

*Ecological Impact Assessment (EclA) for a proposed development at  
Quay Street, Balbriggan, Co. Dublin.*



**20<sup>th</sup> June 2022**

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**On behalf of:** Fingal County Council

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## Introduction

### Background

Ecological Impact Assessment (EclA) has been defined as *‘the process of identifying, quantifying and evaluating the potential impacts of defined actions on ecosystems or their components’* (Treweek, 1999). *“The purpose of EclA is to provide decision-makers with clear and concise information about the likely ecological effects associated with a project and their significance both directly and in a wider context. Protecting and enhancing biodiversity and landscapes and maintaining natural processes depends upon input from ecologists and other specialists at all stages in the decision-making and planning process; from the early design of a project through implementation to its decommissioning”* (IEEM, 2010).

The following EclA has been prepared by Altemar Ltd. at the request of Fingal County Council for a proposed development at Quay Street, Balbriggan, Co. Dublin.

### Study Objectives

The objectives of this EclA are to:

1. Outline the project and any alternatives assessed;
2. Undertake a baseline ecological feature, resource and function assessment of the site and zone of influence;
3. Assess and define significance of the direct, indirect and cumulative ecological impacts of the project during its construction, lifetime and decommissioning stages;
4. Refine, where necessary, the project and propose mitigation measures to remove or reduce impacts through sustainable design and ecological planning; and
5. Suggest monitoring measures to follow up the implementation and success of mitigation measures and ecological outcomes.

The following guidelines have been used in preparation of this EclA:

- Guidelines on the information to be contained in EIARs (EPA, 2022);
- Guidelines for Ecological Impact Assessment (EclA) (IEEM, 2019);
- Institute of Ecology and Environmental Management Guidelines for EIA (IEEM, 2005).

### Altemar Ltd.

Since its inception in 2001, Altemar has been delivering ecological and environmental services to a broad range of clients. Operational areas include: residential; infrastructural; renewable; oil & gas; private industry; Local Authorities; EC projects; and, State/semi-State Departments. Bryan Deegan, the managing director of Altemar, is an Environmental Scientist and Marine Biologist with 27 years’ experience working in Irish terrestrial and aquatic environments, providing services to the State, Semi-State and industry. He is currently contracted to Inland Fisheries Ireland as the sole “External Expert” to environmentally assess internal and external projects. He is also chair of an internal IFI working group on environmental assessment. Bryan Deegan (MCIEEM) holds a MSc in Environmental Science, BSc (Hons.) in Applied Marine Biology, NCEA National Diploma in Applied Aquatic Science and a NCEA National Certificate in Science (Aquaculture).

## Description of the Proposed Project

Fingal County Council (Economic, Enterprise, Tourism & Cultural Development Department) is proposing to carry out development on a site of 19,300 m<sup>2</sup> / 1.93 ha approx. It includes parts of Mill Street and of Quay Street and Harbour Road to the beach and up to the and encompassing the site of the demolished night club on the East Pier of Balbriggan Harbour (Protected Structure RPS 0038), and includes public footpaths, public roads, open green space, public carparks, a section of the Bracken River, foot and road bridges over the Bracken River, lands beneath the arches of the Balbriggan Railway Viaduct (Protected Structure RPS 0036), the former RNLI boat house (Protected Structure RPS 0035), existing public toilets and playground. The site includes the area between the Railway Viaduct and the Harbour Road and includes that part of Harbour Road to the north-east of the Railway Viaduct and that part of the Harbour Road on the East Pier of Balbriggan Harbour up to and including the site of the demolished night club on the East Pier.

The proposed development includes:

- (i) Redevelopment of the existing carpark areas, open space and playground to form a reordered pedestrianised public open space / market space with play space off Quay Street, focused around the arches of the Railway Viaduct.
- (ii) Upgrade of the carpark areas and green open space located between Mill Street, Quay Street and the harbour, including the Bracken River, to provide new hard landscaping and planting zones to encourage flora.
- (iii) Upgrade of street surfaces, pavements, landscaping and green infrastructure, including widening of footpaths, to improve pedestrian linkages from Main Street to Quay Street, the Railway Viaduct, the Beach and the Harbour area.
- (iv) New public lighting and street furniture.
- (v) Redesign of existing surface carparking, including closure of vehicular access point on Quay Street, and incorporating modifications to traffic flow and parking on Quay Street, Mill Street and Harbour Road (Seapoint Lane).
- (vi) Works to redirect the existing overflow (currently discharging into the Bracken River) from the Irish Water pumping station off Harbour Road to a new discharge location into the Bracken River.
- (vii) Enhancement works to the Bracken River within the existing open space between Quay Street and Mill Street, including widening of the water course to encourage biodiversity, increase planting and improve flood resilience along the riverbank (including temporary piping of the Bracken River during the construction period of the proposed development).
- (viii) Resurfacing areas under the Railway Viaduct arches with new granite paving.
- (ix) Removal of existing low level stone walls to provide a more accessible link between Quay Street and the harbour.
- (x) Provision within the vicinity of the Railway Viaduct to facilitate future potential market stalls, street food outlets and outdoor dining, to include appropriate utility connection points.
- (xi) Reduction of overall car parking on site, including removal of Quay Street carpark, reduction of on-street carparking and reduction of Town Carpark (Mill Street), resulting in a car park provision of 63 spaces (a reduction of 175 spaces).
- (xii) Provision of 152 cycle parking spaces, seating and integrated play equipment.
- (xiii) Provision of a new single storey Harbour Building (151 sqm) on site of former night club on East Pier of Balbriggan Harbour (Protected Structure) to contain:
  - (a) 1 no. commercial unit with services facing onto the harbour.
  - (b) Provision of associated storage space, office and staff toilet.
  - (c) Provision of public toilets and changing places unit.
  - (d) Provision for seating in vicinity of the harbour building and kiosks.
- (xiv) Provision of two new single storey, kiosk buildings (33 sqm each) on site of former night club on East Pier of Balbriggan Harbour (Protected Structure), to accommodate visitor information, retail, café, hot food take away, rental of leisure boats, cycles, paddleboards and other recreational equipment.
- (xv) Demolition of the existing public toilet block immediately south-west of the Railway Viaduct at the entrance to the beach and provision of temporary toilet facilities pending construction of new toilet block.

- (xvi) Construction of a new single storey building south-west of the Railway Viaduct to include toilets, changing, lockers, '*Changing Places Unit*' and a retail kiosk.
- (xvii) Proposed conservation of the Former RNLI Boathouse, (Protected Structure RPS no. 0035) at Harbour Road, Balbriggan, Co. Dublin, including change of use to commercial café/retail use with associated site development, services and internal alterations. The area of the single storey building is 63 sqm.
- (xviii) All associated site development works, landscaping, services, piped infrastructure and ducting, changes in level; site landscaping and all associated site development and excavation works above and below ground.

The proposed site outline, location, site plan (existing and proposed), and elevations are demonstrated in Figures 1-5.



 Site outline

0 0.7 1.4 2.1 km

Project: Quay Street, Balbriggan  
 Location: Balbriggan, Co. Dublin  
 Date: 14th April 2022  
 Drawn By: Bryan Deegan (Altamar)

**ALTEMAR**  
 Marine & Environmental Consultancy



**Figure 1.** Proposed site outline and location



0 0.1 0.2 0.3 km

Project: Quay Street, Balbriggan  
 Location: Balbriggan, Co. Dublin  
 Date: 14th April 2022  
 Drawn By: Bryan Deegan (Altemar)

**ALTEMAR**  
 Marine & Environmental Consultancy



**Figure 2.** Proposed site outline

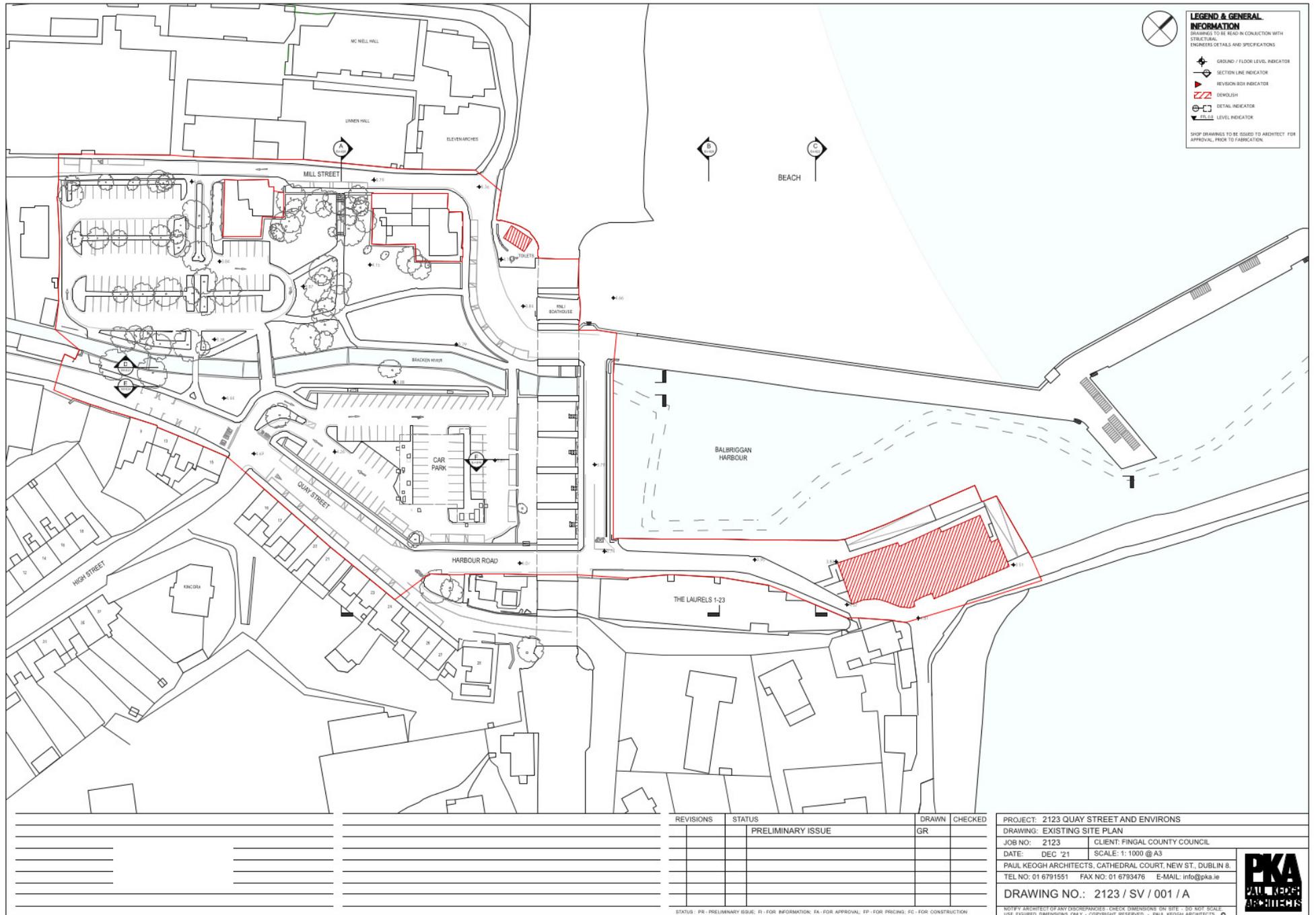


Figure 3. Existing site plan

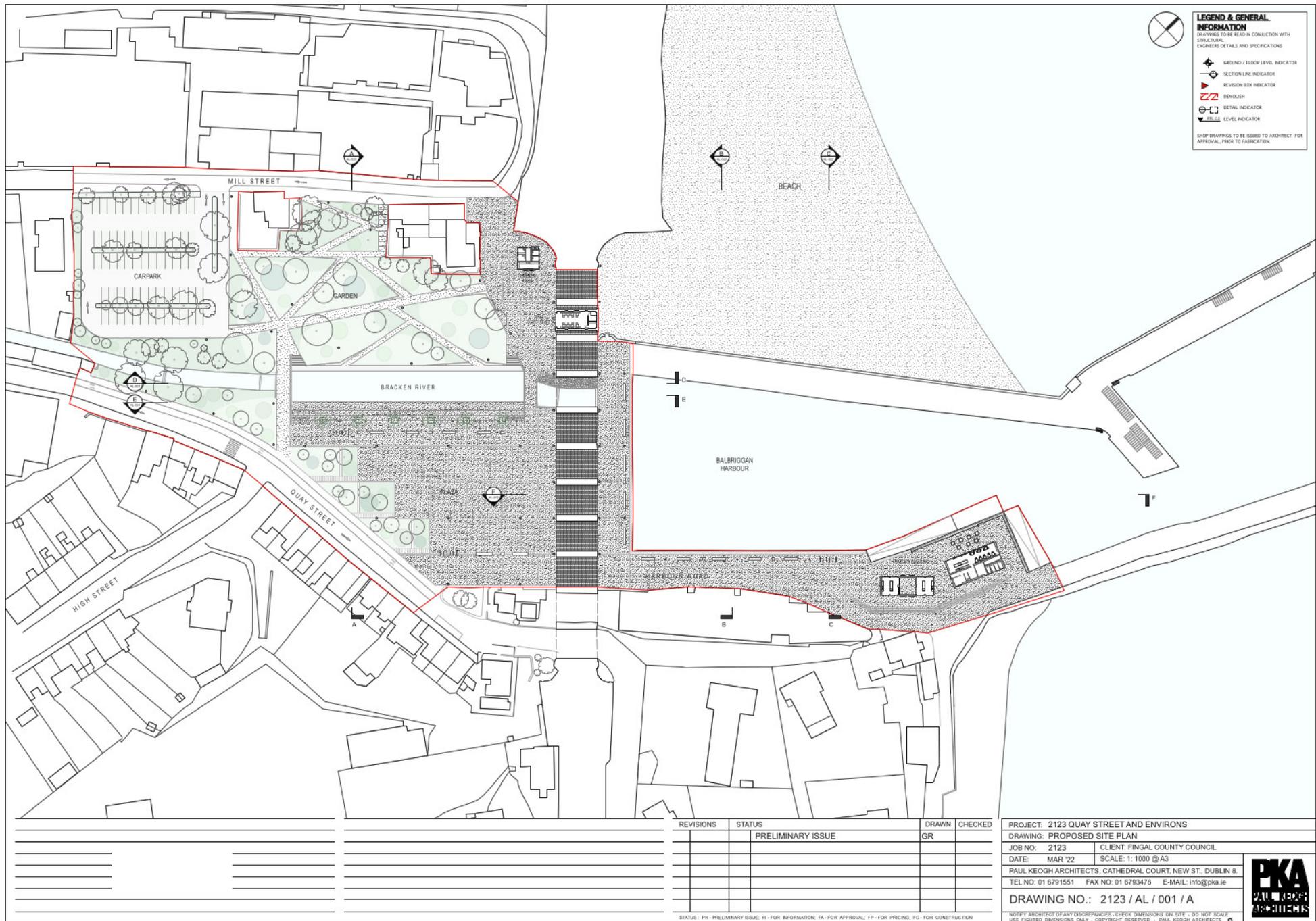


Figure 4. Proposed site plan



## Landscape

A Landscape Design Report was composed by Austen Associates. In relation to tree retention, the report states that: *'An arboricultural survey has been undertaken. All of the trees on site have been surveyed and evaluated. Consultations meetings have taken place with Paul Keogh Architects and an approach to tree protection has been agreed. The general consensus is to retain significant trees on site where possible.'*

Furthermore, the report states that:

### 'Planting Approach

*Early on in the project, a planting approach influenced by the work of the plantsman Piet Oudolf has been favoured for many of the planting areas. This approach takes a naturalistic view to the planting using a mixture of robust perennials and grasses, along with some other planting, to create patterns visible in nature.*

*For Quay Street, this planting style is worked into angular landscape wedges in the garden area alongside open grass lawn zones to create a comforting tapestry. This is interspersed with paving, which follows desire lines through the landscape areas. Gradually ascending Corten steel edging defines the landscape wedges and works with the planting to create an interesting blend of naturalistic planting and complementary man-made elements.*

*Riparian planting will be used close to the river to create waterside planting that will be of high habitat value for wildlife and will also soften the river edge at its interface with the stepped approaches to the river. The planting will be set into biodegradable wraps that are held in place at the river edge with a low quantity of placed rocks. Elsewhere, planting to the edge of the hardscape areas is in the form of rain gardens. These planting areas will take a quantum of surface water flow from the paved areas both to water the plants and also to provide filtration of the water as it seeps to groundwater levels. Plants selected for these areas will be tolerant of periodic wetting and dry spells.*

*Elsewhere, planting to the edge of the hardscape areas is in the form of rain gardens. These planting areas will take a quantum of surface water flow from the paved areas both to water the plants and also to provide filtration of the water as it seeps to groundwater levels. Plants selected for these areas will be tolerant of periodic wetting and dry spells.*

### Tree Planting

*Native specimen trees will be selected for planting after discussion between the Architect and Landscape Architect, taking on board Fingal County Councils approach to tree planting.*

*The proposals require the removal of 33 existing trees to facilitate the development. However, 37 no. new trees are being planted resulting in a net gain in the quantity of trees at this location at the end of the development of the new park.*

*Wild Cherry Prunus avium 'Plena' specimen trees are proposed to soften the interface between the plaza and the river edge to the south. These are relatively good in a coastal situation and will have a degree of added protection from the harbour and viaduct infrastructure. They will provide seasonal interest, with white double flowers in the spring and red/orange autumn colour.*

*Where trees are located in paving, the Stockholm paving system will be utilised. A tree pit of 16m<sup>3</sup> will be allocated for each tree planted in paved areas.*

### Green Infrastructure

*invertebrates, smaller mammals, birds and other species.*

*Further ecological measures will be incorporated such as bird boxes and insect hotels. The retained trees and proposed tree planting will provide habitat linkage through the site and play its part in retaining an environmentally friendly green space in Balbriggan town centre. This will be part of a network of green spaces in the town and connect with the nearby maritime habitat, providing resting and nesting opportunities for birds and other wildlife.*

*The development will link with the wider pedestrian network, providing local connections and walking routes in the active travel strategy for Balbriggan. Linkage to cycle routes is promoted through the site.'*

The proposed integrated green infrastructure plan is demonstrated in Figure 6.



Figure 6. Integrated green infrastructure plan

## Arboricultural Assessment

Tree & Vegetation Survey, Assessment, Management & Protection Measures Report was composed by Austen Associates. In relation to the Arboricultural Impact Assessment, the report states that:

### **'4.0 Arboricultural Impact Assessment**

*This section of the report describes the impacts that the proposed development will have on the trees. To be read in conjunction with the tree survey and tree protection drawings 074021\_TS\_01 and 074021\_TP\_01. Refer to section 5 Arboricultural Method Statement below for details on the protective actions required.*

#### Tree no.'s 1848, 1849, and 1850

*These trees are Acer campestre Field Maple, Salix alba 'Tristis' Weeping Willow and Acer pseudoplatanus Sycamore respectively. They are located in a small green space to the south eastern edge of the site, tree no 1850 is located adjacent to the railway bridge across the road.*

*Impact of the development: It is expected that there will be no impact from the development on these trees.*

*Action: Protect with tree protective fencing.*

#### Tree no.'s 1851-1854

*These trees are Acer pseudoplatanus Sycamore species, located in and around the existing car park to the south east of the site.*

*Impact of the development: The car park layout will be altered and new public plaza installed.*

*Action: Remove.*

#### Tree no. 1855

*This tree is a mature Salix alba 'Tristis' Weeping Willow species, located in the green space adjacent to the Bracken River.*

*Impact of the development: The river will be widened at this location.*

*Action: Remove.*

#### Tree no. 1856 - 1860

*These trees are Cordyline australis New Zealand Cabbage and mature Acer pseudo-platanus Sycamore species. They are located in the green space in the park to the north of the Bracken River. The Cordyline australis New Zealand Cabbage are small, poor specimens and their removal is recommended to allow for improved planting. The Acer pseudoplatanus Sycamore species are mature trees that contribute positively to the public realm and are to be retained.*

*Impact of the development: This area will be planted but otherwise largely unaltered.*

*Action: Remove Cordyline australis New Zealand Cabbage. Retain Acer pseudoplat-anus Sycamore and protect with tree protective fencing.*

#### Tree no. 1861 - 1868

*These trees are Cordyline australis New Zealand Cabbage, mature Acer platanoides 'Drummondii' variegated Maple, and Platanus x hispanica London Plane species. They are located in the green space to the east of the entrance steps from Mill Street.*

*Impact of the development: The steps are to be removed and will be replaced by a universal access ramp. The root protection area of the trees has been shown on the drawings and worked out as per the guidance in BS 5837:2012. In reality, the roots will not have extended beneath the footprint of the steps.*

*Action: Remove tree numbers 1861, 1862, 1863, 1865 and 1867. Review retention of tree numbers 1864, 1866 and 1868 when further details of ramp construction are available.*

#### Tree no. 1869 - 1877

*These trees are Fraxinus excelsior Ash and Acer pseudoplatanus Sycamore. They are located in the green space to the south of the steps. The Fraxinus excelsior Ash are suffering from Ash Die Back disease Hymenoscyphus*

*fraxinea*. There is no treatment for this fungal infection and it is expected that the trees will be dead within 10 years. During this period, they will decline and are a health and safety risk.

*Impact of the development:* These trees are to be removed for health and safety reasons, the *Acer pseudoplatanus* Sycamore is to be removed also.

*Action:* Remove

Tree no. 1878 - 1888

These trees are *Cordyline australis* New Zealand Cabbage, mature *Acer platanoides* 'Drummondii' variegated Maple, and *Acer pseudoplatanus* Sycamore species. They are located in the green space to the west of the entrance steps from Mill Street.

*Impact of the development:* The steps are to be removed and will be replaced by a universal access ramp. The root protection area of the trees has been shown on the drawings and worked out as per the guidance in BS 5837:2012. In reality, the roots will not have extended beneath the footprint of the steps.

*Action:* Remove tree numbers 1879, 1881, 1888. Review retention of tree numbers 1880, 1882 and 1883 when further details of ramp construction are available.

Tree no. 1889 – 1896, 1899 – 0020 and Tree Group 01

These trees are semi-mature *Acer pseudoplatanus* Sycamore, one *Fraxinus excelsior* Ash, *Acer platanoides* 'Drummondii' variegated Maple and *Sambucus nigra* elder species. They are located in the car park to the north west of the site, accessed from Mill Street.

*Impact of the development:* The car park layout will be slightly rationalized, resulting in the loss of some of these trees.

*Action:* Remove tree numbers 1890, 1891, 1893, 1895, 1896, 0007, 0009, 0013 and 0014.

Tree numbers 1889, 1892, 1894, 1897, 1898, 1899, 1900, 0001, 0002, 0003, 0004, 0005, 0006, 0008, 0010, 0011, 0012, 0015, 0016, 0017, 0018, 0019 and 0020 are to be retained and protected with tree protective fencing.

Tree no. 1878 - 1888

These trees are *Cordyline australis* New Zealand Cabbage, mature *Acer platanoides* 'Drummondii' variegated Maple, and *Acer pseudoplatanus* Sycamore species. They are located in the green space to the west of the entrance steps from Mill Street.

*Impact of the development:* The steps are to be removed and will be replaced by a universal access ramp. The root protection area of the trees has been shown on the drawings and worked out as per the guidance in BS 5837:2012. In reality, the roots will not have extended beneath the footprint of the steps.

*Action:* Remove tree numbers 1879, 1881, 1888. Review retention of tree numbers 1880, 1882 and 1883 when further details of ramp construction are available.

Tree no. 1889 – 1896, 1899 – 0020 and Tree Group 01

These trees are semi-mature *Acer pseudoplatanus* Sycamore, one *Fraxinus excelsior* Ash, *Acer platanoides* 'Drummondii' variegated Maple and *Sambucus nigra* elder species. They are located in the car park to the north west of the site, accessed from Mill Street.

*Impact of the development:* The car park layout will be slightly rationalized, resulting in the loss of some of these trees.

*Action:* Remove tree numbers 1890, 1891, 1893, 1895, 1896, 0007, 0009, 0013 and 0014.

Tree numbers 1889, 1892, 1894, 1897, 1898, 1899, 1900, 0001, 0002, 0003, 0004, 0005, 0006, 0008, 0010, 0011, 0012, 0015, 0016, 0017, 0018, 0019 and 0020 are to be retained and protected with tree protective fencing.

