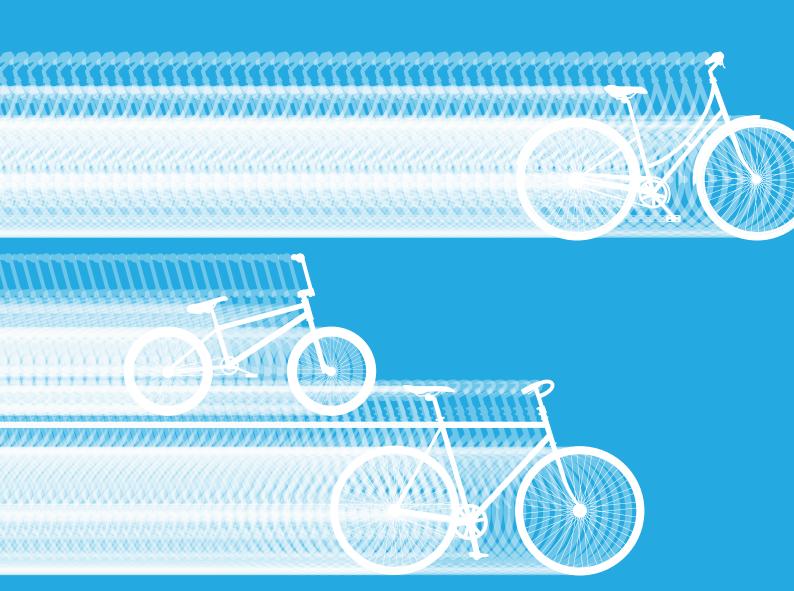


Greater Dublin Area

Cycle Network Plan

Appropriate Assessment
- Natura Impact Statement



Greater Dublin Area Cycle Network

Natura Impact Assessment

TABLE OF CONTENTS

1.0	INTRODUCTION	1
2.0	DESCRIPTION OF PLAN	1
2.1	Overview	1
2.2	Cycle Routes and Potential Impacts	2
2.3	Screening Assessment Conclusion	3
3.0	POTENTIAL IMPACTS ON NATURA 2000 SITES AND ASSESSMENT OF SIGNIFICANCE	3
3.1	Sites where impacts are possible	3
4.0	PROPOSED MITIGATION MEASURES	13
4.1	Proposed Mitigation measures for Natura 2000 Sites	13
5.0	IN-COMBINATION EFFECTS	32
5.1	Sites where Potential In-Combination Effects have been Identified and associated	k
	Plans	32
5.2	Sites where Potential In-Combination Effects have been Identified as a result of	
	increased Visitor Usage	
5.3	In-combination assessment of National Cycle Network and Eurovelo International	
	Cycle Route Network	
5.4	Summary of In-Combination Effects	39
6.0	CONCLUSION	40

Appendix A - Conservation Objectives Attributes and Targets, Potential Impacts and Mitigation for each Screened In Natura 2000 Site

1.0 INTRODUCTION

This Report presents the results of Stage 2 of the Habitats Directive Appropriate Assessment (AA) of the National Transport Authority's (NTA) 'Greater Dublin Area Cycle Network Plan'.

The aim of Stage 2 of the Appropriate Assessment process, the 'Appropriate Assessment' itself, is to examine the significant negative impacts (identified in the screening report) that a plan or project might have upon Natura 2000 sites; and to propose changes to the Plan that will avoid any such negative impacts, including the implementation of mitigation measures where required.

The Plan should then be amended accordingly, thereby avoiding the need to progress to Stages 3 and 4 of the AA process, which would require the implementation of measures to mitigate or compensate for any residual significant negative impacts on Natura 2000 sites and/or to demonstrate 'Imperative Reasons of Overriding Public Interest' (IROPI) for the Plan to progress.

The Stage 2 assessment process involves the collection of data on the Plan and on the various Natura 2000 sites that might be impacted upon. The resultant information and assessment are presented in this document, the 'Natura Impact Statement' (NIS). Submissions received from the statutory Environmental Authorities on the draft Plan's NIS have also been taken into account and where deemed necessary changes have been made to this document to incorporate these.

Department of the Environment, Community and Local Government (DoECLG) guidelines (DoECLG, 2009) state that the NIS should fulfil the following requirements:

- Describes the Plan in sufficient detail to make clear its size, scale and objectives;
- Describes the baseline conditions, conservation objectives, and relevant ecological and environmental issues in relation to the relevant Natura 2000 sites:
- Identifies the potential adverse impacts of the Plan on the Natura 2000 sites;
- If possible, explains how the effects will be avoided through mitigation; and
- Sets out a timescale and identifies the mechanisms through which the mitigation measures will be secured and implemented.

The description of the Plan is covered in Section 2 of this NIS. Section 3 of this NIS identifies and discusses the potential significant impacts of the plan on the Natura 2000 sites that have been previously identified at screening report stage and following on from this the mitigation measures that may be required to avoid these impacts.

2.0 DESCRIPTION OF PLAN

2.1 Overview

The proposed Greater Dublin Area Cycle Network Plan is being developed by the National Transport Authority to support strategic planning of transport in the Greater Dublin Area and to promote increased recourse to cycling as a means of transport. The Plan aims to set a framework for the development consent of cycle projects at a strategic level and therefore is subject to a Habitats Directive Assessment.

The Cycle Network Plan comprises the Urban Network, Inter-Urban Network and Green Network and is developed for each of the seven local authorities comprising of the Greater Dublin Area (GDA), namely:

- Dublin City Council (DCC);
- Dun Laoghaire Rathdown County Council (DLRCC);
- Fingal County Council (FCC);
- Kildare County Council (KCC);
- Meath County Council (MCC);
- South Dublin County Council (SDCC);
- Wicklow Count Council (WCC).

The Cycle Network Plan identifies in a consistent, clear and logical manner the following cycle networks within the GDA:

- The Urban Cycle Network (as described in 3.2.1 of the NTA Cycle Manual) at the Primary, Secondary and Feeder level;
- The Inter-urban Cycle Network linking the relevant sections of the Urban Network and including the elements of the National Cycle Network within the GDA. It shall also include linkages to key transport locations outside of urban areas such as airports and ports; and
- The Greenway Network being cycle routes developed predominately for tourist, recreational and leisure purposes.

The Cycle Network Plan for each local authority area is consistent with each adjacent plan, with continuity of route networks across administrative boundaries.

2.2 Cycle Routes and Potential Impacts

The **Urban Cycle Network** is made up of primary, secondary and feeder routes and is made up largely of on-road routes that anticipate the requirement for control measures such as speed restriction, signage, traffic management and road markings. New bridges may also be required in the future on the urban network, in places where gaps have been identified on the network or where river/canal crossing points may be necessary (e.g. New bridge over the River Liffey on Route no. 9 and proposed new bridges along the Liffey Greenway and over Grand Canal etc.)It is anticipated that there will be no direct impact as a result of the provision/ upgrade of the urban cycle network. However, consideration is given to indirect impacts as a result of the plan, including increased visitor pressures and disturbance to sensitive habitats and species.

The Inter Urban Cycle Network links towns, city and other facilities outside urban areas. Similar to the urban network, it largely concerns the provision of new signage, speed restriction, traffic management and road markings. However in situations where the existing road infrastructure exhibits constraints for cycling, such as those related to safety, there may occasionally be a requirement for the provision of cycle tracks within the verge of the existing roads, and where dangerous bends are present, minor realignment works and therefore both a direct and indirect impact on sensitive habitats and species.

The **Greenway routes** comprise a combination of existing and proposed routes that are largely off road. Greenways generally are located in scenic areas, along coastal paths or riverine environments and due to the nature and location of these sites are

most likely to come in conflict with sites of conservation interest, occasionally within or adjoining Natura 2000 Sites. Many of the proposed greenways are made up of existing amenity areas but will require upgrades, ranging from minor upgrade works, to the provision of new pedestrian and cycle facilities. Other Greenways may be new routes and will provide an amenity that did not exist prior to the cycleway. There is potential for greenway routes to have a direct impact on Natura 2000 sites, through construction of pathways within or in proximity to the site or indirectly by providing a new or improved access to sites, that are sometimes highly sensitive to disturbance and visitor pressures.

2.3 Screening Assessment Conclusion

An Article 6 Screening Assessment of the GDA Cycle Network Plan has been undertaken. This screening assessment considered if potential significant effects are likely on European Sites. The screening assessment concluded that significant effects on the integrity of Natura 2000 sites could potentially occur, and therefore a full Article 6 Assessment was required to be undertaken for each significantly affected site. The assessment process included consultation with the National Parks and Wildlife Service and the outcome of this exercise has informed this NIS.

3.0 POTENTIAL IMPACTS ON NATURA 2000 SITES AND ASSESSMENT OF SIGNIFICANCE

The Screening report for this assessment presented details of all of the Natura 2000 sites within the Cycle Network Plan area (Counties Wicklow, Dublin, Meath and Kildare) or close enough to the boundary of the region that impacts were considered to be a possibility. Tables 4.1 and 4.2 of the Screening Report presented details, including the Qualifying Features, of all Natura 2000 (SACs and SPAs) sites located within 15km of any cycling route proposal.

3.1 Sites where impacts are possible

The screening exercise identified 32 sites where direct or indirect impacts could potentially occur. The SAC and SPA sites where potential direct and indirect impacts were identified are listed below in tables 3.1 and 3.2, along with the impact description and qualifying interests. Prior to this exercise being completed, the conservation objectives for each of the Qualifying Interests (QI) were examined for all the sites screened in for Appropriate Assessment. Where site specific conservation objectives were not available for a site, the site specific conservation objectives for other sites that have the same qualifying interests were used in order to ensure that the assessment considered the necessary attributes and targets for each QI. The complete assessment for each of the QI's present on each site can be found in Appendix A of this report. Where mitigation measures were generated as a result of this table these have been included in Section 4.1 of this report.

Table 3.1 Special Areas of Conservation where Direct and Indirect Impacts are Possible

Site code	Site Name	Qualifying interest	Description of plan impacting on the SAC
000199	Baldoyle Bay	Mudflats and sandflats not covered by seawater at low tide Salicornia and other annual colonizing mud and sand Atlantic salt meadows (Glauco-Pucinellietalia maritimae) Mediterranean salt meadows (Juncetalia maritime)	Primary/secondary route P1, Radial Route 1A and the Eastern Greenway are all in proximity to or within the SAC. While existing infrastructure is in place for much of this route, there is potential for additional works, including the provision of the Greenway. This has the potential to result in increased disturbance to the area. Salicornia habitats are identified as being under pressure from walking, horse-riding and non-motorised vehicles. Atlantic salt meadows and Mediterranean salt meadow habitats are identified as being under pressure from walking, horse riding and non-motorised vehicles along with the provision of paths, tracks and cycling tracks
000202	Howth Head	Vegetated sea cliffs off the Atlantic and Baltic coasts European dry heaths	Provision of a Greenway and on road facilities for Route 1A. The route severs the SAC on the southern side of Howth Head only, but this section of the route is along an existing road. As the route is within the SAC it cannot be screened out for Appropriate Assessment.
000205	Malahide Estuary	Mudflats and sandflats not covered by seawater at low tide Salicornia and other annuals colonising mud and sand Spartina sward (Spartinion marintiae) Atlantic salt meadows (Glauco-Puccinellietalia maritimae) Mediterranean salt meadows (Junctelia maritime) Shifting dunes along shoreline with Ammophila arenaria (white dunes) Fixed coastal dunes with herbaceous vegetation (grey dunes)*	Proposed Greenways P1/FG4 directly impacting on the SAC. Potential for direct loss of habitats and increased disturbance / visitor pressure on sensitive coastal habitats.
000206	North Dublin Bay	Mudflats and sandflats not covered by seawater at low tide	Route 1A adjoining or directly impacting the SAC. East coast trail adjoining Dublin Bay, Santry River Greenway

Site code	Site Name	Qualifying interest	Description of plan impacting on the SAC
		Annual vegetation of drift lines Salicornia and other annuals colonizing mud and sand Atlantic salt meadows (Glauco-Puccinellietalia maritimae) Mediterranean salt meadows (Juncetalia maritime) Embroyonic shifting dunes Shifting dues along the shoreline with Ammophila arenaria (white dunes) *Fixed coastal dunes with herbaceous vegetation (grey dunes) Humid dune slacks Petalophyllum ralfsii	within SAC. While much of the infrastructure is in place, the Santry River Greenway is at plan stage only. The SAC is sensitive to disturbance and increased visitor pressure as well as direct impact from loss of habitat.
000208	Rogerstown Estuary	Estuaries Mudflats and sandflats not covered by seawater at low tide Atlantic salt meadows (Glauco-Puccinellietalia maritimae) Mediterranean salt meadows (Juncetalia maritime) Shifting dunes along the shoreline with Ammophila arenaria (white dunes) *Fixed coastal dunes with herbaceous vegetation (grey dunes)	Greenway FG1 adjoins and crosses the SAC. Route RU2 joins the SAC to the north. Habitats are potentially directly impacted by works within the site along with the potential for increased visitor pressures on sites, in particular Fixed and Shifting dunes.
000210	South Dublin Bay	Mudflats and sandflats not covered by seawater at low tide	Route 13E and Greenway for the East Coast Trail adjoins the length of the south Dublin bay. The site could be directly impacted by the greenway if construction was to occur on mudflats or sand flats and is therefore screened in. The habitat type is not sensitive to visitor pressure and there is no risk to the SAC indirectly.
000396	Pollardstown Fen	*Calcareous fens with Cladium mariscus and speces of the Caricion davallianae	Greenway K12 is proposed though the centre of fen. Direct impact potential on priority habitats and species. Potential for impact on hydrology and direct loss

Site code	Site Name	Qualifying interest	Description of plan impacting on the SAC
		*Petrifying springs with tufa formation (Cratoneurion) Alkaline fens Vertigo geyeri Vertigo angustior Vertigo moulinsiana	of habitat.
000713	Ballyman Glen	*Petrifying springs with tufa formation (<i>Cratoneurion</i>) Alkaline fens	Intersected by W2 inter-urban route. Existing infrastructure is in place, however, new infrastructure has potential for impact on the SAC.
000714	Bray Head	Vegetated sea cliffs of the Atlantic and Baltic coasts European dry heaths	W4 interurban with good cycling facilities already present to the west of SAC. W11 Greenway (East Coast Trail) potentially has a direct impact on the conservation objectives.
000729	Buckroney- Brittas Dunes and Fen	Annual vegetation of drift lines Perennial vegetation of stony banks Embryonic shifting dunes Shifting dunes along the shoreline with Ammophila arenaria (white dunes) *Fixed coastal dunes with herbaceous vegetation (grey dunes) *Atlantic decalcified fixed dunes (Calluno-Ulicetea) Dunes with Salix repens spp. Argentea (Salix arenariae) Humid dune slacks Alkaline fens	W11 Interurban route (East Coast Way) using existing road infrastructure with no works required, no direct impact predicted. However the completion of an east coast way may increase visitor pressure to sensitive habitat types in particular dune systems resulting in potential impact on the SAC.
000733	Vale of Clara (Rathdrum Wood)	Old sessile oak woods with Ilex and Blechnum in the British Isles	W13 Interurban route intersects SAC, upgrading of paths may be deemed necessary, potential impacts on the SAC cannot be ruled out.
000781	Slaney River Valley	Estuaries Mudflats and sandflats not covered by seawater at low tide Water courses of plain to montane levels with Ranunculion fluitantis and Callitricho- Batrachion vegetation Old Sessile oak woods with Ilex and Blechnum	Interurban routes W17, W15, W14 and Greenway W16 impact on the Slaney Upper Reaches. Potential for direct impact to protected species and habitats at crossing points at any of these locations.

Site code	Site Name	Qualifying interest	Description of plan impacting on the SAC
		in the British Isles *Alluvial forests with Alnus glutionosa and Fraxinus excelsior (Alno- Padion, alnion incanae, Salicion albae) Freshwater Pearl Mussel Margaritifera mrgaritifera Sea Lamprey Petromyzon marinus Brook Lamprey Lampetra planeri River Lamprey Lampetra fluviatilis Twaite Shad Alosa fallax Atlantic salmon Salmo salar (only in fresh water) Otter Lutra lutra Harbour Seal Phoca	
001209	Glenasmole Valley	vitulina Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco Brometalia) (*important orchid sites) Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) *Petrifying springs with tufa formation (Cratoneurion)	Dodder Greenway within the valley and increased access to the site. Potential direct impacts on habitats present.
001398	Rye Water Valley / Carton	*Petrifying springs with tufa formation (Cratoneurion) Vertigo angustior Vertigo moulinsiana	Greenway K1 crosses though SAC, L1 and C7 primary / secondary feeder networks within SAC. Assessment needed at project level to determine impacts.
001742	Kilpatrick Sandhills	Annual vegetation of drift lines Embryonic shifting dunes Shifting dunes along the shorelines with ammophila arenaria (white dunes) *Fixed coastal dunes with herbaceous vegetation (grey dunes) Atlantic decalcified fixed	Interurban route (spur of W11, on road section of the East Coast Trail) links to site. Increase in visitor pressure potential from East Coast Trail.

Site code	Site Name	Qualifying interest	Description of plan impacting on the SAC
		dunes (Calluno-Ulicetea)	
001766	Magherabeg Dunes	Annual vegetation of drift lines Embryonic shifting dunes Shifting dunes along the shoreline with Ammophila arenaria (white dunes) *Fixed coastal dunes with herbaceous vegetation (grey dunes) *Atlantic decalcified fixed dunes (Calluno-Ulicetera) *Petrifying springs with tufa formation (Cratoneurion)	W11 On road section of the East coast Trail is 100 m from the SAC. This site is sensitive to disturbance and visitor pressure.
001957	Boyne Coast and Estuary	Estuaries Mudflats and sandflats not covered by seawater at low tide Salicornia and other annuals colonizing mud and sand Atlantic salt meadows (Glauco-Puccinellietalia maritimae) Mediterranean salt meadows (Juncetalia maritime) Embroyonic shifting dunes Shifting dunes along the shoreline with Ammophila arenaria (white dunes) *Fixed coastal dunes with herbaceous vegetation (grey dunes)	M1 East Coast Greenway potentially directly impacting on the SAC. Potential for increased visitor pressure
002162	River Barrow and River Nore	Estuaries Mudflats and sandflats not covered by seawater at low tide Salicornia and other annuals colonizing mud and sand Atlantic salt meadows (Glauco-Puccinellietalia maritimae) Mediterranean salt meadows (Juncetalia	Directly impacted on SAC with (K11) Barrow Canal Greenway and K15 & K20 interurbans intersecting the SAC. Potential impact on riparian habitat, water quality and aquatic environment. Hydrogeology potentially impacted upon. Increased visitor pressure.

Site code	Site Name	Qualifying interest	Description of plan impacting on the SAC
		maritime)	
		Water courses of plain	
		to montane levels with	
		Ranunculion fluitantis	
		and <i>Callitricho-</i>	
		Batrachion vegetation	
		European dry heaths	
		Hydrophilous tall herb	
		fringe communities of	
		plains and of the	
		montane to alpine levels	
		*Petrifying springs with tufa formation	
		(Cratoneurion)	
		Old sessile oak woods	
		with <i>Ilex</i> and <i>Blechnum</i>	
		in the British Isles1990	
		*Alluvial forest with	
		Alnus Glutinosa and	
		Fraxinus excelsior (Alno-	
		Padion, Alnion incanae,	
		Salicion albae)	
		Desmoulin's whorl snail	
		Vertigo moulinsiana	
		Freshwater pearl mussel	
		Margaritifera	
		margaritifera	
		While-clawed crayfish	
		Austropotamobius pallipes	
		Sea lamprey	
		Petromyzon marinus	
		Brook lamprey <i>Lampetra</i>	
		planeri	
		River lamprey Lampetra	
		fluviatilis	
		Twaite shad Alosa fallax	
		Atlantic salmon (Salmo	
		salar) (only in	
		freshwater)	
		Otter Lutra lutra	
		Killarney fern	
		Trichomanes speciosum	
		Nore freshwater pearl	
		mussel <i>Margaritifera</i> durrovensis	
002249	The	Annual vegetation of	East Coast Greenway and Greenways
3022-13	Murrough	drift lines	that link W4 Interurban to the East
	Wetlands	Perennial vegetation of	Coast Greenway potentially directly
		stony banks	impacting on the SAC.
		Atlantic salt meadows	Potential for direct impact on habitats.
		(Glauco-Puccinellietalia	Increased disturbance. Potential for

Site code	Site Name	Qualifying interest	Description of plan impacting on the SAC
		maritimae) Mediterranean salt meadows (Juncetalia maritime) *Calcareous fens with Cladium mariscus and species of the Claricion davallianae Alkaline fens	hydrological impacts.
002299	River Boyne and River Blackwater	Alkaline fens *Alluvial forests with Alnus gultinosa and Fraxinus excelsior (Alno- Padion, alnion incanae, Salicion albae) River lamprey Lampetra fluviatilis Atlantic salmon Salmo salar (in freshwater only) Otter Lutra lutra	Proposed Boyne greenway along the banks of the Boyne River with potential to have impact directly on protected habitats, and indirectly though impact on water quality on some species
002342	Mount Hevey Bog	*Active raised bogs Degraded raised bogs still capable of natural regeneration Depressions on peat substrates of the Rhynchosporion	Adjoining the Dublin – Galway cycleway at the Royal canal. Potential impact on hydrology.

Table 3.2 Special Protections Areas where Direct and Indirect Impacts are Possible

Site code	Site Name	Qualifying interest	Description of plan impacting on the SAC
004006	North Bull Island	Branta bernicla hrota Tadorna tadorna Anas crecca Anas acuta Anas clypeata Haematopys ostralegus Pluvialis squatarola Calidris canutus Calidris alba Calidris alpine Limosa limosa Limosa lapponica Numenius arquata Tringa tetanus Arenaria interpres Chroicocephalus ridibundus	Adjoining Eastern Greenway along Clontarf with potential disturbance on bird life.

Site code	Site Name	Qualifying interest	Description of plan impacting on the SAC
		Wetlands	
004015	Rogerstown Estuary	Anser anser Branta bernicla hrota Tadorna tadorna Anas clypeata Haematopus ostralegus Charadrius hiaticula Pluvialis squatarola Calidris canutus Calidris alpine alpine Limosa limosa Tringa tetanus Wetlands	Eastern Greenway adjoining and within SPA. Potential for loss of habitat and disturbance to birds
004016	Baldoyle Bay	Branta bernicla hrota Tadorna tadorna Charadrius hiaticula Pluvialis apricaia Pluvialis squatarola Limosa lapponica Wetlands	Eastern Greenway adjoining and within SPA. Potential for loss of habitat and disturbance to birds
004024	South Dublin Bay and River Tolka Estuary	Branta bernicla hrota Haematopus ostralegus Chardrius hiaticula Calidris alba Calidris alpine Limosa lapponica Tringa tetanus Sterna dougallii Sterna paradisaea Wetlands	Eastern Greenway adjoining and within SPA. Potential for loss of habitat and disturbance to birds
004025	Malahide Estuary	Podiceps cristatus Branta bernicla hrota Tadorna tadorna Anas acuta Bucephala clangula Mergus serrator Haematopus ostralegus Pluvialis apricaria Pluvialis squatarola Calidris canutus Calidris alpine Limosa limosa Limosa lapponica Tringa tetanus Wetlands	Eastern Greenway adjoining and within SPA. Potential for loss of habitat and disturbance to birds
004040	Wicklow Mountains	Falco columbarius Falco peregrines	No greenways proposed in proximity to SPA, but several interurban routes are included within the plan; however there should be minimal increase in visitor numbers within the SAC 002122. The cycle route is considered

Site code	Site Name	Qualifying interest	Description of plan impacting on the SAC
			difficult, thus a limited increase in visitor numbers is anticipated. Qualifying interests with large territories are unlikely to experience disturbance
004063	Poulaphouca Reservoir	Anser anser Larus fuscus	No greenways proposed in proximity to SPA. Interurban W10 within the SPA. Need for further consideration in terms of disturbance to birds.
004080	Boyne Estuary	Tadorna tadorna Haematopus ostralegus Pluvialis apricaria Pluvialis squatarola Vanellus vanellus Calidris canutus Calidris alba Limosa limosa Tringa tetanus arenaria interpres Sterna albifrons Wetlands	Boyne Greenway adjoins the SPA and is potentially within the SPA. Potential for direct impact to habitat and increased disturbance from visitors to birds.
004158	River Nanny Estuary and Shore	Haematopus ostralegus Charadrius hiaticula Pluvialis apricaria Calidris canutus Calidris alba Larus argentatus Wetlands	Eastern Greenway adjoining and within SPA. Risk of disturbance and destruction of wetlands
004186	The Murrough	Gavia arctica Anser anser Branta bernicla hrota Anas Penelope Anas Crecca Chroicocephalus ridibundus Larus argentatus Sterna albifrons Wetlands	Eastern Greenway directly adjoins and within the SPA. Impact on habitat and disturbance to species
004235	River Boyne and River Blackwater	Alcedo atthis	Boyne Greenway is directly within and adjoining the SPA. Potential impact on habitat and species

4.0 PROPOSED MITIGATION MEASURES

It should be noted, that within the Plan all proposed routes are indicative only and will be subject to even further rigorous assessment as required under the Habitats Directive at the next plan/project level. Screening for AA and where required full AA will be carried out for any plan or project which individually or in combination with other plans or projects is likely to have a significant direct or indirect impact on any Natura 2000 site.

The section that follows presents the proposed mitigation measures for each of the Natura 2000 sites where a likely significant impact has been predicted. These mitigation measures seek to target the likely significant impacts that may occur from an examination of the cycle routes at this strategic level. As stated above further more detailed mitigation will be expected at the next lower plan/project level.

4.1 Proposed Mitigation measures for Natura 2000 Sites

Site Name	Site Cod Designation	le and
Baldoyle	000199 – SAC	;
Bay	004016 - SPA	\

Proposed Cycle Routes

Greenway Routes - Eastern Greenway (P1/FG1/N5) Other Routes - Primary/secondary route P1/FG1/N5 Other Routes - Radial Route 1A/N5

Mitigation Measures Proposed for SAC

- Any future development of the proposed cycle routes will include an assessment of any impacts that may arise from increased visitor pressures, in particular, on sensitive Natura 2000 habitats such as Salicornia habitats, Atlantic salt meadows and Mediterranean salt meadow habitats.
- Design should consider the provision of protective measures on sites sensitive to disturbance/visitor pressure e.g. provision of physical barriers, hedgerows, any natural barriers or simply by not facilitating access onto the sensitive habitat.

- Any future development of the proposed cycle route including works on the
 existing roadway should include assessment of any impacts that may arise as a
 direct (habitat or species destruction) and indirect (increased
 recreational/tourism pressure) result of the route on the sensitive bird species
 which include Brent Goose, Shelduck, Ringed Plover, Golden Plover, Grey
 Plover, Bar-tailed Godwit and the wetland habitat that all these species use.
- Consideration of mitigation for the restriction of increased visitor numbers may require further investigation e.g. the provision of cycle facilities may be restricted and provided away from qualifying habitats and species.
- Interrelationships between Natura 2000 sites in particular for bird populations that may use more than one site should be considered in impact assessment.

Monitoring of operational phase of the project will be carried out if necessary, which will additionally assist assessment of cumulative impacts

- Signage in the form of information boards could be provided denoting the presence of Natura 2000 sites and the qualifying interests present, to promote respect of the sensitivity of the environs by recreational users.
- Projects should carry out assessment on predicted visitor numbers at sensitive sites to allow for further project level mitigation.
- The timing of any construction works required as part of the development of any proposed route, that may cause disturbance to the qualifying species of the site, shall take place at a time of year that will not have an adverse impact on the bird population using the area (e.g. wintering wildfowl).

Site Name	Site Design	Code nation	and	
Howth Head				

Proposed Cycle Routes

Greenway Routes - 1A/N5 Other Routes - Route 1A/N5 (Dublin - Secondary)

Mitigation Measures Proposed for SAC

- Any future development of the proposed cycle route will include an assessment
 of any impacts that may arise from increased visitor pressures in particular on
 sensitive habitats and species such as Vegetated sea cliffs off the Atlantic and
 Baltic coasts and European dry heaths.
- Consideration will be given at project level AA to the provision of ancillary facilities, for example the provision of street furniture, cycle parking, car parks, lighting etc. Where it is determined that the provision of such features will result in impact on the qualifying interests of the site then alternatives should be considered prior to the completion of the design.
- Consideration of mitigation for the restriction of increased visitor numbers may require further investigation e.g. the provision of cycle facilities and car parking may be restricted and provided away from qualifying habitats and species.
- Appropriate surveys should be carried out prior to any development of cycle routes to identify if invasive alien species are present. If so an action plan will be drawn up to manage this issue.

Site Name	Site Designa	Code ation	and
Malahide Estuary	000205 004025	– SAC - SPA	

Proposed Cycle Routes

Greenway routes - FG1, FG4 (Eastern Greenway/N5)

Mitigation Measures Proposed for SAC

Any future development of the proposed cycle routes will include assessment
of any impacts that may arise from increased visitor pressures in particular on
sensitive habitats and species such as Mudflats and Sandflats, Spartina sward

Salicornia habitats, Atlantic salt meadows and Mediterranean salt meadow habitats, Grey* (Fixed) and White Dunes (Shifting).

- Consideration will be given at project level AA to the provision of ancillary facilities for example the provision of street furniture, cycle parking, car parks, lighting etc. Where it is determined that the provision of such features will result in impact on the qualifying interests of the site then alternatives should be considered prior to the completion of the design.
- Consideration of mitigation for the restriction of increased visitor numbers may require further investigation e.g. the provision of cycle facilities may be restricted and provided away from qualifying habitats and species.

Mitigation Measures Proposed for SPA

- Any future development of the proposed cycle route including works on the
 existing roadway should include assessment of any impacts that may arise as a
 direct (habitat or species destruction) and indirect (increased
 recreational/tourism pressure) result of the route on the sensitive bird species
 which include Great Crested Grebe, Light-bellied Brent Goose, Shelduck,
 Pintail, Goldeneye, Red-breasted Merganser, Oystercatcher, Golden Plover,
 Grey Plover, Knot, Dunlin, Black-tailed Godwit, Bar-tailed Godwit, Redshank
 and the wetland habitat used by all these species.
- Consideration of mitigation for the restriction of increased visitor numbers may require further investigation e.g. the provision of cycle facilities may be restricted and provided away from qualifying habitats and species.
- Interrelationships between Natura 2000 sites in particular for bird populations
 that may use more than one site should be considered in impact assessment.
 Monitoring of operational phase of the project will be carried out if necessary,
 which will additionally assist assessment of cumulative impacts.
- Signage in the form of information boards could be provided denoting the presence of Natura 2000 sites and the qualifying interests present, to promote respect of the sensitivity of the environs by recreational users.
- Projects should carry out assessment on predicted visitor numbers at sensitive sites to allow for further project level mitigation.
- The timing of any construction works required as part of the development of any proposed route, that may cause disturbance to the qualifying species of the site, shall take place at a time of year that will not have an adverse impact on the bird population using the area (e.g. wintering wildfowl).

Site Name	Site Code		and
	Designation		
North Dublin Bay	000206 -	SAC	

Proposed Cycle Routes

Greenway Routes – East Coast Trail North/N5 and Santry River Greenway Other Routes - Route 1A/N5 (Dublin - Secondary)

Mitigation Measures Proposed for SAC

Any future development of the proposed cycle routes will include assessment
of any impacts that may arise from increased visitor pressures in particular on
sensitive habitats and species such as Mudflats and Sandflats, Salicornia
habitats, Atlantic salt meadows and Mediterranean salt meadow habitats.

Embroyonic shifting dunes, Grey* (Fixed) and White Dunes (Shifting) and Humid dune slacks.

- Consideration will be given at project level AA to the provision of ancillary facilities, for example the provision of street furniture, cycle parking, car parks, lighting etc. Where it is determined that the provision of such features will result in impact on the qualifying interests of the site then alternatives should be considered prior to the completion of the design.
- Consideration of mitigation for the restriction of increased visitor numbers on the sensitive habitats present may require further investigation e.g. the provision of cycle facilities may be restricted and provided away from qualifying habitats and species.

Site Name	Site			
	Designation			
North Bull Island	004006 - SPA		•	

Proposed Cycle Routes

Greenway Routes – East Coast Trail North (1A/N5) and Santry River Greenway Other Routes - Route 1A/N5 (Dublin - Secondary)

- Any future development of the proposed cycle route including works on the
 existing roadway should include assessment of any impacts that may arise as a
 direct (habitat or species destruction) and indirect (increased
 recreational/tourism pressure) result of the route on the sensitive bird species
 which include Light-bellied Brent Goose, Shelduck, Teal, Pintail, Shoveler,
 Oystercatcher, Golden Plover, Grey Plover, Knot, Sanderling, Dunlin, Blacktailed Godwit, Bar-tailed Godwit, Curlew, Redshank, Turnstone, Black-headed
 Gull and all the wetland habitat used by all these species.
- Consideration of mitigation for the restriction of increased visitor numbers may require further investigation e.g. the provision of cycle facilities, if any, on Bull Island may be restricted and provided away from qualifying habitats and species.
- Interrelationships between Natura 2000 sites, in particular for bird populations
 that may use more than one site should be considered in impact assessment.
 Monitoring of operational phase of the project will be carried out if necessary,
 which will additionally assist assessment of cumulative impacts
- Signage in the form of information boards could be provided denoting the presence of Natura 2000 sites and the qualifying interests present, to promote respect of the sensitivity of the environs by recreational users.
- Projects should carry out assessment on predicted visitor numbers at sensitive sites to allow for further project level mitigation.
- The timing of any construction works required as part of the development of any proposed route, that may cause disturbance to the qualifying species of the site, shall take place at a time of year that will not have an adverse impact on the bird population using the area (e.g. wintering wildfowl).

Site Name	Site	Code	and
	Designat	tion	
Rogerstown	000208 -	SAC	
Estuary	004015 -	SPA	

Greenway Routes – FG1/N5 – Option A – Cycle route to cross estuary directly north of Donabate
Option B – Cycle route travel north from Portrane, to cross estuary at narrow western point.
Other Routes – RU2 – Rush town route

Overall Mitigation measures for Option A & B – which may have a likely significant effect on both the SAC and SPA

• The viability and likely significant impacts of both options will be examined further at a lower plan tier level/project level. The option chosen will have to demonstrate that there will be no adverse impact on the site integrity of the designated sites. Where this cannot be shown alternatives will have to be considered and where no alternatives are available it must be demonstrated that the project is of overriding public interest.

Mitigation Measures Proposed for SAC

- Any future development of the proposed cycle routes will include assessment
 of any impacts that may arise from increased visitor pressures, in particular on
 sensitive habitats and species such as the Estuary, Mudflats and Sandflats,
 Atlantic salt meadows and Mediterranean salt meadow habitats, Grey* (Fixed)
 and White Dunes (Shifting).
- Consideration will be given at project level AA to the provision of ancillary facilities for example the provision of street furniture, cycle parking, car parks, lighting etc. Where it is determined that the provision of such features will result in impact on the qualifying interests of the site then alternatives should be considered prior to the completion of the design.
- Consideration of mitigation for the restriction of increased visitor numbers on the sensitive habitats present may require further investigation e.g. the provision of cycle facilities may be restricted and provided away from qualifying habitats and species.

- Consideration of mitigation for the restriction of increased visitor numbers may require further investigation e.g. the provision of cycle facilities may be restricted and provided away from qualifying habitats and species.
- Interrelationships between Natura 2000 sites, in particular for bird populations
 that may use more than one site should be considered in impact assessment.
 Monitoring of operational phase of the project will be carried out if necessary,
 which will additionally assist assessment of cumulative impacts.
- Signage in the form of information boards could be provided denoting the presence of Natura 2000 sites and the qualifying interests present, to promote respect of the sensitivity of the environs by recreational users.
- Projects should carry out assessment on predicted visitor numbers at sensitive sites to allow for further project level mitigation.

 The timing of any construction works required as part of the development of any proposed route, that may cause disturbance to the qualifying species of the site, shall take place at a time of year that will not have an adverse impact on the bird population using the area (e.g. wintering wildfowl).

Site Name	Site Code Designation		and
South Dublin Bay	000210		

Proposed Cycle Routes

Greenway Routes – 13E and 14/N5 (East Coast Trail South) Other Routes – 13E (Dublin - Secondary)

Mitigation Measures Proposed for SAC

- Any future development of the proposed cycle routes will include assessment of any impacts that may arise from construction on or close to the Mudflats and Sandflats Habitats not covered by seawater at low tide.
- Alternative options such as diverting the cycle route onto existing routeways (e.g.roadways) in the vicinity should be considered if it is shown that there will be an adverse impact on site integrity.

Site Name	Site Code and Designation
South Dublin Bay and River T Estuary	olka 004024 - SPA

Proposed Cycle Routes

Greenway Routes – River Tolka Greenway, 13E and 14/N5 (East Coast Trail South) Other Routes – 13E (Dublin - Secondary)

- Any future development of the proposed cycle route including works on the
 existing roadway should include assessment of any impacts that may arise as a
 direct (habitat or species destruction) and indirect (increased
 recreational/tourism pressure) result of the route on the sensitive bird species
 which include Light-bellied Brent Goose, Oystercatcher, Ringed Plover, Grey
 Plover, Knot, Sanderling, Dunlin, Bar-tailed Godwit, Redshank, Black-headed
 Gull, Roseate Tern, Common Tern, Arctic Tern and the wetland habitat which
 they use.
- Consideration of mitigation for the restriction of increased visitor numbers may require further investigation, e.g. the provision of cycle facilities may be restricted and provided away from qualifying species.
- Interrelationships between Natura 2000 sites, in particular for bird populations
 that may use more than one site should be considered in impact assessment.
 Monitoring of operational phase of the project will be carried out if necessary,
 which will additionally assist assessment of cumulative impacts.
- Signage in the form of information boards could be provided denoting the presence of Natura 2000 sites and the qualifying interests present, to promote respect of the sensitivity of the environs by recreational users.
- The timing of any construction works required as part of the development of any proposed route, that may cause disturbance to the qualifying species of the

site, shall take place at a time of year that will not have an adverse impact on the bird population using the area (e.g. wintering wildfowl).

Site Name	Site Design	Code ation	and
Pollardstown Fen	000396 - SAC		

Proposed Cycle Routes

Greenway Routes - K12

Background to site

The proposed K12 route initially was to run along a small path which travelled through the designated site. However following consultation with the NPWS and an assessment of the impacts at AA screening report stage, it was identified that there would be potential direct impact on priority habitats and species and also potential for impact on hydrology and direct loss of habitat. Following these considerations it was decided to remove this section of Greenway route from the fen and realign the route so that no direct impact would be had on the fen, which contains both priority* and non-priority habitats (*Calcareous fens, *Petrifying springs, Alkaline fens) and protected snail species (*Vertigo geyeri, Vertigo angustior, Vertigo moulinsiana*).

Resultant Amendment to Plan

The K12 Greenway route now ends just north of Pollarstown Fen, where it is proposed to join the regional and local roads to Newbridge and Kildare (K12 – Inter Urban Route).

Site Name	Site Design	Code ation	and
Ballyman Glen	000713	3 - SAC	

Proposed Cycle Routes

Route – W2 Inter-Urban

- Any future development of the proposed cycle routes (widening of existing road or road edge works) will include assessment of any impacts that may arise on sensitive habitats and species including priority habits type *Petrifying springs and also separate habitat type Alkaline fens.
- Consideration of mitigation for the restriction of increased visitor numbers on the sensitive habitats present may require further investigation e.g. the provision of cycle facilities may be restricted and provided away from qualifying habitats and species.

Site Name	Site Design	Code ation	and
Bray Head	000714	- SAC	

Greenway Routes – W11/N5 Route – W4 Inter-Urban

Mitigation Measures Proposed for SAC

- Any future development of the proposed cycle route W11/N5 will include assessment of any impacts that may arise as a direct impact of the route on the sensitive habitats of Vegetated sea cliffs of the Atlantic coasts and European heath. Where construction of this route would lead to adverse impacts on the sites integrity alternative options must be considered and where no alternatives are available it must be demonstrated that the project is of overriding public interest.
- Consideration of mitigation for the restriction of increased visitor numbers on the sensitive habitats present may require further investigation, e.g. the provision of cycle facilities may be restricted and provided away from qualifying habitats.

