



Broadmeadow Way Proposed Greenway
Between Malahide Demesne and
Newbridge Demesne

Volume 1

Non-Technical Summary

May 2019



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1.0 Introduction

- 1.1.1 Fingal County Council proposes to develop the Broadmeadow Way, a new greenway (shared footpath and cycleway) between Malahide Demesne and Newbridge Demesne via the railway causeway across the Malahide Estuary (see Design Drawings 12-160-240 to 12-160-243). The proposed greenway would be c. 6km in length. Much of the proposed greenway follows existing pathways and roads.
- 1.1.2 The application for consent from An Bord Pleanála is being made pursuant to the Planning and Development Acts 2000, as amended (PDA 2000). An Environmental Impact Assessment Report (EIAR) supports the application. This document is a Non-Technical Summary of the EIAR.
- 1.1.3 The EIAR is presented in four volumes as below:
- Volume 1 – Non-Technical Summary.
 - Volume 2 – EIAR Main Text.
 - Volume 3 – EIAR Figures and Drawings.
 - Volume 4A – EIAR Appendix 1.
 - Volume 4B – EIAR Appendix 2.
 - Volume 4C – EIAR Appendices 3-18.
- 1.1.4 Baseline environmental information and key constraints for the study area are identified in an Environmental Constraints Report (see Volume 4A). An Environmental Route Options Report was also prepared (Volume 4B).
- 1.1.5 The EIAR main text (Volume 2) is laid out in sections which consider the subject areas of environmental impact assessment, such as:
- (a) Policy Background and Alternatives.
 - (b) Project Description.
 - (c) Traffic and Transportation.
 - (d) Population and Human Health.
 - (e) Biodiversity.
 - (f) Land and Soil.
 - (g) Water.
 - (h) Air and Climate.
 - (i) Noise and Vibration.
 - (j) Material Assets.
 - (k) Archaeology and Cultural Heritage.
 - (l) Architectural Heritage.
 - (m) Landscape.
 - (n) Interaction between the factors referred to in points (c) to (m).
- 1.1.6 Each of the subject sections (e.g. biodiversity, cultural heritage, etc) firstly reviews the existing situation (baseline), predicts the effects of the development on the particular aspect (impact) and outlines measures to reduce or remove any significant negative impacts (mitigation).
- 1.1.7 Baseline information was collected for each of the subject areas listed above from a combination of existing literature, consultations and site surveys. This information
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forms the basis on which the assessment of the environmental impact of the proposed development is carried out.

- 1.1.8 Where adverse effects were identified, appropriate mitigation has been put forward. Modifications were made to the layout of the development to accommodate environmental constraints. In addition, in areas where opportunities for environmental enhancement have been identified, suitable measures have been put forward.
- 1.1.9 Notwithstanding the presentation of information under individual headings, a number of aspects do interact with one another. Interactions between aspects are considered within the relevant section. A summary of interactions, cumulative impacts and a schedule of environmental commitments are also provided in Chapters 15 and 16 of the EIAR respectively.
- 1.1.10 No difficulties were encountered in the assembly of the information in this environmental impact study which have precluded the ability to assess the potential significant impacts of the development.

1.2 Stakeholder Consultation

- 1.2.1 As part of the process for the construction of the proposed development, Fingal County Council hosted a public consultation in February and March 2014, at which the proposed development was presented for discussion and comment to the public. Statutory consultees together with local interest groups in Malahide, Donabate and Swords were contacted and notified of the event. The exhibition was open to the public from 14th February 2014 to 14th March 2014 inclusive and ran concurrently in three venues:
- Malahide Public Library.
 - Donabate/Portrane Community Centre.
 - Fingal County Hall.
- 1.2.2 Representatives of Fingal County Council, design staff from Clifton Scannell Emerson Associates Ltd, and environmental specialists from Creagh House Environmental Ltd were in attendance during open evenings on 25th February in Malahide and on 5th March in Donabate.
- 1.2.3 Public display drawings showing the route options and the emerging preferred route were on display at all three locations. A public consultation brochure and questionnaire was also available.

2.0 Planning Policy

2.1 Planning and Amenity Context

- 2.1.1 There is a clear planning policy context for the proposed cycle/walkway (Greenway) at national level to local level.

National Level

National Planning Framework (NPF)

- 2.1.2 National Policy Objective 22 encourages cycle networks through the facilitation of the development of a National Greenways/Blueways Strategy which prioritises projects on the basis of achieving maximum impact and connectivity at national and regional level. The development of a greenway between Malahide Demesne and Newbridge Demesne Regional Parks will facilitate a wider network of greenways and provide access between rural and urban areas for both tourist related activities and commuting.
- 2.1.3 National Policy Objective 27 facilitates healthy communities through the provision of alternative means of transport to the car and states:
- “Ensure the integration of safe and convenient alternatives to the car into the design of our communities, by prioritising walking and cycling accessibility to both existing and proposed developments, and integrating physical activity facilities for all ages.”
- 2.1.4 The NPF notes that countries with extensive cycle infrastructure report higher levels of cycling and lower rates of obesity. Healthy places in turn create economic value by appealing to a skilled workforce and innovative companies.
- 2.1.5 The NPF also indicates that Ireland’s future homes will be located in places that can support sustainable development ‘places which support growth, innovation and the efficient provision of infrastructure, are accessible to a range of local services, can encourage the use of public transport, walking and cycling, and help tackle climate change’. The contribution to a cleaner environment, including air quality, of cycling is recognised.
- 2.1.6 Cycling is recognised as part of smart growth, enhanced regional accessibility, sustainable mobility and an enhanced urban amenity which are all targeted national strategic outcomes of the NPF. Building centres of scale is intended to be achieved through Metropolitan Area Strategic Plans formulated through the new Regional Spatial and Economic Strategies. The NPF outlines high-level and long term strategic development issues for the MASPs areas including:
- physical development patterns and strategic growth areas;
 - strategic infrastructure, particularly in the transportation and water services areas;
 - large scale regeneration and the location of housing and employment;
 - metropolitan scale amenities such as regional parks and walking and cycling networks.
- 2.1.7 It is intended that MASPs will align with and inform national-level sectoral investment plans to guide and coordinate investment within the metropolitan areas, coordinating land use planning and strategic infrastructure.

Our Sustainable Future – A Framework for Sustainable Development for Ireland

- 2.1.8 The Framework for Sustainable Development in Ireland, which was launched in June 2012, identifies some 70 measures to be implemented across Government and tasks a High-Level Inter-Departmental Group with ensuring that the vision set out in the policy document is translated into clear and effective action. One of the key areas of focus is transport. The 2015 Progress Report, charting the progress of the measures, noted that cycling in Dublin is increasing year on year with a near 50% increase in cycling

journeys between 2012 and 2015 observed in the Dublin City Centre Cycle Count carried out by DCC in May each year.

