationale	Screening Conclusion
Wetland and Waterbirds	<p>It should be noted that the NBDC holds records for several wetland and waterbirds within 2km of the Site including common coot, mallard, snipe, little egret, mute swan, kingfisher, black-tailed godwit, oystercatcher, great black backed gull, mew gull, herring gull and little gull [2].</p> <p>The Site is considered unsuitable for these species.</p>	See above as per Little Grebe.	See above as per Little Grebe.	Screened In

7 STAGE 2: ASSESSMENT OF POTENTIAL IMPACTS

This section provides recommendations for measures which will mitigate against potential adverse effects of the proposed works on qualifying habitats and species throughout the duration of the project. The following impacts with potential to adversely affect the conservation objectives of the identified Natura 2000 sites were considered:

- Loss of, or disturbance to habitats and species during construction;
- Potential impairment of water quality during construction phase; and,
- Potential impairment of water quality during the operation phase.

7.1 Loss of, or Disturbance to Habitats and Species during Construction

The proposed development will not result in any direct loss of habitats for which the Great Island Channel SAC is designated, as the proposed Site is not located within close proximity to any of the Annex I habitats. In addition, the Site does not offer any supporting habitat for wintering waterbirds designated under the Cork Harbour SPA.

All construction works will take place within areas of existing hardstanding. Given the distance between the Site and the Natura sites, it can be concluded that no direct loss or adverse effects on Annex I habitats or species will result from the construction works.

7.2 Potential Impairment of Water Quality during Construction

As the proposed development will take place within close vicinity to the Bride River which discharges into Cork Harbour, potential runoff of pollutants from the Site reaching the surface water into the river could adversely affect the water quality within the river and further downstream to Cork Harbour, subsequently impacting protected habitats and species within the Cork Harbour SPA.

Potential pollutants resulting from the installation of the proposed development include suspended solids, cementitious materials, silt, or hydrocarbon leaks or spills. If water quality is affected by the proposed development, this could directly affect bird species utilising the river or its margins and possibly indirectly affect these species by changing the populations of their food supply.

In order to ensure that the works do not have an impact on the surface water surrounding the Site or further downstream into Cork Harbour, mitigation measures will be put in place in accordance with best practice guidance to avoid impacts on these receptors. These measures will include:

- All construction works associated with the new drainage infrastructure onsite will be completed, checked, and cleaned where required, in advance of discharging to the Bride River;
- Adequate spill kits including absorbent booms and other absorbent material will be maintained onsite;
- All contractor workers will be appropriately trained in the use of spill kits;
- Any accidental spillage of cementitious materials will be cleaned-up immediately;
- Any sediments adversely effected by contamination will be excavated and stored in appropriate sealed containers for disposal offsite in accordance with all relevant waste management legislation.
- Stockpiles of material will be covered during periods of prolonged or heavy rain and will be located away from the river as far as practically possible;

- Concrete pours will be adequately planned and executed;
- Washouts of equipment used for concrete operations will be done either offsite or within a designated washout area, which will comprise of a container that will capture the washout material / water for reuse or disposal offsite;
- Adequate fuel storage facilities and re-fuelling protocols will be provided; and,
- Silt traps will be installed at appropriate locations to mitigate against any potential impacts to water quality associated with suspended solids in runoff from the construction area.

The following best practice guidelines will be followed, which are based on Inland Fisheries Ireland [39] and National Roads Authority [40] guidance documents:

- All materials shall be stored at the main contractor compound and transported to the works zone immediately prior to construction;
- Only emergency breakdown maintenance will be carried out on-site. Emergency procedures and spill kits will be available and construction staff will be familiar with emergency procedures;
- Fuels, lubricants, and hydraulic fluids for equipment used in the construction site will be carefully handled to avoid spillage, properly secured against unauthorised access or vandalism, and provided with spill containment according to current best practice;
- Fuelling and lubrication of equipment will be carried out within a designated refuelling area protected from spillage to ground or the river;
- Prior to any works commencing, all construction equipment will be checked to ensure that they are mechanically sound, to avoid leaks of oil, fuel, hydraulic fluids, and grease; and,
- Measures will be implemented to minimise waste and ensure correct handling storage and disposal of waste.

