ATKINS

Member of the SNC-Lavalin Group

# Harry Reynolds Road Pedestrian and Cycle Route

## Environmental Report

Fingal County Council

March 2020

# Notice

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This document has 41 pages including the cover.

## Document history

| Revision | Purpose description | Origin-ated | Checked | Reviewed | Author-ised | Date |
|---|---|---|---|---|---|---|
| Rev 0 | Draft for Comment | RAS / AMcC | RAS / AMcC | DL | MF | 04/03/19 |
| Rev 1 | Draft for Comment | RAS / AMcC | RAS / AMcC | DL | MF | 19/03/19 |
| Rev 2 | FCC Review | RAS / AMcC | RAS / AMcC | DL | SW | 15/01/2020 |
| Rev 3 | Planning | RAS / AMcC | RAS / AMcC | DL | SW | 09/03/2020 |
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## Client signoff

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| Client | Fingal County Council |
| Project | Harry Reynolds Road Pedestrian and Cycle Route |
| Job number | 5165984 |
| Client signature / date | |

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# 1. Introduction

## 1.1. Background

Fingal County Council (FCC) propose to deliver a high-quality cycle route along the Harry Reynolds Road, Balbriggan, Co. Dublin. The proposed scheme will aim to deliver a minimum Level of Service A in accordance with the National Cycle Manual and will allow for future possible links to a coastal greenway and other cycling routes in Balbriggan. To achieve this objective, Fingal County Council engaged Atkins to develop route options and to undertake preliminary design work on the preferred route option. If the scheme is approved, Atkins will develop a detailed design for the project and progress it through construction. The Harry Reynolds Road pedestrian and cycle route, subject of this Part 8 planning application forms part of route BA2 as identified within the Greater Dublin Area Cycle Network Plan.

A Feasibility and Options Assessment Report was carried out by Atkins in September 2018, which identified a preferred route for the scheme. Since then this has been further developed as part of the preliminary design. The aim of the proposed scheme is the development of a cycle route which provides a quality of service in accordance with the National Cycle Manual and which provides an optimal balance of provision between the various competing transport modes along the route corridor.

The existing provision for pedestrians and cyclists along Harry Reynolds Road is limited and of poor quality. The proposed scheme will provide a comfortable, attractive and safe route for both pedestrians and cyclists. This will encourage more people to use sustainable modes of transport for both local trips and for commuting. The overall objectives of the proposed scheme are therefore as follows;

- to establish a quality cycle and pedestrian route delivering a level of Service A;
- to provide links to existing cycle ways and surrounding schools; and,
- provision shall take account of the scheme forming part of a coastal greenway.

## 1.2. Purpose of this Report

This report has been prepared to support a Part 8 planning application for the proposed scheme. The Environmental Report describes the existing situation, the proposed scheme and its potential impact on the surrounding environment (for selected key environmental topics). A brief summary of the scheme context, route options appraisal and the description of the preferred route are also presented within this report. For full engineering and planning details of the proposed scheme refer to Atkins Report entitled 'Harry Reynolds Road Pedestrian & Cyclist Scheme – Project Description Report" submitted in support of the planning application.

## 1.3. Report Format

Whilst the need for the preparation of an EIAR for the proposed scheme has been screened out (as detailed separately within the EIA Screening Assessment prepared to accompany this Part 8 Planning Application (Atkins, 2019)), the determination of the environmental topics to be considered in this non-statutory Environmental Report, as well as the specific scope of each chapter, was informed through consideration of the following best practice guidance documents: -

- *'Guidelines on the Information to be contained in Environmental Impact Assessment Reports – Draft', EPA, 2017;*
- *'Revised Guidelines on the Information to be contained in Environmental Impact Statements – Draft', EPA, 2015;*
- *'Advice Notes for Preparing Environmental Impact Statements', EPA, 2015; and*
- *'Environmental Impact Assessment (EIA) Guidance for Consent Authorities regarding Sub-threshold Development' DoEHLG, 2003.*

Relevant discipline specific guidance on impact assessment / best practice was also consulted. Taking account of the nature of the proposed scheme, the following environmental topics have been entirely screened out of this assessment, on the following technical basis: -

**Landscape and Visual Amenity:** The proposed pedestrian and cycle route will pass through built up residential and business areas. The proposed scheme will not have a significant adverse impact on landscape given the following facts;

- The proposed scheme will not result in any significant changes to the existing topography;
- The route design has evolved to ensure the existing character of the landscape types through which it passes is maintained where possible; and,
- The proposed works will be carried out primarily on the existing kerb and side verge.

**Population and Human Health:** The proposed scheme will not have a significant adverse impact on population and human health. No significant adverse human health impacts are anticipated via environmental pathways (air, noise, soil and water). During the operational phase the proposed scheme will have a positive impact on the health and well-being of the residents of Balbriggan, as it will provide them with a safe walking and cycling route in the town. Therefore, the proposed scheme will have a slight positive long-term effect on the overall health of residents and visitors in the Balbriggan area. No further consideration of the potential environmental impact of the scheme with respect to potential population and human health impacts is therefore warranted.

Accordingly potential adverse impacts to the receiving landscape and visual environment and population and human health setting do not warrant further consideration as part of this assessment.

Therefore this Environmental Report outlines the environmental baseline and predicts the associated impacts of the proposed scheme along with proposed mitigation measures in relation to the following selected key environmental factors:

- Chapter 3 - Air Quality & Climate;
- Chapter 4 - Noise & Vibration;
- Chapter 5 - Land, Soils & Geology;
- Chapter 6 - Material Assets;
- Chapter 7 – Water (i.e. Hydrology and Hydrogeology);
- Chapter 8 - Cultural Heritage (i.e. Archaeology, Architectural and Cultural Heritage);
- Chapter 9 - Ecology

## 1.4. Report Methodology

This desk-based assessment has been prepared following a detailed review of all available data sources including;

- GSI Datasets Public Viewer and Groundwater web-mapping, 2019 (GSI, 2019);
- Environmental Protection Agency (EPA) Envision mapping, 2019 (EPA, 2019);
- Ordnance Survey Ireland (OSI) web-mapping 2019 (OSI, 2019);
- National Monuments Service Historic Environment Viewer (NMS, 2019);
- Office of Public Works Flood Maps (OPW, 2019);
- National Parks and Wildlife Services Map Viewer (NPWS, 2019);
- National Biodiversity Data Centre Map Viewer (NBDC, 2019);
- All available information for the site (including topographic surveys, and preliminary engineering information);
- Fingal County Development Plan 2017-2023;
- Balbriggan Stephenstown Local Area Plan;
- Noise Action Plan for Fingal County 2019-2023 – Draft for Public Consultation (Fingal County Council, 2018)
- Draft Proposed Cycleway, Balbriggan, Co. Dublin Architectural Heritage Constraints Study (John Cronin & Associates, 2019);
- Harry Reynolds Road Pedestrian and Cycle Route Appropriate Assessment Screening Report (Atkins, 2020);
- Harry Reynolds Road Pedestrian & Cycle Path, Balbriggan Flood Risk Assessment (Atkins, 2020);

- Harry Reynolds Road, Pedestrian and Cycle Route Environmental Impact Assessment (EIA) Screening Report (Atkins, 2020);
- Tree Survey (Cunnane Stratton Reynolds, 2019)

Throughout the route selection and preliminary design process, regular liaison and consultation was undertaken between the engineering design and environmental teams. The findings of the initial desk-based review were further supplemented by additional information gathered during a site walkover survey of the general study area undertaken by an experienced Atkins environmental consultant on 18th May 2018. All of the above information was then evaluated to inform the findings of this environmental report.

# 2. Scheme Description

## 2.1. Policy Context

Relevant planning policy has been considered at every level in relation to the proposed scheme. The following key National, Regional and Local planning policy documents have been considered as part of the development of the design;

- Smarter Travel and National Cycle Policy Framework, 2009;
- Strategy for the Development of Irish Cycle Tourism, 2007;
- Regional Planning Guidelines for the Greater Dublin Area: 2010-2022;
- Transport Strategy for the Greater Dublin Area, 2016-2035;
- Greater Dublin Area Cycle Network Plan, 2013;
- Fingal County Development Plan, 2017-2023;
- Project Ireland 2040 National Development Plan 2018-2027;
- Fingal County Council Coastal Walks; and,
- 
- Balbriggan Stephenstown Local Area Plan.

As noted in the National Development Plan 2018-2027, the proposed scheme will contribute to the vision of Ireland's first National Cycle Policy Framework (NCPF, 2009) and -

*'the provision of safe alternative active travel options such as segregated cycling and walking facilities can also help alleviate congestion and meet climate action objectives by providing viable alternatives and connectivity with existing public transport infrastructure.'*

Further details including a comprehensive review of the policy statements and objectives are presented in Atkins Report entitled 'Harry Reynolds Road Pedestrian & Cycle Route – Project Description Report (Document Ref: 5165984DG0077) and the separate planning report submitted in support of the Part 8 Planning Application.

## 2.2. Stakeholder Consultation

### 2.2.1. National Transport Authority

Several meetings were held between Fingal County Council and the National Transport Authority (NTA) to discuss pathway widths, design standards, links with other walking and cycling schemes and funding.

### 2.2.2. Utility and Service Providers

Utility companies and service providers were contacted to ascertain whether any development within the study area would have an impact on any of their existing infrastructure. This consultation was largely required to understand the engineering impacts of any particular route option upon existing services. The following information was received.

**Table 2-1 - Summary of utility companies' infrastructure**

| Service Provider | Response Received | Services Present |
|---|---|---|
| Virgin Media | Yes | Yes |
| Aurora Telecom | Yes | No |
| Bord Gais Distribution | Yes | Yes |
| Bord Gais Transmission | Yes | Yes |

| Service Provider | Response Received | Services Present |
|---|---|---|
| BT | Yes | Yes |
| ESB Networks | Yes | Yes |
| E-net | Yes | No |
| Eir | Yes | No |
| Final County Council Drainage Department | Yes | Yes |
| Irish Water | Yes | Yes |

## 2.3. Options Assessment

A Feasibility and Options Assessment was completed by Atkins in 2018 to consider the context of the scheme in terms of key planning policies, to identify significant engineering / environmental constraints, to determine and evaluate route options, and ultimately to identify a preferred route. Various constraints / considerations were identified along the route as part of the assessment process. These were divided into two main categories: engineering and environmental considerations. Full details are presented in Atkins Report entitled *'Harry Reynolds Road Pedestrian & Cyclist Scheme – Project Description Report" and* are summarised below.

### 2.3.1. Engineering Considerations

- There are a number of existing boundaries that the proposed scheme must take account of including residential properties, business properties and lands outside FCC control.
- The route corridor is somewhat constricted in areas. These areas will require careful design to ensure the scheme achieves the objectives set out.
- The proposed scheme will cross a number of junctions and side roads. The design of these junctions must ensure a safe environment for pedestrians and motorists while ensuring junction capacity is maintained.
- The proposed scheme necessitates the introduction of a number of pedestrian crossings. These crossings must be designed to ensure safety for all road users.

### 2.3.2. Environmental Considerations

- **Human Health**: The proposed route will not add to operational sources of noise or air pollution but could assist in promoting more sustainable transport with associated reductions in emissions from vehicular traffic.
- **Biodiversity**: The key ecological constraint is the loss of habitat and disturbance to wildlife along the proposed route. Where possible the risk to habitat will be minimised.
- **Landscape and Visual Amenity**: The proposed route will pass through built up residential and business areas. The route design, where possible will maintain the existing character of the landscape types through which it passes.
- **Archaeology, Architectural and Cultural Heritage**: There are 2no. structures of architectural heritage within 500m of the proposed route. The proposed route will have no impact on these structures.
- **Soils and Geology**: The main constraints identified along the route are areas of Made Ground and Alluvial or Marine/Estuarine deposits. Where soft ground is encountered along the route, the material will either be replaced/improved, or piling systems used for any structures.

A number of route options were then developed for the scheme and were assessed in line with current project appraisal guidelines using a multi-criterion analysis as follows; economy, safety, environment, accessibility & social inclusion and integration. Each route was assessed in a comparative manner and ranked in order to identify the preferred route. The preliminary design has developed the preferred route in accordance with current best design guidance including DMURS and the National Cycle Manual.

## 2.3.3. Details of the Proposed Scheme

The scheme is approximately 2.9km long and stretches from Chieftain`s Drive in the north to Hamilton Road in the south, along Harry Reynolds Road. The proposed scheme is off road along its entire length with the exception of Chieftain`s Drive, and comprises the following key sections;

### 2.3.3.1. Section 1: Chieftain`s Drive

The proposed Cycle Scheme along this section of the route is to consist of a shared street provision. Vehicular traffic will be made aware of the provision by way of road markings and signage. The low volume and speeds along this road, as confirmed by traffic surveys, allow for the provision of a shared street it this location in accordance with the National Cycle Manual.

The existing kerb lines and parking will be maintained throughout this section. The existing raised, uncontrolled courtesy crossing on Castlemill Link Road will be upgrade to a raised zebra crossing to allow for safe and direct access from Chieftain's Drive to the schools and shops on the western side of the road.

### 2.3.3.2. Section 2: Chieftain`s Drive Roundabout to Harry Reynolds Roundabout

The proposed Cycle Scheme along this section of the route is to generally consist of 2m wide raised adjacent cycle tracks and 2m wide footpaths along both sides of the carriageway. The cycle track will be raised by 50mm above the existing carriageway level and the footpath will be raised by 75mm above the cycle track to provide segregation for all users.

To allow for construction of this section, the existing kerb line on the northern side of the road will be removed and the existing carriageway moved approximately 1.5m northwards with the existing verge and trees removed. On the southern side of the road the existing kerbline, verge and footpath will be maintained with the cycle track constructed within the current carriageway. A minimum carriageway width of 6m is maintained throughout.

### 2.3.3.3. Section 3: Harry Reynolds Road Roundabout to Drogheda Street Junction

The proposed route along this section is as for Section 2 with a 2m wide raised adjacent cycle track to be provided on both sides of the road. On the northern side of the road the existing verge, including trees, is to be removed and the existing footpath to be upgraded to a minimum width of 2m. On the southern side of the road, the existing kerb, verge and footpath are to be maintained as is.

To allow for construction of this section, the existing kerb line on the northern side of the road will be removed and the existing carriageway moved approximately 1.5m northwards with a minimum carriageway width of 6.5m provided throughout.