Furthermore, the report states that: 'The existing site contains a number of mature trees, they are generally of reasonable quality. Some of these trees are called up for removal and some for retention. Please refer to the drawing 074021\_TP\_01 and the Arboricultural Impact Assessment above for details. The principal standard for tree retention practices is BS 5837:2012.'

### Tree rooting:

The majority of the tree's roots are in the top 1000mm of the soil, with the majority of feeding and anchoring roots in the top strata. Typically, they spread laterally from the trunk out beyond the crown. The area of the tree roots is referred to as the **Root Protection Area, RPA**, and is indicated on the accompanying plans, 074021\_TS\_01 and 074021\_TP\_01. The RPA of the trees to be retained is not to be disturbed or impacted upon by construction. **CRITICAL: UNDER NO CIRCUMSTANCES ARE LEVELS TO BE RAISED OR LOWERED IN THE ROOT PROTECTION AREA!**

### Removal of trees:

Trees are to be removed to the standard set out in BS 3998:2010. They are to be safely felled with stumps and roots to be removed. The trees proposed for removal are adjacent to trees proposed for retention. Care is to be taken so as to not damage the above ground parts, (bark, trunk, branches, shoots and leaves etc. of the retained trees). The roots of the retained trees are to be protected also. Note the rootzone that requires protection is indicated on the drawing 074021\_TP\_01.

### Retention of trees:

- The root protection area of the trees has been worked out in line with the guidance given in BS 5837:2012. It is indicated on drawings 074021\_TS\_01 and 074021\_TS\_02. This area is an estimate of the below ground root spread of the trees and protection of this area is of utmost importance.
  - o No alterations of ground levels are to occur within the RPA, this includes excavations or raising of ground levels.
  - o Any practices that would lead to compaction within the RPA such as storage of materials or location of site buildings are strictly prohibited.
  - o Any spillages, washings or any other possible contamination of the soil in the rootzone from construction operations is prohibited.
- The above ground parts of the trees will be protected from damage from site traffic and machinery and from felling operations of adjacent trees.

### Tree work

Any tree work undertaken on site will be in line with BS 3998. An assessment shall be taken for the presence of any protected wildlife prior to removal and any ecological survey recommendations will be observed.

### Tree protection areas

The alignment of the tree protective fencing will be as shown on Drawing No. 074021\_TP\_01 and is specifically designed to protect the tree roots. Construction traffic will be diverted between tree protection areas for the duration of construction and no heavy-duty traffic shall pass over the RPA of retained trees prior to erection of tree protective fencing. The fencing shall remain in place for the duration of the construction works and shall only be removed when all works are complete. The tree protective fencing alignments will not be altered, even on a temporary basis, without the written consent of the project arborist.

Where works are required within the tree protective fencing alignments, the project arborist will be informed in writing. The fencing shall not be altered without written approval from the project arborist. Such works will be agreed with the project arborist in writing. The fencing will be restored to the alignments shown on the drawing 074021\_TP\_01 on when these works are complete, or if there is a period of greater than one day where such works are halted.

### Tree Protection

- No materials, site storage areas, cement washing points, construction waste disposal areas shall be located in or around the Root Protection Areas.
- No noxious liquids shall be disposed of or deposited within the RPA.
- Rubbish shall not be burned in the RPA
- The soil level shall not be altered in any way, (raised or lowered) within the RPA.
- No action that might cause compaction within the RPA are to be carried out, this includes but is not limited to: placement of site facilities, storage of machinery, storage of materials, topsoil storage, staff parking.

- *No signage, staples, boards or any other item/material shall be attached to any retained tree.*
- *Site machinery with extending arms, buckets etc. shall not damage the above ground parts of the trees.*

### Tree Protective fencing

*protective fencing shall be as outlined on Drawing No. 074021\_TP\_01 and shall re-main in place during the construction works. Any works within the tree protective fencing shall be supervised on site by the project Arboriculturist. Signage shall be attached to the fencing reading 'Tree Protective fencing KEEP OUT'*

*In conclusion, the report states that: 'There are a number of mature and semi-mature trees on the site. These are generally in reasonably good condition and have been surveyed and recorded in this re-port.*

*A number of these trees are suffering from Ash Die Back disease Hymenoscyphus fraxinea and will be removed. Other trees will be removed to allow for development of the site.*

*A number of the more mature trees will be retained along with some semi-mature trees in the car parking area to the north west of the site.*

*To allow for the retention of the trees, tree protection fencing will be erected to prohibit access to the rooting area of the trees. This tree protective fencing to BS 5837:2012 will be in place all through construction, along with adherence by all on site with the instructions regarding the protection of the RPA. These steps are critical to the successful retention of trees.'*

The proposed tree protection plan and tree survey plan are demonstrated in Figures 7 & 8.

### Lighting

The existing site services layout is demonstrated in Figure 9. The proposed lighting layout is demonstrated in Figure 10.



Figure 7. Tree Protection Plan (Red circles -Trees to be removed. Blue lines- tree protection measures)



Figure 8. Tree Survey Plan



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Draw No.	Author/Checked	Draw Title

Rev.	Date	Description	Drawn	Checked	Approved
P1	13/10/21	ISSUANCE FOR INFORMATION			

- NOTES:**
1. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, C&S ENGINEERS DRAWINGS & SPECIFICATIONS.
  2. ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH THE RELEVANT BUILDING REGULATIONS.
  3. DO NOT SCALE - WORK TO FIGURE DIMENSIONS ONLY.

<p><b>EXISTING SITE SERVICES LAYOUT</b></p>			
Scale:	13/10/21	Scale:	1:5000A1 (1:10000A3)
Drawn By:	H.P.	Checked By:	N.B.
Approved By:		Approved By:	AW

Client:	FINGAL COUNTY COUNCIL
Job Description:	QUAY STREET BALBRIGGAN
Project No.:	21ME022
Drawing No.:	ME-1000EX
Rev.:	P1

**INFORMATION**

Geórsaíocht Leathair, Áilleannú.

100, The Hub, Lonsdale, Kildare, Co. DU, Ireland. Tel: 045 702110. Fax: 045 702111. Email: info@hayeshiggins.com

Figure 9. Existing site services layout

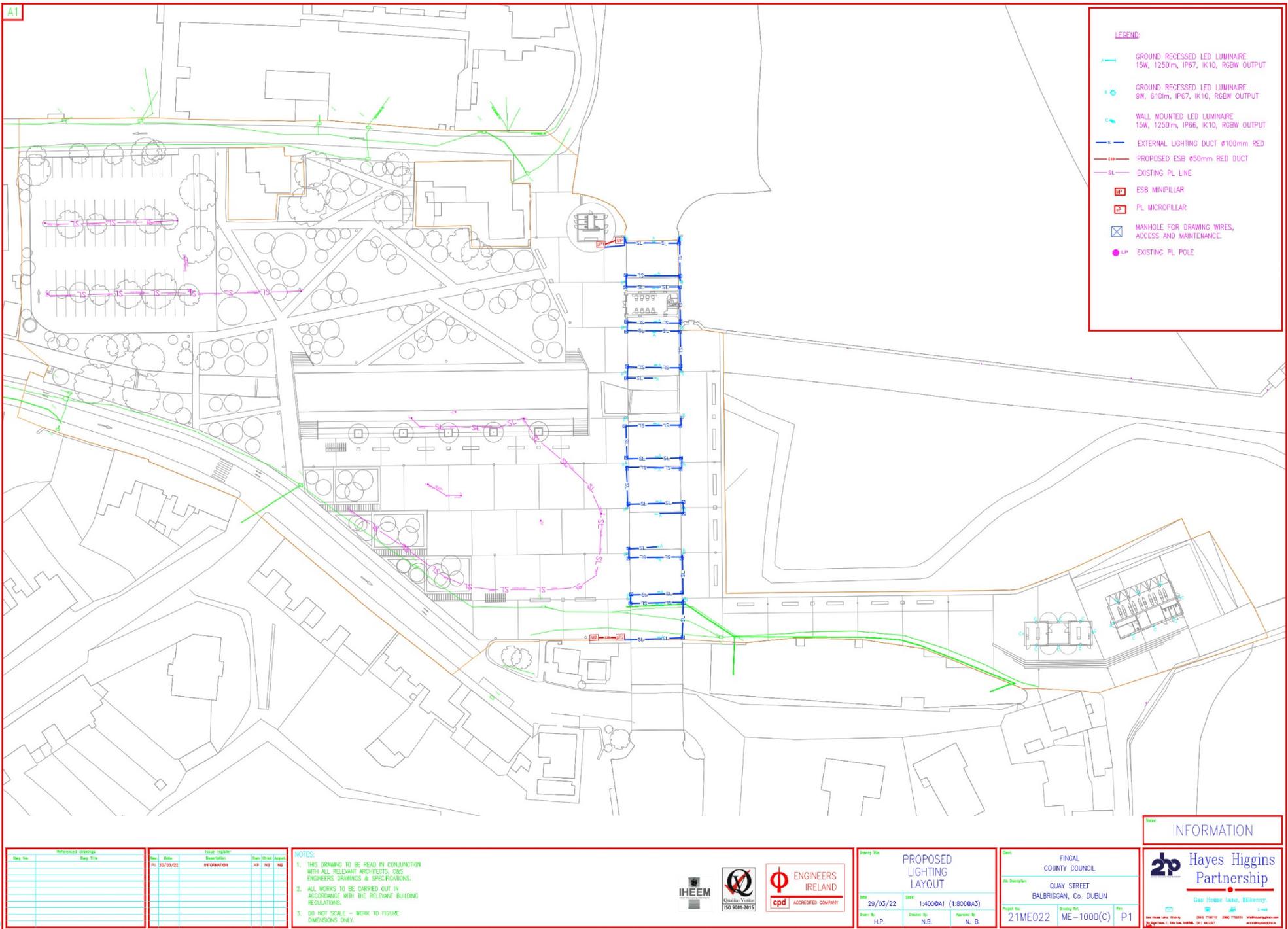


Figure 10. Proposed lighting layout

## Drainage

A Civil Structure Engineering Pre-Planning Report was prepared by Hayes Higgins Partnership Chartered Engineers to accompany this planning application. This report outlines the following drainage strategy for the proposed development:

### Surface Water Drainage

In relation to the existing and proposed storm water drainage, the report states that:

*'By way of a site walk over and review of topographical survey, GPR survey and Irish Water drainage maps it is confirmed that there is currently public stormwater drainage infrastructure within the site. One system runs along Mill Street. A second system services the Quay Street/Harbour Road area. Existing Surface Water is currently drained from the site by a series of surface water road gullies connected to the existing drainage system.'*

*In accordance with the "Fingal Development Plan 2017-2023 and standards of FCC's Water Services Department It is proposed to provide sustainable storm water drainage infrastructure for the site conveying water more slowly to the existing drainage system which will include the following SuDS features*

- *Integrated Constructed Tree Pits*
- *Plaza Drainage Channels connected to Rainwater Gardens*
- *Schemes Increases amount of Open Green / Garden Areas*
- *Permeable Paving in Car Parking Area*
- *Downpipe planters*
- *Attenuation Tanks*

*The location of the large underground Irish Water Pumping Station under the existing Quay St Car Park which will be transformed into a new pedestrian priority Plaza along with the requirement not to disturb the heritage cobbles under the Viaduct restricts the installation of permeable paving in the Plaza Area, however to assist with the surface water management all drainage channels in the Plaza area will be connected to the 3 Plaza Rainwater Gardens that cleanses and detains stormwater runoff from the Plaza before piping the water to an underground attenuation tank further slowing the discharge of surface water to the existing drainage system. All new tree will have integrated tree pits.'*

*The existing Town Car Park is being reduced in size and the new car parking area will have Permeable Paving with 500mm stone layer will be constructed in the Town Car Park. The drainage strategy surrounding the harbour is surface water will drain directly into the harbour. The new harbour buildings downpipes will be connected to downpipe planters*

*Due to the nature of this multi-use area for community and events and the need for almost level surfaces, this creates a difficulty in creating features such as swales in the garden area, but all paths will drain into the garden area. A combination of 120m<sup>3</sup> storm water attenuation tanks for the Plaza area and a 20m<sup>3</sup> attenuation tank for the paved area next to the Toilet Block which are adequately sized attenuation system as per Sustainable Urban Drainage Systems' (SuDS) principles. The Rainwater Gardens, Permeable Paving, Integrated Constructed Tree Pits and surface water attenuation system will reduce the total surface water discharges from the site into the sewer system. No surface water will discharge into the foul sewer system..'*

### Foul Water Drainage

In relation to the existing and proposed foul water drainage, the report states that:

*'By way of a site walk over and review of topographical survey, GPR survey and Irish Water drainage maps it is confirmed that there is currently public foul drainage infrastructure on both Mill Street and Quay Street/Harbour Road. It is proposed to connect the Toilet Block, Kiosks and Harbour Building to these existing services as necessary.*

*The proposed discharge will be calculated based on usage (once determined). A preconnection enquiry will be submitted to Irish Water which will confirm if the proposed connection is viable and can cater for this development (not anticipated that capacity issues will arise).*

*At the time of writing this report no correspondence has been submitted to Irish Water for foul drainage connections.*

*The existing Irish Water underground pumping station located under Quay Street Car Park pumps sewage from the underground pumping station to the Sewage Treatment Plant at Barnageeragh near Skerries and the existing 750mm emergency overflow from the underground pumping station to the River Bracken will be repositioned approximately 20m eastwards downstream to accommodate the River Bracken widening works. Initial discussions have taken place with Irish Water to agree a repositioned route and an application has been made to Irish Water to agree final repositioned emergency overflow route.'*

The foul water will go into the existing sewerage system to the pumping station underground in the southeast part of the site, just inland from the Railway Viaduct. From there, it will be pumped to Barnageeragh Wastewater Treatment Plant (WwTP) where it will be treated prior to being discharged into the marine environment.

The 2013 Annual Environmental Report for Balbriggan-Skerries states that: *'Subject to the allowances in Schedule B3 of the Licence, the plant operated satisfactorily throughout the year and passed the ELV requirements in the Licence and the UWWT Regs.'* The proposed foul and surface water drainage layout is seen in Figure 11.

## Flood Risk Assessment

A Flood Risk Assessment was carried out by McCoy Consulting for the proposed development site at Quay Street, Balbriggan, Co. Dublin. In conclusion, the report states that:

### *'3.5 Flooding*

*3.5.1 The site is located adjoining the harbour. The Bracken River flows through the site.*

*3.5.2 A review has been conducted through the CFRAMS mapping system which indicated the site does suffer from fluvial and pluvial flooding and some coastal flooding.*

*3.5.3 McCloy Consulting have carried out a Stage 2 Flood Risk Assessment for the proposed public realm scheme and the initial assessment has determined that the site is affected by Flood Zone A and Flood Zone B as defined in the OPW Guidelines, however given the nature of the development (i.e., open amenity space) the proposal is considered "appropriate" in any flood zone. The impact of proposed changes to ground level and watercourse channel on flood risk at the site and elsewhere will require detailed, site-specific hydraulic modelling as part of a stage 3 Flood Risk Assessment which will be carried out prior to construction.*

*3.5.4 It is expected that the scheme as currently envisioned will lessen the potential/contribution to flooding events (attenuation/SuDS, widening of the river channel).*

*3.5.5 Prior to construction a hydraulic assessment on the impacts of the proposed widening of a section of the Bracken River will be carried out to establish any changes in flow pattern and will also consider the impact on ground water trajectory due to lack of permeability from proposed infrastructure changes.'*

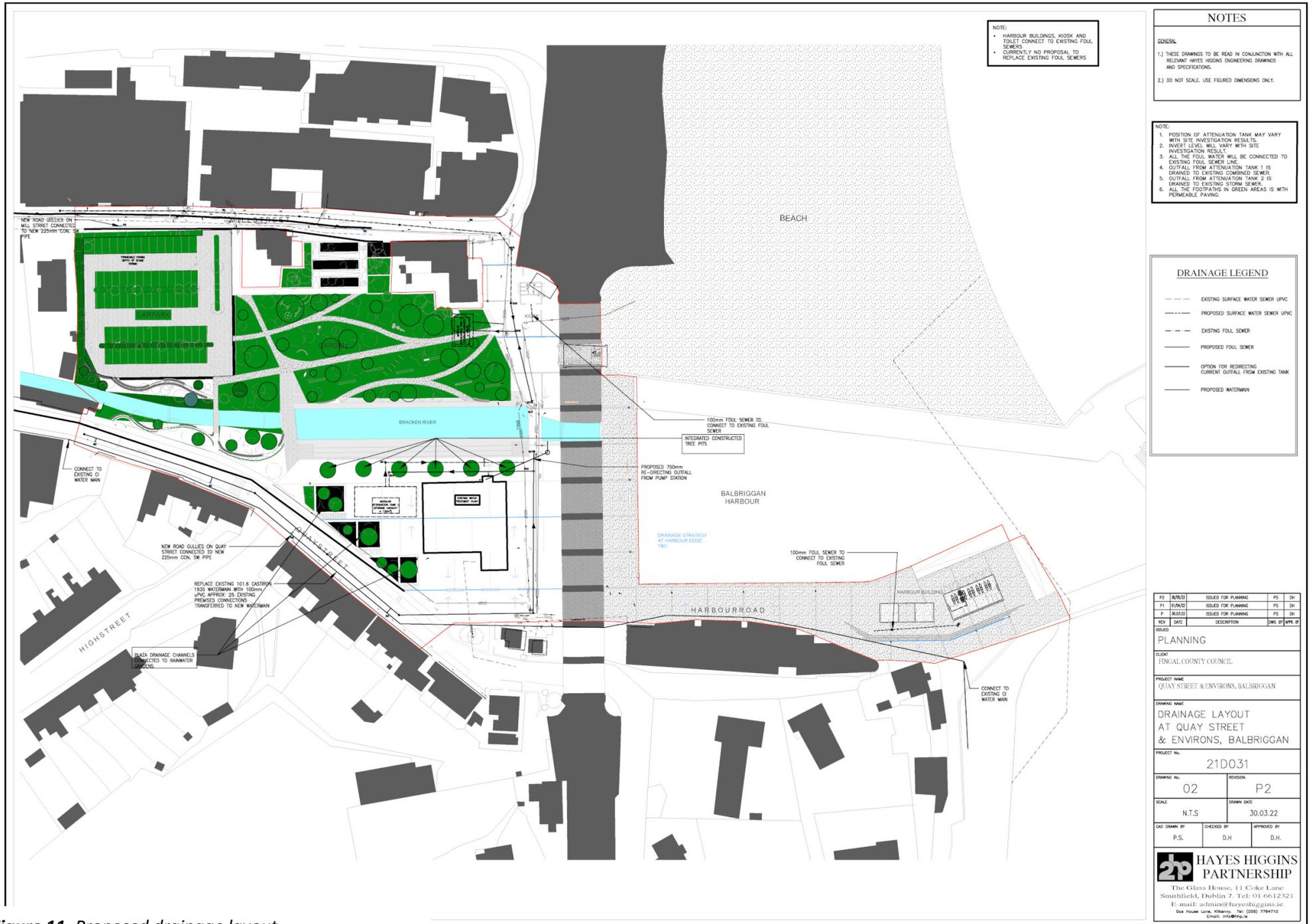


Figure 11. Proposed drainage layout

## Ecological Assessment Methodology

### Desk Study

A desk study was undertaken to gather and assess ecological data prior to undertaking fieldwork elements.

Sources of datasets and information included:

- The National Parks and Wildlife Service
- National Biological Data Centre
- Satellite, aerial and 6" map imagery
- ESRI (QGIS)

A provisional desk-based assessment of the potential species and habitats of conservation importance was carried out on 13<sup>th</sup> April 2022 and was revised on 21<sup>st</sup> April 2022. Altamar assessed the project, the proposed construction methodology and the operation of the proposed development.

### Spatial Scope and Zone of Influence

As outlined in CIEEM (2018) *'The 'zone of influence' for a project is the area over which ecological features may be affected by biophysical changes as a result of the proposed project and associated activities. This is likely to extend beyond the project site, for example where there are ecological or hydrological links beyond the site boundaries.'* In line with best practice guidance an initial zone of influence be set at a radius of 2km for non-linear projects (IEA, 1995).

The potential ZOI of the construction phase of the project in the absence of mitigation was deemed to be within the site outline, nearby sensitive receptors including the Bracken River, the marine environment downstream of the proposed development works. It should be noted, however, that due to the proposed in-stream works to the Bracken River, mitigation measures must be put in place, and these will need to be robust in order to ensure that impacts are retained within the site outline. The project would also involve demolition, reprofiling, excavations and construction, which may impact beyond the site through noise, dust and light impacts. Standard but robust construction phase controls need to be implemented to limit the potential impact of the proposed development into the surrounding environment. The ZOI of the operation of the proposed development would be the immediate area of the proposed development site.

### Field Survey

Field surveys of the proposed development were carried out on the 20<sup>th</sup> April 2022 and 8<sup>th</sup> June 2022. The purpose of the field surveys was to identify habitat types according to the Fossitt (2000) habitat classification and map their extent. In addition, more detailed information on the species composition and structure of habitats, conservation value and other data were gathered.

A bat survey was carried out by Bryan Deegan (MCIEEM) on the 20<sup>th</sup> April 2022 and June 8<sup>th</sup> 2022. The survey on June 8<sup>th</sup> included an interior inspection of the boat house. Brian Keeley also carried out a bat assessment on the 14<sup>th</sup> September 2020. The results are seen in Appendix I and Appendix II respectively.

### Survey Limitations

As outlined in Appendix I the bat surveys were carried out in 2022, in slightly suboptimal conditions (Temperature of 8°C at sunset with slight breeze) in April and no bat foraging was noted on site. A follow up survey was carried out on the 8<sup>th</sup> June 2022 in optimal conditions and included interior building inspections. No limitations are foreseen in relation to the surveys on site.

### Consultation

The National Biological Data Centre records were consulted for species of conservation significance.

## Impact Assessment Significance Criteria

This section of the EclA examines the potential causes of impact that could result in likely significant effects to the species and habitats that occur within the ZOI of the proposed development. These impacts could arise during either the construction or operational phases of the proposed development. The following terms are derived from EPA EIAIAR Guidance (2022) and are used in the assessment to describe the predicted and potential residual impacts on the ecology by the construction and operation of the proposed development.

### Impact description terminology (EPA,2022)

Magnitude of effect (change)		Typical description
<b>High</b>	Adverse	Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements.
	Beneficial	Large scale or major improvement of resource quality; extensive restoration; major improvement of attribute quality.
<b>Medium</b>	Adverse	Loss of resource, but not adversely affecting the integrity; partial loss of/damage to key characteristics, features or elements
	Beneficial	Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality.
<b>Low</b>	Adverse	Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements.
	Beneficial	Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some beneficial effect on attribute or a reduced risk of negative effect occurring
<b>Negligible</b>	Adverse	Very minor loss or alteration to one or more characteristics, features or elements.
	Beneficial	Very minor benefit to or positive addition of one or more characteristics, features or elements.

### Criteria for Establishing Receptor Sensitivity/Importance

Importance	Ecological Valuation
<b>International</b>	Sites, habitats or species protected under international legislation e.g. Habitats and Species Directive. These include, amongst others: SACs, SPAs, Ramsar sites, Biosphere Reserves, including sites proposed for designation, plus undesignated sites that support populations of internationally important species.
<b>National</b>	Sites, habitats or species protected under national legislation e.g. Wildlife Act 1976 and amendments. Sites include designated and proposed NHAs, Statutory Nature Reserves, National Parks, plus areas supporting resident or regularly occurring populations of species of national importance (e.g. 1% national population) protected under the Wildlife Acts, and rare (Red Data List) species.
<b>Regional</b>	Sites, habitats or species which may have regional importance, but which are not protected under legislation (although Local Plans may specifically identify them) e.g. viable areas or populations of Regional Biodiversity Action Plan habitats or species.
<b>Local/County</b>	Areas supporting resident or regularly occurring populations of protected and red data listed-species of county importance (e.g. 1% of county population), Areas containing Annex I habitats not of international/national importance, County important populations of species or habitats identified in county plans, Areas of special amenity or subject to tree protection constraints.
<b>Local</b>	Areas supporting resident or regularly occurring populations of protected and red data listed-species of local importance (e.g. 1% of local population), Undesignated sites or features which enhance or enrich the local area, sites containing viable area or populations of local Biodiversity Plan habitats or species, local Red Data List species etc.
<b>Site</b>	Very low importance and rarity. Ecological feature of no significant value beyond the site boundary

Quality of Effects	Effect Description
<b>Negative /Adverse Effect</b>	A change which reduces the quality of the environment (for example, lessening species diversity or diminishing the reproductive capacity of an ecosystem; or damaging health or property or by causing nuisance).
<b>Neutral Effect</b>	No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.
<b>Positive Effect</b>	A change which improves the quality of the environment (for example, by increasing species diversity, or improving the reproductive capacity of an ecosystem, or by removing nuisances or improving amenities).

