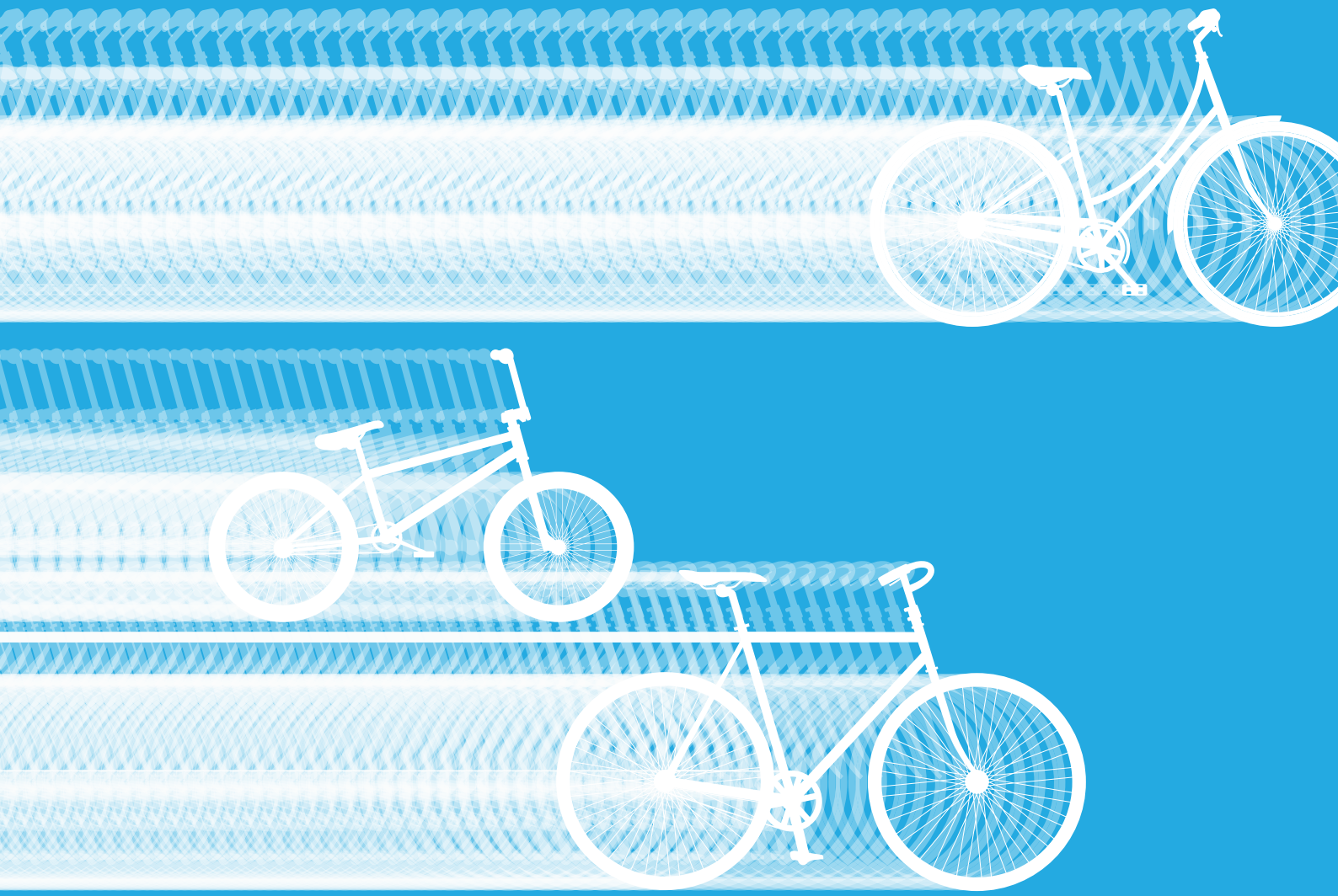
Údarás
Náisiúnta Iompair
National **Transport** Authority

Greater Dublin Area

Cycle Network Plan

Appropriate Assessment - Natura Impact Statement



Greater Dublin Area Cycle Network

Natura Impact Assessment

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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 (*Cratoneurion*) 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 vitulina*	
001209	Glenasmole Valley	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 *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*) Old sessile oak woods with *Ilex* and *Blechnum* 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 *Lampetra 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 *Margaritifera durrovensis*	
002249	The Murrough Wetlands	Annual vegetation of drift lines Perennial vegetation of stony banks Atlantic salt meadows (Glauco-Puccinellietalia	East Coast Greenway and Greenways that link W4 Interurban to the East Coast Greenway potentially directly impacting on the SAC. Potential for direct impact on habitats. 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 hirundo* *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 Code and Designation
Baldoyle Bay	000199 – SAC 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.

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 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 Code and Designation
Howth Head	000202 - SAC

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 Code and Designation
Malahide Estuary	000205 – SAC 004025 - 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 Code and 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)

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 Light-bellied Brent Goose, Shelduck, Teal, Pintail, Shoveler, Oystercatcher, Golden Plover, Grey Plover, Knot, Sanderling, Dunlin, Black-tailed Godwit, Bar-tailed Godwit, Curlew, Redshank, Turnstone, Black-headed Gull 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 Designation
Rogerstown Estuary	000208 - SAC 004015 - SPA

Proposed Cycle Routes

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.

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 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
South Dublin Bay	000210 - SAC

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 Tolka Estuary	004024 - SPA

Proposed Cycle Routes

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

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 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 Code and Designation
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 Code and Designation
Ballyman Glen	000713 - SAC

Proposed Cycle Routes

Route – W2 Inter-Urban

Mitigation Measures Proposed for SAC

- 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 Code and Designation
Bray Head	000714 - SAC

Proposed Cycle Routes

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 Code and Designation
Buckroney-Brittas Dunes and Fen	000729 - SAC

Proposed Cycle Routes

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

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 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 Code and Designation
Vale of Clara (Rathdrum Wood)	000733 - SAC

Proposed Cycle Routes

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

Mitigation Measures Proposed for SAC

- 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 *Callitricho-Batrachion* 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 Code and Designation
Glenasmole Valley	001209 - SAC

Proposed Cycle Routes

Greenway Route – Dodder Greenway
Routes - Inter-Urban D3

Mitigation Measures Proposed for SAC

- 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, Semi-natural 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 Code and Designation
Rye Water Valley / Carton	001398 - SAC

Proposed Cycle Routes

Greenway Route – K1/N2
Routes - L1 and C7 primary / secondary feeder

Mitigation Measures Proposed for SAC

- 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 Code and Designation
Kilpatrick Sandhills	001742 - SAC

Proposed Cycle Routes

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

Mitigation Measures Proposed for SAC

- 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 Code and Designation
Magherabeg Dunes	001766 - SAC

Proposed Cycle Routes

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 Code and Designation
Boyne Coast and Estuary	001957 - SAC

Proposed Cycle Routes

Greenway Route – M1/N5 (East Coast Trail)

Mitigation Measures Proposed for SAC

- 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, 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 Code and Designation
Boyne Estuary	004080 - SPA

Proposed Cycle Routes

Greenway Route – Boyne Greenway and M1/N5 Greenway

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, 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 and Designation
River Boyne and River Blackwater	002299 - SAC 004232 - SPA

Proposed Cycle Routes

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 Code and Designation
River Barrow and River Nore	002162 - 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 Code and Designation
The Murrough Wetlands	002249 - SAC

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 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 Code and Designation
The Murrough	004186 - 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 Code and Designation
Mount Hevey Bog	002342 - SAC

Proposed Cycle Routes

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 Code and Designation
River Nanny Estuary and Shore	004158 - SPA

Proposed Cycle Routes

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

Proposed Cycle Routes

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 and Designation
Poulaphouca Reservoir	004063 – SPA

Proposed Cycle Routes

Routes – W10 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 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 in-combination 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 in-combination 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, SPA and Tolka Estuary SPA	Dún Laoghaire Rathdown County Development Plan Dublin City Development Plan
Boyne Coast and Estuary	Meath County Development Plan
River Boyne SAC	Meath County Development Plan
Rye Water Valley / Carton SAC	Leixlip Local Area Plan

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 Iarnród 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).

GC27

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.

93 – 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.

NH OBJ 3 – 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, in-combination 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 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 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 *Angulus tenuis* community complex; and Estuarine sandy mud with *Pugospio elegans* and *Tubificoides benedii* 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 in Baldoyle 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.	There will be no loss of Salicornia habitat as the route is not in direct proximity to the habitat	None
		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
		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: 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	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.
		Vegetation structure: vegetation cover	Maintain more than 90% of area outside creeks vegetated	Potential for changes to vegetation structure due to increased visitor pressure	
		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	
		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 Baldoyle Bay SAC, which is	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

	defined by the following list of attributes and targets:				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 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 sward of Atlantic salt meadows or the vegetation cover outside of the creek area. Where this cannot be shown alternatives will have to be
		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	

					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 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 conditions of Mediterranean salt meadows (Juncetalia maritime) in Baldoyle 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.	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 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, including erosion and succession	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	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 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 structure: vegetation cover	Maintain more than 90% of the area outside of the creeks vegetated		

		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,	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 habitats and species. Interrelationships between Natura 2000 sites in particular for bird

	which is defined by the following list of attributes and targets:				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).
		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 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).

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:	Habitat Area	The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 263ha, 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	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 the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected: Vegetated sea cliffs of the Atlantic and Baltic coasts. (derived from Lower River Shannon SAC Objectives and Targets)	Habitat length	Area stable or increasing, subject to natural processes, including erosion.	Given the nature and location of vegetated sea cliffs there will be no direct impact from the proposed greenway on this habitat type resulting in loss of habitat size, function or structure.	None
		Habitat distribution	No decline, subject to natural processes		
		Physical structure: functionality and hydrological regime	No alteration to natural functioning of geomorphological and hydrological processes due to artificial structures		
		Vegetation structure: zonation	Maintain range of sea cliff habitat zonations including transitional zones, subject to natural processes including erosion and succession		
		Vegetation structure: vegetation height	Maintain structural variation within sward		
		Vegetation composition typical species and sub-communities	Maintain range of subcommunities with typical species listed in the Irish Sea cliff survey		

		Vegetation composition: negative indicator species	Negative indicator species (including non-natives) to represent less than 5% cover		
		Vegetation composition: bracken and woody species	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	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	Area stable or increasing, subject to natural processes	Potential for loss of habitat area as a result of the proposed route	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.
		Habitat distribution	No decline from current habitat distribution, subject to natural processes	Direct impact on habitat through construction of cycle route	
		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. 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: 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 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 structure: browsing	Long shoots of bilberry (Vaccinium myrtillus) with signs of browsing should be controlled	No potential impact	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 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: 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	
		Vegetation composition: bryophyte and non-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	
		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. 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 structure: disturbed bare ground	Cover of disturbed bare peat less than 5%	Increased visitor pressure has potential to result increased potential or areas of bare ground	
		Vegetation structure: burning	No signs of burning within sensitive areas	Increased visitor pressures has potential to result in Heath fires to occur	

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 in Malahide Estuary 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: 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
		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 in close proximity to Salicornia habitats	
		Vegetation structure: vegetation height	Maintain structural variation within sward	Potential for changes to vegetation structure due to increased visitor pressure	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.
		Vegetation structure: vegetation cover	Maintain more than 90% of area outside creeks vegetated	Potential for changes to vegetation structure due to increased visitor pressure	
		Vegetation composition: typical species and subcommunities	Maintain the presence of species-poor communities listed in SMP (McCorry and Ryle, 2009)	Potential for changes to vegetation structure due to increased visitor pressure	
		Vegetation structure: negative indicator species - Spartina anglica	No significant expansion of common cordgrass (Spartina anglica). No new sites for this species and an annual spread of less than 1% where it is already known to occur	Potential for changes to vegetation structure due to increased visitor pressure	
1320	Spartina swards (Spartinion maritimae) was originally listed as a 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	Non prepared	Non prepared		It is not necessary to assess the likely effects of plans or projects against this Annex I habitat at this site.