### 2.3.3.4. Section 4: Harry Reynolds Road – Roundabout to Chapel Street Junction

Throughout this section of the route, 2m wide one-way raised adjacent cycle tracks and 2m wide footpaths are proposed for the majority of the scheme. The cycle tracks will be raised by 50mm above the existing carriageway and footpaths will be raised a further 75mm to provide segregation between all users. Throughout this section, trees will be removed to facilitate the above provision.

To allow for the construction of the cycle track and footpath additional width is required on the eastern side of the carriageway. This width will be obtained by moving the existing kerb line on that side, narrowing the carriageway to a minimum width of 6.5m. The existing kerb line on the western side of the carriageway will generally be retained with kerbs being replaced to suit the new provision.

The existing ramp on Harry Reynolds Road at Westbrook Rise will be removed to provide sufficient width for the cycle track and footpath. The ramp will be relocated to the green space behind the wall on the Westbrook Rise side and the existing footpath along the wall on this side widened by approximately 1.5m.

A new raised toucan crossing is proposed between Chapel Avenue and Westbrook Close, linking residential areas on both sides of Harry Reynolds Road to the scheme.

From the Westbrook Drive junction southwards to the Chapel Street junction, it is proposed to provide additional segregation for the cycle lane with a kerb protecting it from vehicular traffic along with upgrading of footpaths. Changes to the staging of the junction and provision of cycle only signals will be considered during the detail design stage.

#### 2.3.3.5. Section 5: Harry Reynolds Road – Chapel Street Junction to Fingal Bay Business Park

The proposed Cycle Scheme along this section of the route is as the previous section with 2m wide raised adjacent cycle tracks and 2m wide footpaths provided on both sides. In general, the existing kerb on the eastern side of the road will be removed and the carriageway narrowed to a minimum of 6.5m. The existing kerb line on the western side of the road will be maintained in place and amended to suit the new provision. The proposed footpath on the western side of the road will be constructed in the existing grass verge on that side.

The existing crossroads at Clonard Street will be modified to provide tighter corner radii and narrower lanes in line with the Design Manual for Urban Roads and Streets (DMURS). Cycle lanes will be on road across the junction with raised entry treatments for uncontrolled pedestrian crossings also provided as discussed in the previous section.

#### 2.3.3.6. Section 6: Fingal Bay Business Park

The scheme continues in a similar fashion through this section with 2m wide raised adjacent cycle tracks and 2m wide footpath provided by narrowing the existing carriageway and relocating the existing kerb line on the eastern side of the road. Side road junctions are treated as outlined in the previous two sections and existing trees are to be removed on the eastern side throughout.

There is a section of existing footpath and off-road cycle track on the western side of the road in front of a number of building. It is proposed to remove these and to provide a varying width of self-binding material between the proposed cycle track and footpath where it is proposed to plant new trees.

#### 2.3.3.7. Section 7: Exit Road from Public Carpark

From the previous section, the scheme proceeds along the northern side of the existing car park exit road by means of approximately 40m of shared surface linking between the proposed toucan crossing and a 4m wide raised adjacent two-way cycle track and 2m wide footpath.

The existing kerb line on the northern side of the road will be relocated to provide the required width and the exit road reduced to 3m in width to control speeds. The existing kerb line on the southern side of the road will be maintained.

A 4.m wide raised zebra crossing will be provided adjacent to the car park which will link to a proposed 5m wide shared surface to facilitate pedestrian and cyclist movements to and from Drogheda Street. This width will be achieved by removing some of the landscaped area to the west of the R132 roundabout.

#### 2.3.3.8. Section 8: Hamilton Road

Two-way cycle tracks with buffers are proposed on both sides of Hamilton Road from the Dublin Street roundabout to just east of the gated entrance to the adjacent playing pitches to the north. An at-grade toucan crossing is proposed at this location at which point the two-way raised adjacent cycle track continues on the southern side only as far as the roundabout at Castlelands.

A new set down/drop off area and a new bus waiting area are proposed on the southern side of Hamilton Road in close proximity to the entrance to a number of schools in the area. It is proposed to narrow the existing carriageway land widths to a minimum of 3.5m with a 1m wide concrete central island also proposed. This will help manage unsafe driving behaviours at school peak times and reduce speeds along the road. These lane widths are more than adequate to cater for the volume and type of traffic anticipated along this road and are in keeping with DMURS.

#### 2.3.3.9. Moylaragh Road/Chieftain's Road Roundabout

The Moylaragh roundabout will be reconfigured to provide crossing points on all arms. The existing kerb lines on the eastern and southern arms will be modified to provide appropriate radii and lane widths. Raised zebra crossings at the junction will be provide on all arms with shared spaces provided around the entire roundabout. These will allow safe and direct crossing points for all vulnerable road users.

#### 2.3.3.10. Harry Reynolds/Moylaragh Road Roundabout

Harry Reynolds Roundabout will be slightly reconfigured to provide a cycle friendly roundabout in accordance with the National Cycle Manual.

The ICD of the roundabout will be reduced to 30m. This will include reducing of entry and exit widths and radii.

The circulatory carriageway will be reduced to 4.0m with a 4.0m concrete overrun.

Raised zebra crossings will be provided on all approach arms. These crossings will be set back a distance of 6m from the roundabout circulatory carriageway and shared surfaces will be provided at all crossing locations and around the entire roundabout.

#### 2.3.3.11. Harry Reynolds Road/Drogheda Street Signal Controlled Junction

The existing signalised junction at this location is to be upgraded with a new toucan crossing on the northern arm and upgraded toucan crossings on the remaining two arms. Shared surfaces will be provided around the junction and will link with the existing cycle and pedestrian facilities on Drogheda Street.

#### 2.3.3.12. Dublin Street Roundabout

The Dublin Street (R132) roundabout configuration will generally be maintained with some modifications. Existing kerb lines will be relocated on the northern and southern arms to provide width for shared spaces.

New raised zebra crossings and traffic islands are proposed on both the northern and southern arms to allow safe, direct crossing points for pedestrians and cyclists. The existing toucan crossing on Hamilton Road is to be maintained while a new toucan crossing is proposed at a setback on the western arm.

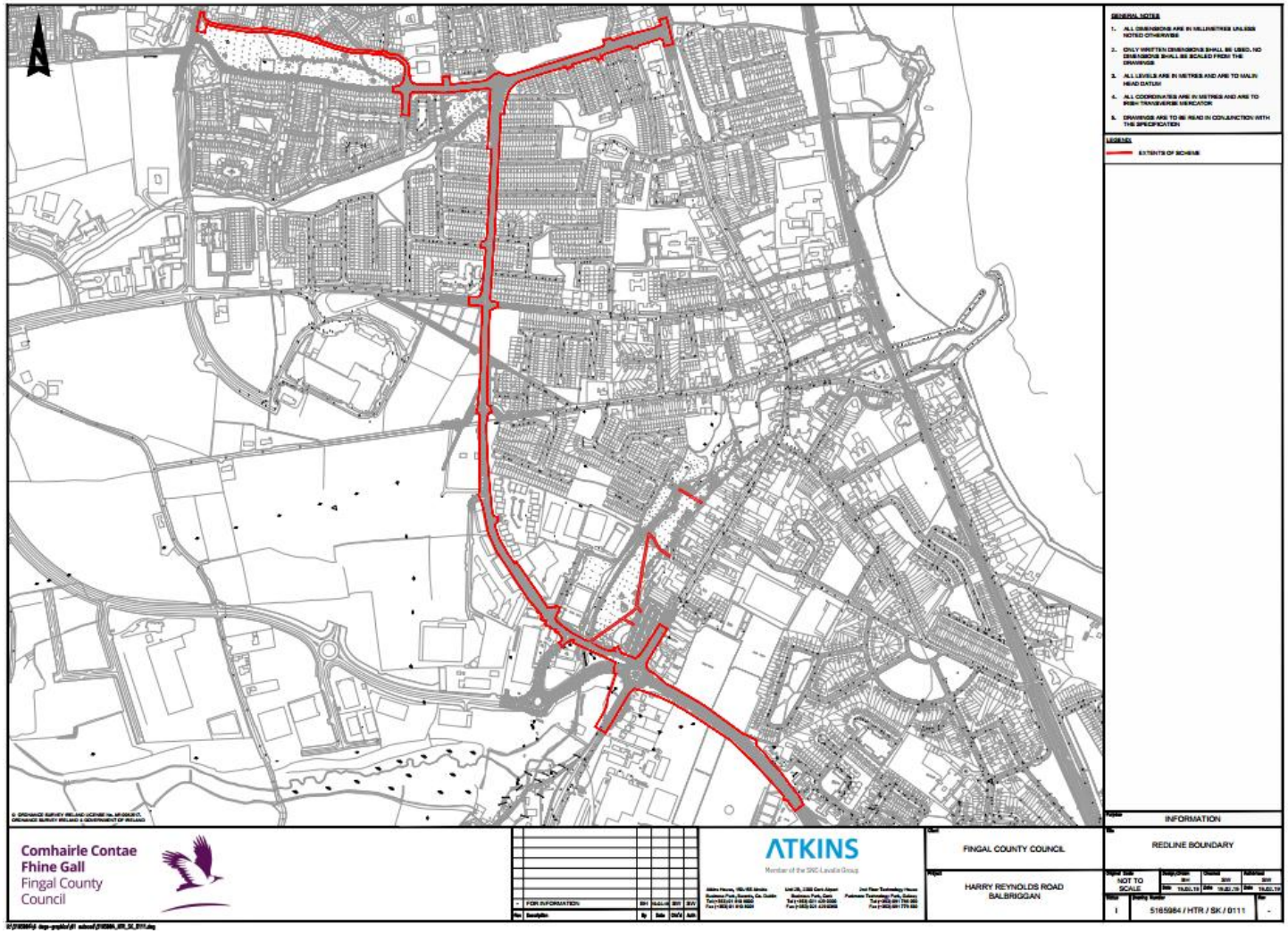
#### 2.3.3.13. Millpond Park

The existing paths through the park will be upgraded to 3m wide paths throughout with some additional links to Vauxhall Street also provided.

Provision of additional pathways and looped routes within the park will be investigated further as part of the overall park masterplan being carried out by Fingal County Council.

The proposed site location is presented in Figure 2-1. Detailed drawings are included in Drawing no. 5165984/HTR/SK/0101 - 0111.

**Figure 2-1 - Proposed Site Location**



## 2.4. Construction Methodology

The final construction methodology will be subject to the conditions of planning, the construction procurement process and also the methodology adopted by the main contractor who will be responsible for constructing the scheme. Notwithstanding this, an overview of the likely construction methodology based on the works requirements which have been developed as part of the route optioneering and preliminary design process is provided as follows;

- Prior to the commencement of the works, the contractor will be required to develop a Temporary Traffic Management Plan. To allow the construction phase to proceed as safely and efficiently as possible, temporary traffic management measures will be required where the work will cross or run adjacent to the local public roads. The temporary traffic management measures will be designed carefully to enable the works to progress and to manage the safety of workers and the passing public.
- The contractor will commence the construction phase by mobilising the construction team on site. This will involve setting up a site compound in an area which will minimise potential impacts to the environment and public.
- Works will commence with clearing and removing (off site) all redundant road signage, boundary treatment and topsoil. The works will be completed using a combination of operatives using hand tools and also mechanical excavators and dumper trucks.
- To facilitate the main works, underground utilities which conflict with the main works will be uncovered using mechanical excavators (and hand digging where appropriate) and identified. The need for significant utility diversions is not envisaged as part of the works, instead a 'lower and protect' approach will be favoured. This is likely to be restricted to locations where the walking and cycling facilities cross or interface with public roads.
- With the utilities safely identified and diverted, the initial pavement construction phase will be ready to commence. This will include the excavation and removal of soil to line and level along the route. The excavation will be largely undertaken by mechanical excavator, with spoil arisings loaded into HGV tipper trucks for removal off site or reused locally where testing confirms its suitability.
- Drainage works, likely to run in tandem with the pavement construction phase, are considered to be minimal and restricted to areas where the scheme interfaces with the public road. The drainage works at these locations are likely to be limited to the relocation of existing road gullies to take account of adjusted kerb lines and use of porous asphalt and permeable drains to provide retention in the cycle tracks.
- The works will also involve constructing the civil engineering elements required to facilitate the commissioning of the traffic signals and the public lighting elements at the latter stages of construction when all the heavy civil engineering works have been executed. Initially, service chambers and underground duct sets will be laid within trenches and backfilled with granular material. Next, signal poles and public lighting columns will be erected, and duct connections will be made to the base of each pole unit. Ropes will be pulled through each duct and terminated at the service chambers. The ropes will be to facilitate the drawing through of electrical cables as part of the final testing and commissioning phase.
- The final pavement surface course will be laid using an asphalt paving machine followed by compaction using a vibrating roller. Localised earth profiles will be final graded to tie into the new pavement levels and followed by the top soiling and seeding process. The top soiling and seeding process will be completed using a combination of mechanical excavator, tractor unit drawing a rotavator / rake / seed spreader and also operatives using hand tools for areas where machinery is unable to gain access.
- Road sign poles will be erected to carry the scheme road signage. This will include statutory signage, warning signage and information signage. With the poles erected, the signs will be mounted by hand and cleaned to complete the signage installation. The finished surface course will be swept using a mechanical road sweeper and immediately followed by the application of road markings. Linear edge markings and centre lines are likely to be applied using a vehicle mounted road marking machine. The individual Stop, Yield and cycle markings are likely to be laid by hand.
- The final work task will be the installation of the traffic signal equipment and public lighting on the poles erected in the earlier phases. The installation process will be followed by a period of testing, fault diagnosis and commissioning. With the testing and commissioning phase complete, all temporary traffic

management installations will be removed, and the scheme will be opened to the public for its operation and maintenance phase.

# 3. Air Quality & Climate

This section presents a preliminary overview of the receiving environment with regards to air quality and climate, the identification of any potential constraints associated with the proposed pedestrian and cycle route and proposed mitigation measures / recommendations. The review has been undertaken in accordance with relevant NRA guidance 'Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes' (NRA, 2011) which states that the: -#

> *"initial step (Stage 1, i.e., Preliminary Options Assessment) in the Route Selection Process is to identify the nature and extent of significant constraints within a defined Study Area. These constraints should be documented and mapped so that feasible route options can be designed to avoid such constraints, where possible. The first part of this data collection should be based on deskbound research studies."*

A desk-based review of published information from the following sources has therefore been undertaken: -

- Ordnance Survey Ireland Online mapping (OSI, 2019);
- Environmental Protection Agency Online mapping (EPA, 2019); and
- Environmental Protection Agency Report entitled *'Ambient Air Monitoring at Balbriggan, Co. Dublin 15th March 2012 – 17th June 2014'.*

## 3.1. Receiving Environment

Four air quality zones have been defined in Ireland in order to assess and manage air quality (implemented under the Air Quality Standards Regulations 2011 (S.I. No. 180/2011) as amended (S.I. No. 659 of 2016)). The two key cities of Dublin and Cork have been classified as Zone A and Zone B respectively. Zone C comprises other cities and large towns across the country, with the remainder of the country (rural Ireland) classified as Zone D. The area of the pedestrian and cycle route in Balbriggan is classified as 'Air Zone C: Other Cities and Large Towns'.