Site Name	Site Design	Code ation	and
Buckroney-Brittas Dunes and Fen	000729	- SAC	

Proposed Cycle Routes

Route - W11/N5Inter-Urban (East Coast Way)

- Any future development of the proposed cycle route will include assessment of any impacts that may arise from increased visitor pressures, in particular on sensitive habitats and species such as the Annual vegetation of drift lines, Perennial vegetation of stony banks, Embryonic shifting dunes, White dunes, *Fixed coastal dunes with herbaceous vegetation (grey dunes), *Atlantic decalcified fixed dunes, Dunes with Salix repens spp. Argentea, Humid dune slacks and Alkaline fens.
- Consideration will be given at project level AA to the provision of ancillary facilities for example the provision of cycle parking, car parks etc. Where it is determined that the provision of such features will result in impact on the qualifying interests of the site then alternatives should be considered prior to the completion of the design.
- Consideration of mitigation for the restriction of increased visitor numbers on the sensitive habitats present may require further investigation e.g. the provision of cycle facilities may be restricted and provided away from qualifying habitats and species.

Site Name	Site Desigr	Code nation	and
Vale of Clara (Rathdrum Wood)	000733	3 - SAC	

Route - W13 Inter-Urban

Mitigation Measures Proposed for SAC

• Any future development of the proposed cycle route W11 including works on the existing pathway through the woodland area should include assessment of any impacts that may arise as a direct impact of the route on the sensitive habitat of Old sessile oak woods. Where construction of this route would lead to adverse impacts on the sites integrity alternative options must be considered and where no alternatives are available it must be demonstrated that the project is for imperative reasons of overriding public interest.

Site Name	Site Code and Designation
Slaney River Valley	000781 - SAC

Proposed Cycle Routes

Greenway Route – W16 Routes - Inter-Urban W17, W15, W14

- Any future development of the proposed cycle routes including works on the
 existing roadways should include assessment of any impacts that may arise as
 a direct (habitat or species destruction) and indirect (increased recreational
 pressure) impacts of the route on the sensitive habitats which include, Water
 courses of plain to montane levels with Ranunculion fluitantis and CallitrichoBatrachion vegetation, Old Sessile oak woods with Ilex and Blechnum in the
 British Isles, *Alluvial forests with Alnus glutionosa and Fraxinus excelsior,
 Freshwater Pearl Mussel, Brook Lamprey, River Lamprey, Twaite Shad,
 Atlantic salmon and Otters.
- Appropriate surveys should be carried out prior to any development of cycle routes to identify if invasive alien species are present. If so an action plan will be drawn up to manage this issue.
- In the event of lighting being proposed along river corridors an Ecological Impact Assessment (and where necessary an Appropriate Assessment) including bat and otter survey shall be conducted by specialists. The recommendations of the specialist studies shall be implemented. No lighting will be installed without prior consultation with NPWS and shall be in line with advances in knowledge into the impact of lighting on bats and other species and also to reflect advances in technology in the lighting industry.
- Consideration of mitigation for the restriction of increased visitor numbers on the sensitive habitats present may require further investigation, e.g. the provision of cycle facilities may be restricted and provided away from qualifying habitats and species.
- A detailed hydrological assessment shall inform the design of bridges or works on bridges required at crossing points of the river and also any works on floodplains and any areas that may have an impact on alluvial woodland exists, such that the habitats within 000781 SAC are protected.

• The design and construction of these cycle routes shall comply with all relevant best practice guidelines for the protection of fish, otter and water quality.

The following Best Practice Guidance documents will, where applicable, be adhered to during the design and construction of route nos. W14, W15, W16 and W17.

- Fishery Guidelines for Local Authority Works (DCENR, 2008), Regional Fishery Boards;
- Eastern Regional Fisheries Board Guidance Notes 'Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites' (Eastern Regional Fisheries Board, 2006);
- Maintenance and Protection of the Inland Fisheries Resource during Road Construction and Improvement Works - Requirements of the Southern Regional Fisheries Board (Southern Regional Fisheries Board, 2007);
- Control of Water Pollution from Construction sites Guidance for Consultants and Contactors published by CIRIA (2001);
- Control of Water Pollution from Linear Construction Projects: Site Guide published by CIRIA (2006);
- NRA Guidelines (2006) NRA Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes; and
- NRA Guidelines (2007) Guidelines for the Treatment of Otters Prior to the Construction of National Road Schemes).

Site Name	Site Design	Code nation	and
Glenasmole Valley	00120	9 - SAC	

Proposed Cycle Routes

Greenway Route – Dodder Greenway Routes - Inter-Urban D3

- Any future development of the proposed cycle routes including works on the existing roadways should include assessment of any impacts that may arise as a direct (habitat or species destruction) and indirect (increased recreational pressure) impacts of the route on the sensitive habitats which include, Seminatural dry grasslands and scrubland facies on calcareous substrates, *important orchid sites, *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils and *Petrifying springs with tufa formation.
- Appropriate surveys should be carried out prior to any development of cycle routes to identify if invasive alien species are present. If so an action plan will be drawn up to manage this issue.
- In the event of lighting being proposed along river corridors an Ecological Impact Assessment (and where necessary an Appropriate Assessment) including bat and otter survey shall be conducted by specialists. The recommendations of the specialist studies shall be implemented. No lighting will be installed without prior consultation with NPWS and shall be in line with advances in knowledge into the impact of lighting on bats and other species and also to reflect advances in technology in the lighting industry
- The design and construction of these cycle routes shall comply with all relevant best practice guidelines for the protection of fish, otter and water quality.

The following Best Practice Guidance documents will, where applicable, be adhered to during the design and construction:

- Fishery Guidelines for Local Authority Works (DCENR, 2008), Regional Fishery Boards:
- Eastern Regional Fisheries Board Guidance Notes 'Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites' (Eastern Regional Fisheries Board, 2006);
- Maintenance and Protection of the Inland Fisheries Resource during Road Construction and Improvement Works - Requirements of the Southern Regional Fisheries Board (Southern Regional Fisheries Board, 2007);
- Control of Water Pollution from Construction sites Guidance for Consultants and Contactors published by CIRIA (2001);
- Control of Water Pollution from Linear Construction Projects: Site Guide published by CIRIA (2006);
- NRA Guidelines (2006) NRA Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes; and
- NRA Guidelines (2007) Guidelines for the Treatment of Otters Prior to the Construction of National Road Schemes).

Site Name	Site Design	Code ation	and
Rye Water Valley / Carton	00139	8 - SAC	

Proposed Cycle Routes

Greenway Route - K1/N2

Routes - L1 and C7 primary / secondary feeder

- Any future development of the proposed cycle routes including works on the existing roadways should include assessment of any impacts that may arise as a direct (habitat or species destruction) and indirect (increased recreational pressure) impacts of the route on the sensitive habitats and species which include, *Petrifying springs with tufa formation (*Cratoneurion*) and snail species *Vertigo angustior, Vertigo moulinsiana*. Appropriate surveys should be carried out prior to any development of cycle routes to identify if invasive alien species are present. If so an action plan will be drawn up to manage this issue.
- In the event of lighting being proposed along river corridors an Ecological Impact Assessment (and where necessary an Appropriate Assessment) including bat and otter survey shall be conducted by specialists. The recommendations of the specialist studies shall be implemented. No lighting will be installed without prior consultation with NPWS and shall be in line with advances in knowledge into the impact of lighting on bats and other species and also to reflect advances in technology in the lighting industry
- Design should consider the provision of protective measures on sites sensitive to disturbance/visitor pressure, e.g. provision of physical barriers, hedgerows, any natural barriers or simply by not facilitating access onto the sensitive habitat.
- The design and construction of cycle routes shall comply with all relevant best practice guidelines for the protection of fish, otter and water quality.

The following Best Practice Guidance documents will, where applicable, be adhered to during the design and construction:

- Fishery Guidelines for Local Authority Works (DCENR, 2008), Regional Fishery Boards;
- Eastern Regional Fisheries Board Guidance Notes 'Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites' (Eastern Regional Fisheries Board, 2006);
- Maintenance and Protection of the Inland Fisheries Resource during Road Construction and Improvement Works - Requirements of the Southern Regional Fisheries Board (Southern Regional Fisheries Board, 2007);
- Control of Water Pollution from Construction sites Guidance for Consultants and Contactors published by CIRIA (2001);
- Control of Water Pollution from Linear Construction Projects: Site Guide published by CIRIA (2006);
- NRA Guidelines (2006) NRA Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes; and
- NRA Guidelines (2007) Guidelines for the Treatment of Otters Prior to the Construction of National Road Schemes).

Site Name	Site Design	Code ation	and
Kilpatrick Sandhills	00174	2 - SAC	

Proposed Cycle Routes

Routes - Inter-Urban W11/N5 (East Coast Trail – on road section)

- Any future development of the proposed cycle route including works on the
 existing roadway should include assessment of any impacts that may arise as a
 direct (habitat or species destruction) and indirect (increased
 recreational/tourism pressure) impacts of the route on the sensitive habitats
 which include, Annual vegetation of drift lines, Embryonic shifting dunes
 Shifting dunes (white dunes), *Fixed coastal dunes with herbaceous vegetation
 (grey dunes) and Atlantic decalcified fixed dunes.
- Consideration will be given at project level AA to the provision of ancillary facilities, for example, the provision of street furniture, cycle parking, car parks, lighting etc. Where it is determined that the provision of such features will result in impact on the qualifying interests of the site then alternatives should be considered prior to the completion of the design.
- Consideration of mitigation for the restriction of increased visitor numbers on the sensitive habitats present may require further investigation e.g. the provision of cycle facilities may be restricted and provided away from qualifying habitats and species.

Site Name	Site Design	Code ation	and
Magherabeg Dunes	00176	6 - SAC	

Routes - Inter-Urban W11/N5 (East Coast Trail – on road section)

Mitigation Measures Proposed for SAC

- Any future development of the proposed cycle route will include assessment of any impacts that may arise from increased visitor pressures in particular on the sensitive habitats and species for which the nearby site has been designated including, Annual vegetation of drift lines, Embryonic shifting dunes, Shifting dunes (white dunes), *Fixed coastal dunes with herbaceous vegetation (grey dunes), *Atlantic decalcified fixed dunes (Calluno- Ulicetera) and *Petrifying springs with tufa formation (Cratoneurion).
- Consideration will be given at project level AA to the provision of ancillary facilities, for example, the provision of street furniture (seating), cycle parking, car parks, lighting etc. Where it is determined that the provision of such features will result in impact on the qualifying interests of the site then alternatives should be considered prior to the completion of the design.
- Consideration of mitigation for the restriction of increased visitor numbers may require further investigation, e.g. the provision of cycle facilities and car parking may be restricted and provided away from the qualifying habitats.

Site Name	Site Design	Code ation	and
Boyne Coast and Estuary	001957	7 - SAC	

Proposed Cycle Routes

Greenway Route – M1/N5 (East Coast Trail)

- Any future development of the proposed cycle route including works on the existing roadway should include assessment of any impacts that may arise as a direct (habitat species destruction) and indirect (increased recreational/tourism pressure) impacts of the route on the sensitive habitats which include; Estuaries, Mudflats and sandflats not covered by seawater at low tide, Salicornia and other annuals colonizing mud and sand, Atlantic salt meadows (Glauco-Puccinellietalia maritimae), Mediterranean salt meadows (Juncetalia maritimi), Embryonic shifting dunes, Shifting dunes along the shoreline with Ammophila arenaria ('white dunes') and Fixed coastal dunes with herbaceous vegetation ('grey dunes' Consideration will be given at project level AA to the provision of ancillary facilities for example the provision of street furniture (seating), cycle parking, car parks, lighting etc. Where it is determined that the provision of such features will result in impact on the qualifying interests of the site then alternatives should be considered prior to the completion of the design.
- In the event of lighting being proposed along river corridors an Ecological Impact Assessment (and where necessary an Appropriate Assessment) including bat and otter survey shall be conducted by specialists. The recommendations of the specialist studies shall be implemented. No lighting will be installed without prior consultation with NPWS and shall be in line with

- advances in knowledge into the impact of lighting on bats and other species and also to reflect advances in technology in the lighting industry.
- Consideration of mitigation for the restriction of increased visitor numbers may require further investigation e.g. the provision of cycle facilities and car parking may be restricted and provided away from the qualifying habitats.

Site Name	Site Design	Code ation	and
Boyne Estuary	00408	0 - SPA	

Greenway Route - Boyne Greenway and M1/N5 Greenway

- Any future development of the proposed cycle route including works on the existing roadway should include assessment of any impacts that may arise as a direct (habitat or species destruction) and indirect (increased recreational/tourism pressure) result of the route on the sensitive bird species which include, Shelduck, Oystercatcher, Golden Plover, Grey Plover Pluvialis squatarola, Lapwing, Knot, Sanderling, Black-tailed Godwit, Redshank, Turnstone, Little Tern.
- Consideration of mitigation for the restriction of increased visitor numbers may require further investigation e.g. the provision of cycle facilities may be restricted and provided away from qualifying species that use certain areas within the estuary.
- Interrelationships between Natura 2000 sites, in particular for bird populations
 that may use more than one site should be considered in impact assessment.
 Monitoring of operational phase of the project will be carried out if necessary,
 which will additionally assist assessment of cumulative impacts.
- Signage in the form of information boards could be provided denoting the presence of Natura 2000 sites and the qualifying interests present, to promote respect of the sensitivity of the environs by recreational users.
- Projects should carry out assessment on predicted visitor numbers at sensitive sites to allow for further project level mitigation.
- The timing of any construction works required as part of the development of any proposed route, that may cause disturbance to the qualifying species of the site, shall take place at a time of year that will not have an adverse impact on the bird population using the area (e.g. wintering wildfowl).

Site Name	Site Code Designation	and
River Boyne and River Blackwater	002299 - SAC 004232 - SPA	

Greenway Route - Boyne Greenway

Mitigation Measures Proposed for SAC

- Any future development of the proposed cycle route should include assessment
 of any impacts that may arise as a direct (habitat or species destruction) and
 indirect (increased recreational/tourism pressure) result of the route on the
 sensitive habitats which include; Alkaline fens, *Alluvial forests with Alnus
 gultinosa and Fraxinus excelsior, River lamprey, Atlantic salmon and Otter.
- Consideration will be given at project level AA to the provision of ancillary facilities, for example, the provision of street furniture (seating), cycle parking, car parks, lighting etc. Where it is determined that the provision of such features will result in impact on the qualifying interests of the site then alternatives should be considered prior to the completion of the design.
- In the event of lighting being proposed along river corridors an Ecological Impact Assessment (and where necessary an Appropriate Assessment) including bat and otter survey shall be conducted by specialists. The recommendations of the specialist studies shall be implemented. No lighting will be installed without prior consultation with NPWS and shall be in line with advances in knowledge into the impact of lighting on bats and other species and also to reflect advances in technology in the lighting industry.
- Consideration of mitigation for the restriction of increased visitor numbers may require further investigation, e.g. the provision of cycle facilities and car parking may be restricted and provided away from the qualifying habitats.
- Appropriate surveys should be carried out prior to any development of cycle routes to identify if invasive alien species are present. If so an action plan will be drawn up to manage this issue.

Mitigation Measures Proposed for SPA

 Consideration of mitigation for the restriction of increased visitor numbers may require further investigation e.g. the provision of cycle facilities may be restricted and provided away from qualifying species (Kingfisher) that use certain areas along the river.

Site Name	Site Design	Code ation	and
River Barrow and River Nore	00216	2 - SAC	

Proposed Cycle Routes

Greenway Route – K11/N10 (Barrow Canal Greenway) Routes – K15 and K20 Inter - Urban Routes

Mitigation Measures Proposed for SAC

 Any future development of the proposed cycle route including works existing roadways should include assessment of any impacts that may arise as a direct (habitat or species destruction) and indirect (increased recreational/tourism pressure) result of the route on the sensitive habitats which include; Water courses of plain to montane levels with *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation, European dry heaths, Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels, *Petrifying springs with tufa formation (*Cratoneurion*), *Alluvial forest with *Alnus Glutinosa* and *Fraxinus excelsior* and species which include; While-clawed crayfish, Brook lamprey, River lamprey, Twaite shad, Atlantic salmon, Otter, Killarney fern and Nore freshwater pearl mussel.

- Consideration will be given at project level AA to the provision of ancillary facilities, for example, the provision of street furniture (seating), cycle parking, car parks, lighting etc. Where it is determined that the provision of such features will result in impact on the qualifying interests of the site then alternatives should be considered prior to the completion of the design.
- In the event of lighting being proposed along river corridors an Ecological Impact Assessment (and where necessary an Appropriate Assessment) including bat and otter survey shall be conducted by specialists. The recommendations of the specialist studies shall be implemented. No lighting will be installed without prior consultation with NPWS and shall be in line with advances in knowledge into the impact of lighting on bats and other species and also to reflect advances in technology in the lighting industry.
- Consideration of mitigation for the restriction of increased visitor numbers may require further investigation, e.g. the provision of cycle facilities and car parking may be restricted and provided away from the qualifying habitats.
- Appropriate surveys should be carried out prior to any development of cycle routes to identify if invasive alien species are present. If so an action plan will be drawn up to manage this issue.
- Design should consider the provision of protective measures on sites sensitive to disturbance/visitor pressure, e.g. provision of physical barriers, hedgerows, any natural barriers or simply by not facilitating access onto the sensitive habitat.
- A detailed hydrological assessment shall inform the design of any cycleways, any works on floodplains or/and any areas that may have an impact on alluvial woodland.
- The design and construction of cycle routes shall comply with all relevant best practice guidelines for the protection of fish, otter and water quality.

The following Best Practice Guidance documents will, where applicable, be adhered to during the design and construction:

- Fishery Guidelines for Local Authority Works (DCENR, 2008), Regional Fishery Boards;
- Eastern Regional Fisheries Board Guidance Notes 'Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites' (Eastern Regional Fisheries Board, 2006);
- Maintenance and Protection of the Inland Fisheries Resource during Road Construction and Improvement Works - Requirements of the Southern Regional Fisheries Board (Southern Regional Fisheries Board, 2007);
- Control of Water Pollution from Construction sites Guidance for Consultants and Contactors published by CIRIA (2001);
- Control of Water Pollution from Linear Construction Projects: Site Guide published by CIRIA (2006);

- NRA Guidelines (2006) NRA Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes; and
- NRA Guidelines (2007) Guidelines for the Treatment of Otters Prior to the Construction of National Road Schemes).
- Detailed hydrological assessment shall inform the design of the cycle ways such that the habitats within the SAC are protected.

Site Name	Site Design	Code ation	and
The Murrough Wetlands	00224	9 - SAC	

Greenway Route –Section of the East Coast Greenway (W11/N5) – this section may have to use alternative routes, such as diversion to existing roadways where adverse impacts are demonstrated on site integrity.

Mitigation Measures Proposed for SAC

- Any future development of the proposed cycle route including works on existing roadways should include assessment of any impacts that may arise as a direct (habitat or species destruction) and indirect (increased recreational/tourism pressure) result of the route on the sensitive habitats which include; Annual vegetation of drift lines, Perennial vegetation of stony banks, Atlantic salt meadows, Mediterranean salt meadows (Juncetalia maritime), *Calcareous fens with Cladium mariscus and species of the Claricion davallianae and Alkaline fens.
- Detailed hydrological assessment shall inform the design of the cycle routes such that the habitats within the SAC are protected.
- Design should consider the provision of protective measures on sites sensitive to disturbance/visitor pressure, e.g. provision of physical barriers, hedgerows, any natural barriers or simply by not facilitating access onto the sensitive habitat.
- Signage in the form of information boards could be provided denoting the presence of Natura 2000 sites and the qualifying interests present, to promote respect of the sensitivity of the environs by recreational users.

Site Name	Site Design	Code nation	and
The Murrough	00418	6 - SPA	

Proposed Cycle Routes

Greenway Route –Section of the East Coast Greenway (W11/N5) – this section may have to use alternative routes such as diversion to existing roadways where adverse impacts are demonstrated on site integrity.

Mitigation Measures Proposed for SPA

 Any future development of the proposed cycle route including works on existing roadways should include assessment of any impacts that may arise as a direct (habitat or species destruction) and indirect (increased recreational/tourism pressure) result of the route on the sensitive bird species that use the site which include the Black Throated Loon, Greylag Goose, Light-bellied Brent Geese, Wigeon, Shelduck, Black-headed Gull, Herring Gull and the little Tern.

- Design should consider the provision of protective measures on sites sensitive to disturbance/visitor pressure e.g. provision of physical barriers, hedgerows, any natural barriers or simply by not facilitating access onto the sensitive habitat.
- Signage in the form of information boards could be provided denoting the presence of Natura 2000 sites and the qualifying interests present, to promote respect of the sensitivity of the environs by recreational users.
- The timing of any construction works required as part of the development of any proposed route, that may cause disturbance to the qualifying species of the site, shall take place at a time of year that will not have an adverse impact on the bird population using the area (e.g. wintering wildfowl).

Site Name	Site Design	Code nation	and
Mount Hevey Bog	00234	2 - SAC	

Greenway Route – K1/N2 (Part of proposed Dublin to Galway Greenway)

Mitigation Measures Proposed for SAC

- Detailed hydrological assessment shall inform the design of the cycle routes such that the habitats within the SAC are protected.
- Any future development of the proposed cycle route should include assessment
 of any impacts that may arise as a direct (habitat or species destruction) and
 indirect (increased recreational/tourism pressure) result of the route on the
 sensitive habitats which include; *Active raised bogs, Degraded raised bogs still
 capable of natural regeneration and Depressions on peat substrates of the
 Rhynchosporion.
- Signage in the form of information boards could be provided denoting the presence of Natura 2000 sites and the qualifying interests present, to promote respect of the sensitivity of the environs by recreational users.

Site Name	Site Design	Code ation	and
River Nanny Estuary and Shore	00415	8 - SPA	

Proposed Cycle Routes

Greenway Route – M1/N5 (Eastern Greenway Route) Routes – M2 and M4 Inter - Urban Routes

- Any future development of the proposed cycle route including works on existing roadways should include assessment of any impacts that may arise as a direct (habitat or species destruction) and indirect (increased recreational/tourism pressure) result of the route on the sensitive bird species that use the wetland site which include Oystercatcher, Ringed Plover, Golden Plover, Knot, Sanderling and Herring Gull and on the sensitive wetland habitat on the site.
- Design should consider the provision of protective measures on sites sensitive
 to disturbance/visitor pressure, e.g. provision of physical barriers, hedgerows,
 any natural barriers or simply by not facilitating access onto the habitat, that the
 bird species use.

- Signage in the form of information boards could be provided denoting the presence of Natura 2000 sites and the qualifying interests present, to promote respect of the sensitivity of the environs by recreational users.
- The timing of any construction works required as part of the development of any proposed route, that may cause disturbance to the qualifying species of the site, shall take place at a time of year that will not have an adverse impact on the bird population using the area (e.g. wintering wildfowl).

Site Name	Site Code	and
	Designation	
Wicklow Mountains	004040 - SPA	

Routes - W2, W6, W7, W8, W10 and W14 Inter - Urban Routes

Mitigation Measures Proposed for SPA

- Any future development of the proposed cycle route including works on existing roadways should include assessment of any impacts that may arise as a direct (habitat or species destruction) and indirect (increased recreational/tourism pressure) result of the route on the sensitive bird species that use the mountainous site which include Merlin and Peregrine Falcon
- Design should consider the provision of protective measures on sites sensitive
 to disturbance/visitor pressure, e.g. provision of physical barriers, hedgerows,
 any natural barriers or simply by not facilitating access onto the habitats that
 the bird species use.
- Signage in the form of information boards could be provided denoting the presence of Natura 2000 sites and the qualifying interests present, to promote respect of the sensitivity of the environs by recreational users.

Site Name	Site Code Designation	and
Poulaphouca Reservoir	004063 - SPA	

Proposed Cycle Routes

Routes - W10 Inter - Urban Routes

- Any future development of the proposed cycle route including works on existing roadways should include assessment of any impacts that may arise as a direct (habitat or species destruction) and indirect (increased recreational/tourism pressure) result of the route on the sensitive bird species that use the site which include greylag goose and Lesser Black-backed Gull
- Design should consider the provision of protective measures on sites sensitive
 to disturbance/visitor pressure, e.g. provision of physical barriers, hedgerows,
 any natural barriers or simply by not facilitating access onto the habitats that
 the bird species use.
- Signage in the form of information boards could be provided denoting the presence of Natura 2000 sites and the qualifying interests present, to promote respect of the sensitivity of the environs by recreational users.

5.0 IN-COMBINATION EFFECTS

Under the provisions of Article 6 of the Habitats Directive, the potential for incombination effects of the Cycle Network Plan with other plans and projects must be assessed. This is required to identify situations where effects of the plan, that in themselves may not be significant, may, in combination with effects from other plans and projects, become significant. The potential for the plan to result in such incombination effects with other plans and projects is therefore limited to locations where effects of the plan have been identified.

Tables 3.1 and 3.2 of this Assessment identify the Natura 2000 sites where potential impacts (significant or otherwise) may occur as a result of implementation of the Cycle Network Plan. Other plans and projects that might have impacts on these sites have been examined in order to identify any possible in-combination effects. Relevant plans would include the Draft Integrated Implementation Plan for the Greater Dublin Area, all of the County Development Plans within the Greater Dublin Area and certain Local Area Plans which apply to locations where impacts from the Cycle Network Plan have been identified. Where available, Strategic Environmental Assessment Environmental Reports and Natura Impact Statements for these plans have also been reviewed.

5.1 Sites where Potential In-Combination Effects have been Identified and associated Plans

Site	Plan
Baldoyle Bay	Baldoyle Stapolin Local Area Plan (LAP)
Malahide Estuary	Draft Integrated Implementation Plan and Fingal
	County Development Plan
Rogerstown Estuary	Draft Integrated Implementation Plan and Fingal
	County Development Plan
South Dublin Bay cSAC,	Dún Laoghaire Rathdown County Development
SPA and Tolka Estuary SPA	Plan
	Dublin City Development Plan
Boyne Coast and Estuary	Meath County Development Plan
River Boyne SAC	Meath County Development Plan
Rye Water Valley / Carton	Leixlip Local Area Plan
SAC	

Baldoyle Bay SPA and SAC

Route FG1 has been identified in the Natura Impact Statement as having the potential to lead to increased recreational pressure which may cause harm to habitats and species protected in the Baldoyle SAC and SPA. The Baldoyle Stapolin LAP, which also incorporates this site, provides for up to 10,000 new homes in this area as well as new retail and commercial developments. Potential, therefore exists for these two plans to have an in-combination effect on this SAC.

In addition to the mitigation policies which will be incorporated into the Cycle Network Plan, the Baldoyle-Stapolin LAP contains the following objectives:

Objective GI 8

Maintain or restore the favourable conservation condition of Annex 1 habitat(s) and/or the Annex II species for which the Baldoyle SAC has been selected:

[1140] Mudflats and sandflats not covered by seawater at low tide

[1310] Salicornia and other annuals colonising mud and sand

[1330] Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1410] Mediterranean salt meadows (Juncetalia maritimi)

Objective GI 9

Maintain qualifying interest habitats and species within the Baldoyle Bay SPA and SAC at favourable conservation condition to ensure the ecological integrity of Baldoyle Bay and further ensure that the LAP lands continue to provide supporting function for the Qualifying Interest species.

As such, it is reasonable to conclude that the implementation of the Cycle Network Plan in combination with the Baldoyle-Stapolin LAP will have no adverse impacts on the integrity of the Baldoyle Bay SPA and SAC.

Malahide Estuary SAC and SPA and Rogerstown Estuary SAC and SPA

These two locations are taken together as both relate to the greenway route FG1. Additionally, potential in-combination effects, when viewed in the context of NTA proposals for the Northern DART line in the Draft Integrated Implementation Plan and the policies of Fingal County Council as expressed in the County Development plan, apply equally to both.

The NTA's Draft Integrated Implementation Plan states the following:

"Planning and design work will be progressed on certain rail projects with a view to those projects being available for commencement should additional funding become available for such schemes.

The relevant projects are:

- Electrification and Resignalling from Malahide to Balbriggan; and
- Maynooth Line Electrification and Resignalling."

The former was identified as having potential adverse impacts on both Malahide and Rogerstown Estuaries. As such, a Stage 2 Appropriate Assessment was carried out and it concluded that:

"Mitigation, including looking at alternative methods of electrification, is available and evidence indicates that these can be effective in reducing impacts to below significant levels.

As a consequence the proposal for electrification of the Northern railway line should be included within the strategic plan as, with the application of mitigation, it is likely that significant adverse effects on site integrity can be avoided".

The Fingal Development Plan effectively gives expression to Route FG1 under the following Objectives:

TO12

"Prepare and implement on a progressive basis a programme for the development of the Fingal Coastal Way for pedestrians and cyclists, extending from the County boundary with Dublin City to the County boundary with County Meath."

Local Objective 229:

"Create a walkway and cycleway alongside the existing railway line across Rogerstown Estuary in consultation with larnród Éireann within the duration of the 2011-2017 Development Plan."

Local Objective 307:

"Facilitate the provision of a Malahide/Donabate cycle/walkway"

With regard to in-combination impacts, it is also possible that in the future the railway line over Malahide and Rogerstown estuaries may be four-tracked (as per the Greater Dublin Area Draft Transport Strategy 2011-2030). This may lead to additional impacts on the designated sites if additional land take is required to accommodate the project. The exact design or method in which this will be addressed is currently unknown, however an appropriate assessment of the possible significant impacts of the development on the designated sites in the area will be carried out at project stage.

Another in-combination impact that has been considered for these sites is that the proliferation of routes in the area could draw increased volumes of visitors to the estuaries in Malahide and Rogerstown. This factor is assessed where required as part of this NIS under each of the sites that may be significantly impacted. Where significant impacts are identified mitigation measures are included to ensure no adverse impact on site integrity. As well as these mitigation measures, protection is also afforded under the relevant County Development Plan (as outlined below):

In relation to Natura 2000 sites in the County, the Development Plan incorporates the following relevant objectives:

Objective BD12

Strictly protect areas designated or proposed to be designated as Natura 2000 sites (also known as European sites) including any areas that may be proposed for designation or designated during the period of this Plan. These include Special Areas of Conservation (SACs) designated pursuant to the Habitats Directive and Special Protection Areas (SPAs) designated pursuant to the Birds Directive, a number of which have also been designated under the Ramsar Convention.

Objective BD13

Ensure Appropriate Assessment Screening and, where required, full Appropriate Assessment is carried out for any plan or project which, individually, or in combination with other plans and projects, is likely to have a significant direct or indirect impact on any Natura 2000 site or sites.

Objective BD14

Ensure planning applications for proposed developments likely to have significant direct or indirect impacts on any Natura 2000 site or sites are accompanied by a Natura Impact Statement prepared in accordance with the Guidance issued by the Department of the Environment, Heritage and Local Government (Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities, 2009).

In this manner, the Fingal County Development Plan seeks to either avoid significant impacts on these sites or clearly set out policies aimed at protecting them. As a

consequence, it can be reasonably concluded that by seeking appropriate alternatives and/or applying appropriate mitigation measures when implementing this plan in-combination with the Cycle Network Plan, no adverse effects on the integrity of these two sites will occur. In relation to the other transport plans, the NTA's Integrated Implementation Plan and Draft Transport Strategy both identified schemes which had potential adverse impacts on these Natura 2000 sites. In both cases, while mitigation is proposed to address any likely impacts which may arise, the conclusion of the Appropriate Assessment states that, at project stage, if significant adverse impacts on the integrity of the site cannot be mitigated, alternatives will be examined and if none emerge, IROPI will be required to be demonstrated and compensatory measures devised in order for the projects to proceed.

South Dublin Bay cSAC, SPA and Tolka Estuary SPA

Route 13E and the Greenway for the East Coast Trail were identified as having potential impacts on these sites. The potential for in-combination impacts with the policies of the two prevailing development plans for the area in question also requires examination, as it relates to development impacts arising from local objectives.

The Dublin City Development Plan 2011-2017 contains the following objectives:

"GCO2

To achieve the following critical linkages within the lifetime of the development plan;

(i) To promote the development of the Sutton to Sandycove Cycletrack scheme (S2S) as a key objective in both 'Smarter Travel' and in the 'National Cycle Policy Framework' subject to the appropriate environmental assessments, including any assessment required under 6(3) of the Habitats Directive. Subject to compliance with environmental regulations and statutory approvals, completion of this project is recognised as a significant development of Dublin Bay with potential recreational and tourism benefits, as well as providing a tram-free cycleway for both recreation and commuter cyclists.

GC26

To protect flora, fauna and habitats, which have been identified by the Habitats Directive, Birds Directive, Wildlife Act 1976 (as amended), the Flora Protection Order (S.I. no. 84 of 1999), and the European Communities (Natural Habitats) Regulations 1997 (S.I. no. 94 of 1997).

<u>GC27</u>

To conserve and manage all Natural Heritage Areas, Special Areas of Conservation and Special Protection Areas identified and designated, or proposed to be designated, by the Department of Environment, Heritage and Local Government. These designations will allow for protection in the event of any approved boundary changes by the Department of Environment, Heritage and Local Government."

The Dún Laoghaire Rathdown Development Plan 2010-2016 contains the following specific local objectives:

"84 – To protect and conserve South Dublin Bay and proposed candidate Special Area of Conservation.

<u>93</u> – To promote the development of the Sutton to Sandycove (S2S) Promenade and Cycleway. (It should be noted the alignment shown on Maps 2, 3 and 4 is not absolute but indicative only). The necessary EIS will commence during the term of this Plan."

It also incorporates the following policy:

"Policy LHB8: Special Protection Area (Birds), Proposed Natural Heritage Areas and Candidate Special Areas of Conservation.

It is Council policy to protect and preserve areas designated as Proposed Natural Heritage Areas, proposed Candidate Special Areas of Conservation, and Special Protection Areas."

As there are no specific policies within the two development plans which may further impact on these sites, and as both plans contain specific objectives to protect them, no effects are predicted as a result of the implementation of the Cycle Network Plan in-combination with the Dún Laoghaire Rathdown County and Dublin City Development Plans.

Boyne Coast and Estuary SPA and SAC and River Boyne and River Blackwater SPA and SAC

These sites have been examined in this section due to the potential in-combination effects of ongoing urban development at south Drogheda and other settlements along the Boyne and Blackwater rivers. Such development would be controlled by the Meath County Development Plan, which contains the following objectives:

"NH OBJ 2 – To ensure an Appropriate Assessment in accordance with Article 6(3) and Article 6(4) of the Habitats Directive, and in accordance with the Department of Environment, Heritage and Local Government Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities, 2009 and relevant EPA and European Commission guidance documents, is carried out in respect of any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect on a Natura 2000 site(s), either individually or in combination with other plans or projects, in view of the site's conservation objectives.

<u>NH OBJ 3</u> – To protect and conserve the conservation value of candidate Special Areas of Conservation, Special Protection Areas, National Heritage Areas and proposed Natural Heritage Areas as identified by the Minister for the Department of Arts, Heritage and the Gaeltacht and any other sites that may be proposed for designation during the lifetime of this Plan."

The accompanying Natura Impact Statement for the Meath County Development plan determines that:

"Assuming the successful implementation of the Policies and Objectives, there will be no likely significant effects on Natura 2000 sites in County Meath and its environs by the adopted Plan in isolation or in combination with other Plans and Projects acting in the same area."

The Natura Impact Statement also refers to the Louth County Development Plan, as follows:

"The Boyne Estuary SPA, River Boyne and Blackwater cSAC and SPA are all shared by Louth and Meath. Policies have been assessed as part of a comprehensive appropriate assessment and changes made to protect these specific sites. As a result there are no predicted cumulative impacts from the implementation of this Plan."

As such, no potential effects were identified arising from the implementation of the Cycle Network Plan in combination with the Meath County Development Plan at these locations.

Rye Water Valley / Carton SAC

There are potential impacts identified as a result of the ongoing expansion of Leixlip, as provided for in the Leixlip and Collinstown Local Area Plans 2010-2016, incombination with the development of routes K1, L1 and C7 of the Cycle Network Plan. The Appropriate Assessment process for that plan states the following:

"Following initial screening and consultation with the relevant nature conservation bodies, the recommendations in Section 3.0 overleaf were incorporated by Kildare County Council into the Natural Heritage Objectives of the 2010 Leixlip and Collinstown Local Area Plans. As a result of their incorporation, it is anticipated that no significant effects on the SAC will arise from elements of the Leixlip and Collinstown Local Area Plans 2010.

To conserve and protect Riparian (beside rivers) Corridors: New development will not be permitted within a minimum of 10m from either side of all watercourses measured from the top of the bank, apart from in exceptional circumstances, to provide:

- Visual amenity of the river;
- Public space and access;
- Public walkway/cycle ways/lighting;
- Spaces to allow for the conservation and enhancement of landscape features, such as tree coverage;
- Spaces to conserve and enhance biodiversity capacity.

In all instances a buffer of 2.5m of vegetation shall be retained along the river bank to mitigate against pollution risks, reduce flooding potential and maintain habitat. Redevelopment shall seek to create riparian buffer strips of at least 2.5m, along either side of all watercourses measured from the top of the bank. Riparian buffers have the greatest potential to control environmental damage, reduce flooding potential and maintain habitats.

In the event of lighting being proposed along river corridors an Ecological Impact Assessment (and where necessary an Appropriate Assessment) including bat and otter survey shall be conducted by specialists. The recommendations of the specialist studies shall be implemented. No lighting will be installed without prior consultation with NPWS and shall be in line with advances in knowledge into the impact of lighting on bats and other species and also to reflect advances in technology in the lighting industry."

In addition to the provisions of the Leixlip and Collinstown Local Area Plans, the overarching County Development Plan for Kildare states that it is the policy of the Council:

"DS 1: To maintain, protect and where possible enhance the conservation value of existing European and national designated sites (NHA, SAC and SPA) in the county and any additional sites that may be proposed for designation during the period of this Plan.

DS 2: To have regard to the policies and guidance of the National Parks and Wildlife Service of the DoEHLG in respect of proposed development where it is possible that such development may impact on a designated European or national site or a site proposed for designation."

With such policies in place, it can be concluded that no significant in-combination effects will arise in this case.

5.2 Sites where Potential In-Combination Effects have been Identified as a result of increased Visitor Usage

Implementation of the Plan is likely to increase overall mobility of both the population of the Greater Dublin Area and of visitors to the area. Increased mobility is likely to increase the number of people visiting locations that are designated as Natura 2000 sites, particularly those locations which are perceived as or promoted as leisure destinations, and possible negative impacts resulting from increased visitor numbers has been identified as a potential threat to many of the regions Natura 2000 sites. Whether or not Natura 2000 sites are particularly likely to experience negative impacts, as a result of in-combination effects is difficult to quantify. Increased visitor pressure as a result of increased accessibility from improved cycling facilities and of their attractiveness to people as a leisure destination may have the potential to cause in-combination effects.

The Natura Impact Report for the Dublin City Development Plan 2011 – 2017 notes that increased visitor pressure on the *Baldoyle Bay* SAC should be an issue to consider in any future development of the area. Because the area surrounding Baldoyle Bay is densely populated, the main threats to the site include visitor pressure, disturbance to wildfowl and dumping. In particular, the dumping of spoil onto the foreshore presents a threat to the value of the site. The introduction of cycling route FG1 within close proximity to the SAC may encourage more visitors and residents to use the area which could result in some in-combination impacts on this site.

Some potential for increased visitor pressure at *Bray Head* cSAC has been identified in the AA for Wicklow County Development Plan 2010 - 2016, and it is considered that possible impacts resulting from the development of a cycle route W11 could result in some in-combination impact on this site.

An analysis of Natura 2000 sites where impacts are considered most likely has also identified other Natura 2000 sites where this is likely to result in significant negative impacts. The plan is considered likely, for example, to greatly increase the number of visitors to the sensitive coastal Natura 2000 sites such as the area of The Murrough, Malahide Estuary and Rogerstown Estuary, as well as the riverine habitats of the River Boyne and River Blackwater SAC.

However, it is important to highlight that in the cases of the in-combination effects listed above it is expected that the mitigation measures previously discussed in Section 4 of this report should provide adequate protection to the Natura sites involved and also present mechanisms for diverting visitor numbers away from the

more sensitive areas of the site to areas that are capable of dealing with the visitor pressure.

5.3 In-combination assessment of National Cycle Network and Eurovelo International Cycle Route Network

Interactions with the National Cycle Network and the EuroVelo Network cannot be assessed at this stage due to the lack of route information beyond very broad strategic corridors that are simply desire lines between origins and destinations. It is stated in its development strategy that the EuroVelo concept seeks to 'generally make use of existing trails and routes, thus just helping to increase the recreational (and economic) value of places that have been disturbed'.