	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*				
1330	To restore the favourable conservation condition of Atlantic salt meadows (Glauco-Puccinellietalia maritimae) in Malahide Estuary 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.	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 necessary for Imperative Reasons of Overriding Public Interest.
		Habitat distribution	No decline or change in habitat distribution, subject to natural processes. See map 5 for known distribution	Potential decline or change to habitat distribution	
		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 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 structure: vegetation cover	Maintain more than 90% area outside creeks vegetated	Potential change to vegetation structure from increased visitor numbers	
		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 attributes and targets:	Habitat area	Area stable or increasing, subject to natural processes, including erosion and succession. For sub-site 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.
		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 cycleway	
		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 range of saltmarsh 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 will not sever zones	None required
		Vegetation structure: vegetation height	Maintain structural variation in the 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 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: vegetation cover	Maintain more than 90% of area outside creeks vegetated		
		Vegetation composition: typical species and subcommunities	Maintain range of subcommunities With characteristic species listed in SMP (McCorry and Ryle, 2009)		The route will have to demonstrate that there will be no adverse impact on the vegetation composition within 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: 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		The route will have to demonstrate that there will be no potential to result in expansion of common cordgrass in Mediterranean salt 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 Ammophila arenaria ('white dunes') in Malahide Estuary 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. 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
		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 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 lyme-grass (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 vegetation ('grey dunes') in Malahide Estuary 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. 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
		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	cycleway	
		Vegetation structure: sward height	Maintain structural variation within sward	There will be no impact on structural variation in the area as a result of the cycleway	None required
		Vegetation composition: typical species and subcommunities	Maintain range of subcommunities with typical species listed in Ryle et al. (2009)	There will be no impact on the range of subcommunities as a result of the cycleway	None required
		Vegetation composition: negative indicator species (including Hippophae rhamnoides)	Negative indicator species (including non-natives) to represent less than 5% cover	There will be no impact on the spread of negative indicator species as a result of the cycleway	None required
		Vegetation composition: scrub/trees	No more than 5% cover or under control	There will be no increase in the percentage of scrub/trees as a result of the cycleway	None required

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), Red-breasted Merganser (A069), Oystercatcher (A130), Grey Plover	Population trend	Long term population trend stable or increasing	Decline in population as a result of disturbance from 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
		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	Decrease in use of the area by the conservation interest species due to increased visitor pressure	

	(A141), Knot Calidris canutus (A143), Dunlin (A149), Black-tailed Godwit (A156), Bar-tailed Godwit (A157), Redshank (A162) in Malahide Estuary SPA, which are defined by the following list of attributes and targets:				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 Malahide 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 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. 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	The permanent habitat area is stable or increasing, subject to natural process	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 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
		Community Distribution	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	
1210	Annual vegetation of drift lines (adapted from Carlingford Shore SAC 002306)	Habitat area	Area stable or increasing, subject to natural processes, including erosion and succession	No Impact	
		Habitat distribution	No decline, or change in habitat distribution, subject to natural	No Impact	

[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.

			processes		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.
		Physical structure: sediment supply	Maintain natural circulation of sediments 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. 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	
		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 and other annuals colonizing mud and sand in North Dublin Bay SAC, which is defined by the following list of attributes and targets: (derived from Baldoyle SAC 000199 Conservation Objectives)	Habitat area	Area stable or increasing, subject to natural processes, including erosion and succession.	No Impact	
		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: Occurrence creeks and pans	Maintain creek and pan structures, 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	No Impact	

			including erosion and succession		
		Vegetation structure: height	Maintain structural variation within sward	No Impact	
		Vegetation structure: vegetation cover	Maintain more than 90% of area outside creeks vegetated		
		Vegetation composition: typical species and sub communities	Maintain the presence of species-poor communities with typical species listed in the Saltmarsh Monitoring Project	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%	No Impact	
1330	To maintain the favourable conservation conditions of Atlantic salt meadows (Glauco-Puccinellietalia maritimae) 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	
		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	
1395	To maintain the favourable conservation condition of Petalophllum Ralfsil in North Dublin Bay SAC, which is defined by the following list of attributes and targets:	Distribution of populations	No decline. Maintain at least current number of populations	No Impact	
		Population size	No decline	No Impact	
		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, 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: Malahide Estuary - 0.64ha. See map 5	No Impact	
		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 Ammophila arenaria ('white 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	
		Habitat distribution	No decline, or change in habitat distribution, 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: 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	Maintain the presence of species-poor communities dominated by marram grass (Ammophila arenaria) and/or lymegrass (Leymus arenarius)	No Impact	
		Vegetation composition: negative indicator species	Negative indicator species (including non-natives) to represent less than 5% cover	No Impact	
2130	To restore the favourable conservation condition of Fixed coastal dunes with herbaceous vegetation ('grey 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	
		Habitat distribution	No decline, or change in habitat distribution, 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 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)	(including non-natives) to represent less than 5% cover		
		Vegetation composition: scrub/trees	No more than 5% cover or under control	No Impact	
2190	To maintain the favourable conservative condition of humid dune slacks in North Dublin Bay which is defined by the following attributes and targets:	Habitat area	Area stable or increasing, subject to natural processes including erosion and succession.	No Impact	
		Habitat distribution	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	
		Physical structure: hydrological and flooding regime	Maintain natural hydrological 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: bare ground	Bare ground should not exceed 5% of dune slack habitat, with the exception of pioneer slacks which can have up to 20% bare ground	No Impact	
		Vegetation structure: vegetation height	Maintain structural variation within sward	No Impact	
		Vegetation composition:	Maintain range of subcommunities with typical	No Impact	

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

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 Code	**Conservation Objective**	**Attribute**	**Target**	**Potential Impact**	**Mitigation**
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	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 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
		Distribution	No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation		
A048	To maintain the favourable conservation	Population trend	Long term population trend stable or increasing	Decline in population and distribution due to	

	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	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.
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	Long term population trend stable or increasing	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 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).
		Distribution	No significant decrease in the range, timing or intensity of use of areas by teal, other than that occurring from natural patterns of variation		
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	Long term population trend stable or increasing	Decline in population and distribution due to increased disturbance form visitor pressure	
		Distribution	No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation		
A056	To maintain the favourable conservation condition of Shoveler in	Population trend	Long term population trend stable or increasing	Decline in population and distribution due to increased disturbance	
		Distribution	No significant decrease in the		

	North Bull Island SPA, which is defined by the following list of attributes and targets: (derived from Rogerstown Estuary SPA004015 Objectives and Targets)		range, timing or intensity of use of areas by shoveler, other than that occurring from natural patterns of variation	form visitor pressure	
A130	To maintain the favourable conservation condition of Oystercatcher (Haematopus ostralegus [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	Long term population trend stable or increasing	Decline in population and distribution due to increased disturbance form visitor pressure	
		Distribution	No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation		
A140	To maintain the favourable conservation condition of Golden Plover in North Bull Island, which is defined by the following list of attributes and targets: (derived from Boyne Estuary SPA004080 Objectives and Targets)	Population trend	Long term population trend stable or increasing	Decline in population and distribution due to increased disturbance form visitor pressure	
		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		
A141	To maintain the favourable conservation	Population trend	Long term population trend stable or increasing	Decline in population and 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	Long term population trend stable or increasing	Decline in population and distribution due to increased disturbance form visitor pressure	
		Distribution	No significant decrease in the range, timing or intensity of use of areas by knot, other than that occurring from natural patterns of variation		
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	Long term population trend stable or increasing	Decline in population and distribution due to increased disturbance form visitor pressure	
		Distribution	No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation		
A149	To maintain the favourable conservation condition of Dunlin in	Population trend	Long term population trend stable or increasing	Decline in population and distribution due to increased disturbance	
		Distribution	No significant decrease in		

	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	Long term population trend stable or increasing	Decline in population and distribution due to increased disturbance form visitor pressure	
		Distribution	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		
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	Long term population trend stable or increasing	Decline in population and distribution due to increased disturbance form visitor pressure	
		Distribution	No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation		

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 Objectives and Targets)	Population trend	Long term population trend stable or increasing	Decline in population and distribution due to increased disturbance form visitor pressure	
		Distribution	No significant decrease in the numbers or range of areas used by curlew, other than that occurring from natural patterns of variation		
A162	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	Long term population trend stable or increasing	Decline in population and distribution due to increased disturbance form visitor pressure	
		Distribution	No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation		
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	Long term population trend stable or increasing	Decline in population and distribution due to increased disturbance form visitor pressure	
		Distribution	No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation		
A179	To maintain the	Population trend	Long term population trend	Decline in population and	

	favourable conservation condition of Black-headed Gull in South Dublin Bay and River Tolka Estuary SPA which is defined by the following list of attributes and targets: (derived from Inner Galway Bay SPA Objectives and TargetsSPA004031)		stable or increasing	distribution due to increased disturbance form visitor pressure	
		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 in North Bull Island 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 and Targets SPA004080)	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	No Impact likely as cycle route will not require landtake or cause changes to drainage regime of site	Non required