The air quality in each zone is assessed and classified (in accordance with upper and lower assessment thresholds as prescribed in the legislation for each pollutant) by the EPA. The number of national monitoring locations is dependent on population size and ambient air quality concentrations with regards to the relevant assessment thresholds. Baseline ambient air monitoring was undertaken by the EPA in Balbriggan from the 15th March 2012 to the 17th June 2014. According to the EPA (2014) the key findings during the monitoring period were as follows: -

- No limit values were exceeded during the monitoring period.
- Levels of particulate matter (PM10) exceeded the upper assessment threshold for this parameter.

Current ambient air monitoring data is available for Swords Station, located approximately 15km south of the pedestrian and cycle route. According to the EPA (2019) ambient air quality at this station is deemed to be generally 'good', based on current NO2 and O3 levels recorded at this site which are below the relevant threshold values of 200 ug/m3 and 180 ug/m3 respectively.

The EPA's Air Quality Index for Health is a web-based index, developed in conjunction with the Health Service Executive, Met Éireann, DCCAE and Local Authorities and shows what the current air quality is across Ireland. The Air Quality Index for Health is a coloured scale of 1-10. The scale is divided into four bands: good, fair, poor and very poor. The Index is calculated hourly, represented on a colour coded map and provides information and health advice for both the general population and those who are more sensitive to air pollution, for example, people with heart or lung problems (EPA, 2019). According to the EPA (2019) the current baseline air quality index is '2 - Good' for the Balbriggan region where the proposed pedestrian and cycle route is located. It is noted that this index is based on information from monitoring instruments at representative locations in the region and may not reflect local incidents of air pollution. There are no IPPC / IED licenced facilities within the general vicinity of the proposed pedestrian and cycle route (EPA, 2019). An EPA licenced waste facility, Pacon Waste & Recycling Limited (Licence No. P1014-01) is located ca. 0.3km from the proposed pedestrian and cycle route.

At a national scale, following a recent review of Ireland's air quality monitoring data, the EPA (2017) have concluded that while Ireland is in compliance with the EU statutory limit and target values, national air quality fails to meet more stringent world health organisation (WHO) guideline values for a number of pollutants, including $PM_{10}$, $PM_{2.5}$, ozone and $NO_2$. According to the EPA it is particularly important to tackle $PM_{2.5}$ which is linked to the majority of premature deaths in Ireland associated with poor air quality. Key sources of pollutant $PM_{2.5}$ include the continued use of solid fuel burning for home heating purposes, along with potential agricultural sources. Key sources of pollutants $NO_2$ are associated with the residential heating, energy, industry and transport sectors. According to the EPA, it is the transport sector which has the greatest impact on NO2 concentrations, particularly in urban areas (EPA, 2017). Hence the provision of the proposed pedestrian and cycle route will have a permanent positive impact on the air quality in the receiving environment of Balbriggan.

### 3.1.1. Potential Constraints

Baseline air quality in the regional context of the proposed pedestrian and cycle route is generally considered to be good; however, a number of constraints have been identified, specifically in relation to dust nuisance. At this preliminary stage all users of residential properties and all commercial properties within the vicinity of the proposed scheme are identified as potential air quality sensitive receptors. Key identified sensitive receptors comprise users of businesses along Harry Reynolds Road, residential estates along the Harry Reynolds Road, Moylaragh Road and Chieftan's Drive, St. Peters and Paul's Church, Balbriggan Educate Together National School, houses and business along Vauxhall street and users of the Pubic Park and local amenity grounds.

## 3.2. Impact Assessment

### 3.2.1. Construction phase

There is the potential for short term negative impacts to air quality in the vicinity of the proposed pedestrian and cycle route during the construction phase of the development, as dust will likely be generated. However as the majority of the proposed route will run along existing roadways, footpaths and cycle tracks, the amount of dust likely to be produced during the construction phase is considered to be limited, and can be adequately managed through the implementation of standard construction mitigation measures, as detailed below.

### 3.2.2. Operational phase

There are no anticipated negative impacts to air quality while the proposed scheme is operational. Conversely during the operational phase, the proposed scheme will encourage people in the future to opt for a cycle to work or school approach. Therefore, the scheme will have a slight positive long-term effect on the overall air quality (and associated climate change impacts) of the Balbriggan area.

## 3.3. Recommendations

Standard measures should be taken which will minimise dust from construction activities, at a minimum adhering to standard good practice which includes the Building Research Establishment (BRE) document entitled *'Control of Dust from Construction and Demolition Activities'*. Any potential dust nuisance which could arise during the construction period will be mitigated through the implementation of a site-specific Detailed Construction Environmental Management Plan (CEMP) by the Contractor. Dust minimisation measures which should be detailed further within the CEMP should include, but are not limited to, the following actions: -

- Site access should be regularly cleaned and maintained using road sweepers as required;
- Dampening down of areas where dust may arise, as required, during dry and/or windy conditions; this also applies to vehicles delivering material with dust potential;
- Any stockpiling of materials shall be designed and laid out to minimise exposure to wind, and potential for dust nuisance;
- Any surplus soils removed from site shall be appropriately covered during transport to the relevant permitted / licenced disposal facility.

The proposed scheme will not have a significant adverse impact on air quality or climate change.

# 4. Noise & Vibration

Noise (and vibration) is an important environmental consideration for the proposed pedestrian and cycle route. A desk-based review of the receiving environment with regards to noise and vibration, and identification of any potential associated constraints (along with proposed mitigation measures / recommendations) has been undertaken in accordance with the relevant NRA guidance *'Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes'* (NRA, 2014). Specifically, this assessment included a review of published information from the following sources: -

- Ordnance Survey Ireland Online mapping (OSI, 2019); and,
- Environmental Protection Agency Online mapping (EPA, 2019).

## 4.1. Receiving Environment

According to the EPA (2019) the primary source of noise in the vicinity of the study area is the main road network within and surrounding Balbriggan (this includes the general areas of Dublin Street, Drogheda Street and Chapel Street, portions of which are included within the proposed pedestrian and cycle route) and the railway which runs along the coastline in Balbriggan. Based on available baseline noise mapping from the EPA (2019) day-time noise levels in excess of 69 dB are generated within the confines of Dublin Street, a small portion of which is included within the southern portion of the proposed pedestrian and cycle route. Noise levels are reported to decrease to 50-54 dB within a distance of approximately 0.4km on either side of the road. Within the central southern portion of the proposed pedestrian and cycle route, night time noise levels may increase to 60-64 dB as reported by the EPA (2019). Harry Reynolds Road and the local road network within the proposed pedestrian and cycle route, along with the local rail network, and occasional commercial related noise would also contribute to the baseline day-time noise environment. No other regional potential noise sources are identified within the proposed pedestrian and cycle route (EPA, 2019).

FCC have published a Noise Action Plan 2019 - 2023 (FCC, 2018); this document was prepared in accordance with the Environmental Noise Regulations, 2006 (S.I. No. 140 of 2006). Within the Noise Action Plan, the following objectives are identified: -

- ***Objective NP03*** - Require all developments to be designed and operated in a manner that will minimise and contain noise levels.
- ***Objective NP04*** - Ensure that future developments are designed and constructed to minimise noise disturbance and take into account the multi-functional uses of streets including movement and recreation as detailed in the Urban Design Manual (2009) and the Design Manual for Urban Roads and Streets (2013).
- ***Objective NP05*** - Ensure that development complies with the NRA's design goal for sensitive receptors exposed to road traffic noise or as updated by any subsequent guidelines published by Transport Infrastructure Ireland.
- ***Objective PM69*** - Ensure that proposals do not have a detrimental effect on local amenity by way of traffic, parking, noise or loss of privacy of adjacent residents.

### 4.1.1. Potential Constraints

Available NRA guidance (2014) recommends a phased approach in relation to noise and vibration impact assessment for national road schemes. The avoidance of noise and vibration impacts should therefore be the focus of the evolving proposed pedestrian and cycle route. At this preliminary stage all residential properties and all commercial properties within the proposed pedestrian and cycle route area are identified as potential noise and vibration sensitive receptors.

Key identified noise and vibration sensitive receptors comprise the businesses along Harry Reynolds Road, residential estates along the Harry Reynolds Road, Moylaragh Road and Chieftan's Drive, St Peters and Paul's Church, Balbriggan Educate Together National School, houses and business along Vauxhall street and users of the Pubic Park and local amenity grounds.

## 4.2. Impact Assessment

### 4.2.1. Construction phase

There is potential for short term negative impacts, to noise and vibration sensitive receptors during the construction phase of the development. However as the majority of the proposed route will run along existing roadways, footpaths and cycle tracks, the amount of noise and vibration likely to be produced during the construction phase will be limited and can be adequately managed through the implementation of standard construction mitigation measures, as detailed below.

### 4.2.2. Operational phase

There are no anticipated negative impacts to noise and vibration sensitive receptors while the proposed pedestrian and cycle route is operational. It is anticipated that there may be slight positive impacts to sensitive receptors during the operational phase of the pedestrian and cycle route, as it may encourage more commuters to use this route as opposed to taking private vehicles or using public transport, therefore slightly reducing the amount of noise generated within the immediate vicinity.

## 4.3. Recommendations

All construction works should be undertaken in accordance with standard industry best practice methods. Any potential noise arising from the works will be short-duration and temporary in nature and will be managed through the implementation of a site-specific Detailed Construction Environmental Management Plan (CEMP) by the Contractor. Noise / vibration minimisation measures should include, but are not limited to the following:-

- Ensuring that mechanical plant and equipment used for the purpose of the works are fitted with effective exhaust silencers and are maintained in good working order;
- Careful selection of quiet plant and machinery to undertake the required work where available;
- All major compressors should be ‘sound reduced’ models fitted with properly lined and sealed acoustic covers which should be kept closed whenever the machines are in use;
- Any ancillary pneumatic percussive tools should be fitted with mufflers or silencers of the type recommended by the manufacturers;
- Machines in intermittent use should be shut down in the intervening periods between work or throttled down to a minimum. Generators, or any other plant, shall not be left running / operational after hours unless in an emergency, and agreed with the Employer’s Representative;
- Ancillary plant such as generators, compressors and pumps should be placed behind existing physical barriers, and the direction of noise emissions from plant including exhausts or engines should be placed away from sensitive locations, in order to cause minimum noise disturbance;
- Handling of all materials should take place in a manner which minimises noise emissions;
- The Contractor should adhere to the codes and practices for minimising noise emissions from construction and if required any piling works;
- The noise levels presented below for periods outside the normal working hours will only be permitted when consent has been given to exceptional working;
- The ambient noise level, from all sources when measured 2.0m above the ground at any monitoring station shall not exceed the appropriate level given in the Table 4.1 below (FCC, 2018); and,
- Exceptionally, the Contractor may be given permission to carry out works which exceed the noise levels in the table; however this will need to be agreed between Fingal County Council, the Client, the Employers Representative and the Contractor.

**Table 4-1 – Permitted Noise Levels during Construction Phase[1] [2]**

| Days and Times | Hours | dB(A) |
|---|---|---|
| Monday to Friday | Day-time (08:00 – 19:00) | 70 |
| Monday to Friday | Night time | 55 |
| Saturday | Day-time 08.00 – 13.00 | 55 |
| Sundays and Bank Holidays | No activities shall take place on site | - |

In accordance with the FCC (2018) Noise Action Plan 2019 – 2023, mitigation measures must be taken to minimise noise and/or vibration impacts during construction activities.

[1] http://www.fingal.ie/environment/clean-community/noise-pollution/
[2] https://consult.fingal.ie/en/system/files/materials/9770/Noise%20Action%20Plan%20for%20Fingal%20County.pdf

# 5. Land, Soils and Geology

This section presents a preliminary overview of the receiving environment with regards to land, soils and geology, the identification of any potential constraints associated with the proposed pedestrian and cycle route and proposed mitigation measures / recommendations. Ground conditions have been assessed through a desk-based study and a walkover survey along the route to identify any areas of constraint. This assessment has been completed in accordance with relevant best practice guidance from the Institute of Geologists of Ireland (IGI, 2013).

The desk-based study involved reviewing information from the following sources: -

- Geological Survey of Ireland (GSI) webpage (www.gsi.ie) using the online mapping tool (GSI, 2019);
- Ordnance Survey of Ireland (OSI) webpage (http://map.geohive.ie) to assess the surface topography, landforms and historic mapping (OSI, 2019); and,
- Fingal County Council (FCC) Development Plan 2017-2023.

## 5.1. Land Take

The proposed route has been designed to avoid the requirement of private land take throughout. The entirety of the scheme is to be constructed on lands in the ownership of Fingal County Council.

## 5.2. Receiving Environment

Soils in the general vicinity of the area (GSI, 2019) typically include;

- **Made Ground** (fill material in urban / developed areas);
- **Till** derived from Palaeozoic sandstones and shales; and,
- **Alluvium** (underlying the public park area in the centre of the proposed pedestrian and cycle route);

Bedrock underlying the general vicinity of the area (GSI, 2019) primarily comprises;

- Andesite, pillow breccia, tuff, and mudstone of the Belcamp Formation; and,
- Mudstone and sandstone of the Balbriggan Formation (underlying a minor portion in the south east).

There are no reported Karst features or landslides along the proposed pedestrian and cycle route with the closest karst feature (a spring) located ca. 4km south east. There are no reported Geological Heritage Sites along the pedestrian and cycle route. The closest reported Geological Heritage Area is Fancourt Shore (Site Code: DF002), located 0.9km south east of the proposed pedestrian and cycle route (GSI, 2019). Based on the Green Infrastructure Maps of the Fingal Development Plan 2017 – 2023 (FCC, 2017) there are no reported County Geological Heritage Sites identified along the pedestrian and cycle route.

A review of available historic aerial photography and mapping (OSI, 2019) indicates that the area in which the proposed pedestrian and cycle route is located was predominately undeveloped farmland until the late 20th Century; residential and commercial developments have developed since the 1990s along with the existing road network i.e. Harry Reynolds Road and adjoining roads. There are no IPPC / IED licenced facilities within the general vicinity of the proposed pedestrian and cycle route (EPA, 2019). An EPA licenced waste facility, Pacon Waste & Recycling Limited (Licence No. P1014-01) is located ca. 0.3km from the proposed pedestrian and cycle route.