The predicted environmental impacts listed in the EuroVelo Network Development Strategy 2012-2020 (http://www.eurovelo.org/wp-content/uploads/2011/08/EuroVelo-Strategy-2012-2020.pdf) have been examined and assessed against the impacts of the GDA CNP in order to identify any in-combination impacts. The EuroVelo Development Strategy only contains very strategic level potential impacts therefore a detailed in-combination assessment with the GDA CNP was not possible. However, it was found that the main general environmental issues listed in the strategy e.g. impacts on soil, wildlife corridors, water pollution and impacts from increased visitor numbers on sensitive sites were all addressed as part of the GDA CNP and where required have been addressed with detailed mitigation measures as part of this NIS. It is recommended that future work on route planning for these higher level strategic routes should therefore take account of the assessment of cumulative impacts now carried out for the GDA Cycle Network Plan.

5.4 Summary of In-Combination Effects

This section of the report has set out those cases where the policies and objectives of other plans may interact with those of the Cycle Network Plan to give rise to potential significant impacts on the integrity of Natura 2000 sites. It has focussed on those areas where planning policy may most likely affect those SPAs and SACs identified as being potentially affected by the Cycle Network Plan, i.e. development plans and transport plans. In the main, this relates to urban development adjacent to Natura 2000 sites and in all of these cases, statutory policies exist which safeguard the protection of these sites.

In relation to the transport plans, the NTA's Integrated Implementation Plan and Draft Transport Strategy both identified schemes which had potential adverse impacts on Natura 2000 sites. It is likely that the Cycle Network Plan's FG1 route would be located alongside these schemes. In both cases, while mitigation is proposed to address any likely impacts which may arise, the conclusion of the Appropriate Assessments state that, at project stage, if significant adverse impacts on the integrity of the site cannot be mitigated, alternatives will be examined and if none emerge, IROPI will be required to be demonstrated and compensatory measures devised in order for the projects to proceed.

It is therefore concluded that any plans or projects which may have significant adverse impacts on Natura 2000 sites in combination with the Cycle Network Plan will only proceed on the basis of IROPI and by providing compensation, in accordance with the Habitats Directive.

6.0 CONCLUSION

This NIS has identified a number of projects that are included in the Plan which have the potential to result in significant negative impacts on Natura 2000 sites (see Section 3). It is considered that in all cases, avoidance of such impacts should be achievable, and details of the measures required to achieve this are given in Section 4 of this report. More detailed mitigation measures will be developed through the process of project-level Environmental Impact Assessment and Appropriate Assessment.

As a result of this Appropriate Assessment process, one of the proposed greenways has been removed from the Plan. This was the proposed Greenway K12, which originally was to use an access path through a section of the Pollardstown Fen SAC 000396. This greenway has been removed and the route has been realigned to ensure that there will be no adverse impact on site integrity. This was the only case in the plan where removal of a greenway was considered necessary. Other greenways where significant impacts are considered likely have been addressed through mitigation measures or in the case of certain routes, including the W11 and FG1, alternative on road options can be provided if this is deemed necessary at lower tier plan or project level.

In all other cases where a potential significant impact has been identified in the plan, the Authority will seek to avoid the impact by means of mitigation. The mitigation measures are set out in Section 4 of this NIS and are now directly referenced in the Cycle Network Plan. In this way, the final version of the GDA Cycle Network Plan is considered to be compliant with the requirements of Article 6 of the EU Habitats Directive.

It is currently unknown whether or not impacts on any of these sites may be of significance in terms of the integrity of their structure and function. This will be determined through project level Appropriate Assessment at a time when design proposals become available. At the EIA and planning application stage, Appropriate Assessment will be required based on site specific survey information and consultation, and should incorporate where possible the mitigation measures provided in this NIS. If at project-level Appropriate Assessment it is deemed that there may be adverse impacts on the integrity of any of these sites that cannot be mitigated, then in order for the project to proceed, alternative solutions must be examined and Imperative Reasons of Over-riding Public Interest (IROPI) will need to be demonstrated and suitable compensatory measures, probably in the form of the provision of compensatory habitat, will need to be devised. Where it is determined at a lower tier project level that certain schemes cannot be developed, the Authority will seek alternative ways to meet the strategic objectives of the plan

In conclusion, the Authority, in conjunction with other agencies and the local authorities will not pursue any schemes arising out of this plan, or in-combination with other plans or projects, which will adversely affect the integrity of a Natura 2000 site, unless there are no alternative solutions and that it has been demonstrated that the project is of overriding public interest.

Appendix A - Conservation Objectives Attributes and Targets, Potential Impacts and Mitigation for each Screened In Natura 2000 Site

The table below details the Conservation Objectives for each of the sites outlined.

An assessment of each site's attributes and targets has been carried out to identify any potential impacts. Following this, where necessary, mitigation measures are presented which in turn feed into Section 4.1 in the main NIS above and subsequently into the plan.

Baldoyle Bay SAC 000199

Conservation Objectives Series: 19th November 2012 Version 1

Greenway Routes - Eastern Greenway (P1/N5), Other Routes - Primary/secondary route P1/N5, Other Routes - Radial Route 1A/N5

Habitat	Conservation Objective	Attribute	Target	Potential Impact	Mitigation
Code					
1140	To maintain the favourable conservation conditions of mudflats and sandflats not covered by seawater at low tide in Baldoyle Bay SAC, which is defined by the following list of attributes and targets:	Habitat Area	The permanent habitat area is stable or increasing, subject to natural process	Loss of habitat area.	The route will have to demonstrate that there will be no adverse impact on the overall area of Mudlfats and sandflats not covered by seawater at low tide. Where this cannot be shown alternatives will have to be considered and where no alternatives are available it must be demonstrated that the project is of overriding public interest.
		Community Distribution	Conserve the following community types in a natural condition: Fine sand dominated by <i>Angulus tenuis</i> community complex; and Estuarine sandy mud with <i>Pugospio elegans</i> and <i>Tubificoides benedii</i> community complex	There will be no loss of community specified	None
1310	To Maintain the favourable conservation conditions of Salicornia and other annuals colonizing mud and sand	Habitat area Habitat distribution	Area stable or increasing, subject to natural processes, including erosion and succession. No decline, or change in habitat	There will be no loss of Salicornia habitat as the route is not in direct proximity to the habitat There is no restriction or	None
	in Baldoyle Bay SAC, which is defined by the following list of	Traditat distribution	distribution, subject to natural processes	change to distribution of Salicornia habitat distribution	TVO IIC
	attributes and targets:	Physical structure: sediment supply	Maintain natural circulation of sediments and organic matter, without any physical obstructions	There will be no physical obstruction as part of the project that would result in change in circulation of sediment and organic	None

				matter	
		Physical structure:	Maintain creek and pan structures,	There will be no direct	None
		Occurrence creeks and	subject to natural processes,	impact on creek and pan	
		pans	including erosion and succession	structures	
		Physical structure:	Maintain natural tidal regime	There will be no change to	None
		flooding regime		the tidal regime as a result	
				of the cycleway	
		Vegetation structure:	Maintain the range of coastal	There will be no change to	None
		zonation	habitats including transitional	vegetation structure:	
			zones, subject to natural processes	zonation as the route is	
			including erosion and succession	adjoining the SAC and not	
				in close proximity to	
				Salicornia habitats	
		Vegetation structure:	Maintain structural variation within	Potential for changes to	Any future development of the
		height	sward	vegetation structure due	proposed cycle routes will include an
				to increased visitor	assessment of any impacts that may
				pressure	arise from increased visitor
		Vegetation structure:	Maintain more than 90% of area	Potential for changes to	pressures, in particular, on sensitive
		vegetation cover	outside creeks vegetated	vegetation structure due	Natura 2000 habitats such as
				to increased visitor	Salicornia habitats, Atlantic salt
				pressure	meadows and Mediterranean salt
		Vegetation	Maintain the presence of species-	Potential for changes to	meadow habitats.
		composition: typical	poor communities with typical	vegetation structure due	
		species and sub	species listed in the Saltmarsh	to increased visitor	
		communities	Monitoring Project	pressure	
		Vegetation structure:	No significant expansion of	Potential for change in	
		negative indicator	common cordgrass (Spartina	vegetation structure due	
		species Spartina anglica	anglica), with an annual spread of	to visitor pressure/	
			less than 1%	trampling/disturbance	
1330	To maintain the	Habitat Area	Area stable or increasing,	Potential loss of habitat	The route will have to demonstrate
	favourable conservation		subject to natural processes,	area.	that there will be no adverse impact
	conditions of Atlantic		including erosion and		on the overall area of Atlantic salt
	salt meadows (Glauco-		succession. For sub-site		meadows. Where this cannot be
	Puccinellietalia		mapped: Baldoyle - 11.98ha.		shown alternatives will have to be
	maritimae) in Baldoyle		See map 5		considered and where no alternatives
	Bay SAC, which is				are available it must be

defined by the following list of attributes and				demonstrated that the project is of overriding public interest.
targets:	Habitat Distribution	No decline, or change in habitat distribution, subject to natural processes.	Potential decline or change to habitat distribution	The route will have to demonstrate that there will be no adverse impact on the overall area of Atlantic salt meadows. Where this cannot be shown alternatives will have to be considered and where no alternatives are available it must be demonstrated that the project is of overriding public interest.
	Physical Structure: sediment supply	Maintain natural circulation of sediments and organic matter, without any physical obstructions	There will be no physical obstruction as part of the project that would result in change in circulation of sediment and organic matter	None
	Physical structure: creeks and pans	Maintain/restore creek and pan structure to develop, subject to natural processes, including erosion and succession	There will be no impact on natural processes as a result of this cycle routes	None
	Physical Structure: flooding regime	Maintain natural tidal regime	There will be no change to the tidal regime as a result of the cycleway	None
	Vegetation structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	There will be no change to vegetation structure: zonation as the route is adjoining the SAC and not sever zones	None
	Vegetation structure: vegetation height	Maintain structural variation within sward	Potential change to vegetation structure from increased visitor numbers	The route will have to demonstrate that there will be no adverse impact on the structural variation within the
	Vegetation structure: vegetation cover	Maintain more than 90% of the area outside of the creeks vegetated	Potential change to vegetation structure from increased visitor numbers	sward of Atlantic salt meadows or the vegetation cover outside of the creek area. Where this cannot be shown alternatives will have to be

					considered and where no alternatives
					are available it must be
					demonstrated that the project is of
					overriding public interest.
		Vegetation	Maintain range of subcommunities	Potential change to	The route will have to demonstrate
		composition: typical	with typical species listed in the	vegetation composition	that there will be no adverse impact
		species and sub	Saltmarsh Monitoring Project	from increased visitor	on the vegetation composition within
		communities	(McCorry and Ryle, 2009)	numbers	the sward of Atlantic salt meadows.
					Where this cannot be shown
					alternatives will have to be
					considered and where no alternatives
					are available it must be
					demonstrated that the project is of
					overriding public interest.
		Vegetation Structure:	No significant expansion of	Potential change to	The route will have to demonstrate
		negative indicator	common cordgrass (Spartina	vegetation structure from	that there will be no potential to
		species Spartina anglica	anglica), with an annual spread of	increased visitor numbers	result in expansion of common
			less than 1%		cordgrass within the area of Atlantic
					salt meadows. Where this cannot be
					shown alternatives will have to be
					considered and where no alternatives
					are available it must be
					demonstrated that the project is of
					overriding public interest.
1410	To Maintain the	Habitat Area	Area stable or increasing,	Potential loss of habitat	The route will have to demonstrate
1.10	favourable conservation	Trabitat / ii ca	subject to natural processes,	area.	that there will be no adverse impact
	conditions of		including erosion and succession.	urea.	on the overall area of Atlantic salt
	Mediterranean salt		including crosion and succession.		meadows. Where this cannot be
	meadows (Juncetalia				shown alternatives will have to be
	maritime) in Baldoyle				considered and where no alternatives
	Bay SAC, which is				
	defined by the following				
	,				demonstrated that the project is of
	list of attributes and	11 12 18:12		5	overriding public interest.
	targets	Habitat Distribution	No decline, or change in	Potential decline or	The route will have to demonstrate
			habitat distribution, subject to	change to habitat	that there will be no adverse impact
			natural processes.	distribution	on the overall area of Atlantic salt

Physical Structure: sediment supply	Maintain natural circulation of sediments and organic matter, without any physical obstructions	There will be no physical obstruction as part of the project that would result in change in circulation of sediment and organic	meadows. Where this cannot be shown alternatives will have to be considered and where no alternatives are available it must be demonstrated that the project is of overriding public interest. None required
Physical structure: creeks and pans	Maintain creek and pan structure, subject to natural processes, including erosion and succession	matter There will be no impact on natural processes as a result of this cycle routes	None required
Physical Structure: flooding regime	Maintain natural tidal regime	There will be no change to the tidal regime as a result of the cycleway	None required
Vegetation structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	There will be no change to vegetation structure: zonation as the route is adjoining the SAC and not sever zones	None required
Vegetation structure: vegetation height Vegetation structure: vegetation cover	Maintain structural variation within sward Maintain more than 90% of the area outside of the creeks vegetated	Potential change to vegetation structure from increased visitor numbers	The route will have to demonstrate that there will be no adverse impact on the structural variation within the sward of Atlantic salt meadows or the vegetation cover outside of the creek area. Where this cannot be shown alternatives will have to be considered and where no alternatives are available it must be demonstrated that the project is of overriding public interest.

Vegetation composition: typical species and sub communities	Maintain range of subcommunities with typical species listed in the Saltmarsh Monitoring Project (McCorry and Ryle, 2009)	Potential change to vegetation composition from increased visitor numbers	The route will have to demonstrate that there will be no adverse impact on the vegetation composition within the sward of Atlantic salt meadows. Where this cannot be shown alternatives will have to be considered and where no alternatives are available it must be demonstrated that the project is of overriding public interest.
Vegetation Structure: negative indicator species Spartina anglica	No significant expansion of common cordgrass (Spartina anglica), with an annual spread of less than 1%	Potential change to vegetation structure from increased visitor numbers	The route will have to demonstrate that there will be no potential to result in expansion of common cordgrass of Atlantic salt meadows. Where this cannot be shown alternatives will have to be considered and where no alternatives are available it must be demonstrated that the project is of overriding public interest.

Baldoyle Bay SPA 0004016

Conservation Objectives Series: 27th February 2013 Version 1

Greenway Routes - Eastern Greenway (P1/N5), Other Routes - Primary/secondary route P1/N5, Other Routes - Radial Route 1A/N5 are all in proximity to or within the SAC

Code	Conservation Objective	Attribute	Target	Potential Impact	Mitigation
A046	To maintain the favourable conservation condition of Light-bellied Brent Goose; Shelduck; Ringed Plover; Golden Plover; Grey Plover; Bar-tailed Godwit in Baldoyle Bay SPA,		Long term population trend stable or increasing	Decline in population and distribution due to increased disturbance form visitor pressure	consideration of malgation for the

which is defined by the following list of attributes and targets:			populations that may one site should be impact assessment. operational phase of t be carried out if necess additionally assist a cumulative impacts	considered in Monitoring of he project will sary, which will
			Signage in the form of boards could be provided the presence of Natural and the qualifying into promote respect of of the environs by recreations.	ided denoting ara 2000 sites erests present, the sensitivity
			Projects should carry of on predicted visitor sensitive sites to allo project level mitigation	numbers at w for further
			The timing of any constrequired as part of the of any proposed rou cause disturbance to species of the site, shat a time of year that with adverse impact of population using the wintering wildfowl).	e development ite, that may the qualifying Il take place at Il not have an in the bird
	Distribution	No significant decrease in the range, timing and intensity of use of areas by the conservation interest species as listed, other than that occurring from natural patterns of variation.	Consideration of mitigates restriction of increase numbers may reconstruction e.g. the cycle facilities may be provided away frow habitats and species. Interrelationships bet	eased visitor quire further provision of restricted and m qualifying
			2000 sites in partic	

		populations that may use more than one site should be considered in impact assessment. Monitoring of operational phase of the project will be carried out if necessary, which will additionally assist assessment of cumulative impacts
		Signage in the form of information boards could be provided denoting the presence of Natura 2000 sites and the qualifying interests present, to promote respect of the sensitivity of the environs by recreational users.
		Projects should carry out assessment on predicted visitor numbers at sensitive sites to allow for further project level mitigation.
		The timing of any construction works required as part of the development of any proposed route, that may cause disturbance to the qualifying species of the site, shall take place at a time of year that will not have an
		adverse impact on the bird population using the area (e.g. wintering wildfowl).

A999	To maintain the favourable conservation condition of the wetland habitat in Baldoyle Bay SPA, which is defined by the following list of attributes and targets:			Potential loss of wetland habitat through direct loss of land or though changes to drainage regime	The timing of any construction works required as part of the development of any proposed route, that may cause disturbance to the qualifying species of the site, shall take place at a time of year that will not have an adverse impact on the bird population using the area (e.g. wintering wildfowl).
------	---	--	--	---	--

Howth Head SAC 000202 Generic Conservation Objectives 18th July 2011 Provision of a Greenway and on road facilities Route 1A/N5. The route severs the SAC on the southern side of Howth Head only Code **Conservation Objective Assumed Attributes Assumed Targets Potential Impact** Mitigation 1230 To maintain or restore Habitat length Area stable or increasing, subject Given the nature and None the favourable to natural processes, including location of vegetated sea conservation condition erosion. cliffs there will be no No decline, subject to natural of the Annex I Habitat distribution direct impact from the habitat(s) and/or the proposed greenway on processes Annex II species for Physical No alteration to natural this habitat type resulting structure: in loss of habitat size, which the SAC has been functionality and functioning of geomorphological selected: hydrological regime and hydrological processes due to function or structure. Vegetated sea cliffs of artificial structures the Atlantic and Baltic Vegetation structure: Maintain range of sea cliff coasts. zonation habitat zonations including transitional zones, subject to (derived from Lower natural processes including Shannon SAC River erosion and succession Objectives and Targets) Vegetation structure: Maintain structural variation vegetation height within sward Maintain range of subcommunities Vegetation composition typical species and subwith typical species listed in the Irish Sea cliff survey communities

		Vegetation composition: negative indicator species Vegetation composition: bracken and woody species	Negative indicator species (including non-natives) to represent less than 5% cover Cover of bracken (Pteridium aquilinum) on grassland and/or heath to be less than 10%. Cover of woody species on grassland and/or heath to be less than 20%		
4030	4030 To maintain the favourable conservation condition of European dry heaths, which is defined by the following list of attributes and targets (derived from Kenmare River SAC 002158 Objectives and Targets)	Habitat Area Habitat distribution Physical structure: free draining, acid, low nutrient soil; rock outcrop Vegetation structure:	Area stable or increasing, subject to natural processes No decline from current habitat distribution, subject to natural processes No significant change in soil nutrient status, subject to natural processes. No increase or decrease in area of natural rock outcrop Cover of characteristic	Potential for loss of habitat area as a result of the proposed route Direct impact on habitat through construction of cycle route Potential for construction of greenway to result in changes to drainage Increased visitor pressure	The proposed route at project stage will have to demonstrate that there will be no adverse impact on the site integrity of the designated site. Where this cannot be shown alternatives will have to be considered and where no alternatives are available it must be demonstrated that the project is of overriding public interest.
		dwarf shrub indicator species Vegetation Structure: senescent Calluna vulgaris	dwarf shrub indicator species, typically heather (Calluna vulgaris), bell heather (Erica cinerea) and Western gorse (Ulex gallii) at least 25% Cover of senescent heather (Calluna vulgaris), less than 50%	has potential to result in disturbance of habitat and changes to vegetation structure Increased visitor pressure has potential to result in disturbance of habitat and changes to vegetation structure	any future development of the proposed cycle route will include an assessment of any impacts that may arise from increased visitor pressures in particular on sensitive habitats and species. Consideration will be given at project level AA to the provision of ancillary facilities for example the provision of street furniture, cycle parking, car parks, lighting etc. Where it is determined that the provision of such features will result in impact on the qualifying interests of the site then alternatives should be considered prior to the completion of the design.

	Vegetation structure: browsing	Long shoots of bilberry (Vaccinium myrtillus) with signs of browsing should be controlled	No potential impact	Consideration of mitigation for the restriction of increased visitor numbers may require further investigation e.g. the provision of cycle facilities and car parking may be restricted and provided away from qualifying habitats and species. None
	Vegetation structure: native trees and shrubs	Cover of scattered native trees and shrubs less than 20%	Increased visitor pressure has potential to result in disturbance of habitat and changes to vegetation structure	Any future development of the proposed cycle route will include an assessment of any impacts that may arise from increased visitor pressures in particular on sensitive habitats and
	Vegetation composition: positive indicator species	At least 2 positive indicator species e.g. bell heather (Erica cinerea) and Western gorse (Ulex gallii), with combined cover of at least 60%	Increased visitor pressure has potential to result in disturbance of habitat and changes to vegetation structure	species. Consideration will be given at project level AA to the provision of ancillary facilities for example the provision of street furniture, cycle parking, car parks, lighting etc. Where it is determined that the provision of such features will result in impact on the qualifying interests of the site then alternatives should be considered prior to the completion of the design. Consideration of mitigation for the restriction of increased visitor numbers may require further investigation e.g. the provision of cycle facilities and car parking may be restricted and provided away from qualifying habitats and species.
	Vegetation composition: bryophyte and non- crustose lichen species	: At least 2 bryophyte or non- crustose lichen species present has potential disturbance of	Increased visitor pressure has potential to result in disturbance of habitat and changes to vegetation structure	
	Vegetation composition: bracken (Pteridium aquilinum)	Cover of bracken (Pteridium aquilinum) less than 10%	Increased visitor pressure has potential to result in disturbance of habitat and changes to vegetation structure	
	Vegetation composition: weedy negative indicator species	Cover of agricultural weed species (negative indicator species) less than 1%	Increased visitor pressure has potential to result in disturbance of habitat and changes to vegetation structure	

Vegetation composition: non-native species	Cover of non-native species less than 1%	Disturbance to ground and the transport of invasive species on and between sites during construction may increase risk of invasive species. Increased visitor pressure has potential to result in disturbance of habitat and changes to vegetation structure	Appropriate surveys should be carried out prior to any development of cycle routes to identify if invasive alien species are present. If so an action plan will be drawn up to manage this issue.
Vegetation composition: rare/scarce heath species	No decline in distribution or population sizes of rare/scarce species, including protected species and betony (Stachys officinalis) and uncommon species juniper (Juniperus communis)	Increased visitor pressure has potential to result in disturbance of habitat and changes to vegetation structure	Any future development of the proposed cycle route will include an assessment of any impacts that may arise from increased visitor pressures in particular on sensitive habitats and species.
Vegetation structure: disturbed bare ground Vegetation structure:	Cover of disturbed bare peat less than 5% No signs of burning within	Increased visitor pressure has potential to result increased potential or areas of bare ground Increased visitor pressures	Consideration will be given at project level AA to the provision of ancillary facilities for example the provision of street furniture, cycle parking, car
burning	sensitive areas	has potential to result in Heath fires to occur	parks, lighting etc. Where it is determined that the provision of such features will result in impact on the qualifying interests of the site then alternatives should be considered prior to the completion of the design.
			Consideration of mitigation for the restriction of increased visitor numbers may require further investigation e.g. the provision of cycle facilities and car parking may be restricted and provided away from qualifying habitats and species.

Malahide Estuary SAC 000205

Conservation Objectives Series: 27th May 2013 Version 1

Proposed Greenways P1/F1, FG4 (eastern Greenway/N5) directly impacting on the SAC

Habitat Code	Conservation Objective	Attribute	Target	Potential Impact	Mitigation
1140	To maintain the favourable conservation condition of Mudflats and sandflats not covered by seawater at low tide in Malahide Estuary SAC, which is defined by the following list of attributes and targets:	Habitat area	The permanent habitat area is stable or increasing, subject to natural processes.	Loss of habitat area.	The route will have to demonstrate that there will be no adverse impact on the overall area of Mudlfats and sandflats not covered by seawater at low tide. Where this cannot be shown alternatives will have to be considered and where no alternatives are available it must be demonstrated that the project is of overriding public interest.
		Community extent	Maintain the extent of the Zostera- dominated community and the Mytilus edulis- dominated community complex, subject to natural processes.	There will be no loss of community specified	None
		Community structure: Zostera density	Conserve the high quality of the Zostera-dominated community, subject to natural processes	There will be no loss of community specified	None
		Community structure: Mytilus edulis density	Conserve the high quality of the Mytilus edulisdominated community, subject to natural processes	There will be no loss of community specified	None
		Community distribution	Conserve the following community types in a natural condition: Fine sand with oligochaetes,	There will be no loss of community specified	None

			amphipods, bivalves and polychaetes community complex; Estuarine sandy mud with Chironomidae and Hediste diversicolor community complex; and Sand to muddy sand with Peringia ulvae, Tubificoides benedii and Cerastoderma edule community complex. See map 4		
1310	To maintain the favourable conservation condition of Salicornia and other annuals colonising mud and sand	Habitat area	Area stable or increasing, subject to natural processes, including erosion and succession. For sub-site mapped: Malahide Estuary- 1.93ha. See map 5	There will be no loss of Salicornia habitat as the route is not in direct proximity to the habitat	None
	in Malahide Estuary SAC, which is defined by the following list of attributes and targets:	Habitat distribution	No decline, or change in habitat distribution, subject to natural processes. See map 5 for known distribution	There is no restriction or change to distribution of Salicornia habitat distribution	None
		Physical structure: sediment supply	Maintain, or where necessary restore, natural circulation of sediments and organic matter, without any physical obstructions	There will be no physical obstruction as part of the project that would result in change in circulation of sediment and organic matter	None
		Physical structure: creeks and pans	Maintain creek and pan structure, subject to natural processes, including erosion and succession	There will be no direct impact on creek and pan structures	None
		Physical structure: flooding regime	Maintain natural tidal regime	There will be no change to the tidal regime as a result of the cycleway	None
		Vegetation structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to natural processes	There will be no change to vegetation structure: zonation as the route is	None

			including erosion and succession	adjoining the SAC and not	
			merading crosion and succession	in close proximity to	
				Salicornia habitats	
		Vegetation structure:	Maintain structural	Potential for changes to	
		vegetation height	variation within sward		Any future development of the
		vegetation neight	Variation within Swaru	vegetation structure due	proposed cycle routes will include an
				to increased visitor	assessment of any impacts that may
		.,	1 200/ 5	pressure	arise from increased visitor
		Vegetation structure:	Maintain more than 90% of area	Potential for changes to	pressures, in particular, on sensitive
		vegetation cover	outside creeks vegetated	vegetation structure due	Natura 2000 habitats such as
				to increased visitor	Salicornia habitats, Atlantic salt
				pressure	meadows and Mediterranean salt
		Vegetation	Maintain the presence of species-	Potential for changes to	meadow habitats.
		composition:	poor communities	vegetation structure due	
		typical species and	listed in SMP (McCorry and	to increased visitor	
		subcommunities	Ryle, 2009)	pressure	
		Vegetation structure:	No significant expansion of	Potential for changes to	
		negative indicator	common cordgrass (Spartina	vegetation structure due	
		species - Spartina	anglica). No new sites for this	to increased visitor	
		anglica	species and an annual spread of	pressure	
		_	less than 1% where it is already		
			known to occur		
1320	Spartina swards	Non prepared	Non prepared		It is not necessary to assess the likely
	(Spartinion maritimae)				effects of plans or projects against
	was originally listed as a				this Annex I habitat at this site.
	qualifying Annex I				
	habitat for Malahide				
	Estuary SAC due to				
	historical records of two				
	rare forms of cordgrass-				
	small cordgrass (Spartina				
	maritima) and				
	Townsend's cordgrass (S				
	. x townsendii.).				
	However, Preston et al.				
	(2002) considers both				
	` '				
	forms to be alien. In				

1330	addition, all stands of cordgrass in Ireland are now regarded as common cordgrass (S.anglica) (McCorry et al., 2003; McCorry and Ryle, 2009). As a consequence, a conservation objective has not been prepared for this habitat. It will therefore not be necessary to assess the likely effects of plans or projects against this Annex I habitat at this site. 27 To restore the favourable conservation condition of Atlantic salt meadows (Glauco-Puccinellietalia maritimae) in Malahide Estuary SAC, which is defined by the following list	Habitat area Habitat distribution	Area stable or increasing, subject to natural processes, including erosion and succession. No decline or change in habitat distribution, subject to natural processes. See map 5 for known distribution	Potential loss of habitat area. Potential decline or change to habitat distribution	The route will have to demonstrate that there will be no adverse impact on the overall area of Atlantic salt meadows. Where this cannot be shown alternatives will have to be considered and where no alternatives are available it must be demonstrated that the project is
	of attributes and targets:				necessary for Imperative Reasons of Overriding Public Interest.
		Physical structure: sediment supply	Maintain natural circulation of sediments and organic matter, without any physical obstructions	There will be no physical obstruction as part of the project that would result in change in circulation of sediment and organic	None

		matter	
Physical structure: creeks and pans	Allow creek and pan structure to develop, subject to natural processes, including erosion and succession	There will be no change to natural processes as a result of the cycleway	None
Physical structure: flooding regime	There will be no change to the tidal regime as a result of the cycleway	There will be no change to the tidal regime as a result of the cycleway	None
Vegetation structure: zonation	Maintain range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	There will be no change to vegetation structure: zonation as the route is adjoining the SAC and not sever zones	None
Vegetation structure: vegetation height	Maintain structural variation within sward	Potential change to vegetation structure from increased visitor numbers	The route will have to demonstrate that there will be no adverse impact on the structural variation within the
Vegetation structure: vegetation cover	Maintain more than 90% area outside creeks vegetated	Potential change to vegetation structure from increased visitor numbers	sward of Atlantic salt meadows or the vegetation cover outside of the creek area. Where this cannot be shown alternatives will have to be considered and where no alternatives are available it must be demonstrated that the project is of overriding public interest.
Vegetation composition: typical species and subcommunities	Maintain range of subcommunities with typical species listed in SMP (McCorry and Ryle, 2009)	Potential impact	The route will have to demonstrate that there will be no adverse impact on the vegetation composition within the sward of Atlantic salt meadows. Where this cannot be shown alternatives will have to be considered and where no alternatives are available it must be demonstrated that the project is necessary for Imperative Reasons of Overriding Public Interest.

		Vegetation structure: negative indicator species - Spartina anglica	No significant expansion of common cordgrass (Spartina anglica), with an annual spread of less than 1% where it is known to occur	Potential impact	The route will have to demonstrate that there will be no potential to result in expansion of common cordgrass within the area of Atlantic salt meadows. Where this cannot be shown alternatives will have to be considered and where no alternatives are available it must be demonstrated that the project is of overriding public interest.
1410	To maintain the favourable conservation condition of Mediterranean salt meadows (Juncetalia maritimi) in Malahide Estuary SAC, which is defined by the following list of	Habitat area	Area stable or increasing, subject to natural processes, including erosion and succession. For subsite mapped: Malahide Estuary - 0.64ha. See map 5	Potential loss of habitat area.	The route will have to demonstrate that there will be no adverse impact on the overall area of Mediteranean salt meadows. Where this cannot be shown alternatives will have to be considered and where no alternatives are available it must be demonstrated that the project is of overriding public interest.
	attributes and targets:	Habitat distribution	No decline, subject to natural processes. See map 5 for known distribution	Potential decline or change to habitat distribution	The route will have to demonstrate that there will be no adverse impact on the overall area of Mediteranean salt meadows. Where this cannot be shown alternatives will have to be considered and where no alternatives are available it must be demonstrated that the project is of overriding public interest.
		Physical structure: sediment supply	Maintain/restore natural circulation of sediments and organic matter, without any physical obstructions	There will be no physical obstruction as part of the project that would result in change in circulation of sediment and organic matter	None required
		Physical structure: creeks and pans	Maintain creek and pan structure, subject to natural processes,	No impact likely on natural erosion or deposition	None required

		including erosion and succession	processes as a result of	
		. 0 	cycleway	
P	Physical structure:	Maintain natural tidal regime	There will be no change to	None required
	flooding regime	S	the tidal regime as a result	·
	0 0		of the cycleway	
	Vegetation structure:	Maintain range of	There will be no change to	None required
	zonation	saltmarsh habitats	vegetation structure:	·
		including transitional	zonation as the route is	
		zones, subject to natural processes	adjoining the SAC and will	
		including erosion	not sever zones	
		and succession		
	Vegetation structure:	Maintain structural	Potential change to	The route will have to demonstrate
l v	regetation height	variation in the sward	vegetation structure from	that there will be no adverse impact
	Vegetation structure:	Maintain more than 90% of area	increased visitor numbers	on the structural variation within the
l v	regetation cover	outside creeks vegetated		sward of Mediterranean salt
				meadows. Where this cannot be
				shown alternatives will have to be
				considered and where no alternatives
				are available it must be
				demonstrated that the project is of
				overriding public interest.
V	Vegetation Vegetation	Maintain range of subcommunities		The route will have to demonstrate
c	composition:	With characteristic species listed in		that there will be no adverse impact
t	cypical species and	SMP (McCorry and Ryle,		on the vegetation composition within
s	subcommunities	2009)		the sward of Mediterranean salt
				meadows. Where this cannot be
				shown alternatives will have to be
				considered and where no alternatives
				are available it must be
				demonstrated that the project is of
				overriding public interest.
	Vegetation structure:	No significant expansion of		The route will have to demonstrate
n	negative indicator	common cordgrass		that there will be no potential to
s	species - Spartina	(Spartina anglica), with an annual		result in expansion of common
a	anglica	spread of less than		cordgrass in Mediterranean salt
		1% where it is already known to		meadows. Where this cannot be

			occur		shown alternatives will have to be considered and where no alternatives are available it must be demonstrated that the project is of overriding public interest.
2120	To restore the favourable conservation condition of Shifting dunes along the shoreline with	Habitat area	Area stable or increasing, subject to natural processes including erosion and succession. Total area mapped: 1.80ha. See map 6	There will be no change to any natural processes including erosion and succession as a result of the cycleway	None required
	Ammophila arenaria ('white dunes') in Malahide Estuary SAC, which is defined by the following list of	Habitat distribution	No decline, or change in habitat distribution, subject to natural processes. See map 6 for known distribution	There will be no change to habitat distribution, subject to natural processes as a result of the cycleway	None required
	attributes and targets:	Physical structure: functionality and sediment supply	Maintain the natural circulation of sediment and organic matter, without any physical obstructions	There will be no change to natural circulation of sediment and organic matter as a result of the cycleway	None required
		Vegetation structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	There will be no change to coastal habitats including transitional zones, subject to natural processes including erosion and succession as a result of the cycleway	None required
		Vegetation composition: plant health of dune grasses	95% of marram grass (Ammophila arenaria) and/or lyme-grass (Leymus arenarius) should be healthy (i.e. green plant parts above ground and flowering heads present)	There will be no impact on marram grass (Ammophila arenaria) and/or lymegrass (Leymus arenarius) as a result of the cycleway.	None required
		Vegetation composition: typical species and	Maintain the presence of species-poor communities dominated by marram grass	There will be no change to the presence of species-poor communities	None required

		subcommunities	(Ammophila arenaria) and/or lymegrass (Leymus arenarius)	dominated by marram grass (Ammophila arenaria) and/or lymegrass (Leymus arenarius) as a result of the cycleway	
		Vegetation composition: negative indicator species	Negative indicator species (including non-natives) to represent less than 5% cover	There will be no spread of negative indicator species as a result of the cycleway	None required
2130	To restore the favourable conservation condition of Fixed coastal dunes with herbaceous	Habitat area	Area stable or increasing, subject to natural processes including erosion and succession. Total area mapped: 21.42ha. See map 6	There will be no change to any natural processes including erosion and succession as a result of the cycleway	None required
	vegetation ('grey dunes') in Malahide Estuary SAC, which is defined by the following list of attributes and targets:	Habitat distribution	No decline, or change in habitat distribution, subject to natural processes. See map 6 for known distribution	There will be no change to habitat distribution, subject to natural processes as a result of the cycleway	None required
		Physical structure: functionality and sediment supply	Maintain the natural circulation of sediment and organic matter, without any physical obstructions	There will be no change to natural circulation of sediment and organic matter as a result of the cycleway	None required
		Vegetation structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	There will be no change to coastal habitats including transitional zones, subject to natural processes including erosion and succession as a result of the cycleway	None required
		Vegetation structure: bare ground	Bare ground should not exceed 10% of fixed dune habitat, subject to natural	There will be no increase in the percentage of bare ground as a result of the	None required

	processes		Су	ycleway	
Vegetation s	tructure: Maintain st	tructural	Th	here will be no impact	on None required
sward height	variation w	ithin sward	st	tructural variation in t	he
			ar	rea as a result of t	he
			су	ycleway	
Vegetation	Maintain ra	ange of subcomn	nunities Th	here will be no impact	on None required
composition:	with typica	I	th	he range	of
typical specie	es and species list	ed in Ryle et al. (2009) su	ubcommunities as	a
subcommunities	S		re	esult of the cycleway	
Vegetation	Negative	indicator	species Th	here will be no impact	on None required
composition:	(including r	non-natives) to	th	he spread of negat	ive
negative indicat	or represent I	ess than 5% cove	er in	ndicator species as	a
species (includir	ng		re	esult of the cycleway	
Hippophae					
rhamnoides)					
Vegetation	No more t	than 5% cover o	or under Th	here will be no increa	ase None required
composition:	control		in	n the percentage	of
scrub/trees			sc	crub/trees as a result	of
			th	he cycleway	

Malahide Estuary SPA 004025

Conservation Objectives Series: 16th August 2013

Eastern Greenway adjoining and within SPA.

Code	Conservation Objective	Attribute	Target	Potential Impact	Mitigation
See column to right	To maintain the favourable conservation condition of Great Crested Grebe (A005), Light-bellied Brent Goose (A046), Shelduck (A048), Pintail (A054), Goldeneye (A067), Redbreasted Merganser	Population trend Distribution	Long term population trend stable or increasing No significant decrease in the range, timing and intensity of use of areas by the conservation interest species as listed, other than that occurring	Decline in population as a result of disturbance from increased visitor pressure Decrease in use of the area by the conservation interest species due to increased visitor pressure	Consideration of mitigation for the restriction of increased visitor numbers may require further investigation e.g. the provision of cycle facilities may be restricted and provided away from qualifying habitats and species. Interrelationships between Natura 2000 sites in particular for bird
	(A069), Oystercatcher (A130), Grey Plover		from natural patterns of variation		populations that may use more than one site should be considered in

	(A141), Knot Calidris canutus (A143), Dunlin (A149), Black-tailed Godwit (A156), Bar-tailed Godwit (A157),				impact assessment. Monitoring of operational phase of the project will be carried out if necessary, which will additionally assist assessment of cumulative impacts
	Redshank (A162) in Malahide Estuary SPA, which are defined by the following list of attributes and				Signage in the form of information boards could be provided denoting the presence of Natura 2000 sites and the qualifying interests present, to promote respect of the sensitivity of the environs by recreational users.
	targets:				Projects should carry out assessment on predicted visitor numbers at sensitive sites to allow for further project level mitigation.
					The timing of any construction works required as part of the development of any proposed route, that may cause disturbance to the qualifying species of the site, shall take place at a time of year that will not have an adverse impact on the bird population using the area (e.g. wintering wildfowl).
A999	To maintain the favourable conservation condition of the wetland habitat in Malahide Estuary SPA as a resource for the regularly-occurring migratory waterbirds	Habitat area	The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 765 hectares, other than that occurring from natural patterns of variation.	Potential loss of wetland habitat through direct loss of land or though changes to drainage regime	Any future development of the proposed cycle routes will include an assessment of any impacts that may arise from increased visitor pressures, in particular, on the condition of the wetland habitat.
	that utilise it. This is defined by the following attribute and target:		patterns of variation.		Design should consider the provision of protective measures on sites sensitive to disturbance/visitor pressure e.g. provision of physical

		barriers, hedgerows, any natural
		barriers or simply by not facilitating
		access onto the sensitive habitat.

