Inspectorate Report - Appropriate Assessment ABP-304624(A)-19

Development	Greenway between Malahide Demesne and Newbridge Demesne to be known as 'Broadmeadow Way'.
Location	Malahide Demesne, Kilcrea, Newbridge Demesne, Donabate, Fingal, County Dublin.
Local Authority	Fingal County Council
Type of Application	175(3), 177 AE, 177S(2)(h) and 226 of the Planning and Development Act, 2000, as amended.
Date of site inspection	23rd October 2019.
Inspectorate Ecologist	Dr Maeve Flynn

Contents

1.0 **Introduction**

1.1. Fingal County Council is seeking approval from An Bord Pleanála to undertake the development of a c.6km shared cycle and walkway as a new greenway between Malahide Demesne and Newbridge Demesne in Donabate. The proposed greenway travels through various landscapes including demesne landscapes and parklands, estuarine/coastal landscape (foreshore), rural/agricultural lands and urban and residential environments. The proposed greenway crosses Malahide Estuary along the western side of the existing railway embankment and includes the installation of a new section of cycle/footbridge on existing masonry piers. The Estuary is protected by two European Site designations, namely Malahide Estuary Special Conservation Area (SAC) under the Habitats Directive (92/43/EC) and Malahide Estuary Special Protection Area (SPA) under the Birds Directive (2009/147/EC).

1.2. The proposed development has the potential to cause disturbance to bird species that use the Malahide Estuary SAC and SPA during construction, by users of the greenway, and the potential to temporarily elevate water levels in the inner part of the estuary (SAC) during works to the weir to facilitate construction access.

1.3. A Natura Impact Statement (NIS) has been prepared by the Applicant to inform Appropriate Assessment under the Habitats Directive, which assesses the implications of the proposed development on the integrity of European Sites including Malahide Estuary Special Conservation Area (SAC) and Special Protection Area (SPA). Due to the likely interactions of birds from other SPA sites within the wider Dublin bay area, other coastal and estuarine SPAs including Lambay Island. SPA, Ireland's Eye SPA, Rogerstown Estuary SPA, Bull Island SPA, Baldoyle Bay SPA and Skerries Islands SPA are also included in the assessment.

1.4. Section 177AE of the Planning and Development act 2000 (as amended) requires that where an appropriate assessment is required in respect of development proposed by a local authority, the authority shall prepare an NIS and the development shall not be carried out unless the Board has approved the development with or without modifications. Furthermore, Section 177V of the Planning and Development Act 2000 (as amended) requires that the appropriate assessment shall include a determination by the Board as to whether or not the proposed development would adversely affect the integrity of a European site and

the appropriate assessment shall be carried out by the Board before consent is given for the proposed development.

1.5. This report details the Appropriate Assessment, comprising a compete assessment of all aspects of the proposed development that could affect the conservation objectives of European sites and presents precise and definitive conclusions as to the implications for the overall integrity of those sites.

2.0 Proposed Development

2.1. The proposed development, referred to as the Broadmeadow Way, would comprise a shared cycle/walkway as a new greenway for use by cyclists and pedestrians. The full extent of the proposed greenway is presented on the planning drawings, which accompany the application and an overview of the route design is set out in Section 4.1 of the applicant's submitted planning report and in the NIS. The physical elements of the proposed development are set out in detail on the public notice.

2.2. The overall development has been divided by the applicant into six sections with Sections 3 and 4 of most relevance to the Appropriate Assessment:

- Section 1 – Malahide Demesne;
- Section 2 – R106 Dublin Road, Malahide;
- **Section 3 – R106 Dublin Road to Bissets Strand;**
- **Section 4 – Bissets Strand to the North Shore of Malahide Estuary;**
- Section 5 – North Shore of Malahide Estuary to R126 Hearse Road;
- Section 6 – Newbridge Demesne;

2.3. The majority of the greenway would be four metres in width except at locations where it would use existing laneways or pathways. It would be finished with a macadam surface. A security fence, 2.4m in height, is proposed to be erected along the eastern side of the greenway where it would run adjacent to the Dublin-Belfast railway line.

2.4. The construction period is estimated to last 28 weeks. Two site construction compounds are proposed to be established for the duration of the construction

period, one at Bissets Strand and the other adjacent to the bridge, south of Corballis road.

2.5. The application was accompanied by the following documents:

- Environmental Impact Assessment (EIAR) including four volumes;
- Preliminary Environmental Impact Assessment Examination Report;
- Natura Impact Statement (NIS);
- Planning Report;
- Planning Drawings.

2.6. Following submissions by observers and prescribed bodies during the course of the application, a written response from the Local Authority was received by the Board on the 22nd day of November 2019.

3.0 Submissions and Observations

3.1. Prescribed Bodies

3.2. Department of Culture, Heritage and the Gaeltacht- National Parks and Wildlife Service (NPWS):

The nature conservation related observations and recommendations of the Department related to the following:

- increased human presence may cause disturbance to diving bird species that occur close to the railway embankment;
- potential disturbance to special conservation interest bird species of Malahide Estuary SPA, including in particular Red Breasted Merganser, Great Crested Grebe and Goldeneye;
- assessment should be undertaken for **individual bird species** to determine significance of impacts using data sets already available/ collected;
- mitigation measures to prevent/ reduce bird disturbance within 300m of the causeway should include continuous screening along the length of the causeway;

- mitigation measures need to prevent egress of people and dogs to agricultural lands on the Northern Shore of Malahide Estuary and onto the shore (to avoid disturbance of birds including Greenland white fronted geese);
- confirm no loss of Annex I habitat-Sand and Gravel Shores on the northern shore of Malahide Estuary;
- monitoring should be targeted at bird species at risk of disturbance. Duration of ecological monitoring should be determined using data from other greenway projects;
- remedial measures need to be considered and included in the NIS (if monitoring shows disturbance impacts);
- impact of night-time illumination of the causeway area on birds needs to be considered;
- the proposed works are unlikely to pose a risk to marine Annex I habitats provided mitigation is implemented in full;

3.3. Inland Fisheries Ireland (IFI)

Issues raised by IFI related to the consideration of fish and water quality of the River Pill /Turvey Estuary and preservation of the conditions required for the continued use of this river by Sea Trout, Brown Trout and a population of Atlantic Salmon within the Estuary.

While no specific observation was made in relation to European sites, the issues raised are of relevance to the overall ecological functioning of Natura 2000 Network. These include the following:

- Measures to prevent siltation and release of hydrocarbons, compliance with EC regulations related to surface water and ground water, implementation of the construction environmental management plan in line with environmental legislation and statutory consents, detailed drawings and method statements to be agreed with IFI in relation to the Malahide crossing and the River Pill/Turvey/

3.4. Observations (public):

A number of public submissions were made related to Nature conservation and biodiversity including the following:

- Design and height of the proposed wall along the estuary crossing
- Impacts of pressure treated timber on the Malahide Estuary SPA
- Loss of trees and hedgerows and corresponding impacts on biodiversity

4.0 Appropriate Assessment

4.1. **The requirements of Article 6(3)** as related to appropriate assessment of a project considered under 177AE of the Planning and Development Act 2000 (as amended) are considered fully in this section. The areas addressed in this section are as follows:

- Compliance with Article 6(3) of the EU Habitats Directive
- Screening the need for Appropriate Assessment
- The Natura Impact Statement and associated documents
- Appropriate Assessment of implications of the proposed development on each European site

Compliance with Articles 6(3) of the EU Habitats Directive:

4.2. The Habitats Directive deals with the Conservation of Natural Habitats and of Wild Fauna and Flora throughout the European Union. Article 6(3) of this Directive requires that any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. The competent authority must be satisfied that the proposal will not adversely affect the integrity of the European site.