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 Code	**Conservation Objective**	**Attribute**	**Target**	**Potential Impact**	**Mitigation**
1130	To maintain the favourable conservation condition of Estuaries in Rogerstown 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 Estuaries in Rogerstown including Zostera-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 demonstrated that the project is of overriding public interest. Any future development of the proposed cycle routes will include assessment of any impacts that may arise from increased visitor pressures, in particular on this sensitive habitat.
		Community extent	Maintain the extent of the Zostera-dominated community and the Mytilus edulis-dominated community, subject to natural processes	Loss of Community extent	
		Community structure: Zostera density	Conserve the high quality of the Zostera-dominated community, subject to natural processes	Harm to community structure - Zostera density	
		Community structure: Mytilus edulis density	Conserve the high quality of the Mytilus edulis dominated community, subject to natural processes	Harm to community structure - Mytilus edulis density	
		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	

1140	To maintain the favourable conservation condition of Mudflats and sandflats not covered by seawater at low tide in Rogerstown 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 the Mudflats and sandflats not covered by seawater at low tide in Rogerstown Estuary. 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. Any future development of the proposed cycle routes will include assessment of any impacts that may arise from increased visitor pressures, in particular on this sensitive habitat.
		Community extent	Maintain the extent of the Zostera-dominated community and the Mytilus edulis-dominated community, subject to natural processes. See map 5	Loss of Community extent	
		Community structure: Zostera density	Conserve the high quality of the Zostera-dominated community, subject to natural processes	Harm to community structure - Zostera density	
		Community structure: Mytilus edulis density	Conserve the high quality of the Mytilus edulisdominated community, subject to natural processes	Harm to community structure - Mytilus edulis density	
		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	
1310	To maintain the favourable conservation condition of Salicornia and other annuals colonizing mud and sand in Rogerstown Estuary SAC, which is defined by the following list	Habitat area	Area stable or increasing, subject to natural processes, including erosion and succession. For sub-site mapped: Rogerstown Estuary 0.90ha	Loss of habitat area	The route will have to demonstrate that there will be no adverse impact on the overall area and condition of Salicornia and other annual colonizing mud and sand in Rogerstown Estuary. Where this cannot be shown alternatives will have to be considered and where no
		Habitat distribution	No decline, or change in habitat distribution, subject to natural processes	Impact on habitat distribution due to potential impacts on	

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

1410	To Maintain the favourable conservation conditions of Mediterranean salt meadows (Juncetalia maritime) in Rogerstown Estuary 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 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. Any future development of the proposed cycle routes will include assessment of any impacts that may arise from increased visitor pressures, in particular on this sensitive habitat.
		Habitat Distribution	No decline, or change in habitat distribution, subject to natural processes.	Potential decline or change to habitat distribution	
		Physical Structure: sediment supply	Maintain natural circulation of sediments and organic matter, without any physical obstructions	Change in circulation of sediment and organic matter as a result of floating bridge structure	
		Physical structure: creeks and pans	Maintain creek and pan structure, subject to natural processes, including erosion and Succession.	Impact on creek and pan structure due to possible impact on natural processes.	
		Physical Structure: flooding regime	Maintain natural tidal regime	Potential change to natural tide regime	
		Vegetation structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession.	potential change to vegetation structure: zonation as one option for the route proposes a floating bridge through the SAC	The route will have to demonstrate that there will be no adverse impact on the vegetation structure within the sward of
		Vegetation structure: vegetation height	Maintain structural variation within sward.	Impact on Structural variation	
		Vegetation structure: vegetation cover	Maintain more than 90% of the area outside of the creeks vegetated.	Impact on vegetation cover of the area outside the creeks vegetation	
		Vegetation composition: typical species and sub communities	Maintain range of subcommunities with typical species listed in the Saltmarsh Monitoring Project (McCorry and Ryle, 2009).	Impact on subcommunities	The route will have to demonstrate that there will be no adverse impact on the vegetation composition within 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: 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	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 ('white dunes') in Rogerstwon Estuary 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. 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') in Rogerstwon Estuary SAC. 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. Any future development of the proposed cycle routes will include assessment of any impacts that may arise from increased visitor pressures, in particular on this sensitive habitat.
		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	
		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	
		Vegetation structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	Impact on transitional zones	
		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: typical species and subcommunities	Maintain the presence of species-poor communities dominated by marram grass (Ammophila arenaria) and/or lymegrass (Leymus arenarius)	Impact on species poor communites dominated by marram grass and/or lymegrass	
		Vegetation composition: negative indicator species	Negative indicator species (including non-natives) to represent less than 5% cover	Increase in negative indicator species	
2130	To restore the favourable conservation condition of Fixed coastal dunes with herbaceous vegetation ('grey dunes') in Rogerstwon Estuary , which is defined by the following list of attributes and targets:	Habitat area	Area increasing, subject to natural processes including erosion and succession. For sub-sites mapped: Rush - 3.24ha; Portrane - 5.13ha	Loss of habitat area	The route will have to demonstrate that there will be no adverse impact on the overall habitat of the Fixed coastal dunes with herbaceous vegetation ('grey dunes') in Rogerstwon Estuary. 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.	Decline or change in habitat distribution	
		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 due to floating bridge	The route will have to demonstrate that there will be no adverse impact on the natural circulation of sediment 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: zonation	Maintain the range of coastal habitats including transitional zones, subject	Impact on transitional zones	The route will have to demonstrate that there will be no adverse impact on the vegetation structure and

			to natural processes including erosion and succession		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 overriding public interest.
		Vegetation structure: bare ground	Bare ground should not exceed 10% of fixed dune habitat, subject to natural processes	Bare ground to increase to above 10%	
		Vegetation structure: sward height	Maintain structural variation within sward	Structural variation impacted	
		Vegetation composition: typical species and sub-communities	Maintain a range of sub-communities with typical species listed in Ryle et al (2009)	Decrease in typical sub - community species	
		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.					
Habitat Code	**Conservation Objective**	**Attribute**	**Target**	**Potential Impact**	**Mitigation**
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	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 habitats and species. Interrelationships between Natura
		Distribution	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		
A046	To maintain the favourable conservation	Population trend	Long term population trend stable or increasing		

	condition of Light-bellied Brent Goose 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 light-bellied brent goose, other than that occurring from natural patterns of variation		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).
A048	To maintain the favourable conservation condition of Shelduck in Rogerstown Estuary SPA, which is defined by the following list of attributes and targets:	Population trend	Long term population trend stable or increasing		
		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		
A056	To maintain the favourable conservation condition of Shoveler in Rogerstown Estuary SPA, which is defined by the following list of attributes and targets:	Population trend	Long term population trend stable or increasing		
		Distribution	No significant decrease in the range, timing or intensity of use of areas by shoveler, other than that occurring from natural patterns of variation		
A130	To maintain the favourable conservation condition of Oystercatcher in Rogerstown Estuary SPA, which is defined by the following list of attributes and targets:	Population trend	Long term population trend stable or increasing		
		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		
A137	To maintain the favourable conservation condition of Ringed Plover in Rogerstown Estuary	Population trend	Long term population trend stable or increasing		
		Distribution	No significant decrease in the range, timing or intensity of use of areas by		

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

A162	To maintain the favourable conservation condition of Redshank in Rogerstown Estuary SPA, which is defined by the following list of attributes and targets:	Population trend	Long term population trend stable or increasing		
		Distribution	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		
A999	To maintain the favourable conservation condition of wetland habitat in Rogerstown 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 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 sandflats not covered by seawater at low tide in South Dublin 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, including the Zostera dominated community and Angulus tenuis community complex. Where this cannot be shown alternatives will have to be considered and where no
		Community Extent	Maintain the extent of the Zostera-dominated community, subject to natural processes.	Decrease in zostera dominated community	
		Community structure: Zostera	Conserve the high quality of the Zostera-dominated	Decrease in zostera dominated community	

		density	community, subject to natural processes		alternatives are available it must be demonstrated that the project is of overriding public interest.
		Community distribution	Conserve the following community type in a natural condition: Fine sands with Angulus tenuis community complex	Decrease in the condition of the Fine sands with Angulus tenuis 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]	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. 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,
	Haematopus ostralegus [wintering]				
	Charadrius hiaticula [wintering]				
	Pluvialis squatarola				
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 and Targets)	Population trend	Long term population trend stable or increasing		
		Distribution	No significant decrease in the range, timing or intensity of use of areas by knot, other than that occurring from natural patterns of variation		
A144	To maintain the favourable conservation condition of Sanderling in	Population trend	Long term population trend stable or increasing		
		Distribution	No significant decrease in		

	South Dublin Bay and River Tolka Estuary SPA, which is defined by the following list of attributes and targets: (derived from Boyne Estuary SPA 004080, Objectives and Targets)		the range, timing and intensity of use of areas by oystercatcher, other than that occurring from natural patterns of variation		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).
A149	To maintain the favourable conservation condition of Dunlin 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 and Targets)	Population trend	Long term population trend stable or increasing		
		Distribution	No significant decrease in the range, timing or intensity of use of areas by dunlin, other than that occurring from natural patterns of variation		
	Limosa lapponica	Population trend	Long term population trend stable or increasing		
	Tringa totanus				
A179	To maintain the favourable conservation condition of Black-headed Gull in South Dublin Bay and River Tolka Estuary SPA which is defined by the	Population trend	Long term population trend stable or increasing		
		Distribution	There should be no significant decrease in the range, timing and intensity of use of areas used by black-headed gull other		

	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 Sterna paradisaea	Population trend	Long term population trend stable or increasing		
		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: (derived from Boyne Estuary SPA Objectives and TargetsSPA004080)	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	

Pollardstown Fen SAC 000396					
Conservation Objectives 18th July 2011					
Routeway K12 is proposed to travel along an existing road to the south of the SAC[2]					
Habitat Code	**Conservation Objective**	**Attribute**	**Target**	**Potential Impact**	**Mitigation**
1014	To restore the favourable conservation condition of Vertigo angustior in Pollardstown Fen which is defined by the fo llowing list of attributes a nd targets: (attributes & targets derived from Kenmare River SAC 002158 – Version 1.0 25 Apr 2013)	Distribution: occupied sites	No decline in occupied sites	Given the nature and extent of the Vertigo angustior habitat no direct impact is expected as a result of route K12.	None required
		Presence	Adult or sub-adult snails are present in at least 3 places on the transect where optimal or suboptimal habitat occurs (minimum 5 samples)		
		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 of Vertigo moulinsiana in	Distribution: occupied sites	No decline in occupied sites	Given the nature and extent of the Vertigo moulinsiana	
		Population size:	At least 5 adults snails in at		

[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.