North Dublin Bay SAC 000206

Conservation Objectives 18th July 2011

Route 1A/N5 adjoining or directly impacting the SAC. East coast trail/N5 adjoining Dublin Bay, Santry River Greenway within SAC. While much of the infrastructure is in

place, the Santry River Greenway is at plan stage only. 1

Habitat Code	Conservation Objective	Attribute	Target	Potential Impact	Mitigation
1140	To maintain the favourable conservation conditions of mudflats and sandflats not covered by seawater at low tide at North Dublin Bay SAC, which is defined by the following list of attributes and targets: (derived from Baldoyle SAC 000199 Conservation Objectives)	Habitat Area Community Distribution	The permanent habitat area is stable or increasing, subject to natural process Conserve the following community types in a natural condition: Fine sand dominated by Angulus tenuis community complex; and Estuarine sandy mud with Pugospio elegans and Tubificoides benedii community complex	No Impact No Impact	Any future development of the proposed cycle routes will include assessment of any impacts that may arise from increased visitor pressures in particular on sensitive habitats and species such as Mudflats and Sandflats, Salicornia habitats, Atlantic salt meadows and Mediterranean salt meadow habitats, Embroyonic shifting dunes, Grey* (Fixed) and White Dunes (Shifting) and Humid dune slacks. Consideration will be given at project
1210	Annual vegetation of drift lines (adapted from Carlingford Shore SAC 002306)	Habitat area Habitat distribution	Area stable or increasing, subject to natural processes, including erosion and succession No decline, or change in habitat distribution, subject to natural	No Impact No Impact	level AA to the provision of ancillary facilities for example the provision of street furniture, cycle parking, car parks, lighting etc. Where it is determined that the provision of

¹ This section of the cycleway will be mostly incorporated on an existing cycleway. The section that is not is found between Wooden Bridge and Causeway, this section has already had an AA completed for it and has now received planning permission. Therefore all potential impacts have now been addressed and no future impacts are expected as a result of this cycle route.

		Dhysical structure:	processes	No Impact	such features will result in impact on the qualifying interests of the site
		Physical structure: sediment supply	Maintain natural circulation of sediments and organic matter,	No Impact	then alternatives should be
		,	without any physical obstructions		considered prior to the completion of
		Vegetation structure: zonation	Maintain the range of coastal habitats including transitional	No Impact	the design.
			zones, subject to natural processes including erosion and succession		Consideration of mitigation for the restriction of increased visitor
		Vegetation composition: typical species and sub communities	Maintain the presence of species- poor communities. Typical species may include saltwort (Salsola kali), sea rocket (Cakile maritima), sea sandwort (Honckenya peploides), sea spurge (Euphorbia paralias) and oraches (Atriplex species).	No Impact	numbers on the sensitive habitats present may require further investigation e.g. the provision of cycle facilities may be restricted and provided away from qualifying habitats and species.
		Vegetation composition: typical species and sub communities	Negative indicators (including non- native species) should represent less than 5% of the vegetation cover.	No Impact	
1310	To Maintain the favourable conservation conditions of Salicornia	Habitat area	Area stable or increasing, subject to natural processes, including erosion and succession.	No Impact	
	and other annuals colonizing mud and sand in North Dublin Bay SAC,	Habitat distribution	No decline, or change in habitat distribution, subject to natural processes	No Impact	
	which is defined by the following list of attributes and targets:	Physical structure: sediment supply	Maintain natural circulation of sediments and organic matter, without any physical obstructions	No Impact	
	(derived from Baldoyle	Physical structure: Occurrence creeks and	Maintain creek and pan structures, subject to natural processes,	No Impact	
	SAC 000199 Conservation	pans	including erosion and succession		
	Objectives)	Physical structure:	Maintain natural tidal regime	No Impact	
		flooding regime Vegetation structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to natural processes	No Impact	

			including aregion and succession	
			including erosion and succession	
		Vegetation structure: height	Maintain structural variation within sward	No Impact
		Vegetation structure:	Maintain more than 90% of area	
		vegetation cover	outside creeks vegetated	
		Vegetation composition: typical species and sub	Maintain the presence of species- poor communities with typical species listed in the Saltmarsh	No Impact
		communities	Monitoring Project	
		Vegetation structure: negative indicator species Spartina anglica	No significant expansion of common cordgrass (Spartina anglica), with an annual spread of less than 1%	No Impact
1330	To maintain the favourable conservation conditions of Atlantic salt meadows (Glauco-Puccinellietalia	Habitat Area	Area stable or increasing, subject to natural processes, including erosion and succession.	No Impact
	maritimae) in North Dublin Bay SAC, which is defined by the following list of attributes and targets:	Habitat Distribution	No decline, or change in habitat distribution, subject to natural processes.	No Impact
		Physical Structure: sediment supply	Maintain natural circulation of sediments and organic matter, without any physical obstructions	No Impact
		Physical structure: creeks and pans	Maintain/restore creek and pan structure to develop, subject to natural processes, including erosion and succession	No Impact
		Physical Structure: flooding regime	Maintain natural tidal regime	No Impact
		Vegetation structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	No Impact

	Vegetation structure: vegetation height	Maintain structural variation within sward	No Impact
	Vegetation structure: vegetation cover	Maintain more than 90% of the area outside of the creeks vegetated	No Impact
	Vegetation composition: typical species and sub communities	Maintain range of subcommunities with typical species listed in the Saltmarsh Monitoring Project (McCorry and Ryle, 2009)	No Impact
To maintain the favourable conservation	Distribution of populations	No decline. Maintain at least current number of populations	No Impact
condition of Petalophllum	Population size	No decline	No Impact
Ralfsil in North Dublin Bay SAC, which is defined by the following list of attributes and targets:	Area occupied by habitat	No decline	No Impact
1410 To maintain the favourable conservation condition of Mediterranean salt meadows (Juncetalia maritimi) in North Dublin Bay SAC,	Habitat area	Area stable or increasing, subject to natural processes, including erosion and succession. For subsite mapped: Malahide Estuary - 0.64ha. See map 5	No Impact
which is defined by the following list of attributes and targets	Habitat distribution	No decline, subject to natural processes. See map 5 for known distribution	No Impact
	Physical structure: sediment supply	Maintain/restore natural circulation of sediments and organic matter, without any physical obstructions	No Impact
	Physical structure: creeks and pans	Maintain creek and pan structure, subject to natural processes, including erosion and succession	No Impact
	Physical structure:	Maintain natural tidal regime	No Impact

		flooding regime		
		Vegetation structure: zonation	Maintain range of saltmarsh habitats including transitional zones, subject to natural processes including erosion and succession	No Impact
		Vegetation structure: vegetation height	Maintain structural variation in the sward	No Impact
		Vegetation structure: vegetation cover	Maintain more than 90% of area outside creeks vegetated	No Impact
		Vegetation composition: typical species and subcommunities	Maintain range of subcommunities With characteristic species listed in SMP (McCorry and Ryle, 2009)	No Impact
		Vegetation structure: negative indicator species - Spartina anglica	No significant expansion of common cordgrass (Spartina anglica), with an annual spread of less than 1% where it is already known to occur	No Impact
2110	To maintain the favourable conservation condition of embryonic shifting dunes in North Dublin Bay SAC which is defined by the following list of attributes and targets	Habitat area	Area stable or increasing, subject to natural processes, including erosion and succession.	No Impact
		Occurrence	No decline, subject to natural processes	No Impact
		Physical structure: functionality and sediment supply	Maintain the natural circulation of sediment and organic matter, without any physical obstructions.	No Impact
		Vegetation structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	No Impact

		Vegetation composition: typical species and sub-communities	Maintain the presence of species-poor communities with typical species: Elytrigia juncea and/or Leymus arenarius	No Impact	
		Vegetation composition: plant health of foredune grasses	More than 95% of Elytrigia and/or Leymus should be healthy (i.e. green plant parts above ground and flowering heads present)	No Impact	
		Vegetation composition: negative indicator species	Negative indicator species (including non-natives) to represent less than 5% cover	No Impact	
2120	To restore the favourable conservation condition of Shifting dunes along the shoreline with	Habitat area	Area stable or increasing, subject to natural processes including erosion and succession.	No Impact	
	Ammophila arenaria ('white dunes') in North Dublin Bay SAC, which is defined by the	Habitat distribution Physical structure:	No decline, or change in habitat distribution, subject to natural processes. Maintain the natural	No Impact No Impact	
	following list of attributes and targets:	functionality and sediment supply	circulation of sediment and organic matter, without any physical obstructions	No impact	
		Vegetation structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	No Impact	
		Vegetation composition: plant health of dune grasses	95% of marram grass (Ammophila arenaria) and/or lyme-grass (Leymus arenarius) should be healthy (i.e. green plant parts above ground and flowering heads present)	No Impact	

		Vegetation composition: typical species and subcommunities Vegetation composition: negative indicator species	Maintain the presence of species-poor communities dominated by marram grass (Ammophila arenaria) and/or lymegrass (Leymus arenarius) Negative indicator species (including non-natives) to represent less than 5% cover	No Impact No Impact	
2130	To restore the favourable conservation condition of Fixed coastal dunes with herbaceous	Habitat area	Area stable or increasing, subject to natural processes including erosion and succession.	No Impact	
	vegetation ('grey dunes') in North Dublin Bay SAC, which is defined by the	Habitat distribution	No decline, or change in habitat distribution, subject to natural processes.	No Impact	
	following list of attributes and targets:	Physical structure: functionality and sediment supply	Maintain the natural circulation of sediment and organic matter, without any physical obstructions	No Impact	
		Vegetation structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	No Impact	
		Vegetation structure: bare ground	Bare ground should not exceed 10% of fixed dune habitat, subject to natural processes	No Impact	
		Vegetation structure: sward height	Maintain structural variation within sward	No Impact	
		Vegetation composition: typical species and subcommunities	Maintain range of subcommunities with typical species listed in Ryle et al. (2009)	No Impact	
		Vegetation	Negative indicator species	No Impact	

composition: negative indicator species (including Hippophae rhamnoides) Vegetation composition: scrub/trees To maintain the favourable conservative condition of humid dune slacks in North Dublin Bay which is defined by the following attributes and targets: Physical structure:functiona lity and sediment supply Physical structure: hydrological and filododing regime Vegetation structure: zonation Vegetation structure: bare ground Vegetation Vegetation structure: vegetation height Vegetation structure: vegetation height Vegetation structure: vegetation height Vegetation structure: vegetation height Vegetation structure: vegetation height Vegetation structure: vegetation height Vegetation structure: vegetation height Vegetation structure: vegetation height			composition:	(including non natives) to	
species (including Hippophae rhamnoides) Vegetation composition: scrub/trees 2190 To maintain the favourable conservative condition of humid dune slacks in North Dublin Bay which is defined by the following attributes and targets: Physical Structure: functiona lity and sediment souply Physical structure: hydrological and flooding regime Vegetation Structure: conadition of structure: bare ground Vegetation Structure: bare ground Vegetation Vegetation Structure: bare ground Vegetation Structure: Waliation Structure and succession Struc			l •	1	
Hippophae rhamnoides) Vegetation composition: scrub/trees Habitat area Area stable or increasing, subject to natural processes including erosion and succession. No Impact No Impact outrol subject to natural processes including erosion and succession. No decline, subject to natural processes. Physical structure: functiona lity and sediment supply Physical obstructions Physical structure: hydrological and flooding regime Vegetation structure: zonation Vegetation structure: bare ground Vegetation Structure: without any subject to natural processes. Maintain the natural circulation of sediment and organic matter, without any supply physical obstructions Maintain natural hydrological Regime No Impact No I			•	represent less than 5% cover	
Physical structure: hydrological and flooding regime Vegetation structure: bare ground Vegetation scrub/tres Physical structure: bare ground Vegetation structure: bare ground Vegetation structure: within sward Volume structure: view on total structural volume structure: view on the supply Vegetation structure: within sward Vegetation Vegetation Vegetation structure: within sward Vegetation Vegetation Vegetation within sward Vegetation Vegetation Vegetation Vegetation within sward Vegetation Vegetati			-		
Vegetation composition: scrub/trees					
2190 To maintain the favourable conservative condition of humid dune slacks in North Dublin Bay which is defined by the following attributes and targets: Physical structure: hydrological and flooding regime Vegetation structure: zonation Vegetation structure: bare ground structure: with the exception of pioneer slacks which can have up to 20% bare ground within sward Vegetation structure: within sward Vegetation Vegetation Vegetation structure: within sward Vegetation Vegetation			· · · · · · · · · · · · · · · · · · ·		
2190 To maintain the favourable conservative condition of humid dune slacks in North Dublin Bay which is defined by the following attributes and targets: Physical structure:functiona lity and sediment supply Physical of Isoding regime Vegetation structure: zonation Vegetation structure: bare exceed 5% of dune slack ground Vegetation structure: bare ground structure lacks which can have up to 20% bare ground Vegetation structure: within sward Vegetation structure: bare exceed 5% of dune slack which can have up to 20% bare ground Vegetation structure: within sward Vegetation within sward Vegetation structural variation within sward			Vegetation	No more than 5% cover or under	No Impact
To maintain the favourable conservative condition of humid dune slacks in North Dublin Bay which is defined by the following attributes and targets: Habitat distribution Physical Physical Physical structure: functiona lity and sediment supply Physical structure: hydrological and flooding regime Vegetation Structure: zonation Vegetation Structure: bare ground Vegetation Structure: Maintain the range of coastal habitats including transitional zones, subject to natural processes. No Impact Area stable or increasing, subject to natural processes Including erosion and successes. No Impact			composition:	control	
favourable conservative condition of humid dune slacks in North Dublin Bay which is defined by the following attributes and targets: Habitat distribution No decline, subject to natural No Impact			scrub/trees		
condition of humid dune slacks in North Dublin Bay which is defined by the following attributes and targets: Habitat distribution No decline, subject to natural processes.	2190	To maintain the	Habitat area	Area stable or increasing,	No Impact
condition of humid dune slacks in North Dublin Bay which is defined by the following attributes and targets: Habitat distribution No decline, subject to natural processes.		favourable conservative		subject to natural processes	
slacks in North Dublin Bay which is defined by the following attributes and targets: Physical structure: functiona lity and sediment supply physical obstructions Physical structure: hydrological and flooding regime		condition of humid dune		1 · · · · · · · · · · · · · · · · · · ·	
which is defined by the following attributes and targets: Physical structure:functionality and sediment supply Physical obstructions Physical structure: Maintain the ratural organic matter, without any supply Physical obstructions Physical structure: Maintain natural hydrological Regime No Impact No Impact		slacks in North Dublin Bay		1	
following attributes and targets: Physical structure:functiona lity and sediment supply Physical structure: Maintain natural organic matter, without any supply Physical structure: Maintain natural hydrological hydrological and flooding regime Regime No Impact		•	Habitat distribution	No decline, subject to natural	No Impact
targets: Physical structure: functiona lity and sediment supply physical obstructions Physical structure:		-			. To impact
structure:functiona lity and sediment supply Physical structure: hydrological and flooding regime Vegetation structure: zonation Vegetation structure: bare ground Vegetation structure: bare structure: bare ground Vegetation structure: bare structure: bare structure: bare ground Vegetation structure: without any physical obstructions Maintain natural hydrological Regime No Impact		_	Physical	<u> </u>	No Impact
lity and sediment supply physical obstructions Physical structure: Maintain natural hydrological hydrological and flooding regime Vegetation Structure: value of coastal processes including transitional zones, subject to natural processes including erosion and succession Vegetation Bare ground should not structure: bare ground habitat, with the exception of pioneer slacks which can have up to 20% bare ground Vegetation Structure: within sward No Impact		10.8010.	•		146 impact
supply physical obstructions Physical structure: Maintain natural hydrological No Impact Regime Vegetation Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession Vegetation Bare ground should not structure: bare ground habitat, with the exception of pioneer slacks which can have up to 20% bare ground Vegetation Structure: Within sward No Impact					
Physical structure: hydrological and flooding regime Vegetation structure: zonation Vegetation Vegetation Structure: zonation Vegetation Vegetation Vegetation Vegetation Vegetation Vegetation Structure: bare ground Vegetation Structure: bare ground Vegetation Maintain natural hydrological Regime No Impact			l	-	
hydrological and flooding regime Vegetation					No Impact
flooding regime Vegetation structure: zonation Vegetation structure: zonation Vegetation Abitats including transitional zones, subject to natural processes including erosion and succession Vegetation Structure: bare ground habitat, with the exception of pioneer slacks which can have up to 20% bare ground Vegetation Structure: within sward No Impact No Impact			l ,	, -	No impact
Vegetation structure: zonation			-	Regime	
structure: zonation habitats including transitional zones, subject to natural processes including erosion and succession Vegetation Bare ground should not exceed 5% of dune slack ground habitat, with the exception of pioneer slacks which can have up to 20% bare ground Vegetation Maintain structural variation No Impact structure: within sward				Maintain the new areaf areatal	No. Lorenza de
zones, subject to natural processes including erosion and succession Vegetation Structure: bare ground habitat, with the exception of pioneer slacks which can have up to 20% bare ground Vegetation Structure: within sward No Impact No Impact No Impact No Impact			_	_	No impact
processes including erosion and succession Vegetation Bare ground should not structure: bare exceed 5% of dune slack pioneer slacks which can have up to 20% bare ground Vegetation Maintain structural variation No Impact structure: within sward			structure: zonation	_	
and succession Vegetation Bare ground should not Structure: bare exceed 5% of dune slack ground habitat, with the exception of pioneer slacks which can have up to 20% bare ground Vegetation Maintain structural variation No Impact structure: within sward					
Vegetation Bare ground should not structure: bare exceed 5% of dune slack ground habitat, with the exception of pioneer slacks which can have up to 20% bare ground Vegetation Maintain structural variation No Impact structure: within sward					
structure: bare exceed 5% of dune slack ground habitat, with the exception of pioneer slacks which can have up to 20% bare ground Vegetation Maintain structural variation No Impact structure: within sward					
ground habitat, with the exception of pioneer slacks which can have up to 20% bare ground Vegetation Maintain structural variation No Impact structure: within sward			•	_	No Impact
pioneer slacks which can have up to 20% bare ground Vegetation Maintain structural variation No Impact structure: within sward					
Vegetation Waintain structural variation No Impact structure: within sward			ground	1	
VegetationMaintain structural variationNo Impactstructure:within sward				1 .	
structure: within sward				up to 20% bare ground	
			Vegetation	Maintain structural variation	No Impact
vegetation height			structure:	within sward	
			vegetation height		
Vegetation Maintain range of subcommunities No Impact			Vegetation	Maintain range of subcommunities	No Impact
composition: with typical			_	_	

typical species ar	nd species listed in Ryle et al.	
sub-communities	s (2009)	
Vegetation	Maintain less than 40% cove	No Impact
composition: cov	ver of Salix	
of Salix repens		
Vegetation	Negative indicator species	No Impact
composition:	(including non-natives) to	
negative indicato	or represent less than 5% cover	
species		
Vegetation	No more than 5% cover or	No Impact
composition:	under control	
scrub/trees		

North Bull Island SPA 004006

Conservation Objectives Series: 16th April 2012

Adjoining Eastern Greenway along Clontarf with potential disturbance on bird life. Greenway Routes – East Coast Trail North (1A/N5) and Santry River Greenway Other Routes - Route 1A/N5 (Dublin – Secondary)

Habitat	Conservation Objective	Attribute	Target	Potential Impact	Mitigation
Code					
A046	To maintain the favourable conservation condition of Light-bellied Brent Geese(Branta bernicla hr ota [wintering]) in North Bull Island SPA, which is defined by the following list of attributes and targets: (derived from Castlemaine Harbour SPA004029 Objectives and Targets)	Population trend Distribution	Long term population trend stable or increasing No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation	Decline in population and distribution due to increased disturbance form visitor pressure	Consideration of mitigation for the restriction of increased visitor numbers may require further investigation e.g. the provision of cycle facilities if any on Bull Island may be restricted and provided away from qualifying habitats and species. Interrelationships between Natura 2000 sites, in particular for bird populations that may use more than one site should be considered in impact assessment. Monitoring of operational phase of the project will
A048	To maintain the favourable conservation	Population trend	Long term population trend stable or increasing	Decline in population and distribution due to	be carried out if necessary, which will additionally assist assessment of

	condition of Shelduck in North Bull Island SPA, which is defined by the following list of attributes and targets: (derived from Rogerstown Estuary SPA004015 Objectives and Targets)	Distribution	No significant decrease in the range, timing or intensity of use of areas by shelduck, other than that occurring from natural patterns of variation	increased disturbance form visitor pressure	Signage in the form of information boards could be provided denoting the presence of Natura 2000 sites and the qualifying interests present, to promote respect of the sensitivity of the environs by recreational users.
A052	To maintain the favourable conservation condition of Teal in North Bull Island SPA, which is defined by the following list of attributes and targets (derived from Inner Galway Bay SPA004031 Objectives and Targets)	Population trend Distribution	Long term population trend stable or increasing No significant decrease in the range, timing or intensity of use of areas by teal, other than that occurring from natural patterns of variation	Decline in population and distribution due to increased disturbance form visitor pressure	Projects should carry out assessment on predicted visitor numbers at sensitive sites to allow for further project level mitigation. The timing of any construction works required as part of the development of any proposed route, that may cause disturbance to the qualifying
A054	To maintain the favourable conservation condition of Pintail (Anas acuta [wintering])in North Bull Island SPA, which is defined by the following list of attributes and target (derived from Castlemaine Harbour SPA004029 Objectives and Targets)	Population trend Distribution	Long term population trend stable or increasing No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation	Decline in population and distribution due to increased disturbance form visitor pressure	species of the site, shall take place at a time of year that will not have an adverse impact on the bird population using the area (e.g. wintering wildfowl).
A056	To maintain the favourable conservation condition of Shoveler in	Population trend Distribution	Long term population trend stable or increasing No significant decrease in the	Decline in population and distribution due to increased disturbance	

			1	
	North Bull Island SPA, which is defined by the		range, timing or intensity of use of areas by shoveler, other than that	form visitor pressure
	following list of		occurring from natural patterns of	
	attributes and targets:		variation	
	(derived from			
	Rogerstown Estuary SPA004015 Objectives			
	SPA004015 Objectives and Targets)			
A130	To maintain the	Population trend	Long term population trend	Decline in population and
	favourable conservation		stable or increasing	distribution due to
	condition of	Distribution	No significant decrease in the	increased disturbance
	Oystercatcher		numbers or range of areas used by	form visitor pressure
	(Haematopus ostralegus		waterbird species, other than that	
	[wintering]) in North Bull Island SPA ,which is		occurring from natural patterns of	
	defined by the following		variation	
	list of attributes and			
	targets:			
	(derived from			
	Castlemaine Harbour			
	SPA004029 Objectives and Targets)			
A140	To maintain the	Population trend	Long term population trend	Decline in population and
	favourable conservation		stable or increasing	distribution due to
	condition of Golden	Distribution	No significant decrease in the	increased disturbance
	Plover in North Bull		range, timing and intensity of use	form visitor pressure
	Island, which is defined		of areas by oystercatcher, other	
	by the following list of		than that occurring from natural	
	attributes and targets: (derived from Boyne		patterns of variation	
	Estuary SPA004080			
	Objectives and Targets)			
A141	To maintain the	Population trend	Long term population trend	Decline in population and
	favourable conservation		stable or increasing	distribution due to

	condition of Grey Plover in North Bull Island SPA, which is defined by the following list of attributes and targets: (derived from Rogerstown Estuary SPA004015 Objectives and Targets)	Distribution	No significant decrease in the range, timing or intensity of use of areas by grey plover, other than that occurring from natural patterns of variation	increased disturbance form visitor pressure	
A143	To maintain the favourable conservation condition of Knot in North Bull Island SPA, which is defined by the following list of attributes and targets: (derived from Rogerstown Estuary SPA004015 Objectives and Targets)	Population trend Distribution	Long term population trend stable or increasing No significant decrease in the range, timing or intensity of use of areas by knot, other than that occurring from natural patterns of variation	Decline in population and distribution due to increased disturbance form visitor pressure	
A144	To maintain the favourable conservation condition of Sanderling (Calidris alba [wintering]) in North Bull Island SPA, which is defined by the following list of attributes and targets (derived from Castlemaine Harbour SPA004029 Objectives and Targets)	Population trend Distribution	Long term population trend stable or increasing No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation	Decline in population and distribution due to increased disturbance form visitor pressure	
A149	To maintain the favourable conservation condition of Dunlin in	Population trend Distribution	Long term population trend stable or increasing No significant decrease in	Decline in population and distribution due to increased disturbance	

	North Bull Island SPA,which is defined by the following list of attributes and targets: (derived from Rogerstown Estuary SPA004015 Objectives and Targets)		the range, timing or intensity of use of areas by dunlin, other than that occurring from natural patterns of variation	form visitor pressure
A156	To maintain the favourable conservation condition of Black-tailed Godwit in North Bull Island SPA, which is defined by the following list of attributes and targets: (derived from Rogerstown Estuary SPA004015 Objectives and Targets)	Population trend Distribution	Long term population trend stable or increasing No significant decrease in the range, timing or intensity of use of areas by black-tailed godwit, other than that occurring from natural patterns of variation	Decline in population and distribution due to increased disturbance form visitor pressure
A157	To maintain the favourable conservation condition of Bar-tailed Godwit (Limosa lapponica [wintering])in North Bull Island SPA, which is defined by the following list of attributes and targets: (derived from Castlemaine Harbour SPA004029 Objectives and Targets)	Population trend Distribution	Long term population trend stable or increasing No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation	Decline in population and distribution due to increased disturbance form visitor pressure

A160	To maintain the favourable conservation condition of Curlew in North Bull Island SPA, which is defined by the following list of attributes and targets: (derived from Inner Galway Bay SPA004031	Population trend Distribution	Long term population trend stable or increasing No significant decrease in the numbers or range of areas used by curlew, other than that occurring from natural patterns of variation	Decline in population and distribution due to increased disturbance form visitor pressure	
A162	Objectives and Targets) To maintain the favourable conservation condition of Redshank (Tringa tetanus) in North Bull Island SPA, which is defined by the following list of attributes and targets: (derived from Castlemaine Harbour SPA004029 Objectives and Targets)	Population trend Distribution	Long term population trend stable or increasing No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation	Decline in population and distribution due to increased disturbance form visitor pressure	
A169	To maintain the favourable conservation condition of Turnstone (Arenaria interpres [wintering]) in North Bull Island SPA, which is defined by the following list of attributes and targets: (derived from Castlemaine Harbour SPA004029 Objectives and Targets)	Population trend Distribution	Long term population trend stable or increasing No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation	Decline in population and distribution due to increased disturbance form visitor pressure	
A179	To maintain the	Population trend	Long term population trend	Decline in population and	

	favourable conservation		stable or increasing	distribution due to	
	condition of Black-	Distribution	There should be no significant	increased disturbance	
	headed Gull in South		decrease in the range, timing and	form visitor pressure	
	Dublin Bay and River		intensity of use of areas used by		
	Tolka Estuary SPA which		black-headed gull other than that		
	is defined by the		occurring from natural patterns of		
	following list of		variation.		
	attributes and targets:				
	(derived from Inner				
	Galway Bay SPA				
	Objectives and				
	TargetsSPA004031)				
A999	To maintain the	Habitat area	The permanent area	No Impact likely as cycle	Non required
	favourable conservation		occupied by the wetland	route will not require	
	condition of wetland		habitat should be stable	landtake or cause changes	
	habitat in in North Bull		and not significantly less	to drainage regime of site	
	Island SPA as a resource		than the area of 646		
	for the regularly		hectares, other than that		
	occurring migratory		occurring from natural		
	waterbirds that utilise it.		patterns of variation		
	This is defined by the				
	following attribute and				
	target:				
	(derived from Boyne				
	Estuary SPA Objectives				
	and Targets SPA004080)				

Rogerstown Estuary SAC 000208

Conservation Objectives 14th Aug 2013

Greenway FG1/N5 adjoins and crosses the SA. Route RU2 joins the SAC to the north.

Habitat	Conservation Objective		ttribute	Target	Potential Impact	Mitigation
Code						
1130	To maintain the favourable conservation condition of Estuaries in Rogerstown Estuary SAC,	Habitat A	rea	The permanent habitat area is stable or increasing, subject to natural processes.	Loss of habitat area.	The route will have to demonstrate that there will be no adverse impact on the overall area of Estuaries in Rogerstown including Zostera-
	which is defined by the	is defined by the ing list of	Maintain the extent of the Zostera-dominated community and the Mytilus edulis-dominated community, subject to natural processes	Loss of Community extent	dominated community and the Mytilus edulis-dominated community. Where this cannot be shown alternatives will have to be considered and where no alternatives are available it must be	
		Communi structure: density	•	Conserve the high quality of the Zostera-dominated community, subject to natural processes	Harm to community structure - Zostera density	demonstrated that the project is of overriding public interest. Any future development of the
		Communi structure: edulis der	: Mytilus nsity	Conserve the high quality of the Mytilus edulis dominated community, subject to natural processes	Harm to community structure - Mytilus edulis density	proposed cycle routes will include assessment of any impacts that may arise from increased visitor pressures, in particular on this
		Community distribution	•	Conserve the following community types in a natural condition: Sand to coarse sediment with Nephtys cirrosa and Scolelepis squamata community complex; Estuarine sandy mud to mixed sediment with Tubificoides benedii, Hediste diversicolor and Peringia ulvae community Complex.	Impact on various community distributions	sensitive habitat.

1140	To maintain the	Habitat area	The permanent habitat	Loss of habitat area	The route will have to demonstrate
	favourable conservation		area is stable or increasing,		that there will be no adverse impact
	condition of Mudflats		subject to natural processes		on the overall area of the Mudflats
	and sandflats not	Community extent	Maintain the extent of the	Loss of Community extent	and sandflats not covered by
	covered by		Zostera-dominated		seawater at low tide in Rogerstown
	seawater at low tide in		community and the		Estuary.
	Rogerstown Estuary SAC,		Mytilus edulis-dominated		
	which is defined by the		community, subject to natural		Where this cannot be shown
	following list of		processes. See map 5		alternatives will have to be
	attributes and targets:	Community	Conserve the high quality	Harm to community	considered and where no alternatives
		structure: Zostera	of the Zostera-dominated	structure - Zostera	are available it must be
		density	community, subject to	density	demonstrated that the project is of
			natural processes		overriding public interest.
		Community	Conserve the high quality	Harm to community	
		structure: Mytilus	of the Mytilus edulisdominated	structure - Mytilus	Any future development of the
		edulis density	community, subject to natural	edulis density	proposed cycle routes will include
			processes	·	assessment of any impacts that may
		Community	Conserve the following	Impact on various	arise from increased visitor
		, distribution	community types in a natural	community distributions	pressures, in particular on this
			condition: Sand to coarse	·	sensitive habitat.
			sediment with Nephtys cirrosa		
			and Scolelepis squamata		
			community complex; Estuarine		
			sandy mud to mixed sediment		
			with Tubificoides benedii,		
			Hediste diversicolor and		
			Peringia ulvae community		
			complex.		
1310	To maintain the	Habitat area	Area stable or increasing,	Loss of habitat area	The route will have to demonstrate
	favourable conservation		subject to natural processes,		that there will be no adverse impact
	condition of Salicornia		including erosion and		on the overall area and condition of
	and other annuals		succession. For sub-site mapped:		Salicornia and other annual
	colonizing mud and sand		Rogerstown Estuary 0.90ha		colonizing mud and sand in
	in Rogerstown Estuary	Habitat	No decline, or change in habitat	Impact on habitat	Rogerstown Estuary. Where this
	SAC, which is defined by	distribution	distribution, subject	distribution due to	cannot be shown alternatives will
	the following list	aistribution	to natural processes	potential impacts on	have to be considered and where no
<u> </u>	the following hat		to natural processes	potential impacts on	have to be considered and where no

of attributes and targets:			natural processes	alternatives are available it must be
	Physical structure:	Maintain, or where	Impact on sediment	demonstrated that the project is of
	sediment supply	necessary restore, natural	supply	overriding public interest.
		circulation of sediments		
		and organic matter,		Any future development of the
		without any physical		proposed cycle routes will include
		obstructions		assessment of any impacts that may
	Physical structure:	Maintain creek and pan	Impact of proposed	arise from increased visitor
	creeks and pans	structure, subject to	floating bridge on natural	pressures, in particular on this
		natural processes,	processes	sensitive habitat.
		including erosion and		
		succession		
	Physical structure:	Maintain natural tidal	Impact on natural tide	
	flooding regime	regime	regime	
	Vegetation	Maintain the range of	Impact on erosion and	
	structure:	coastal habitats including	deposition processes in	
	zonation	transitional zones, subject	Estuary	
		to natural processes		
		including erosion and		
		succession		
	Vegetation	Maintain structural	Impact on vegetation	
	structure:	variation within sward	structure from increase	
	vegetation height		visitor pressure	
	Vegetation	Maintain more than 90% of area		
	structure:	outside creeks vegetated		
	vegetation cover			
	Vegetation	Maintain the presence of	Potential impact on typical	
	structure:	species-poor communities	species and	
	typical species and sub	listed in SMP (McCorry and	subcommunities	
	communities	Ryle, 2009).		
	Vegetation	No significant expansion of	Potential spread of	
	structure:	common cordgrass (Spartina	common cord grass	
	negative indicator species	anglica). No new sites for this		
	- spartina anglica	species and an annual spread of		
		less than 1% where it is		
		already known to occur.		

1410	To Maintain the	Habitat Area	Area stable or increasing,	Potential loss of habitat	The route will have to demonstrate
1410	favourable conservation	Habitat Area	subject to natural processes,	area.	that there will be no adverse impact
	conditions of		including erosion and	urea.	on the overall area of Mediterranean
	Mediterranean salt		succession.		salt meadows. Where this cannot be
	meadows (Juncetalia		34666331611.		shown alternatives will have to be
	maritime) in Rogerstown	Habitat Distribution	No decline, or change in	Potential decline or	considered and where no alternatives
	Estuary which is defined	Habitat Distribution	habitat distribution, subject to	change to habitat	are available it must be
	by the following list of		natural processes.	distribution	demonstrated that the project is of
	attributes and targets	Physical Structure:	Maintain natural circulation of	Change in circulation of	overriding public interest.
	attributes and targets	sediment supply	sediments and organic	sediment and organic	overrianing public interest.
		sediment supply	matter, without any physical	matter as a result of	Any future development of the
			obstructions	floating bridge structure	proposed cycle routes will include
	1	Physical structure: creeks		Impact on creek and pan	assessment of any impacts that may
		and pans	Maintain creek and pan structure, subject to natural	structure due to possible	arise from increased visitor
		and pans	processes, including erosion and	impact on natural	pressures, in particular on this
			Succession.	·	sensitive habitat.
		Physical Structure:	Maintain natural tidal regime	processes. Potential change to	Sensitive habitat.
		•	Maintain natural tidal regime	natural tide regime	
		flooding regime	Maintain the ways of contain		The route will have to demonstrate
		Vegetation structure: zonation	Maintain the range of coastal	potential change to	
		zonation	habitats including transitional	vegetation structure:	that there will be no adverse impact on the vegetation structure within
			zones, subject to natural processes including erosion and	zonation as one option for the route proposes a	the sward of
			succession.	floating bridge through	the sward of
			succession.	the SAC	
		Vegetation structure:	Maintain structural variation		
			within sward.	Impact on Structural variation	
		vegetation height	Maintain more than 90% of		
		Vegetation structure:		Impact on vegetation cover of the area outside	
		vegetation cover	the area outside of the creeks		
		Manadatian anni aitian	vegetated. Maintain range of	the creeks vegetation	The route will have to demonstrate
		Vegetation composition:	S	Impact on	
		typical species and sub	subcommunities with typical	subcommunities	that there will be no adverse impact
		communities	species listed in the Saltmarsh		on the vegetation composition within
			Monitoring Project (McCorry		the sward of Mediterranean salt
			and Ryle, 2009).		meadows. Where this cannot be
					shown alternatives will have to be
					considered and where no alternatives

		Vegetation Structure: negative indicator species Spartina anglica	No significant expansion of common cordgrass (Spartina anglica), with an annual spread of less than 1%	Potemntial spread of common cord grass	are available it must be demonstrated that the project is of overriding public interest. The route will have to demonstrate that there will be no potential to result in expansion of common cordgrass of Mediterranean salt meadows. Where this cannot be shown alternatives will have to be considered and where no alternatives are available it must be demonstrated that the project is of overriding public interest.
2120	To restore the favourable conservation condition of Shifting dunes along the shoreline with Ammophila arenaria	Habitat area	Area stable or increasing, subject to natural processes including erosion and succession. Total area mapped: 1.80ha. See map 6	Loss of habitat area	The route will have to demonstrate that there will be no adverse impact on the overall habitat of the Shifting dunes along the shoreline with Ammophila arenaria ('white dunes')
	('white dunes') in Rogerstwon Estuary SAC, which is defined by the following list of	Habitat distribution	No decline, or change in habitat distribution, subject to natural processes. See map 6 for known distribution	Decline or change in habitat distribution	in Rogerstwon Estuary SAC. Where this cannot be shown alternatives will have to be considered and where no alternatives are available it must be
	attributes and targets:	Physical structure: functionality and sediment supply	Maintain the natural circulation of sediment and organic matter, without any physical obstructions	Impact on natural circulation of sediment and organic matter	demonstrated that the project is of overriding public interest. Any future development of the
		Vegetation structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	Impact on transitional zones	proposed cycle routes will include assessment of any impacts that may arise from increased visitor pressures, in particular on this sensitive habitat.
		Vegetation composition: plant health of dune grasses	95% of marram grass (Ammophila arenaria) and/or lyme-grass (Leymus arenarius) should be healthy (i.e. green plant parts	Impact on marram grass composition	

			above ground and		
			flowering heads present)		
		Vegetation composition:	Maintain the presence of	Impact on species poor	
		•	•		
		typical species and subcommunities	species-poor communities	communites dominated by	
		subcommunities	dominated by marram grass	marram grass and/or	
			(Ammophila	lymegrass	
			arenaria) and/or lymegrass		
			(Leymus arenarius)		
		Vegetation	Negative indicator species	Increase in negative	
		composition:	(including non-natives) to	indicator species	
		negative indicator	represent less than 5% cover		
		species			
2130	To restore the favourable	Habitat area	Area increasing, subject to	Loss of habitat area	The route will have to demonstrate
	conservation condition		natural processes including		that there will be no adverse impact
	of Fixed coastal dunes		erosion and succession.		on the overall habitat of the Fixed
	with herbaceous		For sub-sites mapped:		coastal dunes with herbaceous
	vegetation ('grey dunes')		Rush - 3.24ha; Portrane -		vegetation ('grey dunes') in
	in Rogerstwon Estuary,		5.13ha		Rogerstwon Estuary. Where this
	which is defined by the	Habitat distribution	No decline, or change in	Decline or change in	cannot be shown alternatives will
	following list of		habitat distribution, subject	habitat distribution	have to be considered and where no
	attributes and targets:		to natural processes.		alternatives are available it must be
			·		demonstrated that the project is of
					overriding public interest.
		Physical structure:	Maintain the natural	Impact on natural	The route will have to demonstrate
		functionality and	circulation of sediment and	circulation of sediment	that there will be no adverse impact
		sediment supply	organic matter, without	and organic matter due to	on the natural circulation of sediment
		7 7 7 7 7 7	any physical obstructions	floating bridge	and organic matter due to floating
			, , , ,		bridge. Where this cannot be shown
					alternatives will have to be
					considered and where no alternatives
					are available it must be
					demonstrated that the project is of
					overriding public interest.
		Vegetation structure:	Maintain the range of	Impact on transitional	The route will have to demonstrate
		zonation	coastal habitats including	zones	that there will be no adverse impact
		2011411011	transitional zones, subject	201163	on the vegetation structure and
			transitional zones, subject		on the vegetation structure and

Vegetation structure: bare ground	to natural processes including erosion and succession Bare ground should not exceed 10% of fixed dune habitat, subject to natural processes	Bare ground to increase to above 10%	composition of the fixed coastal dunes with herbaceous vegetation. Where this cannot be shown alternatives will have to be considered and where no alternatives are available it must be demonstrated that the project is of
Vegetation structure: sward height Vegetation composition: typical species and sub- communities	Maintain structural variation within sward Maintain a range of sub- communities with typical species listed in Ryle et al (2009)	Structural variation impacted Decrease in typical sub - community species	overriding public interest.
Vegetation composition: negative indicator species (including Hippophae rhamnoides)	Negative indicator species (including non-natives) to represent less than 5% cover	Increase in negative indicator species above 5%	
Vegetation composition: scrub/trees	No more than 5% cover or under control	Increase in scrub/tree cover in habitat area over 5%	

Rogerstown Estuary SPA 004015

Conservation Objectives Series: 20th May 2013

Eastern Greenway adjoining and within SPA.