**Significance of Effects**

Significance of Effect	Description of Potential Effect
<b>Imperceptible</b>	An effect capable of measurement but without significant consequences.
<b>Not significant</b>	An effect which causes noticeable changes in the character of the environment but without significant consequences.
<b>Slight Effects</b>	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
<b>Moderate Effects</b>	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.
<b>Significant Effects</b>	An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.
<b>Very Significant</b>	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment.
<b>Profound</b>	An effect which obliterates sensitive characteristics.

Duration and Frequency of Effect	Description
<b>Momentary</b>	Effects lasting from seconds to minutes
<b>Brief</b>	Effects lasting less than a day
<b>Temporary</b>	Effects lasting less than a year
<b>Short-term</b>	Effects lasting one to seven years.
<b>Medium-term</b>	Effects lasting seven to fifteen years.
<b>Long-term</b>	Effects lasting fifteen to sixty years.
<b>Permanent</b>	Effects lasting over sixty years
<b>Reversible</b>	Effects that can be undone, for example through remediation or restoration

Describing the Probability of Effects	Description
<b>Likely Effects</b>	The effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented.
<b>Unlikely Effects</b>	The effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented.

## Results

### Proximity to Designated Conservation Sites

Designated conservation sites (National and international) within 15km of the proposed development are seen in Figures (12-15) and Table 1 and Table 2. It should be noted that the proposed development site is not within a designated conservation area. The closest Natura 2000 site is River Nanny Estuary and Shore SPA, located 4.9 km from the proposed development site. The nearest SAC to the proposed development site is the Rockabill to Dalkey Island SAC (7.6 km away). Skerries Islands is the nearest Natural Heritage Area (NHA), approximately 6.2 km from the proposed development. Knock Lake is the nearest proposed Natural Heritage Area (pNHA), at 2.8 km from the proposed development. The nearest Ramsar site is Rogerstown Estuary, located 11.3 km from the subject site. As can be seen from Figure 16, the Bracken River (MATT\_010) traverses through the subject site and outfalls to the marine environment at Balbriggan Harbour.

There is an indirect hydrological connection to marine-based designated conservation sites via foul and surface water drainage. Given that works are proposed within and in close proximity to Bracken River, it is considered that there is an indirect hydrological connection to marine-based conservation sites during the construction phase of development. During operation, surface water drainage will discharge via a SuDs system into the ground. Foul wastewater from the proposed development will discharge to the existing sewerage system to the pumping station underground in the southeast part of the site, just inland from the Railway Viaduct. From there, it will be pumped to Barnageeragh Wastewater Treatment Plant (WwTP) where it will be treated prior to being discharged into the marine environment. There is therefore an indirect pathway from the proposed development site to conservation sites within the marine environment via foul and surface water drainage. It would be expected that in the absence of any mitigation measures impacts from silt or accidental pollution from the proposed development would be negligible by the time it reaches the conservation sites in the marine environment, due to the dilution, mixing and considerable distance across a marine environment.

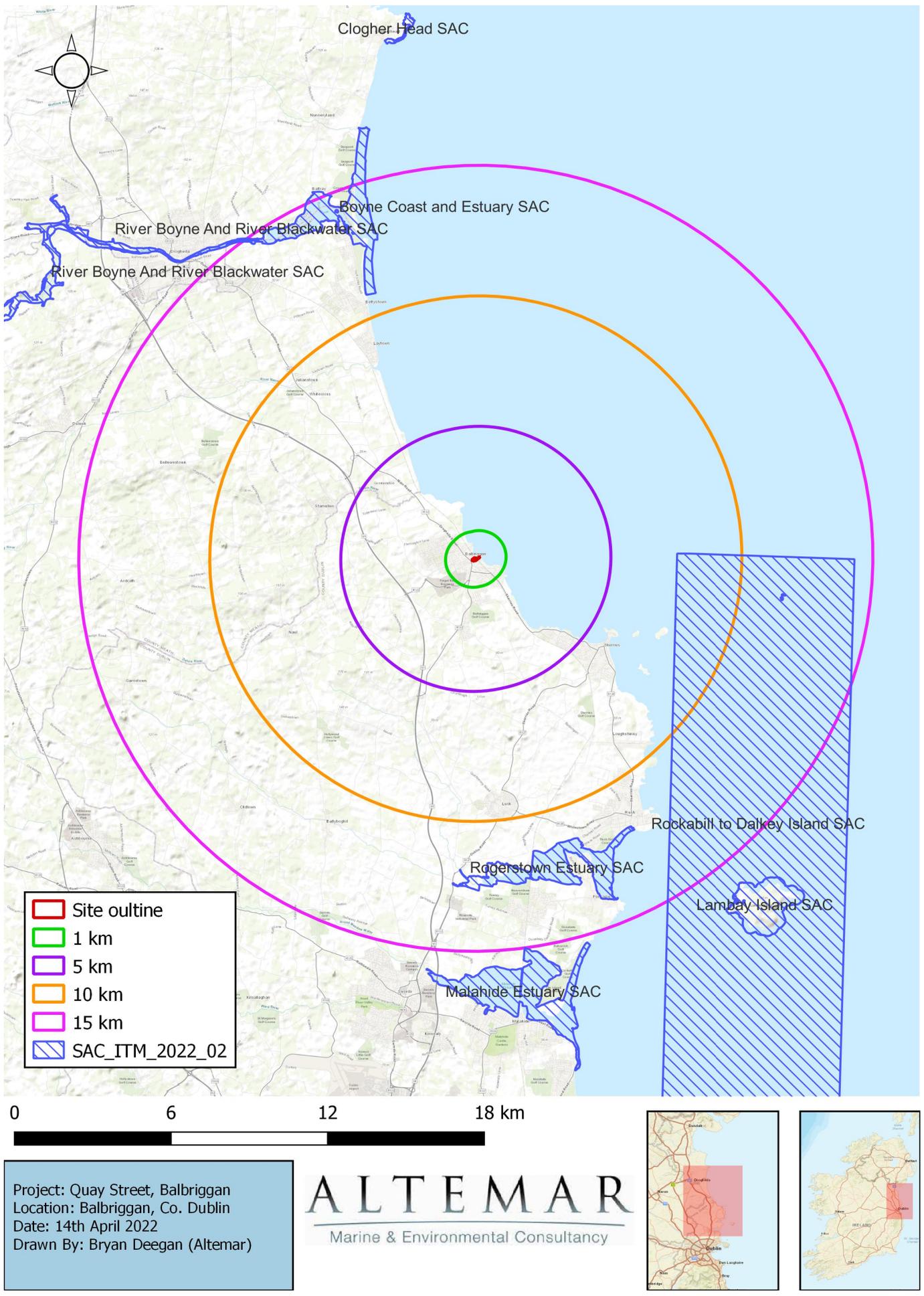
Watercourses and designated conservation sites located proximate to the subject site are demonstrated in Figures 16-19.

Table 1. Natura 2000 sites within 15km of the proposed site

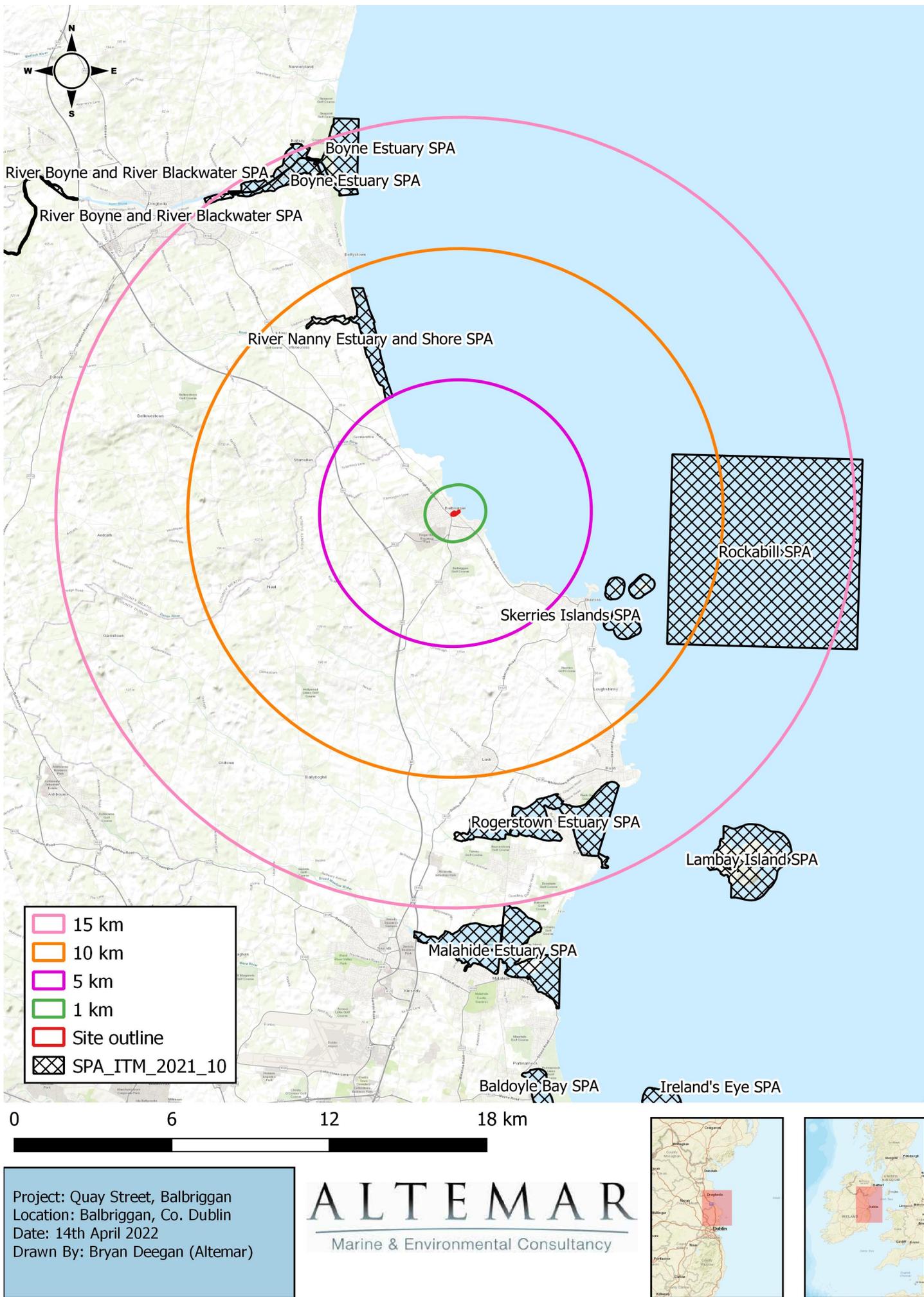
Designation	European Site	Distance
SAC	Rockabill to Dalkey Island SAC	7.6 km
SAC	Boyne Coast and Estuary SAC	10.8 km
SAC	Rogerstown Estuary SAC	11.3 km
SPA	River Nanny Estuary and Shore SPA	4.9 km
SPA	Skerries Islands SPA	6.3 km
SPA	Rockabill SPA	8.1 km
SPA	Rogerstown Estuary SPA	11.1 km
SPA	Boyne Estuary SPA	12.6 km

Table 2. NHAs, pNHAs, and Ramsar sites within 15km of the proposed development site

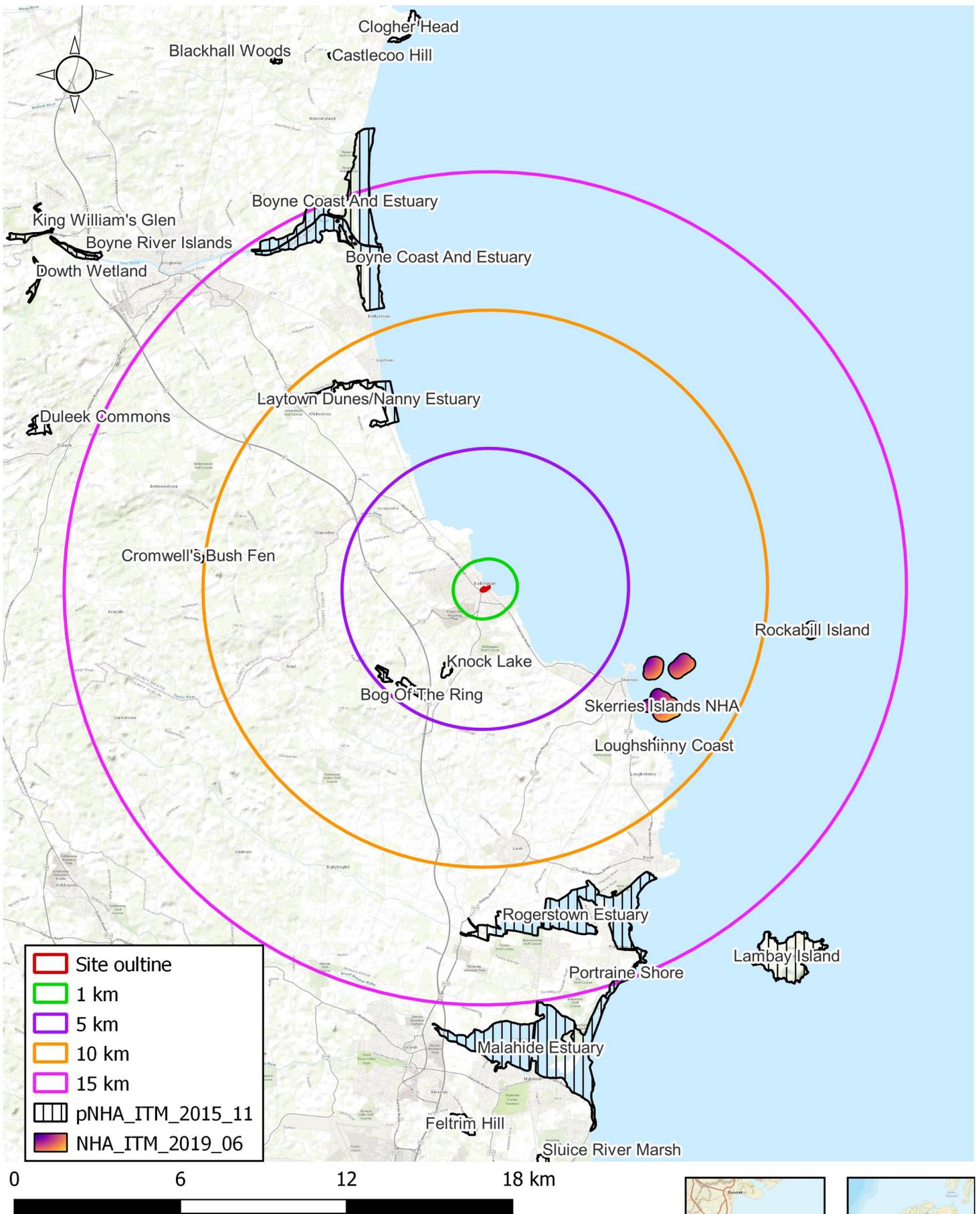
Status	Site Name	Distance
NHA	Skerries Islands	6.2 km
pNHA	Knock Lake	2.8 km
pNHA	Bog of the Ring	4.1 km
pNHA	Laytown Dunes/Nanny Estuary	6.7 km
pNHA	Loughshinny Coast	8 km
pNHA	Cromwell's Bush Fen	10 km
pNHA	Boyne Coast and Estuary	10.7 km
pNHA	Rogerstown Estuary	11.1 km
pNHA	Rockabill Island	11.4 km
pNHA	Portraine Shore	13.8 km
pNHA	Malahide Estuary	15.0 km
RAMSAR	Rogerstown Estuary	11.3 km



**Figure 12.** Special Areas of Conservation (SAC) within 15 km for the proposed development

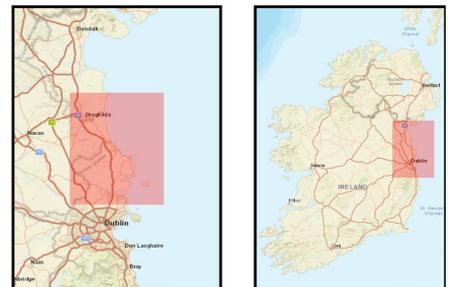


**Figure 13.** Special Protection Areas (SPA) within 15km of proposed development

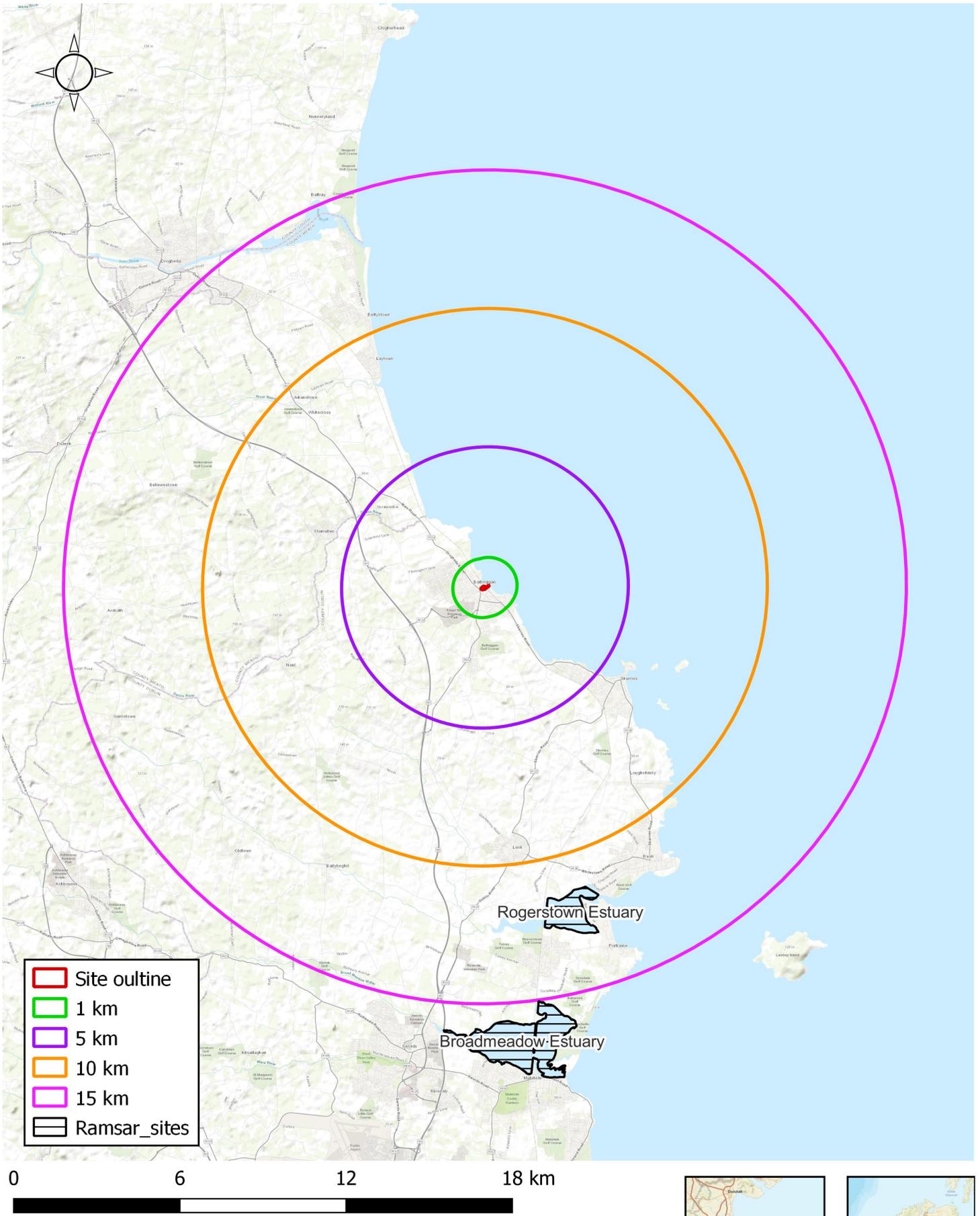


Project: Quay Street, Balbriggan  
 Location: Balbriggan, Co. Dublin  
 Date: 14th April 2022  
 Drawn By: Bryan Deegan (Altamar)

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**Figure 14.** Natural Heritage Areas (NHA) and proposed Natural Heritage Areas (pNHA) within 15km of proposed development



Project: Quay Street, Balbriggan  
 Location: Balbriggan, Co. Dublin  
 Date: 14th April 2022  
 Drawn By: Bryan Deegan (Altemar)

**ALTEMAR**  
 Marine & Environmental Consultancy



Figure 15. Ramsar sites within 15km of proposed development



Site outline  
 WFD\_RiverWaterbodiesActive\_Cycle3

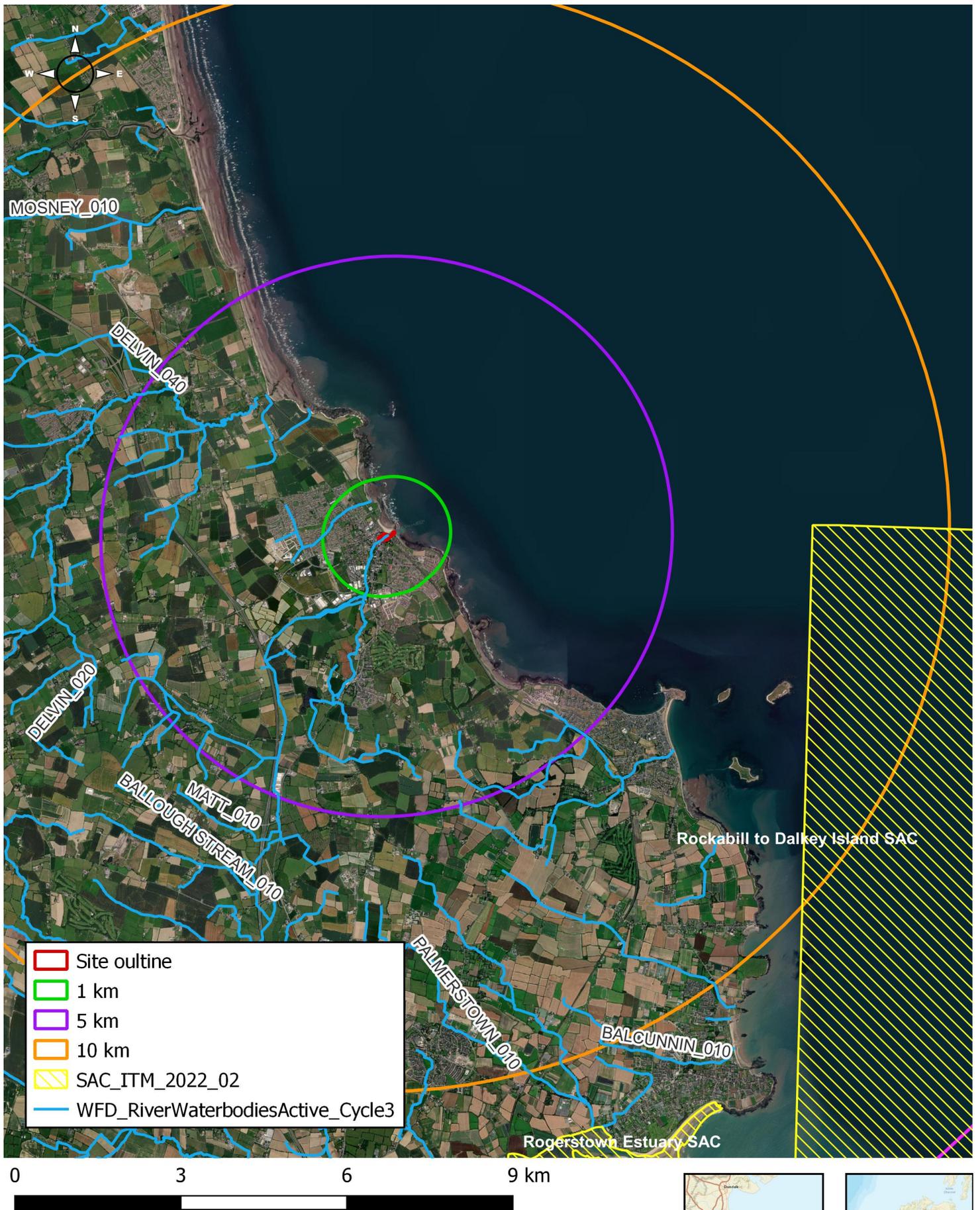
0                      0.1                      0.2                      0.3 km