Periodic monitoring will be undertaken during the construction works to ensure that the above measures are effective.

7.3 Potential Impairment of Water Quality during Operation

As the proposed development will discharge surface water runoff to the Bride River during the operational phase of the proposed development, there is potential for adverse effects on the water quality within the Bride River and further downstream in Cork Harbour.

The design of the proposed development will ensure that all clean segregated run-off will discharge as storm water. As described in Section 3.3.1, all storm water from the Site will drain into an on-site, below ground level attenuation facility. Attenuation capacity is designed for a 1 in 30-year storm event + 10% allowance for climate change. Surface water outfall from the attenuation tank will be restricted by a hydro brake to limit the flow to the existing public storm drainage system before discharging to the Bride River.

As the foul drainage will connect into the existing services, which have sufficient capacity to support the proposed development, it is not considered that further mitigation is required.

In conclusion, there will be no adverse effects on the water quality to the Bride River following the attenuation of storm water runoff into the below ground attenuation tank fitted with a hydro brake and the operational activity at the Site will not cause any adverse effects to qualifying species of the Great Island Channel SAC or Cork Harbour SPA.

7.4 Analysis of 'In-Combination' Effects

The Habitats Directive requires that an appropriate assessment of any plan or project takes into consideration effect alone or in-combination with other plans and projects.

Wastewater from the proposed development will continue to discharge to Carrigrennan Wastewater Treatment Plant (WWTP). Irish Water have confirmed that they have no objection to the drainage layout / design of the proposed development.

A review of the 2019 Annual Environmental Report (AER) for the WWTP (which was the most up-to-date report available online at the time of writing this report) found that the discharge from the WWTP was not compliant with the ELVs set out in the wastewater discharge licence (D0033-01) [41]. In particular, the WWTP has exceedances for both phosphorous and nitrogen [41]. However, according to the 2019 AER, these exceedances do not have an observable impact on water quality, or an observable negative impact on the Water Framework Directive Status of the receiving waters i.e., Cork Harbour [41]. The 2019 AER also states that the capacity of the WWTP will not be exceeded in the next 3 years [41].

A programme of measures to improve the functioning of the WWTP have been identified by Irish Water in the 2019 AER and the most recent EPA Site Inspection Report relating to ELV compliance (EPA, 2020; EPA, 2019). These measures involve the provision of adequate '*phosphorus removal*' onsite (EPA, 2020; EPA, 2019). The upgrade works to the WWTP have also been included in the Irish Water Investment Plan 2020 to 2024 [42].

As described above, the project alone is unlikely to have any direct or indirect significant effects on the identified Natura 2000 sites with the implementation of specific mitigation measures. Taking the above into account, and considering the localised nature of the proposed development within a predominantly urban / industrial environment, adherence to the mitigation measures listed within this NIS and the best practice measures that will be implemented during both the construction and operation phase of the development, it is concluded there will not be any significant in-combination contribution by the project to possible adverse effects on the Great Island Channel SAC and Cork Harbour SPA.

8 CONCLUSIONS

A detailed assessment of the layout and nature of the proposed development, the environmental management plan to be employed and the overall activities that will occur at the Site during construction and operation has been carried out in order to ensure that the potential for adverse effects on the Great Island Channel SAC or Cork Harbour SPA have been examined in detail.

It is considered reasonable to conclude that the proposed development will not result in any adverse effects on the basis that the specific mitigation measures will be implemented. Specifically, the proposed construction works will be undertaken to avoid impairment of water quality.

In terms of significance with regard to adverse effects on Natura 2000 sites, the NPWS Guidance (2009) uses an EC definition as follows:

“Any element of a plan or project that has the potential to affect the conservation objectives of a Natura 2000 Site, including its structure and function, should be considered significant (EC, 2006)”.

It can be concluded that the proposed Strategic Housing Development and associated works alone or in-combination with other projects, will not adversely affect the integrity, and conservation status of any of the qualifying interests of any Natura 2000 sites.