4.3. The proposed development is not directly connected to or necessary to the management of any European site and therefore is subject to the provisions of Article 6(3).

Screening the need for Appropriate Assessment:

4.4. The first test of Article 6(3) is to establish if the proposed development could result in likely significant effects to a European site. This is considered *stage 1* of the appropriate assessment process i.e. *screening.* The screening stage is intended to be a preliminary examination. If the possibility of significant effects cannot be excluded on the basis of objective information, without extensive investigation or the application of mitigation, a plan or project should be considered to have a likely significant effect and Appropriate Assessment carried out.

4.5. Chapter 4 of the NIS includes the Screening stage (stage 1). The proposed development crosses the Malahide Estuary SAC and SPA and as the potential for significant impacts on these European sites cannot be discounted, these sites are examined in detail in the NIS and are subject to Appropriate Assessment in this report.

4.6. Having regard to the information presented in the NIS, submissions, the nature, size and location of the proposed development and its likely direct, indirect and cumulative effects, the source pathway receptor principle and sensitivities of the ecological receptors, I concur with the applicants screening determination that no other SAC sites within the wider area could be affected by the proposed greenway development. No reliance on avoidance measures or any form of mitigation is required in reaching this conclusion.

4.7. The screening undertaken by the applicant takes a precautionary approach in determination of a potential zone of influence of the proposed development on SPA sites located in the wider area. While direct effects on SPA sites other than Malahide Estuary SPA can be ruled out with confidence, the possibility of indirect effects on wintering waterbird species that comprise the Special Conservation Interests (SCI) of those sites cannot be discounted. Many of these SPA sites are designated for highly mobile bird species which utilise a range of resources throughout the SPA network of sites in Dublin Bay. This is particularly the case for wintering waterbirds and waders which use a range of feeding and roosting sites throughout the winter period. I concur with the precautionary approach taken by the applicant and the following six SPA sites have been screened in for the need for Appropriate Assessment in view of their conservation objectives; Lambay Island.

SPA, Ireland's Eye SPA, Rogerstown Estuary SPA, Bull Island SPA, Baldoyle Bay SPA and Skerries Islands SPA.

4.8. Based on my examination of the NIS and supporting information, the NPWS website, aerial and satellite imagery, the scale of the proposed development and likely effects, proximity and functional relationship between the proposed works and the European sites, their conservation objectives and taken in conjunction with my assessment of the subject site and the surrounding area, I would conclude that the proposed development (alone) could result in significant effects on Malahide Estuary SAC and SPA and that there is uncertainty regarding indirect effects on SCI species for a further six SPA sites in the wider Dublin bay area therefore, Appropriate Assessment is required to determine if adverse effects on site integrity can be ruled out. **Table 1** summarises the potential significant effects in view of the conservation objectives of those sites.

Table 1. Screening summary matrix: European Sites for which there is a possibility of significant effects (or where the possibility of significant effects cannot be excluded without further detailed assessment)

European Site name **Qualifying Interest/Special Conservation Interest**	**Is there a possibility of significant effects in view of the conservation objectives of the site?** **General impact categories presented** **Habitat loss/modification**	**Water quality/pollution**	**Disturbance/displacement**
Malahide Estuary SAC [000205] • Mudflats and sandflats not covered by seawater at low tide [1140] • *Salicornia* and other annuals colonising mud and sand [1310] • Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330] • Mediterranean salt meadows (*Juncetalia maritimi*) [1410] • Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120] • Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]	Yes Potential for modification/degradation, no direct habitat loss	Yes Construction related run off: contaminants, silt, increased turbidity	N/A No species are listed as qualifying interests of this SAC
Malahide Estuary SPA [004025] • Great Crested Grebe • Light-bellied Brent Goose • Shelduck • Pintail • Goldeneye • Red-breasted Merganser • Oystercatcher • Golden Plover • Grey Plover • Knot	Yes Temporary Increased inundation of inner estuary due to works on weir will reduce time that mudflats (wetland habitat) are exposed for birds to feed	Yes As above	Yes Potential disturbance of birds within a zone of influence of the greenway: • Temporary during construction • On-going during operation

European Site name Qualifying Interest/Special Conservation Interest	Is there a possibility of significant effects in view of the conservation objectives of the site? General impact categories presented Habitat loss/modification	Water quality/pollution	Disturbance/displacement
• Dunlin • Black-tailed Godwit • Bar-tailed Godwit] • Redshank • Wetland and Waterbirds			
Lambay Island. SPA [004069] • Fulmar • Cormorant • Shag • Greylag Goose • Lesser Black-backed Gull • Herring Gull • Kittiwake • Guillemot • Razorbill • Puffin	No possible impacts due to distance from habitat features	No possible impacts due to distance and limited scale of the works	Yes Potential disturbance of birds that may utilise the Malahide Estuary and occur within a zone of influence of the greenway: • Temporary during construction • On-going during operation
Ireland's Eye SPA [004117] • Cormorant • Herring Gull • Kittiwake • Razorbill	No possible impacts due to distance from habitat features	No possible impacts due to distance and limited scale of the works	Yes Potential disturbance of birds that may utilise the Malahide Estuary and occur within a zone of influence of the greenway: •Temporary during construction •On-going during operation
Rogerstown Estuary SPA [004015] • Greylag Goose • Light-bellied Brent Goose	No possible impacts due to distance from habitat features	No possible impacts due to distance and limited scale of the works	Yes Potential disturbance of birds that may utilise the Malahide Estuary

European Site name Qualifying Interest/Special Conservation Interest	Is there a possibility of significant effects in view of the conservation objectives of the site? General impact categories presented Habitat loss/modification	Water quality/pollution	Disturbance/displacement
• Shelduck • Shoveler • Oystercatcher • Ringed Plover • Grey Plover • Knot • Dunlin • Black-tailed Godwit • Redshank • Wetland and Waterbirds			and occur within a zone of influence of the greenway: • Temporary during construction • On-going during operation
Bull Island SPA [004006] • Light-bellied Brent Goose • Shelduck • Teal • Pintail • Shoveler • Oystercatcher • Golden Plover • Grey Plover • Knot • Sanderling • Dunlin • Black-tailed Godwit • Bar-tailed Godwit • Curlew • Redshank • Turnstone • Black-headed Gull • Wetland and Waterbirds	No possible impacts due to distance from habitat features	No possible impacts due to distance and limited scale of the works	Yes Potential disturbance of birds that may utilise the Malahide Estuary and occur within a zone of influence of the greenway: • Temporary during construction • On-going during operation

European Site name Qualifying Interest/Special Conservation Interest	Is there a possibility of significant effects in view of the conservation objectives of the site? General impact categories presented Habitat loss/modification	Water quality/pollution	Disturbance/displacement
Baldoyle Bay SPA [004016] Light-bellied Brent Goose Shelduck Ringed Plover Golden Plover Grey Plover Bar-tailed Godwit Wetland and Waterbirds	No possible impacts due to distance from habitat features	No possible impacts due to distance and limited scale of the works	Yes Potential disturbance of birds that may utilise the Malahide Estuary and occur within a zone of influence of the greenway: • Temporary during construction • On-going during operation
Skerries Islands SPA [004122] Cormorant Shag Light-bellied Brent Goose Purple Sandpiper Turnstone Herring Gull	No possible impacts due to distance from habitat features	No possible impacts due to distance and limited scale of the works	Yes Potential disturbance of birds that may utilise the Malahide Estuary and occur within a zone of influence of the greenway: • Temporary during construction • On-going during operation

Natura Impact Statement (NIS)

4.9. The application was accompanied by a NIS (May 2019) which examines and assesses potential adverse effects of the proposed development on eight European Sites.