### 5.2.1. Potential Constraints

Rock outcrops can be difficult to engineer and require increased effort to excavate and are therefore a potential constraint. According to the GSI (2019), groundwater vulnerability rating in the vicinity of the proposed pedestrian and cycle route is ‘High’ in the south eastern portion; this would suggest that bedrock could be encountered in this general area at depths ranging approximately from 3m to 10m. Given the nature and scale of the proposed pedestrian and cycle route it is unlikely that bedrock will be encountered during the construction phase; albeit this will need to be confirmed by intrusive ground investigation works. The remainder of the proposed pedestrian and cycle route is rated as having ‘Low’ to ‘Moderate’ vulnerability. This indicates

that groundwater is likely to be encountered at depths greater than 10m. Bedrock is not likely to be a constraint to the development of the proposed route. Therefore the main constraints identified along the proposed route are soils, namely areas of Made Ground expected along the existing road and beneath developed areas, and the potential for onsite leakages / spills during the proposed works. Made Ground can be very localised but will generally be encountered along the majority of the proposed route, in built-up areas. Due to its inherent inconsistency Made Ground may include hard material which is difficult to excavate (e.g. boulders, reinforced concrete) soft material and potentially contaminated material. In the context of this scheme till or alluvium would not typically present geotechnical or environmental constraints.

## 5.3. Impact Assessment

### 5.3.1. Construction phase

The entire route will be provided along the existing footpaths / verges or along the road network. Shallow excavations will be required as part of the proposed scheme; however minimal volumes of made ground (fill material) and subsoil will require removal during the construction phase. Waste management during the construction phase is detailed further within Section 6-Material Assets. No major structures are proposed during the construction of the proposed pedestrian and cycle route.

It is not feasible at this preliminary juncture to determine the location of the Contractor's compound; however this should be sited away from any sensitive receptors (such as water courses, hedgerows etc.). The compound will comprise site offices and temporary self-contained welfare facilities. No potential risks to soils or geology associated with the temporary compound are identified.

A number of potential risks to local soils and underlying bedrock during the construction phase have been considered as follows; accidental leaks or spillages of fuel, oil, paint or varnish; soils compaction, slope stability and contaminated land. However these potential risks will be mitigated by the implementation of site-specific control measures set out in a detailed CEMP, which should be prepared by the Contractor in advance of commencing the works. Therefore any potential temporary localised impacts can be adequately managed through the implementation of standard construction mitigation measures, as detailed below.

### 5.3.2. Operational phase

No potential risks to bedrock are likely to occur during the operational phase. A number of potential risks to local soils during the operational phase have been considered as follows; accidental leaks or spillages of fuel, oil, paint or varnish, during maintenance works. However, any maintenance works required are likely to be of short duration and temporary in nature. The proposed route will not have a significant adverse effect on the local soils and geology during the operational phase.

## 5.4. Recommendations

- Intrusive ground investigation works should be carried out as required in advance of the construction of the proposed pedestrian and cycle route in order to inform the final design.
- The employment of good construction management practices will serve to minimise the risk of pollution from construction activities at the proposed development in line with the Construction Industry Research and Information Association (CIRIA) publication entitled, 'Control of Water Pollution from Construction sites, Guidance for Consultants and Contractors, CIRIA - C532' (2001) which are also detailed in section 7 - Water. Specifically, with regard to soils and geology, the following will be adhered to:
    - Fuels, lubricants and hydraulic fluids for equipment used on the construction site, as well as any solvents, oils, and paints will be carefully handled to avoid spillage, properly secured against unauthorised access or vandalism, and provided with spill containment according to best codes of practice;
    - Waste oils and hydraulic fluids will be collected in leak-proof containers and removed from the proposed development for disposal or re-cycling;
    - Any spillage of fuels, lubricants or hydraulic oils will be immediately contained and the contaminated soil removed from the proposed development and properly disposed of;

- All site vehicles used will be refuelled in bunded and adequately sealed and covered areas in the construction compound area;
- Strict supervision of contractors will be adhered to in order to ensure that all plant and equipment utilised on-site is in good working condition. Any equipment not meeting the required standard will not be permitted for use within the site. This will minimise the risk of soils and bedrock becoming contaminated through site activity;
- Soils on the proposed development may become unnecessarily compacted by machinery during construction. In order to protect against unnecessary compaction of soil by machinery, construction limits, accesses, and haulage roads will be clearly defined;
- In the event that contaminated ground (i.e. soils, perched water or weathered bedrock) is encountered during the construction works the following specific environmental management procedures will be adhered to: -
    - The contaminated material will be fully characterised in terms of lateral and vertical extent, and a detailed assessment of the potential environmental and human health impacts will be undertaken in accordance with industry standard best practice.
    - Remediation works will be undertaken as required, to address any potential identified environmental or human health risks which may be associated with the contamination. Any waste generated during the works will be managed in accordance with relevant waste legislation. Any contaminated material requiring offsite disposal will be transported and disposed of to a suitably licenced waste facility.
    - Validation sampling will be undertaken as required to verify that the remediation works have been successfully completed and no residual environmental or human health risks associated with the site condition remain.

- The following general precautionary measures will also be implemented:
    - All excavated materials will be stored away from any excavations, in an appropriate manner at a safe and stable location. The maximum height of temporary stockpiles will be 3m; and,
    - A comprehensive monitoring and supervisory regime including monitoring of excavations and stability assessments as required will be put in place to ensure that the proposed construction works do not constitute a risk to the stability of the site.
- All of the above mitigation measures will form part of a site-specific Construction Environmental Management Plan (CEMP) to be prepared by the Contractor in advance of commencing the works.

# 6. Material Assets

Material assets are defined by the EPA (2017) as built services and infrastructure and any such assessment involves a review of the following: Built Services, Roads and Traffic, and Waste Management. Traffic is considered further within Section 9 of this report.

## 6.1. Built Services

The conduits, pipes and lines that carry water, electricity, telecommunications, gas and sewage etc. are referred to as built services. Utility impacts within urban streets associated with traditional road widening or traffic capacity improvement schemes are normally significant and costly. This is largely due to the fact that existing footpath areas are often reduced at the expense of providing additional road space. In general terms, the non-gravity dependent services e.g. power, telecoms, fibre optics and low pressure gas lines are located within the footpath at depths less than 1,200mm. This requires them to be diverted, often at great cost.

The implementation of cycle schemes on the other hand more often than not involves taking space from the road carriageway and giving it to the cyclist. Conversely, this can often afford additional corridors for the transmission of underground services as opposed to presenting the need to relocate them. In order to quantify and manage utility risks, at the project outset, all relevant utility companies were consulted regarding their plant / infrastructure within the commission corridor. Existing utilities were then examined based on the information provided by the utility companies as part of the route options process. The overarching design objective was to develop a scheme which achieved the design brief whilst minimising impacts on utilities.

## 6.2. Waste Management

The typical excavation depth will be approximately 0.5m along the majority of the proposed route. Deeper excavations may be required during the installation of underground utilities; however, such excavations will be localised. Waste soils and construction waste generation will be minimised during the proposed development, in accordance with Fingal Development Plan 2017-2023 (FCC, 2017) as follows: -

> *'Prevent and minimise the generation of waste in accordance with the Eastern Midlands Region Waste Management Plan 2015 -2021 (or any subsequent plans).'*
>
> *'Promote the increased re-use of waste in accordance with the Eastern Midlands Region Waste Management Plan 2015 -2021 (or any subsequent plan).'*

Excavated soils will generally comprise made ground (fill material) and native soils. Native soils will be reused onsite where possible. Any surplus soils (including unsuitable fill material) will be disposed of offsite in accordance with all requirements of the relevant waste management regulations (Waste Management Acts, 1996 to 2011) and all subsequent amendments. Any encountered made ground / waste soil requiring offsite disposal will also be transported and disposed of in accordance with all relevant waste management legislation. All waste soils / material removed from site will need to be classified in accordance with EPA guidelines (2015) 3; soils testing will be required; the results of which should inform the preparation of a waste classification tool (to determine the appropriate List of Waste (LoW) code), and then screened against relevant waste acceptance criteria (to determine the appropriate regulated disposal / recovery facility for each waste stream). All other construction waste will be segregated and removed from site for disposal or recycling, in accordance with all relevant Waste Management Legislation.

The potential risk to soils and underlying bedrock from accidental leaks or spillages of fuel, oil, paint or varnish during the construction works will be mitigated by the implementation of site-specific control measures set out in the CEMP.

A site specific Waste Management Plan (WMP) should be prepared by the Contractor in accordance with '*Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Waste*

[3] http://www.epa.ie/pubs/reports/waste/stats/wasteclassification/EPA_Waste_Classification_2015_Web.pdf

*Projects'* (2006)[4]. The Guidelines promote an integrated approach to the management of this waste stream, and are designed to promote sustainable development, environmental protection and the optimum use of resources. The Guidelines introduce the concept of integrated waste management planning for construction projects above certain thresholds. While excavations will be shallow with minimal waste soil / made ground material generated, given the nature and scale of the proposed pedestrian and cycle route, it is likely this project will exceed the following threshold and therefore the Contractor will be obliged to prepare a Project C&D Waste Management Plan;

> *'In particular, Project C&D Waste Management Plans should be prepared for projects in excess of any of the following thresholds…Civil Engineering projects producing in excess of 500m3 of waste, excluding waste materials used for development works on the site.'*

## 6.3. Impact Assessment

### 6.3.1. Construction Phase

The scheme is unlikely to develop without the need to relocate utility services. However, it is envisaged that this will largely be limited to lowering and protecting underground services in place or relocating existing overhead utility poles where they conflict with the provision of cycle facilities. Where the walking and cycling facilities are being provided within the existing road reservation, the plan space required for them will typically be taken from the general traffic lanes. This will involve raising the pavement levels, which does not have a significant impact on underground services.

In terms of normal civil engineering interventions, the provision of walking and cycling facilities does not involve making provisions for additional heavy traffic loading. In this regard the associated works do not require extensive excavation, heavy structures or deep pavement construction. Therefore, the resultant risks to services and utilities are minor and manageable. Noting the above, any residual risks associated with utility diversions will be further developed at the detailed design stage.

Taking account of the waste management controls which will apply to the construction phase of the proposed scheme, waste generated during the proposed works will not have a significant effect on the receiving environment.

## 6.4. Recommendations

- Site-specific control measures in the unlikely event of leaks or spillages of fuel, oil, paint or varnish during the construction phase should be set out in a detailed CEMP, to be prepared by the Contractor in advance of commencing the works. Control measures should be fully implemented as required during the construction phase.
- A Project C&D Waste Management Plan must be prepared by the Contractor in accordance with 'Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Waste Projects' in advance of commencing the works, as the proposed scheme likely exceeds the relevant thresholds for the preparation of such plans.
- All waste soils / material removed from site will need to be classified in accordance with EPA guidelines (2015); soils testing will be required; the results of which should inform the preparation of a waste classification tool (to determine the appropriate List of Waste (LoW) code), and then screened against relevant waste acceptance criteria (to determine the appropriate regulated disposal / recovery facility for each waste stream). All other construction waste should be segregated and removed from site for disposal or recycling, in accordance with all relevant Waste Management Legislation.

[4] https://www.dccae.gov.ie/documents/Final%20C%20and%20D%20Guidelines%20-%2022%20June%20%202006.pdf

# 7. Water

This section presents a preliminary overview of the receiving environment with regards to flood risk screening, hydrology and hydrogeology, the identification of any potential constraints associated with the proposed pedestrian and cycle route and proposed mitigation measures / recommendations. This desk-based assessment has been completed in accordance with relevant best practice guidance from the Institute of Geologists of Ireland (IGI, 2013).

The desk-based study involved reviewing information from the following sources: -

- Geological Survey of Ireland (GSI) Datasets Public Viewer and Groundwater web mapping (www.gsi.ie) (GSI, 2019);
- Environmental Protection Agency (EPA) web mapping (www.epa.ie) (EPA, 2019);
- Office of Public Works (OPW) National Flood Hazard mapping web site (OPW, 2019);
- National Parks and Wildlife Service (NPWS) Map Viewer (NPWS, 2019);
- Water Framework Directive Ireland web mapping (http://www.wfdireland.ie/ (WFDI, 2019); and,
- Fingal County Council (FCC) Development Plan 2017-2023.

## 7.1. Receiving Environment

### 7.1.1. Flood Risk Screening

A Flood Risk Assessment (FRA) was prepared by Atkins (Document ref: 5165984DG0079) in support of this planning application, in accordance with relevant best practice *guidance "The Planning System and Flood Risk Management – Guidelines for Planning Authorities"* (DEHLG, 2009), which sets out a risk-based sequential approach to flood risk assessment. This Flood Risk Assessment is presented in full as part of the Planning Submission. It is not envisaged that the proposed pedestrian and cycle route would have any adverse impact with respect to flooding to or from the proposed scheme.

### 7.1.2. Hydrology

The key surface water features in the vicinity of the pedestrian and cycle route comprise the Bremore River and Bracken River. The Bracken River flows in a general eastern direction through the northern section of the proposed scheme and the Bremore River flows in a general northern direction through the centre of the pedestrian and cycle route, both of which discharge to the Irish Sea. The river waterbody status for both rivers in accordance with the EU Water Framework Directive (WFD) is currently unassigned. The coastal waterbody status in the vicinity of Balbriggan (Northwestern Irish Sea) is 'Good' for the 2010-2015 period (EPA, 2019).

### 7.1.3. Hydrogeology

The GSI (2019) classifies the bedrock beneath the majority of the proposed route as a 'Locally Important aquifer – bedrock which is generally moderately productive'. A small portion to the south east of the scheme is underlain by a 'Poor Aquifer - Bedrock which is generally unproductive except for local zones' (GSI, 2019). There are no reported gravel aquifers beneath the general vicinity of the pedestrian and cycle route (GSI, 2019). Groundwater vulnerability beneath the general vicinity of the pedestrian and cycle route ranges from 'Low' to 'High' (GSI, 2019). There are 3no. wells in the vicinity of the pedestrian and cycle route, only one of which potentially lies along the proposed route. All 3no. wells are reportedly used for industrial purposes with excellent yields reported (GSI, 2019). There are no drinking water protection (Public Supply Source Protection) areas within a 2km radius of the proposed route. The Bog of the Ring PWS Outer Source Protection Area is located ca. 2.5km west / south west of the pedestrian and cycle route (GSI, 2019).