	Pollardstown Fen, which is defined by the fo llowing list of attributes a nd targets: (Attributes and Targets derived from River Barrow & River Nore SAC 002162 Version 1.0 19 Jul 2011)	adults	least 50% of samples	habitat no direct impact is expected as a result of route K12	
		Population density	Adult snails present in at least 60% of samples per site		
		Area of occupancy	Minimum of 1ha of suitable habitat per site		
		Habitat quality: vegetation	90% of samples in habitat classes I and II as defined in Moorkens & Killeen (2011)		
		Habitat quality: soil moisture levels	90% of samples in moisture class 3-4 as defined in Moorkens & Killeen (2011)		
7220	To maintain the favourable conservative condition of Petrifying springs with tufa formation (cratoneurion)	Habitat area	Area stable or increasing, subject to natural processes	No direct impact will be had on the condition of the Petrifying Springs as a result of route K12	
		Habitat distribution	No decline		
		Hydrological regime: height of water table; water flow	Maintain appropriate hydrological regimes		
		Water quality	Maintain oligotrophic and calcareous conditions		
		Vegetation composition: typical species	Maintain typical species		
7230	To maintain the favourable conservation condition of Alkaline Fens in Pollardstown Fen which is defined by the following attributes and targets: (Attributes and Targets derived from Galway Bay Complex SAC 000268	Habitat area	Area stable or increasing, subject to natural processes	No direct impact will be had on the condition of the Alkaline Fens in Pollardstown as a result of route K12	
		Habitat distribution	No decline, subject to natural processes		
		Hydrological regime	Appropriate natural hydrological regime necessary to support the natural structure and functioning of the habitat		
		Peat formation	Active peat formation, 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	Cover of scattered native trees and shrubs less than 10%		
		Physical structure: disturbed bare ground	Cover of disturbed bare 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 Calcareous fens with Cladium mariscus and species of the Caricion davalliana e in Pollardstown Fen which is defined by the following attributes and targets:	Habitat area	Area stable or increasing, subject to natural processes	No direct impact will be had on the condition of the Calcareous fens with Cladium mariscus and species of the Caricion davallianae in Pollardstown as a result of route K12	
		Habitat distribution	No decline, subject to natural processes		
		Hydrological regime	Appropriate natural hydrological regime necessary to support the natural structure and functioning of the habitat		
		Peat formation	Active peat formation, where appropriate		
		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	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%		
		Physical structure: drainage Percentage	Areas showing signs of drainage as a result of 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 Ba llyman Glen SAC, 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 (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
		Habitat distribution	No decline	Existing on road infrastructure is in place however new infrastructure and increased visitor levels has	

	SAC002162 Objectives and Targets)			potential for impact on Habitat Distribution	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.
		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	
		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	
		Vegetation composition: typical species	Maintain typical species	Existing on road infrastructure is in place however new infrastructure and increased visitor levels has potential for impact on vegetation composition	
7230	To maintain the favourable conservation condition of Alkaline Fens in Ballyman Glen which is defined by the following attributes and targets: (Attributes and Targets derived from Galway Bay Complex SAC 000268 Version 1.0 16 Apr 2013)	Habitat area	Area stable or increasing, subject to natural processes	Potential for loss of habitat area as a result of the proposed route	
		Habitat distribution	No decline, subject to natural processes	Potential for construction of greenway to result in changes to Habitat distribution	
		Hydrological regime	Appropriate natural hydrological regime necessary to support the natural structure and functioning of the habitat	Potential for construction of greenway to result in changes to hydrological regime	
		Peat formation	Active peat formation,	Potential for construction	

			where appropriate	of greenway to result in impact on peat formation	
		Water quality: Nutrients	Appropriate water quality to support the natural structure and functioning of the habitat	Potential for construction of greenway to result in impacts on water quality	
		Vegetation composition: typical species	Maintain vegetation cover of typical species including brown mosses and vascular plants	Potential for construction of greenway to result in impacts on vegetation composition	
		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%	Potential for construction of greenway to result in impacts on physical structure	
		Physical structure: drainage Percentage	Areas showing signs of drainage as a result of 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 Code	**Conservation Objective**	**Attribute**	**Target**	**Potential Impact**	**Mitigation**
1230	To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected: Vegetated sea cliffs of the Atlantic and Baltic coasts (derived from Lower River Shannon SAC002165 Objectives and Targets)	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 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.
		Habitat distribution	No decline, subject to natural processes	Possible impact on habitat distribution due to increased visitor pressure	
		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	
		Vegetation structure: zonation	Maintain range of sea cliff habitat zonations including transitional zones, subject to natural processes including erosion and succession	Possible impact on vegetation structure due to construction of cycleroute W11and increased visitor pressure	
		Vegetation structure: vegetation height	Maintain structural variation within sward		
		Vegetation composition typical species and sub-communities	Maintain range of subcommunities with typical species listed in the Irish Sea cliff survey	Possible impact on vegetation composition due to construction of cycleroute W11 and increased visitor pressure	
		Vegetation composition: negative indicator species	Negative indicator species (including non-natives) to represent less than 5% cover		
		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	Area stable or increasing, subject to natural processes	Potential for loss of habitat area as a result of the proposed route	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.
		Habitat distribution	No decline from current habitat distribution, subject to natural processes	Direct impact on habitat through construction of cycle route	
		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. 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
		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	

					investigation e.g. the provision of cycle facilities and car parking may be restricted and provided away from qualifying habitats and species.
		Vegetation structure: browsing	Long shoots of bilberry (Vaccinium myrtillus) with signs of browsing should be controlled	No potential impact	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 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: 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	
		Vegetation composition: bryophyte and non-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	
		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	

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 Code	**Conservation Objective**	**Attribute**	**Target**	**Potential Impact**	**Mitigation**
1210	Annual vegetation of drift lines (adapted from Carlingford Shore SAC 002306)	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 pressures, in particular on sensitive habitats and species such as the Annual vegetation of drift lines.
		Habitat distribution	No decline, or change in habitat distribution, subject to natural processes		
		Physical structure: sediment supply	Maintain natural circulation of sediments and organic matter, without any physical obstructions	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 structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession		
		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 nes in Buckroney-Brittas SAC, which is defined by the following list of attri butes and targets: (derived from Boyne Coast and Estuary SAC001957 Objectives and Targets)			habitat area and distribution	arise from increased visitor pressures, in particular on sensitive habitats and species such as the Embryonic shifting dunes.
		Habitat distribution	No decline or change in habitat distribution, subject to natural processes		
		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 of cycle route which is to be located along the existing road	None required
		Vegetation structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession		
		Vegetation composition: plant health of foredune grasses	More than 95% of sand couch (Elytrigia juncea) 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 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 Ammophila arenaria ('white dunes') in Buckroney-Brittas SAC which is defined by the following list of attributes and targets:		succession. Total area mapped: 1.80ha. See map 6	habitat area and distribution	arise from increased visitor pressures, in particular on sensitive habitats and species such as the Shifting dunes along the shoreline with Ammophila arenaria ('white dunes')
		Habitat distribution	No decline, or change in habitat distribution, subject to natural processes. See map 6 for known distribution		
		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 of cycle route which is to be located along the existing road	None required
		Vegetation structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession		
		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	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 subcommunities	Maintain the presence of species-poor communities dominated by marram grass (Ammophila arenaria) and/or lymegrass (Leymus arenarius)		
		Vegetation composition: negative indicator species	Negative indicator species (including non-natives) to represent less than 5% cover		
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	Increased visitor pressure has potential to result in disturbance to both habitat area and	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

	vegetation ('grey dunes') in Buckroney-Brittas 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	distribution	habitats and species such as Fixed coastal dunes with herbaceous vegetation ('grey dunes')
		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 construction of cycle route which is to be located along the existing road	None required
		Vegetation structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession		
		Vegetation structure: bare ground	Bare ground should not exceed 10% of fixed dune habitat, subject to natural processes	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 provided away from qualifying habitats and species.
		Vegetation structure: sward height	Maintain structural variation within sward		
		Vegetation composition: typical species and subcommunities	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	
		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-Ulicetea)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 defined by the following list of attributes and targets: (derived from Castlemaine Harbour SAC Objectives and Targets SAC000343)	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 pressures, in particular on sensitive habitats and species such as Dunes with Salix repens ssp. argentea (Salix arenariae)
		Habitat distribution	No decline, subject to natural processes.		
		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 of the construction of cycle route which is to be located along the existing road	None required
		Vegetation structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession.		
		Vegetation structure: bare ground	Maintain structural variation within sward.	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 provided away from qualifying habitats and species.
		Vegetation structure: vegetation height	Maintain structural variation within sward		
		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 and height of Salix repens	Maintain more than 10% cover of Salix; vegetation height should be in the average range of 5-20cm		
		Vegetation composition: negative indicator species (including	Negative indicator species (including non-natives) to represent less than 5% cover		

		Hippophae rhamnoides			
		Vegetation composition: scrub/trees	No more than 5% cover or under control		
2190	To maintain the favourable conservative condition of humid dune slacks in Buckroney-Brittas which is defined by the following attributes and targets: (derived from Castlemarine Harbour Objectives and Targets SAC00343)	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 pressures, in particular on sensitive habitats and species such as humid dune slacks
		Habitat distribution	No decline, subject to natural processes.		
		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	Bare ground should not exceed 5% of dune slack habitat, with the exception of pioneer slacks which can have up to 20% bare ground	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 provided away from qualifying habitats and species.
		Vegetation structure: vegetation height	Maintain structural variation within sward		
		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 include assessment of any impacts that may arise on sensitive habitats and species including habitat type Alkaline fens.
		Habitat distribution	No decline, subject to natural processes	Potential for construction of greenway to result in changes to Habitat distribution	
		Hydrological	Appropriate natural	Potential for construction	

	(Attributes and Targets derived from Galway Bay Complex SAC 000268 Version 1.0 16 Apr 2013)	regime	hydrological regime necessary to support the natural structure and functioning of the habitat	of greenway to result in changes to hydrological regime	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.
		Peat formation	Active peat formation, where appropriate	Potential for construction of greenway to result in impact on peat formation	
		Water quality: Nutrients	Appropriate water quality to support the natural structure and functioning of the habitat	Potential for construction of greenway to result in impacts on water quality	
		Vegetation composition: typical species	Maintain vegetation cover of typical species including brown mosses and vascular plants	Potential for construction of greenway to result in impacts on vegetation composition	
		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%	Potential for construction of greenway to result in impacts on physical structure	
		Physical structure: drainage Percentage	Areas showing signs of drainage as a result of 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 of the Annex I Habitat (Old sessile oak woods with Ilex and Blechnum in the British Isles)which is defined by the following list of attri butes and targets: (derived from Slaney River Valley SAC Objectives and Targets SAC000781)	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 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 of overriding public interest.
		Habitat distribution	No decline.	Potential for construction of W13 to result in changes to Habitat distribution	
		Woodland size	Area stable or increasing.	Potential for decrease in woodland size as a result of the proposed route	
		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	
		Woodland structure: community diversity and extent	Maintain diversity and extent of community types		
		Woodland structure: natural regeneration	Seedlings, saplings and pole age-c 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		
		Woodland structure: veter an trees	No decline		
		Woodland structure: indicators of local disctinct iveness	No decline		
		Vegetation composition: native tree cover	No decline. Native tree cover not less than 95%	Potential for vegetation composition including native tree cover and typical species to be impacted during construction of proposed route. Also potential for spread of non-native invasive species.	
		Vegetation composition: typical species	A variety of typical native species present, depending on woodland type, inc luding oak (Quercus petraea) and birch (Betula pubescens)		
		Vegetation composition: negative indicator species	Negative indicator species, 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					
Habitat Code	**Conservation Objective**	**Attribute**	**Target**	**Potential Impact**	**Mitigation**
1029	To restore the favoura ble conservation condition of Freshwater Pearl Mussel in the Slaney River Valley SAC, which is defined b y the following list of attributes and ta rgets: (derived from	Substratum quality: sedim ent	Restore substratum quality-stable cobble and gravel s ubstrate with very little fine mate rial; no artificially elevated levels of fine sediment	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.
		Substratum quality: oxygen availability	Restore to no more than 20% decline from water column to 5cm depth in substrate		