Accordingly, progression to Stage 3 of the Appropriate Assessment process (i.e., Assessment of Alternatives Solutions) is not considered necessary.

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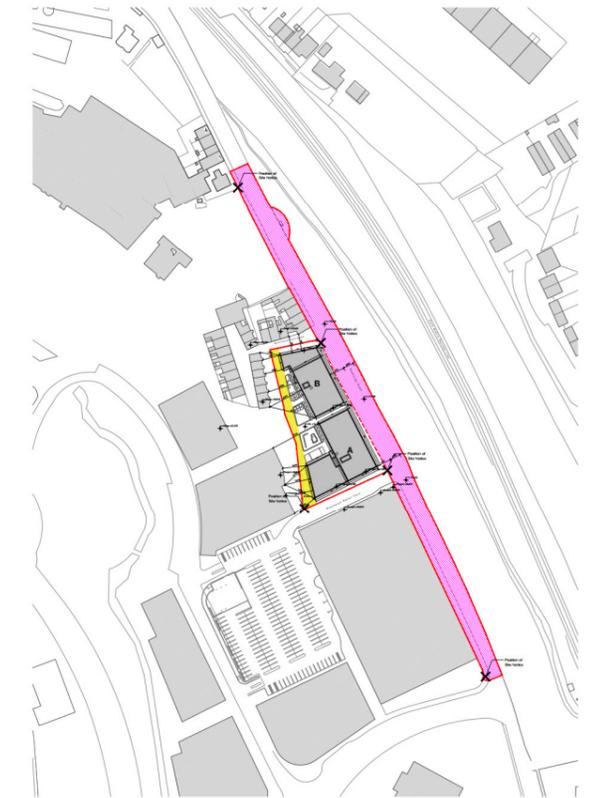
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APPENDICES

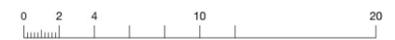
APPENDIX A

PROPOSED SITE PLAN



KEY PLAN 1:2000

- Proposed Development Site Boundary (Outlined Red) 7318m² / 0.73ha
- - - Land in Ownership of the Applicant 3372m² / 0.34ha
- Land Within Ownership of Cork City Council 3948m² / 0.39ha
- Area reserved for wayleave 453m²