Project: Quay Street, Balbriggan  
 Location: Balbriggan, Co. Dublin  
 Date: 14th April 2022  
 Drawn By: Bryan Deegan (Altamar)

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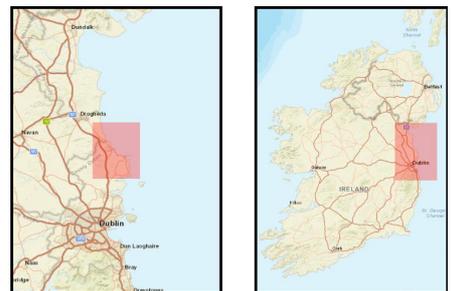


**Figure 16.** Watercourse traversing through the subject site

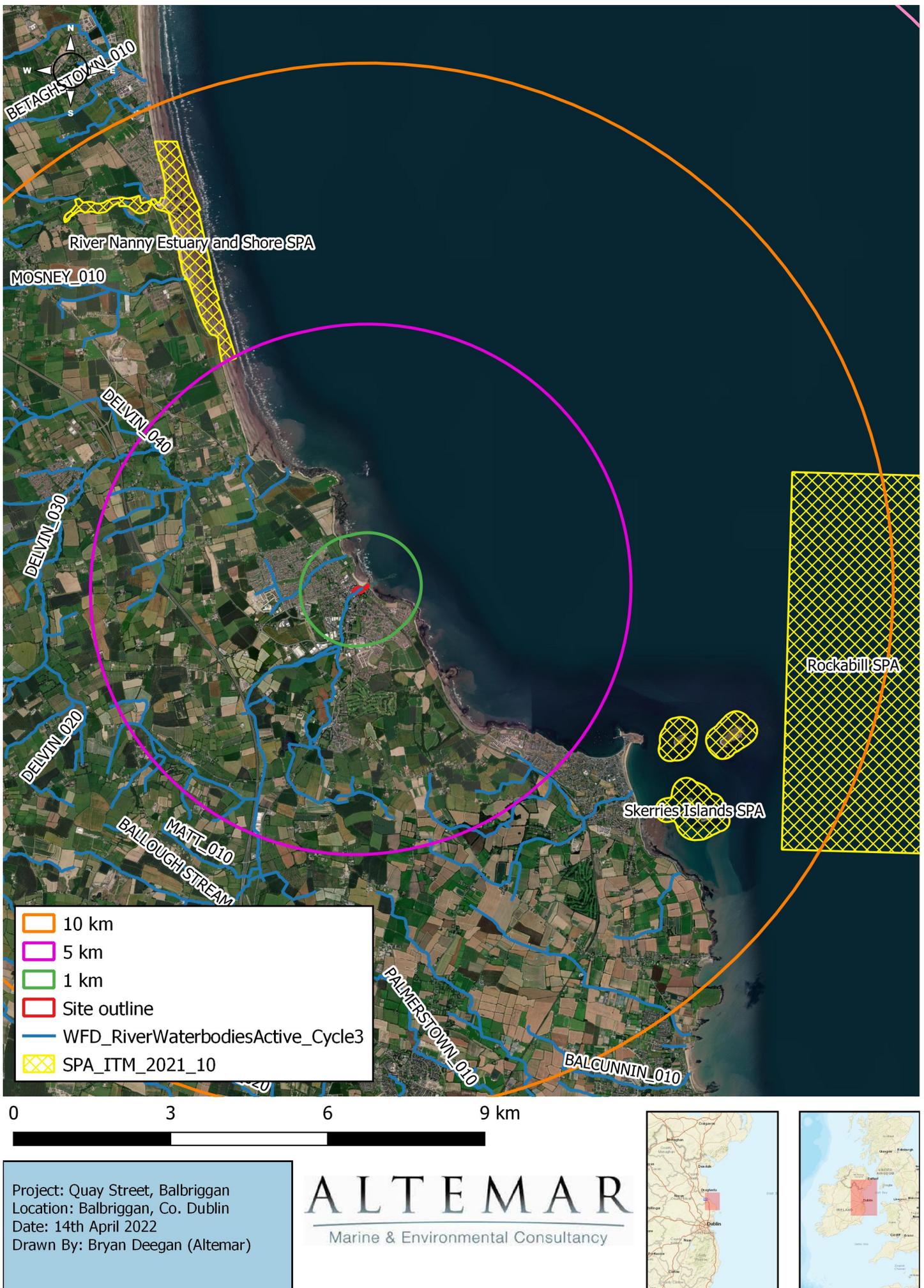


Project: Quay Street, Balbriggan  
 Location: Balbriggan, Co. Dublin  
 Date: 14th April 2022  
 Drawn By: Bryan Deegan (Altemar)

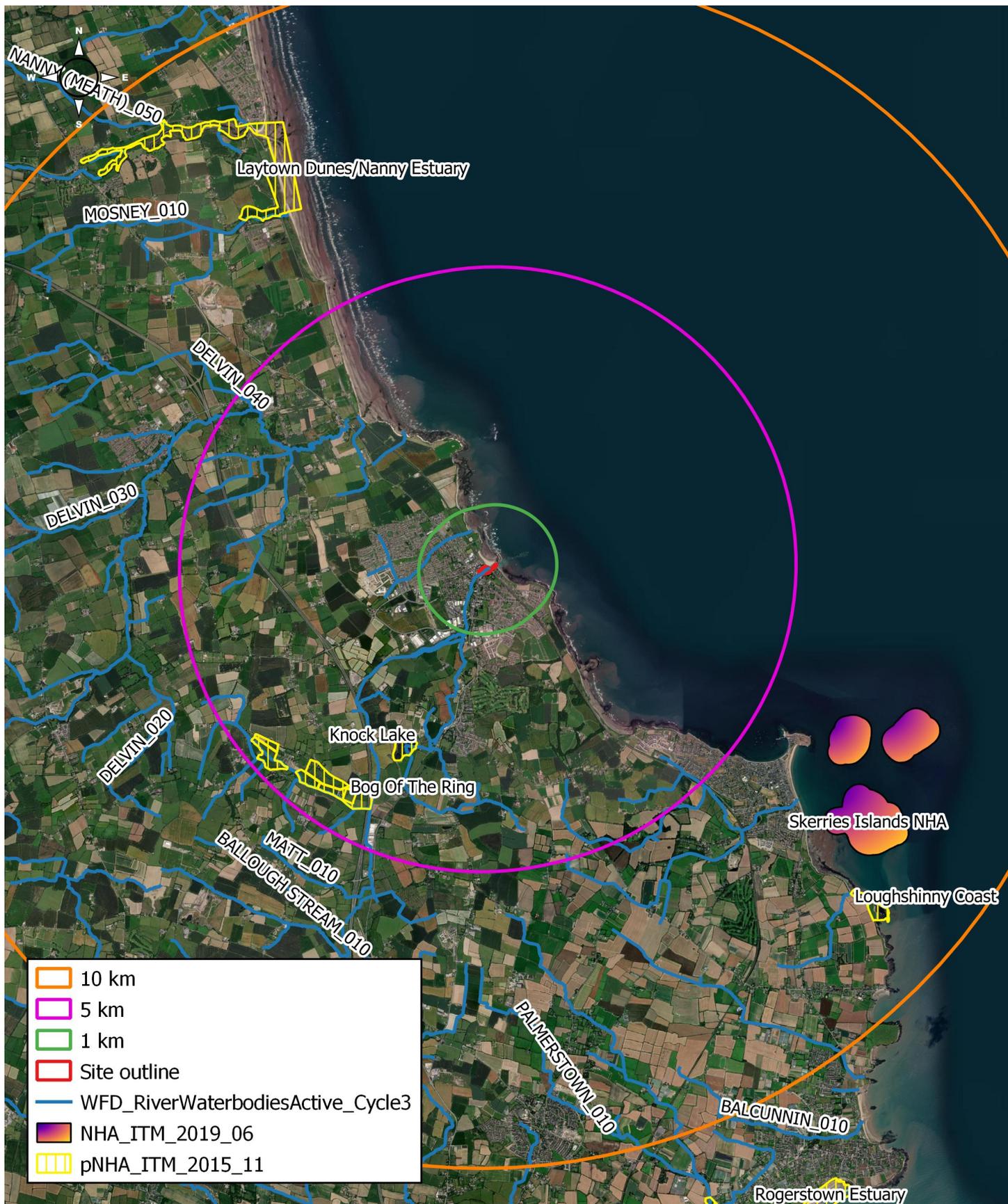
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**Figure 17.** Watercourses and SACs within 10km of the proposed development



**Figure 18.** Watercourses and SPAs within 10km of the proposed development



0 3 6 9 km

Project: Quay Street, Balbriggan  
 Location: Balbriggan, Co. Dublin  
 Date: 14th April 2022  
 Drawn By: Bryan Deegan (Altamar)

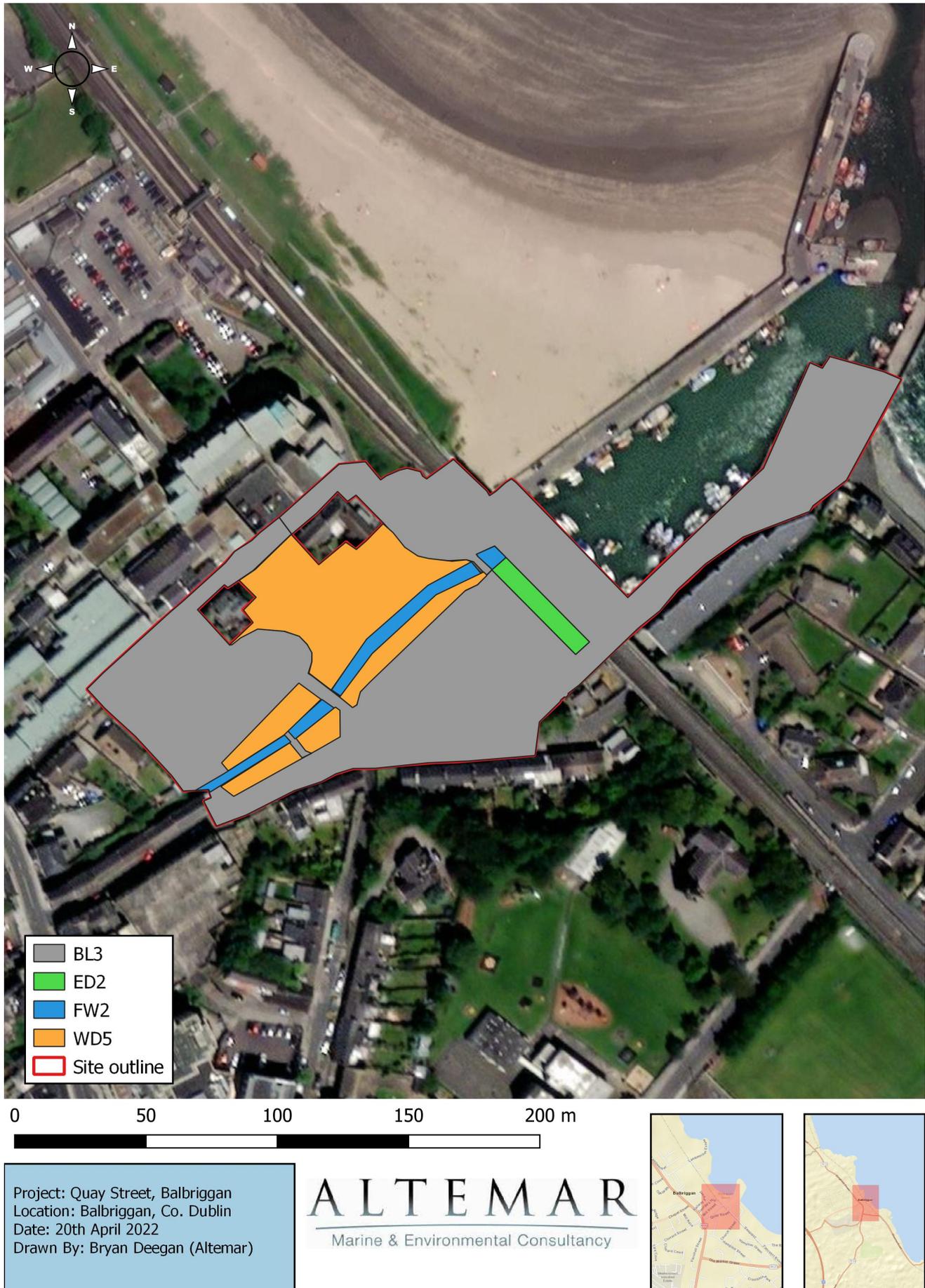
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**Figure 19.** Watercourses, NHAs, and pNHAs within 10km of the proposed development

## Habitats and Species

A site assessment was carried out on the 20<sup>th</sup> April 2022. Habitats within the proposed site were classified according to Fossitt (2000) (Figure 20).



**Figure 20.** Fossitt (2000) Habitat map of proposed development site



### **BL3- Buildings and artificial surfaces.**

The proposed development site consists of two car parks, roads, the railway viaduct, a section of the southern pier and associated buildings. The lifeboat house building under the viaduct is disused. Bat surveys were carried out by Bryan Deegan (MCIEEM) on the 20<sup>th</sup> April 2022 and 8<sup>th</sup> June 2022. Brian Keeley also carried out surveys on the 14<sup>th</sup> September 2020. The results are seen in Appendix I and Appendix II respectively. As outlined in Appendix I the April 2022 survey was carried out in slightly suboptimal conditions (Temperature of 8°C at sunset with slight breeze) no bat foraging was noted on site. However, the survey in June 2022 noted foraging activity of a Leisler's bat to the rear of the boathouse, but no evidence of roosting or bats were observed in the boat house. As outlined in the 2020 survey in Appendix II "*The first bat observed was a Leisler's appearing on the east side of the boathouse at 19:52. This bat had likely been roosting within the site and possibly within the boathouse itself, although its emergence was not observed. However, there are several potential exit points within the boathouse and it appears to be well suited as a potential roost site. Another Leisler's pass was recorded on the opposite side of the boathouse at 20:22. A Leisler's was heard again on the beach, again close to the boathouse on the east side. A soprano pipistrelle was recorded near the south end of the bridge on the west side. A common pipistrelle passed along the beach near the northern end of the bridge at 20:52, and again at 21:00. At 21:04 another soprano pipistrelle was recorded near the boathouse. The only bat encountered during the morning survey was a Leisler's bat briefly passing the boathouse at 05:57. No bats entered the viaduct or boathouse.*" It should be noted however, that extensive lighting was installed in 2022. This was laid out to provide lighting under each of the arches within the viaduct, with the exception of the arch under which the boathouse is located. Species of trees within the car parking areas included Sycamore (*Acer pseudoplatanus*) and weeping willow (*Salix alba*). Other species within this habitat included bramble (*Rubus fruticosus* agg.), nettle (*Urtica dioica*), dandelion (*Taraxacum* spp.), creeping buttercup (*Ranunculus repens*), plantains (*Plantago* spp.), thistles (*Cirsium arvense* and *C. vulgare*), dock (*Rumex* spp.), New Zealand flax (*Phormium* sp.), and sea Beet (*Beta vulgaris* ssp. *Maritima*), sea mayweed (*Tripleurospermum maritima*), common cornsalad (*Valerianella locusta*) and rape (*Brassica napus*) in the vicinity of the pier and viaduct. An area of bare ground (ED2) was noted neat the viaduct. This is an area that appears to be a site compound for the installation of new lights within the viaduct arches.



#### **WD5-Scattered trees and parkland.**

A section of the site consists of Scattered trees and parkland. This includes highly managed amenity grassland areas and includes trees such as ash (*Fraxinus excelsior*), weeping willow (*Salix alba*), sycamore (*Acer pseudoplatanus*), New Zealand cabbage (*Cordyline australis*), maple (*Acer platanoides*), London plane (*Platanus x hispanica*). Other species included, creeping buttercup (*Ranunculus repens*), white clover (*Trifolium repens*), red clover (*Trifolium pratense*), dandelion (*Taraxacum spp.*), daisy (*Bellis perennis*), plantains (*Plantago spp.*), numerous thistles (*Cirsium vulgare*), docks (*Rumex spp.*), nettle (*Urtica dioica*). Concrete planters were located in this area and consisted primarily of non-native/ornamental species including New Zealand flax (*Phormium tenax*). However, opportunistic native species such as red valerian (*Centranthus ruber*) were noted. No species of conservation importance or invasives species were noted in the scattered trees and parkland areas of the proposed development site.

#### **FW2-Lowland River**

The Matt (or Bracken) River flows through the proposed development site. The river within this section of the river is heavily modified and canalised. The site visit in April 2022 was carried out at a 0.8m low tide in order to observe the marine interface at low water. It appears from the dense matting of rocks and stones within the river, that it is suffering heavily from eutrophication. It is expected that the velocities within this section of the river vary significantly depending on the tidal height. There was a paucity of instream biodiversity throughout the section. Several yellow iris (*Iris pseudacorus*) were noted in a section where sediment had built up. However, a clear saline influence was observed in the mid to lower section of the watercourse where the marine/estuarine alga "gut weed" (*Ulva intestinalis*) was observed approximately 20m upstream from the aqueduct, which indicated that there is saline influence in this area. It should be noted that no Japanese knotweed (*Reynoutria japonica*) was noted on site. However, a large stand of Japanese knotweed was noted upstream of the proposed works on the Matt/Bracken River within Balbriggan. Six bank based sites were sampled by Inland Fisheries Ireland in the Matt catchment. In the final report for the Environmental River Enhancement Programme 2008 – 2012<sup>1</sup> Trout were recorded as being absent from the Matt River. However, in June 2022, small salmonids (3) were observed 'rising' to catch insects and were present within the proposed development site.

<sup>1</sup> [https://www.fisheriesireland.ie/sites/default/files/migrated/docman/2016/ERE%202012\\_web.pdf](https://www.fisheriesireland.ie/sites/default/files/migrated/docman/2016/ERE%202012_web.pdf)

### Evaluation of Habitats

The proposed site boundary at Quay Street, Balbriggan, consists mainly of buildings and artificial surfaces, amenity grassland and the Bracken River which traverses the site through the centre. The Matt/Bracken River would be seen as the only habitat of importance, not that species of conservation were noted, but by it acting as a biodiversity corridor.

### Plant Species

No rare or plant species of conservation value were noted during the field assessment. Records of rare and threatened species from NBDC and NPWS were examined. No rare or threatened plant species were recorded within the proposed development site.

### Fauna

No mammal of conservation importance was noted on site. Records of rare and threatened species from NBDC were examined. No rare or threatened terrestrial faunal species were recorded within the proposed site. However, it should be noted that small salmonids were observed within the watercourse.

### Bats

Bat surveys were carried out and the results of the surveys are seen in Appendix I and Appendix II. Bats were observed in 2020 and in June 2022. As outlined in Appendix II in relation to a Leisler's Bat "This bat had likely been roosting within the site and possibly within the boathouse itself, although its emergence was not observed. However, there are several potential exit points within the boathouse and it appears to be well suited as a potential roost site." No bats were observed emerging from the building in the 2022 surveys and no evidence of utilising the building was noted. However, based on the 2020 bat survey findings a precautionary approach to the works must be taken. It should be noted that significant recent additional lighting has been placed on site under the arches and in the car park on site.

### Amphibians

The common frog (*Rana temporaria*) was not observed on site.

### Birds

The bird species noted on site are seen Table 3

**Table 3:** Bird Species noted in the vicinity of the proposed development. Herring gull were not nesting on site but were foraging from bins/rubbish.

Common Name	Scientific Name
Herring Gull	( <i>Larus argentatus</i> ) (Amber status)

## Historic Records of Biodiversity

The National Biodiversity Data Centre's online viewer was consulted in order to determine the extent of biodiversity and/or species of interest in the area. First, an assessment of the site specific area was carried out and it recorded no species of interest in the site area. Following this a 2km<sup>2</sup> grid (O26B) was assessed. Table 4 provides a list of all species recorded in both grid areas that possess a specific designation, such as Invasive Species or Protected Species.

Table 4. Recorded species, associated designations and grid references

Date of Record	Species Name	Designation
31/12/2011	Barn Swallow ( <i>Hirundo rustica</i> )	Protected Species: Wildlife Acts    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
19/12/2016	Black-headed Gull ( <i>Larus ridibundus</i> )	Protected Species: Wildlife Acts    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
31/07/1991	Black-legged Kittiwake ( <i>Rissa tridactyla</i> )	Protected Species: Wildlife Acts    Threatened Species: OSPAR Convention    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
31/12/2011	Common Kestrel ( <i>Falco tinnunculus</i> )	Protected Species: Wildlife Acts    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
31/12/2011	Common Pheasant ( <i>Phasianus colchicus</i> )	Protected Species: Wildlife Acts    Protected Species: EU Birds Directive    Protected Species: EU Birds Directive >> Annex II, Section I Bird Species    Protected Species: EU Birds Directive >> Annex III, Section I Bird Species
01/12/2019	Common Redshank ( <i>Tringa totanus</i> )	Protected Species: Wildlife Acts    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
19/12/2016	Common Scoter ( <i>Melanitta nigra</i> )	Protected Species: Wildlife Acts    Protected Species: EU Birds Directive    Protected Species: EU Birds Directive >> Annex II, Section II Bird Species    Protected Species: EU Birds Directive >> Annex III, Section III Bird Species    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
31/12/2011	Common Shelduck ( <i>Tadorna tadorna</i> )	Protected Species: Wildlife Acts    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
31/12/2011	Common Starling ( <i>Sturnus vulgaris</i> )	Protected Species: Wildlife Acts    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
31/12/2011	Common Swift ( <i>Apus apus</i> )	Protected Species: Wildlife Acts    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
31/12/2011	Common Wood Pigeon ( <i>Columba palumbus</i> )	Protected Species: Wildlife Acts    Protected Species: EU Birds Directive    Protected Species: EU Birds Directive >> Annex II, Section I Bird Species    Protected Species: EU Birds Directive >> Annex III, Section I Bird Species
01/12/2019	Eurasian Curlew ( <i>Numenius arquata</i> )	Protected Species: Wildlife Acts    Protected Species: EU Birds Directive    Protected Species: EU Birds Directive >> Annex II, Section II Bird Species    Threatened Species: Birds of

Date of Record	Species Name	Designation
		Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
01/12/2019	Eurasian Oystercatcher ( <i>Haematopus ostralegus</i> )	Protected Species: Wildlife Acts    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
31/12/2011	European Shag ( <i>Phalacrocorax aristotelis</i> )	Protected Species: Wildlife Acts    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
17/09/2016	Great Black-backed Gull ( <i>Larus marinus</i> )	Protected Species: Wildlife Acts    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
31/12/2011	Great Cormorant ( <i>Phalacrocorax carbo</i> )	Protected Species: Wildlife Acts    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
31/12/2011	Great Crested Grebe ( <i>Podiceps cristatus</i> )	Protected Species: Wildlife Acts    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
31/12/2011	Herring Gull ( <i>Larus argentatus</i> )	Protected Species: Wildlife Acts    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
31/12/2011	House Martin ( <i>Delichon urbicum</i> )	Protected Species: Wildlife Acts    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
31/12/2011	House Sparrow ( <i>Passer domesticus</i> )	Protected Species: Wildlife Acts    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
31/12/2011	Mallard ( <i>Anas platyrhynchos</i> )	Protected Species: Wildlife Acts    Protected Species: EU Birds Directive    Protected Species: EU Birds Directive >> Annex II, Section I Bird Species    Protected Species: EU Birds Directive >> Annex III, Section I Bird Species
31/07/1991	Northern Gannet ( <i>Morus bassanus</i> )	Protected Species: Wildlife Acts    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
09/04/2020	Northern Wheatear ( <i>Oenanthe oenanthe</i> )	Protected Species: Wildlife Acts    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
31/12/2011	Ringed Plover ( <i>Charadrius hiaticula</i> )	Protected Species: Wildlife Acts    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
31/12/2011	Rock Pigeon ( <i>Columba livia</i> )	Protected Species: Wildlife Acts    Protected Species: EU Birds Directive    Protected Species: EU Birds Directive >> Annex II, Section I Bird Species
31/12/2011	Sand Martin ( <i>Riparia riparia</i> )	Protected Species: Wildlife Acts    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List