Sustainable Residential Development in Urban Areas (2009)

- 2.1.9 These section 28 guidelines outline the approach to be taken to sustainable residential development and prioritise walking, cycling and public transport, and the need to minimise the use of cars as a shared goal. The guidelines encourage developers to design in public transport, walking and cycling, making places more friendly to people movement rather than vehicle movement.

Smarter Travel – A Sustainable Transport Future: A New Transport Strategy for Ireland 2009-2020

- 2.1.10 In February 2009, the Smarter Travel Policy document for achieving a sustainable transport system for Ireland was published, this document outlines a number of policies to encourage a modal shift away from private car use and promoting public transport, walking and cycling.

National Cycle Policy Framework 2009-2020

- 2.1.11 In April 2009, Ireland's first National Cycle Policy Framework (NCPF) was issued; the vision of the policy is:

"All cities, towns, villages and rural areas will be bicycle friendly. Cycling will be a normal way to get about, especially for short trips".

- 2.1.12 The aim of this framework is to encourage a culture of cycling to the extent that by 2020, some 10% of all trips will be completed by bicycle.

Strategy for the Development of Irish Cycle Tourism, 2007

- 2.1.13 Fáilte Ireland's document highlights the need for renewing the popularity of cycling in Ireland and how tourism generated through this sector can increase visitor spending in rural and urban areas. Guidance is also given on the types of roads suitable for a national cycle network along with the provision for facilities which support and encourage cycling as a mode. In the context of developing cycling infrastructure and to make Ireland a more attractive destination for cycling, key objectives include the provision of safe and attractive cycling routes with associated services and facilities.

Irish Trails Strategy

- 2.1.14 The Irish Trails Strategy was launched in January 2007 and aims to develop a world class recreational trail system in Ireland for all Irish citizens and visitors to the country to enjoy. This strategy led to the establishment of a National Trails Advisory Committee (NTAC) and the setting up of a National Trails Office within the Irish Sports Council. The NTO have published a number of publications setting out the requirements and standards for trail development in Ireland. Relevant documents include, A 'Guide to Planning and Developing Recreational Trails in Ireland', 'Classification and Grading for Recreational Trails' and 'Management Standards for Recreational Trails'. The NTO website includes a register of a wide range of trails on offer throughout the country from strategic to local level trails. Trails which fully meet NTO standards are NTO accredited trails.

Climate Action and Low Carbon Development Act, 2015

- 2.1.15 The Act establishes the national objective of transitioning to a low carbon economy, climate resilient and environmentally sustainable economy. It includes the preparation of five yearly National Low Carbon Transition and Mitigation Plans. Agriculture, transport, energy and the built environment are the main targets for mitigation effort. Local Authority climate change adaptation and mitigation strategies will also be required which, when completed, will form part of county development plans.

Regional Policy

Regional Spatial and Economic Strategy (RSES) & Metropolitan Area Strategic Plan (MASP)

- 2.1.16 The RPGs are due to be replaced by the new Regional Spatial and Economic Strategies for the regions during 2019. At the time of writing, the Eastern & Midland Regional Assembly RSES was at public display of material amendments stage. The new regional plan for the region which will set out a long term strategic planning and investment strategy for the Dublin area and surrounding counties and Midlands area to 2031 and beyond. Included in this draft RSES is a 12 year horizon Metropolitan Area Strategic Plan (MASP) for Dublin, which will give greater analysis and detail of how the overall objectives and policies of the NPF and RSES will be implemented. The MASP identifies key strategic residential and employment development corridors, large scale regeneration areas, linked to quality public transport with key services infrastructure investment required to support growth and key investments in amenity and community resources, to create sustainable compact communities.
- 2.1.17 Section 5.6 of the MASP identifies cycling and walking as a key element in promoting and creating healthier places, mitigating climate change and facilitating tourism and metropolitan scaled amenities such as strategic cycling networks having regard to the NTA Greater Dublin Area Cycle Network Plan. Specifically, the MASP promotes the development of a Metropolitan Greenway Network, a strategic network of connected greenways for cycling and walking to enable access to key environmental assets within the Metropolitan area, including coastal areas, while having regard to the environmental sensitivities of the area.

Regional Planning Guidelines for the Greater Dublin Area 2010-2022 (due to be replaced by RSES)

- 2.1.18 This document provides the development strategy for the Dublin and Mid-East regions over the plan period. It emphasises the role of the capital city in future economic growth of the region and the need to ensure it is an attractive, vibrant location for industry, commerce, recreation and tourism. Development in the GDA (Greater Dublin Area) shall be directly related to investment in high quality public transport and focused on achieving a compact urban form.
- 2.1.19 The strategy considers that a minimum of 10% of all trips should be by bicycle by 2020. It emphasises the integration of cycle routes and infrastructure into new development and communities as key component of the delivery of greener transport travel patterns. Programmes to support this objective and create a culture of cycling should be pursued as well as promoting the tourism benefits of improved cycle networks within the GDA.

- 2.1.20 Specifically, the RPGs fully support the development of coastal paths along the east coast of the GDA. Section 7 'Green Infrastructure, Heritage and Environment' seeks to:
- Increase opportunities and ease of access to countryside and areas of interest for residents, wildlife and biodiversity, with focus on promoting river corridors, Natura sites, nature preserves and other distinctive landscapes and regionally important green spaces as focal features for linkages between natural, semi -natural and formalised green spaces.
 - Development of targeted walkways and cycleways, integrated as part of opportunities for other projects such as river restoration, biodiversity enhancement as part of process of strengthening connectivity between green spaces and strategic linkages between urban settlements and countryside.
 - Promote and facilitate the development of coastal paths along the east coast of the GDA, joining up with existing recreational paths, creating new linkages between and extensions to existing facilities where feasible. Development Plans should include a goal to facilitate the development over time of a coastal path for the entire GDA which would include a habitat impact assessment and the need to avoid negative impacts on Natura 2000 sites, and careful route selection, linking and expanding into adjoining Regional Authority areas and integrated into future coastal zone management plans for the area.
 - Encourage development of green bridges over existing physical transport barriers and require their inclusion in future infrastructure investments. Retrofitting projects should be phased and prioritised to repair fragmentation caused by grey infrastructure.
- 2.1.21 These objectives and particularly the latter are of particular relevance to the development of the proposed greenway along this stretch of coastal corridor where the majority of the route is aligned with the Dublin-Belfast railway line.

Transport Strategy for the Greater Dublin Area, 2016-2035

- 2.1.22 This document was published by the National Transport Authority in 2016 with its purpose being:

“...to contribute to the economic, social and cultural progress of the Greater Dublin Area by providing for the efficient, effective and sustainable movement of people and goods.”