Notes

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Project name
Redforge Road

Project no
19082

Client
Bellmount Developments Limited

Drawing
Proposed Site Plan

Series
Planning

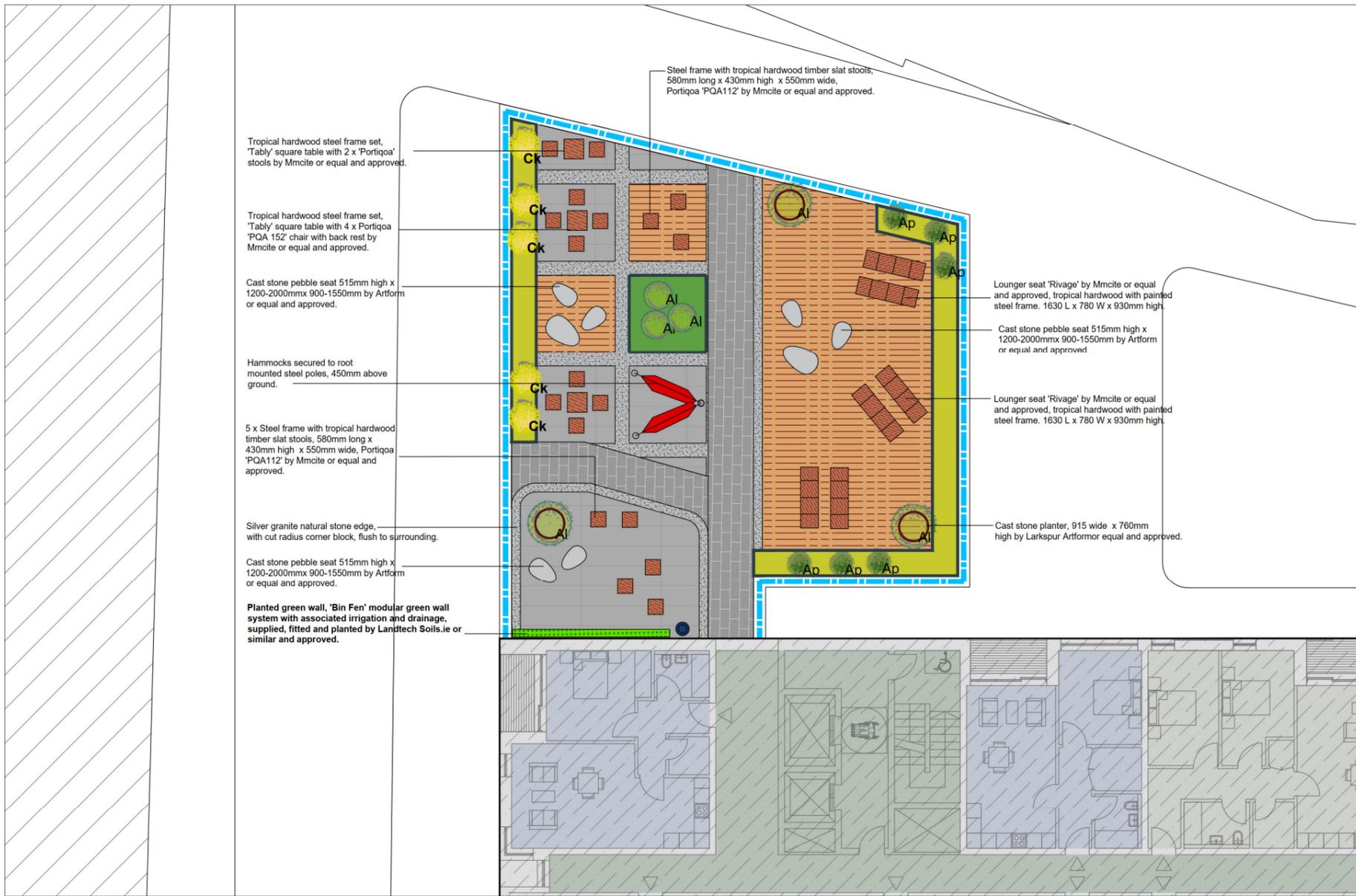
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Revision
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Date
2021/06/23