4.10. The NIS was informed the following studies, surveys and consultations (See section 1.4 of the NIS for complete list of sources):

- Desktop and literature study.
- Multi-disciplinary ecological surveys including habitat/botanical mammals, bat and bird surveys
- Wintering bird surveys of Malahide Estuary (various between 2009- 2018)
- Aquatic environment assessment (including soft sediment survey, sub-tidal grab samples)
- Computer modelling of (Estuary hydrodynamics) Malahide Viaduct Reinstatement Temporary works (Fluvio, July 2015)
- Various reports and technical papers related to the Malahide Viaduct Reinstatement
- Report on proposed Lighting Installations (JN and G Traynor and Partners, March 2018)
- Consultations with the National Parks and Wildlife Service.

4.11. The NIS (May 2019) concluded that, subject to the implementation of the recommended mitigation measures, the proposed Broadmeadow Way development alone or in combination with other plans and projects would not result in adverse effects on the site integrity of Malahide Estuary SPA, Malahide Estuary SAC and there is no potential for adverse effects on other SPA sites in the wider Dublin Bay area.

4.12. In a written response to submissions by observers and prescribed bodies, Fingal County Council provided clarification to the Board on issues raised (November 2019). This included requests made by the NPWS in their submission.

4.13. Having reviewed the NIS, response document, all supporting documentation and submissions, I am satisfied that together these documents provide adequate information in respect of the baseline conditions and uses the best scientific information available on European sites, and clearly identifies potential adverse impacts. Details of mitigation measures to reduce such impacts to a non-significant level and how and when they will be implemented are detailed in Section 5.5 of the NIS. Ecological monitoring is also included for a number of mitigation measures which is in line with best practice. Mitigation and monitoring will be manged by the appointed contractor and an outline construction environment management plan (CEMP) has been drafted as an implementation tool which incorporates all mitigation measures detailed in the EIAR and NIS.

I am satisfied that the information is sufficient to allow for a complete assessment of the proposed development (see further analysis below) in view of the requirements of Appropriate Assessment and precise and definitive findings can be reached with regard to the implications of the project on European Sites.

4.14. **Appropriate Assessment of implications of the proposed development**

The following is an objective scientific assessment of the implications of the project on the relevant conservation objectives of the European sites using the best scientific knowledge in the field (NIS). All aspects of the project which could result in significant effects are assessed and mitigation measures designed to avoid or reduce any adverse effects are examined and assessed.

I have relied on the following guidance:

- DoEHLG (2009). Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities. Department of the Environment, Heritage and Local Government, National Parks and Wildlife Service. Dublin
- EC (2002) Assessment of plans and projects significantly affecting Natura 2000 sites. Methodological guidance on the provisions of Article 6(3) and 6(4) of the Habitats Directive 92/43/EC
- EC (2011) Guidelines on the implementation of the Birds and Habitats Directives in Estuaries and coastal zones

- EC (2018) Managing Natura 2000 sites. The provisions of Article 6 of the Habitats Directive 92/43/EEC

4.15. **Relevant European sites:** The following sites are subject to Appropriate Assessment.

- Malahide Estuary SAC
- Malahide Estuary SPA
- SPA sites in the wider Dublin Bay area where the interaction of Special Conservation Interest bird species with Malahide Estuary is possible: Lambay Island. SPA, Ireland's Eye SPA, Rogerstown Estuary SPA, Bull Island SPA, Baldoyle Bay SPA and Skerries Islands SPA.

A description of these sites and their Conservation Objectives and Qualifying Interests/Special Conservation Interests, including any relevant attributes and targets for these sites, are set out in the NIS and summarised in tables 2-4 of this report as part of my assessment. I have also examined the Natura 2000 data forms as relevant and the Conservation Objectives *supporting documents* for these sites available through the NPWS website (www.npws.ie).

4.16. **Aspects of the proposed development.** The main aspects of the proposed development that could adversely affect the conservation objectives of European sites include:

- Impacts to water quality and wetland habitats through construction related pollution events and /or operational impacts (surface water/ fowl water management, invasive species).
- Impacts on tidal flow and water levels in the inner estuary during the construction phase when the weir crest is temporarily modified to facilitate construction works.
- Disturbance and or displacement of wintering water birds due to noise and increased human activity during construction and ongoing anthropogenic disturbance throughout the operational phase (visual, light, noise).

4.17. **Tables 2-4** summarise the Appropriate Assessment and site integrity test. The conservation objectives, targets and attributes as relevant to the identified potential

significant effects have been examined and assessed in relation to all aspects of the project (alone and in combination with other plans and projects). Mitigation measures proposed to avoid and reduce impacts to a non-significant level have been assessed, and clear, precise and definitive conclusions reached in terms of adverse effects on the integrity of European sites.

4.18. Supplemental to the summary tables, the key issues that arose through consultation and through my examination and assessment of the NIS and further information request are expanded upon in the text below.

4.19. Key issues raised by the National Parks and wildlife Service of the Department related to the potential disturbance of diving bird species, including Red Breasted Merganser, Great Crested Grebe and Goldeneye are addressed under the heading *disturbance of Special Conservation Interest bird species*.

Tables 2-4: Summary of Appropriate Assessment of implications of the proposed Broadmeadow Way (Greenway) on the integrity of European Sites alone and in combination with other plans and projects in view of the sites Conservation Objectives.

Table 2
Malahide Estuary SAC [000205]
Key issues

- **Habitat modification/ deterioration**
- **Deterioration of water Quality and water dependant habitats**

Conservation Objectives: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000205.pdf
NPWS (2013)

		Summary of Appropriate Assessment			
Conservation Objective **To maintain the favourable conservation condition of the following:**	**Targets and attributes** (summary-as relevant) **See NIS Table 5.9 and Appendix 3**	**Potential adverse effects**	**Mitigation measures**	**In-combination effects**	**Can adverse effects on site integrity be excluded?**
Mudflats and sandflats not covered by seawater at low tide	Habitat area stable or increasing (311ha) Maintain and conserve the Zostera and Mytilus edulis dominated communities, conserve community distribution of intertidal sediments	No direct impacts on habitat area or community types Temporary increase in water levels and inundation of mudflats of inner estuary will not affect in-fauna community Construction related emissions: sediment release,	Design and timing of works along weir crest to facilitate installation of bridge deck. Based on detailed knowledge and scientific modelling from previous rehabilitation works.	No likely significant in-combination effects. Historical projects considered, current projects and future plans	Yes No adverse effects on the structure or function of these habitat types in view of conservation objectives provided mitigation measures implemented in full.