- 2.1.23 The plan provides the transport strategy for the Greater Dublin area to 2035. It highlights the need to integrate land use and transport planning in achieving a consolidated urban area supported by non-private vehicle movement. The environment for pedestrians and cyclists needs to be improved to encourage a much greater proportion of trips to be made on foot, by bicycle or public transport. Dublin is to become a recognised walking and cycling city-region with a street environment that is attractive, safe and pedestrian/cyclist orientated in design.

Greater Dublin Area Cycle Network Plan

- 2.1.24 The Greater Dublin Area Cycle Network Plan was published by the NTA in 2013 and sets out the proposed cycle network in the Greater Dublin Area. The proposed route is identified as a greenway route FG1 and a strategic route intercounty N5-Future East Coast Trail. This results in the proposed route needing to cater for both commuter and

leisure users with a design that can accommodate both in a satisfactory manner. The NTA Cycle Manual 2011 set outs the required standards for cycleway facilities.

Fingal County Development Plan 2017-2023

- 2.1.25 A coastal walk is a long standing objective of Fingal County Council. The County Development Plans 2011-2017 and 2017-2023 fully support the development of a greenway between Malahide and Donabate called the Broadmeadow Way.

Map Objective 39

- 2.1.26 Seek the provision of a public walkway/cycleway on land west side of the train line in Donabate and along the existing embankment across the Malahide Estuary, in consultation with Iarnród Éireann within the lifespan of the Development Plan.

Map Objective 43

- 2.1.27 Completion of the Broadmeadow Way between Malahide and Donabate to be prioritised during the lifetime of the Development Plan.

Objective MT13

- 2.1.28 Promote walking and cycling as efficient, healthy, and environmentally-friendly modes of transport by securing the development of a network of direct, comfortable, convenient and safe cycle routes and footpaths, particularly in urban areas.

Objective MT14

- 2.1.29 The Council will work in co-operation with the NTA and adjoining Local Authorities to implement the *Greater Dublin Area Cycle Network Plan* subject to detailed engineering design and the mitigation measures presented in the SEA and Natura Impact Statement accompanying the NTA Plan.

Objective GI28

- 2.1.30 Provide attractive and safe routes linking key green space sites, parks and open spaces and other foci such as cultural sites and heritage assets as an integral part of new green infrastructure provision, where appropriate and feasible.

2.2 Project Description

Overview Description of the Proposed Greenway

- 2.2.1 Fingal County Council proposes to develop the Broadmeadow Way, a new greenway (shared footpath and cyclepath between Malahide Demesne and Newbridge Demesne) via the railway causeway across the Malahide Estuary. The requirements of the proposed scheme are to deliver a safe, high quality shared footpath. The proposed greenway would be c. 6km in length (see Design Drawings 12-160-240 to 12-160-243).

Main Elements of Scheme

- 2.2.2 The proposed development would extend from the grounds of Malahide Demesne to the R106 Dublin Road, O'Hanlon's Lane and Bissets Strand in Malahide, cross Malahide Estuary, cross the agricultural land at Kilcrea and terminate at Newbridge Demesne, Donabate. A section of the proposed development would utilise the existing weir

maintenance access track on the western railway embankment between Bissets Strand and the weir estuary, a new cycle/footpath bridge adjacent to the existing railway bridge, and the shoulder of the western embankment of the northern railway causeway. The proposed development would continue close to the western margin of the railway line through the townland of Kilcrea. Aside from road surfaces, much of the proposed greenway base is already in place by way of the weir maintenance access track, which runs from Bissets Strand to the southern abutment of the railway bridge, the shoulder of the northern causeway to the northern estuary bank, and an access track from the River Pill to the Corballis Cottages Road.

2.2.3 The proposed development will include the following:

- Use of c. 900m of existing pathways within Malahide Demesne, extending from the main car park located southeast of Malahide Castle to the Hogan's Gate entrance on the R106, Dublin Road, including new route signage and bicycle parking facilities.
- Approximately 140m of new footpath construction at Bridgefield car park and new ramp/access upgrade works at the existing pedestrian entrance leading to the R106 Dublin Road.
- Reconfiguration of c. 220m of the R106 Dublin Road between Bridgefield car park and O'Hanlon's Lane to facilitate the provision a new off-road shared pedestrian and cyclist facility along the northern side of the road, and a new signal controlled crossing.
- Approximately 135m of road resurfacing, 230m of shared surface road markings, signage and boundary hedge trimming along O'Hanlon's Lane.
- The reconfiguration of the junction of Bissets Strand and O'Hanlon's Lane.
- Two signal controlled crossings and new traffic signals at the railway bridge on Bissets Strand.
- The construction of approximately 260m of off-road shared pedestrian and cyclist facilities and associated landscaping and ancillary works on Bissets Strand.
- Works to facilitate a new greenway some 615m in length along the existing weir maintenance access track on the western embankment of the Dublin-Belfast railway causeway, extending north from Bissets Strand into Malahide Estuary, to include new surfacing, fencing, boundary walls, local stone fill, route lighting and signage, and a viewing area.
- Provision of a new 12-span pedestrian/cycleway bridge deck of approximately 180m in length on the existing piers located alongside the Dublin-Belfast railway bridge situated on the weir in Malahide Estuary.
- Works to facilitate a new greenway of approximately 1,000m in length along the shoulder of the western embankment of the Dublin-Belfast railway causeway, from the railway bridge on the weir in Malahide Estuary extending as far as the northern shoreline of Malahide Estuary at Kilcrea, to include new surfacing, fencing, boundary walls, local stone fill, route lighting and signage.

- Provision of c. 910m of new greenway along the western side of the Dublin-Belfast railway through agricultural lands in Kilcrea on the north side of the estuary, between the northern shore of Malahide Estuary and the L-6165-0 Coast Road/Corballis Road, with works to include new surfacing, fencing, route lighting and signage, and a new three span bridge over the Pill River of 50m in length constructed in timber and concrete.
- Provision of c. 230m of new greenway along the southern side of the L-6165-0 Coast Road/Corballis Road, Kilcrea to include to include surfacing, fencing, route lighting and signage.
- Upgrading and re-alignment along c.450m of the L-6165-0 Coast Road/Corballis Road adjacent to the Dublin-Belfast railway bridge, including the installation of signal-controlled pedestrian and cyclist crossing points.
- Provision of c. 370m of new greenway, including a single span (12m) bridge crossing, constructed in concrete and timber, of the Pill River through agricultural lands in Kilcrea and along the southern bank of the Pill River.
- Crossing of the newly constructed Donabate Distributor Road and the pedestrian lights for same.
- Resurfacing works along c. 140m of the existing L-6135-0 Kilcrea Road north to the R126 Hearse Road.
- Reconfiguration of the junction of the L-6135-0 Kilcrea Lane and the R126 Hearse Road to facilitate pedestrian and cyclist access to Newbridge Demesne.
- Use of approximately c. 900m of existing pathways including new route signage and bicycle parking at Newbridge Demesne.
- Ancillary works along the route including drainage works, provision of fencing, boundary treatments, agricultural accesses, noise barrier (close to the Donabate Distributor Road), public lighting, landscaping and other minor works.