The groundwater status in the vicinity of Balbriggan is 'Good' for the 2010-2015 period (EPA, 2019). The risk of the groundwater body not achieving 'Good' status in accordance with the EU Water Framework Directive (WFD) north of the site is currently under review. To the south the groundwater is determined as being 'probably at risk' of not achieving the objective under the directive to protect it (WFDI, 2019).

## 7.2. Impact Assessment

### 7.2.1. Construction Phase

No in-river works will be carried out during the construction phase. Furthermore, there will be no change to the current flow rates of the Bracken and Bremore Rivers in the vicinity of the pedestrian and cycle route, as a result of the proposed construction works. Taking account of the baseline soil and bedrock aquifer characteristics in the general area, shallow excavation works are unlikely to impact groundwater quality beneath the pedestrian and cycle route. Similarly there will be no impact to local groundwater resources including the 3no. identified groundwater abstraction wells (industrial use) in the vicinity. The contractor's compound will include self-contained welfare facilities and no potential risk to groundwater quality associated with the temporary compound are identified. Accordingly, the proposed development will not result in a significant adverse effect on surface water quality, river flow rates or local groundwater resources in the receiving environment.

Any minor potential risks to surface water / groundwater quality arising from the proposed scheme during the construction works will be mitigated by the implementation of site-specific control measures set out in a detailed CEMP, which should be prepared by the Contractor in advance of commencing the works. Therefore any potential temporary localised impacts can be adequately managed through the implementation of standard construction mitigation measures, as detailed below.

### 7.2.2. Operational Phase

The only identified potential risk to surface water or groundwater during the operational phase is through accidental leaks or spillages of fuel, oil, paint or varnish, during routine maintenance works. However, any maintenance works required are likely to be of short duration and temporary in nature. The proposed route will not have a significant adverse effect on the local hydrology or hydrogeology during the operational phase.

## 7.3. Recommendations

- The construction management of the site will take account of the recommendations of the *'Construction Industry Research and Information Association (CIRIA) guides Control of Water Pollution from Construction sites'* (2001) to minimise as far as possible the risk of pollution. With regard to water impacts the following mitigation measures are proposed;
    - In the unlikely event that contaminated shallow perched water / groundwater is encountered during the construction phase, works will immediately cease. Advice will be sought from a qualified environmental consultant regarding the appropriate management of contaminated water, and any emergency containment measures required. Appropriate measures as set out under section 5.4 will be implemented.
    - The following specific mitigation measures regarding temporary oil / chemical storage and refuelling should be adhered to: -
        - All oils, paints and varnishes stored on site will be kept in a locked and bunded area.
        - Generators, pumps and similar plant will be placed on drip-trays to prevent contamination by oil.
        - All site vehicles used will be refuelled in bunded areas.
        - All temporary construction fuel tanks will also be located in a suitably bunded area and all tanks will be double skinned. In addition, oil absorbent materials will be kept onsite in close proximity to any fuel storage tanks or bowsers during proposed site development works.
        - All deliveries to on-site oil storage tanks will be supervised.
        - Records will be kept of delivery dates and volumes.
        - Every piece of equipment associated with the storage of fuel on site will be designed and installed to recognised BS codes.
        - All valves should be of steel construction and the open and close positions should be clearly marked.

  - The production, transport and placement of all cementitious materials should be strictly planned and supervised. Site batching/production of concrete should not be carried out on-site and therefore these aspects will not pose a risk to local waterbodies present, namely the Bracken and Bremore Rivers and local groundwater.

- As noted above these mitigation measures will form part of the site-specific Construction Environmental Management Plan (CEMP) which will be in operation during the construction phase.
- All mitigation measures set out in section 5.4 (for the protection of soils and geology) also apply.

# 8. Cultural Heritage

This section provides a description of the receiving environment with respect to Archaeological and Architectural Heritage, identification of any potential constraints associated with the proposed pedestrian and cycle route and proposed mitigation measures / recommendations. This assessment is based on the findings of a desk-based review of available information from the following sources: -

- National Inventory of Architectural Heritage (NIAH) Historic Environment Public Viewer;
- National Monuments Service - Archaeological Survey of Ireland Public Viewer; and,
- '*Proposed Cycleway, Balbriggan, Co. Dublin Architectural Heritage Constraints Study'* prepared by John Cronin & Associates (JCA, 2019).

## 8.1. Receiving Environment

Based on available information there are currently no identified Sites and Monuments Records (SMR) features within the vicinity of the pedestrian and cycle route with 1no. National Inventory of Architectural Heritage (NIAH) site located in the southern portion. This feature (Parochial House) has been assessed in detail within an Architectural Constraints Assessment entitled *'Proposed Cycleway, Balbriggan, Co. Dublin Architectural Heritage Constraints Study'* prepared by John Cronin & Associates in January 2019. A copy of this report is presented in Appendix A. A stainless-steel sculpture created by Mark Ryan and titled 'Open Volumes' is located on the roundabout in the central southern portion of the vicinity of the pedestrian and cycle route. Although this sculpture is not of architectural heritage interest, it is deemed to be of cultural heritage significance. Refer to Appendix B for further details.

## 8.2. Impact Assessment

### 8.2.1. Construction Phase

Due to the scope and nature of the proposed works, it is not anticipated that there will be any adverse impacts to cultural heritage sites (i.e. Parochial House and modern metal sculpture), within the immediate vicinity of the pedestrian and cycle route during the Construction phase.

### 8.2.2. Operational Phase

Due to the scope and nature of the proposed works, it is not anticipated that there will be any adverse impacts to cultural heritage sites (i.e. Parochial House modern metal sculpture) within the immediate vicinity of the pedestrian and cycle route during the Operational phase.

## 8.3. Recommendations

According to John Cronin & Associates (2019) 'the proposed scheme will have no predicted impacts on any architectural heritage buildings or structures and, therefore, no mitigation measures are recommended.' Refer to Appendix A for a full copy of the Architectural Constraints Assessment.

# 9. Ecology

The following section contains the results of a desk-based study which identifies the potential ecological constraints associated with the pedestrian and cycle route and proposed mitigation measures / recommendations. This has been prepared in line with the guidance set out in *"Guidelines for Assessment of Ecological Impacts of National Road Schemes"* (NRA, 2009). The sources of data used to compile this section include the following: -

- National Parks and Wildlife Service (NPWS);
  - Information on sites designated for nature conservation, including spatial data.
  - Habitats and species data
- National Biodiversity Data Centre (NBDC);
  - Species records
- Environmental Protection Agency;
  - Water quality data
- Geological Survey of Ireland;
  - Underlying geology, soils and hydrogeology
- Ordnance Survey Ireland; and
  - Historic mapping
- Wetland Surveys Ireland
  - Wetland Habitat Records.

## 9.1. Ecological Site Setting

The pedestrian and cycle route primarily runs along Harry Reynolds Road, Balbriggan and is intercepted by 2no. watercourses. The Bracken River flows in a northerly direction through the central portion, within the Public Park area, while the Bremore River flows in a general easterly direction along Moylaragh Road in the northern portion, both of which discharge to the Irish Sea. The Water Framework Directive (WFD) has not assigned a water quality status to these watercourses but does identify them as being 'at risk' of not meeting relevant WFD objectives. The surface water drainage system of the road network, and hence the proposed project, discharge to the Bremore and Bracken Rivers.

## 9.2. Sites Designated for Nature Conservation

Sites designated for nature conservation surrounding the pedestrian and cycle route were examined during the preparation of this assessment. Sites considered to be potentially within the projects "Zone of Influence" were examined. The zone of influence is the area over which ecological features may be subject to significant effects as a result of the proposed project and associated activities. This is likely to extend beyond the projects site, for example where there are ecological or hydrological links beyond the sites boundaries. The zone of influence will vary for different ecological features depending on their sensitivity to environmental change (CIEEM, 2016).

A distance of 15km is currently recommended in the case of plans, as a potential zone of influence, and this distance is derived from UK guidance (Scott Wilson et al, 2006). For projects, the distance could be much less than 15km, and in some cases less than 100m, but National Parks and Wildlife Service guidance advises that this must be evaluated on a case-by-case basis with reference to the nature, size and location of the project, the sensitivities of the ecological receptors, and the potential for in-combination effects.

### 9.2.1. Natura 2000 Sites

The Natura 2000 network comprises both Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) for birds; these sites are designated for the protection of biodiversity across the European Union. SACs are designated under the EU Habitats Directive (92/43/EEC), as transcribed into Irish law by the European Communities (Birds and Natural Habitats) Regulations, 2011, while SPAs are designated under the EU Birds Directive (79/4089/EEC; and as amended 2009/147/EC). SACs are sites of international importance due to the presence of Annex I habitats and/or Annex II species listed under the EU Habitats Directive (92/43/EEC). SPAs

are designated for the protection of bird species listed on Annex I of the Birds Directive (2009/147/EC), regularly occurring populations of migratory species and areas of international importance for migratory birds.

There are a total of 11no. Natura 2000 Sites identified to be within 15km of the pedestrian and cycle route; 5no. SACs and 6no. SPAs, as presented in Table 10-1. Direct connectivity refers to Natura 2000 sites within or partly within the study area. These sites may be directly impacted by the proposed project, e.g. through habitat loss. Indirect connectivity refers to sites outside of the study area but connected through features such as linear habitats (i.e. wildlife corridors) or surface water pathways. Indirect impacts may include deterioration of water quality and severing linear corridors used by wildlife to move between sites. Further details on the connectivity of these sites to the pedestrian and cycle route are included in the Screening for Appropriate Assessment (Document Ref: 5165984DG0076) prepared in support of this planning application (Atkins, 2019).

**Table 9-1 - Natura 2000 Sites within 15km of the of the pedestrian and cycle route**

| Natura 2000 Site | Distance from proposed scheme | Site Code | Qualifying Interests |
|---|---|---|---|
| Rockabill to Dalkey Island SAC | 7.65km East | 003000 | • *Phocoena* (Harbour Porpoise) [1351]<br>• Reefs [1170] |
| Boyne Coast and Estuary SAC | 10km North | 001957 | • Estuaries [1130]<br>• Mudflats and sandflats not covered by seawater at low tide [1140]<br>• Annual vegetation of drift lines [1210]<br>• *Salicornia* and other annuals colonising mud and sand [1310]<br>• Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330]<br>• Embryonic shifting dunes [2110]<br>• Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120]<br>• Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] |
| Rogerstown Estuary SAC | 10.95km South | 000208 | • Estuaries [1130]<br>• Mudflats and sandflats not covered by seawater at low tide [1140]<br>• *Salicornia* and other annuals colonizing mud and sand [1310]<br>• Spartina swards (*Spartinion maritimae*) [1320]<br>• Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330]<br>• Mediterranean salt meadows (*Juncetalia maritimi*) [1410]<br>• Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120]<br>• Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] |

| Natura 2000 Site | Distance from proposed scheme | Site Code | Qualifying Interests |
|---|---|---|---|
| River Boyne and River Blackwater SAC | 14km North – North/West | 002299 | • Alkaline fens [7230]<br>• Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae) [91E0]<br>• *Lampetra fluviatilis* (River Lamprey) [1099]<br>• *Salmo salar* (Salmon) [1106]<br>• *Lutra Lutra* (Otter) [1355] |
| Malahide Estuary SAC | 14km South | 000205 | • Mudflats and sandflats not covered by seawater at low tide [1140]<br>• *Salicornia* and other annuals colonising mud and sand [1310]<br>• Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330]<br>• Mediterranean salt meadows (*Juncetalia maritimi*) [1410]<br>• Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120]<br>• Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] |
| River Nanny Estuary and Shore SPA | 4.35km North | 004158 | • Oystercatcher (*Haematopus ostralegus*) [A130]<br>• Ringed Plover (*Charadrius hiaticula*) [A137]<br>• Golden Plover (*Pluvialis apricaria*) [A140]<br>• Knot (*Calidris canutus*) [A143]<br>• Sanderling (*Calidris alba*) [A144]<br>• Herring Gull (*Larus argentatus*) [A184]<br>• Wetland and Waterbirds [A999] |
| Skerries Island SPA | 6.2km South East | 004122 | • Cormorant (*Phalacrocorax carbo*) [A017]<br>• Shag (*Phalacrocorax aristotelis*) [A018]<br>• Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]<br>• Purple Sandpiper (*Calidris maritima*) [A148]<br>• Turnstone (*Arenaria interpres*) [A169]<br>• Herring Gull (*Larus argentatus*) [A184] |
| Rockabill SPA (7.8km E) | 8km East | 004014 | • Purple Sandpiper (*Calidris maritima*) [A148]<br>• Roseate Tern (*Sterna dougallii*) [A192]<br>• Common Tern (*Sterna hirundo*) [A193]<br>• Arctic Tern (*Sterna paradisaea*) [A194] |

| Natura 2000 Site | Distance from proposed scheme | Site Code | Qualifying Interests |
|---|---|---|---|
| Rogerstown Estuary SPA | 10.5km South | 004015 | • Greylag Goose (*Anser anser*) [A043]<br>• Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]<br>• Shelduck (*Tadorna tadorna*) [A048]<br>• Shoveler (*Anas clypeata*) [A056]<br>• Oystercatcher (*Haematopus ostralegus*) [A130]<br>• Ringed Plover (*Charadrius hiaticula*) [A137]<br>• Grey Plover (*Pluvialis squatarola*) [A141]<br>• Knot (*Calidris canutus*) [A143]<br>• Dunlin (*Calidris alpina*) [A149]<br>• Black-tailed Godwit (*Limosa limosa*) [A156]<br>• Redshank (*Tringa totanus*) [A162]<br>• Wetland and Waterbirds [A999] |
| Boyne Estuary SPA | 12.2km North | 004080 | • Shelduck (*Tadorna tadorna*) [A048]<br>• Oystercatcher (*Haematopus ostralegus*) [A130]<br>• Golden Plover (*Pluvialis apricaria*) [A140]<br>• Grey Plover (*Pluvialis squatarola*) [A141]<br>• Lapwing (*Vanellus vanellus*) [A142]<br>• Knot (*Calidris canutus*) [A143]<br>• Sanderling (*Calidris alba*) [A144]<br>• Black-tailed Godwit (*Limosa limosa*) [A156]<br>• Redshank (*Tringa totanus*) [A162]<br>• Turnstone (*Arenaria interpres*) [A169]<br>• Little Tern (*Sterna albifrons*) [A195]<br>• Wetland and Waterbirds [A999] |
| Broadmeadow/Swords Estuary SPA | 14km South | 004025 | • Great Crested Grebe (*Podiceps cristatus*) [A005]<br>• Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]<br>• Shelduck (*Tadorna tadorna*) [A048]<br>• Pintail (*Anas acuta*) [A054]<br>• Goldeneye (*Bucephala clangula*) [A067]<br>• Red-breasted Merganser (*Mergus serrator*) [A069]<br>• Oystercatcher (*Haematopus ostralegus*) [A130]<br>• Golden Plover (*Pluvialis apricaria*) [A140]<br>• Grey Plover (*Pluvialis squatarola*) [A141]<br>• Knot (*Calidris canutus*) [A143]<br>• Dunlin (*Calidris alpina*) [A149]<br>• Black-tailed Godwit (*Limosa limosa*) [A156]<br>• Bar-tailed Godwit (*Limosa lapponica*) [A157]<br>• Redshank (*Tringa totanus*) [A162]<br>• Wetland and Waterbirds [A999] |