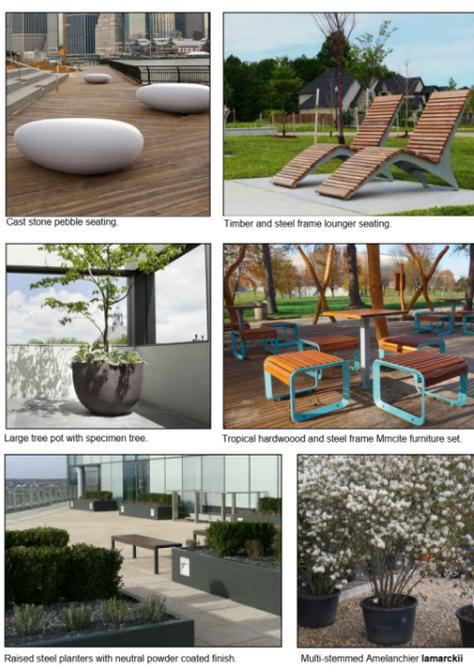
APPENDIX B



Forth Floor Roof Garden: Scale 1:100 @ A1

- ROOF GARDENS KEY**
- PAVING:** 900mm x 600mm x 60mm concrete slab with aggregates, laid in stack bond. 'Shebourne' square edge flag in Silver granite with smooth finish by Kilsarran or equal and approved.
 - PAVING:** 600mm x 300mm x 60mm reconstituted concrete slab with granite aggregate, laid in stretcher bond. 'Shebourne' square edge flag in Black granite with smooth finish by Kilsarran or equal and approved.
 - Decking:** Hardwood decking, 145 x 28mm fsc hardwood decking boards with safe grip finish Bangkara safe grip by Abeywoods or equal and approved on treated softwood bearer system.
 - FLUSH EDGING STONE:** 150mm x 400mm x 1000mm white granite curb with bush hammered finish, square edge with 1M Radius corner kerbs by CED stone or equal and approved.
 - STEEL PLANTING BED EDGE:** 450mm high, 10mm mild steel plate planter edge, by OMOS or equal and approved, powder coated colours to match signage graphics.
 - 90L bin, galvanneal steel with powder coated finish, RAL to be confirmed. Root mounting & foundations to manufactures specification. Product: Carpo bin by Hess or similar and approved.
 - GLASS BALUSTRADE:** 1.8M high 'Ez' glass rail & post balustrade with toughened laminated glass & stainless steel posts by Silgo Glass or equal & approved.
 - PLANTING BLOCK 1** Perennial and ornamental grass mix as per planting schedule on 450mm good quality topsoil to BS 3882:2007
 - PLANTING BLOCK 2** Perennial and ornamental grass mix as per planting schedule on 450mm good quality topsoil to BS 3882:2007
 - Cornus kousa var. chinensis**, Multistem, minimum 5 breaks, 2M tall, 30L pot, guyed within planter.
 - Amelanchier lamarkii**, Multistem, minimum 3 breaks, 2.5-3M tall, 45L pot, guyed within planter.
 - Acer palmatum 'emerald lace' tree**, Multistem, minimum 3 breaks, 1.5M tall, 25L pot, guyed within planter.

- PLANTING SCHEDULE**
- Planting Block 01: Ornamental grasses & Perennials to be planted as P9 sized plants. Density as indicated
- 40% Stipa tenuissima, 5m²
 - 10% Lavandula angustifolia 'Hidcoté', 7m²
 - 10% Eryngium planum 'Lide Frost', 7m²
 - 10% Echinacea 'Tiki torch', 7m²
 - 10% Salvia verticillata 'Purple Rain', 7m²
 - 10% Ligularia 'The Rocket', 5m²
 - 10% Verbascum 'Gainsborough', 5m²
- Planting Block 02: Ornamental grass and perennial block to be planted as P9 sized plants. Density as indicated
- 30% Hakonechloa macra, 7m²
 - 20% Rodgersia aesculifolia, 5m²
 - 20% Libertia chilensis, 7m²
 - 10% Crocosmia x crocosmiflora 'Emily McKenzie', 5m²
 - 10% Sasa palmata 'Nebulosa' 3m²
 - 10% Hosta sieboldiana var. elegans, 5m²



Raised steel planters with neutral powder coated finish. Multi-stemmed Amelanchier lamarkii

NOTES

Irrigation: Courtyards to have water connections as required, using 20mm water supply location to M+E engineers specification.

- System to have 1/2" double check valve supplied by Imtec or equal and approved before the timer, to prevent backflow from the irrigation system. 2.5 bar pressure is required, flow rate will be less than 500 l/hr.
- Each tap shall have a Hunter Node battery powered controller, location to be agreed on site, all the planters will be linked to the timer, using 20mm mdppe piping, installed under the paving, detail to be agreed with architect. One tap shall be accessible for maintenance operations and hand watering.
- Techline drip irrigation throughout all the planters delivering 4.8lt/metre per hour. Techline 16mm will be installed at a rate of 2 linear metres per square metre of planting.
- Drip irrigation shall be within the mulch layer in planter beds.
- Maintenance: All gardens require a minimum of two inspections a year to ensure that the outlets etc are maintained, maintenance regime to be confirmed with manufacturer.

Lighting: Lighting (number, spacing and mounting/foundations) to meet required calculations as per M+E Engineers drawings/specification using products shown in key.

- All cabling, ducting, junction boxes and accessories as per manufactures recommendations/M+E engineers specifications. Contractor to liaise with electricity provider to arrange connection.

Planters / Edgings:

- Steel planting bed edges, 450mm high to all shrub and tree beds, constructed in 10mm mild steel plate, powder coated RAL, to be confirmed, manufactured and supplied by OMOS or equal and approved.
- All supports and internal framework to manufactures recommendations/engineers drawings/specification for calculated loading weights.
- All fixtures/fittings and foundations to manufactures recommendations/engineers drawings/specification.