2.3 Construction

- 2.3.1 The proposed greenway will typically be c. 4m in width, other than sections where the proposed greenway is utilising existing public roads, tracks and pathways. It will be finished with a macadam surfacing to ensure comfort and safety for cyclists, pedestrians and mobility-impaired users. The route will utilise existing paths at Malahide Demesne and Newbridge Demesne. A 2.4m high security fence will line the eastern edge of the proposed greenway where it runs adjacent to the Dublin-Belfast railway line, to prevent access to the railway. This security fence will be put in place by Irish Rail in advance of any proposed development work on the greenway to ensure the safety of the railway line.
- 2.3.2 Permanent fencing will prevent egress to the agricultural lands and small number of residential properties at Kilcrea and to the northern shore of Malahide Estuary. The project will not involve a connection to the eastern embankment of the railway line at any point. Where not already provided, low-level illumination will be provided along the scheme for user comfort and safety.

2.3.3 Two site construction compounds are proposed. One at Bissets Strand and one south of Corballis Cottages Road. The environmental controls associated with these compounds are outlined in the Construction Environmental Management Plan. The construction activity may be considered in three parts: Malahide, weir footbridge, and Donabate.

Malahide Works

2.3.4 There are three separate work areas on the Malahide section of the proposed greenway:

- Works in Malahide Demesne, the R106 Dublin Road and the south end of O'Hanlon's Lane.
- Works at the north end of O'Hanlon's Lane, Bissets Strand Road and the public area.
- Works to the weir maintenance access track on the southern railway causeway.

2.3.5 There will be an overlap of the works on the R106 and the Bissets Strand area which will shorten the total time for the works in this area by four to six weeks, giving a total time from commencement to completion for the works in Malahide of c. 28 weeks. Works will not be weather dependant and the contractor will continue with the construction of each area with the same crew working in different areas as required.

Weir Footbridge

2.3.6 It is planned that the works will be carried out between May and September. The on-site works will include placing the stone fill in the weir to allow multi-track placement vehicle access, erecting pre-cast bridge deck units, constructing the northern and southern ramps, removing the stone fill and re-profiling the weir, erecting handrails, lighting, surfacing, etc.

2.3.7 It is planned that all of these construction works will be completed in 16 weeks. The works being carried out directly over the water will be completed in eight weeks. In the first week of the eight-week period the weir surface will be levelled off. By the end of the eight weeks the weir crest will have been restored to its original profile.

Donabate Works

2.3.8 There are five separate work areas on the Donabate side of the project.

- Upgrade of the section of the Corballis Cottages Road at the railway bridge.
- Construction of the bridge (no. 1) at the Pill River.
- Construction of the proposed greenway along the existing northern railway causeway.
- Construction of the proposed greenway in the agricultural lands at Kilcrea including bridge no. 2 across the Pill River.
- Works at the entrance to Newbridge Demesne and Kilcrea Road.

2.3.9 There will be an overlap of the works on the Corballis Cottages Road, the Pill River bridge and the construction of the bridge across the causeway which will shorten the total time for the works in this area. The total time from commencement to completion for the works in Donabate is estimated at 28 weeks. The construction of the proposed greenway in the agricultural lands and the upgrade works at the entrance to Newbridge Demesne and the Kilcrea Road upgrade works will be carried out using two smaller crews with very little overlap.

- 2.3.10 None of the works will be weather dependant and the contractor will progress the construction of each area with the same crew working in different areas as required.
- 2.3.11 See Table 3.1 below for overall scheduling of works.

2.4 Construction Environmental Management Plan (CEMP)

- 2.4.1 A preliminary construction environmental management plan (CEMP) has been prepared to manage the impacts of construction activities associated with the development project. Fourteen sub-plans will be implemented by the appointed project contractor.
- 2.4.2 The construction environmental management plan sets out the principles to be adhered to and outlines measures that will be implemented during the construction of the proposed development to ensure that potential environmental impacts and disturbance will be minimised or eliminated.
- 2.4.3 It will be the contractor's responsibility to update and add (where required) specific control measures relevant to the environmental management plan and procedures. The control measures will be amended by improvement with regards to environmental protection and will take cognisance of additional environmental commitments arising from planning conditions or technical investigations carried out as part of the pre-construction stage.
- 2.4.4 Fingal County Council will oversee the process through appointment of the contractor, resident engineer staff and oversight from the planning and strategic infrastructure project team.

3.0 Traffic and Transportation

- 3.1.1 A preliminary traffic management plan will be prepared by the Council appointed designer; this will be included in the tender pack for the construction stage. This preliminary traffic management plan will be further developed to a construction stage traffic management plan by the contractor in close consultation with Fingal County Council. The contractor will be obliged to apply for appropriate consents to carry out works on the public road. Adequate public notices will be put in place to inform both residents and road users.
- 3.1.2 During construction, transportation of site machinery and materials will take place only during non-peak traffic hours, and not between the hours of 19:00 to 07:00, to minimise impact on the road network and disturbance to residents.
- 3.1.3 During construction, a car park monitoring regime will operate at Malahide Demesne and Newbridge Demesne to ensure optimisation of the overflow areas, particularly during weekends and peak season.
- 3.1.4 Traffic signals for the proposed signalised shuttle system/toucan crossing at Bissets Strand railway underbridge will be linked with the proposed toucan crossing at O'Hanlon's Lane junction, so that traffic signal sequencing and timings can be optimised.
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Table 3.1 Overall Scheduling of Works.

	Week No.																											
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Broadmeadow Way Bridge																												
Weir reprofiling works	■																											
Erection of precast units		■	■	■	■	■	■	■																				
Removal of fill and geotextile for weir								■																				
Bridge completion works									■	■	■	■	■	■	■	■	■											
Donabate																												
Upgrade of the section of the Corballis Cottages Road	■	■	■	■	■	■	■	■	■	■	■	■	■															
Construction of two bridges at the Pill River	■	■	■	■	■	■	■	■	■	■	■	■	■	■														
Construction of the proposed greenway along railway causeway															■	■	■	■	■	■	■	■	■	■	■	■	■	■
Construction of the proposed greenway in the agricultural lands																					■	■	■	■	■	■	■	■
Works at entrance to Newbridge Demesne & Kilcrea Road														■	■	■	■											
Completion of works (lining and signing etc)																											■	■
Malahide - R106 and Associated Areas																												
Commencement and set up	■	■																										
R106 construction works			■	■	■	■	■	■	■	■	■	■	■	■	■													
Construction of ramp & greenway in Bridgefield car park									■	■	■	■	■	■														
Malahide - Bissets Strand																												
Commencement and set up									■	■																		
Works to Bissets Strand Road									■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Works to weir maintenance track									■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Construction of landscape area (Bissets Strand)																						■	■	■	■	■	■	■
Completion of works (lining and signing, etc)																											■	■

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- 3.1.5 All crossings will be fitted with push-buttons so that these are activated only when in demand. Green times for vehicles can be set to a minimum, e.g. 7sec, so that vehicles are not stopped continuously or too frequently when demand for crossings is high.
 - 3.1.6 Demand for train/DART services will be monitored during the operational phase of the greenway. The need to increase train/DART services to these locations during peak times will be kept under review by Irish Rail.