Lusterii G	astern dreenway adjoining and within SFA.						
Habitat	Conservation Objective	Attribute	Target	Potential Impact	Mitigation		
Code							
A043	To maintain the favourable conservation condition of Greylag Goose in Rogerstown Estuary SPA, which is defined by the following list of attributes and targets:	Population trend Distribution	Long term population trend stable or increasing No significant decrease in the range, timing or intensity of use of areas by greylag goose, other than that occurring from natural patterns of variation	Decline in population and distribution due to increased disturbance form visitor pressure	Consideration of mitigation for the restriction of increased visitor numbers may require further investigation e.g. the provision of cycle facilities may be restricted and provided away from qualifying habitats and species.		
A046	To maintain the favourable conservation	Population trend	Long term population trend stable or increasing		Interrelationships between Natura		

	condition of Light-bellied Brent Goose in Rogerstown Estuary SPA, which is defined by the following list of	Distribution	No significant decrease in the range, timing and intensity of use of areas by light-bellied brent goose, other than that occurring	2000 sites, in particular for bit populations that may use more that one site should be considered impact assessment. Monitoring operational phase of the project w
	attributes and targets:		from natural patterns of variation	be carried out if necessary, which w additionally assist assessment
A048	To maintain the favourable conservation	Population trend	Long term population trend stable or increasing	cumulative impacts.
	condition of Shelduck in Rogerstown Estuary SPA, which is defined by the following list of attributes and targets:	Distribution	No significant decrease in the range, timing or intensity of use of areas by shelduck, other than that occurring from natural patterns of variation	Signage in the form of information boards could be provided denoting the presence of Natura 2000 site and the qualifying interests present to promote respect of the sensitivity of the environs by recreational users
A056	To maintain the favourable conservation condition of Shoveler in	Population trend Distribution	Long term population trend stable or increasing No significant decrease in	Projects should carry out assessmen
	Rogerstown Estuary SPA, which is defined by the following list of	Distribution	the range, timing or intensity of use of areas by shoveler, other than that	on predicted visitor numbers a sensitive sites to allow for further project level mitigation.
	attributes and targets:		occurring from natural patterns of variation	The timing of any construction work required as part of the developmen
A130	To maintain the favourable conservation	Population trend	Long term population trend stable or increasing	of any proposed route, that ma cause disturbance to the qualifyin
	condition of Oystercatcher in Rogerstown Estuary SPA, which is defined by the following list of attributes and targets:	Distribution	No significant decrease in the range, timing and intensity of use of areas by oystercatcher, other than that occurring from natural patterns of variation	species of the site, shall take place a time of year that will not have a adverse impact on the bir population using the area (e. wintering wildfowl).
A137	To maintain the favourable conservation	Population trend	Long term population trend stable or increasing	
	condition of Ringed Plover in Rogerstown Estuary	Distribution	No significant decrease in the range, timing or intensity of use of areas by	

	SPA, which is defined by		ringed plover, other than
	the following list of		that occurring from natural
İ	attributes and targets:		patterns of variation
A141	To maintain the	Population trend	Long term population trend
,,171	favourable conservation	i opalation tiena	stable or increasing
	condition of Grey Plover	Distribution	No significant decrease in
	in Rogerstown Estuary	Distribution	the range, timing or
	SPA, which is defined by		intensity of use of areas by
	the following list of		grey plover, other than
	attributes and targets:		that occurring from natural
	attributes and targets.		patterns of variation
A142	To maintain the	Demulation transl	
A143	To maintain the	Population trend	Long term population trend
I	favourable conservation	Division of	stable or increasing
	condition of Knot in	Distribution	No significant decrease in
	Rogerstown Estuary SPA,		the range, timing or
	which is defined by the		intensity of use of areas by
	following list of		knot, other than that
	attributes and targets:		occurring from natural
			patterns of variation
A149	To maintain the	Population trend	Long term population trend
	favourable conservation		stable or increasing
	condition of Dunlin in	Distribution	No significant decrease in
	Rogerstown Estuary SPA,		the range, timing or
	which is defined by the		intensity of use of areas by
	following list of		dunlin, other than that
	attributes and targets:		occurring from natural
			patterns of variation
A156	To maintain the	Population trend	Long term population trend
	favourable conservation		stable or increasing
	condition of Black-tailed	Distribution	No significant decrease in
	Godwit in Rogerstown		the range, timing or
	Estuary SPA, which is		intensity of use of areas by
	defined by the following		black-tailed godwit, other
	list of attributes and		than that occurring from
	targets:		natural patterns of
			variation

favourable condition of Rogerstown SPA, which	s defined by ng list of	Distribution	Long term population trend stable or increasing No significant decrease in the range, timing or intensity of use of areas by black-tailed godwit, other than that occurring from natural patterns of	
favourable condition habitat in Estuary SPA for the occurring waterbirds the This is defined the condition of the condition o	ntain the conservation of wetland Rogerstown as a resource regularly migratory hat utilise it. ned by the ttribute and		variation The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 646 hectares, other than that occurring from natural patterns of variation	Potential loss of wetland habitat through direct loss of land or though changes to drainage regime

South Dublin Bay SAC 000210

Conservation Objectives 22nd Aug 2013

Route 13E, 14/N5 and Greenway for the East Coast Trail adjoins the length of the south Dublin Bay

Habitat Code	Conservation Objective	Attribute	Target	Potential Impact	Mitigation
1140	To maintain the favourable conservation condition of Mudflats and	Habitat Area	The permanent habitat area is stable or increasing, subject to natural process	Loss of habitat area.	The route will have to demonstrate that there will be no adverse impact on the overall area of Mudlfats and
	sandflats not covered by seawater at low tide in South Dublin Bay SAC, which is defined by the	Community Extent	Maintain the extent of the Zostera-dominated community, subject to natural processes.	Decrease in zostera dominated community	sandflats not covered by seawater at low tide, including the Zostera dominated community and Angulus tenuis community complex. Where
	following list of attributes and targets:	Community structure: Zostera	Conserve the high quality of the Zostera-dominated	Decrease in zostera dominated community	this cannot be shown alternatives will have to be considered and where no

	density	community, subject to		alternatives are available it must be
		natural processes		demonstrated that the project is of
	Community	Conserve the following	Decrease in the condition	overriding public interest.
	distribution	community type in a	of the Fine sands with	
		natural condition: Fine sands with	Angulus tenuis community	
		Angulus tenuis	complex	
		community complex		

South Dublin Bay and River Tolka Estuary SPA 004024 Conservation Objectives 16th April 2012

Eastern Greenway (13E/N5) adjoining and within SPA.

Code	Conservation Objective	Attribute	Target	Potential Impact	Mitigation
	Branta bernicla hrota [wintering] Haematopus ostralegus [wintering] Charadrius hiaticula [wintering] Pluvialis squatarola	Population trend	Long term population trend stable or increasing	Decline in population and distribution due to increased disturbance form visitor pressure	Consideration of mitigation for the restriction of increased visitor numbers may require further investigation e.g. the provision of cycle facilities may be restricted and provided away from qualifying species
A143	To maintain the favourable conservation condition of Knot in South Dublin Bay and River Tolka Estuary SPA, which is defined by the following list of attributes and targets: (derived from Rogerstown Estuary SPA004015 Objectives	Population trend Distribution	Long term population trend stable or increasing No significant decrease in the range, timing or intensity of use of areas by knot, other than that occurring from natural patterns of variation		Interrelationships between Natura 2000 sites, in particular for bird populations that may use more than one site should be considered in impact assessment. Monitoring of operational phase of the project will be carried out if necessary, which will additionally assist assessment of cumulative impacts.
A144	and Targets) To maintain the favourable conservation	Population trend	Long term population trend stable or increasing	_	Signage in the form of information boards could be provided denoting the presence of Natura 2000 sites
	condition of Sanderling in	Distribution	No significant decrease in		and the qualifying interests present,

			to promote respect of the sens
		of the environs by recreation	of the environs by regreational
	l	of the environs by recreation	of the environs by recreational t
ł			
		The timing of any construc	The timing of any construction
		required as part of the de	required as part of the develop
		' '	of any proposed route, that
			cause disturbance to the qua
			·
		· ·	· ·
			· · · · · · · · · · · · · · · · · · ·
		• • • • • • • • • • • • • • • • • • •	•
			· · · · · =
		wintering wildrowij.	wintering whatowij.
		species of the site, shall ta a time of year that will no adverse impact on	species of the site, shall take pl a time of year that will not ha adverse impact on the population using the area

	following list of attributes and targets: (derived from Inner Galway Bay SPA Objectives and TargetsSPA004031)		than that occurring from natural patterns of variation.		
	Sterna dougallii Sterna hirundo	Population trend	Long term population trend stable or increasing		
	Sterna paradisaea	Distribution	There should be no significant decrease in the range, timing and intensity of use of areas used by black-headed gull other than that occurring from natural patterns of variation.		
A999	To maintain the favourable conservation condition of wetland habitat in South Dublin Bay and River Tolka Estuary SPA, as a resource for the regularly occurring migratory waterbirds that utilise it. This is defined by the following attribute and target:	Habitat area	The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 646 hectares, other than that occurring from natural patterns of variation	Potential Impact on wetland habitat	
	(derived from Boyne Estuary SPA Objectives and TargetsSPA004080)				

Pollardstown Fen SAC 000396

Conservation Objectives 18th July 2011

Routeway K12 is proposed to travel along an existing road to the south of the SAC²

Habitat Code	Conservation Objective	Attribute	Target	Potential Impact	Mitigation
1014	To restore the favourable conservation condition	Distribution: occupied sites	No decline in occupied sites	Given the nature and extent of the	None required
	of Vertigo angustior in Pollardstown Fen which is defined by the fo	Presence	Adult or sub-adult snails are present in at least 3 places on the transect	Vertigo angustior habitat no direct impact is expected as a result of	
	llowing list of attributes a nd targets:		where optimal or suboptimal habitat occurs (minimum 5 samples)	route K12.	
	(attributes & targets derived from Kenmare River SAC 002158 – Version 1.0 25 Apr 2013)	Abundance	At least 2 samples on the transect have more than 10 V. angustior individuals (minimum 5 samples)		
		Transect habitat quality	At least 20m of habitat along the transect is classed as optimal or suboptimal		
		Transect optimal wetness	Soils, at time of sampling, are damp (optimal wetness) and covered with a layer of humid thatch for at least 20m along the transect		
		Habitat Extent	1.5ha of sub-optimal with optimal areas		
1016	To restore the favourable conservation condition	Distribution: occupied sites	No decline in occupied sites	Given the nature and extent of the	
	of Vertigo moulinsiana in	Population size:	At least 5 adults snails in at	Vertigo moulinsiana	

² Please note the original route for K12 was to follow a path through the fen and rejoin the main road to the south of the site. As adverse impacts on site integrity could not be ruled out at this stage the route was amended. K12 now travels on the existing roadway which is situated to the southern boundary of the designated site.

Ref: 12.159.24/NIS November 2013 Page 94

	Pollardstown Fen,	adults	least 50% of samples	habitat no direct impact is	
	which is defined by the fo	Population density	Adult snails present in at least	expected as a result of	
	llowing list of attributes a		60% of samples per site	route K12	
	nd targets:	Area of occupancy	Minimum of 1ha of suitable		
			habitat per site		
	(Attributes and Targets	Habitat quality:	90% of samples in habitat		
	derived from River	vegetation	classes I and II as defined in		
	Barrow & River Nore SAC		Moorkens & Killeen (2011)		
	002162 Version 1.0 19 Jul	Habitat quality: soil	90% of samples in moisture		
	2011)	moisture levels	class 3-4 as defined in		
			Moorkens & Killeen (2011)		
7220	To maintain the	Habitat area	Area stable or	No direct impact will be	
	favourable conservative		increasing,	had on the condition of	
	condition of Petrifying		subject to natural	the Petrifying Springs as a	
	springs with tufa		processes	result of route K12	
	formation (cratoneurion)	Habitat distribution	No decline		
		Hydrological	Maintain appropriate		
		regime: height of	hydrological regimes		
		water table; water			
		flow			
		Water quality	Maintain oligotrophic and		
			calcareous conditions		
		Vegetation	Maintain typical species		
		composition:			
		typical species			
7230	To maintain the	Habitat area	Area stable or increasing,	No direct impact will be	
	favourable conservation		subject to natural processes	had on the condition of	
	condition of Alkaline Fens	Habitat	No decline, subject to	the Alkaline Fens in	
	in Pollardstown Fen	distribution	natural processes	Pollardstown as a result of	
	which is defined by the	Hydrological	Appropriate natural	route K12	
	following attributes and	regime	hydrological regime		
	targets:		necessary to support the		
			natural structure and		
	(Attributes and Targets		functioning of the habitat		
	derived from Galway Bay	Peat formation	Active peat formation,		
	Complex SAC 000268		where appropriate		

	Version 1.0 16 Apr 2013)	Water quality: nutrients	Appropriate water quality to support the natural structure and functioning of the habitat		
		Vegetation composition: typical species	Maintain vegetation cover of typical species including brown mosses and vascular plants		
		Vegetation composition: trees and shrubs Physical structure:	Cover of scattered native trees and shrubs less than 10% Cover of disturbed bare		
		disturbed bare ground	ground less than 10%. Where tufa is present, disturbed bare ground less than 1%		
		Physical structure: drainage	Areas showing signs of drainage as a result of drainage ditches or heavy trampling less than 10%		
7210	To maintain the favourable conservation condition of	Habitat area	Area stable or increasing, subject to natural processes	No direct impact will be had on the condition of the Calcareous fens with	
	Calcareous fens with Clad ium mariscus and species of the Caricion davalliana	Habitat distribution Hydrological	No decline, subject to natural processes Appropriate natural	Cladium mariscus and spec ies of the Caricion davallia nae in Pollardstown as a	
	e in Pollardstown Fen which is defined by the following attributes and targets:	regime	hydrological regime necessary to support the natural structure and functioning of the habitat	result of route K12	
		Peat formation	Active peat formation, where appropriate		
		Water quality: Nutrients	Appropriate water quality to support the natural structure and functioning of the habitat		

Vegetation	Maintain vegetation cover
composition:	of typical species including
typical species	brown mosses and
cypical openies	vascular plants
Vegetation	Cover of scattered native
composition: trees	trees and shrubs not more
and shrubs	than than 10%
Physical structure:	Cover of disturbed bare
disturbed bare	ground not more than
ground	10%. Where tufa is
	present, disturbed bare
	ground not more than 1%
Physical structure:	Areas showing signs of
drainage	drainage as a result of
Percentage	drainage ditches or heavy
	trampling not more than
	10%

Ballyman Glen SAC 000713

Conservation Objectives 18th July 2011

Intersected by W2 inter-urban route.

Habitat Code	Conservation Objective	Attribute	Target	Potential Impact	Mitigation
7220	To maintain the favourable conservation condition of Petrifying sp rings with tufa formation (Cratoneurion) in the Ballyman Glen SAC, which is defined by	Habitat area	Area stable or increasing, subject to natural processes	Existing on road infrastructure is in place however new infrastructure and increased visitor levels has potential for impact on Habitat Area	Any future development of the proposed cycle routes (widening of existing road or road edge works) will include assessment of any impacts that may arise on sensitive habitats and species including priority habits type *Petrifying springs and also
	the following list of attributes and targets: (derived from River Barrow and River Nore	Habitat distribution	No decline	Existing on road infrastructure is in place however new infrastructure and increased visitor levels has	separate habitat type Alkaline fens. Consideration of mitigation for the restriction of increased visitor

	SAC002162 Objectives			potential for impact on	numbers on the sensitive habitats
	and Targets)			Habitat Distribution	present may require further
		Hydrological	Maintain appropriate	Existing on road	investigation e.g. the provision of
		regime: height of	hydrological regimes	infrastructure is in place	cycle facilities may be restricted and
		water table; water		however new	provided away from qualifying
		flow		infrastructure and	habitats and species.
				increased visitor levels has	
				potential for impact on	
				the hydrological regime	
		Water quality	Maintain oligotrophic	Existing on road	
			and	infrastructure is in place	
			calcareous conditions	however new	
				infrastructure and	
				increased visitor levels has	
				potential for impact on	
				Water Quality	
		Vegetation	Maintain typical species	Existing on road	
		composition:		infrastructure is in place	
		typical species		however new	
				infrastructure and	
				increased visitor levels has	
				potential for impact on	
				vegetation composition	
7230	To maintain the	Habitat area	Area stable or increasing, subject	Potential for loss of	
	favourable conservation		to natural processes	habitat area as a result of	
	condition of Alkaline			the proposed route	
	Fens in Ballyman Glen	Habitat	No decline, subject to	Potential for construction	
	which is defined by the	distribution	natural processes	of greenway to result in	
	following attributes and			changes to Habitat	
	targets:			distribution	
		Hydrological	Appropriate natural	Potential for construction	
	(Attributes and Targets	regime	hydrological regime	of greenway to result in	
	derived from Galway Bay		necessary to support the	changes to hydrological	
	Complex SAC 000268		natural structure and	regime	
	Version 1.0 16 Apr 2013)		functioning of the habitat		
		Peat formation	Active peat formation,	Potential for construction	

		where appropriate	of greenway to result in
			impact on peat formation
Wate	er quality:	Appropriate water quality	Potential for construction
Nutr	ients	to support the natural	of greenway to result in
		structure and functioning	impacts on water quality
		of the habitat	
Vege	etation	Maintain vegetation cover	Potential for construction
com	position:	of typical species including	of greenway to result in
typic	cal species	brown mosses and	impacts on vegetation
		vascular plants	composition
Vege	etation	Cover of scattered native	
com	position: trees	trees and shrubs not more	
and s	shrubs	than than 10%	
Phys	ical structure:	Cover of disturbed bare	Potential for construction
distu	ırbed bare	ground not more than	of greenway to result in
grou	nd	10%. Where tufa is	impacts on physical
		present, disturbed bare	structure
		ground not more than 1%	
Phys	ical structure:	Areas showing signs of	
drair	nage	drainage as a result of	
Perc	entage	drainage ditches or heavy	
		trampling not more than	
		10%	

Bray Head SAC 000714

Conservation Objectives 18th July 2011

W4 interurban with good cycling facilities already present to the west of SAC. W11/N5 greenway (east coast trail) potentially has a direct impact on the qualifying interests.

Habitat	Conservation Objective	Attribute	Target	Potential Impact	Mitigation
Code	, , , , , , , , , , , , , , , , , , , ,				- 3
1230	1230 To maintain or restore the favourable conservation condition of the Annex I habitat(s)	Habitat length	Area stable or increasing, subject to natural processes, including erosion.	Possibility of loss of habitat, disturbance due to increased visitor pressure	Any future development of the proposed cycle route W11/N5 will include assessment of any impacts that may arise as a direct impact of the route on the sensitive habitats of Vegetated sea cliffs of the Atlantic coasts and European heath. Where
	and/or the Annex II species for which the SAC has been selected:	Habitat distribution	No decline, subject to natural processes	Possible impact on habitat distribution due to increased visitor pressure	
	Vegetated sea cliffs of the Atlantic and Baltic coasts (derived from Lower River Shannon	Physical structure: functionality and hydrological regime	No alteration to natural functioning of geomorphological and hydrological processes due to artificial structures	Possible impact on Functionality and hydrological regime due to construction of cycleroute W11 and increased visitor pressure	construction of this route would lead to adverse impacts on the sites integrity alternative options must be considered and where no alternatives are available it must be demonstrated that the project is of
	SAC002165 Objectives and Targets)	Vegetation structure: zonation Vegetation structure: vegetation height	Maintain range of sea cliff habitat zonations including transitional zones, subject to natural processes including erosion and succession Maintain structural variation within sward	Possible impact on vegetation structure due to construction of cycleroute W11and increased visitor pressure	overriding public interest. Consideration of mitigation for the restriction of increased visitor numbers on the sensitive habitats present may require further investigation e.g. the provision of cycle facilities may be restricted and provided away from qualifying habitats.
		Vegetation composition typical species and subcommunities Vegetation composition: negative indicator species	Maintain range of subcommunities with typical species listed in the Irish Sea cliff survey Negative indicator species (including non-natives) to represent less than 5% cover	Possible impact on vegetation composition due to construction of cycleroute W11 and increased visitor pressure	
		Vegetation composition: bracken and woody	Cover of bracken (Pteridium aquilinum) on grassland		

		species	and/or heath to be less than 10%. Cover of woody species on grassland and/or heath to be less than 20%		
4030	To maintain the favourable conservation condition of European dry heaths, which is defined by the following list of attributes and targets (derived from Kenmare River SAC Objectives and Targets SAC002158)	Habitat Area Habitat distribution Physical structure: free draining, acid, low nutrient soil; rock outcrop	Area stable or increasing, subject to natural processes No decline from current habitat distribution, subject to natural processes No significant change in soil nutrient status, subject to natural processes. No increase or decrease in area of natural rock outcrop	Potential for loss of habitat area as a result of the proposed route Direct impact on habitat through construction of cycle route Potential for construction of greenway to result in changes to drainage	The proposed route at project stage will have to demonstrate that there will be no adverse impact on the site integrity of the designated site. Where this cannot be shown alternatives will have to be considered and where no alternatives are available it must be demonstrated that the project is of overriding public interest.
	ruigets sheodzisoj	Vegetation structure: dwarf shrub indicator species	Cover of characteristic dwarf shrub indicator species, typically heather (Calluna vulgaris), bell heather (Erica cinerea) and Western gorse (Ulex gallii) at least 25%	Increased visitor pressure has potential to result in disturbance of habitat and changes to vegetation structure	Any future development of the proposed cycle route will include an assessment of any impacts that may arise from increased visitor pressures in particular on sensitive habitats and species.
		Vegetation Structure: senescent Calluna vulgaris	Cover of senescent heather (Calluna vulgaris), less than 50%	Increased visitor pressure has potential to result in disturbance of habitat and changes to vegetation structure	Consideration will be given at proje level AA to the provision of ancilla facilities for example the provision street furniture, cycle parking, c parks, lighting etc. Where it determined that the provision such features will result in impact of the qualifying interests of the sit then alternatives should be considered prior to the completion the design. Consideration of mitigation for the restriction of increased visitinumbers may require further

	Vegetation structure: browsing	Long shoots of bilberry (Vaccinium myrtillus) with signs of browsing should be controlled	No potential impact	investigation e.g. the provision of cycle facilities and car parking may be restricted and provided away from qualifying habitats and species. None
	Vegetation structure: native trees and shrubs	on structure: Cover of scattered native trees and shrubs less than 20% Increased visitor pressure has potential to result in disturbance of habitat and changes to vegetation Any further propose assessment of the propose asse	Any future development of the proposed cycle route will include an assessment of any impacts that may arise from increased visitor pressures in particular on sensitive habitats and	
Vegetation combryophyte an crustose lichens Vegetation combracken (faquilinum)	Vegetation composition: positive indicator species	At least 2 positive indicator species e.g. bell heather (Erica cinerea) and Western gorse (Ulex gallii), with combined cover of at least 60%	Increased visitor pressure has potential to result in disturbance of habitat and changes to vegetation structure	species. Consideration will be given at project level AA to the provision of ancillary facilities for example the provision of street furniture, cycle parking, car parks, lighting etc. Where it is determined that the provision of such features will result in impact on the qualifying interests of the site then alternatives should be considered prior to the completion of the design. Consideration of mitigation for the restriction of increased visitor numbers may require further investigation e.g. the provision of cycle facilities and car parking may be restricted and provided away from qualifying habitats and species.
	crustose lichen species	At least 2 bryophyte or non-crustose lichen species present	Increased visitor pressure has potential to result in disturbance of habitat and changes to vegetation structure	
	aquilinum)	Cover of bracken (Pteridium aquilinum) less than 10%	Increased visitor pressure has potential to result in disturbance of habitat and changes to vegetation structure	
	Vegetation composition: weedy negative indicator species	Cover of agricultural weed species (negative indicator species) less than 1%	Increased visitor pressure has potential to result in disturbance of habitat and changes to vegetation structure	

Buckroney-Brittas Dunes and Fen 000729

Conservation Objectives 18th July 2011

W11/N5 interurban route using existing road infrastructure with no works required, no direct impact predicted.

Habitat	Conservation Objective	Attribute	Target	Potential Impact	Mitigation
Code					
1210	Annual vegetation of drift lines (adapted from Carlingford Shore SAC 002306)	Habitat area Habitat distribution	Area stable or increasing, subject to natural processes, including erosion and succession No decline, or change in habitat distribution, subject to natural processes	Increased visitor pressure has potential to result in disturbance to both habitat area and distribution	Any future development of the proposed cycle route will include assessment of any impacts that may arise from increased visitor pressures, in particular on sensitive habitats and species such as the Annual vegetation of drift lines.
		Physical structure: sediment supply Vegetation structure: zonation	Maintain natural circulation of sediments and organic matter, without any physical obstructions Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	No impact on natural circulation or natural processes likely from visitors or the construction of cycle route which is to be located along the existing road	None required
		Vegetation composition: typical species and sub communities	Maintain the presence of species- poor communities. Typical species may include saltwort (Salsola kali), sea rocket (Cakile maritima), sea sandwort (Honckenya peploides), sea spurge (Euphorbia paralias) and oraches (Atriplex species).	Increased visitor pressure has potential to result in disturbance to vegetation composition	Any future development of the proposed cycle route will include assessment of any impacts that may arise from increased visitor pressures, in particular on sensitive habitats and species such as the Annual vegetation of drift lines.
		Vegetation composition: typical species and sub communities	Negative indicators (including non-native species) should represent less than 5% of the vegetation cover.		
2110	To restore the favourable conservation	Habitat area	Area stable or increasing, subject to natural processes, including erosion and succession.	Increased visitor pressure has potential to result in disturbance to both	Any future development of the proposed cycle route will include assessment of any impacts that may

	condition of Embryonic shifting du	Habitat distribution	No decline or change in	habitat area and distribution	arise from increased visitor pressures, in particular on sensitive
	nes in Buckroney-Brittas SAC, which is defined by		habitat distribution, subject to natural processes		habitats and species such as the Embryonic shifting dunes.
	the following list of attri butes and targets: (derived from Boyne Coast and Estuary	Physical structure: functionality and sediment supply Vegetation	Maintain the natural circulation of sediment and organic matter, without any physical obstructions Maintain the range of	No impact on natural circulation or natural processes likely from visitors or the construction	None required
	SAC001957 Objectives and Targets)	structure: zonation	coastal habitats including transitional zones, subject to natural processes including erosion and succession	of cycle route which is to be located along the existing road	
		Vegetation composition: plant health of foredune grasses	More than 95% of sand couch (Elytrigia juncea) and/or lymegrass (Leymus arenarius) should be healthy (i.e. green plant parts above ground and flowering heads present)	Increased visitor pressure has potential to result in disturbance to vegetation composition	Consideration of mitigation for the restriction of increased visitor numbers on the sensitive habitats present may require further investigation e.g. the provision of cycle facilities may be restricted and provided away from qualifying habitats and species.
		Vegetation composition: typical species and sub-communities	Maintain the presence of species- poor communities with typical species: sand couch (Elytrigia juncea) and/or ly me-grass (Leymus arenarius)		
		Vegetation composition: negative indicator species	Negative indicator species (including non-natives) to represent less than 5% cove		
2120	To restore the favourable conservation condition of Shifting	Habitat area	Area stable or increasing, subject to natural processes including erosion and	Increased visitor pressure has potential to result in disturbance to both	Any future development of the proposed cycle route will include assessment of any impacts that may

	dunes along the shoreline with		succession. Total area mapped: 1.80ha. See map 6	habitat area and distribution	arise from increased visitor pressures, in particular on sensitive
	Ammophila arenaria	Habitat	No decline, or change in habitat	distribution	habitats and species such as the
	('white dunes') in	distribution	distribution, subject		Shifting dunes along the shoreline
	Buckroney-Brittas SAC		to natural processes. See map 6		with Ammophila arenaria ('white
	which is defined by the		for known distribution		dunes')
	following list of	Physical structure:	Maintain the natural	No impact on natural	None required
	attributes and targets:	functionality and	circulation of sediment and	circulation or natural	
		sediment supply	organic matter, without any	processes likely from	
			physical obstructions	visitors or the construction	
		Vegetation structure:	Maintain the range of coastal	of cycle route which is to	
		zonation	habitats including	be located along the	
			transitional zones, subject to	existing road	
			natural processes		
			including erosion and succession		
		Vegetation composition:	95% of marram grass (Ammophila	Increased visitor pressure	Consideration of mitigation for the
		plant health of dune	arenaria) and/or lyme-grass	has potential to result in	restriction of increased visitor
		grasses	(Leymus arenarius) should	disturbance to vegetation	numbers on the sensitive habitats
			be healthy (i.e. green plant parts	composition	present may require further
			above ground and		investigation e.g. the provision of
			flowering heads present)		cycle facilities may be restricted and
		Vegetation composition:	Maintain the presence of		provided away from qualifying
		typical species and	species-poor communities		habitats and species.
		subcommunities	dominated by marram grass		
			(Ammophila		
			arenaria) and/or lymegrass (Leymus arenarius)		
		Vegetation	Negative indicator species		
		composition:	(including non-natives) to		
		negative indicator	represent less than 5% cover		
		species	represent less than 570 cover		
2130	To restore the	Habitat area	Area stable or increasing,	Increased visitor pressure	Any future development of the
	favourable conservation		subject to natural	has potential to result in	proposed cycle route will include
	condition of Fixed		processes including erosion and	disturbance to both	assessment of any impacts that may
	coastal dunes with		succession. Total area mapped:		arise from increased visitor
	herbaceous		21.42ha. See map 6	habitat area and	pressures, in particular on sensitive

	vegetation ('grey dunes') in Buckroney-Brittas SAC, which is defined by the following list of	Habitat distribution	No decline, or change in habitat distribution, subject to natural processes. See map 6 for known distribution	distribution	habitats and species such as Fixed coastal dunes with herbaceous vegetation ('grey dunes')
	attributes and targets:	Physical structure: functionality and sediment supply	Maintain the natural circulation of sediment and organic matter, without any physical obstructions	No impact on natural circulation or natural processes likely from visitors ofr the	None required
		Vegetation structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	construction of cycle route which is to be located along the existing road	
		Vegetation structure: bare ground Vegetation structure:	Bare ground should not exceed 10% of fixed dune habitat, subject to natural processes Maintain structural	Increased visitor pressure has potential to result in disturbance to vegetation structure	Consideration of mitigation for the restriction of increased visitor numbers on the sensitive habitats present may require further
		sward height Vegetation composition: typical species and subcommunities	variation within sward Maintain range of subcommunities with typical species listed in Ryle et al. (2009)	Increased visitor pressure has potential to result in disturbance to vegetation composition	investigation e.g. the provision of cycle facilities may be restricted and provided away from qualifying habitats and species.
		Vegetation composition: negative indicator species (including Hippophae rhamnoides)	Negative indicator species (including non-natives) to represent less than 5% cover		
		Vegetation composition: scrub/trees	No more than 5% cover or under control		
2150	To maintain the favourable conservation condition of Atlantic decalcified fixed dunes (Calluno-Ulic etea)in Buckroney-Brittas SAC which is	Only Generic Conservation Objectives could be found for this Qualifying interest (2150) Favourable conservation status of a habitat is	 its natural range, and area it covers within that range, are stable or increasing, and the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist 	Increased visitor pressure has potential to result in disturbance to the Atlantic decalcified fixed dune.	Consideration of mitigation for the restriction of increased visitor numbers on the sensitive habitats present may require further investigation e.g. the provision of cycle facilities may be restricted and provided away from qualifying

	defined by the following list of attributes and targets:	achieved when:	for the foreseeable future, and • the conservation status of its typical species is favourable		habitats and species.
2170	To maintain the favourable conservation condition of Dunes with Salix repens ssp. argentea (Salix arenariae) in Buckroney-Brittas SAC, which is	Habitat area Habitat distribution	Area stable or increasing, subject to natural processes, including erosion and succession. No decline, subject to natural processes.	Increased visitor pressure has potential to result in disturbance to both habitat area and distribution	Any future development of the proposed cycle route will include assessment of any impacts that may arise from increased visitor pressures, in particular on sensitive habitats and species such as Dunes with Salix repens ssp. argentea (Salix
	defined by the following list of attributes and targets: (derived from Castlemaine Harbour SAC Objectives and	Physical structure: functionality and sediment supply Vegetation structure: zonation	Maintain the natural circulation of sediment and organic matter, without any physical obstructions Maintain the range of coastal habitats including transitional	No impact on natural circulation or natural processes likely from visitors of the construction of cycle route which is to be located along the	arenariae) None required
	Targets SAC000343)	Vegetation structure:	zones, subject to natural processes including erosion and succession. Maintain structural variation	existing road Increased visitor pressure	Consideration of mitigation for the
		bare ground Vegetation structure: vegetation height Vegetation composition: typical species and sub-communities	within sward. Maintain structural variation within sward Maintain range of subcommunities with typical species listed in Ryle et al. (2009).	has potential to result in disturbance to vegetation structure Increased visitor pressure has potential to result in disturbance to vegetation composition	restriction of increased visitor numbers on the sensitive habitats present may require further investigation e.g. the provision of cycle facilities may be restricted and provided away from qualifying habitats and species.
		Vegetation composition: cover and height of Salix repens Vegetation composition: negative indicator species (including	Maintain more than 10% cover of Salix; vegetation height should be in the average range of 5-20cm Negative indicator species (including non-natives) to represent less than 5% cover		Habitats and species.

2100	To maintain the	Hippophae rhamnoides Vegetation composition: scrub/trees Habitat area	No more than 5% cover or under control		Any fiture development of the
2190	To maintain the favourable conservative condition of humid dune slacks in Buckroney-Brittas which is defined by the following attributes and targets:	Habitat distribution	Area stable or increasing, subject to natural processes including erosion and succession No decline, subject to natural processes.	Increased visitor pressure has potential to result in disturbance to both habitat area and distribution	Any future development of the proposed cycle route will include assessment of any impacts that may arise from increased visitor pressures, in particular on sensitive habitats and species such as humid dune slacks
	(derived from Castlemarine Harbour Objectives and Targets SAC00343)	Physical structure: functionality and sediment supply	Maintain the natural circulation of sediment and organic matter, without any physical obstruction	No impact on natural circulation or natural processes likely from visitors or the construction of cycle route which is to be located along the existing road	None required
		Physical structure hydrological and flooding regime.	Maintain natural hydrological regime	Possible impact on structure and hydrological regime due to construction of cycle route W11 and increased visitor pressure	Any future development of the proposed cycle route W11 will include assessment of any impacts that may arise as a direct impact of the route on the sensitive habitats of humid dune slacks. Where construction of this route would lead to adverse impacts on the sites integrity alternative options must be considered and where no alternatives are available it must be demonstrated that the project is of overriding public interest.
		Vegetation structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to natural	Increased visitor pressure has potential to result in disturbance to both	Consideration of mitigation for the restriction of increased visitor numbers on the sensitive habitats

			processes including erosion and succession	habitat area and distribution	present may require further investigation e.g. the provision of cycle facilities may be restricted and provided away from qualifying habitats and species.
		Vegetation structure: bare ground Vegetation	Bare ground should not exceed 5% of dune slack habitat, with the exception of pioneer slacks which can have up to 20% bare ground Maintain structural variation	Increased visitor pressure has potential to result in disturbance to vegetation structure	Consideration of mitigation for the restriction of increased visitor numbers on the sensitive habitats present may require further investigation e.g. the provision of cycle facilities may be restricted and
		structure: vegetation height	within sward		provided away from qualifying habitats and species.
		Vegetation composition: typical species and sub-communities	Maintain range of sub- communities with typical species listed in Ryle et al. (2009)	Increased visitor pressure has potential to result in disturbance to vegetation composition	
		Vegetation composition: cover of Salix repens	Maintain less than 40% cover of Salix	·	
		Vegetation composition: negative indicator species	Negative indicator species (including non-natives) to represent less than 5% cover		
		Vegetation composition: scrub/trees	No more than 5% cover or under control		
7230	To maintain the favourable conservation condition of Alkaline Fens in Buckroney- Brittas which is defined by the following attributes and targets:	Habitat area	Area stable or increasing, subject to natural processes	Potential for loss of habitat area as a result of the proposed route	Any future development of the proposed cycle routes (widening of existing road or road edge works) will
		Habitat distribution	No decline, subject to natural processes	Potential for construction of greenway to result in changes to Habitat distribution	include assessment of any impacts that may arise on sensitive habitats and species including habitat type Alkaline fens.
		Hydrological	Appropriate natural	Potential for construction	

(Attributes and Targets	regime	hydrological regime	of greenway to result in	
derived from Galway Bay		necessary to support the	changes to hydrological	Consideration of mitigation for the
Complex SAC 000268		natural structure and	regime	Consideration of mitigation for the restriction of increased visitor
Version 1.0 16 Apr 2013)		functioning of the habitat		numbers on the sensitive habitats
	Peat formation	Active peat formation,	Potential for construction	present may require further
		where appropriate	of greenway to result in	investigation e.g. the provision of
			impact on peat formation	cycle facilities may be restricted and
	Water quality:	Appropriate water quality	Potential for construction	provided away from qualifying
	Nutrients	to support the natural	of greenway to result in	habitats and species.
		structure and functioning	impacts on water quality	habitats and species.
		of the habitat		
	Vegetation	Maintain vegetation cover	Potential for construction	
	composition:	of typical species including	of greenway to result in	
	typical species	brown mosses and	impacts on vegetation	
		vascular plants	composition	
	Vegetation	Cover of scattered native		
	composition: trees	trees and shrubs not more		
	and shrubs	than than 10%		
	Physical structure:	Cover of disturbed bare	Potential for construction	
	disturbed bare	ground not more than	of greenway to result in	
	ground	10%. Where tufa is	impacts on physical	
		present, disturbed bare	structure	
		ground not more than 1%		
	Physical structure:	Areas showing signs of		
	drainage	drainage as a result of		
	Percentage	drainage ditches or heavy		
		trampling not more than		
		10%		

Vale of Clara (Rathdrum Wood) 000733 Conservation Objectives 18th July 2011

W13 Interurban route intersects the SAC.

Habitat Code	Conservation Objective	Attribute	Target	Potential Impact	Mitigation	
91A0	To maintain or restore the favourable conservation condition	Habitat area	Area stable or increasing, subject to natural processes.	Potential for loss of habitat area as a result of the proposed route	Any future development of the proposed cycle route W11 including works on the existing pathway	
	of the Annex I Habitat (Old sessile oak woods with Ilex and Blechnum in the British	Habitat distribution	No decline.	Potential for construction of W13 to result in changes to Habitat distribution	through the woodland area should include assessment of any impacts that may arise as a direct impact of the route on the sensitive habitat of	
	Isles)which is defined by the following list of attributes and targets:	Woodland size	Area stable or increasing.	Potential for decrease in woodland size as a result of the proposed route	Old sessile oak woods. Where construction of this route would lead to adverse impacts on the sites	
	(derived from Slaney River Valley SAC Objectives and Targets SAC000781)	Woodland structure: cover and height	Diverse structure with a relatively closed canopy containing mature trees; subcanopy layer with semi- mature trees and shrubs; and well-developed herb layer	Potential for woodland structure to change as a result of proposed route	integrity alternative options must be considered and where no alternatives are available it must be demonstrated that the project is of overriding public interest.	
			Woodland structure: community diversity and extent Woodland	Maintain diversity and extent of community types Seedlings, saplings and pole age-c		
		structure: natural regeneration	lasses occur in adequate proportions to ensure survival of woodland canopy			
		Woodland structure: dead wood	At least 30m³/ha of fallen timber greater than 10cm diameter; 30 snags/ha; both categories should include stems greater than			

	40cm diameter	
	40cm diameter	
Woodland structure: ve	eter No decline	
an trees		
Woodland structure:	No decline	
indicators of local disct	inct	
iveness		
Vegetation composition	n: No decline. Native tree cover	Potential for vegetation
native tree cover	not less than 95%	composition including
Vegetation composition	n: A variety of typical	native tree cover and
typical species	native species present,	typical species to be
	depending on woodland type, inc	impacted during
	luding oak	construction of proposed
	(Quercus petraea) and	route. Also potential for
	birch (Betula pubescens)	spread of non-native
Vegetation composition	n: Negative indicator species,	invasive species.
negative indicator spec	ies Particularly non-native	
	invasive species, absent or	
	under control	

Slaney River Valley SAC000781

Conservation Objectives Version 1.0 21st October 2011

Interurban Routes W17, W15, W14 and Greenway W16 impact on the Slaney Upper Reaches. Potential for direct impact at crossing points at any of these locations to protected species and habitats

P P P P P	species and nabitats				
Habitat	Conservation	Attribute	Target	Potential Impact	Mitigation
Code	Objective				
1029	To restore the favoura ble conservation condition of Freshwater Pearl Mussel in the Slaney River Valley SAC, which is defined by the following list of attributes and targets: (derived from	Substratum quality: sedim ent Substratum quality: oxygen availability	Restore substratum quality-stable cobble and gravel s ubstrate with very little fine mate rial; no artificially elevated levels of fine sediment Restore to no more than 20% decline from water column to 5cm depth in substrate	Impact on substratum due to changes in flow or water quality may have impact upon this species	Any future development of the proposed cycle routes including works on the existing roadways should include assessment of any impacts that may arise as a direct (habitat or species destruction) and indirect (increased recreational pressure) impacts of the route on the sensitive species which includes Freshwater Pearl Mussel.