Paving and Surfacing:

- Paving set on fixed head pedestal system creating a "floating floor" system to allow services to be hide underneath, waterproofing and insulation to engineers recommendation.
- Paving to have a minimum cross fall of 1:100.
- All slabs to be cut to best fit around lighting, bins, seats, pergola and other furniture.
- Spacing/joints between paving units: 4mm.
- Wash area thoroughly with clean water from hose pipe at mains pressure or lower to remove all surplus jointing whilst ensuring that none of the joints are disturbed.
- Cementitious material must not be permitted to enter the drainage system or flow onto adjacent paving surfaces. All cementitious material to be removed from surface of all paving prior to and upon completion of laying and jointing.
- All construction works to be carried out to manufactures recommendations regarding climatic conditions and controls.
- Adverse Weather General: Do not use frozen materials or lay on frozen surfaces.
- A trial panel 4m x 4m (min) of paving shall be constructed at an agreed location for inspection by the Employer's Representative.

General:

- Water proofing and insulation refer to architects and engineers drawings/specifications.
- Please refer to engineer drawings/specification for all drainage layout and details.
- All levels are as per Architects/Engineers Drawings with raised planting beds +450mm.
- Any changes to specified materials to be approved by Contract Administrator and should be of equal quality meeting all relevant BS standards.

Planting Notes:

- All plant material to be inspected by the Landscape Architect prior to planting.
- Planting beds:** Infilled with Bauder Intensive substrate, Composition Mineral recycled crushed brick and expanded clay shale. Organic component composted pine bark, depth of 450mm - Certs required.
- Plant Block and Timing:** Plant material shall conform to BS 3036 Part 1: 1992, Part 2: 1990, Part 9: 1998, Part 10: 1990 and BS4043: 1980 and shall be protected at all times in transit to the site. The planting season shall be from 1st October to the 31st March. Planting shall not be carried out during periods of frost, drought, cold drying winds, or when the soil is waterlogged. Planting outside the planting season will require adequate watering to ensure establishment. All planting shall be planted upright at the same depth as the nursery soil level and evenly spaced, leaving room for growth.
- Mulching:** Prior to the application of mulch, the planting areas shall be completely weed free and watered sufficiently to achieve field capacity. The surface of the planting areas shall be mulched with a layer of Organic Compost Mulch or Fine Composted Bark Mulch composted for 2-4 weeks with a particle size of 0-8mm, to a depth of 50mm, ensuring that the low branches of shrubs and herbaceous plants are not smothered. The mulch shall be topped-up to maintain, after settlement, a depth of not less than 50mm.
- After Care Period:** The Aftercare Period shall extend for an 18 month period. During the Aftercare Period maintenance visits shall be carried out, at least monthly from April to September and twice during the dormant season to carry out the following operations to establish healthy growing plants in weed free areas. Maintenance operations shall include: watering, firming-up, pest and disease control, grass cutting, general pruning, weed control, top up mulch and autumn tidying. Replacement Planting. All plants, which have died, are missing or have failed to thrive, shall be noted and replaced with the same size and species as originally planted, in the following planting season.

THIS IS NOT FOR CONSTRUCTION

This drawing is the copyright of the Landscape Architect unless otherwise stated. All dimensions are in millimeters. Where dimensions are not given, drawings must not be scaled and the matter must be referred to the Landscape Architect. If the drawing includes conflicting details/dimensions the matter must be referred to the Landscape Architect. All dimensions must be checked on site. The Landscape Architect must be informed, by the contractor, of any discrepancies before work proceeds.

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Chartered member of the Irish Landscape Institute

Client: Bellmount Development

Project: Redforge Road

Drawing: Roofgardens Layout

Date: 30/05/ 2021

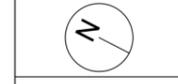
Drawn By: Wendy Kirkpatrick

Checked By: Cathal O'Meara

Issue: Planning

Dwg No: 2014-LA-P002

Rev	Date	Note



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