4.0 Population and Human Health

- 4.1.1 The proposed greenway will provide a very significant positive impact in terms of its amenity value for cycling, walking (both casual and active) and for birdwatching of the estuary. In addition, the proposed greenway will remove some of the physical severance between Malahide and Donabate. This will allow people living in these communities to cycle to employment as an alternative to the circuitous journey via Swords.
- 4.1.2 For people living in Dublin and Leinster, the amenity provided by the proposed greenway is a significant positive impact as no similar facility exists close to the capital. The development is likely to appeal mainly to casual users, especially to families, given the connection with both Malahide and Newbridge Demesnes. A walking/cycle connection between Malahide, Portmarnock and Sutton is being actively progressed and will provide an additional connecting link to major population areas for people seeking active longer distance cycling and walking exercise.
- 4.1.3 A high proportion of users will be from other parts of Ireland, often as part of a visit to Dublin, as well as other EU and overseas visitors. At present, many of these people use the train/DART service to travel to Howth or to Bray and Greystones where there is seaside amenity and walking opportunities. Malahide attracts a smaller proportion of visitors, but would certainly attract many more once the facility is operational.
- 4.1.4 Users will have the options of arriving by bike, car, public transport, including local bus or from the nearby DART station. Users arriving by car will be able to park in the car parks at either end of the proposed development. People arriving by bicycle can cycle directly to Malahide, especially once connecting cycle facilities have been realised in the wider Sutton to Malahide greenway scheme. Cycle journeys direct to Newbridge from Swords are currently deterred by the unfavourable traffic conditions. Many people will also use the train/DART and this could, in time, support the provision of extra cycle facilities on the service. Cycle hire is already available in Malahide Demesne. The rail, bus and cycle lane connections to the proposed greenway will provide a social benefit by facilitating accessibility to the coast, countryside and facilities of the two demesnes (including the playgrounds) to people and families without private transport.

4.2 Residential and Journey Amenity

- 4.2.1 The proposed greenway will be a very significant positive amenity for both residents of Malahide and for users. Even for non- or infrequent users, there will be prospective benefits in terms of sense of place and place attachment. Some inconvenience may arise from higher pedestrian levels in the centre of Malahide, especially on summer weekends. However, this can be mitigated through implementation of aspects of the Public Realm Strategy which includes proposals for traffic calming. Some inconvenience will also be placed on local drivers by signalised crossings, namely at the R106 Dublin Road and on Hearse Road, noting the high level of projected use.

However, a proportion of users will arrive via Bissets Strand Road and so omit the former crossing. The proposed signalised shuttle system for the railway underbridge here is on-demand and so will introduce only slight delays for drivers. Rather, this arrangement will provide a slight positive impact for drivers, and cyclists, due to the improved safety, including people cycling generally and not specifically for the proposed greenway. The same arrangements apply at Corballis Cottages Road, together with some realignment of the carriageway and will benefit pedestrians too. These will provide a moderate positive amenity impact for all road users compared with the safety of the existing situation.

- 4.2.2 O'Hanlon's Lane is a public laneway. There will be an increased flow of pedestrians and cyclists utilising this laneway. It may be perceived that this additional activity may lead to a minor negative impact by way of inconvenience to vehicle access to private properties in the southern and central sections of the road. However, it may also be said that there will be an amenity benefit by way of direct connection to the proposed greenway and its linkages. An increased level of passive surveillance will also be introduced by the higher level of use of the lane and changes to the junction with Bissets Strand to improve access and safety. Signage may also be erected asking users to respect residents' privacy. Consequently, as a result an overall neutral residual impact is anticipated here.

4.3 Health

- 4.3.1 The proposed greenway will provide indirect health benefits by encouraging more cycling and walking. Many instances of heart disease, type-2 diabetes, breast cancer and colon cancer can be avoided by maintaining a moderate level of activity for 30 minutes each day. There is also evidence that outdoor exercise is beneficial to psychological well-being. Around 60% of adults in Ireland take insufficient physical activity and 16% are classed as inactive. Only 51% of boys and 38% of girls are believed to take the amounts of exercise recommended by the Health Service Executive. By the age of 15 these figures fall to 27% and 13%.
- 4.3.2 A lack of accessible recreational facilities is a deterrent to physical activity. The proposed greenway will allow people to exercise and enjoy the outdoors. The incorporation within the design of safe cycle/walking facilities and crossings is essential for a positive health impact to be realised. This will encourage use by families with children and by people who currently cycle infrequently. This, in turn, will provide an opportunity for significant health benefits especially for those who currently exercise inadequately, but will require a change of habits. The most positive impact will be realised by local people who fall within this category and who start using the proposed greenway on a regular basis. However, the facility will also be an encouragement to cycle or walk by the people who use it just occasionally. These health benefits will have a significant positive impact on the quality of life of that proportion of people who are encouraged to exercise more often as well as supplying public and private good benefits in terms of healthcare expenditure. This positive health impact will be strengthened by proposed extensions to the proposed greenway that could encourage more active exercise.

4.4 Economic

- 4.4.1 The proposed development will attract its own combination of visitor types given its specific characteristics and the nature of its catchment. Day trip spending on food is likely to be the largest element. Some of this will occur in the demesne cafés at either end, but Malahide's collection of cafés, restaurants and pubs will also attract much of this spending. Newsagents and grocer shops will also attract spending and additional expenditure will occur in clothes and craft shops in the town. Transport will account for significant expenditure, specifically the train/DART service. There is likely to be some expenditure on accommodation in Malahide and nearby locations. While visitors from elsewhere in Ireland will mostly be on longer trips, the proposed greenway will often account for the principal activity of the day and, therefore, a principal reason for an extra night's stay.