### 9.2.2. Natural Heritage Areas

There are no Natural Heritage Areas (NHAs) located within 15km of the pedestrian and cycle route. There are however 12no. proposed Natural Heritage Areas (pNHAs) within 15km; the closest of which is the Knock Lake pNHA (Site Code 001203), located ca. 2km south west. None of the pNHAs within the 15km buffer were determined to share connectivity to the pedestrian and cycle route as they are either located upstream or they were located along the coast or within the Irish Sea. In the latter two scenarios the distance from the proposed works and the dilution factor of the Irish Sea eliminates any potential connectivity to the proposed works. For further details refer to the EIA Screening Assessment (Document Ref: 5165984DG0083) prepared in support of this planning application (Atkins, 2019)

### 9.2.3. Other Known Sites of Ecological Value

There are no other sites of ecological value within the vicinity of the pedestrian and cycle route. There are however 2no. wetland habitats located within 2km; Isaacs Bower (Hampton Cove) Spring (ca.1km east), and Hampton Spring (ca.1.5km south east), both of which are classified by Wetlands Surveys Ireland (2019) as calcareous springs. These wetland habitats are vulnerable to changes in hydrology, hydrogeology and water quality. There are no identified connections from the pedestrian and cycle route to either of these sites (as they are not located within the immediate vicinity of the proposed works and they are not hydrologically linked via. surface watercourses). Therefore, there are no negative impacts to these wetland sites anticipated as a result of the proposed pedestrian and cycle route.

### 9.2.4. Tree Survey

A Tree Survey was undertaken by Cunnane Stratton Reynolds in February 2019, updated in February 2020 which identified that ‘a number of trees of some maturity and size are present within the areas of green open space adjoining the route which currently have a higher value in terms of both visual amenity and ecological benefit.’

This survey has also identified a number of tree groups / individual trees along the scheme as ‘Class B individual Tree (Moderate Quality)’ and have stated that the retention of these tree groups is desirable. A ‘Class A Individual Tree (High Quality)’ was identified within the open space area in the central portion of the scheme and the retention of this individual tree is highly desirable. The tree survey and associated drawings are included in the planning documentation.

### 9.2.5. Documented Rare and Protected Species (Species Records)

A number of Bird Species which have been designated for Protection under the Wildlife Acts and European Birds Directive have been identified within the vicinity of the proposed route, including Herring Gull (Larus argentatus), House Sparrow (Passer domesticus) and Yellowhammer (Emberiza citrinella) amongst others.

A number of protected mammal species including the Eurasian Badger (Meles meles) and West European Hedgehog (Erinaceus europaeus) were also recorded by the NBDC within close vicinity of the pedestrian and cycle route.Records of non-native species

Regulations 49 and 50 of Part 6 of the European Communities (Birds and Natural Habitats) Regulations, 2011 (S.I. No. 477 of 2011) outlines the legal context for the prohibition of the introduction and dispersal of certain plant and animal species. Specifically Section 49, paragraph 2 states that any person without the required licence “who plants, disperses, allows or causes to disperse, spreads or otherwise causes to grow” any plant species listed in Part 1 of the Third Schedule within the State shall be guilty of an offence.

Under Section 50 paragraph 1, a person without the required licence “shall be guilty of an offence if he or she has in his or her possession for sale, or for the purposes of breeding, reproduction or propagation, or offers or exposes for sale, transportation, distribution, introduction or release” of any plant species listed in Part 1 of the Third Schedule or anything from which "a plant referred to in Part 1 of the Third Schedule can be reproduced or propagated or “a vector material listed in Part 3 of the Third Schedule”. According to NBDC 2018, floral invasive species Japanese Knotweed (Fallopia japonica) has been recorded within the town of Balbriggan, notably at No.45 Dublin Street. This known location is not however in the vicinity of the pedestrian and cycle route. Historically (1987-1999) Japanese Knotweed has been recorded within the town of Balbriggan however this historical information is limited as to the exact location in the town as the historical data only records Japanese Knotweed to 2km precision. There are no other invasive species recorded since 1999 within the vicinity of the proposed pedestrian and cycle route.

A site walkover survey of the general study area undertaken by an experienced Atkins environmental consultant on 18th May 2018, found no evidence of invasive species within the immediate vicinity of the pedestrian and cycle route.

## 9.3. Impact Assessment

### 9.3.1. Construction phase

The proposed works will not consist of any in-stream works. As previously noted, there have been a number of non-native invasive species and species protected under the Birds Directive and Habitats Directive recorded within the vicinity of the proposed pedestrian and cycle route. However, there is little potential for these species to be impacted negatively as the majority of the route will lie along the existing cycle tracks and road network. During the site walkover survey undertaken on 18th May 2018, no evidence of protected species was identified within the immediate vicinity of the pedestrian and cycle route.

As noted previously there are 11no. Natura 2000 Sites within 15km of the pedestrian and cycle route; however, it has been determined that there are no anticipated negative impacts to any of these sites based on the lack of connectivity between these sites and the pedestrian and cycle route.

As previously noted, there are a number of tree groups along the scheme which have been identified as 'Class B – Moderate Quality' with the retention of these tree groups being desirable where possible with 1no. tree identified in the open space area in the central portion of the scheme as 'Class A – high quality' with the retention of this tree being highly desirable. Once the recommendations within the tree survey are adhered to (including protective fencing and boundary treatments), it is anticipated that there will be no significant adverse impacts on the trees along the pedestrian and cycle route.

### 9.3.2. Operational phase

The only identified potential risk to surface water or groundwater during the operational phase are accidental leaks or spillages of fuel, oil, paint or varnish, during routine maintenance works. However, any maintenance works required are likely to be of short duration and temporary in nature. There are no impacts anticipated to any flora or fauna species, as the majority of the route will lie along the existing road network or cycle tracks / footpaths and these do no provide habitats that will support flora or fauna species. The proposed route will therefore not have a significant adverse effect on local biodiversity during the operational phase.

## 9.4. Recommendations

A screening for Appropriate Assessment has been prepared by Atkins (2020) (Document Ref. 5165984DG00076) and concludes that *"Due to the scope and nature of the proposed pedestrian and cycle route project and given the nature of connectivity from the route area to any Natura 2000 site, it is considered that there will be no likely impact on the integrity of any Natura 2000 site from either the construction or operation of the Harry Reynolds Road Pedestrian and Cycle Route" and therefore stage 1 Appropriate Assessment is not required.'*

Nonetheless the following industry standard measures should apply during the construction phase;

- Site-specific control measures in the unlikely event of leaks or spillages of fuel, oil, paint or varnish during the construction phase should be set out in a detailed CEMP, to be prepared by the Contractor in advance of commencing the works. Control measures should be fully implemented as required during the construction. The detailed CEMP should also clearly set out all environmental controls which the Contractor will implement for the duration of the works to protect the Bracken and Bremore Rivers. Such measures would include a daily plant and machinery check, strict re-fuelling procedures and secure bunded storage of any fuels, oils or chemicals.
- All mitigation measures set out in section 5.3.3 (for the protection of soils and geology) and section 7.3 also apply.

# 10. Conclusions & Recommendations

Fingal County Council (FCC) propose to deliver a high-quality cycle route along the Harry Reynolds Road, Balbriggan, Co. Dublin. The proposed scheme will aim to deliver a minimum Level of Service A in accordance with the National Cycle Manual and will allow for future possible links to a coastal greenway and other cycling routes in Balbriggan. The existing provision for pedestrians and cyclists along Harry Reynolds Road is limited and of poor quality. The proposed scheme will provide a comfortable, attractive and safe route for both pedestrians and cyclists. This will encourage more people to use sustainable modes of transport for both local trips and for commuting.

FCC have appointed Atkins to prepare an Environmental Report to support a Part 8 planning application for the proposed scheme. The Environmental Report which describes the existing situation, the proposed scheme and its potential impact on the surrounding environment (for selected topics) along with any mitigation measures required, has been prepared in accordance with relevant best practice environmental assessment guidance (EPA, 2017, EPA, 2015) and also discipline specific guidance where relevant.

The key findings of this technical assessment are as follows:

- Whilst the need for the preparation of an EIAR for the proposed scheme has been screened out (as detailed separately within the EIA Screening Assessment prepared to accompany this Part 8 Planning Application (Atkins, 2019)), all pertinent environmental topics have been considered in this non-statutory Environmental Report, with the exception of the following topics which have been screened out; Landscape and Visual Amenity; and, Population and Human Health. The proposed pedestrian and cycle route will pass through built up residential and business areas, and will not have a significant adverse impact on landscape. The proposed scheme will not have a significant adverse impact on population and human health; rather, the proposed scheme will have a slight positive long-term effect on the overall health of residents and visitors in the Balbriggan area, as it will provide a safe walking and cycling route in the town.
- The following environmental topics have therefore been further evaluated, with regards to potential impacts which could arise as a result of the construction or operational phases of the proposed pedestrian and cycle route: Air Quality & Climate; Noise & Vibration; Land, Soils & Geology; Material Assets; Water (i.e. Hydrology and Hydrogeology); Cultural Heritage (i.e. Archaeology, Architectural and Cultural Heritage); Traffic; and Biodiversity / Ecology.
- However, any identified potential impacts will be both temporary and minor, and will be managed through the implementation of mitigation measures as outlined in this report.
- Accordingly, no residual adverse environmental impacts associated with the proposed scheme are anticipated, during either the construction or operational phases (subject to implementation of all recommended mitigation measures).

The following recommendations / mitigation measures should be implemented during the construction phase;

- All of the mitigation measures detailed below should form part of a site-specific Construction Environmental Management Plan (CEMP) to be prepared by the Contractor in advance of commencing the works.
- Standard measures should be taken which will minimise dust from construction activities, at a minimum adhering to standard good practice which includes the Building Research Establishment (BRE) document entitled ‘Control of Dust from Construction and Demolition Activities’. Dust minimisation measures which should be detailed further within the CEMP should include all mitigation measures set out in section 3.3 of this report.
- All construction works should be undertaken in accordance with standard industry best practice methods. In accordance with the FCC (2018) Noise Action Plan 2019 – 2023, mitigation measures must be taken to minimise noise and/or vibration impacts during construction activities. Noise / vibration minimisation measures should include, but are not limited to all mitigation measures set out in section 4.3 of this report.
- Intrusive ground investigation works should be carried out as required in advance of the construction of the proposed pedestrian and cycle route in order to inform the final design.
- The employment of good construction management practices will serve to minimise the risk of pollution from construction activities at the proposed development in line with the Construction Industry Research and

Information Association (CIRIA) publication entitled, '*Control of Water Pollution from Construction sites, Guidance for Consultants and Contractors, CIRIA - C532'* (2001). Specifically, with regard to soils and geology, all mitigation measures set out in section 5.4 of this report should be fully implemented. With regard to water impacts all mitigation measures set out in section 7.3 of this report should be fully implemented.

- A Project C&D Waste Management Plan must be prepared by the Contractor in accordance with *'Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Waste Projects*' in advance of commencing the works, as the proposed scheme likely exceeds the relevant thresholds for the preparation of such plans.
- All waste soils / material removed from site will need to be classified in accordance with EPA guidelines (2015); soils testing will be required; the results of which should inform the preparation of a waste classification tool (to determine the appropriate List of Waste (LoW) code), and then screened against relevant waste acceptance criteria (to determine the appropriate regulated disposal / recovery facility for each waste stream). All other construction waste should be segregated and removed from site for disposal or recycling, in accordance with all relevant Waste Management Legislation.

# 11. References

Atkins, 2020 – 'Flood Risk Assessment' (Document Reference: 5165984DG0079),

Atkins, 2020 – 'Environmental Impact Assessment Screening Assessment' (Document Reference: 5165984DG0083),

Atkins, 2020 - 'Appropriate Assessment Screening Report (Document Reference: 5165984DG0076),

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# Appendices

# Appendix A. Heritage Constraints Study

JOHN CRONIN & ASSOCIATES
ARCHAEOLOGY | CONSERVATION | HERITAGE | PLANNING

# Proposed Cycleway, Balbriggan, Co. Dublin

# Architectural Heritage Constraints Study

*Prepared by:*
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**January 2019**

# Contents

# 1. Introduction

This report presents an architectural heritage constraints study of the proposed route of a cycleway scheme within the western suburbs of Balbriggan town, Co. Dublin (Figure 1). The proposed scheme will entail the creation of cycle paths along existing sections of the public road network within an area of the town's western suburbs that primarily dates from the late 20th century onwards. The majority of the scheme extends along Harry Reynold's Road the majority of which was constructed in the period between 1995 and 2005.

The report presents the results of a desktop study of the proposed route which was then followed by a site inspection undertaken in December 2018. The principal sources reviewed for the designated architectural heritage resource were the Record of Protected Structures (RPS), as published in the *Fingal Development Plan 2017-2023* and the National Inventory of Architectural Heritage (NIAH).

The desktop study comprised a review of historical map sources in order to assess the development of settlement patterns within the environs of the scheme in recent centuries which comprised the 6-inch OS map (1830-40s), the 25-inch OS map (1888-1913) and the Cassini edition (1930-40s). Various online aerial images of the proposed route of the scheme, dating from the 1990s onwards, were also reviewed to ascertain the nature and layout of modern developments in the environs of the proposed scheme dating to recent decades.