Date of Record	Species Name	Designation
31/07/1991	Sandwich Tern ( <i>Sterna sandvicensis</i> )	Protected Species: Wildlife Acts    Protected Species: EU Birds Directive    Protected Species: EU Birds Directive >> Annex I Bird Species    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
31/12/2011	Sky Lark ( <i>Alauda arvensis</i> )	Protected Species: Wildlife Acts    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
31/07/1991	Stock Pigeon ( <i>Columba oenas</i> )	Protected Species: Wildlife Acts    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern -Amber List
31/12/2011	Yellowhammer ( <i>Emberiza citrinella</i> )	Protected Species: Wildlife Acts    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
22/06/2018	Japanese Knotweed ( <i>Fallopia japonica</i> )	Invasive Species: Invasive Species    Invasive Species: Invasive Species >> High Impact Invasive Species    Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
09/09/2020	Large Red Tailed Bumble Bee ( <i>Bombus (Melanobombus) lapidarius</i> )	Threatened Species: Near threatened
26/08/2020	Moss Carder-bee ( <i>Bombus (Thoracombus) muscorum</i> )	Threatened Species: Near threatened
03/06/2018	Bottle-nosed Dolphin ( <i>Tursiops truncatus</i> )	Protected Species: EU Habitats Directive    Protected Species: EU Habitats Directive >> Annex II    Protected Species: EU Habitats Directive >> Annex IV    Protected Species: Wildlife Acts
30/06/2020	Common Porpoise ( <i>Phocoena phocoena</i> )	Protected Species: EU Habitats Directive    Protected Species: EU Habitats Directive >> Annex II    Protected Species: EU Habitats Directive >> Annex IV    Protected Species: Wildlife Acts    Threatened Species: OSPAR Convention
26/10/2009	Seaside Grimmia ( <i>Schistidium maritimum</i> )	Threatened Species: Least concern
06/09/1972	Common Lizard ( <i>Zootoca vivipara</i> )	Protected Species: Wildlife Acts
19/05/2006	Brown Long-eared Bat ( <i>Plecotus auritus</i> )	Protected Species: EU Habitats Directive    Protected Species: EU Habitats Directive >> Annex IV    Protected Species: Wildlife Acts
27/02/2013	Brown Rat ( <i>Rattus norvegicus</i> )	Invasive Species: Invasive Species    Invasive Species: Invasive Species >> High Impact Invasive Species    Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
13/02/2015	European Otter ( <i>Lutra lutra</i> )	Protected Species: EU Habitats Directive    Protected Species: EU Habitats Directive >> Annex II    Protected Species: EU Habitats Directive >> Annex IV    Protected Species: Wildlife Acts
09/04/2017	European Rabbit ( <i>Oryctolagus cuniculus</i> )	Invasive Species: Invasive Species    Invasive Species: Invasive Species >> Medium Impact Invasive Species
23/07/2015	House Mouse ( <i>Mus musculus</i> )	Invasive Species: Invasive Species    Invasive Species: Invasive Species >> High Impact Invasive Species
19/05/2006	Soprano Pipistrelle ( <i>Pipistrellus pygmaeus</i> )	Protected Species: EU Habitats Directive    Protected Species: EU Habitats Directive >> Annex IV    Protected Species: Wildlife Acts
29/04/2021	West European Hedgehog ( <i>Erinaceus europaeus</i> )	Protected Species: Wildlife Acts

## Potential Impacts

This report has been prepared to outline the construction and operational phase measures in addition to detailing the potential impacts on sensitive receptors within the Zone of Influence (ZOI) in the absence of mitigation measures.

### Potential Construction Impacts

The overall development of the site is likely to have direct negative impacts upon the existing habitats, fauna and flora. Direct negative effects will be manifested in terms of the removal of the site's internal habitats and downstream impacts in the absence of mitigation. The removal of these habitats will result in a loss of species of low biodiversity importance. There is the potential for contaminants and pollutants to enter the Bracken River (a watercourse that traverses through the centre of the site) and impact on downstream biodiversity. Additionally, the redevelopment of the buildings on site may result in the loss of potential bat roosts.

### Designated Conservation sites within 15km

It should be noted that the proposed development site is not within a designated conservation area. The closest Natura 2000 site is River Nanny Estuary and Shore SPA, located 4.9 km from the proposed development site. The nearest SAC to the proposed development site is the Rockabill to Dalkey Island SAC (7.6 km away). As can be seen from Figure 16, the Bracken River (MATT\_010) traverses through the subject site and outfalls to the marine environment at Balbriggan Harbour. Given that works are proposed within and in close proximity to Bracken River, it is considered that there is a weak indirect hydrological connection to marine-based conservation sites during the construction phase of development. During operation, surface water drainage will discharge via a SuDs system into the ground. Foul wastewater from the proposed development will discharge to the existing sewerage system to the pumping station underground in the southeast part of the site, just inland from the Railway Viaduct. From there, it will be pumped to Barnageeragh Wastewater Treatment Plant (WwTP) where it will be treated prior to being discharged into the marine environment. There is therefore a weak indirect pathway from the proposed development site to conservation sites within the marine environment via foul and surface water drainage during operation. It would be expected that in the absence of any mitigation measures impacts from silt or accidental pollution from the proposed development would be negligible by the time it reaches the conservation sites in the marine environment, due to the dilution, mixing and considerable distance across a marine environment.

Potential Impacts in the absence of mitigation: Negligible / International / Neutral Impact / Not significant / Long-term. Mitigation is not required.

### Biodiversity

The impact of the development during construction phase will be a loss of existing habitats and species on site. It would be expected that the flora and fauna associated with these habitats would also be displaced. The Bracken River traverses through the centre of the subject site, and demolition, excavation, and reprofiling works are proposed during the construction phase of development. In the absence of mitigation measures, there is the potential for impacts on downstream biodiversity located within the Bracken River, the estuarine environment of Balbriggan Harbour and the marine environment.

#### *Terrestrial mammalian species*

No protected terrestrial mammals were noted on site. Loss of habitat and habitat fragmentation may affect some common mammalian species.

Potential Impacts in the absence of mitigation: Low adverse / site / Negative Impact / Not significant / short term. Mitigation is needed in the form of a pre-construction survey for terrestrial mammals of conservation importance.

#### *Flora*

No protected flora was noted on site. Site clearance will remove the flora species on site. Invasive species were noted upstream.

Potential Impacts in the absence of mitigation: Low adverse / site / Negative Impact / Not Significant / Short term. Mitigation is required in relation to invasive species.

#### *Bat Fauna*

Buildings that have been designated for redevelopment/demolition within the proposed development are of bat roosting potential. Increased lighting on-site has the potential to impact upon bat foraging and bat commuting and potentially bat roosts.

Potential Impacts in the absence of mitigation: Moderate adverse / site / Negative Impact / Not significant / short term. Mitigation is needed in the form of a pre-construction survey, provision of additional roosting opportunities and control of light spill during construction/operation.

### ***Aquatic Biodiversity***

Enhancement works to the Bracken River within the existing open space between Quay Street and Mill Street, including widening of the watercourse, to encourage biodiversity, increase planting and improve flood resilience along the riverbank (including temporary piping of the Bracken River during construction period). Silt and pollution could potentially impact on instream and downstream biodiversity. Standard construction and operation measures will be followed to ensure the protection of the water quality of this river. There are no protected species recorded proximate to the Bracken River. However, salmonids were noted within the watercourse.

Given that the Bracken (Matt) River outfalls to the marine environment at Balbriggan Harbour, there is the potential for impacts on aquatic biodiversity, within the lower stretch of the river and within the estuarine environment, and the marine environment located downstream of the Bracken River. Mitigation measures are required in relation to preventing downstream impacts and the removing of salmonids prior to the commencement of works.

Potential Impacts in the absence of mitigation: Moderate adverse / county/ Negative Impact / Slight Effects / short term.

### ***Bird Fauna***

Removal of trees would result in a loss of potential nesting habitats.

It should be noted that Herring Gull (*Larus argentatus*) were noted onsite scavenging food from rubbish bins. However, given that the subject site is currently located within a busy urban environment with people, dogs, the herring gull would be accustomed to a level of human, canine and construction activity. It is also considered that the foraging activity on site was related to human activity and in particular rubbish bins and not the site itself and that the proposed development will not significantly impact on an important foraging or roosting areas for Herring Gull. Any potential impacts on Herring Gull would be short-term as a result of localised disturbance.

Potential Impacts in the absence of mitigation: Low adverse / Local / Negative Impact / Not significant / short term.

### ***Potential Operational Impacts***

Once developed, the site would be seen as a stable ecological environment. Planting of native species will be important to re-establish nesting and foraging habitats lost. Proximate bat species will be sensitive to light spill.

Appropriate measures should be taken to prevent light spill, contaminated surface water run-off and dust entering into adjacent riparian habitats, and in particular the Bracken River needs to be protected due to the potential for pollutants or dust entering the watercourse and ultimately the marine environment. The new drainage networks will have to comply with SUDS and County Council requirements and, as a result. However, the relocation of the foul overflow will continue to have a negative impact on the watercourse during overflow events.

### ***Designated Conservation sites within 15km***

The proposed development includes a sustainable drainage strategy. There are no designated sites located directly downstream of the works.

Potential Impacts in the absence of mitigation: Negligible / International / Neutral Impact / Not significant / Long-term

### ***Biodiversity***

Biodiversity value of the site will improve as landscaping matures, and improvements are made to the Bracken River and riparian corridor.

### ***Terrestrial mammalian species***

No protected terrestrial mammals were noted in the vicinity of proposed works. Increased disturbance and lighting could impact on the riparian corridor.

Potential Impacts in the absence of mitigation: Low adverse / local/ Negative Impact / Not significant / long term.

### **Flora**

No protected flora was noted on site.

Potential Impacts in the absence of mitigation: Neutral / site / Not significant / long-term

### **Bat Fauna**

The proposed development will change the local environment as structures are to be redeveloped and some of the existing vegetation will be removed. Species expected to occur onsite should persist, subject to an activity assessment following the installation of the viaduct lighting. A sensitive lighting and landscape strategy have been prepared to incorporate bat foraging on site.

Potential Impacts in the absence of mitigation: Low adverse / International / Negative Impact / Not significant / long term.

### **Aquatic Biodiversity**

Aquatic Biodiversity will improve after enhancement works to the Bracken River are complete. Standard measures will be in place in relation to surface water discharges. No additional mitigation is required. However, the foul overflow will continue to discharge to the lower reached Bracken River.

Potential Impacts in the absence of mitigation: minor beneficial / local / Positive Impact / Not significant / long term

### **Bird Fauna**

The proposed development will enhance bird activity as improvements to the Bracken River and riparian corridor will be made.

Potential Impacts in the absence of mitigation: Neutral-Positive / site / Negative Impact / Not significant / long term.

### **Mitigation Measures & Monitoring**

Standard construction and operational controls will be incorporated into the proposed development project to minimise the potential negative impacts on the ecology within the Zone of Influence (Zol) including the Bracken River, downstream biodiversity, and local biodiversity within / proximate to the subject site are outlined in Table 5.

**Table 5. Mitigation Measures.**

Sensitive Receptors	Potential Impacts	Designed-in Mitigation
<p><b>The Bracken/Matt River</b></p> <p><b>Marine Environment</b></p>	<ul style="list-style-type: none"> <li>• Habitat degradation</li> <li>• Dust deposition</li> <li>• Pollution</li> <li>• Silt ingress from site runoff</li> <li>• Downstream impacts</li> <li>• Negative impacts on aquatic fauna</li> </ul>	<p><b>Construction Phase Mitigation</b></p> <ul style="list-style-type: none"> <li>• A project ecologist will be appointed to oversee all works.</li> <li>• A preconstruction inspection for mammals will be carried out.</li> <li>• Local watercourses (The Bracken River) and drains will be protected from dust, silt and surface water throughout the works.</li> <li>• Local silt traps established throughout site.</li> <li>• Mitigation measures on site include dust control, stockpiling away from watercourse and drains</li> <li>• Stockpiling of loose materials will be kept to a minimum of 20m from watercourses and drains.</li> <li>• Stockpiles and runoff areas following clearance will have suitable barriers to prevent runoff of fines into the drainage system and watercourses.</li> <li>• Fuel, oil and chemical storage will be sited within a bunded area. The bund will be at least 50m away from drains, ditches or the watercourse, excavations and other locations where it may cause pollution.</li> <li>• Bunds will be kept clean and spills within the bund area will be cleaned immediately to prevent groundwater contamination. Any water-filled excavations, including the attenuation tank during construction, that require pumping will not directly discharge to the stream. Prior to discharge of water from excavations adequate filtration will be provided to ensure no deterioration of water quality.</li> <li>• Mitigation measures on site include dust control, stockpiling away from watercourses and drains</li> <li>• Bunds will be kept clean and spills within the bund area will be cleaned immediately to prevent groundwater contamination.</li> <li>• During the construction works silt traps will be put in place in the vicinity of all runoff channels of the stream to prevent sediment entering the watercourse.</li> <li>• Petrochemical interception and bunds in refuelling area</li> <li>• On-site inspections to be carried out by project ecologist.</li> <li>• Maintenance of any drainage structures (e.g. de-silting operations) will not result in the release of contaminated water to the surface water network.</li> <li>• During the works silt traps will be put in place</li>   <li>• The diversion works will be undertaken before any other major works, minimizing the potential for down impact ie. Silting of the downstream watercourse. Diversion works will be subject Inland Fisheries Ireland approval of methodologies. All instream works will be carried out in the dry with no over pumping. The proposed temporary diversion strategy will incorporate placing the watercourse in a sealed pipe through the construction site. Importantly this will require robust seals upstream and downstream of the works to prevent both freshwater and seawater entering the construction site respectively. The ecologist will supervise the installation of the mitigation measures on site.</li> <li>• No discharges will be to the watercourse during and post works</li> <li>• Silt traps established throughout site including a double silt fence between the site and the watercourse.</li> </ul>

**Table 5. Mitigation Measures.**

Sensitive Receptors	Potential Impacts	Designed-in Mitigation
		<ul style="list-style-type: none"> <li>• Sufficient onsite cleaning of vehicles prior to leaving the site and on nearby roads, will be carried out, particularly during groundworks.</li> <li>• The Site Manager will be responsible for the pollution prevention programme and will ensure that at least daily checks are carried out to ensure compliance. A record of these checks will be maintained.</li> <li>• The site compound will include a dedicated bund for the storage of dangerous substances including fuels, oils etc. Refuelling of vehicles/machinery will only be carried out within the bunded area.</li> <li>• Abstraction of water from watercourses will not to be permitted.</li> <li>• Spill containment equipment shall be available for use in the event of an emergency. The spill containment equipment shall be replenished if used and shall be checked on a scheduled basis.</li> <li>• All site personnel will be trained in the importance of good environmental practices including reporting to the site manager when pollution, or the potential for pollution, is suspected. All persons working on-site will receive work specific induction in relation to surface water management and run off controls. Daily environmental toolbox talks / briefing sessions will be conducted to outline the relevant environmental control measures and to identify any environment risk areas/works.</li> <li>• Environmental risks due to construction and operation of the proposed development do potentially exist, particularly in relation runoff from sloping site, drains that could lead to the watercourse. Ecological supervision will be required during excavation and enabling works stages. Silt interception measures will need to be in place to ensure that the watercourses are not impacted during works and in particular during the site clearance and reprofiling stages. Landscaping of the areas of the site proximate to the watercourse will take place immediately following any re-profiling, to act as a buffer to protect the watercourse. The integrity of the marsh habitat is to remain as part of the riparian buffer and will be protected during works.</li> <li>• Daily turbidity, oxygen and photographic monitoring of the Bracken River (upstream, within &amp; downstream of works) will take place during works and the results supervised by the project ecologist. This would be particularly important following high rainfall events. It is recommended that sufficient baseline readings are made prior to construction commencing to understand the existing turbidity on site particularly in the pond area as this appeared turbid during the site visit.</li> <li>• Materials, plant and equipment shall be stored in the proposed site compound location;</li> <li>• Plant and equipment will not be parked within 50m of the watercourse at the end of the working day;</li> <li>• Hazardous liquid materials or materials with potential to generate run-off shall not be stored within 50m of the watercourse.</li> <li>• All oils, fuels and other hazardous liquid materials shall be clearly labelled and stored in an upright position in an enclosed bunded area within the proposed development site compound. The capacity of the bunded area shall conform with EPA Guidelines – hold 110% of the contents or 110% of the largest container whichever is greater;</li> <li>• Fuel may be stored in the designated bunded area or in fuel bowsers located in the proposed compound location. Fuel bowsers shall be double skinned and equipped with certificates of conformity or integrity tested, in good condition and have no signs of leaks or spillages;</li> </ul>

**Table 5. Mitigation Measures.**

Sensitive Receptors	Potential Impacts	Designed-in Mitigation
		<ul style="list-style-type: none"> <li>• Smaller quantities of fuel may be carried/stored in clearly labelled metal Jeri cans. Green for diesel and red for petrol and mixes. The Jeri cans shall be in good condition and have secure lockable lids. The Jeri cans shall be stored in a drip tray when not in use. They will not be stored within 50m of the watercourse.</li> <li>• Drip trays will be turned upside down if not in use to prevent the collection of rainwater;</li> <li>• Waters collected in drip trays will be assessed prior to discharge. If classified as contaminated, they shall be disposed by a permitted waste contractor in accordance with current waste management legal and regulatory requirements;</li> <li>• Plant and equipment to be used during works, will be in good working order, fit for purpose, regularly serviced/maintained and have no evidence of leaks or drips;</li> <li>• No plant used shall cause a public nuisance due to fumes, noise, and leakage or by causing an obstruction;</li> <li>• Re-fuelling of machinery, plant or equipment will be carried out in the site compound as per the appointed Construction Contractor re-fuelling controls;</li> <li>• The appointed Construction Contractor EERP will be implemented in the event of a material spillage;</li> <li>• All persons working will receive work specific induction in relation to material storage arrangements and actions to be taken in the event of an accidental spillage. Daily environmental toolbox talks / briefing sessions will be conducted for all persons working to outline the relevant environmental control measures and to identify any environment risk areas/works.</li> <li>• Consultation with Inland Fisheries Ireland will be carried out pre and post works is essential and to be led by the project ecologist.</li> <li>• No entry of solids to the associated stream or drainage network during the connection of pipework to the public water system.</li> <li>• Landscaping of the Riparian corridor will be carried out to the satisfaction of IFI and the project ecologist.</li> <li>• Removal of fish species from the section of the watercourse under licence from Inland Fisheries Ireland. A screen will be placed at both ends of the works to temporarily prevent fish from entering the work zone during instream works.</li> </ul> <p><b>Operational Phase Mitigation</b></p> <ul style="list-style-type: none"> <li>• A project ecologist will be appointed to oversee completion of all landscape and drainage works.</li> <li>• Petrochemical interception will be inspected by the project ecologist to ensure compliance with Water Pollution Acts.</li> <li>• Post Construction assessment/compliance with proposed lighting strategy</li> </ul>
<p><b>Birds (National Protection)</b></p>	<ul style="list-style-type: none"> <li>• Removal nesting habitat.</li> <li>• Removal foraging habitat.</li> </ul>	<ul style="list-style-type: none"> <li>• “Relevant guidelines and legislation (Section 40 of the Wildlife Acts, 1976 to 2012) Should this not be possible, a pre-works check by a qualified ecologist should be undertaken to ensure nesting birds are absent.</li> </ul>

**Table 5. Mitigation Measures.**

Sensitive Receptors	Potential Impacts	Designed-in Mitigation
	<ul style="list-style-type: none"> <li>• Destruction and/or disturbance to nests (injury/death).</li> </ul>	
<p><b>Bats (International Protection)</b></p>	<ul style="list-style-type: none"> <li>• Removal roosting/foraging habitat.</li> <li>• Lighting Impacts</li> </ul>	<ul style="list-style-type: none"> <li>• Precautionary approach to boathouse redevelopment in consultation with an ecologist.</li> <li>• Pre Construction building inspection for bats.</li> <li>• Ecological supervision during boat house roof stripping works if required.</li> <li>• Compliance with conditions of the bat derogation licence if required</li> <li>• Lighting at all stages should be done sensitively on site with no direct lighting of treelines.</li> <li>• Post Construction assessment/compliance with proposed lighting strategy.</li> <li>• As an enhancement measure the provision of at least two roosting opportunities for bats within the structure of the building will be provided in consultation an ecologist.</li> </ul>
<p><b>Invasive Species</b></p>	<ul style="list-style-type: none"> <li>• Spread of invasive species distribution</li> </ul>	<ul style="list-style-type: none"> <li>• Prior to construction commencing an ecologist will inspect the site for invasive species.</li> </ul>
<p><b>Mammals</b></p>	<ul style="list-style-type: none"> <li>• Death/injury</li> <li>• Destruction of resting/breeding places</li> <li>• Disturbance</li> </ul>	<ul style="list-style-type: none"> <li>• A pre-construction inspection will be conducted.</li> </ul>

## Adverse Effects likely to occur from the project (post mitigation)

Standard construction and operational mitigation measures are proposed. These would ensure that water entering the surface water drainage network and the Bracken River is clean and uncontaminated. However, early implementation of ecological supervision and consultation with Inland Fisheries Ireland, prior initial mobilisation and enabling works is seen as an important element to the project, particularly in relation to the implementation of surface water runoff mitigation, the removal of salmonids from the works area, bat mitigation and the protection of riparian habitats.

With the successful implementation of standard mitigation measures to limit surface water impacts on the watercourses, biodiversity mitigation/supervision, no significant impacts are foreseen from the construction or operation of the proposed project on terrestrial or aquatic ecology. Residual impacts of the proposed project will be localised to the immediate vicinity of the proposed works and would be deemed to be minor beneficial long term particularly in relation to aquatic biodiversity.

The construction and operational mitigation proposed for the development satisfactorily addresses the mitigation of potential impacts on terrestrial biodiversity, aquatic biodiversity and bats through the application of the standard construction and operational phase controls as outlined above. In particular, mitigation measures to ensure compliance with Water Pollution Acts and prevent silt and pollution entering the Bracken River will satisfactorily address the potential impacts on downstream biodiversity. No significant adverse impacts on designated conservation sites are likely in the absence of mitigation measures outlined above.

It is essential that these measures outlined are complied with, to ensure that the proposed development does not have “downstream” environmental impacts and significant impacts on biodiversity on site.