5.0 Biodiversity

- 5.1.1 Neither the amenity grassland nor the tree lines at Malahide Demesne or Newbridge Demesne would be impacted by the proposed development.
- 5.1.2 The design of the proposed greenway is sensitive for the potential for disturbance to estuarine habitat and species during and post-construction. A solid 1.4m high stone wall will be provided on the western margin of the proposed greenway across the estuary to minimise potential disturbance impacts on waterbirds from pedestrians and cyclists from Bissets Strand to the new footbridge which will run parallel to the existing rail viaduct. A viewing area will be provided at the southern side of the new bridge and also in Kilcrea.
- 5.1.3 There are currently no known records of any rare or protected flora and fauna from the actual embankments at Malahide or Kilcrea townland (NPWS database records); neither was any rare, protected or scarce plant species found within the site during the recent walkover surveys.
- 5.1.4 There is a great deal of available data that describes the bird usage of the entire estuary SPA and specific areas within the designated site. In addition, there have been several comprehensive studies of the local avifauna including the use of terrestrial habitats by aquatic and terrestrial species. This establishes the overall importance of the site, especially in winter, for a range of protected waterbirds, e.g. Brent Geese. The inner estuary has a relatively constrained tidal range with small areas of intertidal mudflat exposed at Seatown during low water. Typically numbers and diversity of birds within 500m of the railway embankment is relatively poor whilst the areas around Seatown (west of the inner estuary) holds the majority of birds present within the inner estuary at all times during the winter period.
- 5.1.5 Walkovers of the terrestrial habitats along the proposed route of the proposed greenway indicate that the western embankment and associated scrubby vegetation is not of high ecological value. In terms of terrestrial bird species it is relatively species poor and there is no significant mammal activity associated with the embankment itself. There are several active Fox dens and Badger setts in the wider area but the closest of which is located several hundred metres west of the proposed route of the proposed greenway.

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- 5.1.6 The habitats along the Pill River are varied and hold a good variety of bird species, including Kingfisher. The fields further north tend to have less diversity and are dominated by typical farmland bird species, e.g. Blackbird.
- 5.1.7 Bat activity recorded in the area was relatively low and there was no consistent activity noted in areas close to the proposed greenway. However, given the habitats present at Kilcrea and in particular, at both demesnes, it is probable that bats do regularly forage and commute along portions of the proposed greenway.
- 5.1.8 Works on the causeway and bridge across Malahide Estuary will be carried out outside of the bird overwintering period. Construction activities in this area will only be permitted from May until September. Minor works (e.g. maintenance) may be carried out at any time of year.
- 5.1.9 A comprehensive pre-construction baseline ecological survey will be carried out in advance of the establishment of site compounds and before the clearance and trimming of any field boundaries.
- 5.1.10 Planting of native hedgerow species along the route corridor of the proposed greenway track will occur at appropriate locations and will provide mitigation for any small areas of hedgerow lost as a result of works.
- 5.1.11 An ecologist will supervise/check areas where vegetation removal may occur prior to and during construction. This will ensure that any site specific issues in relation to wildlife will be highlighted (e.g. unforeseen mammal activity) and appropriate mitigation measures are applied.
- 5.1.12 Ecological activity will be monitored at the site in the year of construction and for the first two years of operation by Fingal County Council. A report will be submitted to NPWS at the end of each annual survey period.
- 5.1.13 Standard environmental control measures for working near sensitive sites, especially watercourses and areas of wetland saltmarsh and wet grasslands, will be applied. The risk of significant adverse impacts on the local European sites through pollution or introduction of alien invasive species, contaminants will be minimised.
- 5.1.14 Feeding the birds from the causeway will be discouraged. Signs will be displayed prominently to dissuade members of the public feeding birds, particularly waterbirds. Signs will also instruct users of the proposed greenway of the importance of the general area to wintering birds and request responsible behaviour for all those using the amenity.
- 5.1.15 With the implementation of the environmental controls and mitigation it is concluded that the residual impacts on birds, mammals (including bats) and other fauna as well as flora and other habitats will be neutral imperceptible.
- 5.1.16 There will be no long-term impacts on the key relationships that define the structure or function of the European sites considered in the Natura Impact Statement. The integrity of Malahide Estuary SPA and Malahide Estuary SAC will not be adversely affected by the proposed development in terms of wholeness or soundness of their conservation objectives.
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6.0 Land and Soil

- 6.1.1 It is considered that, based on the fact that existing pavements are to be used for the majority of the route through Malahide, across the estuary and in Newbridge Demesne, there are no potential significant impacts on the geological environment both during the construction and operational phases of the proposed development for these sections. In areas characterised by soft ground in Kilcrea, design of substructures and hardstanding will accommodate any possible future settlement.
- 6.1.2 The majority of the potential soils and geological impacts relate to moving topsoil to allow the construction of the proposed development, requiring excavation of usually soft but possibly hard materials, replacement, deposition and compaction of acceptable fill materials and re-use on-site or disposal where suitable and legally permitted to licensed sites for off-site treatment/recycling/ disposal.
- 6.1.3 The removal of mineral/soils and subsoils is a slight unavoidable impact of the development; however, every effort will be made to ensure that the amount of earth materials excavated is kept to a minimum to limit the impact on the geological and hydrological aspects of the site. Much of the excavated subsoils removed during construction will be re-used on site in the form of landscaping where suitable (e.g. Corballis Cottages Road and Kilcrea) and legally permitted and licensed sites will be used for off-site treatment/recycling/ disposal.
- 6.1.4 A number of mitigation measures will reduce the potential minor impacts and associated effects to the soils and geological environment significantly. The mitigation measures are based on current accepted best practice.
- 6.1.5 As a consequence, it is expected there will be no significant adverse direct or indirect impacts on the underlying soils and geology as a result of the construction or operation of the proposed development.

7.0 Water

7.1 Groundwater

- 7.1.1 It is considered that, based on the fact that existing pavements are to be used for the majority of the proposed development, there are no potential significant impacts and effects on the hydrogeological environment both during the construction and operational phases of the proposed development for these sections.
- 7.1.2 Construction relating to the proposed route will not occur in areas of high and extreme vulnerability. The removal of soils and subsoils material during the construction will not give rise to an increase in aquifer vulnerability.

7.2 Aquatic Environment

- 7.2.1 The only aspects of the proposed greenway with the potential for significant impacts to the aquatic receiving environment would be associated with the three crossing structures proposed along the proposed greenway, these include (from south to north) (i) the crossing of the Malahide Estuary weir (multi-span 180m long structure), (ii) the crossing of the Pill River where it flows beneath the railway embankment and (iii) the crossing of the Pill River about 750m upstream from crossing (ii). Impacts may also

arise from construction drainage of the proposed road realignment on Corballis Cottages Road.