	Lower River Shannon SAC 002165 Objectives and Targets)	Hydrological regime: flow variability	Restore appropriate hydrological regimes	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.
		Host fish	Maintain sufficient juvenile salmonids to host glochidial larvae		
1096	To restore the favourable conservation condition of Brook lamprey in the Slaney River Valley SAC, which is defined by the following list of attributes and targets:	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 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.
		Population structure of juveniles	At least three age/size groups of brook/river lamprey present		
		Juvenile density in fine sediment	Mean catchment juvenile density of brook/river lamprey at least 2/m²		
		Extent and distribution of spawning habitat	No decline in extent and distribution of spawning beds		
		Availability of juvenile habitat	More than 50% of sample sites positive.		

					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 attributes and targets:	Distribution: extent of anadromy	Greater than 75% of main stem and major tributaries 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 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 River 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.
		Population structure of juveniles	At least three age/ size groups of river/brook lamprey present		
		Juvenile density in fine sediment	Mean catchment juvenile density of brook/river lamprey at least 2/m		
		Extent and distribution of spawning habitat	No decline in extent and distribution of spawning beds		
		Availability of juvenile habitat	More than 50% of sample sites positive		
1103	To restore the favourable conservation	Distribution: extent of anadromy	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 Slaney River Valley SAC, which is defined by the following list of attributes and targets:		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 indirect (increased recreational pressure) impacts of the route on the sensitive species which include Twaite shad. 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
		Population structure- age classes	More than one age class present	Possible impact on structure-age class	
		Extent and distribution of spawning habitat	No decline in extent and distribution of spawning habitats	Possible impact on spawning habitat due to pollution during construction and disturbance of river bed.	
		Water quality- oxygen levels	No lower than 5mg/l	Possible impact on water quality due to pollution	
		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 plants) growth	Possible impact on spawning habitat due to pollution during construction and disturbance of river bed.	
1106	To restore the favourable conservation condition of Atlantic Salmon in the Slaney River Valley SAC, which is defined by the following list of attributes and targets:	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 indirect (increased recreational pressure) impacts of the route on the sensitive species which include Atlantic Salmon
		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.	
		Salmon fry	Maintain or exceed	Possible impact on Salmon	

		abundance	0+ fry mean catchment-wide abundance threshold value. Currently set at 17 salmon fry/5 min sampling	fry 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. 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
		Out-migrating smolt abundance	No significant decline	Possible impact on out-migrating smolt abundance due to impacts at construction phase from pollution and physical disturbance.	
		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.	
		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 favourable conservation condition of Otter in the Slaney River Valley SAC,which is defined by the following list of attributes and targets:	Distribution	No significant decline	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 the area as a result of the cycle 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 species which include Otters 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 terrestrial habitat	No significant decline. Area mapped and calculated as 64.7ha above high water mark (HWM); 453.4ha along river banks/ around ponds		
		Extent of freshwater (river) habitat	No significant decline. Length mapped and calculated as 264.1km		

		Extent of freshwater (lake/lagoon) habitat	No significant decline. Area mapped and calculated as 0.4ha		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.
		Couching sites and holts	No significant decline		
		Fish biomass available	No significant decline	Decline in fish biomass due to increased pollution levels and disturbance.	
		Barriers to connectivity	No significant increase	Potential impact that any additional structures may have.	
3260	To maintain the favourable conservation condition of Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation in the Slaney River Valley SAC, which is defined by the following list of attributes and targets:	Habitat distribution	No decline, 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
		Habitat area	Area stable or increasing, subject to natural processes.		
		Hydrological regime: river flow	Maintain appropriate	Potential impact on hydrology regime due to	A detailed hydrological assessment

			Hydrological regimes	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.
		Hydrological regime: tidal influcence	Maintain natural tidal regime		
		Water quality: nutrients	The concentration of nutrients in the water column must be sufficiently low to prevent changes in species composition or habitat condition	Possible impact on water quality	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.
		Vegetation composition: typical species	Typical species of the relevant habitat sub-type reach favourable status	Possible spread of invasive 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.
		Floodplain connectivity: area	The area of active floodplain at and upstream of the habitat must be maintained	Potential impact on floodplain due to construction of new paths	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.
91A0	To restore the favourable conservation condition of old sessile oakwoods with Ilex and Blechnum	Habitat area	Area stable or increasing, subject to natural processes, at least 146.17ha for sub-sites surveyed	Potential for loss of 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
		Habitat distribution	No decline.	Potential for construction	

	in the Slaney River Valley SAC, which is def ined by the following li st of attributes and targets:			routes to result in changes to Habitat distribution	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 Old Sessile oak woods with Ilex and Blechnum in the British Isles. 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.
		Woodland size	Area stable or increasing. Where topographically possible, "large"woods at least 25ha in size and “small” woods at least 3ha in size	Potential for decrease in woodland size as a result of the proposed route	
		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	
		Woodland structure: community diversity and extent	Maintain diversity and extent of community types		
		Woodland structure: natural regeneration	Seedlings, saplings and pole age-classes 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		
		Woodland structure: veteran trees	No decline		
		Woodland structure: indicators of local disctinctiveness	No decline		
		Vegetation	No decline. Native tree cover	Potential for vegetation	

		composition: native tree cover	not less than 95%	composition to change as a result of proposed route	
		Vegetation composition: typical species	A variety of typical native species present, depending on woodland type, including oak (Quercus petraea) and birch (Betula pubescens)		
		Vegetation composition: negative indicator species	Negative indicator species, Particularly non-native invasive species, absent or under control		
91E0	To restore the favourable conservation conditionof Alluvial forests with Alnus glutinosa and Fraxinus excelsior(Alno-Padion) in the Slaney River Valley SAC, which is defined by the following list of attributes and targets:	Habitat area	Area stable or increasing, subject to natural processes	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 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 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 are present. If so an action plan will be drawn up to manage this issue. Consideration of mitigation for the restriction of increased visitor
		Habitat distribution	No decline		
		Woodland size	Area stable or increasing. Where topographically possible, "large" woods at least 25ha in size and “small” woods at least 3ha in size	Potential for decrease in woodland size as a result of the proposed route	
		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	
		Woodland structure: community diversity and extent	Maintain diversity and extent of community types		
		Woodland structure: natural regeneration	Seedlings, saplings and pole age-classes occur in adequate proportions to ensure survival of woodland canopy		
		Woodland structure: dead	At least 30m³/ha of fallen		

		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	No decline		
		Woodland structure: indicators of local disctinctiveness	No decline		
		Vegetation composition: native tree cover	No decline. Native tree cover not less than 95%	Potential impact on vegetation composition and spread of invasive and non-native species	
		Vegetation composition: typical species	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)		
		Vegetation composition: negative indicator species	Negative indicator species, particularly 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 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.

Glenasmole Valley SAC 001209					
Conservation Objectives 18th July 2011					
Dodder Greenway within the valley and increases access to the site.					
Habitat Code	**Conservation Objective**	**Attribute**	**Target**	**Potential Impact**	**Mitigation**
6210	To maintain the favourable conservation condition of Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco Brometalia) in Glenasmole Valley SAC, which is defined by the following list of attributes and targets: (derived from Galway Bay SAC 000268 Objectives and Targets)	Habitat area	Area stable or increasing, 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, Semi-natural dry grasslands and scrubland facies on calcareous substrates 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.
		Habitat distribution	No decline, subject to natural processes		
		Vegetation composition: broadleaf herb: grass ratio	Broadleaf herb component of vegetation between 40 and 90%	Increased visitor pressure and construction of the route has potential to result in disturbance to vegetation composition.	
		Vegetation composition: typical species	At least 7 positive indicator species present, including 2 "high quality" species		
		Vegetation composition: negative indicator 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		
		Vegetation structure: sward height	30-70% of sward 5-40cm high	Increased visitor pressure and construction of the route has potential to result in disturbance to vegetation structure	
		Vegetation structure: woody species and	Cover of bracken (Pteridium aquilinum) and woody species (except		

		bracken (Pteridium aquilinum)	juniper (Juniperus communis)) not more than 5% cover		
		Physical structure: bare ground	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 meadows on calcareous, peaty or clayey-silt laden soils (Molinion caeruleae) in in Glenasmole Valley SAC, which is defined by the following list of attributes and targets: (derived from Lower River Shannon SAC 002165 Objectives and Targets)	Habitat area	Area stable or increasing, 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 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 alien species are present. If so an action plan will be drawn up to manage this issue.
		Habitat distribution	No decline, subject to natural processes		
		Vegetation structure: broadleaf herb: grass ratio	Broadleaf herb component of vegetation between 40 and 90%	Increased visitor pressure and construction of the route has potential to result in disturbance to vegetation structure	
		Vegetation structure: sward height	30-70% of sward between 10 and 80cm high		
		Vegetation composition: typical species	At least 7 positive indicator species present, including 1 "high quality" species	Increased visitor pressure and construction of the route has potential to result in disturbance to vegetation composition	
		Vegetation composition: notable species	No decline, subject to natural processes		
		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		

		Vegetation composition: negative indicator moss species	Bog mosses (Sphagnum spp.) not more than 10% cover; hair mosses (Polytrichum spp.) not more than 25% cover		
7220	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	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 pressure) impacts of the route on the sensitive habitats which includes *Petrifying springs with tufa formation.
		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	
		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 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
		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	

					cycle routes shall comply with all relevant best practice guidelines for the protection of fish, otter and water quality.
		Vegetation composition: typical species	Maintain typical species	Existing on road infrastructure is in place however new infrastructure and increased visitor levels has potential for impact on 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