	Lower River Shannon SAC 002165 Objectives and Targets)	Hydrological regime: flow variability Host fish	Restore appropriate hydrological regimes Maintain sufficient juvenile salmonids to host glochidial larvae	Impact on hydrological regime during the construction of any routes or river crossing points may have an impact on the species	A detailed hydrological assessment shall inform the design of bridges or works on bridges required at crossing points of the river and also any works on floodplains and any areas that may have an impact on alluvial woodland exists, such that the habitats within 000781 SAC are protected.
					The design and construction of these cycle routes shall comply with all relevant best practice guidelines for the protection of fish, otter and water quality.
1096	To restore the favoura ble conservation condition of Brook lamprey in the Slaney River Valley SAC, which is defined by the following list of attributes and targets:	Population structure of juveniles Juvenile density in fine sediment Extent and distribution of spawning habitat Availability of juvenile habitat	Access to all water courses down to first order stream At least three age/size groups of brook/river lamprey present Mean catchment juvenile density of brook/river lamprey at least 2/m² No decline in extent and distribution of spawning beds More than 50% of sample sites positive.	Potential impact on distribution and extent of anadromy due to physical disturbance, disturbance to sediment and possible change to water quality during construction. This processes may also have an impact on juveniles and spawning habitat.	Any future development of the proposed cycle routes including works on the existing roadways should include assessment of any impacts that may arise as a direct (habitat or species destruction) and indirect (increased recreational pressure) impacts of the route on the sensitive species which include Brook Lamprey. A detailed hydrological assessment shall inform the design of bridges or works on bridges required at crossing points of the river and also any works on floodplains and any areas that may have an impact on alluvial woodland exists, such that the habitats within 000781 SAC are protected.

					The design and construction of these cycle routes shall comply with all
					relevant best practice guidelines for the protection of fish, otter and water quality.
1099	To restore the favourable conservation condition of River lamprey in the Slaney River Valley SAC, which is defined by the following list of att ributes and targets:	Distribution: extent of anadromy Population structure of juveniles Juvenile density in	Greater than 75% of main stem and major tributari es down to second order accessible from estuary At least three age/ size groups of river/brook lampre y present Mean catchment juvenile	Potential impact on distribution and extent of anadromy due to physical disturbance, disturbance to sediment and possible change to water quality during construction. This processes may also have an impact on juveniles and	Any future development of the proposed cycle routes including works on the existing roadways should include assessment of any impacts that may arise as a direct (habitat or species destruction) and indirect (increased recreational pressure) impacts of the route on the sensitive species which include River
		fine sediment Extent and distribution of spawning habitat Availability of juvenile habitat	density of brook/river lamprey at least 2/m No decline in extent and distribution of spawning beds More than 50% of sample	spawning habitat. A detailed hydrological a shall inform the design of works on bridges required points of the river and also	I -
			sites positive		may have an impact on alluvial woodland exists, such that the habitats within 000781 SAC are protected. The design and construction of these
					cycle routes shall comply with all relevant best practice guidelines for the protection of fish, otter and water quality.
1103	To restore the favoura ble conservation	Distribution: extent of ana dromy	Greater than 75% of main	Potential Impact on distribution and extent of	Any future development of the proposed cycle routes including

	condition of Twaite shad in the SI aney River Valley SAC,		stem length of rivers accessible from estuary	anadromy due to possible disturbance to water flows and pollution during construction phase	works on the existing roadways should include assessment of any impacts that may arise as a direct (habitat or species destruction) and
	which is defined by the following list of att ributes and	Population structure- age classes	More than one age class present	Possible impact on structure-age class	indirect (increased recreational pressure) impacts of the route on the sensitive species which include
	targets:	Extent and distribution of spawning habitat	No decline in extent and distribution of spawning	Possible impact on spawning habitat due to pollution during construction and	Twaite shad. A detailed hydrological assessment shall inform the design of bridges or
		Water quality- oxygen levels	habitats No lower than 5mg/l	disturbance of river bed. Possible impact on water quality due to pollution	works on bridges required at crossing points of the river and also any works on floodplains and any areas that
		Spawning habitat quality: Filamentous algae; macrophytes; sediment	Maintain stable gravel substrate with very little fine material, free of filamentous algal (macroalgae) growth and macrophyte (rooted higher	Possible impact on spawning habitat due to pollution during construction and disturbance of river bed.	may have an impact on alluvial woodland exists, such that the habitats within 000781 SAC are protected.
			plants) growth		The design and construction of these cycle routes shall comply with all relevant best practice guidelines for the protection of fish, otter and water quality
1106	To restore the favoura ble conservation condition of Atlantic Salmon in the Slaney River Valley	Distribution: extent of anadromy	100% of river channels down to second order accessible from estuary	Potential Impact on distribution and extent of anadromy due to possible disturbance to water flows and pollution during construction phase	Any future development of the proposed cycle routes including works on the existing roadways should include assessment of any impacts that may arise as a direct (habitat or species destruction) and
	SAC, which is defined by the following list of attributes and targets:	Adult spawning fish	Conservation Limit (CL) for each system consistently exceeded	Possible impact on adult spawning habitat due to pollution during construction and disturbance of river bed.	indirect (increased recreational pressure) impacts of the route on the sensitive species which include Atlantic Salmon
		Salmon fry	Maintain or exceed	Possible impact on Salmon	

		abundance Out-migrating smolt abundance	0+ fry mean catchment-wide abundance threshold value. Currently set at 17 salmon fry/5 min sampling No significant decline	fry abundance due to impacts at construction phase from pollution and physical disturbance. Possible impact on outmigrating smolt abundance due to impacts at construction phase from pollution and physical disturbance.	A detailed hydrological assessment shall inform the design of bridges or works on bridges required at crossing points of the river and also any works on floodplains and any areas that may have an impact on alluvial woodland exists, such that the habitats within 000781 SAC are protected.
		Number and distribution of redds	No decline in number and distribution of spawning redds due to anthropogenic cause	Possible impact on number and distribution of redds as a result of disturbance and pollution during construction phase.	The design and construction of these cycle routes shall comply with all relevant best practice guidelines for the protection of fish, otter and water quality
		Water quality	At least Q4 at all sites sampled by EPA	Potential impact on water quality due to pollution from run off during construction phase	
1355	To restore the favoura ble conservation condition of Otter in the Slaney River Valley SAC, which is defined by the following list of at tributes and targets:	Distribution Extent of terrestrial habitat	No significant decline No significant decline. Area mapped and calculated as 64.7ha above high water mark (HWM); 453.4ha along river banks/	Potential impact on distribution and extent of terrestrial habitat due to disturbance and pollution at construction stage. Also extent of both terrestrial(including couches and holts) and freshwater habitat may be impacted by increased visitor numbers coming to	Any future development of the proposed cycle routes including works on the existing roadways should include assessment of any impacts that may arise as a direct (habitat or species destruction) and indirect (increased recreational pressure) impacts of the route on the sensitive species which include Otters
		Extent of freshwater (river) habitat	around ponds No significant decline. Length mapped and calculated as 264.1km	visitor numbers coming to the area as a result of the cycle route.	Consideration of mitigation for the restriction of increased visitor numbers on the sensitive habitats present may require further investigation e.g. the provision of

		Extent of freshwater (lake/lagoon) habitat Couching sites and holts Fish biomass available Barriers to connectivity	No significant decline. Area mapped and calculated as 0.4ha No significant decline No significant decline No significant increase	Decline in fish biomass due to increased pollution levels and disturbance. Potential impact that any additional structures may have.	cycle facilities may be restricted and provided away from qualifying habitats and species. A detailed hydrological assessment shall inform the design of bridges or works on bridges required at crossing points of the river and also any works on floodplains and any areas that may have an impact on alluvial woodland exists, such that the habitats within 000781 SAC are protected.
					The design and construction of these cycle routes shall comply with all relevant best practice guidelines for the protection of fish, otter and water quality.
3260	To maintain the favourable conservati on condition of Water courses of plain to montane levels with the Ranunc ulion fluitantis and Callitricho-Batrachi on vegetation in the Slaney River Valley SAC, which is defined by the following list of attributes and targets:	Habitat distribution Habitat area	No decline, subject to natural processes Area stable or increasing, subject to natural processes.	Existing on road infrastructure is in place however new infrastructure and increased visitor levels has potential for impact on Habitat Distribution and Area	Any future development of the proposed cycle routes including works on the existing roadways should include assessment of any impacts that may arise as a direct (habitat or species destruction) and indirect (increased recreational pressure) impacts of the route on the sensitive habitats which include Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation
		Hydrological regime: river flow	Maintain appropriate	Potential impact on hydrology regime due to	A detailed hydrological assessment

nutrients			Hydrological regime: tidal influcence	Hydrological regimes Maintain natural tidal regime	changes in flow during construction	shall inform the design of bridges or works on bridges required at crossing points of the river and also any works on floodplains and any areas that may have an impact on alluvial woodland exists, such that the habitats within 000781 SAC are protected.
composition: typical species Potential impact on floodplain due to construction of new paths works on bridges required at points of the river and also are many have an impact on woodland exists, such thabitats within 000781 S protected. Potential impact on floodplain due to construction of new paths works on bridges required at points of the river and also are may have an impact on woodland exists, such thabitats within 000781 S protected. Potential impact on floodplain due to construction of new paths works on bridges required at points of the river and also are may have an impact on woodland exists, such thabitats within 000781 S protected. Potential for loss of habitat area as a result of the proposed route works on the existing records.				nutrients in the water column must be sufficiently low to prevent changes in species composition or habitat	•	The design and construction of these cycle routes shall comply with all relevant best practice guidelines for the protection of fish, otter and water quality.
floodplain at and upstream of the habitat must be maintained To restore the favoura ble conservation condition of old sessile floodplain at and upstream of the habitat must be maintained floodplain due to construction of new paths shall inform the design of broworks on bridges required at points of the river and also are on floodplains and any are may have an impact on woodland exists, such the habitats within 000781 S protected. Area stable or increasing, subject to natural processes, at least 146.17ha for sub-sites Potential for loss of habitat area as a result of the proposed route works on the existing results of the proposed route.			composition:	habitat sub-type reach	-	Appropriate surveys should be carried out prior to any development of cycle routes to identify if invasive alien species are present. If so an action plan will be drawn up to manage this issue.
ble conservation subject to natural processes, at least 146.17ha for sub-sites habitat area as a result of the proposed route works on the existing rounding for sub-sites habitat area as a result of the proposed route works on the existing rounding for sub-sites habitat area as a result of the proposed route works on the existing rounding for sub-sites works on the existing roun			•	floodplain at and upstream of the habitat must be	floodplain due to	A detailed hydrological assessment shall inform the design of bridges or works on bridges required at crossing points of the river and also any works on floodplains and any areas that may have an impact on alluvial woodland exists, such that the habitats within 000781 SAC are protected.
d Blechnum Habitat distribution No decline. Potential for construction	91A0	ble conservation condition of old sessile oakwoods with llex an		subject to natural processes, at least 146.17ha for sub-sites surveyed	habitat area as a result of the proposed route	Any future development of the proposed cycle routes including works on the existing roadways should include assessment of any

in the Slaney River			routes to result in changes	impacts that may arise as a direct
Valley SAC, which is def	NA/ dla val air	Associately as in	to Habitat distribution	(habitat or species destruction) and
ined by the following li st of attributes	Woodland size	Area stable or increasing.	Potential for decrease in	indirect (increased recreational pressure) impacts of the route on the
and targets:		Where topographically possible, "large"woods at	woodland size as a result of the proposed route	sensitive habitats which include Old
and targets.		least 25ha in size and "small"	of the proposed route	Sessile oak woods with Ilex and
		woods at least 3ha in size		Blechnum in the British Isles.
	Woodland structure: cover	Diverse structure with a	Potential for woodland	bleefindin in the british isles.
	and height	relatively closed canopy	structure to change as a	
	and neight	containing mature trees;	result of proposed route	Appropriate surveys should be
		subcanopy layer with semi-	The second secon	carried out prior to any development
		mature trees and shrubs; and		of cycle routes to identify if invasive alien species are present. If so an
		well-developed herb layer		action plan will be drawn up to
	Woodland	Maintain diversity and extent		manage this issue.
	structure:	of community types		manage this issue.
	community			
	diversity and			
	extent			
	Woodland	Seedlings, saplings and pole		
	structure: natural	age-classes occur in adequate		
	regeneration	proportions to ensure survival		
		of woodland canopy		
	Woodland	At least 30m³/ha of fallen		
	structure: dead	timber greater than 10cm		
	wood	diameter; 30 snags/ha; both categories should		
		include stems greater than		
		40cm diameter		
	Woodland	No decline	_	
	structure: veteran	No decime		
	trees			
	Woodland	No decline	1	
	structure:			
	indicators of local			
	disctinctiveness			
	Vegetation	No decline. Native tree cover	Potential for vegetation	

		composition: native tree cover Vegetation composition: typical species Vegetation composition: negative indicator species	not less than 95% A variety of typical native species present, depending on woodland type, including oak (Quercus petraea) and birch (Betula pubescens) Negative indicator species, Particularly non-native invasive species, absent or under control	composition to change as a result of proposed route	
91E0	To restore the favoura ble conservation conditionof Alluvial for ests with Alnus glutinosa and Fraxinus excelsior(Alno-Padion) in the Slaney River Valley SA C, which is defined by the following list of attri	Habitat area Habitat distribution Woodland size	Area stable or increasing, subject to natural processes No decline Area stable or increasing. Where topographically possible, "large" woods at least 25ha in size and "small" woods at least 3ha in size	Potential for loss of habitat area and decline in habitat distribution as a result of the proposed route Potential for decrease in woodland size as a result of the proposed route	Any future development of the proposed cycle routes including works on the existing roadways should include assessment of any impacts that may arise as a direct (habitat or species destruction) and indirect (increased recreational pressure) impacts of the route on the sensitive habitats which include Alluvial forests
	butes and targets:	Woodland structure: cover and height Woodland structure:	Diverse structure with a relatively closed canopy containing mature trees; subcanopy layer with semi-mature trees and shrubs; and well-developed herb layer Maintain diversity and	Potential for woodland structure to change as a result of proposed route	with Alnus glutinosa and Fraxinus excelsior(Alno-Padion) Appropriate surveys should be carried out prior to any development of cycle routes to identify if invasive alien species
		community diversity and extent Woodland structure: natur al regeneration Woodland structure: dead	extent of community types Seedlings, saplings and pole age-classes occur in adequate proportions to ensure survival of woodland canopy At least 30m³/ha of fallen		are present. If so an action plan will be drawn up to manage this issue. Consideration of mitigation for the restriction of increased visitor

wood	timber greater than 10cm diameter; 30 snags/ha; both categories should include stems greater than 40cm diameter (greater than 20cm diameter in the case of alder)		numbers on the sensitive habitats present may require further investigation e.g. the provision of cycle facilities may be restricted and provided away from qualifying habitats and species
Woodland structure: veter an trees Woodland structure: indicators of local disctinctiveness	No decline No decline		
Vegetation composition: native tree cover Vegetation composition: typical species	No decline. Native tree cover not less than 95% A variety of typical native species present, depending on woodland type, including alder (A lnus glutinosa), willows (Salix spp) and, locally, oak (Quercus robur) and ash (Fraxinus excelsior)	Potential impact on vegetation composition and spread of invasive and non-native species	
Vegetation composition: negative indicator species Hydrological regime: Flooding depth/height of water table	Negative indicator species, particularly non-native invasive species, absent or under control Appropriate hydrological regime necessary for maintenance of alluvial vegetation	Possible impact on hydrological regime during construction	A detailed hydrological assessment shall inform the design of bridges or works on bridges required at crossing points of the river and also any works on floodplains and any areas that may have an impact on alluvial woodland exists, such that the habitats within 000781 SAC

Glenasmole Valley SAC 001209

Conservation Objectives 18th July 2011

Dodder Greenway within the valley and increases access to the site.

Habitat	Conservation	Attribute	Target	Potential Impact	Mitigation
Code	Objective				
6210	To maintain the favourable conservation condition of Semi-natural dry grasslands and scrubland facies on calcareous substrates	Habitat area Habitat distribution	Area stable or increasing, subject to natural processes No decline, subject to natural processes	Increased visitor pressure has potential to result in disturbance to both habitat area and distribution. Construction of the cycle route may also lead to some loss of	Any future development of the proposed cycle routes including works on the existing roadways should include assessment of any impacts that may arise as a direct (habitat or species destruction) and indirect (increased recreational
	(Festuco Brometalia) in Glenasmole Valley SAC,			habitat and impacts on habitat distribution.	pressure) impacts of the route on the sensitive habitats which include,
	which is defined by the following list of attributes and targets: (derived from Galway	Vegetation composition: broadleaf herb: grass ratio Vegetation	Broadleaf herb component of vegetation between 40 and 90% At least 7 positive indicator	Increased visitor pressure and construction of the route has potential to result in disturbance to vegetation composition.	Semi-natural dry grasslands and scrubland facies on calcareous substrates Appropriate surveys should be
	Bay SAC 000268 Objectives and Targets)	composition: typical species Vegetation composition: negative indicator species	species present, including 2 "high quality" species Negative indicator species collectively not more than 20% cover, with cover by an individual species not more than 10%. Nonnative invasive species, absent or under control		carried out prior to any development of cycle routes to identify if invasive alien species are present. If so an action plan will be drawn up to manage this issue.
		Vegetation structure: sward height Vegetation structure: woody species and	30-70% of sward 5-40cm high Cover of bracken (Pteridium aquilinum) and woody species (except	Increased visitor pressure and construction of the route has potential to result in disturbance to vegetation structure	

		bracken (Pteridium aquilinum) Physical structure: bare ground	juniper (Juniperus communis)) not more than 5% cover Not more than 10% bare ground	Increased visitor pressure and construction of the route has potential to result in an increase in bare ground on the site	
6410	To maintain the Favourable conservation condition of Molinia m eadows on calcareous, peaty or clayey-silt laden soils (Molinion caeruleae) in in	Habitat area Habitat distribution	Area stable or increasing, subject to natural processes No decline, subject to natural processes	Increased visitor pressure has potential to result in disturbance to both habitat area and distribution. Construction of the cycle route may also lead to some loss of habitat and impacts on habitat distribution	Any future development of the proposed cycle routes including works on the existing roadways should include assessment of any impacts that may arise as a direct (habitat or species destruction) and indirect (increased recreational pressure) impacts of the route on the sensitive habitats which include
	caeruleae) in in Glenasmole Valley SAC, which is defined by the following list of attributes and targets: (derived from Lower	Vegetation structure: broadleaf herb: grass ratio Vegetation structure: swar d height	Broadleaf herb component of vegetation between 40 and 90% 30-70% of sward between 10 and 80cm high	Increased visitor pressure and construction of the route has potential to result in disturbance to vegetation structure	Molinia meadows on calcareous, peaty or clayey-silt-laden soils Appropriate surveys should be carried out prior to any development of cycle routes to identify if invasive
	River Shannon SAC 002165 Objectives and Targets)	Vegetation composition: typical species Vegetation composition: notable species	At least 7 positive indicator species present, including 1 "high quality" species No decline, subject to natural processes	Increased visitor pressure and construction of the route has potential to result in disturbance to vegetation composition	alien species are present. If so an action plan will be drawn up to manage this issue.
		Vegetation composition: negative indicator species	Negative indicator species collectively not more than 20% cover, with cover by an individual species less than 10%. Non-native invasive species, absent or under control		

	negative indicator moss species	not more than 10% cover; hair mosses (Polytrichum spp.) not more than 25% cover		
favourable conservation condition of Petrifying springs wi th tufa formation (Cratoneurion) in Glenasmole Valley, which is defined by the following list of attributes and targets: (derived from River Barrow and River Nore	Habitat area	Area stable or increasing, subject to natural processes	Existing on road infrastructure is in place however new infrastructure and increased visitor levels has potential for impact on Habitat Area	Any future development of the proposed cycle routes including works on the existing roadways should include assessment of any impacts that may arise as a direct (habitat or species destruction) and indirect (increased recreational
	Habitat distribution	No decline	Existing on road infrastructure is in place however new infrastructure and increased visitor levels has potential for impact on Habitat Distribution	pressure) impacts of the route on the sensitive habitats which includes *Petrifying springs with tufa formation.
and Targets)	Hydrological regime: height of water table; water flow	Maintain appropriate hydrological regimes	Existing on road infrastructure is in place however new infrastructure and increased visitor levels has potential for impact on the hydrological regime	In the event of lighting being proposed along river corridors an Ecological Impact Assessment (and where necessary an Appropriate Assessment) including bat and otter survey shall be conducted by specialists. The recommendations of
	Water quality	Maintain oligotrophic and calcareous conditions	Existing on road infrastructure is in place however new infrastructure and increased visitor levels has potential for impact on Water Quality	the specialist studies shall be implemented. No lighting will be installed without prior consultation with NPWS and shall be in line with advances in knowledge into the impact of lighting on bats and other species and also to reflect advances in technology in the lighting industry The design and construction of these
	conservation condition of Petrifying springs wi th tufa formation (Cratoneurion) in Glenasmole Valley, which is defined by the following list of attributes and targets: (derived from River	To maintain the favourable conservation condition of Petrifying springs wi th tufa formation (Cratoneurion) in Glenasmole Valley, which is defined by the following list of attributes and targets: (derived from River Barrow and River Nore SAC002162 Objectives and Targets) Habitat area To maintain the favourable conservation condition of Petrifying springs wi th tufa formation (Cratoneurion) in Glenasmole Valley, which is defined by the following list of attributes and targets: (derived from River Barrow and River Nore SAC002162 Objectives and Targets) Hydrological regime: height of water table; water flow Water quality Habitat area Area stable or increasing, subject to natural processes No decline No decline Maintain appropriate hydrological regimes	To maintain the favourable conservation condition of Petrifying springs with tufa formation (Cratoneurion) in Glenasmole Valley, which is defined by the following list of attributes and targets: (derived from River Barrow and River Nore SAC002162 Objectives and Targets) Hydrological regime: height of water table; water flow Water quality Habitat area Area stable or increasing, subject to natural infrastructure is in place however new infrastructure and increased visitor levels has potential for impact on Habitat Distribution Existing on road infrastructure is in place however new infrastructure is in place however new infrastructure is in place however new infrastructure and increased visitor levels has potential for impact on the hydrological regime infrastructure and increased visitor levels has potential for impact on the hydrological regime Water quality Maintain oligotrophic and infrastructure is in place however new infrastructure and increased visitor levels has potential for impact on the hydrological regime Existing on road infrastructure and increased visitor levels has potential for impact on the hydrological regime Water quality Maintain oligotrophic and infrastructure is in place however new infrastructure is in place however new infrastructure is in place however new infrastructure and increased visitor levels has potential for impact on the hydrological regime	

			cycle routes shall comply with all relevant best practice guidelines for the protection of fish, otter and water quality.
Vegetation	Maintain typical species	Existing on road	Appropriate surveys should be
composition:		infrastructure is in place	carried out prior to any development
typical species		however new	of cycle routes to identify if invasive
		infrastructure and	alien species are present. If so an
		increased visitor levels has	action plan will be drawn up to
		potential for impact on	manage this issue
		vegetation composition	

Rye Water Valley/Carton 001398

Conservation Objectives 18th July 2011

Greenway K1/N2 crosses through SAC, L1 and C7 primary/secondary feeder networks with SAC.

Habitat	Conservation	Attribute		Target		Potential Impac	·+	Mitigation	
Code	Objective	Attribute		ranget		Totellal illipae	•	Willigation	
1014	To restore the favoura ble conservation condit ion of Vertigo angustior in Rye Water Valley/Carton which is defined by the following list of attributes and targets: (attributes & targets taken from Kenmare River SAC 002158 – 25	Distribution: occupied sites	No decline in occu	upied sites	distribution as a re	impact on the n of the species esult of the on of cycleway	proposed works on should ind impacts th (habitat or indirect pressure) in sensitive h include, *P	te development cycle routes the existing clude assessment may arise at may arise at species destruction (increased respects of the ropabitats and species destrifying springs artigo angustior.	including roadways ont of any is a direct action) and ecreational oute on the cies which
	Apr 2013	Presence	Adult or sub-adulare present in at I places on the trar where optimal or habitat occurs	east 3 isect	presence of the spe	impact on the and abundance ecies as a result construction of	restriction numbers	ion of mitigation of increase on the sensitive may require	d visitor e habitats

		Abundance Transect habitat quality	(minimum 5 samples) At least 2 samples on the transect have more than 10 V. angustior individuals (minimum 5 samples) At least 20m of habitat along the transect is classed as optimal or suboptimal	Potential impact on optimal or suboptimal habitat within transect as a result of increased visitor pressure and construction of cycle route.	investigation e.g. the provision of cycle facilities may be restricted and provided away from qualifying habitats and species.
		Transect optimal wetness	Soils, at time of sampling, are damp (optimal wetness) and covered with a layer of humid thatch for at least 20m along the transect	Potential impact on soil moisture levels as a result of construction works.	Design should consider the provision of protective measures on sites sensitive to disturbance/visitor pressure e.g. provision of physical barriers, hedgerows, any natural barriers or simply by not facilitating access onto the sensitive habitat. The design and construction of cycle routes shall comply with all relevant best practice guidelines for the
1016	To restore the favoura	Distribution:	No decline.	Possible decline in	protection of fish, otter and water quality. Any future development of the
	ble conservation condit ion of	occupied sites Population size:	At least 5 adults snails in at least	occupied sites, population size and density, area of	proposed cycle routes including works on the existing roadways
	Vertigo moulinsiana Rye Water	adults	50% of samples	occupancy and habitat quality as a result of	should include assessment of any impacts that may arise as a direct
	Valley/Carton, which is defined by the	Population density	Adult snails present in at least 60% of samples per site.	construction of the route and increased visitor	(habitat or species destruction) and indirect (increased recreational
	following list of attributes and targets:	Area of occupancy	Minimum of 1ha of suitable habitat per site	levels.	pressure) impacts of the route on the sensitive habitats and species which
	*(River Barrow & River	Habitat quality: vegetation	90% of samples in habitat classes I and II as defined i		include <i>Vertigo moulinsiana.</i>

	Nore SAC 002162		n Moorkens & Killeen (2011)		
	Version 19 Jul 2011	Habitat quality: soil moisture levels	90% of samples in moisture class 3-4 as defined in Moorkens & Killeen (2011)		Design should consider the provision of protective measures on sites sensitive to disturbance/visitor pressure e.g. provision of physical barriers, hedgerows, any natural barriers or simply by not facilitating access onto the sensitive habitat.
7220	To maintain the favourable conservation condition of Petrifying springs wi th tufa formation (Cratoneurion) in the Rye	Habitat area Habitat distribution	Area stable or increasing, subject to natural processes No decline	New infrastructure and increased visitor levels has potential for impact on Habitat Area New infrastructure and increased visitor levels has potential for impact on	Any future development of the proposed cycle routes including works on the existing roadways should include assessment of any impacts that may arise as a direct (habitat or species destruction) and indirect (increased recreational
	WaterValley/Carton SAC, which is defined by the following list of attributes and	Hydrological regime: height of water table; water flow	Maintain appropriate hydrological regimes	Habitat Distribution New infrastructure and increased visitor levels has potential for impact on the hydrological regime	pressure) impacts of the route on the sensitive habitats and species which include, *Petrifying springs with tufa formation (<i>Cratoneurion</i>)
	targets: (derived from River Barrow and River Nore	Water quality	Maintain oligotrophic and calcareous conditions	New infrastructure and increased visitor levels has potential for impact on Water Quality	Design should consider the provision of protective measures on sites sensitive to disturbance/visitor pressure e.g. provision of physical
	SAC002162 Objectives and Targets)	Vegetation composition: typical species	Maintain typical species	New infrastructure and increased visitor levels has potential for impact on vegetation composition	barriers, hedgerows, any natural barriers or simply by not facilitating access onto the sensitive habitat.
					The design and construction of cycle routes shall comply with all relevant best practice guidelines for the protection of fish, otter and water quality.

Kilpatrick Sandhills 001742

Conservation Objectives 18th July 2011

Interurban route (spur of W11, on road section of the East Coast Trail) links to site.

Habitat Code	Conservation Objective	Attribute	Target	Potential Impact	Mitigation
1210	Objective Annual vegetation of drift lines (adapted from Carlingford Shore SAC 002306)	Habitat area Habitat distribution Physical structure: sediment supply Vegetation structure: zonation Vegetation composition: typical species and sub communities	Area stable or increasing, subject to natural processes, including erosion and succession No decline, or change in habitat distribution, subject to natural processes Maintain natural circulation of sediments and organic matter, without any physical obstructions Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession Maintain the presence of speciespoor communities. Typical species may include saltwort (Salsola kali), sea rocket (Cakile maritima), sea sandwort (Honckenya peploides), sea spurge (Euphorbia paralias) and	Increased visitor pressure has potential to result in disturbance to both habitat area and distribution No impact on natural circulation or natural processes likely from visitors or the construction of cycle route which is to be located along the existing road Increased visitor pressure has potential to result in disturbance to vegetation composition	Any future development of the proposed cycle route including works on the existing roadway should include assessment of any impacts that may arise as a direct (habitat or species destruction) and indirect (increased recreational/tourism pressure) impacts of the route on the sensitive habitats which include, Annual vegetation of drift lines Consideration will be given at project level AA to the provision of ancillary facilities for example the provision of street furniture, cycle parking, car parks, lighting etc. Where it is determined that the provision of such features will result in impact on the qualifying interests of the site then alternatives should be considered prior to the completion of
		Vegetation composition: Negative indicator species	oraches (Atriplex species). Negative indicators (including non-native species) should represent less than 5% of the vegetation cover.		the design. Consideration of mitigation for the restriction of increased visitor numbers on the sensitive habitats present may require further investigation e.g. the provision of cycle facilities may be restricted and provided away from qualifying

-					habitats and species.
2110	To restore the favoura ble conservation condition of Embryonic shifting dunes in	Habitat area	Area stable or increasing, subject to natural processes, including erosion and succession.	Increased visitor pressure has potential to result in disturbance to both habitat area and distribution	Any future development of the proposed cycle route including works on the existing roadway should include assessment of any impacts that may arise as a direct (habitat or
	Kilpatrick Sandhils SAC, which is defined by the followin	Habitat distribution	No decline or change in habitat distribution, subject to natural processes		species destruction) and indirect (increased recreational/tourism pressure) impacts of the route on the
	g list of attributes and targets: (derived from Boyne Coast and Estuary	Physical structure: functionality and sediment supply	Maintain the natural circulation of sediment and organic matter, without any physical obstructions	No impact on natural circulation or natural processes likely from visitors or the construction	sensitive habitats which include, Embryonic shifting dunes. Consideration will be given at project
	SAC001957 Objectives and Targets)	Objectives Vegetation structure: zonation Maintain the range of coastal habitats including transitional zones, subject	Maintain the range of coastal habitats including transitional zones, subject to natural processes including	of cycle route which is to be located along the existing road Increased visitor pressure has potential to result in disturbance to vegetation composition Increased visitor pressure has potential to result in disturbance to vegetation composition Increased visitor pressure has potential to result in disturbance to vegetation composition Increased visitor pressure has potential to result in in the qualifying interests of then alternatives should considered prior to the complete design. Consideration with be given at level AA to the provision of accilities for example the provision of facilities for example the provision of accilities for example the provision of facilities f	level AA to the provision of ancillary facilities for example the provision of street furniture, cycle parking, car parks, lighting etc. Where it is determined that the provision of such features will result in impact on the qualifying interests of the site then alternatives should be considered prior to the completion of the design.
		Vegetation composition: plant health of foredune grasses	More than 95% of sand couch (Elytrigia juncea) and/or lymegrass (Leymus arenarius) should be healthy (i.e. green plant parts above ground and flowering heads		
		Vegetation composition: typical species and sub-communities	present) Maintain the presence of species-poor communities with typical species : sand couch (Elytrigia juncea) and/or lyme-grass(Leymus arenarius)		restriction of increased visitor numbers on the sensitive habitats
		Vegetation composition: negative indicator species	Negative indicator species (including non-natives) to represent less than 5% cove		nasitates and species.
2130	To restore the	Habitat area	Area stable or increasing,	Increased visitor pressure	Any future development of the

favourable conservation condition of Fixed coastal dunes with herbaceous vegetation ('grey dunes') in Kilpatrick Sandhils, which is defined by the	Habitat distribution	subject to natural processes including erosion and succession. Total area mapped: 21.42ha. See map 6 No decline, or change in habitat distribution, subject to natural processes. See map 6 for known distribution	has potential to result in disturbance to both habitat area and distribution	proposed cycle route including works on the existing roadway should include assessment of any impacts that may arise as a direct (habitat or species destruction) and indirect (increased recreational/tourism pressure) impacts of the route on the sensitive habitats which include,
following list of attributes and targets:	Physical structure: functionality and sediment supply Vegetation structure: zonation	Maintain the natural circulation of sediment and organic matter, without any physical obstructions Maintain the range of coastal habitats including transitional zones, subject to natural processes	No impact on natural circulation or natural processes likely from visitors or the construction of cycle route which is to be located along the existing road	Fixed coastal dunes with herbaceous vegetation ('grey dunes'). Consideration will be given at project level AA to the provision of ancillary facilities for example the provision of street furniture, cycle parking, car parks, lighting etc. Where it is
	Vegetation structure: bare ground Vegetation structure: sward height	including erosion and succession Bare ground should not exceed 10% of fixed dune habitat, subject to natural processes Maintain structural variation within sward	Increased visitor pressure has potential to result in disturbance to vegetation structure	determined that the provision of such features will result in impact on the qualifying interests of the site then alternatives should be considered prior to the completion of the design.
	Vegetation composition: typical species and subcommunities Vegetation composition: negative indicator species (including Hippophae rhamnoides)	Maintain range of subcommunities with typical species listed in Ryle et al. (2009) Negative indicator species (including non-natives) to represent less than 5% cover	Increased visitor pressure has potential to result in disturbance to vegetation composition	Consideration of mitigation for the restriction of increased visitor numbers on the sensitive habitats present may require further investigation e.g. the provision of cycle facilities may be restricted and provided away from qualifying habitats and species.
2120 To restore the favourable	Vegetation composition: scrub/trees Habitat area	No more than 5% cover or under control Area stable or increasing, subject to natural	Increased visitor pressure has potential to result in	Any future development of the proposed cycle route including works

of th A ('\	onservation condition of Shifting dunes along he shoreline with mmophila arenaria white dunes') in Malahide Estuary SAC, which is defined by the	Habitat distribution	processes including erosion and succession. Total area mapped: 1.80ha. See map 6 No decline, or change in habitat distribution, subject to natural processes. See map 6 for known distribution	disturbance to both habitat area and distribution	on the existing roadway should include assessment of any impacts that may arise as a direct (habitat or species destruction) and indirect (increased recreational/tourism pressure) impacts of the route on the sensitive habitats which include,
	ollowing list of ttributes and targets:	Physical structure: functionality and sediment supply	Maintain the natural circulation of sediment and organic matter, without any physical obstructions	No impact on natural circulation or natural processes likely from visitors or the construction	Shifting dunes along the shoreline with Ammophila arenaria ('white dunes'). Consideration will be given at project
		Vegetation structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	of cycle route which is to be located along the existing road	level AA to the provision of ancillary facilities for example the provision of street furniture, cycle parking, car parks, lighting etc. Where it is determined that the provision of
		Vegetation composition: plant health of dune grasses	95% of marram grass (Ammophila arenaria) and/or lyme-grass (Leymus arenarius) should be healthy (i.e. green plant parts above ground and flowering heads present)	Increased visitor pressure has potential to result in disturbance to vegetation composition	such features will result in impact on the qualifying interests of the site then alternatives should be considered prior to the completion of the design.
		Vegetation composition: typical species and subcommunities	Maintain the presence of species-poor communities dominated by marram grass (Ammophila arenaria) and/or lymegrass (Leymus arenarius)		Consideration of mitigation for the restriction of increased visitor numbers on the sensitive habitats present may require further investigation e.g. the provision of cycle facilities may be restricted and
		Vegetation composition: negative indicator species	Negative indicator species (including non-natives) to represent less than 5% cover		provided away from qualifying habitats and species.
CC	avourable	Only Generic Conservation Objectives could be found for this Qualifying interest (2150)	 its natural range, and area it covers within that range, are stable or increasing, and the specific structure and 	Increased visitor pressure has potential to result in disturbance to the Atlantic decalcified	Any future development of the proposed cycle route including works on the existing roadway should include assessment of any impacts

fixed dunes (Calluno-U licetea)	Favourable conservation status of a habitat is achieved when:	functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and the conservation status of its typical species is favourable	fixed dune.	that may arise as a direct (habitat or species destruction) and indirect (increased recreational/tourism pressure) impacts of the route on the sensitive habitats which include, Atlantic decalcified fixed dunes (Calluno-Ulicetea.
				Consideration will be given at project level AA to the provision of ancillary facilities for example the provision of street furniture, cycle parking, car parks, lighting etc. Where it is determined that the provision of such features will result in impact on the qualifying interests of the site then alternatives should be considered prior to the completion of the design.
				Consideration of mitigation for the restriction of increased visitor numbers on the sensitive habitats present may require further investigation e.g. the provision of cycle facilities may be restricted and provided away from qualifying habitats and species.

Magherabeg Dunes SAC 001766

Conservation Objectives 18th July 2011 (Generic)

W11 on road section of the East Coast Trail, 100m from SAC.

Habitat Code	Conservation Objective	Attribute	Target	Potential Impact	Mitigation
1210	Annual vegetation of drift lines (adapted from Carlingford Shore SAC 002306)	Habitat area Habitat distribution	Area stable or increasing, subject to natural processes, including erosion and succession No decline, or change in habitat distribution, subject to natural processes	Increased visitor pressure has potential to result in disturbance to both habitat area and distribution	Any future development of the proposed cycle route will include assessment of any impacts that may arise from increased visitor pressures in particular on the sensitive habitats and species for which the nearby site has been designated including, Annual vegetation of drift lines. Consideration will be given at project level AA to the provision of ancillary facilities for example the provision of street furniture (seating), cycle parking, car parks, lighting etc. Where it is determined that the provision of such features will result in impact on the qualifying interests of the site then alternatives should be considered prior to the completion of the design. Consideration of mitigation for the restriction of increased visitor numbers may require further investigation e.g. the provision of cycle facilities and car parking may be restricted and provided away from the qualifying habitats.