Malahide Weir

- 7.2.2 To complete the greenway bridge structure, 12 precast concrete deck sections will be put in place between the extant piers. Each section will be installed by multi-axle transporter. As each new span is placed, its ends will be shuttered and grouted. To achieve this, imported clean stone will be used to form a temporary level running surface along the weir on the inner side (west) of the viaduct. The level of this track will be such that it will allow tidal flux between the inner and outer estuary during the estimated the short construction. However, it will result in a small temporary rise in the level of the inner estuary as it will increase the average level of the weir for an eight week period. Once the bridge decking has been put in place the stone infill used to construct the running track will all be removed and the original shape of each of the 12 weir channels will be restored to their original profile, thereby restoring the pre-works level to the inner estuary.

Crossings over the Pill River

- 7.2.3 The construction of the two bridges across the River Pill will be organised so that the channel will not be crossed by construction vehicles at either crossing point. There will be no in-stream works at these locations. This part of the Pill Estuary is wholly outside of the Malahide Estuary SAC whose boundary is outside the tidal flap on the existing culvert that carried the Pill discharge under the railway embankment.
- 7.2.4 This aspect of the project will see a short (approximately 175m) stretch of the existing Corballis Cottages Road immediately east of the railway underpass being realigned to the north, i.e. away from the edge of the estuary, by about 25m at its centre. This local road currently carries a very light traffic density which will not change in response to the proposed works. The stretch of road in question adjoins an area of saltmarsh and a roadside drain runs along its northern edge. Once the new stretch of road has been constructed to the north of the existing road, the pavement on the bypassed stretch will be removed and it will be reinstated as amenity grassland.
- 7.2.5 In each case the receiving waters for any generated suspended solids are already very turbid, this is especially the case in the Pill River and the Malahide Estuary where the Pill River discharges. In each case the habitats present and their associated fauna and flora have developed in a highly turbid environment such that temporary increases in turbidity are unlikely to have a significant negative impact. Nevertheless, mitigation measures will be provided in order to minimise this potential risk.
- 7.2.6 Consequently, provided the mitigation measures outlined are implemented in full, or are substituted with alternatives designed to result in the same outcome, then no significant adverse impact is expected to impact the aquatic habitats or species along the route of the proposed greenway. There will be a temporary (eight weeks) small-scale reduction in the area of mudflat in the western portion of the inner part of the Malahide Estuary, however this will be fully reversible and therefore constitutes a temporary and minor adverse impact.

8.0 Air and Climate

- 8.1.1 To ensure that no dust nuisance occurs, a series of mitigation measures will be implemented during the construction phase. Site roads will be regularly cleaned and maintained as appropriate. Hard surface roads will be swept to remove mud and aggregate materials from their surface. Furthermore, any road that has the potential to give rise to fugitive dust will be regularly watered during dry and/or windy conditions.
- 8.1.2 Vehicular speeds will be restricted on hard surfaced roads as site management dictates. Vehicles delivering material with dust potential will be enclosed or covered with tarpaulin at all times to restrict the escape of dust.
- 8.1.3 At all times, the dust mitigation measures put in place will be strictly monitored and assessed. In the event of dust nuisance occurring outside the site boundary, movement of materials will be immediately terminated and satisfactory procedures implemented to rectify the problem before the resumption of operations.
- 8.1.4 The dust minimisation plan shall be reviewed at regular intervals during the construction phase to ensure the effectiveness of the procedures in place and to maintain the goal of minimisation of dust through the use of best practice and procedures.
- 8.1.5 Greenhouse gas emissions as a result of this greenway will be insignificant in terms of national carbon dioxide emissions and Ireland's agreed limit under the Kyoto Protocol and the EU Effort Sharing Agreement.

9.0 Noise and Vibration

- 9.1.1 During the construction phase of the project there will be some impact on nearby noise sensitive properties due to noise emissions from site traffic and other activities. The application of noise limits and hours of operation, along with implementation of appropriate noise and vibration control measures, will ensure that potential noise and vibration impact will not be significant. Any construction noise impacts will be temporary and short term in nature. Also, it is considered that, as the project progresses from initial works, construction noise and vibration impacts will be greatly reduced.
 - 9.1.2 The contractor will provide proactive community relations and will notify the public and sensitive premises before the commencement of any works forecast to generate appreciable levels of noise or vibration, explaining the nature and duration of the works. The contractor will distribute information circulars informing people of the progress of works and any likely periods of significant noise and vibration.
 - 9.1.3 Consequently, the works will be managed with a best practice approach to dealing with potential noise and vibration emissions during the construction phase. The current noise management guidance will be adopted by the contractor and sub-contractors involved in construction activities on the site. The site manager will ensure that adequate instruction is provided to contractors regarding the appropriate noise control measures.
 - 9.1.4 Any change in noise levels associated with vehicles at road junctions in the vicinity of the proposed development is expected to be imperceptible. The potential resultant noise impact is not considered to be significant.
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10.0 Material Assets

10.1 Agronomy

10.1.1 In relation to impacts on agricultural activities in the townland of Kilcrea, the potential key impacts are land-take, severance and disturbance. Land-take to facilitate the proposed greenway is low at 2.5 hectares and relates to areas of low ecological value. The level of severance is also low at 1.7 hectares. In relation to disturbance, no significant adverse impacts are anticipated. Overall, no detrimental impacts are anticipated in relation to agricultural activity, specifically in the context of identified mitigation measures as set out.

10.1.2 It may be noted that the Council intend to use its Compulsory Purchase Order powers to acquire any required land not currently in Council ownership for the purpose of delivering the proposed greenway and will be subject to a separate consent procedure.

10.2 Non-Agricultural Assets

Potable Water Supply

10.2.1 The construction and operation of the proposed development will have no effect on the potable water supply in the area.

Surface Water Drainage

10.2.2 The construction of the new greenway will increase the impermeable area along some areas of the proposed greenway. This will occur along the Malahide Estuary and along the agricultural lands in Kilcrea. This additional impermeable area will not affect the local drainage network as the drainage for the new paths will be designed to discharge to ground using filter drains.

10.2.3 The new impermeable area along the causeway across the Malahide Estuary will drain into a filter drain parallel to the proposed greenway. This drain will filter the surface water before the water naturally drains through the rock armour into the Malahide Estuary, similar to what occurs at present.

Foul Sewer Drainage

10.2.4 The construction and operation of the proposed development will have no material effect on the foul drainage in terms of capacity or the requirements for additional facilities. Both Newbridge Demesne and Malahide Demesne have existing facilities which will be used by users of the proposed greenway. The additional numbers using these facilities will not affect the existing system.

Waste Arising

10.2.5 Wastes arising during the construction process will be recycled and re-used within the project insofar as possible (i.e. at landscape works at Corballis Cottages Road and Kilcrea). Residual waste will be disposed of by licensed haulier to a licensed site. Waste arising from operation is not anticipated.

Electricity Supply

10.2.6 The construction and operation of the proposed development will have no material effect on the electrical supply services in the area.