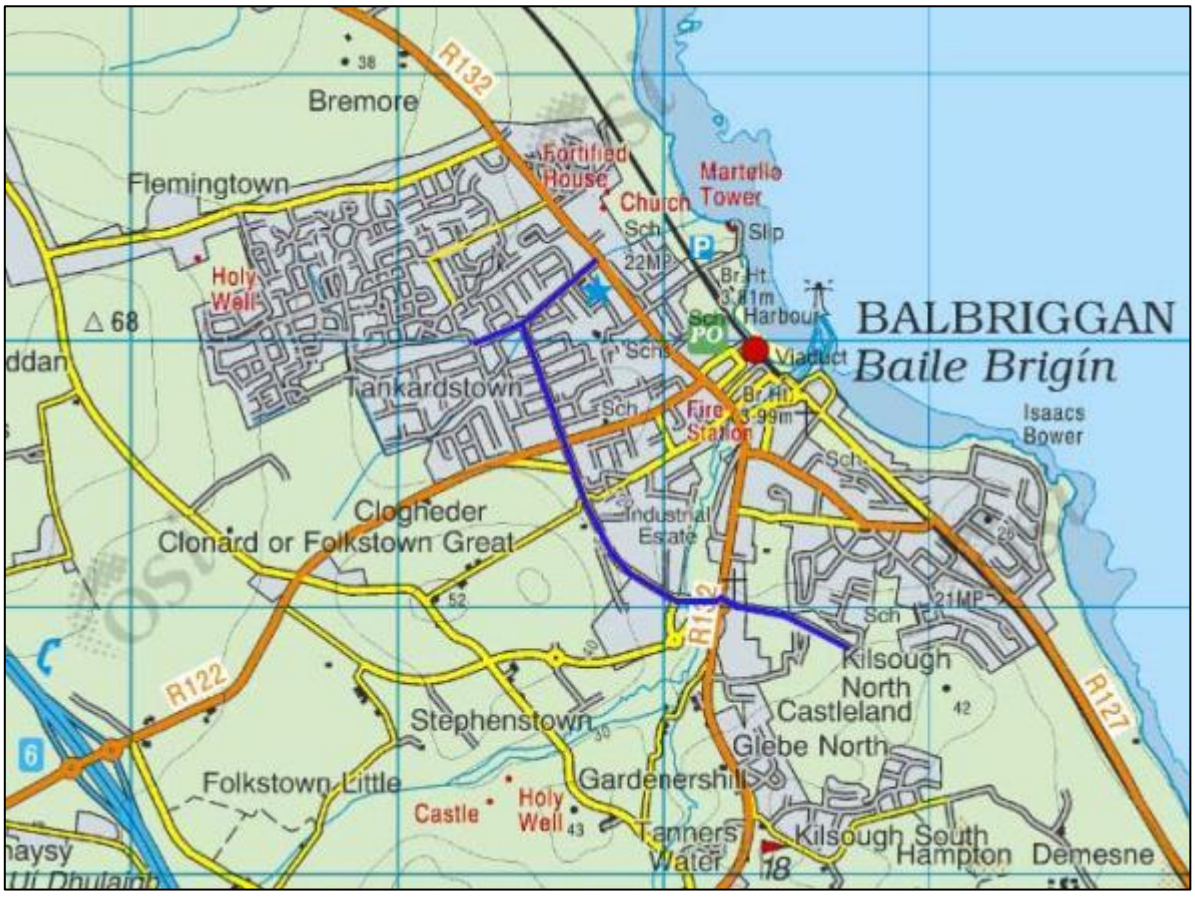


***Figure 1:*** *Discovery Map showing location of proposed scheme (blue line)*

# 2. Context

*Summary of Legal and Planning Context*

The management and protection of the Irish architectural heritage resource is achieved through a framework of international conventions and national laws and planning policies. This framework was established in accordance with the provisions of the 'European Convention on the Protection of Architectural Heritage' (Grenada Convention). Protection of the architectural/built heritage resource is provided through a range of national legal and policy instruments. The Heritage Act (1995) protects all heritage buildings owned by a local authority from damage and destruction. The Planning and Development Act (2000) requires all Planning Authorities to keep a 'Record of Protected Structures' (RPS) of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest. The Architectural Heritage Act, 1999, saw the establishment of the National Inventory of Architectural Heritage (NIAH) in order to record significant architectural heritage structures within the State and to advise local authorities in relation to structures of interest.

The relevant development plan for the area is the *Fingal Development Plan 2017–2023.* The proposed scheme is not located within a designated Architectural Conservation Area and none of the Protected Structures (RPS) listed in the development plan are located within the direct footprint of the proposed scheme although two examples are located within its environs. These are the 19th century St. Peter & Paul's Roman Catholic Church (RPS no. 62) and its early 20th century Parochial House (RPS no. 63). The Parochial House property is located adjacent to a section of the proposed scheme as it extends around a roundabout at a junction with the R132 road. The Parochial House is also included in the NIAH (ref. 11305036) which has published the following description of the building:

> *'Detached four-bay two-storey parochial house, c.1905, with central canted bay windows flanked by gabled breakfronts. Three-bay two-storey house to rear, linked to main house by flat-roofed single-storey structure. ROOF: Double pitched roof with gabled breakfront ends; with subsidiary hipped roofs covering bays of slate with clay ridge tiles with rendered chimney stacks & plain terracotta pots; hipped natural slate roof with subsidiary double pitched slate roof covers house joined to rear elevation of main house; moulded cast-iron gutters & square profile downpipes with ornate ties. WALLS: Raised rockfaced limestone plinth course with walls nap rendered entirely lined & ruled with rockfaced limestone quoining, with recessed rendered roundel plaques bearing quatrefoils with crosses with pointed arched hood moulding over each rounded to flanking breakfront gables. OPENINGS: Pointed arched window openings, rendered soffits reveals & limestone cills surrounding 1/1 timber sash windows upper sash pointed to fit opening two pointed arched door openings with ashlar limestone hood moulding & block & start surround & voussoir.'*

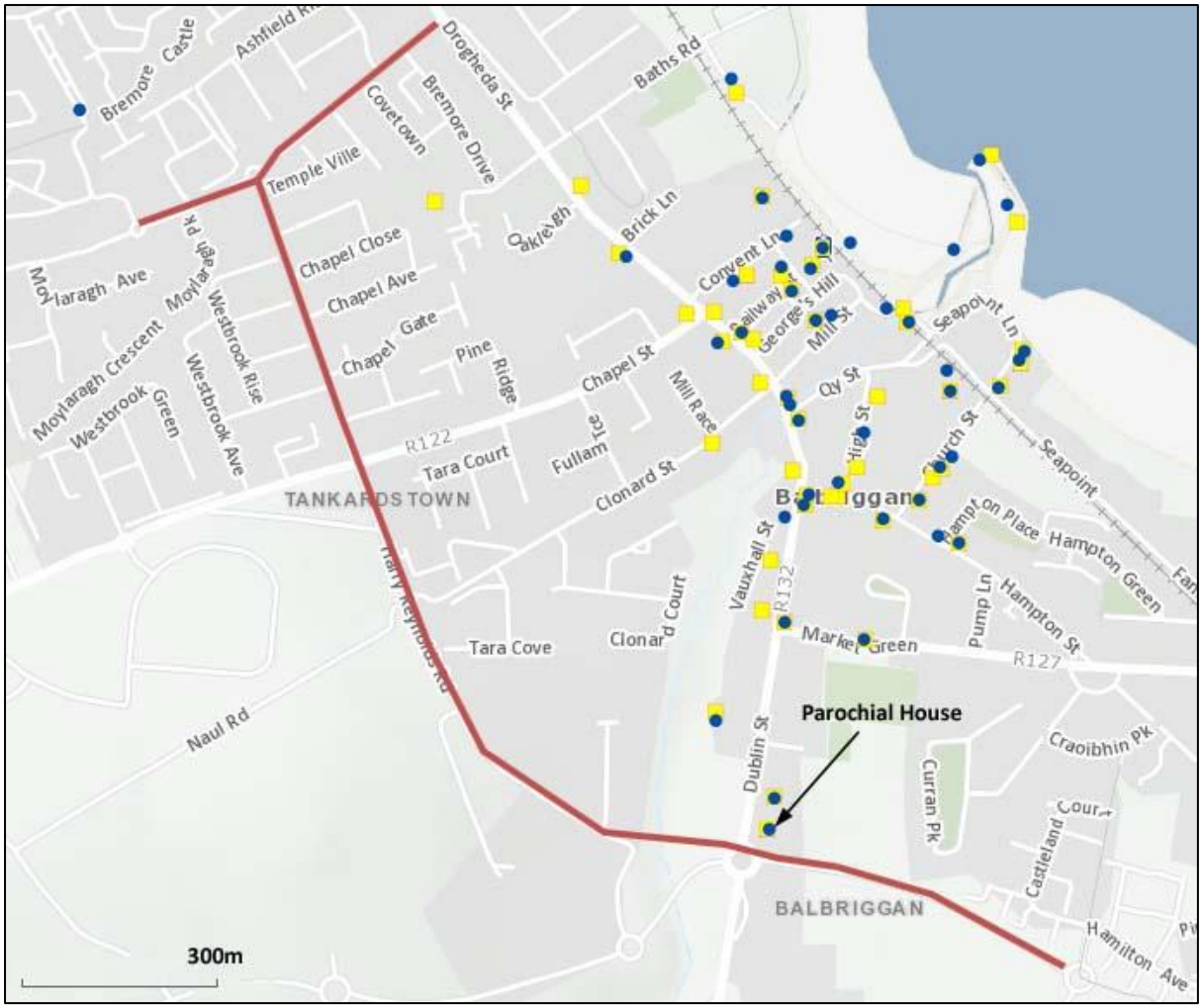


***Figure 2:*** *Location of proposed scheme (red line) in relation to Protected Structures (yellow dots) and NIAH structures (blue dots)*

*Historical Context*

The origins of Balbriggan town may be associated with the construction of Bremore Castle, in the area now on the north side of the town, by the Barnewall family who had farmed the area from medieval times. The settlement appears to have been relatively minor fishing village during the medieval period; however, the early 18th century brought large scale change to the fortunes of the settlement when Baron Hamilton bought the estates of Balbriggan and Balrothery from the Barnewells. George Hamilton oversaw the development of the town as a trading centre with the construction of a limestone pier in 1762 and a lighthouse in 1769. From here corn and timber were shipped out to Liverpool and Dublin while slates and coal were imported. In 1780 the Baron founded the cotton mills in Balbriggan which became an important centre of manufacturing and trade. In 1780 Joseph Smyth established the firm of Smyth & Co. in Balbriggan where it traded successfully for over 200 years.

The following extract from Samuel Lewis's *Topographical Dictionary of Ireland* (1837) describes the town of Balbriggan in the first half of the 19th century:

*'BALBRIGGAN, a sea-port, market, and post-town, and a chapelry, in the parish and barony of BALROTHERY, county of DUBLIN, and province of LEINSTER, 15 miles (N. by E.) from Dublin city; containing 3016 inhabitants…. The town, which is situated on the eastern coast and on the road from Dublin to the North of Ireland, owes its rise, from a small fishing village to a place of manufacturing and commercial importance, to the late Baron Hamilton, who, in 1780, introduced the cotton manufacture, for which he erected factories, and who may justly be regarded as its founder. It contains at present about 600 houses, many of which are well built; hot baths have been constructed for visitors who frequent this place during the bathing season. The inhabitants are partly employed in the fishery, but principally in the cotton manufacture; there are two large factories, the machinery of which is worked by steam-engines and water-wheels. More than 300 persons are employed in these factories, to which are attached blue dye-works; and in the town and neighbourhood are 942 hand-looms employed in the weaving department. The principal articles made at present are checks, jeans, calicoes, and fustians. The town is also celebrated for the manufacture of the finest cotton stockings, which has been carried on successfully since its first establishment about 40 years since. There are on the quay a large corn store belonging to Messrs. Frost & Co., of Chester, and some extensive salt-works; and in the town is a tanyard.*

The 6-inch Ordnance Survey (OS) map (1830-40s), the 25-inch OS edition of (1888-1913) and the Cassini edition surveyed in the 1940s were consulted to assess the context of the proposed scheme in recent centuries (Figures 3, 4 and 5). A review of these cartographic sources has demonstrated that the area of the proposed scheme was located outside the town until taking its current urban form in recent decades. All of these maps show the route of the proposed scheme as undeveloped farmland until the late 20th century and the existing roads that will carry the scheme are not present on any of the editions. The Saint Peter and Paul's Roman Catholic Church, constructed in 1842 in the gothic revival style, is shown in the area to the north of the proposed scheme on the 6-inch map (Figure 3). The Parochial House to the south was constructed in 1905 and is shown on the 25-inch map (Figure 4). The cemetery located to the southwest of the junction between Harry Reynold's road and Chapel Street is not present on the 6-inch and 25-inch maps but is labelled as a 'burial ground' on the Cassini edition (Figure 5), indicating that is dates to the first half of the 20th century.