		Physical structure: sediment supply Vegetation structure:	Maintain natural circulation of sediments and organic matter, without any physical obstructions Maintain the range of coastal	No impact on natural circulation or natural processes likely from visitors or the construction	None required
		zonation	habitats including transitional zones, subject to natural processes including erosion and succession	of cycle route which is to be located along the existing road	
		Vegetation composition: typical species and sub communities	Negative indicators (including non-native species) should represent less than 5% of the vegetation cover.		
		Vegetation composition: negative indicator species	Negative indicator species (including non-natives) to represent less than 5% cover		
2110	To restore the favoura ble conservation Condition of Embryonic shifting d unes	Habitat area	Area stable or increasing, subject to natural processes, including erosion and succession.	Increased visitor pressure has potential to result in disturbance to both habitat area and distribution	Any future development of the proposed cycle route will include assessment of any impacts that may arise from increased visitor
	(Attributes and targets derived from Boyne	Habitat distribution	No decline or change in habitat distribution, subject to natural processes		pressures, in particular on sensitive habitats and species such as the Embryonic shifting dunes
	Coast and Estuary SAC 001957)	Physical structure: functionality and sediment supply	Maintain the natural circulation of sediment and organic matter, without any physical obstructions	No impact on natural circulation or natural processes likely from visitors ofr the	None required
		Vegetation structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	construction of cycle route which is to be located along the existing road	
		Vegetation composition: plant health of foredune grasses	More than 95% of sand couch (Elytrigia juncea) and/or lyme- grass (Leymus arenarius) should be healthy	Increased visitor pressure has potential to result in disturbance to vegetation composition	Consideration will be given at project level AA to the provision of ancillary facilities for example the provision of

		Vegetation composition: typical species and sub-communities Vegetation composition: negative indicator species	(i.e. green plant parts above ground and flowering heads present) Maintain the presence of species-poor communities with typical species: sand couch (Elytrigia juncea) and/or lyme-grass (Leymus arenarius) Negative indicator species (including non-natives) to represent less than 5% cove		street furniture (seating), cycle parking, car parks, lighting etc. Where it is determined that the provision of such features will result in impact on the qualifying interests of the site then alternatives should be considered prior to the completion of the design. Consideration of mitigation for the restriction of increased visitor numbers may require further investigation e.g. the provision of cycle facilities and car parking may be restricted and provided away from the qualifying habitats.
7220	To maintain the favourable conservation condition of Petrifying springs wi th tufa formation (Cratoneurion) in Magherabeg Dunes	Habitat area	Area stable or increasing, subject to natural processes	Existing on road infrastructure is in place however new infrastructure and increased visitor levels has potential for impact on Habitat Area	Any future development of the proposed cycle route will include assessment of any impacts that may arise from increased visitor pressures in particular on the sensitive habitats and species for which the nearby site has been designated including,
	SAC, which is defined by the following list of attributes and targets: (derived from Objectives and Targets SAC002158)	Habitat distribution	No decline	Existing on road infrastructure is in place however new infrastructure and increased visitor levels has potential for impact on Habitat Distribution	Annual vegetation of drift lines, *Petrifying springs with tufa formation (Cratoneurion). Consideration will be given at project level AA to the provision of ancillary facilities for example the provision of street furniture (seating), cycle parking, car parks, lighting etc. Where it is determined that the provision of such features will result in impact on the qualifying interests
		Hydrological regime: height of water table; water flow	Maintain appropriate hydrological regimes	Existing on road infrastructure is in place however new infrastructure and increased visitor levels has potential for impact on	

				the hydrological regime	of the site then alternatives should
		Water quality	Maintain oligotrophic	Existing on road	be considered prior to the
			and	infrastructure is in place	completion of the design.
			calcareous conditions	however new	Consideration of mitigation for the
				infrastructure and increased visitor levels has	restriction of increased visitor
				potential for impact on	numbers may require further
				Water Quality	investigation e.g. the provision of cycle facilities and car parking may be
		Vegetation	Maintain typical species	Existing on road	restricted and provided away from
		composition:		infrastructure is in place	the qualifying habitats.
		typical species		however new	
				infrastructure and	
				increased visitor levels has potential for impact on	
				vegetation composition	
2130	To restore the	Habitat area	Area stable or increasing,	Increased visitor pressure	Any future development of the
	favourable		subject to natural	has potential to result in	proposed cycle route will include
	conservation condition		processes including erosion and	disturbance to both	assessment of any impacts that may
	of Fixed coastal dunes		succession. Total area mapped:	habitat area and	arise from increased visitor pressures
	with herbaceous vegetation ('grey	Habitat distribution	21.42ha. See map 6	distribution	in particular on the sensitive habitats
	dunes' in Magherabeg	nabitat distribution	No decline, or change in habitat distribution, subject		and species for which the nearby site
	Dunes SAC,		to natural processes. See map 6		has been designated including, *Fixed coastal dunes with
	which is defined by the		for known distribution		herbaceous vegetation (grey dunes),
	following list of	Physical structure:	Maintain the natural	No impact on natural	None required
	attributes and targets:	functionality and	circulation of sediment and	circulation or natural	·
		sediment supply	organic matter, without any	processes likely from	
			physical obstructions	visitors ofr the	
		Vegetation structure:	Maintain the range of coastal	construction of cycle route	
		zonation	habitats including transitional zones, subject to natural	which is to be located along the existing road	
			processes	along the existing road	
			including erosion and succession		
		Vegetation structure: bare	Bare ground should not exceed	Increased visitor pressure	Consideration will be given at project
		ground	10% of fixed dune habitat,	has potential to result in	level AA to the provision of ancillary
			subject to natural	disturbance to vegetation	facilities for example the provision of

			processes	structure	street furniture (seating), cycle
		Vegetation structure:	Maintain structural		parking, car parks, lighting etc.
		sward height	variation within sward		Where it is determined that the
		Vegetation composition:	Maintain range of	Increased visitor pressure	provision of such features will result in impact on the qualifying interests
		typical species and subcommunities	subcommunities with typical	has potential to result in disturbance to vegetation	of the site then alternatives should
		subcommunities	species listed in Ryle et al. (2009)	composition	be considered prior to the
		Vegetation composition:	Negative indicator species	Composition	completion of the design.
		negative indicator	(including non-natives) to		·
		species (including	represent less than 5% cover		Consideration of mitigation for the
		Hippophae	•		restriction of increased visitor
		rhamnoides)			numbers may require further
		Vegetation composition:	No more than 5% cover or under		investigation e.g. the provision of
		scrub/trees	control		cycle facilities and car parking may be
					restricted and provided away from
2120	To restore the	Habitat area	Area stable or increasing,	Increased visitor pressure	the qualifying habitats. Any future development of the
2120	favourable	Habitat area	subject to natural	has potential to result in	proposed cycle route will include
	conservation condition		processes including erosion and	disturbance to both	assessment of any impacts that may
	of Shifting dunes along		succession.	habitat area and	arise from increased visitor
	the shoreline with	Habitat	No decline, or change in habitat	distribution	pressures, in particular on sensitive
	Ammophila arenaria	distribution	distribution, subject		habitats and species such as the
	('white dunes') in		to natural processes.		Shifting dunes along the shoreline
	Malahide Estuary SAC,				with Ammophila arenaria ('white
	which is defined by the				dunes')
	following list of	Physical structure:	Maintain the natural	No impact on natural	None required
	attributes and targets:	functionality and	circulation of sediment and	circulation or natural	
		sediment supply	organic matter, without any	processes likely from visitors or the construction	
		Vegetation structure:	physical obstructions Maintain the range of coastal	of cycle route which is to	
		zonation	habitats including	be located along the	
		2011401011	transitional zones, subject to	existing road	
			natural processes	0	
			including erosion and succession		
		Vegetation composition:	95% of marram grass (Ammophila	Increased visitor pressure	Consideration of mitigation for the
		plant health of dune	arenaria) and/or lyme-grass	has potential to result in	and the same of th

		grasses Vegetation composition: typical species and subcommunities Vegetation composition:	(Leymus arenarius) should be healthy (i.e. green plant parts above ground and flowering heads present) Maintain the presence of species-poor communities dominated by marram grass (Ammophila arenaria) and/or lymegrass (Leymus arenarius) Negative indicator species	disturbance to vegetation composition	restriction of increased visitor numbers on the sensitive habitats present may require further investigation e.g. the provision of cycle facilities may be restricted and provided away from qualifying habitats and species.
2150	To maintain the favourable conservation condition of Atlantic decalcified fixe d dunes (Calluno-Ulicet ea) , defined by the following list of attributes and targets:	negative indicator species Only Generic Conservation Objectives could be found for this Qualifying interest (2150) Favourable conservation status of a habitat is	(including non-natives) to represent less than 5% cover • its natural range, and area it covers within that range, are stable or increasing, and • the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and • the conservation status of its typical species is favourable	Increased visitor pressure has potential to result in disturbance to the Atlantic decalcified fixed dune.	Consideration of mitigation for the restriction of increased visitor numbers on the sensitive habitats present may require further investigation e.g. the provision of cycle facilities may be restricted and provided away from qualifying habitats and species.

Boyne Coast and Estuary SAC 001957Conservation Objectives 31st Oct 2012

M1 East Coast Greenway potentially directly impacting on the SAC.

Habitat Code	Conservation Objective	Attribute	Target	Potential Impact	Mitigation
1130	To maintain the favour able conservation cond ition of Estuaries in Boy ne Coast and Estuary S AC, which is defined by the following list of att ributes and targets:	Habitat area Community distribution	The permanent habitat area is sta ble or increasing, subject to natural processes Conserve the following community types in a natural condition: Intertidal estu arine mud and fine sand with Hed iste diversicolor and Corophium volut ator community; and Subtidal fine sand dominated by polychaetes community	Increased visitor pressure has potential to result in disturbance to both habitat area and distribution	Any future development of the proposed cycle route including works on the existing roadway should include assessment of any impacts that may arise as a direct (habitat or species destruction) and indirect (increased recreational/tourism pressure) impacts of the route on the sensitive habitats which include; Estuaries
1140	To maintain the favourable conservation conditions of mudflats and sandflats not covered by seawater at low tide in Boyne Coast and Estuary SAC 001957, which is defined by the following list of attributes and targets:	Habitat Area	The permanent habitat area is stable or increasing, subject to natural process	Loss of habitat area.	The route will have to demonstrate that there will be no adverse impact on the overall area of Mudlfats and sandflats not covered by seawater at low tide. Where this cannot be shown alternatives will have to be considered and where no alternatives are available it must be demonstrated that the project is of overriding public interest.
	J	Community Distribution	Conserve the following community types in a natural condition: Fine sand dominated by Angulus tenuis community	There will be no loss of community specified	None

			complex; and Estuarine sandy mud with <i>Pugospio elegans</i> and <i>Tubificoides benedii</i> community complex		
1310	To Maintain the favourable conservation conditions of Salicornia	Habitat area	Area stable or increasing, subject to natural processes, including erosion and succession.	There will be no loss of Salicornia habitat as the route is not in direct proximity to the habitat	None
	and other annuals colonizing mud and sand in Boyne Coast and Estuary SAC	Habitat distribution	No decline, or change in habitat distribution, subject to natural processes	There is no restriction or change to distribution of Salicornia habitat distribution	None
	001957, which is defined by the following list of attributes and targets:	Physical structure: sediment supply	Maintain natural circulation of sediments and organic matter, without any physical obstructions	There will be no physical obstruction as part of the project that would result in change in circulation of sediment and organic matter	None
		Physical structure: Occurrence creeks and pans	Maintain creek and pan structures, subject to natural processes, including erosion and succession	There will be no direct impact on creek and pan structures	None
		Physical structure: flooding regime	Maintain natural tidal regime	There will be no change to the tidal regime as a result of the cycleway	None
		Vegetation structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	There will be no change to vegetation structure: zonation as the route is adjoining the SAC and not in close proximity to Salicornia habitats	None
		Vegetation structure: height	Maintain structural variation within sward	Potential for changes to vegetation structure due to increased visitor pressure	Consideration will be given at project level AA to the provision of ancillary facilities for example the provision of street furniture (seating), cycle
		Vegetation structure:	Maintain more than 90% of area	Potential for changes to	

		vegetation cover	outside creeks vegetated	vegetation structure due to increased visitor pressure	parking, car parks, lighting etc. Where it is determined that the provision of such features will result
		Vegetation composition: typical species and sub communities	Maintain the presence of species- poor communities with typical species listed in the Saltmarsh Monitoring Project	Potential for changes to vegetation structure due to increased visitor pressure	in impact on the qualifying interests of the site then alternatives should be considered prior to the completion of the design. Consideration of mitigation for the restriction of increased visitor numbers may require further investigation e.g. the provision of cycle facilities and car parking may be restricted and provided away from the qualifying habitats.
		Vegetation structure: negative indicator species Spartina anglica	No significant expansion of common cordgrass (Spartina anglica), with an annual spread of less than 1%	Potential for change in vegetation structure due to visitor pressure/trampling/disturbance	
1330	To maintain the favourable conservation conditions of Atlantic salt meadows (Glauco-Puccinellietalia maritimae) in Boyne Coast and Estuary SAC 001957, which is defined by the following list of attributes and targets:	Habitat Area	Area stable or increasing, subject to natural processes, including erosion and succession.	Potential loss of habitat area.	The route will have to demonstrate that there will be no adverse impact on the overall area of Atlantic salt meadows. Where this cannot be shown alternatives will have to be considered and where no alternatives are available it must be demonstrated that the project is of overriding public interest.
		Habitat Distribution	No decline, or change in habitat distribution, subject to natural processes.	Potential decline or change to habitat distribution	The route will have to demonstrate that there will be no adverse impact on the overall area of Atlantic salt meadows. Where this cannot be shown alternatives will have to be considered and where no alternatives are available it must be demonstrated that the project is of overriding public interest.
		Physical Structure: sediment supply	Maintain natural circulation of sediments and organic matter, without any physical	There will be no physical obstruction as part of the project that would result	None

		obstructions	in change in circulation of sediment and organic matter	
	hysical structure: creeks nd pans	Maintain/restore creek and pan structure to develop, subject to natural processes, including erosion and succession	Potential impact from increased visitor numbers	Consideration of mitigation for the restriction of increased visitor numbers may require further investigation e.g. the provision of cycle facilities and car parking may be restricted and provided away from the qualifying habitats
	hysical Structure: ooding regime	Maintain natural tidal regime	There will be no change to the tidal regime as a result of the cycleway	None
	egetation structure: onation	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	There will be no change to vegetation structure: zonation as the route is adjoining the SAC and not sever zones	None
Ve	egetation structure: egetation height egetation structure: egetation cover	Maintain structural variation within sward Maintain more than 90% of the area outside of the creeks vegetated	Potential impact from increased visitor numbers	The route will have to demonstrate that there will be no adverse impact on the structural variation within the sward of Atlantic salt meadows. Where this cannot be shown
ty	egetation composition: /pical species and sub ommunities	Maintain range of subcommunities with typical species listed in the Saltmarsh Monitoring Project (McCorry and Ryle, 2009)		alternatives will have to be considered and where no alternatives are available it must be demonstrated that the project is of overriding public interest.
ne	egetation Structure: egative indicator species partina anglica	No significant expansion of common cordgrass (<i>Spartina anglica</i>), with an annual spread of less than 1%		

1410 ³	To Maintain the favourable conservation conditions of Mediterranean salt meadows (Juncetalia maritime) in Baldoyle Bay SAC, which is defined by the	Habitat Area	Area stable or increasing, subject to natural processes, including erosion and succession.	Potential loss of habitat area.	The route will have to demonstrate that there will be no adverse impact on the overall area of Atlantic salt meadows. Where this cannot be shown alternatives will have to be considered and where no alternatives are available it must be demonstrated that the project is of overriding public interest.
	following list of attributes and targets	Habitat Distribution	No decline, or change in habitat distribution, subject to natural processes.	Potential decline or change to habitat distribution	The route will have to demonstrate that there will be no adverse impact on the overall area of Atlantic salt meadows. Where this cannot be shown alternatives will have to be considered and where no alternatives are available it must be demonstrated that the project is of overriding public interest.
		Physical Structure: sediment supply Physical structure: creeks	Maintain natural circulation of sediments and organic matter, without any physical obstructions Maintain creek and	There will be no physical obstruction as part of the project that would result in change in circulation of sediment and organic matter No impact is expected on	None required
		and pans	pan structure, subject to natural processes, including erosion and succession	the physical structure of the creeks and pans present	

_

Ref: 12.159.24/NIS November 2013 Page 143

³ Please Note: The status of Mediterranean salt meadows (*Juncetalia maritimi*) as a qualifying Annex I habitat for Boyne Coast and Estuary SAC is currently under review. The outcome of this review will determine whether a site-specific conservation objective is set for this habitat.

Vegetation height Within sward Vegetation Structure: Vegetation Communities Vegetation Communities Vegetated Vegetation Communities Vegetation Veget	Physical Structure: flooding regime	Maintain natural tidal regime	There will be no change to the tidal regime as a result of the cycleway	
Vegetation height Vegetation structure: vegetation cover Vegetation cover Vegetation cover Vegetation cover Vegetation cover Vegetation composition: typical species and sub communities Vegetation	_	habitats including transitional zones, subject to natural processes including erosion and	vegetation structure: zonation as the route is adjoining the SAC and not	
typical species and sub communities with typical species listed in the Saltmarsh Monitoring Project (McCorry and Ryle, 2009) Vegetation Structure: negative indicator species Spartina anglica Spartina that the project ic of common cordgrass due to increase use of area by vistors. Spartina that there will be no potential to common cordgrass due to increase use of area by vistors. Spartina anglica Spart	vegetation height Vegetation structure:	Maintain structural variation within sward Maintain more than 90% of the area outside of the creeks	Possible impact from	The route will have to demonstrate that there will be no adverse impact on the structural variation within the sward of Atlantic salt meadows. Where this cannot be shown
negative indicator species Spartina anglica common cordgrass (Spartina anglica), with an annual spread of less than 1% common cordgrass due to increase use of area by vistors. common cordgrass due to increase use of area by vistors. that there will be no potential to result in expansion of common cordgrass of Atlantic salt meadows. Where this cannot be shown alternatives will have to be considered and where no alternatives are available it must be demonstrated that the project is of overriding public interest. Consideration of mitigation for the restriction of increased visitor numbers may require further investigation e.g. the provision of cycle facilities and car parking may be restricted and provided away from	typical species and sub	subcommunities with typical species listed in the Saltmarsh Monitoring Project (McCorry and Ryle, 2009)		considered and where no alternatives are available it must be demonstrated that the project is of overriding public interest.
Consideration of mitigation for the restriction of increased visitor numbers may require further investigation e.g. the provision of cycle facilities and car parking may be restricted and provided away from	negative indicator species	common cordgrass (Spartina anglica), with an annual	common cordgrass due to increase use of area by	that there will be no potential to result in expansion of common cordgrass of Atlantic salt meadows. Where this cannot be shown alternatives will have to be considered and where no alternatives
2110 To restore the favoura Habitat area Area stable or Increased visitor pressure Any future development of the				overriding public interest. Consideration of mitigation for the restriction of increased visitor numbers may require further investigation e.g. the provision of cycle facilities and car parking may be restricted and provided away from

ble conservation condition of Embryonic shifting dunes in Boyne Coast and Estuary SAC, which is d efined by the following list of attributes and ta rgets:	Habitat distribution	increasing, subject to natural processes, including erosion and succession. No decline or change in habitat distribution, subject to natural processes	has potential to result in disturbance to both habitat area and distribution	proposed cycle route will include assessment of any impacts that may arise from increased visitor pressures, in particular on sensitive habitats and species such as the Embryonic shifting dunes.
	Physical structure: functionality and sediment supply Vegetation structure: zonation	Maintain the natural circulation of sediment and organic matter, without any physical obstructions Maintain the range of coastal habitats including transitional zones, subject to nat ural processes including erosion and succession	No impact on natural circulation or natural processes likely from visitors or the construction of cycle route which is to be located along the existing road	None required
	Vegetation composition: plant health of foredune grasses Vegetation composition: typical species and sub-communities	More than 95% of sand couch (El ytrigia juncea) and/or lymegrass (Leymus arenarius) should be healthy (i.e. green plant parts above ground and flowering heads present) Maintain the presence of species-poor communities with typical species: sand couch (Elytrigia juncea)	Increased visitor pressure has potential to result in disturbance to vegetation composition	Consideration of mitigation for the restriction of increased visitor numbers on the sensitive habitats present may require further investigation e.g. the provision of cycle facilities may be restricted and provided away from qualifying habitats and species.

			and/or lyme-grass (Leymus arenarius)		
		Vegetation composition: negative indicator species	Negative indicator species (including non-natives)to represent less than 5% cove		
2120	To restore the favourable conservation condition of Shifting dunes along the shoreline with Ammophila arenaria	Habitat area	Area stable or increasing, subject to natural processes including erosion and succession. For sub-sites mapped: Baltray-2.97ha, Mornington-1.99ha. See map 7	Increased visitor pressure has potential to result in disturbance to both habitat area and distribution	Any future development of the proposed cycle route will include assessment of any impacts that may arise from increased visitor pressures, in particular on sensitive habitats and species such as the
	('white dunes') which is defined by the following list of	Habitat distribution	No decline, or change in habitat distribution, subject to natural processes.		Shifting dunes along the shoreline with Ammophila arenaria ('white dunes')
	attributes and targets:	Physical structure: functionality and sediment supply	Maintain the natural circulation of sediment and organic matter, without any physical obstructions	No impact on natural circulation or natural processes likely from visitors or the construction	None required
		Vegetation structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	of cycle route	
		Vegetation composition: plant health of dune grasses	More than 95% of marram grass (Ammophila arenaria) and/or lyme-grass (Leymus arenarius) should be healthy (i.e. green plant parts above ground and flowering heads present)	Increased visitor pressure has potential to result in disturbance to vegetation composition	Consideration of mitigation for the restriction of increased visitor numbers on the sensitive habitats present may require further investigation e.g. the provision of cycle facilities may be restricted and provided away from qualifying
		Vegetation composition: typical species and subcommunities	Maintain the presence of species-poor communities dominated by marram grass (Ammophila arenaria) and/or lymegrass		habitats and species.

	(Leymus arenarius)
Vegetation	Negative indicator species
composition:	(including non-natives) to
negative indicator	represent less than 5% cover
species	
Vegetation composition:	No more than 5% cover or under
scrub/trees	control.

Boyne Estuary SPA 004080Conservation Objectives 26th Feb 2013

Boyne greenway adjoins and potentially within SPA.

Code	Conservation Objective	Attribute	Target	Potential Impact	Mitigation
See codes in column on right	To maintain the favourable conservation condition of Shelduck (A048), Oystercatcher (A130), Golden Plover (A140), Grey Plover (A141), Lapwing (A142), Knot (A143). Sanderling (144), Black-tailed Godwit (A156), Redshank (A162) and Turnstone (A169) in Boyne Estuary SPA, which is defined by the following list of attributes and targets:	Population trend Distribution	Long term population trend stable or increasing No significant decrease in the range, timing or intensity of use of areas by shelduck, other than that occurring from natural patterns of variation	Loss of habitat, disturbance due to increased visitor pressure	Consideration of mitigation for the restriction of increased visitor numbers may require further investigation e.g. the provision of cycle facilities may be restricted and provided away from qualifying habitats and species. Interrelationships between Natura 2000 sites in particular for bird populations that may use more than one site should be considered in impact assessment. Monitoring of operational phase of the project will be carried out if necessary, which will additionally assist assessment of cumulative impacts Signage in the form of information
A195	To maintain the favourable conservation condition of Little Tern in Boyne	Breeding population abundance: apparently	No significant decline	Disturbance and decline in breeding population and occupied nests due to increased visitors in area	boards could be provided denoting the presence of Natura 2000 sites and the qualifying interests present, to promote respect of the sensitivity

	Estuary SPA, which is defined by the	occupied nests (AONs)		as a result of new cycleway.	of the environs by recreational users.
	following list of attributes and targets:	Productivity rate: fledged young per breeding pair	No significant decline	Decline in productivity rate due to increase visitor numbers	Projects should carry out assessment on predicted visitor numbers at sensitive sites to allow for further project level mitigation.
		Distribution: breeding colonies	No significant decline	Impact on distribution of breeding colonies	The timing of any construction works required as part of the development
		Barriers to connectivity	No significant decline	Impact on connectivity within habitat due to new cycleway	of any proposed route, that may cause disturbance to the qualifying species of the site, shall take place at
		Disturbance at the breeding site	Human activities should occur at levels that do not adversely affect the breeding little tern population.	Disturbance of breeding sites due to increased visitor numbers	a time of year that will not have an adverse impact on the bird population using the area (e.g. wintering wildfowl).
		Prey biomass available	No significant decline	No Impact on fish populations expected	Non required
A999	To maintain the favourable conservation condition of wetland habitat in Boyne Estuary SPA as a resource for the regularly occurring migratory waterbirds that utilise it. This is defined by the following attribute and target:	Habitat area	The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 594ha, other than that occurring from natural patterns of variation	Potential loss of wetland habitat through direct loss of land from cycleway or through changes to drainage regime	Any future development of the proposed cycle route including works on the existing roadway should include assessment of any impacts that may arise as a direct (habitat or species destruction) and indirect (increased recreational/tourism pressure) impacts of the route on the sensitive bird species which include, Shelduck,Oystercatcher, Golden Plover, Grey Plover Pluvialis squatarola, Lapwing , Knot, Sanderling , Black-tailed Godwit , Redshank, Turnstone, Little Tern

River Boyne and River Blackwater SAC002299

Conservation Objectives Series: 18th July 2011

Proposed Boyne greenway along the banks of the Boyne River with potential to have impact directly on protected habitats.

Habitat	Conservation	Attribute	Target	Potential Impact	Mitigation
Code	Objective				
1099	To restore the favourable conservation condition of River lamprey in the River Balckwater SAC, which is defined by the following list of att ributes and targets: (derived from Slaney River Valley SAC000781 Objectives and Targets)	Population structure of juveniles Juvenile density in fine sediment Extent and distribution of spawning habitat Availability of juvenile habitat	Greater than 75% of main stem and major tributari es down to second order accessible from estuary At least three age/ size groups of river/brook lampre y present Mean catchment juvenile density of brook/ river lamprey at least 2/m No decline in extent and distribution of spawning beds More than 50% of sample sites positive	Potential impact on distribution and extent of anadromy due to physical disturbance, disturbance to sediment and possible change to water quality during construction. This processes may also have an impact on juveniles and spawning habitat.	Any future development of the proposed cycle route should include assessment of any impacts that may arise as a direct (habitat or species destruction) and indirect (increased recreational/tourism pressure) impacts of the route on the sensitive habitats which include; River lamprey. Consideration will be given at project level AA to the provision of ancillary facilities for example the provision of street furniture (seating), cycle parking, car parks, lighting etc. Where it is determined that the provision of such features will result in impact on the qualifying interests of the site then alternatives should be considered prior to the completion of the design.
1106	To restore the favourab le conservation condition of Salmon in the River Boyne and River Balckwater SAC, which	Distribution: extent of anadromy	100% of river channels down to second order accessible from estuary	Potential Impact on distribution and extent of anadromy due to possible disturbance to water flows and pollution during construction phase	
	is defined by the following list of attributes and	Adult spawning fish	Conservation Limit (CL) for each system	Possible impact on adult spawning habitat due to pollution during	

	targets:		consistently	construction and	
	(derived from Slaney		exceeded	disturbance of river bed.	
	River Valley	Salmon fry	Maintain or exceed	Possible impact on Salmon	
	SAC000781 Objectives	abundance	0+ fry	fry abundance due to	
	and Targets)		mean catchment-wide	impacts at construction	
			abundance	phase from pollution and	
			threshold value.	physical disturbance.	
			Currently set at 17 salmon		
			fry/5 min sampling		
		Out-migrating	No significant	Possible impact on out-	
		smolt abundance	decline	migrating smolt	
				abundance due to impacts	
				at construction phase	
				from pollution and	
				physical disturbance.	
		Number and distribution o	No decline in	Possible impact on	
		f	number and	number and distribution	
		redds	distribution of spawning redds du	of redds as a result of	
			e to	disturbance and pollution	
			anthropogenic cause	during construction phase.	
		Water quality	At least Q4 at all	Potential impact on water	
			sites sampled by	quality due to pollution	
			EPA	from run off during	
				construction phase	
1355	To restore the favourab	Distribution	No significant decline	Potential impact on	Any future development of the
	le conservation	Extent of terrestrial	No significant decline. Area	distribution and extent of	proposed cycle route should include
	condition	habitat	mapped and calculated as	terrestrial habitat due to	assessment of any impacts that may
	of Otter in the River		64.7ha above high water mark	disturbance and pollution	arise as a direct (habitat or species
	Boyne and River		(HWM); 453.4ha along river	at construction stage. Also	destruction) and indirect (increased
	Balckwater SAC,		banks/ around ponds	extent of both	recreational/tourism pressure)
	which is	Extent of marine	No significant decline. Area	terrestrial(including	impacts of the route on the sensitive
	defined by the followin	habitat	mapped and	couches and holts) and	habitats which include; Otter
	g list of attributes		calculated as 534.7ha	freshwater habitat may be	
	and targets:	Extent of	No significant	impacted by increased	
	(derived from Slaney	freshwater (river)	decline. Length	visitor numbers coming to	
	River Valley SAC000781	habitat	mapped and	the area as a result of the	

	Objectives and Targets		calculated as 264.1km	cycle route.	
)	Extent of	No significant	1	
		freshwater	decline. Area		
		(lake/lagoon)	mapped and		
		habitat	calculated as 0.4ha		
		Couching sites and holts	No significant decline	7	
		Fish biomass available	No significant decline	7	
		Barriers to connectivity	No significant increase	1	
7230	To maintain the	Habitat area	Area stable or increasing,	Potential impact on	Consideration will be given at project
	favourable		subject to natural	habitat from increased	level AA to the provision of ancillary
	conservation condition		processes	visitor pressure and during	facilities for example the provision of
	of Alkaline Fens in	Habitat	No decline, subject to	construction	street furniture (seating), cycle
	River Boyne and River	distribution	natural processes		parking, car parks, lighting etc.
	Balckwater SAC which	Hydrological	Appropriate natural	1	Where it is determined that the
	is defined by the	regime	hydrological regime		provision of such features will result
	following attributes	_	necessary to support the		in impact on the qualifying interests
	and targets:		natural structure and		of the site then alternatives should
			functioning of the habitat		be considered prior to the
	(Attributes and Targets	Peat formation	Active peat formation,	7	completion of the design.
	derived from Galway		where appropriate		j
	Bay Complex SAC	Water quality:	Appropriate water quality	1	
	000268 Version 1.0 16	nutrients	to support the natural		
	Apr 2013)		structure and functioning		
			of the habitat		
		Vegetation	Maintain vegetation cover	1	
		composition:	of typical species including		
		typical species	brown mosses and		
			vascular plants		
		Vegetation	Cover of scattered native		
		composition: trees	trees and shrubs less than		
		and shrubs	10%		
		Physical structure:	Cover of disturbed bare	7	
		disturbed bare	ground less than 10%.		
		ground	Where tufa is present,		
			disturbed bare ground less than		
			1%		

		Physical structure:	Areas showing signs of		
		drainage	drainage as a result of		
		_	drainage ditches or heavy		
			trampling less than 10%		
91E0	To restore the favourab	Habitat area	Area stable or increasing,	Possible impact on this	Any future development of the
	le conservation		subject to natural	habitat as a result of	proposed cycle route should include
	condition		processes, at least 18.7ha for	construction of the cycle	assessment of any impacts that may
	of Alluvial forests		sites	route and also increase	arise as a direct (habitat or species
	with Alnus glutinosa		surveyed	visitor pressure	destruction) and indirect (increased
	and	Habitat distribution	No decline		recreational/tourism pressure)
	Fraxinus excelsior(Alno-	Woodland size	Area stable or increasing.		impacts of the route on the sensitive
	Padion) in the		Where topographically		habitats which include; *Alluvial
	Slaney River Valley SAC		possible, "large" woods at		forests with Alnus gultinosa and
	, which is defined by th		least 25ha in size and "small"		Fraxinus excelsior
	e following list of attrib		woods at least 3ha in size		
	utes and targets:	Woodland	Diverse structure with a		
	(derived from Slaney	structure: cover	relatively closed canopy		
	River Valley SAC000781	and height	containing mature trees;		
	Objectives and Targets		subcanopy layer with semi-		
)		mature trees and shrubs; and		
			well-developed herb layer		
		Woodland structure:	Maintain diversity and		
		community diversity and	extent of community		
		extent	types		
		Woodland	Seedlings, saplings and pole		
		structure: natural	age-classes occur in		
		regeneration	adequate proportions to		
			ensure survival of woodland		
			canopy		
		Hydrological	Appropriate hydrological		
		regime: Flooding	regime necessary for		
		depth/height of	maintenance of		
		water table	alluvial vegetation		
		Woodland	At least 30m³/ha of		
		structure: dead	fallen timber greater than 10cm		
		wood	diameter; 30 snags/ha; both cate		

	i	Т
	gories should	l
	include stems greater than 40cm	l
	diameter (greater	
	than 20cm diameter in the	
	case of alder)	
Woodland	No decline	
structure: veteran		
trees		
Woodland	No decline	
structure:		
indicators of local		
disctinctiveness		
Vegetation composition:	No decline. Native tree cover	
native tree cover	not less than 95%	
Vegetation composition:	A variety of typical	1
typical species	native species present,	
,, ,	depending on	
	woodland type,	
	including alder (Alnus	
	glutinosa), willows (Salix spp) an	
	d, locally, oak	
	(Quercus robur)	
	and ash (Fraxinusexcelsior)	
Vegetation composition:	Negative indicator species, partic	
negative indicator	ularly non-native	
species	invasive species,	
species	absent or	
	under control	

River Boyne and River Blackwater SPA004232

Conservation Objectives Series: 16th April 2012

Boyne Greejway directly and adjoining the SPA

Habitat Code	Conservation Objective (Generic)	Attribute	Target	Potential Impact	Mitigation
	To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA Common kingfisher (Alcedo atthis)	Population Trend Distribution	Long term population trend stable or increasing No significant decrease in the range, timing and intensity of use of areas by the conservation interest species as listed, other than that occurring from natural patterns of variation.	Decline in population and distribution due to increased disturbance form visitor pressure and during construction	Consideration of mitigation for the restriction of increased visitor numbers may require further investigation e.g. the provision of cycle facilities may be restricted and provided away from qualifying species (Kingfisher) that use certain areas along the river.

River Barrow and River Nore SAC 002162

Conservation Objectives 19th July 2011

Directly impacts on SAC with greenways (K11) Barrow Canal Greenway K15 K20 interurban intersect the SAC.

Habitat	Conservation	Attribute	Target	Potential Impact	Mitigation
Code	Objective				
1092	To maintain the favour	Distribution	No reduction from	Impact on distribution	Any future development of the
	able conservation cond		baseline.	during disturbance at	proposed cycle route including works
	ition of White-clawed			construction stage	existing roadways should include
	crayfish in the River Ba	Population	Juveniles and/or	Impact on population	assessment of any impacts that may
	rrow and River Nore SA	structure:	females with	structure as a result of	arise as a direct (habitat or species
	C, which is defined by	recruitment	eggs in at least 50% of	cycleway construction	destruction) and indirect (increased
	the following list of att		positive samples		recreational/tourism pressure)
	ributes and targets:	Disease	No instances of	Risk of disease during	impacts of the route on the sensitive
			disease	construction	species which include; While-clawed
		Water quality	At least Q3-4 at all sites	Possible impact on water	crayfish.
			sampled by EPA	quality and habitat quality	
		Habitat quality:	No decline in	during construction	Consideration will be given at project
		heterogeneity	heterogeneity or		level AA to the provision of ancillary
			habitat quality		facilities for example the provision of

					street furniture (seating), cycle parking, car parks, lighting etc. Where it is determined that the provision of such features will result in impact on the qualifying interests of the site then alternatives should be considered prior to the completion of the design. Design should consider the provision of protective measures on sites sensitive to disturbance/visitor pressure e.g. provision of physical barriers, hedgerows, any natural barriers or simply by not facilitating access onto the sensitive habitat. The design and construction of cycle routes shall comply with all relevant
					best practice guidelines for the protection of fish, otter and water quality.
		Negative indicator species	No alien crayfish species	No impact likely	None required
1096	To restore the favoura ble conservation Condition of Brook at	Distribution	Access to all water courses down to first order stream	Potential impact on distribution and extent of anadromy due to physical disturbance, disturbance to sediment and possible change to water quality	Any future development of the proposed cycle route including works existing roadways should include assessment of any impacts that may arise as a direct (habitat or species destruction) and indirect (increased
	River Barrow and River Nore SAC, which is defined by	pre SAC, juveniles	At least three age/size groups of brook/river lamprey present		
	the following list of att ributes and targets:	Juvenile density in fine sediment	Mean catchment juvenile density of brook/river lamprey at least 2/m²	during construction. These processes may also have an impact on juveniles and	recreational/tourism pressure) impacts of the route on the sensitive species which include; Brook
	3 3 4 4	Extent and distribution of spawning habitat	No decline in extent and distribution of spawning beds	spawning habitat.	lamprey.