		pollutants, spread of invasive spp.	Removal of construction stone fill after completion of the works Pollution control measures based on best practice guidance and to be implemented by way of a CEMP Ecological Clerk of works to be part of project team Contingency plan considered and evaluated for unlikely situation of mitigation failure	Including Greater Dublin Area Cycle Network and Fingal Biodiversity Action plan	No doubt as to the effectiveness or ease of implementation of mitigation measures proposed to prevent adverse effects.
Salicornia and other annuals colonising mud and sand	Habitat area stable or increasing (1.93ha), no decline in habitat distribution, maintain natural circulation of sediments and organic matter, maintain pan and creek structure, maintain natural tidal regime, maintain range of coastal habitats including transitional zones, maintain vegetation zonation, structure and % cover. No significant increase in *Spartina angelica*.	No direct impacts on habitat area, distribution, physical structure, vegetation zonation or structure. Tidal regime of outer estuary will not be affected by the temporary works at the weir crest. Construction related emissions: sediment release, pollutants, spread of invasive spp. No spread of Spartina angelica Any slight increase (temporary) in sediment release will not affect natural circulation of sediments			
Mediterranean salt meadows (*Juncetalia maritimi*)	Habitat area stable or increasing (0.64ha), no decline in habitat distribution, maintain natural circulation of sediments and organic matter, maintain pan and creek structure, maintain natural tidal regime, maintain range of coastal habitats including transitional	None Habitat is not within likely zone of influence of the proposed development			

	zones, maintain vegetation zonation, structure and % cover. No significant increase in Spartina angelica.				
To restore favourable conservation condition of the following:					
Atlantic salt meadows (Glauco-Puccinellietalia maritimae)	Habitat area stable or increasing (25.33ha), no decline in habitat distribution, maintain natural circulation of sediments and organic matter, maintain pan and creek structure, maintain natural tidal regime, maintain range of coastal habitats including transitional zones, maintain vegetation zonation, structure and % cover. No significant increase in Spartina angelica.	No direct impacts on habitat area, distribution, physical structure, vegetation zonation or structure. Tidal regime of outer estuary will not be affected by the temporary works at the weir crest. Construction related emissions: sediment release, pollutants, spread of invasive spp. No spread of Spartina angelica likely Any slight increase (temporary) in sediment release will not affect natural circulation of sediments	As above	As above No likely significant in-combination effects.	Yes No adverse effects on the structure or function of these habitat types in view of conservation objectives provided mitigation measures implemented in full. No doubt as to the effectiveness or ease of implementation of mitigation measures proposed to prevent adverse effects.

Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes)	See NIS Table 5.9	None Habitat is outside likely zone of influence of the proposed development			
Fixed coastal dunes with herbaceous vegetation (grey dunes)*	See NIS Table 5.9	None Habitat is outside likely zone of influence of the proposed development			
Overall conclusion: Integrity test Following the implementation of mitigation, the construction and operation of this proposed development will not adversely affect the integrity of Malahide Estuary SAC in view of the site's conservation objectives. No reasonable scientific doubt remains as to the absence of such effects.					

Table 3
Malahide Estuary SPA [004025]

Key issues

- **Disturbance to SCI species (distribution and human activities)**
- **Habitat disturbance (wetlands)**

Conservation Objectives: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004025.pdf (NPWS 2013)

		Summary of Appropriate Assessment			
Conservation Objective	**Targets and attributes** (as relevant) See Table 5.8 and Appendix 2 of NIS	**Potential adverse effects**	**Mitigation measures**	**In-combination effects**	**Can adverse effects on site integrity be excluded?**
To maintain the favourable conservation condition of the following wintering waterbirds: Great Crested Grebe Light-bellied Brent Goose Shelduck Pintail Goldeneye Red-breasted-Merganser Oystercatcher Golden Plover Grey Plover	Long term **population trend** is stable or increasing **Distribution**: No significant decrease in the numbers or range of areas used by waterbird species other than that occurring from natural variation	Anthropogenic disturbance which could affect the range of areas used by SCI birds, especially diving ducks regularly occurring in significant numbers within 500m of causeway: ▪ Great Crested Grebe ▪ Red breasted Merganser ▪ Goldeneye Ex-situ effects, disturbance from people /dogs accessing shoreline and agricultural lands used by foraging birds such as	Timing of in-channel works outside of wintering period Visual screening to prevent disturbance along the length of the causeway will be provided by a continuous stone wall (1.2m high wall, with metal rail up to 1.4m) Fencing to prevent egress of dogs and people on northern shore or farmland at Kilcrea/Corballis	No likely significant in-combination effects. Historical projects considered, current projects and future plans Including Greater Dublin Area Cycle Network and Fingal Biodiversity Action plan	Yes Based on best available scientific information on key species, disturbance distances and likely effects: No significant change in numbers of birds or their distribution in SPA likely- no adverse effects No doubt as to the effectiveness or ease of implementation of mitigation measures proposed to prevent adverse effects.

Knot Dunlin Black-tailed Godwit Bar-tailed Godwit] Redshank		Light-bellied Brent Geese and other waders	Lighting designed so no light spill onto open water of inner estuary Pollution control measures based on best practice guidance and to be implemented by way of a CEMP Ecological Clerk of works to be part of project team Contingency plan considered and evaluated for unlikely situation of mitigation failure Biodiversity information boards/signage on the importance of the area for wintering birds and responsible behaviour Monitoring measures and bird surveys (5yr plan) included .		
Wetlands	The permanent area occupied by the wetland	No change in permanent area available.	Timing of works during summer months ensures no significant	No likely significant in-	Yes

	habitat should be stable and not significantly less than the area of 765 ha, other than that due to natural patterns of variation	Temporary change in water levels with reduction in exposure of mud flats in inner estuary during installation of bridge deck.	disturbance of foraging or roost site availability for wintering water birds. Macroinvertebrate in-fauna of mudflats will not be adversely affected by increased inundation	combination effects.	There will be no adverse effects on wetland habitat area or on the habitat quality as a foraging and roosting resource for SCI bird species.
Overall conclusion: Integrity test Following the implementation of mitigation, the construction and operation of this proposed development will not adversely affect the integrity of Malahide SPA in view of the site's conservation objectives. No reasonable scientific doubt remains as to the absence of such effects. Note that monitoring is included as best practice and a requirement from EIA process and does not imply any uncertainty regarding adverse effects or the effectiveness of any mitigation measures.					

Table 4
Pooled information on SPA sites remote from the proposed development but where some limited potential for SCI interaction exists: Lambay Island. SPA, Ireland's Eye SPA, Rogerstown Estuary SPA, Bull Island SPA, Baldoyle Bay SPA and Skerries Islands SPA.

Key issue:

- **Disturbance to SCI species from other SPA sites within Dublin Bay that may occasionally utilise the inner Malahide Estuary**

Conservation Objectives: See Table 5.8 of NIS and www.npws.ie

		Summary of Appropriate Assessment			
Conservation Objective	**Targets and attributes** (as relevant)	**Potential adverse effects**	**Mitigation measures**	**In-combination effects**	**Can adverse effects on integrity be excluded?**
To maintain the favourable conservation condition of the following wintering waterbirds: **Rogerstown Estuary SPA 004015** Greylag Goose Light-bellied Brent Goose Shelduck Shoveler Oystercatcher Ringed Plover Grey Plover Knot Dunlin Black-tailed Godwit Redshank	Long term **population trend** is stable or increasing **Distribution**: No significant decrease in the numbers or range, timing or intensity of areas used by waterbird species other than that occurring from natural variation	No significant direct impacts on the population or distribution of these species. Anthropogenic disturbance during construction and operation of the greenway which could affect the range of **ex-situ** areas used by SCI birds from these SPAs. Data collected shows very limited potential for any significant effects on birds from other SPA sites due to: Low number of birds recorded within main zone of influence (500m)	**As for Malahide Estuary SPA (Table 3)** Timing of in-channel works outside of wintering period Visual screening to prevent visual disturbance along the length of the causeway will be provided by a continuous stone wall (1.2m high wall, with metal rail up to 1.4m) Fencing to prevent egress of dogs and people on northern shore or farmland at Kilcrea/Corballis	None predicted	**Yes** Based on best available scientific information on key species, disturbance distances and likely effects: No significant change in numbers of birds or their distribution in SPA likely- no adverse effects No doubt as to the effectiveness or ease of implementation of mitigation

Baldoyle Bay SPA 004016 Light-bellied Brent Goose Shelduck Ringed Plover Golden Plover Grey Plover Bar-tailed Godwit **North Bull Island SPA 004006** Light-bellied Brent Goose Shelduck Teal Pintail Shoveler Oystercatcher Golden Plover Grey Plover Knot Sanderling Dunlin Black-tailed Godwit Bar-tailed Godwit Curlew Redshank Turnstone Black-headed Gull		Inundated waters around the causeway not suitable for waders No significant roost areas SPA sites do not list diving duck species as SCI – therefore no possible interaction with Malahide SPA populations	Lighting designed so no light spill onto open water of inner estuary Biodiversity information boards/signage on the importance of the area for wintering birds and responsible behaviour		measures proposed to prevent adverse effects.