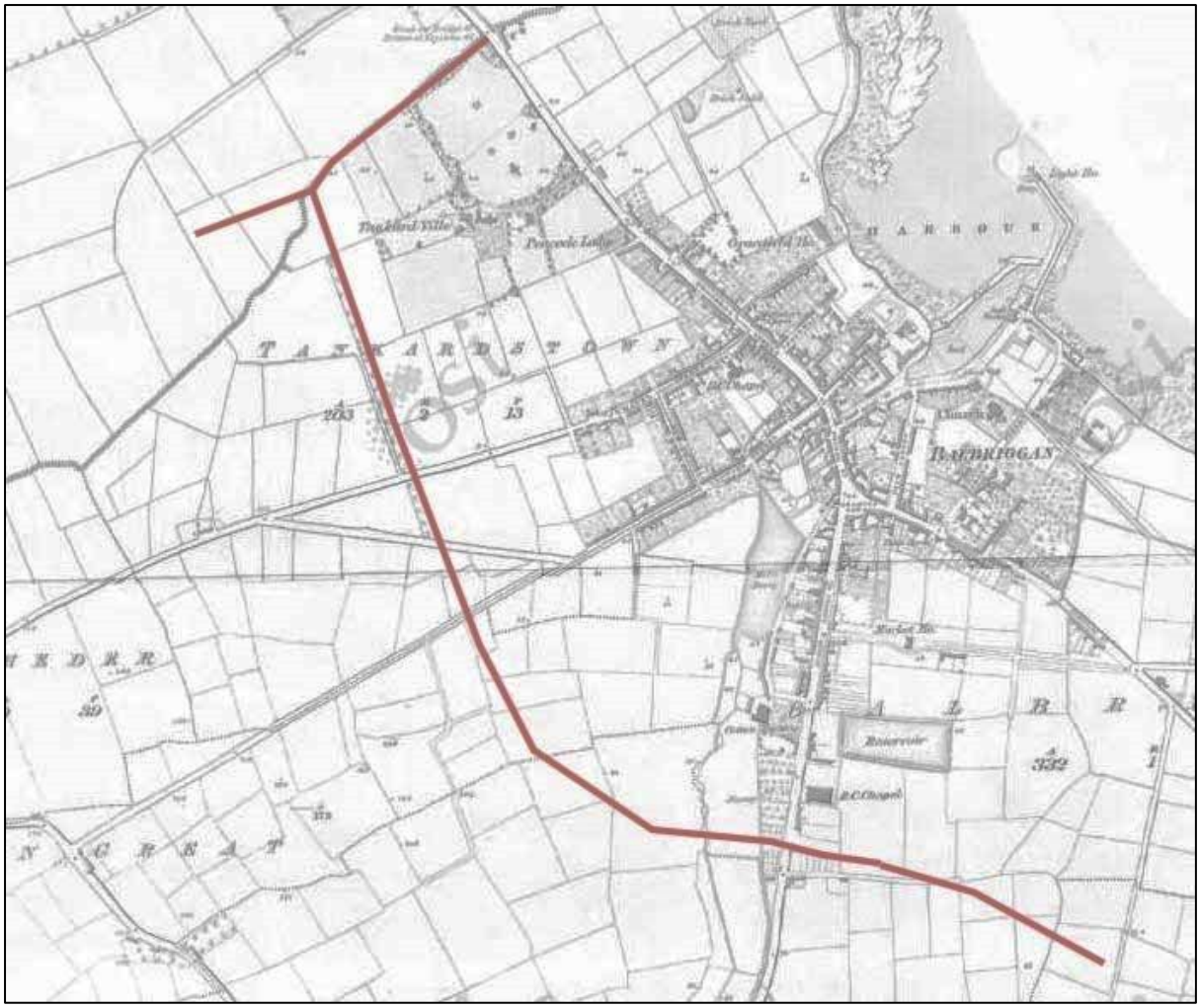


***Figure 3:*** *1st edition 6-inch OS map with approx. extent proposed scheme indicated in red*

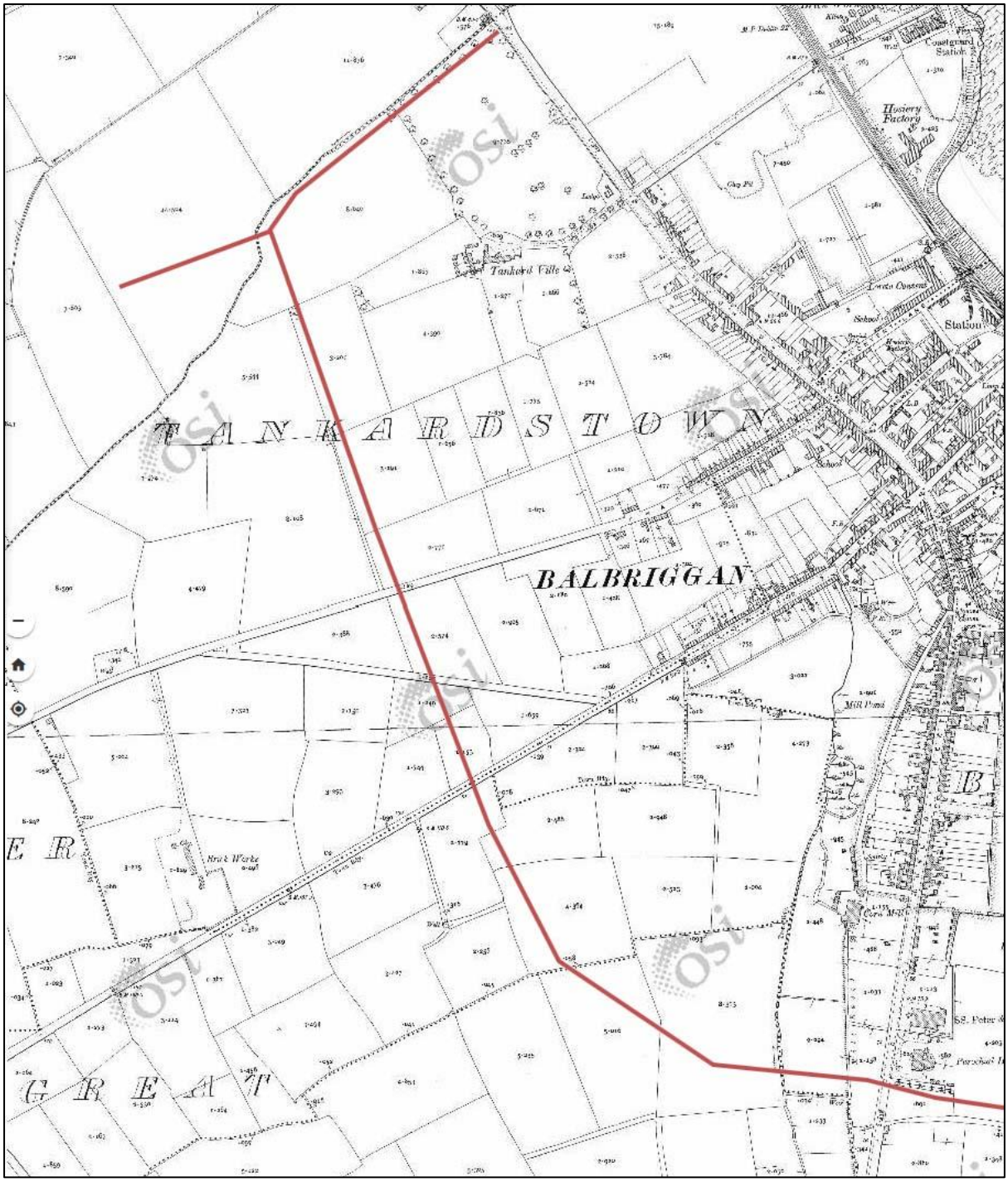


***Figure 4:*** *25-inch OS map with approx. extent of proposed scheme outlined in red*

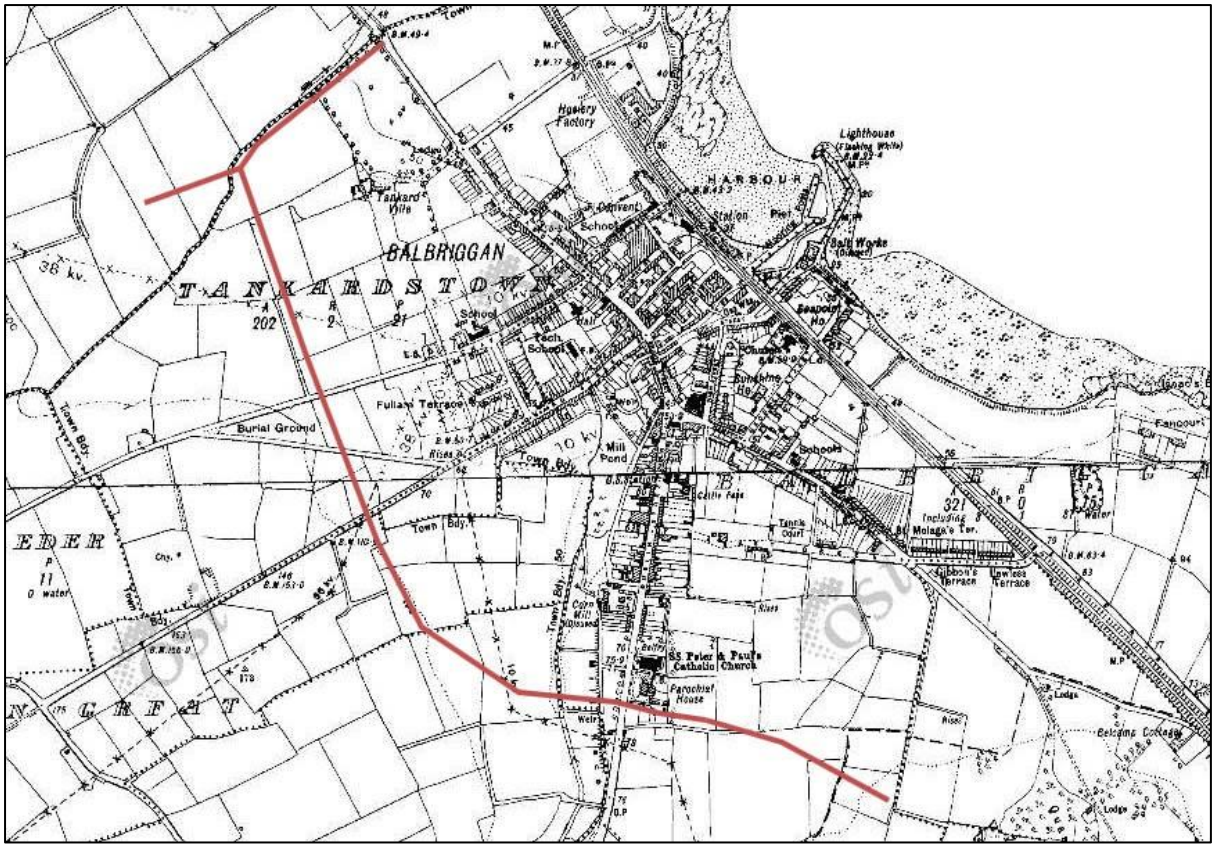


***Figure 5:*** *Extract from Cassini OS map with approx. extent of proposed scheme indicated in red*

The detail on the consulted online aerial images of the proposed route clearly demonstrates the rapid expansion of the modern housing and commercial estates into the subject area since the 1990s (Figure 6). The section of roadways within the north end of the proposed scheme is present on a 1995 OS aerial image while the sections to the south are still occupied by fields on the outskirts of the town. Harry Reynold's Road was extended further to the south by 2000 as the lands in the area began to be developed while the entirety of the existing road system on the line of the proposed scheme was completed by 2005, including the section located to the south of the Parochial House.


***Figure 6:*** *OS aerial images of the proposed development site and its environs in recent decades*

# 3. Site Inspection

The proposed route of the cycleway was inspected in December 2018 with particular attention paid to the environs of structures of potential architectural heritage interest in its environs. The following section presents an overview of the proposed cycleway route which is then illustrated by a series of annotated photographs.

As had been indicated by the results of the desktop study, the built environment within the environs of the route is largely modern in origin. The north end of the proposed route includes an east-west section extending along Moylaragh Road while the majority of the route extends southwards along Harry Reynold's Road, a recently constructed single-carriage roadway within an area of modern housing estates. The roadside in this area is flanked with concrete footpaths on both sides with an existing cycle lane on the east side (Plate 1). The proposed route then continues southwards along a section of the roadway that extends along the east side of a modern cemetery which is separated from the road's edge by a c. 1.5m wide grass margin and a hedgerow which forms the cemetery boundary (Plates 2 and 3). No features of architectural heritage interest were noted within the section of roadway in this area. The route then extends through an area dominated by modern commercial buildings where it is flanked by concrete footpaths on both sides with an existing cycle lane on the west side (Plate 4).

The route then diverts off Harry Reynold's Road in the southern half of the proposed scheme where it follows a narrow slip road leading to a public car park (Plate 5) and re-joins the main road at a roundabout junction with the R132. The boundary wall of the car park is of modern construction and is not of architectural heritage significance. The modern roundabout is of brick construction and contains a centrally-place steel metal sculpture which was installed in 2007. The sculpture, which is constructed of powder coated and stainless steel, was created by Mark Ryan and is named 'Open Volumes' (Plate 6). While not interpreted as being of architectural heritage interest, the sculpture is deemed to be of cultural heritage significance.

The proposed route will then extend adjacent to a section of the boundary wall around the St. Peter & Paul's Parochial House (RPS no. 63) property (Plate 7). The section of the boundary wall in this area is of modern date and appears to have been built when the adjacent section of the road was constructed in the early 2000s (Plate 8). This modern section of wall is, therefore, not interpreted as a curtilage feature associated with the construction of the Parochial House and is not considered to be of architectural heritage significance. The route then continues eastwards along the modern road until terminating at a roundabout in the southern outskirts of the town and no features of architectural heritage significance were noted in this area.

***Plate 1:*** *View of section of roadway within residential area in north end of the proposed scheme*


***Plate 2:*** *View of proposed route adjacent to cemetery (at right) from north*

***Plate 3:*** *View of roadside grass margin and cemetery boundary hedge from east*

***Plate 4:*** *View of proposed route within commercial area from north*

***Plate 5:*** *View of slip road leading to car park from south*

***Plate 6:*** *View of roundabout and modern sculpture at junction with R132 road*

***Plate 7:*** *View of Saint Peter & Paul's Church and Parochial House to north of proposed scheme*


***Plate 8:*** *View of modern boundary wall on south side of Saint Peter & Paul's Parochial House*

# 4. Conclusions

The proposed scheme will be confined to public roadways constructed in recent decades within an area of modern residential and commercial estates on the western outskirts of Balbriggan town. There is one structure of architectural heritage significance adjacent to the scheme which comprises the Saint Peter & Paul's Parochial House located to the north of a section of the modern roundabout at a junction between the R132 and Harry Reynold's Road. This building is included in the Record of Protected Structures published in the Fingal Development Plan (ref. no. 63) and is also listed in the NIAH (ref. 11305036). The section of the house's boundary wall adjoining the proposed scheme is of modern construction, which likely dates to the creation of the adjacent section of the road during the early 2000s, and is not considered to be of architectural heritage significance. The proposed cycle path scheme within the modern roadway will have no predicted impact on the Parochial House or on its setting.

The roundabout at this location also contains a modern metal sculpture which, while not of architectural heritage interest, is deemed to be of local cultural heritage significance. The proposed scheme will not impact on this feature.

The proposed scheme will also extend along the section of road flanking the east side of a 20th-century cemetery located to the southwest of the junction between Harry Reynold's Road and Chapel Street. The cemetery boundary along the west side of the road is formed by a grass margin and hedge line and no features of architectural heritage interest were noted in this area.

The remainder of the roadways carrying the proposed route of the scheme extend through recently constructed residential and commercial developments and are flanked by modern boundary walls and concrete footpaths. No structures or street furniture of architectural heritage interest were noted within these areas.

**In conclusion, the proposed scheme will have no predicted impacts on any architectural heritage buildings or structures and, therefore, no mitigation measures are recommended.**

# 5. References

Fingal County Council 2010. *Fingal Development Plan 2017-2023*.

Lewis, S. 1837. *Topographical Dictionary of Ireland.* London: Samuel Lewis & Son.

**Internet resources**

http://webgis.archaeology.ie/historicenvironment/
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