## Cumulative Impacts

There are several proposed developments located in the area immediately surrounding the subject site. The following is a list of planning applications as identified on the Department of Housing, Local Government and Heritage’s ‘National Planning Application Map Viewer’ portal:

Table 6. In-combination effects evaluated

Planning Ref.	Address	Proposal
F19A/0131	Balbriggan Community College, Pine Ridge, Chapel St., Balbriggan, Co. Dublin.	a) Demolition of existing school & relocation / removal of temporary buildings b) Construction of new 3 storey Post Primary School & single storey Special Education Needs Unit c) Provision of on site car parking & access road d) Provision of hard courts / overspill parking e) All other associated works including planting, erection of fence and alterations to site entrance f) Connection to existing foul & storm drainage system g) Installation of photovoltaic panels to the roof
F12A/0338	SS Peter and Paul Junior National School, Chapel Street, Balbriggan, Co Dublin	The replacement of existing prefabricated classroom/resource room accommodation with new single storey 3 classroom extension with ancillary accommodation to include 2 resource rooms, storage room, services room and wheelchair toilet to be attached to the south elevation of existing single storey classroom building at rear, together with ancillary site works.
F20A/0566	Balbriggan Railway Station, Railway Street, Balbriggan, Fingal, Co Dublin	Temporary planning permission for single storey kiosk in the curtiage of Balbriggan Railway Station a protected structure.
F19A/0593	Sunshine House, Church Street,	Retention of a single-storey building to the rear of existing two-storey building (Sunshine House) for use as educational/recreational activities,

Planning Ref.	Address	Proposal
	Balbriggan, Co Dublin	ancillary to the main building use and to include use as a Montessori/Pre-School between the hours of 9.00 a.m. and 12.30 p.m. Monday - Friday.
F19A/0593	Sunshine House, Church Street, Balbriggan, Co Dublin	Retention of a single-storey building to the rear of existing two-storey building (Sunshine House) for use as educational/recreational activities, ancillary to the main building use and to include use as a Montessori/Pre-School between the hours of 9.00 a.m. and 12.30 p.m. Monday - Friday.
F08A/0181/E1	Clonard Hill, Balbriggan, Co Dublin	<p>Permission for development on a 2.54 hectares site at Clonard Hill. The development includes the construction of a mixed use residential (107 no. units: 14 no. 1 bed, 69 no 2 bed, 24 no. 3 bed apartments), offices (4,542 sq.m. gross) and retail (2,455 sq.m. gross) scheme, including crèche (243 sq.m.), in 5 no. three to four storeys blocks, comprising:</p> <ol style="list-style-type: none"> <li>1.) Block 1: 28 no. apartments in a four storey over basement building with balconies and private gardens (4 no. 1 bed; 16 no. 2 bed; 8 no. 3 bed apartments);</li> <li>2.) Block 2: 17 no. apartments in a four storey over basement building with balconies and private gardens (3 no. 1 bed; 10 no. 2 bed; 4 no. 3 bed apartments), and a crèche measuring 243 sq.m.;</li> <li>3.) Block 3: a three and four storey over basement retail and office block incorporating a discount food store measuring 1,536 sq.m. gross (1,125 sq.m. net) at ground floor level including an external service area, and 3,030 sq.m. gross office space in 6 no. units on ground, first, second and third floor level;</li> <li>4.) Block 4: a three to four storey over basement retail and apartment block comprising 4 no. retail units at ground floor level measuring in total 919 sq.m. gross, and 62 no. apartments with balconies and private gardens (7 no. 1 bed; 43 no. 2 bed; 12 no. 3 bed apartments);</li> <li>5.) a three storey over basement office block measuring 1,512 sq.m. gross;</li> <li>6.) 466 no. car parking spaces, of which 421 no. are located within underground car parks or under deck, and 45 no. are at podium level. 77 no. car parking spaces will serve the food store, 53 no. car parking spaces will serve the retail units, 155 no. will serve the office space, 176 no. spaces will serve the apartments and 5 no. will serve the crèche;</li> <li>7.) 160 no. cycle spaces, of which 140 no. are located at basement level and 20 no. at surface level;</li> <li>8.) Two ESB sub-stations at basement level;</li> <li>9.) Vehicular access is to be provided off the Clonard Hill road, which is proposed to be realigned and upgraded with new roundabouts as part of the approved Part VIII Stephenstown to Naul Road Distributor Road Link;</li> <li>10.) All landscape, boundary treatment and site development works including the internal road network.</li> </ol>
F12A/0121	Millfield Shopping Centre, Balbriggan, Co. Dublin	<p>Permission at the existing Millfield Shopping Centre (site area c. 6.25ha) on lands bounded generally by the Naul Road and the existing cemetery to the North, Clonard Hill and Fingal Bay development to the south. Planning permission is sought for 1 no. illuminated double sided totem sign (7m x 2.17m) located to the north west of the site and additional building facade signage comprising of 1 no. sign (2m x 13.68m) on the east facing elevation and 3 no. signs on the south facing plaza elevation measuring 2m x 13.68m, 1.8m x 5.8m and 1.8m x 2.5 respectively. The application also includes all ancillary site works and site services.</p>
ABP 311095-21	Quay Street, to the S.W. of the site.	Permission GRANTED for a Strategic Housing Development comprising of demolition of existing buildings and construction of 101 no. build-to-rent apartments and associated site works. This is on
PARTXI/006/20	Boundaries at Bremore Regional Park, Balbriggan, Co. Dublin.	Fingal County Council APPROVED Bremore Regional Park Development Project, including The Balbriggan Sports and Recreational Hub, Central Zone Open Spaces, new Coastal Park, all ancillary infrastructure and Park

Planning Ref.	Address	Proposal
F13A/0422	Hamilton House, Mill Street, Balbriggan	permission granted in 2014 for change of use from office space to Montessori and Naoinra etc. – Currently in operation as a creche..
N/A	Quay street, Balbriggan, Co. Dublin	Proposed Irish Water upgrade to the existing pumping station which will increase capacity and includes a new section of rising main, some small extension to the e.g. pumping installation, most of which work will occur the proposed development site.

Based on a review of the planning application viewer there are no developments of significance proposed in proximity of the proposed development. Given this, it is considered that in combination effects with other existing and proposed developments in proximity to the application area would be unlikely, neutral, not significant and localised. However, it should be noted that the proposed project has due made due consideration to the pending Irish Water upgrade works within the proposed development site. It is concluded that no significant effects on European sites will be seen as a result of the proposed development alone or combination with other projects.

**No significant cumulative impacts are likely in relation to the proposed development.**

## Residual Impacts and Conclusion

The construction and operational mitigation proposed for the development satisfactorily addresses the mitigation of potential impacts on the sensitive receptors through the application of the standard construction and operational phase controls. The overall impact on the ecology of the proposed development will result in a long term minor beneficial not significant residual impact on the ecology of the area and locality overall. This is primarily as a result of the creation of additional biodiversity features including sensitive landscaping and lighting strategy.

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Appendix I. Bat Fauna Impact Assessment for Quay Street,  
Balbriggan, Co. Dublin



**23<sup>rd</sup> June 2022**

**Prepared by:** Bryan Deegan (MCIEEM) of Altemar Ltd.  
**On behalf of:** Fingal County Council

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<b>Document Control Sheet</b>			
Client	Fingal County Council		
Project	Bat Fauna Impact Assessment for Quay Street, Balbriggan, Co. Dublin		
Report	Bat Fauna Impact Assessment		
Date	23 <sup>rd</sup> June 2022		
Version	Author	Reviewed	Date
Planning	Bryan Deegan		23 <sup>rd</sup> June 2022

## **SUMMARY**

<b>Structure:</b>	Fingal County Council (Economic, Enterprise, Tourism & Cultural Development Department) is proposing to carry out development on a site of 19,300 m <sup>2</sup> / 1.93 ha approx. It includes parts of Mill Street and of Quay Street and Harbour Road to the beach and up to the and encompassing the site of the demolished night club on the East Pier of Balbriggan Harbour (Protected Structure RPS 0038), and includes public footpaths, public roads, open green space, public carparks, a section of the Bracken River, foot and road bridges over the Bracken River, lands beneath the arches of the Balbriggan Railway Viaduct (Protected Structure RPS 0036), the former RNLI boat house (Protected Structure RPS 0035), existing public toilets and playground. The site includes the area between the Railway Viaduct and the Harbour Road and includes that part of Harbour Road to the north-east of the Railway Viaduct and that part of the Harbour Road on the East Pier of Balbriggan Harbour up to and including the site of the demolished night club on the East Pier.).
<b>Location:</b>	Quay Street, Balbriggan, Co. Dublin
<b>Bat species present:</b>	<b>None</b>
<b>Proposed work:</b>	Redevelopment of carpark, street, enhancement of Bracken River and riparian corridor, Provision of two new single storey, kiosk Construction of a new single storey building south-west of the Railway Viaduct to include toilets, changing, lockers, ' <i>Changing Places Unit</i> ' and a retail kiosk, redevelopment of the RNLI boathouse and all associated works.
<b>Impact on bats:</b>	<b>Pending subsequent survey.</b>
<b>Survey by:</b>	Bryan Deegan MCIEEM
<b>Survey date:</b>	20 <sup>th</sup> April 2022 & 8 <sup>th</sup> June 2022.

## Receiving Environment

### Background

Fingal County Council (Economic, Enterprise, Tourism & Cultural Development Department) is proposing to carry out development on a site of 19,300 m<sup>2</sup> / 1.93 ha approx. It includes parts of Mill Street and of Quay Street and Harbour Road to the beach and up to the and encompassing the site of the demolished night club on the East Pier of Balbriggan Harbour (Protected Structure RPS 0038), and includes public footpaths, public roads, open green space, public carparks, a section of the Bracken River, foot and road bridges over the Bracken River, lands beneath the arches of the Balbriggan Railway Viaduct (Protected Structure RPS 0036), the former RNLI boat house (Protected Structure RPS 0035), existing public toilets and playground. The site includes the area between the Railway Viaduct and the Harbour Road and includes that part of Harbour Road to the north-east of the Railway Viaduct and that part of the Harbour Road on the East Pier of Balbriggan Harbour up to and including the site of the demolished night club on the East Pier.

The proposed development includes:

- (xix) Redevelopment of the existing carpark areas, open space and playground to form a reordered pedestrianised public open space / market space with play space off Quay Street, focused around the arches of the Railway Viaduct.
- (xx) Upgrade of the carpark areas and green open space located between Mill Street, Quay Street and the harbour, including the Bracken River, to provide new hard landscaping and planting zones to encourage flora.
- (xxi) Upgrade of street surfaces, pavements, landscaping and green infrastructure, including widening of footpaths, to improve pedestrian linkages from Main Street to Quay Street, the Railway Viaduct, the Beach and the Harbour area.
- (xxii) New public lighting and street furniture.
- (xxiii) Redesign of existing surface carparking, including closure of vehicular access point on Quay Street, and incorporating modifications to traffic flow and parking on Quay Street, Mill Street and Harbour Road (Seapoint Lane).
- (xxiv) Works to redirect the existing overflow (currently discharging into the Bracken River) from the Irish Water pumping station off Harbour Road to a new discharge location into the Bracken River.
- (xxv) Enhancement works to the Bracken River within the existing open space between Quay Street and Mill Street, including widening of the water course to encourage biodiversity, increase planting and improve flood resilience along the riverbank (including temporary piping of the Bracken River during the construction period of the proposed development).
- (xxvi) Resurfacing areas under the Railway Viaduct arches with new granite paving.
- (xxvii) Removal of existing low level stone walls to provide a more accessible link between Quay Street and the harbour.
- (xxviii) Provision within the vicinity of the Railway Viaduct to facilitate future potential market stalls, street food outlets and outdoor dining, to include appropriate utility connection points.
- (xxix) Reduction of overall car parking on site, including removal of Quay Street carpark, reduction of on-street carparking and reduction of Town Carpark (Mill Street), resulting in a car park provision of 63 spaces (a reduction of 175 spaces).
- (xxx) Provision of 152 cycle parking spaces, seating and integrated play equipment.
- (xxxii) Provision of a new single storey Harbour Building (151 sqm) on site of former night club on East Pier of Balbriggan Harbour (Protected Structure) to contain:
  - (e) 1 no. commercial unit with services facing onto the harbour.
  - (f) Provision of associated storage space, office and staff toilet.
  - (g) Provision of public toilets and changing places unit.
  - (h) Provision for seating in vicinity of the harbour building and kiosks.
- (xxxiii) Provision of two new single storey, kiosk buildings (33 sqm each) on site of former night club on East Pier of Balbriggan Harbour (Protected Structure), to accommodate visitor information, retail, café, hot food take away, rental of leisure boats, cycles, paddleboards and other recreational equipment.
- (xxxiiii) Demolition of the existing public toilet block immediately south-west of the Railway Viaduct at the entrance to the beach and provision of temporary toilet facilities pending construction of new toilet block.

- (xxxiv) Construction of a new single storey building south-west of the Railway Viaduct to include toilets, changing, lockers, '*Changing Places Unit*' and a retail kiosk.
- (xxxv) Proposed conservation of the Former RNLI Boathouse, (Protected Structure RPS no. 0035) at Harbour Road, Balbriggan, Co. Dublin, including change of use to commercial café/retail use with associated site development, services and internal alterations. The area of the single storey building is 63 sqm.
- (xxxvi) All associated site development works, landscaping, services, piped infrastructure and ducting, changes in level; site landscaping and all associated site development and excavation works above and below ground.

The proposed site outline, location, and proposed site plan are demonstrated in Figures 1 & 2.



 Site outline

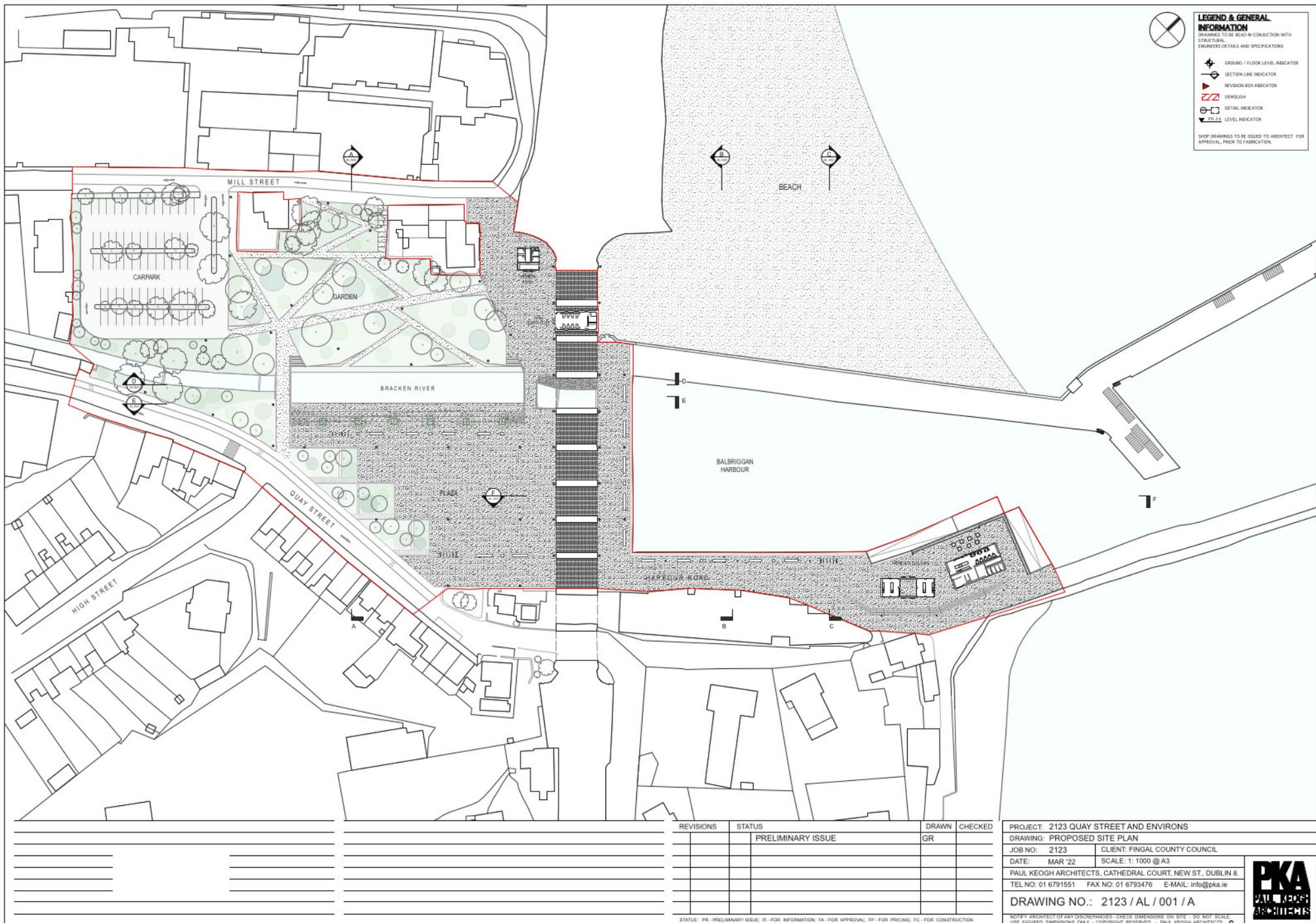
0 0.1 0.2 0.3 km

Project: Quay Street, Balbriggan  
 Location: Balbriggan, Co. Dublin  
 Date: 14th April 2022  
 Drawn By: Bryan Deegan (Altemar)

**ALTEMAR**  
 Marine & Environmental Consultancy



**Figure 1.** Proposed site outline



REVISIONS	STATUS	DRAWN	CHECKED
	PRELIMINARY ISSUE	GR	

PROJECT: 2123 QUAY STREET AND ENVIRONS	
DRAWING: PROPOSED SITE PLAN	
JOB NO: 2123	CLIENT: FINGAL COUNTY COUNCIL
DATE: MAR '22	SCALE: 1:1000 @ A3
PAUL KEOGH ARCHITECTS, CATHEDRAL COURT, NEW ST., DUBLIN 8.	
TEL NO: 01 6791551	FAX NO: 01 6793476 E-MAIL: info@pka.ie
DRAWING NO.: 2123 / AL / 001 / A	
<small>NOTIFY ARCHITECT OF ANY DISCREPANCIES - CHECK DIMENSIONS ON SITE - DO NOT SCALE. USE FIGURED DIMENSIONS ONLY - COPYRIGHT RESERVED - PMA, KEOGH ARCHITECTS</small>	



Figure 2. Proposed site plan

## Landscape

A Landscape Design Report was composed by Austen Associates. In relation to tree retention, the report states that: *'An arboricultural survey has been undertaken. All of the trees on site have been surveyed and evaluated. Consultations meetings have taken place with Paul Keogh Architects and an approach to tree protection has been agreed. The general consensus is to retain significant trees on site where possible.'*

Furthermore, the report states that:

### 'Planting Approach

*Early on in the project, a planting approach influenced by the work of the plantsman Piet Oudolf has been favoured for many of the planting areas. This approach takes a naturalistic view to the planting using a mixture of robust perennials and grasses, along with some other planting, to create patterns visible in nature.*

*For Quay Street, this planting style is worked into angular landscape wedges in the garden area alongside open grass lawn zones to create a comforting tapestry. This is interspersed with paving, which follows desire lines through the landscape areas. Gradually ascending Corten steel edging defines the landscape wedges and works with the planting to create an interesting blend of naturalistic planting and complementary man-made elements.*

*Riparian planting will be used close to the river to create waterside planting that will be of high habitat value for wildlife and will also soften the river edge at its interface with the stepped approaches to the river. The planting will be set into biodegradable wraps that are held in place at the river edge with a low quantity of placed rocks.*

*Elsewhere, planting to the edge of the hardscape areas is in the form of rain gardens. These planting areas will take a quantum of surface water flow from the paved areas both to water the plants and also to provide filtration of the water as it seeps to groundwater levels. Plants selected for these areas will be tolerant of periodic wetting and dry spells.*

### Tree Planting

*Native specimen trees will be selected for planting after discussion between the Architect and Landscape Architect, taking on board Fingal County Councils approach to tree planting.*

*Wild Cherry Prunus avium 'Plena' specimen trees are proposed to soften the interface between the plaza and the river edge to the south. These are relatively good in a coastal situation and will have a degree of added protection from the harbour and viaduct infrastructure. They will provide seasonal interest, with white double flowers in the spring and red/orange autumn colour.*

*Where trees are located in paving, the Stockholm paving system will be utilised. A tree pit of 16m<sup>3</sup> will be allocated for each tree planted in paved areas.*

### Green Infrastructure

*The landscape proposal and plant selection will provide habitat for pollinators, invertebrates, smaller mammals, birds and other species.*

*Further ecological measures will be incorporated such as bird boxes and insect hotels.*

*The retained trees and proposed tree planting will provide habitat linkage through the site and play its part in retaining an environmentally friendly green space in Balbriggan town centre. This will be part of a network of green spaces in the town and connect with the nearby maritime habitat, providing resting and nesting opportunities for birds and other wildlife.'*

The proposed integrated green infrastructure plan is demonstrated in Figure 3.



**Proposed plants**

01	02	03	04	05	06
07	08	09	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36
37	38	39	40	41	42
43	44	45	46	47	48
49	Sa	Bp	Cp	Cb	Pc

Sound (S), Touch (T), Taste (Ta), Visual (V), Native Irish Plants (NI), Pollinator (P)

**PLAY EQUIPMENT**

	Existing carousel to be relocated	Ino.
	Existing train and house to be relocated	Ino.
	Tree climber by Kompan or equivalent	Ino.
	Tower and net by Kompan or equivalent	Ino.
	3 sizes Djembes by Percussion Play or equivalent	Ino.
	Pentatonic tambos by Percussion Play or equivalent	Ino.
	Marimba by Percussion Play or equivalent	Ino.

**Legend**

<p><b>SOFT LANDSCAPING</b></p> <p><b>Trees</b></p> <ul style="list-style-type: none"> <li>Existing trees to be retained</li> <li><b>Ornamental trees</b> <ul style="list-style-type: none"> <li>Sa Sorbus aria 'Lutescens'</li> <li>Bp Betula pendula 'Trifida'</li> <li>Cp Craetagus persimil</li> <li>Cb Carpinus betulus 'F'</li> <li>Pc Pyrus calleryana 'C'</li> <li>Sb Salix babylonica, rb 18-20cmg</li> <li>Au Arbutus unedo, rb 18-20cmg</li> <li>Cps Craetagus 'Paul's Scarlet', rb 18-20cmg</li> </ul> </li> </ul>	<p><b>River alignment trees</b></p> <ul style="list-style-type: none"> <li>Pa Prunus avium 'Plena', rb 50-60 cm girth</li> </ul> <p><b>Rain gardens shrubs</b></p> <ul style="list-style-type: none"> <li>Al Amlanchier 'samarckii'</li> <li>Rt Rosa rugosa</li> <li>Ca Cornus alba 'Elegantissima'</li> </ul> <p><b>Bulbs</b></p> <ul style="list-style-type: none"> <li>01 Allium hollandicum 'Purple Sensation', 20m<sup>2</sup></li> <li>02 Crocus tommasiniana, 40m<sup>2</sup></li> <li>03 Fritillaria meleagris, 15m<sup>2</sup></li> <li>04 Narcissus 'Thalia', 15m<sup>2</sup></li> <li>05 Narcissus poeticus, 15m<sup>2</sup></li> <li>06 Narcissus tete-a-tete, 20m<sup>2</sup></li> </ul>	<p><b>Oudulf-style planting of perennial/grass mix</b></p> <ul style="list-style-type: none"> <li>07 Achillea 'Lilac Beauty', 2L, 3/m<sup>2</sup>, 4%</li> <li>08 Agastache 'Blue Fortune', 2L, 3/m<sup>2</sup>, 4%</li> <li>09 Anemone lessoniana, 2L, 3/m<sup>2</sup>, 4%</li> <li>10 Callimagnosis x acutiflora 'Karl Foerster', 2L, 3/m<sup>2</sup>, 4%</li> <li>11 Deschampsia cespitosa, 2L, 3/m<sup>2</sup>, 4%</li> <li>12 Digitalis purpurea, 2L, 3/m<sup>2</sup>, 4%</li> <li>13 Oenothera umbellata, 2L, 3/m<sup>2</sup>, 4%</li> <li>14 Eryngium 'Big Blue', 2L, 3/m<sup>2</sup>, 4%</li> <li>15 Eupatorium maculatum, 2L, 3/m<sup>2</sup>, 4%</li> <li>16 Geranium 'Rozanne', 2L, 2/m<sup>2</sup>, 5%</li> <li>17 Hebe 'Sahin's Early Flowerer', 2L, 3/m<sup>2</sup>, 4%</li> <li>18 Leucantheum vulgare, 2L, 3/m<sup>2</sup>, 4%</li> <li>19 Lythrum salicaria, 2L, 3/m<sup>2</sup>, 4%</li> <li>20 Molina caerulea subsp. arundinacea 'Skyracer', 2L, 3/m<sup>2</sup>, 5%</li> <li>21 Persicaria amplexicaulis 'Rosea', 2L, 3/m<sup>2</sup>, 4%</li> <li>22 Rubbeckia fulg. 'Goldsturm', 2L, 3/m<sup>2</sup>, 4%</li> <li>23 Salvia nemorosa 'Caradonna', 2L, 3/m<sup>2</sup>, 4%</li> <li>24 Sangisorba officinalis 'Red Thunder', 2L, 3/m<sup>2</sup>, 4%</li> <li>25 Sedum 'Herbstfreude', 2L, 3/m<sup>2</sup>, 5%</li> <li>26 Stachys officinalis 'Hummel', 2L, 3/m<sup>2</sup>, 5%</li> <li>27 Symphoricarpos 'Little Carlow', 2L, 3/m<sup>2</sup>, 5%</li> <li>28 Verbena bonariensis, 2L, 4/m<sup>2</sup>, 4%</li> <li>29 Veronicastrum virginicum 'Fascinator', 2L, 3/m<sup>2</sup>, 5%</li> </ul>	<p><b>895m<sup>2</sup> Marginal planting</b></p> <ul style="list-style-type: none"> <li>30 Callia palustris, 2/m<sup>2</sup>, 10%</li> <li>31 Autumna umbellata, 4/m<sup>2</sup>, 10%</li> <li>32 Carex rostrata, 4/m<sup>2</sup>, 10%</li> <li>33 Juncus effusus, 4/m<sup>2</sup>, 10%</li> <li>34 Phalaris arundinacea, 3/m<sup>2</sup>, 10%</li> <li>35 Sagittaria sagittifolia, 5/m<sup>2</sup>, 10%</li> <li>36 Sparganium erectum, 5/m<sup>2</sup>, 10%</li> <li>37 Iris pseudacorus, 3/m<sup>2</sup>, 10%</li> <li>38 Myosotis scorpioides, 5/m<sup>2</sup>, 10%</li> <li>39 Lythrum salicaria, 3/m<sup>2</sup>, 10%</li> </ul> <p><b>30 Coirmat, biodegradable coir fibre, size (800x3000mm bags with soil) fixed with wood stakes and rocks for watercourse lining with marginal planting, soil reinforcement and sediment entrapment</b></p> <p><b>Grass Seeding, 30 g/m<sup>2</sup></b></p> <p>Festuca ovina, Hard Fescue (20%); Poa pratensis, Smooth stalked Meadow Grass (10%); Festuca rubra, Strong Creeping Red Fescue (30%); Festuca rubra subsp. commutata, Chewy's Fescue (20%); Agrostis capillaris, Browsetop Bent (15%); Trifolium repens, White Clover (5%)</p>	<p><b>131m<sup>2</sup> Rain garden with Oudulf-style perennial planting</b></p> <ul style="list-style-type: none"> <li>38 Rudbeckia assutifolia, 3/m<sup>2</sup>, 7.5%</li> <li>40 Ligularia przewalskii, 3/m<sup>2</sup>, 7.5%</li> <li>41 Osmunda regalis, 3/m<sup>2</sup>, 7.5%</li> <li>42 Iris sibirica, 3/m<sup>2</sup>, 10%</li> <li>19 Lythrum salicaria, 3/m<sup>2</sup>, 10%</li> <li>43 Ranunculus acrisifolius, 4/m<sup>2</sup>, 7.5%</li> <li>44 Carex elata 'Aurea', 4/m<sup>2</sup>, 10%</li> <li>45 Camassia lechteliana, 6/m<sup>2</sup>, 7.5%</li> <li>46 Primula bulliana, 7/m<sup>2</sup>, 10%</li> <li>47 Geranium nodosum, 4/m<sup>2</sup>, 7.5%</li> <li>48 Primula vialii, 5/m<sup>2</sup>, 10%</li> <li>49 Persicaria bistorta 'Superta', 4/m<sup>2</sup>, 5%</li> </ul>	<p><b>488m<sup>2</sup> HARD LANDSCAPING</b></p> <ul style="list-style-type: none"> <li>56no Epdm mulch surface</li> <li>2371m<sup>2</sup> Hoggin (Ballylusk dust)</li> </ul>
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C	27/05/22	CM	Upgrade tree size
B	26/05/22	CM	Upgrade plan
A	11/05/22	CM	Landscape plan
Rev	Rev	By	Details