11.0 Archaeology and Cultural Heritage

- 11.1.1 The proposed greenway will not impact directly on any recorded archaeological sites. It will come close (25m) to the church, graveyard and associated features in Malahide Demesne (DU012-031001-6) and it will also come close (80m) to Malahide Castle (DU012-030-). The three recorded archaeological sites in Malahide village (DU012-023001, 2, 3) are 150m away from the proposed greenway and will not be affected by the proposal. Newbridge House (DU012-060-) lies at the northern end of the proposed greenway, c. 50m from it and will not be impacted by the proposal. In all cases the impact can be described as indirect, positive and the proximity of the proposed greenway to each archaeological site will not detract from it, rather it will enhance the experience for the user.
- 11.1.2 The proposed greenway will not impact directly on the railway line (CHS 1). It will, however, impact on the railway embankment by its use of the weir maintenance access track and by the construction of a bridge adjacent to the railway line. This impact will be minimal. Construction of three bridges (*in toto*) will impact directly on the other two cultural heritage sites; the Malahide Estuary (CHS2) and the River Pill (CHS 3). One of the bridges will be constructed parallel to the railway line on the Malahide Estuary. The other two bridges will cross the Pill River that now runs through an area which was reclaimed in the mid-nineteenth century. One of the bridges will be constructed parallel to the railway line in this reclaimed area in the townland of Kilcrea. A second bridge will cross the Pill further west along its course also in reclaimed land. There may be some (minimal) impact to potential subsurface underwater archaeological levels in each of the River Pill bridge construction areas.
- 11.1.3 The proposed greenway will impact on potential archaeological remains which may exist below ground level in parts of Kilcrea townland where there is previously undisturbed ground. There may be subsurface remains of the wooden bridge depicted on the 1842 OS map, a short distance to the west of the third proposed bridge above.
- 11.1.4 Monitoring of topsoil stripping will be conducted in Kilcrea and at the River Pill, where the proposed greenway will cross agricultural lands.
- 11.1.5 Monitoring of topsoil stripping will also be conducted adjacent to Bissets Strand where topsoil will be removed from the grassed area and a bitumen path laid.
- 11.1.6 Where subsurface disturbance is to take place on any part of the proposed greenway consultation will take place in advance of the works with the National Monuments Service at the DCHG.

12.0 Architectural Heritage

- 12.1.1 The EIAR anticipates no significant negative impact on architectural heritage, and identifies specific mitigation measures relating to the protection of architectural heritage along the route.
- 12.1.2 The impacts on Malahide Demesne are considered to be slight negative as a result of the provision of a new footpath and pedestrian exit/entrance. Appropriate mitigation measures are considered to reduce these impacts to not significant. There will be no impact on the principal building associated with this demesne or its curtilage. The impact on Newbridge Demesne is considered to be not significant.
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- 12.1.3 The following structures and/or their boundary treatments will be monitored and fenced off if necessary during construction to prevent physical damage: Railway Bridge (AHC022), Casino (AHC024), Presbyterian Church (AHC026), Sonas Town House (AHC027), Rosca Town House (AHC028), Railway Bridge (AHC031) and Gate Entrance, and Newbridge House (AHC044).

13.0 Landscape

- 13.1.1 The location, scale and detail of the proposed greenway is entirely appropriate to the site and surrounding estuarine environment, with the introduction of the proposed cycleway and footpath improving human interaction and creating links to the surrounding areas.
- 13.1.2 The method of construction of both the new sections of greenway and associated structures have been considered to reduce adverse effects on the landscape and visual domain, and in most cases are reversible. Residual landscape and visual effects are, therefore, generally positive and negligible.
- 13.1.3 The hedgerow lost during construction will be replaced as part of the scheme and in the medium term continue to provide visual continuity and coherence within the landscape.
- 13.1.4 The impact of the proposed lighting of the proposed greenway on the causeway and within Kilcrea townland would have a slight negative impact initially, but these visual effects would be decreased significantly once the proposed planting became established with Kilcrea.
- 13.1.5 Overall, the proposed development would create a significant positive contribution to the recreational amenity of the area and region, furthering landscape policy within the Development Plan.

14.0 Cumulative Effects

- 14.1.1 A number of EU Directives and national and development plans apply to the proper planning and environmental control of activities in this area. It is considered here that no significant negative effect arises by virtue of the operation of these directives and plans in cumulation with this project.
- 14.1.2 There are a number of known proposed development projects in the Fingal area which, in combination with the proposed greenway development, may have a cumulative environmental effect. These projects include.
- Malahide: Sutton to Swords Greenway (design stage).
 - Kilcrea: Donabate Distributor Road (construction stage, opening late 2019).
 - Kilcrea: Expansion of Portrane Hospital (construction stage, opening 2020).
 - Kilcrea: Housing application (McGarrell Reilly Homes, planning ref. F17A/0113) (opening late 2019).
- 14.1.3 With the exception of the Donabate Distributor Road, the other projects are remote in terms of location or design stage. As to the Distributor Road, no significant negative cumulative effect has been identified as the project is due to complete in late 2019 and the construction of the proposed development is not contemplated before 2020.

Significant positive effects are anticipated, however, in terms of landscape, population and human health.

- 14.1.4 It is considered that in the context of the proposed greenway the only potential area where smaller impacts may sum to a larger impact is in biodiversity. These may include effects upon hedgerows and trees; and watercourses. Upon examination, however, the small quantum of local hedgerow removal in the townland of Kilcrea would not constitute a cumulative impact of significance.

15.0 Flood Risk and Major Accident Assessment

- 15.1.1 The Broadmeadow Way has been classified as 'less vulnerable development' for the purposes of the Flood Risk Assessment. The design approach has been to align to near or at existing ground levels. The preliminary design of crossings of the River Pill have utilised best available information and allowed for climate change. A Section 50 application has been submitted to the OPW with respect to the bridge crossings of the River Pill and the Council will comply with OPW requirements in this regard.
- 15.1.2 Fingal County Council as part of its adverse weather emergency preparation has in place arrangements to receive early weather warnings from Met Éireann and put in place controls to mitigate hazards when operating during adverse/inclement weather. These controls consist of a major emergency plan; a severe weather plan; flood emergency response plan; risk assessment for working in adverse/inclement weather; and winter service plans. Risk assessment registers are contained in the relevant ancillary safety statement.
- 15.1.3 The design of the route, the implementation of adverse weather emergency responses by the Council and the alignment of the scheme that facilitates users to return to their starting point will ensure the safety of users of the proposed Broadmeadow Way.
- 15.1.4 A major accident assessment shows that the possibility of the Broadmeadow Way having an adverse effect on the environment is low and any potential effect will be mitigated by good planning and the availability of emergency management plans.