To maintain the favourable conservation condition of the following breeding birds **Irelands Eye SPA 004117** Cormorant Herring Gull Kittiwake Razorbill **Lambay Island SPA 004069** Fulmar Cormorant Shag Greylag Goose Lesser Black-backed Gull Herring Gull Kittiwake Guillemot Razorbill Puffin **Skerries Island SPA 004122** Cormorant Shag Light-bellied Brent Goose Purple Sandpiper	Long term population trend stable or increasing, no significant decline in the range timing or intensity of use of areas or extent of areas other than that occurring by natural variation No significant decline in breeding population abundance, production rate, distribution of breeding colonies, prey biomass available, No significant increase in barriers, disturbance to breeding site, disturbance of marine areas adjacent to the colony	No significant direct impacts on the population or distribution of these species. No potential to impact on the population trends or distribution of these breeding SCI due to distance of the SPA from the proposed Broadmeadow way and the ecology of the bird species. Some limited potential for disturbance of Cormorant and gulls foraging within the inner Malahide Estuary during the construction period, but due to the low numbers likely to be present and the limited area affected (close to embankment) significant effects can be excluded with confidence.	As above	None predicted	As above

Turnstone Herring Gull					

Overall conclusion: Integrity test

Following the implementation of mitigation, the construction and operation of this proposed development will not adversely affect the integrity of the following SPA sites in view of their conservation objectives: Lambay Island. SPA, Ireland's Eye SPA, Rogerstown Estuary SPA, Bull Island SPA, Baldoyle Bay SPA and Skerries Islands SPA.

No reasonable scientific doubt remains as to the absence of such effects.

Note that monitoring is included as best practice and a requirement from EIA process and does not imply any uncertainty regarding adverse effects or the effectiveness of any mitigation measures.

4.20. **Habitat modification/deterioration: Malahide Estuary SAC and Malahide Estuary SPA**

4.21. The proposed greenway crosses Malahide Estuary along the western side of the existing railway embankment within the inner estuary and includes the installation of a new section of cycle/footbridge on existing masonry piers at the viaduct section. The existing weir maintenance track will be utilised during the construction phase (and operational phase) and no additional working areas are required along the access track.

4.22. The assessment of potential adverse effects on the Malahide Estuary SAC provided in the NIS is mainly focused on the temporary alteration of the weir crest that is required to facilitate the construction of the new bridge deck on the viaduct section. This will be achieved through mitigation *by design*. It is proposed to lay a geotextile membrane on the weir crest and level the area (up to 1.15m OD) with imported stone to provide temporary working access track. Pre-cast sections of the bridge deck will be put in place using a multi-axle transporter (Drawing numbers SADS-16-BROAD-PRE-001- to 004 NIS Appendix). The construction of the greenway bridge deck at the weir will require a period of eight weeks of in-channel works. The stone and geotextile will be removed once the bridge deck is in place and there will be no change to the current functioning of the weir post construction. These works will be undertaken over an eight-week period.

4.23. Information gained from works required to reinstate the weir and viaduct after the collapse in 2009 significantly influenced the proposed design and I note that Irish Rail are providing the engineering design and construction management for the proposed bridge and in-channel works. Detailed modelling of tidal flows and water levels were utilised to inform the proposed development and data was updated to provide the best available scientific information (Fluvio Report, July 2015).

4.24. The habitat at this location does not conform to qualifying interest habitats of the SAC. The community complex was determined by scientific assessment and is not consistent with the community types detailed in the conservation objectives attributes and targets. Rather, it characterised by a few robust fast-growing species capable of withstanding the wave and tidal motion at this location (*Pomatoceros triqueter* with barnacles and bryozoan crusts on unstable circalittoral cobbles and pebbles).

4.25. The inner estuary is characterised by lagoon conditions which developed after the installation of the railway viaduct in the 1800s. There are limited areas of tidal mudflats and Atlantic Salt Meadows in the North-eastern section of the inner estuary (near Seatown). Analysis has shown that there will be no direct impacts on any habitats that are qualifying features of the SAC. The analysis of tidal flows and water levels of the inner estuary show that the temporary increase in the height of the weir crest will influence water movements and levels over the construction period (eight weeks). The tidal mudflats and salt meadows of the inner estuary will experience a slight increase in the degree of inundation at neap tides during this period. The macroinvertebrate infauna of these estuarine sandy muds have been defined as dominated by *Chironomidaea* and *Hediste diversicolor*, species can that withstand extended periods of inundation. Similarly, the vegetation of the Atlantic Salt Meadows is capable of withstanding prolonged periods of inundation and no adverse effects on the community structure or composition is predicted.

4.26. The application of standard best practice mitigation measures for pollution control and working near watercourses will be applied through the implementation of a construction environmental management plan (CEMP) and includes measures for the prevention of suspended solids, cement and hydrocarbons entering the water environment, and prevention of the possible spread of invasive species within Malahide Estuary. These measures are based on best practice guidance and there is no doubt as to their effectiveness or ease of implementation once guidance is followed. I note that an Ecological Clerk of Works will be part of the project team. A contingency plan is also proposed in line with best practice for the unlikely situation of mitigation failure.

4.27. I have considered these measures in terms of the two proposed bridge crossings at the River Pill/Turvey and also the proposed realignment of a short stretch of the Coast Road at Corballis Cottages and consider the measures to be appropriate and effective in preventing adverse effects on adjacent habitats of Atlantic Saltmarsh and mudflats.

4.28. Currently, the stretch of the Coast Road at Corballis is immediately adjacent to saltmarsh and mudflat habitat within the SAC. It is proposed to realign and widen this short section of road to the north. The existing road surface will be removed and landscaped. In an unmanaged situation, there would be potential for ingress of

construction related pollutants and silt laden surface water resulting from the proposed road works. It is stated in the EIAR that the receiving waters have high levels of turbidity, which is characteristic the estuarine environment. This is especially the case where the Pill River discharges into the Malahide Estuary. The saltmarsh habitat is influenced by accretion and erosion and sediment supply is a key element for the continued development and natural functioning of a saltmarsh system. Notwithstanding the mitigation proposed which is considered appropriate and effective, any temporary elevation in turbidity of the discharging is unlikely to have a significant negative impact.

4.29. I also note that the proposed road re-alignment will result in the creation of a vegetated buffer (rough grassland with sporadic planting of willow, alder and birch) between the realigned section of road and saltmarsh habitat.

4.30. No potentially significant impacts on the SAC are anticipated during the operational phase of the opposed Greenway.