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 Code	**Conservation Objective**	**Attribute**	**Target**	**Potential Impact**	**Mitigation**
1014	To restore the favourable conservation condition 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 Apr 2013	Distribution: occupied sites	No decline in occupied sites	Potential impact on the distribution of the species as a result of the construction of cycleway	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 snail species *Vertigo angustior.*
		Presence	Adult or sub-adult snails are present in at least 3 places on the transect where optimal or suboptimal habitat occurs	Potential impact on the presence and abundance of the species as a result of the construction of cycleway	Consideration of mitigation for the restriction of increased visitor numbers on the sensitive habitats present may require further

			(minimum 5 samples)		investigation e.g. the provision of cycle facilities may be restricted and provided away from qualifying habitats and species.
		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	Potential impact on optimal or suboptimal habitat within transect as a result of increased visitor pressure and construction of cycle route.	
		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 protection of fish, otter and water quality.
1016	To restore the favourable conservation condition of Vertigo moulinsiana Rye Water Valley/Carton, which is defined by the following list of attributes and targets: *(River Barrow & River	Distribution: occupied sites	No decline.	Possible decline in occupied sites, population size and density, area of occupancy and habitat quality as a result of construction of the route and increased visitor levels.	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 *Vertigo moulinsiana.*
		Population size: adults	At least 5 adults snails in at least 50% of samples		
		Population density	Adult snails present in at least 60% of samples per site.		
		Area of occupancy	Minimum of 1ha of suitable habitat per site		
		Habitat quality: vegetation	90% of samples in habitat classes I and II as defined i		

	Nore SAC 002162 Version 19 Jul 2011		n Moorkens & Killeen (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 WaterValley/Carton SAC, which is defined by the following list of attributes and targets: (derived from River Barrow and River Nore SAC002162 Objectives and Targets)	Habitat area	Area stable or increasing, subject to natural processes	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 pressure) impacts of the route on the sensitive habitats and species which include, *Petrifying springs with tufa formation (*Cratoneurion*) 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.
		Habitat distribution	No decline	New infrastructure and increased visitor levels has potential for impact on Habitat Distribution	
		Hydrological regime: height of water table; water flow	Maintain appropriate hydrological regimes	New infrastructure and increased visitor levels has potential for impact on the hydrological regime	
		Water quality	Maintain oligotrophic and calcareous conditions	New infrastructure and increased visitor levels has potential for impact on Water Quality	
		Vegetation composition: typical species	Maintain typical species	New infrastructure and increased visitor levels has potential for impact on vegetation composition	

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	Annual vegetation of drift lines (adapted from Carlingford Shore SAC 002306)	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 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 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
		Habitat distribution	No decline, or change in habitat distribution, subject to natural processes		
		Physical structure: sediment supply	Maintain natural circulation of sediments and organic matter, without any physical obstructions	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	
		Vegetation structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession		
		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	
		Vegetation composition: Negative indicator species	Negative indicators (including non-native species) should represent less than 5% of the vegetation cover.		

					habitats and species.
2110	To restore the favourable conservation condition of Embryonic shifting dunes in Kilpatrick Sandhils SAC, which is defined by the following list of attributes and targets: **(derived from Boyne Coast and Estuary SAC001957 Objectives and Targets)**	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 species destruction) and indirect (increased recreational/tourism pressure) impacts of the route on the sensitive habitats which include, Embryonic shifting 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.
		Habitat distribution	No decline or change in habitat distribution, subject to natural processes		
		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 of cycle route which is to be located along the existing road	
		Vegetation structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession		
		Vegetation composition: plant health of foredune grasses	More than 95% of sand couch (Elytrigia juncea) 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	
		Vegetation composition: typical species and sub-communities	Maintain the presence of species-poor communities with typical species : sand couch (Elytrigia juncea) and/or lyme-grass(Leymus arenarius)		
		Vegetation composition: negative indicator species	Negative indicator species (including non-natives) to represent less than 5% cove		
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 following list of attributes and targets:		subject to natural processes including erosion and succession. Total area mapped: 21.42ha. See map 6	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, 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 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.
		Habitat distribution	No decline, or change in habitat distribution, subject to natural processes. See map 6 for known distribution		
		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 of cycle route which is to be located along the existing road	
		Vegetation structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession		
		Vegetation structure: bare ground	Bare ground should not exceed 10% of fixed dune habitat, subject to natural processes	Increased visitor pressure has potential to result in disturbance to vegetation structure	
		Vegetation structure: sward height	Maintain structural variation within sward		
		Vegetation composition: typical species and subcommunities	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	
		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		
2120	To restore the favourable	Habitat area	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

	conservation condition of Shifting dunes along the shoreline with Ammophila arenaria ('white dunes') in Malahide Estuary SAC, which is defined by the following list of attributes and targets:		processes including erosion and succession. Total area mapped: 1.80ha. See map 6	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, Shifting dunes along the shoreline with Ammophila arenaria ('white 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.
		Habitat distribution	No decline, or change in habitat distribution, subject to natural processes. See map 6 for known distribution		
		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 of cycle route which is to be located along the existing road	
		Vegetation structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession		
		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	
		Vegetation composition: typical species and subcommunities	Maintain the presence of species-poor communities dominated by marram grass (Ammophila arenaria) and/or lymegrass (Leymus arenarius)		
		Vegetation composition: negative indicator species	Negative indicator species (including non-natives) to represent less than 5% cover		
2150	To maintain the favourable conservation condition of Atlantic decalcified	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-Ulicetea)	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	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 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.
		Habitat distribution	No decline, or change in habitat distribution, subject to natural processes		

		Physical structure: sediment supply	Maintain natural circulation of sediments and organic matter, without any physical obstructions	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 structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession		
		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 favourable conservation Condition of Embryonic shifting dunes (Attributes and targets derived from Boyne Coast and Estuary SAC 001957)	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 pressures, in particular on sensitive habitats and species such as the Embryonic shifting dunes
		Habitat distribution	No decline or change in habitat distribution,subject to natural processes		
		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 construction of cycle route which is to be located along the existing road	None required
		Vegetation structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession		
		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

			(i.e. green plant parts above ground and flowering heads present)		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.
		Vegetation composition: typical species and sub-communities	Maintain the presence of species-poor communities with typical species: sand couch (Elytrigia juncea) and/or lyme-grass (Leymus arenarius)		
		Vegetation composition: negative indicator species	Negative indicator species (including non-natives) to represent less than 5% cove		
7220	To maintain the favourable conservation condition of Petrifying springs wi th tufa formation (Cratoneurion) in Magherabeg Dunes SAC, which is defined b y the following list of attributes and targets: (derived from Objectives and Targets SAC002158)	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, 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
		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	
		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 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.
		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	
		Vegetation composition: typical species	Maintain typical species	Existing on road infrastructure is in place however new infrastructure and increased visitor levels has potential for impact on vegetation composition	
2130	To restore the favourable conservation condition of Fixed coastal dunes with herbaceous vegetation ('grey dunes' in Magherabeg Dunes 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. Total area mapped: 21.42ha. See map 6	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, *Fixed coastal dunes with herbaceous vegetation (grey dunes),
		Habitat distribution	No decline, or change in habitat distribution, subject to natural processes. See map 6 for known distribution		
		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 construction of cycle route which is to be located along the existing road	None required
		Vegetation structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession		
		Vegetation structure: bare ground	Bare ground should not exceed 10% of fixed dune habitat, subject to natural	Increased visitor pressure has potential to result in disturbance to vegetation	Consideration will be given at project level AA to the provision of ancillary facilities for example the provision of

			processes	structure	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.
		Vegetation structure: sward height	Maintain structural variation within sward		
		Vegetation composition: typical species and subcommunities	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	
		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		
2120	To restore the favourable conservation condition of Shifting dunes along the shoreline with Ammophila arenaria ('white dunes') in Malahide Estuary 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.	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 Shifting dunes along the shoreline with Ammophila arenaria ('white dunes')
		Habitat distribution	No decline, or change in habitat distribution, subject to natural processes.		
		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 of cycle route which is to be located along the existing road	None required
		Vegetation structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession		
		Vegetation composition: plant health of dune	95% of marram grass (Ammophila arenaria) and/or lyme-grass	Increased visitor pressure has potential to result in	Consideration of mitigation for the

		grasses	(Leymus arenarius) should be healthy (i.e. green plant parts above ground and flowering heads present)	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: typical species and subcommunities	Maintain the presence of species-poor communities dominated by marram grass (Ammophila arenaria) and/or lymegrass (Leymus arenarius)		
		Vegetation composition: negative indicator species	Negative indicator species (including non-natives) to represent less than 5% cover		
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**:**	Only Generic Conservation Objectives could be found for this Qualifying interest (2150) Favourable conservation status of a habitat is achieved when:	• 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 001957					
Conservation 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 favourable conservation condition of Estuaries in Boyne Coast and 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	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
		Community distribution	Conserve the following community types in a natural condition: Intertidal estuarine mud and fine sand with Hediste diversicolor and Corophium volutator community; and Subtidal fine sand dominated by polychaetes community		
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.
		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 *Pugospio elegans* and *Tubificoides benedii* community complex		
1310	To Maintain the favourable conservation conditions of Salicornia and other annuals colonizing mud and sand 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.	There will be no loss of Salicornia habitat as the route is not in direct proximity to the habitat	None
		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
		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 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 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	
		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	
		Physical structure: creeks and 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
		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 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 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: vegetation cover	Maintain more than 90% of the area outside of the creeks vegetated		
		Vegetation composition: typical species and sub communities	Maintain range of subcommunities with typical species listed in the Saltmarsh Monitoring Project (McCorry and Ryle, 2009)		
		Vegetation Structure: negative indicator species Spartina anglica	No significant expansion of common cordgrass (*Spartina anglica*), 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 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 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, including erosion and succession	No impact is expected on the physical structure of the creeks and pans present	

[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.

		Physical Structure: flooding regime	Maintain natural tidal regime	There will be no change to the tidal regime as a result of the cycleway	
		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	
		Vegetation structure: vegetation height	Maintain structural variation within sward	Possible 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 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: vegetation cover	Maintain more than 90% of the area outside of the creeks vegetated		
		Vegetation composition: typical species and sub communities	Maintain range of subcommunities with typical species listed in the Saltmarsh Monitoring Project (McCorry and Ryle, 2009)		
		Vegetation Structure: negative indicator species Spartina anglica	No significant expansion of common cordgrass (*Spartina anglica*), with an annual spread of less than 1%	Possible expansion of common cordgrass due to increase use of area by vistors.	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. 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
2110	To restore the favoura	Habitat area	Area stable or	Increased visitor pressure	Any future development of the

	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:		increasing, subject to natural processes, including erosion and succession.	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.
		Habitat distribution	No decline or change in habitat distribution, subject to natural processes		
		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 of cycle route which is to be located along the existing road	None required
		Vegetation structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to nat ural processes including erosion and succession		
		Vegetation composition: plant health of foredune grasses	More than 95% of sand couch (El ytrigia juncea) and/or lyme-grass (Leymus arenarius) should be healthy (i.e. green plant parts above grou nd 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 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 ('white dunes') 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-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 Shifting dunes along the shoreline with Ammophila arenaria ('white dunes')
		Habitat distribution	No decline, or change in habitat distribution, subject to natural processes.		
		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 of cycle route	None required
		Vegetation structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession		
		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 habitats and species.
		Vegetation composition: typical species and subcommunities	Maintain the presence of species-poor communities dominated by marram grass (Ammophila arenaria) and/or lymegrass		

			(Leymus arenarius)		
		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.		