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Client: Fingal County Council

Project title: 2123 Quay Street and Environs

Drawing title: Soft Landscape Plan

Drawn by: CM	Scale: 1:200 on A1
Approved by: TA	Date: May 2022

Status: Planning

Drawing no: 074021_PP_01	Revision: C
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Figure 3. Integrated green infrastructure plan

## Arboricultural Assessment

Tree & Vegetation Survey, Assessment, Management & Protection Measures Report was composed by Austen Associates. In relation to the Arboricultural Impact Assessment, the report states that:

### **'4.0 Arboricultural Impact Assessment**

*This section of the report describes the impacts that the proposed development will have on the trees. To be read in conjunction with the tree survey and tree protection drawings 074021\_TS\_01 and 074021\_TP\_01. Refer to section 5 Arboricultural Method Statement below for details on the protective actions required.*

#### Tree no.'s 1848, 1849, and 1850

*These trees are Acer campestre Field Maple, Salix alba 'Tristis' Weeping Willow and Acer pseudoplatanus Sycamore respectively. They are located in a small green space to the south eastern edge of the site, tree no 1850 is located adjacent to the railway bridge across the road.*

*Impact of the development: It is expected that there will be no impact from the development on these trees.*

*Action: Protect with tree protective fencing.*

#### Tree no.'s 1851-1854

*These trees are Acer pseudoplatanus Sycamore species, located in and around the existing car park to the south east of the site.*

*Impact of the development: The car park layout will be altered and new public plaza installed.*

*Action: Remove.*

#### Tree no. 1855

*This tree is a mature Salix alba 'Tristis' Weeping Willow species, located in the green space adjacent to the Bracken River.*

*Impact of the development: The river will be widened at this location.*

*Action: Remove.*

#### Tree no. 1856 - 1860

*These trees are Cordyline australis New Zealand Cabbage and mature Acer pseudo-platanus Sycamore species. They are located in the green space in the park to the north of the Bracken River. The Cordyline australis New Zealand Cabbage are small, poor specimens and their removal is recommended to allow for improved planting. The Acer pseudoplatanus Sycamore species are mature trees that contribute positively to the public realm and are to be retained.*

*Impact of the development: This area will be planted but otherwise largely unaltered.*

*Action: Remove Cordyline australis New Zealand Cabbage. Retain Acer pseudoplatanus Sycamore and protect with tree protective fencing.*

#### Tree no. 1861 - 1868

*These trees are Cordyline australis New Zealand Cabbage, mature Acer platanoides 'Drummondii' variegated Maple, and Platanus x hispanica London Plane species. They are located in the green space to the east of the entrance steps from Mill Street.*

*Impact of the development: The steps are to be removed and will be replaced by a universal access ramp. The root protection area of the trees has been shown on the drawings and worked out as per the guidance in BS 5837:2012. In reality, the roots will not have extended beneath the footprint of the steps.*

*Action: Remove tree numbers 1861, 1862, 1863, 1865 and 1867. Review retention of tree numbers 1864, 1866 and 1868 when further details of ramp construction are available.*

#### Tree no. 1869 - 1877

*These trees are Fraxinus excelsior Ash and Acer pseudoplatanus Sycamore. They are located in the green space to the south of the steps. The Fraxinus excelsior Ash are suffering from Ash Die Back disease Hymenoscyphus*

*fraxinea*. There is no treatment for this fungal infection and it is expected that the trees will be dead within 10 years. During this period, they will decline and are a health and safety risk.

*Impact of the development:* These trees are to be removed for health and safety reasons, the *Acer pseudoplatanus* Sycamore is to be removed also.

*Action:* Remove

Tree no. 1878 - 1888

These trees are *Cordyline australis* New Zealand Cabbage, mature *Acer platanoides* 'Drummondii' variegated Maple, and *Acer pseudoplatanus* Sycamore species. They are located in the green space to the west of the entrance steps from Mill Street.

*Impact of the development:* The steps are to be removed and will be replaced by a universal access ramp. The root protection area of the trees has been shown on the drawings and worked out as per the guidance in BS 5837:2012. In reality, the roots will not have extended beneath the footprint of the steps.

*Action:* Remove tree numbers 1879, 1881, 1888. Review retention of tree numbers 1880, 1882 and 1883 when further details of ramp construction are available.

Tree no. 1889 – 1896, 1899 – 0020 and Tree Group 01

These trees are semi-mature *Acer pseudoplatanus* Sycamore, one *Fraxinus excelsior* Ash, *Acer platanoides* 'Drummondii' variegated Maple and *Sambucus nigra* elder species. They are located in the car park to the north west of the site, accessed from Mill Street.

*Impact of the development:* The car park layout will be slightly rationalized, resulting in the loss of some of these trees.

*Action:* Remove tree numbers 1890, 1891, 1893, 1895, 1896, 0007, 0009, 0013 and 0014.

Tree numbers 1889, 1892, 1894, 1897, 1898, 1899, 1900, 0001, 0002, 0003, 0004, 0005, 0006, 0008, 0010, 0011, 0012, 0015, 0016, 0017, 0018, 0019 and 0020 are to be retained and protected with tree protective fencing.

Tree no. 1878 - 1888

These trees are *Cordyline australis* New Zealand Cabbage, mature *Acer platanoides* 'Drummondii' variegated Maple, and *Acer pseudoplatanus* Sycamore species. They are located in the green space to the west of the entrance steps from Mill Street.

*Impact of the development:* The steps are to be removed and will be replaced by a universal access ramp. The root protection area of the trees has been shown on the drawings and worked out as per the guidance in BS 5837:2012. In reality, the roots will not have extended beneath the footprint of the steps.

*Action:* Remove tree numbers 1879, 1881, 1888. Review retention of tree numbers 1880, 1882 and 1883 when further details of ramp construction are available.

Tree no. 1889 – 1896, 1899 – 0020 and Tree Group 01

These trees are semi-mature *Acer pseudoplatanus* Sycamore, one *Fraxinus excelsior* Ash, *Acer platanoides* 'Drummondii' variegated Maple and *Sambucus nigra* elder species. They are located in the car park to the north west of the site, accessed from Mill Street.

*Impact of the development:* The car park layout will be slightly rationalized, resulting in the loss of some of these trees.

*Action:* Remove tree numbers 1890, 1891, 1893, 1895, 1896, 0007, 0009, 0013 and 0014.

Tree numbers 1889, 1892, 1894, 1897, 1898, 1899, 1900, 0001, 0002, 0003, 0004, 0005, 0006, 0008, 0010, 0011, 0012, 0015, 0016, 0017, 0018, 0019 and 0020 are to be retained and protected with tree protective fencing.

Furthermore, the report states that: 'The existing site contains a number of mature trees, they are generally of reasonable quality. Some of these trees are called up for removal and some for retention. Please refer to the drawing 074021\_TP\_01 and the Arboricultural Impact Assessment above for details. The principal standard for tree retention practices is BS 5837:2012.'

*Tree rooting:*

The majority of the tree's roots are in the top 1000mm of the soil, with the majority of feeding and anchoring roots in the top strata. Typically, they spread laterally from the trunk out beyond the crown. The area of the tree roots is referred to as the **Root Protection Area, RPA**, and is indicated on the accompanying plans, 074021\_TS\_01 and 074021\_TP\_01. The RPA of the trees to be retained is not to be disturbed or impacted upon by construction. **CRITICAL: UNDER NO CIRCUMSTANCES ARE LEVELS TO BE RAISED OR LOWERED IN THE ROOT PROTECTION AREA!**

#### Removal of trees:

Trees are to be removed to the standard set out in BS 3998:2010. They are to be safely felled with stumps and roots to be removed. The trees proposed for removal are adjacent to trees proposed for retention. Care is to be taken so as to not damage the above ground parts, (bark, trunk, branches, shoots and leaves etc. of the retained trees). The roots of the retained trees are to be protected also. Note the rootzone that requires protection is indicated on the drawing 074021\_TP\_01.

#### Retention of trees:

- The root protection area of the trees has been worked out in line with the guidance given in BS 5837:2012. It is indicated on drawings 074021\_TS\_01 and 074021\_TS\_02. This area is an estimate of the below ground root spread of the trees and protection of this area is of utmost importance. o No alterations of ground levels are to occur within the RPA, this includes excavations or raising of ground levels.
  - o Any practices that would lead to compaction within the RPA such as storage of materials or location of site buildings are strictly prohibited.
  - o Any spillages, washings or any other possible contamination of the soil in the rootzone from construction operations is prohibited.
- The above ground parts of the trees will be protected from damage from site traffic and machinery and from felling operations of adjacent trees.

#### Tree work

Any tree work undertaken on site will be in line with BS 3998. An assessment shall be taken for the presence of any protected wildlife prior to removal and any ecological survey recommendations will be observed.

#### Tree protection areas

The alignment of the tree protective fencing will be as shown on Drawing No. 074021\_TP\_01 and is specifically designed to protect the tree roots. Construction traffic will be diverted between tree protection areas for the duration of construction and no heavy-duty traffic shall pass over the RPA of retained trees prior to erection of tree protective fencing. The fencing shall remain in place for the duration of the construction works and shall only be removed when all works are complete. The tree protective fencing alignments will not be altered, even on a temporary basis, without the written consent of the project arborist.

Where works are required within the tree protective fencing alignments, the project arborist will be informed in writing. The fencing shall not be altered without written approval from the project arborist. Such works will be agreed with the project arborist in writing. The fencing will be restored to the alignments shown on the drawing 074021\_TP\_01 on when these works are complete, or if there is a period of greater than one day where such works are halted.

#### Tree Protection

- No materials, site storage areas, cement washing points, construction waste disposal areas shall be located in or around the Root Protection Areas.
- No noxious liquids shall be disposed of or deposited within the RPA.
- Rubbish shall not be burned in the RPA
- The soil level shall not be altered in any way, (raised or lowered) within the RPA.
- No action that might cause compaction within the RPA are to be carried out, this includes but is not limited to: placement of site facilities, storage of machinery, storage of materials, topsoil storage, staff parking.
- No signage, staples, boards or any other item/material shall be attached to any retained tree.

- *Site machinery with extending arms, buckets etc. shall not damage the above ground parts of the trees.*

#### Tree Protective fencing

*protective fencing shall be as outlined on Drawing No. 074021\_TP\_01 and shall re-main in place during the construction works. Any works within the tree protective fencing shall be supervised on site by the project Arboriculturist. Signage shall be attached to the fencing reading 'Tree Protective fencing KEEP OUT'*

*In conclusion, the report states that: 'There are a number of mature and semi-mature trees on the site. These are generally in reasonably good condition and have been surveyed and recorded in this re-port.*

*A number of these trees are suffering from Ash Die Back disease Hymenoscyphus fraxinea and will be removed. Other trees will be removed to allow for development of the site.*

*A number of the more mature trees will be retained along with some semi-mature trees in the car parking area to the north west of the site.*

*To allow for the retention of the trees, tree protection fencing will be erected to prohibit access to the rooting area of the trees. This tree protective fencing to BS 5837:2012 will be in place all through construction, along with adherence by all on site with the instructions regarding the protection of the RPA. These steps are critical to the successful retention of trees.'*

The tree protection plan and tree survey plan are demonstrated in Figures 4 & 5.

#### Lighting

The existing site services are demonstrated in Figure 6. The proposed lighting layout is demonstrated in Figure 7.



Figure 4. Tree Protection Plan



Figure 5. Tree Survey Plan



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Rev No.	Author/Issue	Rev No.	Rev Date

- NOTES:**
1. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, C&S ENGINEERS DRAWINGS & SPECIFICATIONS.
  2. ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH THE RELEVANT BUILDING REGULATIONS.
  3. DO NOT SCALE - WORK TO FIGURE DIMENSIONS ONLY.






<p>EXISTING SITE SERVICES LAYOUT</p>			
Date: 13/10/21	Scale: 1:500/0A1 (1:1000/0A3)	Drawn By: H.P.	Checked By: N.B.
Approved By: A.W.		Project No: 21ME022	

Client: FINGAL COUNTY COUNCIL	Job Description: QUAY STREET BALBRIGGAN
Project No: 21ME022	Drawing No: ME-1000EX
Rev: P1	

**INFORMATION**


  
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Figure 6. Existing site services layout

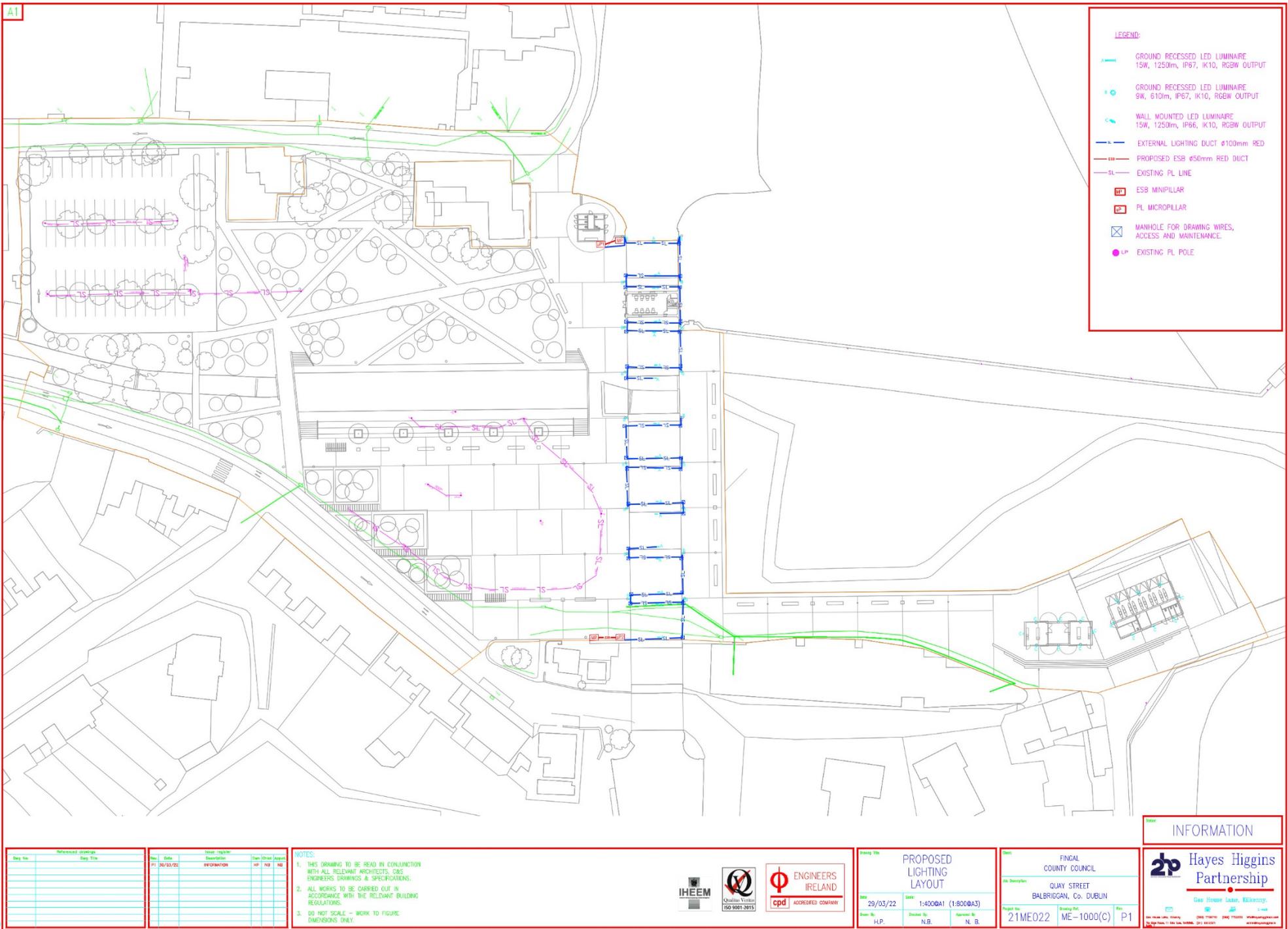


Figure 7. Proposed lighting layout

## Competency of Assessor

This report has been prepared by Bryan Deegan MSc, BSc (MCIEEM). Bryan has over 26 years of experience providing ecological consultancy services in Ireland. He has extensive experience in carrying out a wide range of bat surveys including dusk emergence, dawn re-entry and static detector surveys. He also has extensive experience reducing the potential impact of projects that involve external lighting on Bats. Bryan trained with Conor Kelleher author of the Bat Mitigation Guidelines for Ireland (Kelleher and Marnell (2022)) and Bryan is currently providing bat ecology (impact assessment and enhancement) services to Dun Laoghaire Rathdown County Council primarily on the Shanganagh Park Masterplan. The desk and field surveys were carried out having regard to the guidance: Bat Surveys for Professional Ecologists – Good Practice Guidelines 3rd Edition (Collins, J. (Ed.) 2016) and Marnell, Kelleher and Mullen (2022), Bat Mitigation Guidelines for Ireland V2 (which update and replace the Bat Mitigation Guidelines for Ireland published in 2006).

& Marnell, 2006)..

## Legislative Context

*Wildlife Act 1976 (as amended by, inter alia, the Wildlife (Amendment) Act 2000).* Bats in Ireland are protected by the Wildlife (Amendment) Act 2000. Based on this legislation it is an offence to wilfully interfere with or destroy the breeding or resting place of any species of bat. Under this legislation it is an offence to “*Intentionally kill, injure or take a bat, possess or control any live or dead specimen or anything derived from a bat, wilfully interfere with any structure or place used for breeding or resting by a bat, wilfully interfere with a bat while it is occupying a structure or place which it uses for that purpose.*”

*Habitats Directive- Council Directive 92/43/EEC 1992 on the conservation of natural habitats and of wild fauna and flora transposed into Irish Law i.e. European Communities (Natural Habitats) Regulations, 1997 (SI No. 94/1997).*

Annex II of the Council Directive 92/43/EEC 1992 on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive) lists animal and plant species of Community interest, the conservation of which requires the designation of Special Areas of Conservation (SACs); Annex IV lists animal and plant species of Community interest in need of strict protection. All bat species in Ireland are listed on Annex IV of the Directive, while the Lesser Horseshoe Bat (*Rhinolophus hipposideros*) is protected under Annex II which related to the designation of Special Areas of Conservation for a species.

Under section 23 of SI No. 94/1997 all bats are listed under the first schedule of Section 23 which makes it an offence to:

- deliberately capture a bat
- deliberately disturb a bat,
- damage or destroy a breeding site or resting place of a bat.

Under the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended), all bat species are listed on the First Schedule and Regulation 51 makes it an offence to:

- Deliberately capture or kill a bat;
- Deliberately disturb a bat particularly during the period of breeding, hibernating or migrating;
- Damage or destroy a breeding site or resting place of a bat;
- Keep, sell, transport, exchange, offer for sale or offer for exchange any bat taken in the wild.

## Survey methodology

As outlined in Marnell et al. 2022 *'The presence of a large maternity roost can normally be determined on a single visit at any time of year, provided that the entire structure is accessible and that any signs of bats have not been removed by others. However, most roosts are less obvious. A visit during the summer or autumn has the advantage that bats may be seen or heard. Buildings (which for this definition exclude cellars and other underground structures) are rarely used for hibernation alone, so droppings deposited by active bats provide the best clues. Roosts of species which habitually enter roof voids are probably the easiest to detect as the droppings will normally be readily visible. Roosts of crevice-dwelling species may require careful searching and, in some situations, the opening up of otherwise inaccessible areas. If this is not possible, best judgement might have to be used and a precautionary approach adopted. Roosts used by a small number of bats, as opposed to large maternity sites, can be particularly difficult to detect and may require extensive searching backed up by bat detector surveys (including static detectors) or emergence counts.'* In relation to the factors influencing survey results the guidelines outlines the following *'During the winter, bats will move around to find sites that present the optimum environmental conditions for their age, sex and bodyweight and some species will only be found in underground sites when the weather is particularly cold. During the summer, bats may be reluctant to leave their roost during heavy rain or when the temperature is unseasonably low, so exit counts should record the conditions under which they were made. Similarly, there may be times when females with young do not emerge at all or emerge only briefly and return while other bats are still emerging thus confusing the count. Within roosts, bats will move around according to the temperature and may or may not be visible on any particular visit. Bats also react to disturbance, so a survey the day after a disturbance event, may give a misleading picture of roost usage.'*

*The survey involved the methodologies outlined in Collins (2016) which included the roost inspection methodologies i.e. external methodology outlined in section 5.2.4.1 and the internal survey outlines in section 5.2.4.2 of the guidelines. In addition, the methodologies for Presence absence surveys (Section 7) was carried out for dust emergent surveys.'*

*As outlined in Collins (2016) 'The bat active period is generally considered to be between April and October inclusive (although the season is likely to be shorter in northern latitudes). However, because bats wake up during mild conditions, bat activity can also be recorded during winter months.'*

At dusk, bat detector surveys were carried out onsite using an Echo Meter Touch 2 Pro bat detector to determine bat activity. Bats were identified by their ultrasonic calls coupled with behavioural and flight observations. Surveys were carried out having regard to the following guidelines:

- Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2016);
- Bat Mitigation Guidelines for Ireland (NPWS, 2006); and,
- Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes (NRA, 2006).