		Availability of juvenile habitat	More than 50% of sample sites positive.		Consideration will be given at project level AA to the provision of ancillary facilities for example the provision of street furniture (seating), cycle parking, car parks, lighting etc. Where it is determined that the provision of such features will result in impact on the qualifying interests of the site then alternatives should be considered prior to the completion of the design.
					Design should consider the provision of protective measures on sites sensitive to disturbance/visitor pressure e.g. provision of physical barriers, hedgerows, any natural barriers or simply by not facilitating access onto the sensitive habitat.
					The design and construction of cycle routes shall comply with all relevant best practice guidelines for the protection of fish, otter and water quality.
1099	To restore the favoura ble conservation Condition of River lamprey at River Barrow and River Nore SAC,	Distribution: extent of anadromy	Greater than 75% of main stem and major tributari es down to second order accessible from estuary	Potential impact on distribution and extent of anadromy due to physical disturbance, disturbance to sediment and possible change to water quality	Any future development of the proposed cycle route including works existing roadways should include assessment of any impacts that may arise as a direct (habitat or species destruction) and indirect (increased
	which is defined by the following list of att ributes and targets:	Population structure of juveniles Juvenile density in fine sediment	At least three age/ size groups of river/brook lampre y present Mean catchment juvenile density of brook/	during construction. This processes may also have an impact on juveniles and spawning habitat.	recreational/tourism pressure) impacts of the route on the sensitive species which include; River lamprey.

			river lamprey at least 2/m		Consideration will be given at project
		Extent and	No decline in extent and		level AA to the provision of ancillary
		distribution of	distribution of spawning beds		facilities for example the provision of
		spawning habitat		_	street furniture (seating), cycle
		Availability of juvenile habitat	More than 50% of sample sites positive		parking, car parks, lighting etc. Where it is determined that the provision of such features will result in impact on the qualifying interests of the site then alternatives should be considered prior to the completion of the design.
					Design should consider the provision of protective measures on sites sensitive to disturbance/visitor pressure e.g. provision of physical barriers, hedgerows, any natural barriers or simply by not facilitating access onto the sensitive habitat.
					The design and construction of cycle routes shall comply with all relevant best practice guidelines for the protection of fish, otter and water quality.
1103	ble conservation of anadromy condition of Twaite shad at River Barrow and River Nore SAC,	Distribution: extent of anadromy	Greater than 75% of main stem length of rivers accessible from estuary	Potential Impact on distribution and extent of anadromy due to possible disturbance to water flows and pollution during construction phase	Any future development of the proposed cycle route including works existing roadways should include assessment of any impacts that may arise as a direct (habitat or species destruction) and indirect (increased
	which is defined by the following list of attributes and targets:	Population structure- age classes	More than one age class present	Possible impact on structure-age class	recreational/tourism pressure) impacts of the route on the sensitive species which include; Twaite shad.
		Extent and distribution of	No decline in extent and distribution of spawning	Possible impact on spawning habitat due to	Design should consider the provision

		spawning habitat Water quality- oxygen levels Spawning habitat quality: Filamentous algae; macrophytes; sediment	No lower than 5mg/l Maintain stable gravel substrate with very little fine material, free of filamentous algal (macroal gae) growth and macrophyte (rooted higher plants) growth	pollution during construction and disturbance of river bed. Possible impact on water quality due to pollution Possible impact on spawning habitat due to pollution during construction and disturbance of river bed.	of protective measures on sites sensitive to disturbance/visitor pressure e.g. provision of physical barriers, hedgerows, any natural barriers or simply by not facilitating access onto the sensitive habitat. The design and construction of cycle routes shall comply with all relevant best practice guidelines for the protection of fish, otter and water quality.
1106	To restore the favoura ble conservation condition of Atlantic Salmon at the River Barrow and River Nore SAC is defined by the following list of attributes and	Distribution: extent of anadromy Adult spawning fish	100% of river channels down to second order accessible from estuary Conservation Limit (CL) for each system consistently exceeded	Potential Impact on distribution and extent of anadromy due to possible disturbance to water flows and pollution during construction phase Possible impact on adult spawning habitat due to pollution during construction and	Any future development of the proposed cycle route including works existing roadways should include assessment of any impacts that may arise as a direct (habitat or species destruction) and indirect (increased recreational/tourism pressure) impacts of the route on the sensitive species which include; Atlantic Salmon.
	targets:	Salmon fry abundance	Maintain or exceed 0+ fry mean catchment-wide abundance threshold value. Currently set at 17 salmon fry/5 min sampling	disturbance of river bed. Possible impact on Salmon fry abundance due to impacts at construction phase from pollution and physical disturbance.	Design should consider the provision of protective measures on sites sensitive to disturbance/visitor pressure e.g. provision of physical barriers, hedgerows, any natural
		Out-migrating smolt abundance	No significant decline No decline in	Possible impact on outmigrating smolt abundance due to impacts at construction phase from pollution and physical disturbance. Possible impact on	barriers or simply by not facilitating access onto the sensitive habitat. The design and construction of cycle routes shall comply with all relevant best practice guidelines for the protection of fish, otter and water quality.

		distribution of	number and	number and distribution	
		redds	distribution of spawning redds du	of redds as a result of	
			e to	disturbance and pollution	
			anthropogenic	during construction phase.	
			cause		
		Water quality	At least Q4 at all	Potential impact on water	
			sites sampled by	quality due to pollution	
			EPA	from run off during	
				construction phase	
1355	To restore the favoura	Distribution	No significant decline	Potential impact on	Any future development of the
	ble conservation	Extent of terrestrial	No significant decline.	distribution and extent of	proposed cycle route including works
	condition	habitat	Area	terrestrial habitat due to	existing roadways should include
	of Otter in the Slaney a		mapped and	disturbance and pollution	assessment of any impacts that may
	t River Barrow and		calculated as	at construction stage. Also	arise as a direct (habitat or species
	River Nore SAC		64.7ha above high	extent of both	destruction) and indirect (increased
	which is		water mark	terrestrial(including	recreational/tourism pressure)
	defined by the followin		(HWM); 453.4ha along	couches and holts) and	impacts of the route on the sensitive
	g list of attributes		river	freshwater habitat may be	species which include; Otter.
	and targets:		banks/	impacted by increased	
			around ponds	visitor numbers coming to	Consideration will be given at project
		Extent of marine habitat	No significant decline. Area	the area as a result of the	level AA to the provision of ancillary
			mapped and calculated as	cycle route.	facilities for example the provision of
			534.7ha		street furniture (seating), cycle
		Extent of freshwater (river	No significant decline. Length		parking, car parks, lighting etc.
) habitat	mapped and calculated as		Where it is determined that the
			264.1km		provision of such features will result
		Extent of freshwater	No significant decline. Area		in impact on the qualifying interests
		(lake/lagoon)	mapped and calculated as		of the site then alternatives should
		habitat	0.4ha		be considered prior to the
		Couching sites and holts	No significant decline		completion of the design.
		Fish biomass available	No significant decline	Decline in fish biomass	completion of the design.
				due to increased pollution	
				levels and disturbance.	Consideration of mitigation for the
					restriction of increased visitor
					numbers may require further
					investigation e.g. the provision of

					cycle facilities and car parking may be restricted and provided away from the qualifying habitats. Appropriate surveys should be carried out prior to any development of cycle routes to identify if invasive alien species are present. If so an action plan will be drawn up to manage this issue.
					Design should consider the provision of protective measures on sites sensitive to disturbance/visitor pressure e.g. provision of physical barriers, hedgerows, any natural barriers or simply by not facilitating access onto the sensitive habitat.
					The design and construction of cycle routes shall comply with all relevant best practice guidelines for the protection of fish, otter and water quality.
1421	To maintain the favourable conservatio n condition of Killarney Fern in the Ri	Distribution	No decline. Three locations known, with three colonies of gametophyte and one sporophyte colony	Potential impact during construction and clearing of vegetation in the area that may cause distruption	Any future development of the proposed cycle route including works existing roadways should include assessment of any impacts that may
	ver Barrow and	Light levels:	No changes due to	to the Killarney ferns	arise as a direct (habitat or species
	River Nore SAC, which i s defined by the followi	shading	anthropogenic impacts	distribution, population size and structure, habitat	destruction) and indirect (increased recreational/tourism pressure)
	ng list of attributes	Population size	Maintain at least three colonies of gametophyte, and	extent and light levels .	recreational/tourism pressure) impacts of the route on the sensitive
	and targets:		at least one sporophyte	Sales and inglife levels !	species which include; Killarney fern.
			colony of over 35 fronds		
		Population	At least one of the locations		Consideration of mitigation for the
		structure: juvenile	to have a population		

		Habitat extent Hydrological conditions: visible water	structure comprising sporophyte, unfurling fronds, 'juvenile' sporophyte and gametophyte generations No loss of suitable habitat, such as shaded rock crevices, caves or gullies in or near to, known colonies. No loss of woodland canopy at or near to known locations Maintain hydrological conditions at the locations so that all colonies are in dripping or damp seeping habitats, and water is visible at all locations		restriction of increased visitor numbers may require further investigation e.g. the provision of cycle facilities and car parking may be restricted and provided away from the qualifying habitats.
		Hydrological conditions: humidity	No increase. Presence of dessicated sporophyte fronds or gametophyte mats indicates conditions are unsuitable	Possible impact during construction on hydrology necessary for maintenance of plant	
		Invasive species	Absent or under control	Possible introduction/spreading of invasive plant species during construction	Appropriate surveys should be carried out prior to any development of cycle routes to identify if invasive alien species are present. If so an action plan will be drawn up to manage this issue.
3260	To maintain the favourable conservation condition of Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-	Habitat distribution Habitat area	No decline, subject to natural processes Area stable or increasing, subject to natural processes	Existing on road infrastructure is in place however new infrastructure and increased visitor levels has potential for impact on Habitat Distribution and Area	Any future development of the proposed cycle route including works existing roadways should include assessment of any impacts that may arise as a direct (habitat or species destruction) and indirect (increased recreational/tourism pressure) impacts of the route on the sensitive
	Batrachion	Hydrological	Maintain appropriate	Potential impact on	

	vegetation in the	regime: river flow	hydrological regimes	hydrology regime due to	habitats which include; Water
	River Barrow and	Hydrological	The groundwater flow to the	changes in flow during	courses of plain to montane levels
	River Nore SAC, which i	regime:	habitat should be permanent	construction	with Ranunculion fluitantis and
	s defined by the	groundwater	and sufficient to maintain tufa		Callitricho-Batrachion vegetation.
	following list of	discharge	formation		Consideration will be given at project
	attributes and	Substratum	The substratum should be	Possible impact on	level AA to the provision of ancillary
	targets:	composition:	dominated by large	Substratum during	facilities for example the provision of
		particle size range	particles and free from fine	construction	street furniture (seating), cycle
			sediments		parking, car parks, lighting etc.
		Water chemistry:	The groundwater and	Possible impact on water	Where it is determined that the
		minerals	surface water should have	chemistry, quality of	provision of such features will result
			sufficient concentrations of	sediment and nutrient	in impact on the qualifying interests
			minerals to allow deposition and	levels during construction	of the site then alternatives should
			persistence of tufa deposits		be considered prior to the
		Water quality:	The concentration of		completion of the design.
		suspended	suspended solids in the water		Consideration of mitigation for the
		sediment	column should be sufficiently		restriction of increased visitor
			low to prevent excessive		numbers may require further
			deposition of fine sediments		investigation e.g. the provision of
		Water quality:	The concentration of		cycle facilities and car parking may be
		nutrients	nutrients in the water		restricted and provided away from
			column should be sufficiently		the qualifying habitats.
			low to prevent changes in		Appropriate surveys should be
			species composition or habitat		carried out prior to any development
			condition		of cycle routes to identify if invasive
		Vegetation	Typical species of the	Possible impact on	alien species are present. If so an
		composition:	relevant habitat sub-type should	vegetation composition as	action plan will be drawn up to
		typical species	be present and in good	a result of cycleroute on	manage this issue.
			condition	green route area K11	manage uns issue.
		Floodplain	The area of active floodplain	Potential impact on	
		connectivity	at and upstream of the	floodplain due to	
			habitat should be	construction of new paths	
			maintained		
4030	To maintain the	Habitat Area	Area stable or increasing,	Potential for loss of	Any future development of the
	favourable		subject to natural processes	habitat area as a result of	proposed cycle route including works
	conservation condition			the proposed route	

of European dry heaths, which is defined by the following list of attributes and targets (derived from Kenmare River SAC Objectives and Targets	Habitat distribution	No decline from current habitat distribution, subject to natural processes	Direct impact on habitat through construction of cycle route	existing roadways should include assessment of any impacts that may arise as a direct (habitat or species destruction) and indirect (increased recreational/tourism pressure) impacts of the route on the sensitive habitats which include; European dry heaths.
SAC002158)				The proposed route at project stage will have to demonstrate that there will be no adverse impact on the site integrity of the designated site. Where this cannot be shown alternatives will have to be considered and where no alternatives are available it must be demonstrated that the project is of overriding public interest.
	Physical structure: free draining, acid, low nutrient soil; rock outcrop	No significant change in soil nutrient status, subject to natural processes. No increase or decrease in area of natural rock outcrop	Potential for construction of greenway to result in changes to drainage	
	Vegetation structure: dwarf shrub indicator species	Cover of characteristic dwarf shrub indicator species, typically heather (Calluna vulgaris), bell heather (Erica cinerea) and Western gorse (Ulex gallii) at least 25%	Increased visitor pressure has potential to result in disturbance of habitat and changes to vegetation structure	Any future development of the proposed cycle route will include an assessment of any impacts that may arise from increased visitor pressures in particular on sensitive habitats and species.
	Vegetation Structure: senescent Calluna vulgaris	Cover of senescent heather (Calluna vulgaris), less than 50%	Increased visitor pressure has potential to result in disturbance of habitat and changes to vegetation	Consideration will be given at project level AA to the provision of ancillary facilities for example the provision of

Veget	etation structure:	Long shoots of bilberry (Vaccinium myrtillus) with signs of browsing should be controlled	No potential impact	street furniture, cycle parking, car parks, lighting etc. Where it is determined that the provision of such features will result in impact on the qualifying interests of the site then alternatives should be considered prior to the completion of the design. Consideration of mitigation for the restriction of increased visitor numbers may require further investigation e.g. the provision of cycle facilities and car parking may be restricted and provided away from qualifying habitats and species. None
	etation structure: ve trees and shrubs	Cover of scattered native trees and shrubs less than 20%	Increased visitor pressure has potential to result in disturbance of habitat and changes to vegetation structure	Any future development of the proposed cycle route will include an assessment of any impacts that may arise from increased visitor pressures in particular on sensitive habitats and
	etation composition: cive indicator species	At least 2 positive indicator species e.g. bell heather (Erica cinerea) and Western gorse (Ulex gallii), with combined cover of at least 60%	Increased visitor pressure has potential to result in disturbance of habitat and changes to vegetation composition of negative and positive indicators	species. Consideration will be given at project level AA to the provision of ancillary facilities for example the provision of street furniture, cycle parking, car parks, lighting etc. Where it is
bryop	etation composition: phyte and non- cose lichen species	At least 2 bryophyte or non-crustose lichen species present	Increased visitor pressure has potential to result in disturbance of habitat and changes to vegetation composition: bryophyte and non-crustose lichen	determined that the provision of such features will result in impact on the qualifying interests of the site then alternatives should be considered prior to the completion of

		species	the design.
Vegetation composition: bracken (Pteridium aquilinum)	Cover of bracken (Pteridium aquilinum) less than 10%	Increased visitor pressure has potential to result in disturbance of habitat and changes to vegetation composition	Consideration of mitigation for the restriction of increased visitor numbers may require further investigation e.g. the provision of cycle facilities and car parking may be
Vegetation composition: weedy negative indicator species	Cover of agricultural weed species (negative indicator species) less than 1%	Increased visitor pressure has potential to result in disturbance of habitat and changes to vegetation structure	restricted and provided away from qualifying habitats and species.
Vegetation composition: non-native species	Cover of non-native species less than 1%	Disturbance to ground and the transport of invasive species on and between sites during construction may increase risk of invasive species. Increased visitor pressure has potential to result in disturbance of habitat and changes to vegetation composition	Appropriate surveys should be carried out prior to any development of cycle routes to identify if invasive alien species are present. If so an action plan will be drawn up to manage this issue.
Vegetation composition: rare/scarce heath species	No decline in distribution or population sizes of rare/scarce species, including protected species and betony (Stachys officinalis) and uncommon species juniper (Juniperus communis)	Increased visitor pressure has potential to result in disturbance of habitat and changes to vegetation composition	Any future development of the proposed cycle route will include an assessment of any impacts that may arise from increased visitor pressures in particular on sensitive habitats and species. Consideration will be given at project level AA to the provision of ancillary
Vegetation structure: disturbed bare ground	Cover of disturbed bare peat less than 5%	Increased visitor pressure has potential to result in increased potential or areas of bare ground	facilities for example the provision of street furniture, cycle parking, car parks, lighting etc. Where it is determined that the provision of
Vegetation structure: burning	No signs of burning within sensitive areas	Increased visitor pressures has potential to result in	such features will result in impact on the qualifying interests of the site

				Heath fires to occur.	then alternatives should be considered prior to the completion of the design. Consideration of mitigation for the restriction of increased visitor numbers may require further investigation e.g. the provision of cycle facilities and car parking may be restricted and provided away from qualifying habitats and species.
6430	To maintain the favourable conservati on condition of Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels in the River Barrow and River Nore SAC, which is defined by the followin	Habitat distribution Habitat area	No decline, subject to natural processes Area stable or increasing, subject to natural processes	Construction of the cycleways (K11) and increased visitor pressure has potential to result in disturbance to both habitat distribution and area.	Any future development of the proposed cycle route including works existing roadways should include assessment of any impacts that may arise as a direct (habitat or species destruction) and indirect (increased recreational/tourism pressure) impacts of the route on the sensitive habitats which include; Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels,.
	g list of attributes and targets:	Hydrological regime: Flooding depth/height of water table	Maintain appropriate hydrological regimes	Potential Impact on hydrological regime where cycleway is constructed close to the SAC	Design should consider the provision of protective measures on sites sensitive to disturbance/visitor pressure e.g. provision of physical barriers, hedgerows, any natural barriers or simply by not facilitating access onto the sensitive habitat. The design and construction of cycle routes shall comply with all relevant best practice guidelines for the protection of fish, otter and water quality.

		Vegetation structure: sward height Vegetation composition: broadleaf herb: grass ratio Vegetation composition: typical species Vegetation composition: negative indicator species	30-70% of sward is between 40 and 150cm in height Broadleaf herb component of vegetation between 40 and 90% At least 5 positive indicator species present Negative indicator species, particularly non-native invasive species, absent or under control-NB Indian balsam (Impatiens glandulifera), monkeyflower (Mimulus guttatus), Japanese Knotweed (Fallopia japonica) and giant hogweed (Heracleum mantegazzianum)	Potential impact on vegetation structure and composition during construction and also from increased visitor use in the area	Any future development of the proposed cycle route including works existing roadways should include assessment of any impacts that may arise as a direct (habitat or species destruction) and indirect (increased recreational/tourism pressure) impacts of the route on the sensitive habitats which include; Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels,. Consideration of mitigation for the restriction of increased visitor numbers may require further investigation e.g. the provision of cycle facilities and car parking may be restricted and provided away from the qualifying habitats. Appropriate surveys should be carried out prior to any development of cycle routes to identify if invasive alien species are present. If so an action plan will be drawn up to manage this issue
91E0	To restore the favoura ble conservation condit ion of Alluvial forests with Alnus glutinosa and Fraxinus excelsior(Habitat area	Area stable or increasing, subject to natural processes, at least 181.54ha for sites surveyed: see map 6	Potential for loss of habitat area and decline in habitat distribution as a result of the proposed route	Any future development of the proposed cycle route including works existing roadways should include assessment of any impacts that may arise as a direct (habitat or species
	Alno-Padion) in the Sla	Habitat distribution	No decline		destruction) and indirect (increased
	ney River Valley SAC, w	Woodland size	Area stable or increasing.	Potential for decrease in	recreational/tourism pressure)
	hich is defined by the f		Where topographically	woodland size as a result	impacts of the route on the sensitive
	ollowing list of attribut		possible, "large" woods at	of the proposed route	habitats which include; *Alluvial

es and targets:		least 25ha in size and "small"		forest with Alnus Glutinosa and
		woods at least 3ha in size		Fraxinus excelsior
	Woodland	Diverse structure	Potential for woodland	
	structure: cover	with a	structure to change as a	
	and height	relatively closed	result of proposed route	
		canopy		
		containing mature		
		trees;		
		subcanopy layer		
		with semi-		
		mature trees and		
		shrubs; and		
		well-developed		
		herb layer		
	Woodland	Maintain diversity and		
	structure:	extent		
	community	of community		
	diversity and	types		
	extent			
	Woodland	Seedlings, saplings and pole		
	structure: natural	age-classes occur in adequate		
	regeneration	proportions to		
		ensure survival		
		of woodland		
		canopy		
	Woodland	At least 30m³/ha of fallen		
	structure: dead	timber greater than 10cm		
	wood	diameter; 30 snags/ha; both		
		categories should		
		include stems greater than 40cm		
		diameter (greater		
		than 20cm diameter in the		
		case of alder)		
	Woodland	No decline		
	structure: veteran trees			
	Woodland	No decline		

structure: indicators of local disctinctiveness Vegetation composition: native tree cover Vegetation composition: typical species	No decline. Native tree cover not less than 95% A variety of typical native species present, depending on woodland type, including alder (Alnus glutinosa), willows (Salix spp) an d, locally, oak (Quercus robur) an d ash (Fraxinus	Potential impact on vegetation composition and spread of invasive and non-native species	Appropriate surveys should be carried out prior to any development of cycle routes to identify if invasive alien species are present. If so an action plan will be drawn up to manage this issue.
Vegetation composition: negative indicator species	excelsior) Negative indicator species, partic ularly non-native invasive species, absent or under control		
Hydrological regime: Flooding depth/height of water table	Appropriate hydrological regime necessary for maintenance of alluvial vegetation	Possible impact on hydrological regime during construction	A detailed hydrological assessment shall inform the design of any cycleways and also any works on floodplains and any areas that may have an impact on alluvial woodland exists, such that the habitats within 002162 SAC are protected.

The Murrough Wetlands SAC002249

Conservation Objectives Series: 18th July 2011

East Coast Greenway and Greenways that link W4 Interurban to the East Coast Greenway potentially directly impacting on the SAC.

Habitat	Conservation	Attribute	Target	Potential Impact	Mitigation
Code	Objective				
1210	Annual vegetation of	Habitat area	Area stable or increasing, subject	Extent of impact unknown	Any future development of the
	drift lines		to natural processes, including	due to lack of mapping	
	(adapted from		erosion and succession	data – precautionary	on existing roadways should include
	Carlingford Shore SAC	Habitat distribution	No decline, or change in habitat	approach – apply	3 2 2 3 3

	002306)		distribution, subject to natural	mitigation	assessment of any impacts that may arise as a direct (habitat or species
		Physical structure:	processes Maintain natural circulation of		destruction) and indirect (increased
		sediment supply	sediments and organic matter,		recreational/tourism pressure)
		Scamene supply	without any physical obstructions		impacts of the route on the sensitive
		Vegetation structure:	Maintain the range of coastal		habitats which include; Annual
		zonation	habitats including transitional		vegetation of drift lines.
			zones, subject to natural		
			processes including erosion and		
			succession		
		Vegetation composition:	Maintain the presence of species-		
		typical species and sub	poor communities. Typical		
		communities	species may include saltwort		
			(Salsola kali), sea rocket (Cakile		
			maritima), sea sandwort		
			(Honckenya peploides), sea		
			spurge (Euphorbia paralias) and		
			oraches (Atriplex species).		
		Vegetation composition:	Negative indicators (including		
		typical species and sub	non-native species) should		
		communities	represent less than 5% of the		
1000			vegetation cover.	5	
1220	To maintain the	Habitat area	Area stable or increasing,	Extent of impact unknown	Any future development of the
	favourable		subject to natural processes,	due to lack of mapping	proposed cycle route including works
	conservation condition of		including erosion and succession	data – precautionary	on existing roadways should include assessment of any impacts that may
	Perennial vegetation	Habitat distribution	No decline, subject to natural	approach – apply mitigation	arise as a direct (habitat or species
	of stony banks in The	Habitat distribution	processes	Initigation	destruction) and indirect (increased
	Murrough Wetlands	Physical structure:	Maintain the natural		recreational/tourism pressure)
	SAC002249which is	functionality and	circulation of		impacts of the route on the sensitive
	defined by the	sediment supply	sediment and		habitats which include;
	following attributes		organic matter,		Perennial vegetation
	and targets:		without any		of stony banks.
			physical obstructions		
	(derived from	Vegetation	Maintain the range of coastal		
	Castlemaine Harbour	structure: zonation	habitats including transitional		

	SAC Objectives and Targets SAC000343)	Vegetation	zones, subject to natural processes including erosion and succession. Maintain the presence of		
		composition: typical species and sub-communities	species-poor communities with typical species: Honckenya peploides, Beta vulgaris ssp. maritima, Crithmum maritimum, Tripleurospermum maritimum, Glaucium flavum and Silene uniflora		
		Vegetation composition: negative indicator species	Negative indicator species (including non-natives) to represent less than 5% cover		
1330	To maintain the favourable conservation conditions of Atlantic salt meadows (Glauco-Puccinellietalia maritimae) in The Murrough Wetlands SAC, which is defined	Habitat Area	Area stable or increasing, subject to natural processes, including erosion and succession. For sub-site mapped: Baldoyle - 11.98ha. See map 5	Potential loss of habitat area.	The route will have to demonstrate that there will be no adverse impact on the overall area of Atlantic salt meadows. Where this cannot be shown alternatives will have to be considered and where no alternatives are available it must be demonstrated that the project is of overriding public interest.
	by the following list of attributes and targets: (derived from Baldoyle SAC Objectives and Targets SAC000199)	Habitat Distribution	No decline, or change in habitat distribution, subject to natural processes.	Potential decline or change to habitat distribution	The route will have to demonstrate that there will be no adverse impact on the overall area of Atlantic salt meadows. Where this cannot be shown alternatives will have to be considered and where no alternatives are available it must be demonstrated that the project is of overriding public interest.
		Physical Structure: sediment supply	Maintain natural circulation of sediments and organic	There will be no physical obstruction as part of the	None

		T	1
	matter, without any physical	project that would result	
	obstructions	in change in circulation of	
		sediment and organic	
		matter	
Physical structure: creeks	Maintain/restore creek and	There will be no impact on	
and pans	pan structure to develop,	the natural processes of	
	subject to natural processes,	erosion and succession as	
	including erosion and	a result of this route.	
	succession		
Physical Structure:	Maintain natural tidal regime	There will be no change to	None
flooding regime		the tidal regime as a result	
		of the cycleway	
Vegetation structure:	Maintain the range of coastal	There will be no change to	None
zonation	habitats including transitional	vegetation structure:	
	zones, subject to natural	zonation as the route is	
	processes including erosion and	adjoining the SAC and not	
	succession	sever zones	
Vegetation structure:	Maintain structural variation	Potential impact on	The route will have to demonstrate
vegetation height	within sward	vegetation structure as a	that there will be no adverse impact
Vegetation structure:	Maintain more than 90% of	result of increased visitor	on the structural variation within the
vegetation cover	the area outside of the creeks	numbers	sward of Atlantic salt meadows.
regetation cover	vegetated		Where this cannot be shown
	regetatea		alternatives will have to be
			considered and where no alternatives
			are available it must be
			demonstrated that the project is of
			overriding public interest.
Vegetation composition:	Maintain range of	Potential impact on	The route will have to demonstrate
typical species and sub	subcommunities	vegetation composition as	that there will be no adverse impact
communities		a result of increased	on the vegetation composition within
communities	with typical species listed in the		
	Saltmarsh Monitoring Project	visitor numbers	the sward of Atlantic salt meadows.
	(McCorry		Where this cannot be shown
	and Ryle, 2009)		alternatives will have to be
			considered and where no alternatives
			are available it must be
			demonstrated that the project is of

					overriding public interest.
		Vegetation Structure: negative indicator species Spartina anglica	No significant expansion of common cordgrass (Spartina anglica), with an annual spread of less than 1%	Potential impact on vegetation structure as a result of increased visitor numbers	The route will have to demonstrate that there will be no potential to result in expansion of common cordgrass within the area of Atlantic salt meadows. Where this cannot be shown alternatives will have to be considered and where no alternatives are available it must be demonstrated that the project is of overriding public interest.
1330	To maintain the favourable conservation conditions of Atlantic salt meadows (Glauco-Puccinellietalia maritimae) in The Murrough Wetlands SAC, which is defined by the following list of attributes and targets:	Habitat Area	Area stable or increasing, subject to natural processes, including erosion and succession. For sub-site mapped: Baldoyle - 11.98ha. See map 5	Potential loss of habitat area.	The route will have to demonstrate that there will be no adverse impact on the overall area of Atlantic salt meadows. Where this cannot be shown alternatives will have to be considered and where no alternatives are available it must be demonstrated that the project is of overriding public interest.
1410	To Maintain the favourable conservation conditions of Mediterranean salt meadows (Juncetalia maritime) in The Murrough Wetlands SAC, which is defined	Habitat Area	Area stable or increasing, subject to natural processes, including erosion and succession.	Potential loss of habitat area.	The route will have to demonstrate that there will be no adverse impact on the overall area of Atlantic salt meadows. Where this cannot be shown alternatives will have to be considered and where no alternatives are available it must be demonstrated that the project is of overriding public interest.
	by the following list of attributes and targets	Habitat Distribution	No decline, or change in habitat distribution, subject to natural processes.	Potential decline or change to habitat distribution	The route will have to demonstrate that there will be no adverse impact on the overall area of Atlantic salt meadows. Where this cannot be shown alternatives will have to be

		1	1	
				considered and where no alternatives
				are available it must be
				demonstrated that the project is of
				overriding public interest.
	Physical Structure:	Maintain natural circulation of	There will be no physical	Non required
	sediment supply	sediments and organic	obstruction as part of the	
		matter, without any physical	project that would result	
		obstructions	in change in circulation of	
	Physical structure: cree	ks Maintain creek and	sediment and organic	
	and pans	pan structure, subject to natural	matter	
		processes,		
		including erosion and		
		succession		
	Physical Structure:	Maintain natural tidal regime	There will be no change to	
	flooding regime		the tidal regime as a result	
			of the cycleway	
	Vegetation structure:	Maintain the range of coastal	There will be no change to	
	zonation	habitats including transitional	vegetation structure:	
		zones, subject to natural	zonation as the route is	
		processes including erosion and	adjoining the SAC and not	
		succession	sever zones	
	Vegetation structure:	Maintain structural variation	Potentail impact on	The route will have to demonstrate
	vegetation height	within sward	vegetation structure	that there will be no adverse impact
	Vegetation structure:	Maintain more than 90% of]	on the structural variation within the
	vegetation cover	the area outside of the creeks		sward of Atlantic salt meadows.
		vegetated		Where this cannot be shown
				alternatives will have to be
				considered and where no alternatives
				are available it must be
				demonstrated that the project is of
				overriding public interest.
	Vegetation composition	n: Maintain range of	Potential impact on	The route will have to demonstrate
	typical species and sub	subcommunities	vegetation composition	that there will be no adverse impact
	communities	with typical	from increased visitor	on the vegetation composition within
		species listed in the Saltmarsh	numbers	the sward of Atlantic salt meadows.
		Monitoring Project (McCorry		Where this cannot be shown
L			<u> </u>	1111212 till talling to the till

			and Ryle, 2009)		alternatives will have to be considered and where no alternatives are available it must be demonstrated that the project is of overriding public interest.
7210	* Calcareous fens with Cladium mariscus and s pecies of the Caricion d avallianae	Habitat area	Area stable or increasing, subject to natural processes	Possible impact from increased visitors numbers on this particular habitat and its associated	Any future development of the proposed cycle route including works on existing roadways should include assessment of any impacts that may
		Habitat distribution	No decline, subject to natural processes	attributes. Also possible impact on hydrology.	arise as a direct (habitat or species destruction) and indirect (increased
		Hydrological regime	Appropriate natural hydrological regime necessary to support the natural structure and functioning of the habitat		recreational/tourism pressure) impacts of the route on the sensitive habitats which include; *Calcareous fens with Cladium mariscus and species of the Claricion davallianae.
		Peat formation	Active peat formation, where appropriate		Detailed hydrological assessment
		Water quality: Nutrients	Appropriate water quality to support the natural structure and functioning of the habitat		shall inform the design of the cycle routes such that the habitats within the SAC are protected.
		Vegetation composition: typical species	Maintain vegetation cover of typical species including brown mosses and vascular plants		Design should consider the provision of protective measures on sites sensitive to disturbance/visitor pressure e.g. provision of physical barriers, hedgerows, any natural barriers or simply by not facilitating
		Vegetation composition: trees and shrubs	Cover of scattered native trees and shrubs not more than than 10%		
		Physical structure: disturbed bare ground	Cover of disturbed bare ground not more than 10%. Where tufa is present, disturbed bare ground not more than 1%		access onto the sensitive habitat.
7230	To maintain the favourable	Physical structure: drainage	Areas showing signs of drainage as a result of		

conservation condition	Percentage	drainage ditches or heavy
of Alkaline Fens in The		trampling not more than
Murrough Wetlands		10%
SAC which is defined by		
the following attributes		
and targets:		
	Habitat	No decline, subject to
	distribution	natural processes
	Hydrological	Appropriate natural
	regime	hydrological regime
	rebine	necessary to support the
		natural structure and
		functioning of the habitat
	Peat formation	Active peat formation,
	reat formation	where appropriate
	Water quality:	Appropriate water quality
	nutrients	to support the natural
	nutrients	structure and functioning
		of the habitat
	Nonetation	
	Vegetation	Maintain vegetation cover
	composition:	of typical species including
	typical species	brown mosses and
		vascular plants
	Vegetation	Cover of scattered native
	composition: trees	trees and shrubs less than
	and shrubs	10%
	Physical structure:	Cover of disturbed bare
	disturbed bare	ground less than 10%.
	ground	Where tufa is present,
		disturbed bare ground less than
		1%
	Physical structure:	Areas showing signs of
	drainage	drainage as a result of
		drainage ditches or heavy
		trampling less than 10%

The Murrough Wetlands SPA004186

Conservation Objectives Series: 16th April 2012

Eastern Greenway directly adjoins and within the SPA.

Code	Conservation Objective	Attribute	Target	Potential Impact	Mitigation
Code	To maintain the favourable conservation condition of the Black Throated Loon (Gavia arctica) in the Murrough Wetlands SPA, which is defined by the following list of attributes and targets: (derived from Donegal Bay SPA004151 Objectives and Targets)	Population trend	Long term population trend stable or increasing	Loss of habitat, disturbance due to increased visitor pressure	Any future development of the proposed cycle route including works on existing roadways should include assessment of any impacts that may arise as a direct (habitat or species destruction) and indirect (increased recreational/tourism pressure) impacts of the route on the sensitive bird species that use the site which include the Black Throated Loon, Greylag Goose, Light-bellied Brent Geese, Wigeon, Shelduck, Blackheaded Gull, Herring Gull and the
		Range	no significant decrease in the range, timing or intensity of use of areas		little tern. Design should consider the provision
A043	To maintain the favourable conservation condition of Greylag Goose in the Murrough Wetlands SPA, which is defined by the following list of attributes and targets: (derived from Rogerstown Estuary SPA004015 Objectives and Targets)	Population trend Distribution	Long term population trend stable or increasing No significant decrease in the range, timing or intensity of use of areas by greylag goose, other than that occurring from natural patterns of variation		of protective measures on sites sensitive to disturbance/visitor pressure e.g. provision of physical barriers, hedgerows, any natural barriers or simply by not facilitating access onto the sensitive habitat. Signage in the form of information boards could be provided denoting the presence of Natura 2000 sites and the qualifying interests present, to promote respect of the sensitivity of the environs by recreational users.
A046	To maintain the favourable conservation	Population trend	Long term population trend stable or increasing		The timing of any construction works required as part of the development

	condition of Light-bellied Brent Geese(Branta bernicla hr ota [wintering])in the Murrough Wetlands SPA, which is defined by the following list of attributes and targets: (derived from Castlemaine Harbour SPA004029 Objectives and Targets)	Distribution	No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation	of any proposed route, that may cause disturbance to the qualifying species of the site, shall take place a a time of year that will not have an adverse impact on the bird population using the area (e.g. wintering wildfowl).
A050	To maintain the favourable conservation condition of Wigeon in the Murrough Wetlands SPA, which is defined by the following list of attributes and targets: (derived from Inner Galway Bay SPA SPA004031 Objectives and Targets)	Population trend Distribution	Long term population trend stable or increasing No significant decrease in the range, timing or intensity of use of areas by wigeon, other than that occurring from natural patterns of variation.	
A048	To maintain the favourable conservation condition of Shelduck in the Murrough Wetlands SPA, which is defined by the following list of attributes and targets: (derived from Rogerstown Estuary	Population trend Distribution	Long term population trend stable or increasing No significant decrease in the range, timing or intensity of use of areas by shelduck, other than that occurring from natural patterns of variation	

	SPA004015 Objectives and Targets)				
A179	To maintain the favourable conservation condition of Blackheaded Gull in Murrough Wetlands SPA which is defined by the following list of attributes and targets: (derived from Inner Galway Bay SPA Objectives and TargetsSPA004031)	Population trend Distribution	Long term population trend stable or increasing There should be no significant decrease in the range, timing and intensity of use of areas used by black-headed gull other than that occurring from natural patterns of variation.		
A184	To maintain the favoura ble conservation conditi on of Herring Gull in the Murrough Wetlands SPA, which is defined by the following list of attributes and targets: (derived from River Nanny Estuary and Shore SPA004158 Objectives and Targets)	Population trend Distribution	Long term population trend stable or increasing No significant decrease in the range, timing or intensity of use of areas by black-tailed godwit, other than that occurring from natural patterns of variation		
A195	To maintain the favourable conservation condition of Little Tern in the Murrough Wetlands SPA,	Breeding population abundance: apparently occupied nests	No significant decline	Potential impact on the breeding population, nesting habitat, distribution and productivity rate of the	Any future development of the proposed cycle route including works on existing roadways should include assessment of any impacts that may arise as a direct (habitat or species

	which is defined by the following list of attributes and targets: (derived from Boyne Estuary SPA 004080 Objectives and Targets)	(AONs) Productivity rate: fledged young per breeding pair Distribution: breeding colonies Barriers to	No significant decline No significant decline No significant decline	Little Tern as a result of increased visitor numbers in area	destruction) and indirect (increased recreational/tourism pressure) impacts of the route on the sensitive bird species that use the site which include the little tern.
		connectivity Prey biomass available	No significant decline	None	
A999	To maintain the favourable conservation condition of wetland habitat in Murrough Wetlands SPA as a resource for the regularly occurring migratory waterbirds that utilise it. This is defined by the following attribute and target: (derived from Boyne Estuary SPA Objectives	Habitat area	The permanent area occupied by the wetland habitat should be stable.	Potential loss of wetland habitat through direct loss of land or though changes to drainage regime	Design should consider the provision of protective measures on sites sensitive to disturbance/visitor pressure e.g. provision of physical barriers, hedgerows, any natural barriers or simply by not facilitating access onto the sensitive habitat. The timing of any construction works required as part of the development of any proposed route, that may cause disturbance to the qualifying species of the site, shall take place at a time of year that will not have an
	and TargetsSPA004080)				adverse impact on the bird population using the area (e.g. wintering wildfowl).

Mount Hevey Bog SAC 002342 Conservation Objectives Series: 18th July 2011 Adjoining the Dublin to Galway cycleway at the Royal Canal, Greenway Route – K1/N2 Habitat **Conservation Objective** | Attribute Target **Potential Impact** Mitigation Code 7110 To maintain or restore None available at time of None available at time of review Potential impact Detailed hydrological assessment the favourable review hydrology if construction

	conservation condition of the Annex I habitatfor which the SAC has been selected: Active Raised Bog		of route is required close to edge of bog. Potential also for increased visitor numbers	shall inform the design of the cycle routes such that the habitats within the SAC are protected. Any future development of the
7120	Degraded raised bogs s till capable of natural re generation		to site due to improved access.	proposed cycle route should include assessment of any impacts that may arise as a direct (habitat or species
7150	Depressions on peat su bstrates of the Rhyncho sporion			destruction) and indirect (increased recreational/tourism pressure) impacts of the route on the sensitive habitats which include; *Active raised bogs, Degraded raised bogs still capable of natural regeneration and Depressions on peat substrates of the <i>Rhynchosporion</i> .
			Signage in the form of information boards could be provided denoting the presence of Natura 2000 sites and the qualifying interests present, to promote respect of the sensitivity of the environs by recreational users.	

River Nanny Estuary and Shore. Conservation Objectives Series: 21st Sept. 2012

Eastern Greenway M1/N5 adjoin and within SPA.

Habitat Code	Conservation Objective	Attribute	Target	Potential Impact	Mitigation
A130	To maintain the favour able conservation cond ition of Oystercatcher	Population trend	Long term population trend stabl e or increasing	Decline in population as a result of disturbance from increased visitor pressure	Any future development of the proposed cycle route including works on existing roadways should include
	(A130), Ringed Plover (A137), Golden Plover (A140), Knot (A143),	Distribution	There should be no significant de crease in the range, timing or inte nsity of use of areas by the	Decrease in use of the area by the conservation interest species due to	assessment of any impacts that mararise as a direct (habitat or specie

	Sanderling (A144), Herring Gull (A184) in River Nanny Estuary and Shore SPA, which is defined by the following list of attribu tes and targets:		relevant bird other than that occurr tural patterns of varia	-	increased visitor pressure	destruction) and indirect (increased recreational/tourism pressure) impacts of the route on the sensitive bird species that use the wetland site.
A999	To maintain the favour able conservation cond ition of the wetland habitat in River Nanny Estuary and Shore SPA as a resource for the regularly-occurring migratory waterbirds that utilise it. This is defined by the following attribute and target:	Wetland habitat	The permanent area of the wetland habitat she stable with no other than that occurr result of natural patte variation.	decrease ing as a	Potential loss of wetland habitat through direct loss of land or though changes to drainage regime.	Design should consider the provision of protective measures on sites sensitive to disturbance/visitor pressure e.g. provision of physical barriers, hedgerows, any natural barriers or simply by not facilitating access onto the habitat, that the bird species use. Signage in the form of information boards could be provided denoting the presence of Natura 2000 sites and the qualifying interests present, to promote respect of the sensitivity of the environs by recreational users. The timing of any construction works required as part of the development of any proposed route, that may cause disturbance to the qualifying species of the site, shall take place at a time of year that will not have an adverse impact on the bird population using the area (e.g. wintering wildfowl).

Wicklow Mountains SPA 004040

Conservation Objectives Series: 16th Apr 2013 (Generic)

No greenway proposed in proximity to SPA.

Code	Conservation Objective	Attribute	Target	Potential Impact	Mitigation
	To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA which include Falco columbarius	Population Trend Distribution	Long term population trend stable or increasing No significant decrease in	Increased visitor numbers using the site as a result of the new cycle route may disturb the bird population in the area which may have an impact on their population trends and distribution	Any future development of the proposed cycle route including works on existing roadways should include assessment of any impacts that may arise as a direct (habitat or species destruction) and indirect (increased recreational/tourism pressure) impacts of the route on the sensitive
	(Merlin) and Perigrine Falcon	Distribution	the range, timing and intensity of use of areas by the conservation interest species as listed, other than that occurring from natural patterns of variation		bird species that use the mountainous site. Design should consider the provision of protective measures on site sensitive to disturbance/visito pressure e.g. provision of physica barriers, hedgerows, any natura barriers or simply by not facilitating access onto the habitats that the bird species use.
					Signage in the form of information boards could be provided denoting the presence of Natura 2000 sites and the qualifying interests present, to promote respect of the sensitivity of the environs by recreational users.

Poulaphouca Reservoir SPA 004063

Conservation Objectives Series: 16th Apr. 2013

No greenways proposed in proximity to SPA. Interurban W10 within the SPA. need for further consideration in terms of disturbance to birds.

Code	Conservation Objective		Target	Potential Impact	Mitigation
A043	To maintain the favourable conservation condition of Greylag Goose in Poulaphouca Reservoir SPA, which is defined by the following list of attributes and targets: (derived from Rogerstown Estuary SPA004015 Objectives and Targets)	Distribution	Long term population trend stable or increasing No significant decrease in the range, timing or intensity of use of areas by greylag goose, other than that occurring from natural patterns of variation	Disturbance from increased visitor pressure in area	Any future development of the proposed cycle route including work on existing roadways should include assessment of any impacts that may arise as a direct (habitat or specie destruction) and indirect (increased recreational/tourism pressure impacts of the route on the sensitive bird species that use the site. Design should consider the provision of protective measures on site sensitive to disturbance/visito
	To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA including Lesser Black-backed Gull (Larus fuscus) – No detailed conservation objectives available for this species.	Population trend Distribution	Long term population trend stable or increasing No significant decrease in the range, timing or intensity of use of areas by greylag goose, other than that occurring from natural patterns of variation	Disturbance from increased visitor pressure in area	pressure e.g. provision of physical barriers, hedgerows, any natural barriers or simply by not facilitating access onto the habitats that the bird species use. Signage in the form of information boards could be provided denoting the presence of Natura 2000 sites and the qualifying interests present, to promote respect of the sensitivity of the environs by recreational users.