Boyne Estuary SPA 004080					
Conservation 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	Long term population trend stable or increasing	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 boards could be provided denoting the presence of Natura 2000 sites and the qualifying interests present, to promote respect of the sensitivity
		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		
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	

	Estuary SPA, which is defined by the following list of attributes and targets:	occupied nests (AONs)		as a result of new cycleway.	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).
		Productivity rate: fledged young per breeding pair	No significant decline	Decline in productivity rate due to increase visitor numbers	
		Distribution: breeding colonies	No significant decline	Impact on distribution of breeding colonies	
		Barriers to connectivity	No significant decline	Impact on connectivity within habitat due to new cycleway	
		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	
		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 Code	**Conservation Objective**	**Attribute**	**Target**	**Potential Impact**	**Mitigation**
1099	To restore the favourable conservation condition of River lamprey in the River Boyne and River Balckwater SAC, which is defined by the following list of attributes and targets: **(derived from Slaney River Valley SAC000781 Objectives and Targets)**	Distribution: extent of anadromy	Greater than 75% of main stem and major tributaries 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 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.
		Population structure of juveniles	At least three age/ size groups of river/brook lamprey present		
		Juvenile density in fine sediment	Mean catchment juvenile density of brook/ river lamprey at least 2/m		
		Extent and distribution of spawning habitat	No decline in extent and distribution of spawning beds		
		Availability of juvenile habitat	More than 50% of sample sites positive		
1106	To restore the favourable conservation condition of Salmon in the River Boyne and River Balckwater SAC, which is defined by the following list of attributes and	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	
		Adult spawning fish	Conservation Limit (CL) for each system	Possible impact on adult spawning habitat due to pollution during	

	targets: **(derived from Slaney River Valley SAC000781 Objectives and Targets)**		consistently exceeded	construction and disturbance of river bed.	
		Salmon fry abundance	Maintain or exceed 0+ fry mean catchment-wide abundance threshold value. Currently set at 17 salmon fry/5 min sampling	Possible impact on Salmon fry abundance due to impacts at construction phase from pollution and physical disturbance.	
		Out-migrating smolt abundance	No significant decline	Possible impact on out-migrating smolt abundance due to impacts at construction phase from pollution and physical disturbance.	
		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.	
		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 favourable conservation condition of Otter in the River Boyne and River Balckwater SAC, which is defined by the following list of attributes and targets: **(**derived from Slaney River Valley SAC000781	Distribution	No significant decline	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 the area as a result of the	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; Otter
		Extent of terrestrial habitat	No significant decline. Area mapped and calculated as 64.7ha above high water mark (HWM); 453.4ha along river banks/ around ponds		
		Extent of marine habitat	No significant decline. Area mapped and calculated as 534.7ha		
		Extent of freshwater (river) habitat	No significant decline. Length mapped and		

	Objectives and Targets)		calculated as 264.1km	cycle route.	
		Extent of freshwater (lake/lagoon) habitat	No significant decline. Area mapped and calculated as 0.4ha		
		Couching sites and holts	No significant decline		
		Fish biomass available	No significant decline		
		Barriers to connectivity	No significant increase		
7230	To maintain the favourable conservation condition of Alkaline Fens in River Boyne and River Balckwater SAC which is defined by the following attributes and targets: (Attributes and Targets derived from Galway Bay Complex SAC 000268 Version 1.0 16 Apr 2013)	Habitat area	Area stable or increasing, subject to natural processes	Potential impact on habitat from increased visitor pressure and during construction	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.
		Habitat distribution	No decline, subject to natural processes		
		Hydrological regime	Appropriate natural hydrological regime necessary to support the natural structure and functioning of the habitat		
		Peat formation	Active peat formation, where appropriate		
		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	Cover of scattered native trees and shrubs less than 10%		
		Physical structure: disturbed bare ground	Cover of disturbed bare 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%		
91E0	To restore the favourable conservation condition of Alluvial forests with Alnus glutinosa and Fraxinus excelsior(Alno-Padion) in the Slaney River Valley SAC, which is defined by the following list of attributes and targets: (derived from Slaney River Valley SAC000781 Objectives and Targets)	Habitat area	Area stable or increasing, subject to natural processes, at least 18.7ha for sites surveyed	Possible impact on this habitat as a result of construction of the cycle route and also increase visitor pressure	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; *Alluvial forests with Alnus gultinosa and Fraxinus excelsior
		Habitat distribution	No decline		
		Woodland size	Area stable or increasing. Where topographically possible, "large" woods at least 25ha in size and “small” woods at least 3ha in size		
		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		
		Woodland structure: community diversity and extent	Maintain diversity and extent of community types		
		Woodland structure: natural regeneration	Seedlings, saplings and pole age-classes occur in adequate proportions to ensure survival of woodland canopy		
		Hydrological regime: Flooding depth/height of water table	Appropriate hydrological regime necessary for maintenance of alluvial vegetation		
		Woodland structure: dead wood	At least 30m³/ha of fallen timber greater than 10cm diameter; 30 snags/ha; both cate		

			gories should include stems greater than 40cm diameter (greater than 20cm diameter in the case of alder)		
		Woodland structure: veteran trees	No decline		
		Woodland structure: indicators of local disctinctiveness	No decline		
		Vegetation composition: native tree cover	No decline. Native tree cover not less than 95%		
		Vegetation composition: typical species	A variety of typical native species present, depending on woodland type, including alder (Alnus glutinosa), willows (Salix spp) and, locally, oak (Quercus robur) and ash (Fraxinusexcelsior)		
		Vegetation composition: negative indicator species	Negative indicator species, particularly non-native invasive 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	Long term population trend stable or increasing	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.
		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.		

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 Code	**Conservation Objective**	**Attribute**	**Target**	**Potential Impact**	**Mitigation**
1092	To maintain the favourable conservation condition of White-clawed crayfish in the River Barrow and River Nore SAC, which is defined by the following list of attributes and targets:	Distribution	No reduction from baseline.	Impact on distribution during disturbance at construction stage	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; While-clawed crayfish. Consideration will be given at project level AA to the provision of ancillary facilities for example the provision of
		Population structure: recruitment	Juveniles and/or females with eggs in at least 50% of positive samples	Impact on population structure as a result of cycleway construction	
		Disease	No instances of disease	Risk of disease during construction	
		Water quality	At least Q3-4 at all sites sampled by EPA	Possible impact on water quality and habitat quality during construction	
		Habitat quality: heterogeneity	No decline in heterogeneity or habitat quality		

					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 favourable conservation Condition of Brook at River Barrow and River Nore SAC, which is defined by the following list of attributes and targets:	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 during construction. These processes may also have an impact on juveniles and spawning habitat.	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; Brook lamprey.
		Population structure of juveniles	At least three age/size groups of brook/river lamprey present		
		Juvenile density in fine sediment	Mean catchment juvenile density of brook/river lamprey at least 2/m²		
		Extent and distribution of spawning habitat	No decline in extent and distribution of spawning beds		

		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 favourable conservation Condition of River lamprey at River Barrow and River Nore SAC, which is defined by the following list of attributes and targets:	Distribution: extent of anadromy	Greater than 75% of main stem and major tributaries 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 during construction. This processes may also have an impact on juveniles and spawning habitat.	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; River lamprey.
		Population structure of juveniles	At least three age/ size groups of river/brook lamprey present		
		Juvenile density in fine sediment	Mean catchment juvenile density of brook/		

			river lamprey at least 2/m		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.
		Extent and distribution of spawning habitat	No decline in extent and distribution of spawning beds		
		Availability of juvenile habitat	More than 50% of sample sites positive		
1103	To restore the favourable conservation condition of Twaite shad at River Barrow and River Nore SAC, which is defined by the following list of attributes and targets:	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 recreational/tourism pressure) impacts of the route on the sensitive species which include; Twaite shad. Design should consider the provision
		Population structure- age classes	More than one age class present	Possible impact on structure-age class	
		Extent and distribution of	No decline in extent and distribution of spawning	Possible impact on spawning habitat due to	

		spawning habitat	habitats	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.
		Water quality- oxygen levels	No lower than 5mg/l	Possible impact on water quality due to pollution	
		Spawning habitat quality: Filamentous algae; macrophytes; sediment	Maintain stable gravel substrate with very little fine material, free of filamentous algal (macroal gae) growth and macrophyte (rooted higher plants) growth	Possible impact on spawning habitat due to pollution during construction and disturbance of river bed.	
1106	To restore the favoura ble conservation condition of Atlantic Salmon at the River Barrow and River Nore SAC is defined by the follow ing list of attributes and targets:	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 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. 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.
		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.	
		Salmon fry abundance	Maintain or exceed 0+ fry mean catchment-wide abundance threshold value. Currently set at 17 salmon fry/5 min sampling	Possible impact on Salmon fry abundance due to impacts at construction phase from pollution and physical disturbance.	
		Out-migrating smolt abundance	No significant decline	Possible impact on out-migrating smolt abundance due to impacts at construction phase from pollution and physical disturbance.	
		Number and	No decline in	Possible impact on	

		distribution of redds	number and distribution of spawning redds due to anthropogenic cause	number and distribution of redds as a result of disturbance and pollution during construction phase.	
		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 favourable conservation condition of Otter in the Slaney at River Barrow and River Nore SAC which is defined by the following list of attributes and targets:	Distribution	No significant decline	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 the area as a result of the cycle 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 destruction) and indirect (increased recreational/tourism pressure) impacts of the route on the sensitive species which include; 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. Consideration of mitigation for the restriction of increased visitor numbers may require further investigation e.g. the provision of
		Extent of terrestrial habitat	No significant decline. Area mapped and calculated as 64.7ha above high water mark (HWM); 453.4ha along river banks/ around ponds		
		Extent of marine habitat	No significant decline. Area mapped and calculated as 534.7ha		
		Extent of freshwater (river) habitat	No significant decline. Length mapped and calculated as 264.1km		
		Extent of freshwater (lake/lagoon) habitat	No significant decline. Area mapped and calculated as 0.4ha		
		Couching sites and holts	No significant decline		
		Fish biomass available	No significant decline	Decline in fish biomass due to increased pollution levels and disturbance.	