## Bat survey

This report presents the results of site visit by Bryan Deegan (MCIEEM) on the 20<sup>th</sup> April 2022 and 8<sup>th</sup> June 2022.

## Survey constraints

Bat surveys were undertaken during the active bat season. Weather conditions were good. However, in April temperatures were slightly lower 8°C than the required 10°C after sunset. Winds were moderate and there was no rainfall. A follow up survey was carried out on the 8<sup>th</sup> June 2022 in optimal conditions (Dry 14°C) and included interior building inspections. No limitations are foreseen in relation to the surveys on site.



**Figure 8:** Site outline and bat foraging (none)

## Bat Assessment Findings

### Review of local bat records

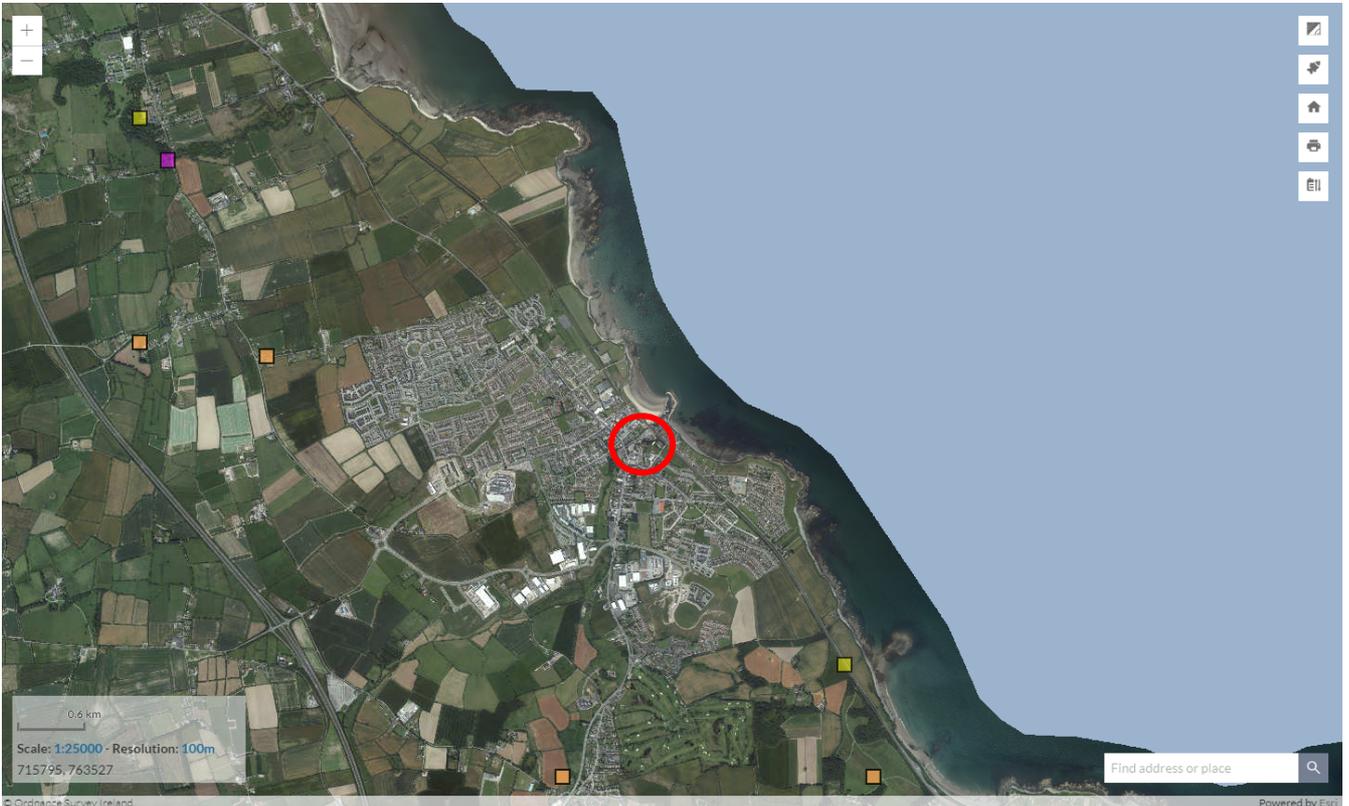
The review of existing bat records (sourced from Bat Conservation Ireland’s National Bat Records Database) within a 2km<sup>2</sup> grid (Reference grid O26B) encompassing the study area reveals that three of the nine known Irish species have been observed locally (Table 1). The National Biodiversity Data Centre’s online viewer was consulted in order to determine whether there have been recorded bat sightings in the wider area. This is visually represented in Figures 9-11. The following species were noted in the wider area: Brown Long-eared Bat (*Plecotus auritus*), Daubenton’s Bat (*Myotis daubentonii*), Lesser Noctule (*Nyctalus leisleri*), Soprano Pipistrelle (*Pipistrellus pygmaeus*), and Nathusius’s Pipistrelle (*Pipistrellus nathusii*) (species aggregate) (Figures 9-11).

**Table 1:** Status of bat species within a 2km<sup>2</sup> grid encompassing the subject site (Reference no. O26B)

Species name	Record count	Date of last record	Note
Brown Long-eared Bat ( <i>Plecotus auritus</i> )	1	19/05/2006	National Bat Database of Ireland
Pipistrelle ( <i>Pipistrellus pipistrellus sensu lato</i> )	1	19/05/2006	National Bat Database of Ireland
Soprano Pipistrelle ( <i>Pipistrellus pygmaeus</i> )	1	19/05/2006	National Bat Database of Ireland



**Figure 9.** Brown Long-eared Bat (*Plecotus auritus*) (yellow) and Daubenton’s Bat (*Myotis daubentonii*) (purple) (Source: NBDC) (Site – red circle)



**Figure 10.** Lesser Noctule (*Nyctalus leisleri*) (purple), Soprano Pipistrelle (*Pipistrellus pygmaeus*) (yellow) and both Lesser Noctule and Soprano Pipistrelle (orange) (Source NBDC) (Site – red circle)



**Figure 11.** Nathusius's Pipistrelle (*Pipistrellus nathusii*) (yellow) (Source NBDC) (Site – red circle)

### Detector survey

Bat surveys were undertaken during the active bat season. Weather conditions were good. However, temperatures were slightly lower than the required 10°C at sunset. In June 2022 weather conditions were optimal. Winds were moderate and there was no rainfall. There was no foraging activity on site in April 2022 but a single Leisler bat was noted in June 2022 to the rear of the boat house in the vicinity of the beach. It should be noted however, that the

lighting landscape has significantly changed since 2020 where new lighting within the arches and new LED's in the car park have increased lighting on site.

### Potential Bat Roosts

The boat house has been indicated as a potential bat roost. A site inspection was carried out on the 8<sup>th</sup> June 2020. No evidence of a bat roost or bat activity was noted. However, it was not possible to inspect all areas of the boat house including deep holes/voids within the roof space. It should be noted that the main walls of the building and the arches of the viaduct are of very tightly fitting cut stone and have limited potential.



**Plate 1** (interior of boat house)



**Plate 2** (Exterior of boat house).



**Plate 3** (New lighting (2022) under Arches)



**Plate 4.** Brightly lit watercourse.

The presence of bats is assessed with reference to their signs; principally staining, droppings, feeding signs, such as invertebrate prey remains, and the presence of bat fly *Nycteribiidae* pupae, although direct observations are also occasionally made. The nature and type of habitats present onsite are also indicative of the species likely to be present. The building on site was inspected for bat presence/access and an emergent survey carried out. No bats, evidence of bats or bat roost were identified in the onsite building. A derogation license is therefore not required for the removal of buildings on site. However, there were voids within the roof structure that can be accessed externally which do have moderate potential for bats. However, no bats were observed emerging from the building. As a result a precautionary approach must be taken as outlined in the Assessment of the site in 2020 (Appendix II) *“The first bat observed was a Leisler’s appearing on the east side of the boathouse at 19:52. This bat had likely been roosting within the site and possibly within the boathouse itself, although its emergence was not observed. However, there are several potential exit points within the boathouse and it appears to be well suited as a potential roost site. Another Leisler’s pass was recorded on the opposite side of the boathouse at 20:22. A Leisler’s was heard again on the beach, again close to the boathouse on the east side. A soprano pipistrelle was recorded near the south end of the bridge on the west side. A common pipistrelle passed along the beach near the northern end of the bridge at 20:52, and again at 21:00. At 21:04 another soprano pipistrelle was recorded near the boathouse. The only bat encountered during the morning survey was a Leisler’s bat briefly passing the boathouse at 05:57. No bats entered the viaduct or boathouse.”*

## Potential impacts of proposed redevelopment on bats

Bats were noted foraging on site during the site visits. No bats were noted roosting on site. No trees of bat roosting potential are noted on site. The proposed development will change the local environment as the structure is to be erected and some of the existing vegetation will be removed. The development is likely to displace bats from foraging at the site during construction. Based on the small number of common species found using the site the displacement from this site it will not have any significant effect on local bat populations, and that any such effect will be only significant at the local level. No bat roosts or potential bat roosts will be lost due to this development and the species expected to occur onsite should persist. The lighting plan has been designed to comply with bat lighting guidelines. However, foraging activity on site may be reduced in the short-medium term until the landscaping matures. The proposed development is not in proximity to sensitive bat areas. The potential for collision risk and impact on flight paths in relation to bats is considered low due to the low level of bat activity on site and the buildings would be deemed to be clearly visible to bats.

## Mitigation Measures

- Precautionary approach to boathouse redevelopment in consultation with an ecologist.
- Pre Construction building inspection for bats.
- Ecological supervision during boat house roof stripping works if required.
- Compliance with conditions of the bat derogation licence if required
- Lighting at all stages should be done sensitively on site with no direct lighting of treelines.
- Post Construction assessment/compliance with proposed lighting strategy.
- As an enhancement measure the provision of at least two roosting opportunities for bats within the structure of the building will be provided in consultation an ecologist.

## Predicted Residual Impact of Planned Development on Bats

The present survey found no evidence of roosting bats in any onsite tree or structure therefore the proposed development will not result in the loss of any bat roost as no bats are roosting onsite. The proposed development will change the local environment as the boat house is developed and vegetation removed during construction. There would be expected to be a short to medium term reduction in foraging until the landscaping and in particular the trees within the landscaping proposal mature. Based on the small number of common species found using the site the displacement from this site it will not have any significant effect on local bat populations, and that any such effect will be only significant at the local level. The external lighting for this development has been designed to achieve the performance requirements as set out in the Bats and Lighting – Guidance Notes for Planners, Engineers, Architects and Developers (Bat Conservation Ireland, 2010) and Bats and Lighting in the UK – Bats and the Built Environment Series

(Institute of Lighting Professionals, September 2018). In the medium-long term bat foraging would be expected to continue on site and no significant effect would be foreseen.

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# A bat assessment of Balbriggan Arches, Balbriggan Harbour

For Fingal County Council

**Brian Keeley BSc (Hons)**

**Fionn Keeley MSc**

**Oscar Monaghan BSc (Hons)**

**Maio, Tierworker, Kells Co Meath**

**Date 1<sup>st</sup> October 2020**

**[www.wildlivesurveys.net](http://www.wildlivesurveys.net)**

## Summary

Three species of bat were found feeding and commuting around the Balbriggan viaduct. The bridge overall shows low potential as a bat roost. The RNL boathouse has better potential but showed little activity on the night of survey. Exposure to the elements (such as wind chill from the sea) and bright street lighting may have made the boathouse less suitable as a roost. Lighting the area further may reduce bat activity but is not likely to have significant impacts for bats overall. Measures to enhance the site are provided in this report.

## Bat species found feeding and commuting on the site

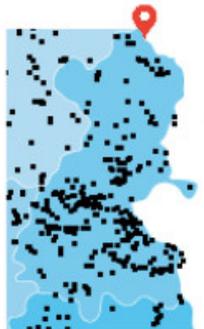
Common pipistrelle – *Pipistrellus pipistrellus*

Soprano pipistrelle – *Pipistrellus pygmaeus*

Leisler's bat – *Nyctalus leisleri*

## Desktop Survey of the existing environment

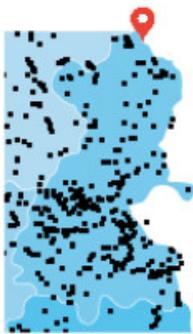
The area to be surveyed was assessed in advance of an in-person visit using online map resources, with the results summarised below. Thanks to Bat Conservation Ireland for the following data. All new entries from this report will be placed on their database.



Leisler's bat distribution in Dublin (with marker showing site location)



Soprano pipistrelle distribution in Dublin (with marker showing site location)



Common pipistrelle distribution in Dublin (with marker showing site location)



**Date** – 14<sup>th</sup> September 2020

**Sunset** – 19:42 hours

**Sunrise** – 07:16 hours

**Temperature and weather conditions** – 15oC, wind speed 10 kmph. Dry.

**Proposed works** – See planning application

**Complexity of lands and ability to cover ground during surveys** – All areas were accessible

## **Methodology**

### **Bat Survey Equipment:**

Two high-powered torches

Two EM3 time expansion detectors with Kaleidoscope Pro sound analysis software – handheld by Fionn Keeley and Oscar Monaghan

## **Survey**

The on-site survey began with a visual inspection prior to sunset, while the entire site was still visible under daylight. The underside of the bridge and outside of the boathouse were inspected using high-powered torches for signs of bat occupancy, as well as to assess overall potential for bat habitability. The active survey then commenced at 19:42 (sunset) and ran over the next hour and a half up until 21:12. During this time all bat activity was recorded using the EM3 detectors. The morning component of the survey took place from 05:51 hours up to 07:16 hours (15<sup>th</sup> September 2020).

### **Survey Constraints**

This is a follow-up survey as proposed in "An Evaluation of The Proposal to Illuminate Balbriggan Viaduct in Relation to The Bat Fauna by Brian Keeley in March 2020". The survey was intended to examine the arches at a time when human activity levels would be high and when bat activity would be commencing as this would be the case where there were activities around the arches (e.g. markets, festivals). It was due to be carried out in late March / early April 2020 but was delayed by Covid19 restrictions. However, the time of year chosen was highly suited to this evaluation.

## **Results**

The underside of the bridge has low to moderate potential for bats as there are few gaps in the stonework which would be suitable as roost locations. Additionally, the height of the arches makes them poor at heat retention and would leave them open to wind chill from the sea. While the weather was suitable for bat activity on the night of the survey (with light breezes c.10 kmph), typical wind speeds for coastal areas are often higher and the low level of activity observed may be due to these typical conditions.



The underside of the bridge is generally kept dark, but street lighting does not allow passage between these darker spots without passing through brightly-lit areas, particularly towards the southern end of the bridge. Bats will be unwilling to use these areas unless adequately sheltered flight corridors are available.



The first bat observed was a Leisler's appearing on the east side of the boathouse at 19:52. This bat had likely been roosting within the site and possibly within the boathouse itself, although its emergence was not observed. However, there are several potential exit points within the boathouse and it appears to be well suited as a potential roost site.

Another Leisler's pass was recorded on the opposite side of the boathouse at 20:22.

A Leisler's was heard again on the beach, again close to the boathouse on the east side.

A soprano pipistrelle was recorded near the south end of the bridge on the west side.

A common pipistrelle passed along the beach near the northern end of the bridge at 20:52, and again at 21:00.

At 21:04 another soprano pipistrelle was recorded near the boathouse.

The only bat encountered during the morning survey was a Leisler's bat briefly passing the boathouse at 05:57. No bats entered the viaduct or boathouse.

## **Potential impact on roosts, flight paths and feeding areas**

(1) Roost loss – As the boathouse may serve as a roost, any maintenance or repairs carry the risk of injuring bats or displacing them from their roost. Provision of bat boxes will lead to a long- term positive effect on individual bats.

Any increase in lighting may also prevent roosting within the viaduct.

(2) Loss of feeding – Most feeding occurred along the beach. Activity levels were very low around the arches but there is bat activity that includes three species.

## Recommendations

1. Any works affecting the boathouse shall be preceded by a bat survey. If bats are noted, such works will require a derogation licence to cover the disturbance of protected species, and must take place under the supervision of an ecological consultant. More extensive alterations to the building will necessitate a survey of the boathouse's interior.
2. The street lighting alongside the bridge could be turned off over the summer months, as the additional lighting would not be necessary during the later summer evenings.
3. Screening in the form of vegetation could be used to shelter the boathouse from street lighting and increase its suitability for bat habitation.
4. Purpose-designed bat roosts must be created within the arches or attached to the structure. These could be provided by making suitable access crevices and cavities within the arches. Access for bats requires no greater a gap than 18 millimetres by means of a horizontal gap 10 to 20 centimetres in length and leading to a cavity 30 centimetres in height.
5. Alternatively or additionally, Schwegler 2FE bat boxes (at least four) with built-in timber panels could be put in place on the underside of the bridge. These should be placed at least 3m high, with a clear drop below (as bats need to drop to start their flight). These can be purchased from [www.nhbs.com](http://www.nhbs.com). They must be placed in a dark area.
6. At least one arch throughout the structure should be kept unlit or with recessed lighting. Ideally that arches to either end of the structure should remain unlit to allow for bat usage and to allow bats to pass under the viaduct away from lighting.
7. Narrow band-width amber light (ca 600 nm) for illumination of the structure to reduce the effect on bats. No UV component should feature within the lighting.

## Bat Biology

Female bats gather in groups known as maternity roosts in summer to have their young. They generally have one baby each year, so are slow to reproduce, and disturbance of a maternity roost can be catastrophic.

In winter bats move to old stonework, trees, and caves to hibernate. They are especially vulnerable here as they are slow to awaken, and if tree felling or re-pointing of stonework is carried out, they can easily be entombed or killed.

## Legislation

Bats are protected under the 1996 Wildlife Act, the 2000 Wildlife (Amendment) Act, Stat Ist 94 of 1997, Stat Ist 378 of 2005, The Habitats Directive, The Bonn and Bern Convention, and the Euro bats agreement.

The European Community (Natural Habitats) Regulations S.I. No 94 of 1997 states:

23(1) The Minister shall take the requisite measures to establish a system of strict protection for the fauna consisting of the animal species set out in Part 1 of the First Schedule prohibiting –

a) All forms of deliberate capture or killing of specimens of those species in the wild.

1. The deterioration or destruction of breeding sites or resting places of those species.

The EU Habitats Directive

Article 12(1) of the 'Council Directive 92/43/EEC on the conservation of natural habitats and wild fauna and flora (Habitats Directive) states:

"Member States shall take the requisite measures to establish a system of strict protection for the animal species listed in Annex IV(a) and their natural range, prohibiting:

a) all forms of deliberate capture or killing of specimens of these species in the wild.

b) deliberate disturbance of these species, particularly during the period of breeding, rearing, hibernation, and migration.

- c) deliberate destruction or taking of eggs from the wild.
- d. deterioration or destruction of breeding sites or resting places.”

The EU Habitats Directive (92/43/EEC) lists all Irish bat species in Annex IV and one Irish species, the lesser horseshoe bat (*Rhinolophus hipposideros*), in Annex II. Annex II includes animal and plant species of community interest whose conservation requires the designation of Special Areas of Conservation (SACs) because they are endangered, rare, vulnerable, or endemic. Annex IV includes various species that require strict protection. Article 11 of the Habitats Directive requires member states to monitor all species listed in the Habitats Directive and Article 17 requires States to report to the EU on the findings of monitoring schemes.

#### The Bern and Bonn Conventions

Ireland is also a signatory to a number of conservation agreements pertaining to bats such as the Bern and Bonn Conventions. The European Bats Agreement (EUROBATS) is an agreement under the Bonn Convention. Ireland and the UK are two of the 31 signatories. The Agreement has an Action Plan with priorities for implementation. Devising strategies for monitoring of populations of selected bat species in Europe is among the resolutions of EUROBATS.

##### 1.3.1 The Berne Convention

Article 6 of the “Convention on the Conservation of European Wildlife and Natural Habitats’ (Berne Convention) reads:

“Each Contracting Party shall take appropriate and necessary legislative and administrative measures to ensure the special protection of the wild fauna species specified in Appendix II. The following will in particular be prohibited for these species:

- a) all forms of deliberate capture and keeping and deliberate killing.
- b) the deliberate damage to or destruction of breeding or resting sites.
- c) the deliberate disturbance of wild fauna, particularly during the period of breeding, rearing and hibernation, insofar as disturbance would be significant in relation to the objectives of this Convention; ...

Appendix II lists strictly protected fauna species and this list includes “Microchiroptera, all species except *Pipistrellus pipistrellus*”.

## The EUROBATS Agreement

The 'Agreement on the Conservation of Populations of European Bats' (EUROBATS) was negotiated under the 'Convention for the Conservation of Migratory Wild Species' (Bonn Convention) and came into force in January 1994. The legal protection of bats and their habitats are given in Article III as fundamental obligations:

"1. Each Party shall prohibit the deliberate capture, keeping or killing of bats except under permit from its competent authority

2. Each Party shall identify those sites within its own area of jurisdiction which are important for the conservation status, including for the shelter and protection, of bats. It shall, taking into account as necessary economic and social considerations, protect such sites from damage or disturbance. In addition, each Party shall endeavour to identify and protect important feeding areas for bats from damage or disturbance."

The Agreement covers all European bat species.

## Appendix 1

### EM3 bat detectors – handheld by surveyors

Surveyor 1 DATE	TIME	AUTO ID	PULSES	MANUAL ID
14/09/2020	19:49:10	NYLE	4	NYLE
14/09/2020	19:49:15	NYLE	2	NYLE
14/09/2020	19:52:00	NYLE	8	NYLE
14/09/2020	19:52:20	NYLE	2	NYLE
14/09/2020	19:52:25	NYLE	4	NYLE
14/09/2020	19:52:30	NYLE	9	NYLE
14/09/2020	19:52:35	NYLE	9	NYLE
14/09/2020	20:22:11	NYLE	7	NYLE
14/09/2020	20:22:16	NYLE	5	NYLE
14/09/2020	20:38:29	NYLE	2	NYLE
14/09/2020	20:51:52	PIPI	5	PIPI
14/09/2020	20:51:57	PIPI	3	PIPI
14/09/2020	20:52:02	PIPI	2	PIPI
14/09/2020	20:52:12	PIPI	4	PIPI
14/09/2020	20:52:17	PIPI	2	PIPI
14/09/2020	20:53:32	NYLE	15	PIPY
14/09/2020	20:53:42	PIPY	3	PIPY
14/09/2020	20:59:33	PIPI	4	PIPI
14/09/2020	20:59:38	PIPI	14	PIPI
14/09/2020	21:00:13	PIPI	8	PIPI
14/09/2020	21:00:18	PIPI	4	PIPI
14/09/2020	21:04:24	PIPY	28	PIPY

14/09/2020	21:10:06	PIPI	3	PIPI
15/09/2020	05:56:48	NYLE	2	NYLE

Surveyor 2 DATE	Time	AUTO ID	PULSES	MANUAL ID
14/09/2020	19:49:00	NYLE	6	NYLE
14/09/2020	19:52:00	NYLE	4	NYLE
14/09/2020	19:52:00	NYLE	7	NYLE
14/09/2020	19:52:00	NYLE	10	NYLE
14/09/2020	19:52:00	NYLE	12	NYLE
14/09/2020	19:58:00	NYLE	2	NYLE
14/09/2020	19:59:00	NYLE	3	NYLE
14/09/2020	20:16:00	NYLE	2	NYLE
14/09/2020	20:16:00	NYLE	3	NYLE
14/09/2020	20:17:00	NYLE	2	NYLE
14/09/2020	20:20:00	NYLE	5	NYLE
14/09/2020	20:20:00	NYLE	2	NYLE
14/09/2020	20:21:00	NYLE	4	NYLE

14/09/2020	20:21:00	NoID	2	NYLE
14/09/2020	20:22:00	NYLE	11	NYLE
14/09/2020	20:22:00	NYLE	7	NYLE
14/09/2020	20:26:00	NYLE	4	NYLE
14/09/2020	20:27:00	NYLE	17	NYLE
14/09/2020	20:27:00	NYLE	7	NYLE
14/09/2020	20:42:00	PIPI	8	PIPI
14/09/2020	20:43:00	PIPI	4	PIPI
14/09/2020	20:49:00	NYLE	12	NYLE
14/09/2020	20:50:00	NYLE	2	NYLE
14/09/2020	21:03:00	NYLE	4	NYLE