4.31. While not a qualifying interest of the SAC, an area of Annex I habitat comprising *Sand and Gravel Shores* is located along the northern shore of Malahide Estuary, where the causeway meets the shore. There will be no impact on this habitat during the construction or operational phase of the development as the applicant has confirmed that this area lies outside the existing security fence, thereby excluding access to the shoreline at this point.

4.32. Having reviewed the assessment and mitigation provided in the NIS and associated documents, it is clear that the proposed development will not adversely affect habitat area or the key functional relationships such as tidal cycle and natural circulation of sediments of Malahide Estuary. Any potential adverse effects that could arise through construction related pollution have been considered and will be effectively manged by best practice mitigation measures implemented through a CEMP with supervision by and Ecological Clerk of Works.

4.33. Based on an analysis of the evidence presented and mitigation measures proposed, it can be concluded beyond reasonable scientific doubt that there will be no adverse effect on the integrity of Malahide Estuary SAC in view of the conservation objectives for this site.

4.34. Similarly, for the wetlands habitat of the SPA, the increased period of inundation of mudflats, particularly at the North-western area of the inner estuary (Seatown area) which will result during the temporary works utilising the weir, could affect food resources and roosting areas for wintering waterbird species. However, these works are proposed outside of the wintering season to specifically avoid such effects. The temporary reduction in mudflat exposure will not result in adverse effects on the conservation objectives set for wetlands habitat of SPA or conservation objectives related to foraging and roost site availability for SCI bird species.

Disturbance of Special Conservation Interest Bird Species

4.35. **Malahide Estuary** SPA provides both feeding and roosting areas for a range of wintering waterfowl. The inner estuary is characterised as a lagoon, which is of particular value as it increases the diversity of birds which occur and supports high numbers of diving ducks (Red-breasted Merganser and Great Crested Grebe) and is one of the few sites in eastern Ireland where substantial numbers of Goldeneye can be found. The site is of high conservation importance, with internationally important populations of Light-bellied Brent Goose and Black-tailed Godwit, and nationally important populations of a further 12 species (baseline data from 1995-2000). More recent surveys undertaken to inform this project support these population levels.

4.36. Factors than can adversely affect the achievement of conservation objectives include, disturbance that could result in the displacement of one or more listed waterbird species, habitat modification and activities that could modify discrete areas within the SPA causing displacement from feeding or roosting areas.

4.37. The potential for the proposed development to cause direct effects of disturbance and displacement on the Special Conservation Interest (SCI) bird species is examined in the NIS and summarised in Table 5.8. Additional information and analysis is presented in the Response Document (November 2019).

4.38. The key issues are the possible disturbance and displacement of bird species that utilise the inner estuary in the vicinity of the causeway in particular, and also possible disturbance of SCI birds that may utilise the agricultural lands north of the Estuary at Kilcrea and Corballis.

4.39. The construction phase could result in localised temporary disturbance to SCI bird species. However, Fingal County Council have committed to undertaking the works on a phased basis outside of the main overwintering period for SCI species for Malahide Estuary SPA. This will ensure no adverse effects on wintering waterbirds during this phase.

4.40. During the operational phase, the movement of users of the Broadmeadow way and associated visual and noise disturbance would be the main source of potential disturbance to SCI species in the vicinity of the railway embankment. Notwithstanding the current baseline of regular train crossings between approx. 6am and midnight, the introduction of pedestrians and dogs and cyclists will be a potential novel disturbance in the area and may affect birds on the water in the immediate vicinity of the greenway corridor along the railway embankment/causeway.

4.41. The main area at risk of such disturbance has been determined as the inner estuary within a zone of up to 500m. I note that this is a broad zone of influence and that individual species may show differing responses to disturbance stimuli as per the scientific literature quoted in the Response Document (section 3). Pedestrians with dogs and particularly lose dogs are known sources of anthropogenic disturbance to wintering waterbirds and without mitigation, birds within 200m of the greenway along the inner estuary embankment may be disturbed and displaced. I accept that there is no potential for any significant disturbance of birds utilising the outer estuary as the greenway is separated by the railway embankment and weir.

4.42. The NIS utilises data collected over numerous wintering bird surveys in Malahide Estuary. Surveys *specific* to the proposed greenway were undertaken between 2011 and 2014 and data was updated with surveys undertaken in 2017/2018. Other bird surveys and data considered in the NIS included surveys undertaken on behalf of Fingal County Council (2009, 2010/2011, 2017). Only the survey undertaken by Rowe and Lovatt in 2009 appears to be publicly available (http://www.fingalbiodiversity.ie/resources/fingal_coast/2009%20Swords%20Estuary%20Birds.pdf).

4.43. The methodology and data as presented in the NIS (and Biodiversity Chapter) is not set out clearly. The survey methods utilised for the greenway project winter bird surveys are not detailed and it only becomes clear that the approach is different from

other methods such as the IWeBS methodology at section 3.3.18 when discussing 'other data'. The approach adopted of undertaking surveys when the tide is at its lowest, thereby concentrating survey effort on the inner estuary is reasonable and also appears to be based on scientific evidence from previous surveys by Mayes (2010-2011), however, it makes comparison with some of the other non-project specific data presented difficult (e.g. Rowe and Lovatt, 2009 and Lewis and Butler 2017).

4.44. It is obvious that a significant amount of data has been collected to inform the bird study and assessment, the challenge is to present it in a way that is clear, and to the point with good data analysis. The data is presented for each survey period for a) the entire Malahide Estuary, b) the inner estuary, c) the other estuary and d) terrestrial fields at Kilcrea. Notwithstanding the comprehensive dataset presented in section 3.3, it is a challenge to get to the key issue of what species are most at risk of disturbance from the proposed development and the significance in terms of the overall SPA population. The most recent survey undertaken in 2017/2018 to update the data for the NIS, is most informative in this regard. Tables 3.14 and Tables 3.15 show total counts for birds recorded within 500m of the railway embankment at the inner estuary and the peak numbers recorded within distance bands (100,300, 500m).

4.45. In their submission, the NPWS also acknowledge the considerable volume of data presented in the NIS and requested that additional analysis of the data be undertaken on a species by species basis, quantifying the percentage population of each species of interest that falls within the disturbance distance considered.

4.46. The following is a summary of the key points for the Board based on data collected over the wintering periods of 2012/2013, 2013/2014 and 2017/2018 as presented in the NIS and the Response Document. The focus is on the 500m distance band from the railway embankment along the inner estuary.

- Of the 14 SCI bird species for which the SPA is designated, six were not recorded within 500m of the railway embankment as the permanently inundated waters of this area do not provide suitable foraging or roosting habitat for species including Pintail, Shelduck, Golden plover, Grey plover,

Knot and Bar tailed Godwit. Dunlin and Black tailed Godwit were also very infrequently recorded.