					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 conservation condition of Killarney Fern in the River Barrow and River Nore SAC, which is defined by the following list of attributes and targets:	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 to the Killarney ferns distribution, population size and structure, habitat extent and light levels .	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; Killarney fern. Consideration of mitigation for the
		Light levels: shading	No changes due to anthropogenic impacts		
		Population size	Maintain at least three colonies of gametophyte, and at least one sporophyte colony of over 35 fronds		
		Population structure: juvenile	At least one of the locations to have a population		

		fronds	structure comprising sporophyte, unfurling fronds, 'juvenile' sporophyte and gametophyte generations		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.
		Habitat extent	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		
		Hydrological conditions: visible water	Maintain hydrological conditions at the locations so that all colonies are in dripping or damp seeping habitats, and water is visible at all locations		
		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-Batrachion	Habitat distribution	No decline, 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
		Habitat area	Area stable or increasing, subject to natural processes		
		Hydrological	Maintain appropriate	Potential impact on	

	vegetation in the River Barrow and River Nore SAC, which i s defined by the following list of attributes and targets:	regime: river flow	hydrological regimes	hydrology regime due to changes in flow during construction	habitats which include; Water courses of plain to montane levels with *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation. 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. 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.
		Hydrological regime: groundwater discharge	The groundwater flow to the habitat should be permanent and sufficient to maintain tufa formation		
		Substratum composition: particle size range	The substratum should be dominated by large particles and free from fine sediments	Possible impact on Substratum during construction	
		Water chemistry: minerals	The groundwater and surface water should have sufficient concentrations of minerals to allow deposition and persistence of tufa deposits	Possible impact on water chemistry, quality of sediment and nutrient levels during construction	
		Water quality: suspended sediment	The concentration of suspended solids in the water column should be sufficiently low to prevent excessive deposition of fine sediments		
		Water quality: nutrients	The concentration of nutrients in the water column should be sufficiently low to prevent changes in species composition or habitat condition		
		Vegetation composition: typical species	Typical species of the relevant habitat sub-type should be present and in good condition	Possible impact on vegetation composition as a result of cycleroute on green route area K11	
		Floodplain connectivity	The area of active floodplain at and upstream of the habitat should be maintained	Potential impact on floodplain due to construction of new paths	
4030	To maintain 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 including works

	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 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. 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. Consideration will be given at project level AA to the provision of ancillary facilities for example the provision of
		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	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 structure: browsing	Long shoots of bilberry (Vaccinium myrtillus) with signs of browsing should be controlled	No potential impact	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 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
		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 composition of negative and positive indicators	
		Vegetation composition: bryophyte and non-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 composition: bryophyte and non-crustose lichen	

				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 restricted and provided away from qualifying habitats and species.
		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 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 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
		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	
		Vegetation structure: burning	No signs of burning within sensitive areas	Increased visitor pressures has potential to result in	

				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 conservation 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 following list of attributes and targets:	Habitat distribution	No decline, 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,.
		Habitat area	Area stable or increasing, subject to natural processes		
		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	30-70% of sward is between 40 and 150cm in height	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
		Vegetation composition: broadleaf herb: grass ratio	Broadleaf herb component of vegetation between 40 and 90%		
		Vegetation composition: typical species	At least 5 positive indicator species present		
		Vegetation composition: negative indicator species	Negative indicator species, particularly non-native invasive species, absent or under control-NB Indian balsam (I mpatiens glandulifera), monkeyflower (Mimulus guttatus), Japanese Knotweed (Fallopia japonica) and giant hogweed (Heracleum mantegazzianum)		
91E0	To restore the favourable conservation condition of Alluvial forests with Alnus glutinosa and Fraxinus excelsior(Alno-Padion) in the Slaney River Valley SAC, which is defined by the following list of attribut	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 destruction) and indirect (increased recreational/tourism pressure) impacts of the route on the sensitive habitats which include; *Alluvial
		Habitat distribution	No decline		
		Woodland size	Area stable or increasing. Where topographically possible, "large" woods at	Potential for decrease in woodland size as a result of the proposed route	

	es and targets:		least 25ha in size and "small" woods at least 3ha in size		forest with *Alnus Glutinosa* and *Fraxinus excelsior*
		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	
		Woodland structure: community diversity and extent	Maintain diversity and extent of community types		
		Woodland structure: natural regeneration	Seedlings, saplings and pole age-classes 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 (greater than 20cm diameter in the case of alder)		
		Woodland structure: veteran trees	No decline		
		Woodland	No decline		

		structure: indicators of local disctinctiveness			
		Vegetation composition: native tree cover	No decline. Native tree cover not less than 95%	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: typical species	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 excelsior)		
		Vegetation composition: negative indicator species	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 Code	**Conservation Objective**	**Attribute**	**Target**	**Potential Impact**	**Mitigation**
1210	Annual vegetation of drift lines (adapted from Carlingford Shore SAC	Habitat area	Area stable or increasing, subject to natural processes, including erosion and succession	Extent of impact unknown due to lack of mapping data – precautionary approach – apply	Any future development of the proposed cycle route including works on existing roadways should include
		Habitat distribution	No decline, or change in habitat		

	002306)		distribution, subject to natural processes	mitigation	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.
		Physical structure: sediment supply	Maintain natural circulation of sediments and organic matter, without any physical obstructions		
		Vegetation structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession		
		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).		
		Vegetation composition: typical species and sub communities	Negative indicators (including non-native species) should represent less than 5% of the vegetation cover.		
1220	To maintain the favourable conservation condition of Perennial vegetation of stony banks in The Murrough Wetlands SAC002249which is defined by the following attributes and targets: (derived from Castlemaine Harbour	Habitat area	Area stable or increasing, subject to natural processes, including erosion and succession	Extent of impact unknown due to lack of mapping data – precautionary approach – apply mitigation	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 habitats which include; Perennial vegetation of stony banks.
		Habitat distribution	No decline, subject to natural processes		
		Physical structure: functionality and sediment supply	Maintain the natural circulation of sediment and organic matter, without any physical obstructions		
		Vegetation structure: zonation	Maintain the range of coastal habitats including transitional		

	SAC Objectives and Targets SAC000343)		zones, subject to natural processes including erosion and succession.		
		Vegetation composition: typical species and sub-communities	Maintain the presence of 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 by the following list of attributes and targets: (derived from Baldoyle SAC Objectives and Targets SAC000199)	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.
		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

			matter, without any physical obstructions	project that would result in change in circulation of sediment and organic matter	
		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 the natural processes of erosion and succession as a result of this route.	
		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 impact on vegetation structure as a result of 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 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: vegetation cover	Maintain more than 90% of the area outside of the creeks vegetated		
		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 impact on vegetation composition as a result of 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 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 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 obstructions	There will be no physical obstruction as part of the project that would result in change in circulation of sediment and organic matter	Non required
		Physical structure: creeks and pans	Maintain creek and pan structure, subject to natural processes, including erosion and succession		
		Physical Structure: flooding regime	Maintain natural tidal regime	There will be no change to the tidal regime as a result of the cycleway	
		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	
		Vegetation structure: vegetation height	Maintain structural variation within sward	Potentail impact on vegetation structure	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 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: vegetation cover	Maintain more than 90% of the area outside of the creeks vegetated		
		Vegetation composition: typical species and sub communities	Maintain range of subcommunities with typical species listed in the Saltmarsh Monitoring Project (McCorry	Potential impact on 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

			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 attributes. Also possible impact on hydrology.	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 habitats which include; *Calcareous fens with Cladium mariscus and species of the *Claricion davallianae*. 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.
		Habitat distribution	No decline, subject to natural processes		
		Hydrological regime	Appropriate natural hydrological regime necessary to support the natural structure and functioning of the habitat		
		Peat formation	Active peat formation, where appropriate		
		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	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%		
7230	To maintain the favourable	Physical structure: drainage	Areas showing signs of drainage as a result of		

	conservation condition of Alkaline Fens in The Murrough Wetlands SAC which is defined by the following attributes and targets:	Percentage	drainage ditches or heavy trampling not more than 10%		
		Habitat distribution	No decline, subject to natural processes		
		Hydrological regime	Appropriate natural hydrological regime necessary to support the natural structure and functioning of the habitat		
		Peat formation	Active peat formation, where appropriate		
		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	Cover of scattered native trees and shrubs less than 10%		
		Physical structure: disturbed bare ground	Cover of disturbed bare 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%		

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**
	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, 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
		Range	no significant decrease in the range, timing or intensity of use of areas		
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	Long term population trend stable or increasing		
		Distribution	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		
A046	To maintain the favourable conservation	Population trend	Long term population trend stable or increasing		

	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 at 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	Long term population trend stable or increasing		
		Distribution	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	Long term population trend stable or increasing		
		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		

	SPA004015 Objectives and Targets)				
A179	To maintain the favourable conservation condition of Black-headed 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	Long term population trend stable or increasing		
		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.		
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 attri butes and targets: (derived from River Nanny Estuary and Shore SPA004158 Objectives and Targets)	Population trend	Long term population trend stable or increasing		
		Distribution	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)		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.
		Productivity rate: fledged young per breeding pair	No significant decline		
		Distribution: breeding colonies	No significant decline		
		Barriers to connectivity	No significant decline		
		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 and TargetsSPA004080)	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 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 Code	**Conservation Objective**	**Attribute**	**Target**	**Potential Impact**	**Mitigation**
7110	To maintain or restore the favourable	None available at time of review	None available at time of review	Potential impact on hydrology if construction	Detailed hydrological assessment

	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 to site due to improved access.	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) 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 *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.
7120	Degraded raised bogs s till capable of natural re generation				
7150	Depressions on peat su bstrates of the Rhyncho sporion				

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 (A130), Ringed Plover (A137), Golden Plover (A140), Knot (A143),	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 assessment of any impacts that may arise as a direct (habitat or species
		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	

	Sanderling (A144), Herring Gull (A184) in River Nanny Estuary and Shore SPA, which is defined by the following list of attributes and targets:		relevant bird species other than that occurring from natural patterns of variation	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 favourable conservation condition 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 occupied by the wetland habitat should be stable with no decrease other than that occurring as a result of natural patterns of variation.	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 (Merlin) and Perigrine Falcon	Population Trend	Long term population trend stable or increasing	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 bird species that use the mountainous 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 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.
		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		

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**	**Attribute**	**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)	Population trend	Long term population trend stable or increasing	Disturbance from increased visitor pressure in area	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. 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.
		Distribution	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		
	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	Long term population trend stable or increasing	Disturbance from increased visitor pressure in area	
		Distribution	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		