- Oystercatcher, Dunlin and Redshank which all occur in nationally important numbers throughout the SPA were recorded infrequently and in low numbers within the 500 distance band of the railway embankment.
- Light bellied Brent Geese, one of the most numerous wintering bird species in the Malahide Estuary, was recorded in low numbers and infrequently within this zone. On occasions where they were recorded, they were small flocks of loafing and preening birds in the north eastern area of the inner estuary. A flock of 116 birds was recorded within 500m of the embankment during the 2017/2018 survey but this is reported to have been associated with birds disturbed from agricultural lands at Kilcrea.
- The surveys showed that the majority of birds present in the inner estuary are concentrated towards Seatown towards the western area of the SPA. In general, only 2-6% of the *total number* of birds present in the inner estuary at any one time are concentrated within 500m of the causeway.
- However, species of diving duck that favour this lagoon habitat including Red-breasted Merganser, Great Crested Grebe and to a lesser extent Goldeneye were regularly recorded foraging within 500m of the causeway. An examination of peak numbers shows that this area can hold a significant proportion of the overall inner estuary population of these birds and that a significant proportion of the SPA population for Great Crested Grebe and Red-breasted Merganser are present at any one time close to the causeway.
- Peak counts for the 2017/2018 season showed that 42% of the SPA population of Great Crested Grebe was present in this area and over 40% of the SPA population of Red Breasted Merganser. The peak count for Red-breasted Merganser in the 2013/2014 season showed that over 80% of the SPA population of was recorded within 500m of the embankment. The NPWS conservation objectives supporting document shows Malahide Estuary is the top ranked site for these species in the Dublin area and these numbers support the importance of the site.

4.47. In accordance with the request from NPWS to undertake a reassessment of bird survey data, a summary analysis is presented in the Response document Tables 3.1-3.3. In my review of this data I observed several errors/miscalculations (e.g. Table 3.1 calculations of % Peak Count recorded in inner estuary 2012/13 for Great crested Grebe, red-breasted Merganser and Goldeneye are incorrect), and a pooled analysis should have been considered. However, despite these minor errors, it is clear that the inundated waters of the inner estuary are of significance for the SPA population of Great Crested Grebe and Red-breasted Merganser in particular, and that a high proportion of Godeneye within the inner estuary are also to be found in waters close to the railway embankment.

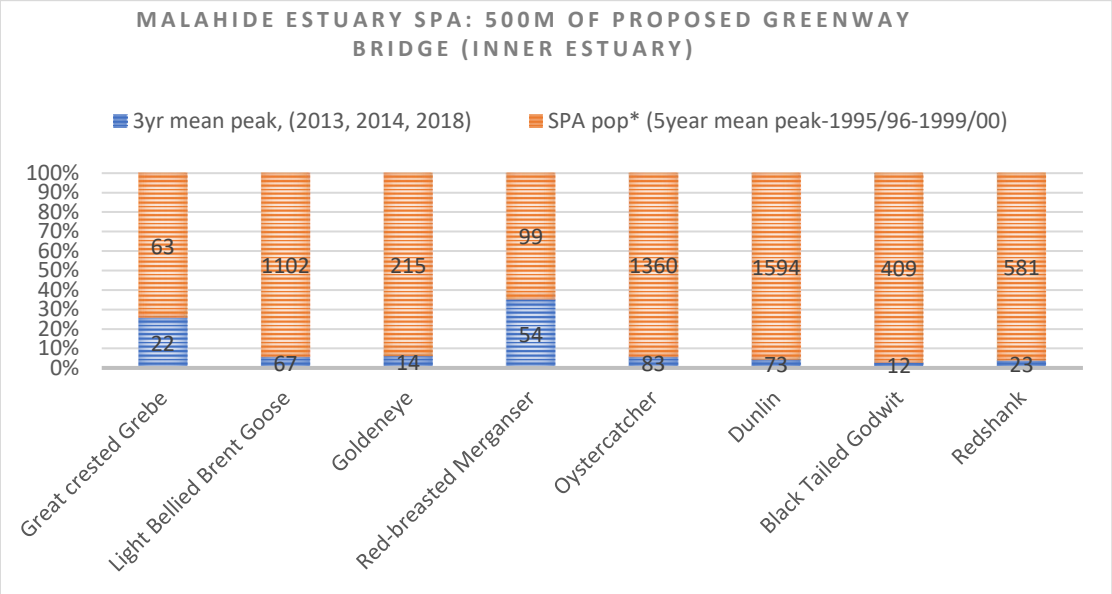
4.48. To assist the Board, I include a summary table of peak numbers of SCI bird species recorded within 500m of the embankment within the inner estuary during surveys undertaken over the winter period 2017/2018 (corrected from Table 3.3). The peak number is also presented as a percentage of the total number of birds recorded within the inner estuary that season and importantly as a percentage of the SPA population[1]. Diving ducks occurring in significant numbers are highlighted; Great-crested Grebe and Red-breasted Merganser.

Table 5: Summary table of peak numbers of SCI bird species Malahide Estuary SPA recorded within 500m of the railway embankment (inner estuary 2017/18).

SCI bird species	Peak no. <500m	Peak related to inner estuary %	peak related to % SPA population*
Great crested Grebe	27	67.5	42.8
Light Bellied Brent Goose	116	12.86	10.5
Shelduck	0	0	0
Pintail	0	0	0
Goldeneye	6	5.04	2.8
Red-breasted Merganser	44	86.27	44.4
Oystercatcher	199	51.96	14.6
Golden Plover (A1)	0	0	0
Grey Plover	0	0	0
Knot	0	0	0
Dunlin	219	59.19	13.7
Black Tailed Godwit	28	5.97	6.8
Bar-tailed Godwit (A1)	0	0	0
Redshank	53	47.32	9.1

[1] SPA population baseline based on 5 year mean peak of years 1995/96-1999/2000

4.49. For illustrative purposes, I also include a graphic based on pooled data of the mean peak numbers of birds recorded within 500m of the embankment within the inner estuary during surveys undertaken over the winter period 2012/13, 2013/14 and 2017/18 as a percentage of the SPA population.



4.50. A literature review on available information on these species is included in the Response document. This provides scientific evidence of disturbance distances for these species. Studies are mainly related to 'on the water' disturbances caused by passing boats and range from 50-200m. A study on disturbance impacts on Goldeney showed that disturbance caused by people on the shore were recorded as 100-200m with bird immediately resettling elsewhere on the water.

4.51. The diving ducks feeding within 200m of the greenway tend to be widely dispersed and less likely to react as a flock. Information gained through the surveys suggest that on many occasions all three diving duck species have been observed continuing to feed within relatively short distances (<100m) of sailing boats in the inner estuary.

4.52. Evidence from the literature review also supports the main mitigation proposed for the minimisation of such effects which is visual screening. The provision of the proposed 1.2m high continuous wall (with top rail up to 1.4m) along the extent of the greenway on the railway embankment will screen movements of pedestrians/cyclists and dogs from birds present on the water within this possible disturbance zone of up to 200m.

4.53. In addition, the usage of a predictable linear route is likely to encourage habituation of birds occurring in the anecdotal evidence of this is stated as observable elsewhere around the inner estuary where footfall is relatively high.

4.54. Concerns were raised in a submission that the impacts of high pressure treated timber on the Malahide Estuary Special Protection Area (SPA) species have not been considered. I note that no such boundary treatment is proposed over the causeway itself as at the boundary will be a solid wall, therefore there could not be any possible ingress or leaching of compounds used in the treated timber into the receiving waters or sediments. The pressure treated timber fencing is proposed for use on terrestrial habitats at Kilcrea/Corballis. This form of boundary treatment is standard in agricultural practice and is not considered to be a risk to SCI birds that might forage in this area from time to time.

Lighting

4.55. The issue of possible light pollution arising from the illumination of the greenway path and its effects on birds has been considered. The approach is based on avoidance of effects rather than an assessment of bird presence in the area during the hours of darkness. A report on the proposed public lighting of the Broadmeadow Way including 'glowplans' is included in the Appendices of the NIS and expanded upon in the Response Document. The avoidance of light spill onto the open water of the Estuary is a key aspect of the design. This will be achieved by optics of reduced height (1.8m) which direct light on the trail surface only, with the rear of the light fitting backing on to the estuary. Resultant light levels from this arrangement ensure no light spill onto the open water of the inner estuary. I also note that the lighting will not be in constant use during hours of darkness with controlled dimming levels and by occupant detection.

4.56. Taking into account the evidence provided and the integration of design measures to ensure a continuous screening of the walkway over the causeway and exclusion of light spill on the adjacent waters the I consider that the potential for adverse effects on the distribution of SCI bird species along this section is excluded. There will be no significant decrease in the range, timing or intensity of use of areas by waterbird species, other than that occurring from natural patters of variation.

Ex situ effects

4.57. I have also examined possible ex-situ effects on agricultural lands at Kilcrea and Corballis which are occasionally used by SCI bird species and part of the wide range of alternative feeding and roost sites in the wider Dublin bay area. Light-bellied Brent Geese occur in numbers of international importance in Broadmeadow Estuary and these highly mobile species have been recorded on agricultural lands in this area on various occasions over the survey periods documented. Other SCI species including Shelduck, Black-tailed Godwit, Redshank have also been recorded occasionally in and around the brackish water channel of the River Pill/Turvey.

4.58. The presence of people using the greenway along the headlands of the agricultural fields at this location is unlikely to result in significant disturbance of occasional foraging geese or other birds and it does not reduce the foraging habitat available to wintering waterbirds. The area along the north shore will be fenced off to ensure that people and dogs cannot access the shoreline or the lands at Kilcrea and the design has been amended to exclude a viewing area at this location.

Other SPA sites in the wider Dublin Bay area

4.59. Movements of birds throughout Dublin Bay is not well understood but it is assumed that some birds move widely between coastal sites and utilise a range of foraging ad roosting sites. It is likely that many of the qualifying bird species move between coastal SPAs within the greater Dublin Bay area and the potential for wider scale impacts were considered for the following sites; Lambay Island. SPA, Ireland's Eye SPA, Rogerstown Estuary SPA, Bull Island SPA, Baldoyle Bay SPA and Skerries Islands.

4.60. There were infrequent records of wintering bird species that are common to the SPAs within proximity to the proposed Broadmeadow Way. The possibility of significant effects on SPA sites designated for breeding seabirds was excluded based on further examination of bird survey data in the NIS.

4.61. I consider reasonable the assumption stated in the NIS that if adverse effects on the Malahide Estuary SPA can be excluded with the provision of effective mitigation, the resource value of this site will also be maintained for other mobile species which may occur in the area from time to time. Therefore, adverse effects on the SCI from other SPA sites can be excluded.

4.62. **In combination effects with other plans and projects**

4.63. The potential for effects the proposed development to give rise to act in combination with other plans and projects was assessed in the NIS and supplemented with additional information in the Response document. The assessment takes into account the existing activities of the inner and outer estuary. Disturbance events were recorded throughout the course of the bird surveys and most observations related to when people and their dogs accessed the shore or intertidal mudflats. The provision of the continuous wall along the railway embankment and fencing along the north shore will ensure that the proposed greenway will not add to such disturbance events.

4.64. Possible interactions with any residual effects of historical projects in the area including the M1 Road bridge, Malahide and Swords Wastewater treatment plants, Baldoyle to Portmarnock pedestrian and cyclist greenway and the remedial works to the Malahide Railway bridge within the Estuary were all examined and assessed as not posing any possible additive effect to the Broadmeadow Way project. Similarly, an examination of current projects and plans excludes the possibility of adverse cumulative effects.

4.65. Based on my examination of the NIS, wintering bird surveys, response document, NPWS data and scientific evidence provided, adverse effects to the integrity Malahide Estuary SPA will not arise provided the mitigation measures are implemented in full. The potential for adverse effects on the integrity of SPA sites of the greater Dublin Bay area including Lambay Island. SPA, Ireland's Eye SPA, Rogerstown Estuary SPA, Bull Island SPA, Baldoyle Bay SPA and Skerries Islands SPA are also excluded on this basis.

4.66. Continued monitoring of bird use within the wider Malahide Estuary will be supplemented with targeted surveys of the zone of influence as defined in the NIS and shall be undertaken over a 5-year period. A condition related to the monitoring is attached.

5.0 Appropriate Assessment Conclusion

Having carried out screening for appropriate assessment of the proposed Broadmeadow Way project, it was concluded that it may result in significant effects on Malahide Estuary SAC and Malahide Estuary SPA. In addition, it was not possible to screen out potential impacts on other SPA sites in the wider Dublin Area. Consequently, an appropriate assessment was required of the implications of the project on the qualifying features of the following European sites in light of their conservation objectives:

- Malahide Estuary SAC
- Malahide Estuary SPA
- SPA sites in the wider Dublin Bay area for which interaction with Malahide Estuary could not be ruled out: Lambay Island. SPA, Ireland's Eye SPA, Rogerstown Estuary SPA, Bull Island SPA, Baldoyle Bay SPA and Skerries Islands SPA.

Following Appropriate Assessment, it has been ascertained that the proposed development, individually or in combination with other plans or projects would not adversely affect the integrity of or Malahide Estuary SAC, Malahide Estuary SPA or any other European site, in view of the sites Conservation Objectives. No reasonable scientific doubt remains as to the absence of such effects.

This conclusion is based on:

- A full and detailed assessment of all aspects of the proposed project including proposed mitigation measures and ecological monitoring in relation to the Conservation Objectives of Malahide Estuary SAC, Malahide Estuary SPA and other SPA sites in the wider Dublin Bay area including; Lambay Island. SPA, Ireland's Eye SPA, Rogerstown Estuary SPA, Bull Island SPA, Baldoyle Bay SPA and Skerries Islands SPA.

- Detailed assessment of in combination effects with other plans and projects including historical projects, current proposals and future plans.
- No reasonable scientific doubt as to the absence of adverse effects on the integrity of Malahide Estuary SAC following the application of all mitigation measures.
- The application of mitigation measures including the continuous solid wall along the inner estuary which will ensure no adverse effects on the distribution of wintering bird species including Great Crested Grebe, Red-breasted Merganser and Goldeneye of Malahide Estuary SPA or bird species from other SPA sites within the wider area of Dublin Bay.

Conditions

1. A suitably qualified ecologist shall be retained by the local authority to oversee the site set up and construction of the proposed development and implementation of mitigation and all monitoring measures relating to ecology set out in the NIS and outline CEMP. The ecologist shall be present during site construction works. Ecological monitoring reports detailing all monitoring of the site works shall be prepared by the appointed ecologist to be kept on file as part of the public record.

   Reason: In the interest of nature conservation and the protection of terrestrial and marine biodiversity.

2. A qualified ecologist /ornithologist with relevant experience will be appointed by Fingal County Council to develop and undertake /co-ordinate a bird monitoring programme during the construction phase and for the operational phase of the development with surveys being undertaken in year 1, year 3 and year 5 of the operation of the greenway. Such monitoring may be a continuation of surveys of the overall bird usage of the Inner and outer Estuary using standard survey methodologies, but it must also include the following:

- Targeted monitoring of distribution, abundance and behaviour of diving ducks including Red Breasted Merganser, Great Crested Grebe and Goldeneye within 500m of the Greenway crossing of the inner Estuary

- Bird distribution and usage of agricultural lands through which the greenway traverses (including Kilcrea North, Kilcrea South and Corballis)

Data collected over the survey period should be analysed taking account of greenway user numbers and reports will be made available to the public.

Reason: In the interest of nature conservation and the protection of terrestrial and marine biodiversity.

Dr Maeve Flynn MCIEEM
Inspectorate Ecologist

16th March 2020