

NATURA IMPACT REPORT

**IN SUPPORT OF THE
APPROPRIATE ASSESSMENT
FOR
POOLBEG WEST SDZ
PLANNING SCHEME
(SI NO. 279 OF 2016)**

**IN ACCORDANCE WITH THE REQUIREMENTS OF
ARTICLE 6(3) OF THE EU HABITATS DIRECTIVE**

for: **Dublin County Council**

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1 Introduction

1.1 Background

CAAS Ltd. has been appointed by Dublin City Council to prepare this Natura Impact Report in support of the Appropriate Assessment (AA) of the Poolbeg West SDZ Planning Scheme in accordance with the requirements of Article 6(3) of the EU Habitats Directive¹.

An Appropriate Assessment is a requirement of Article 6 of the Council Directive 92/43/EEC of 21 May 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora (as amended) (hereafter referred to as the "Habitats Directive"). The overall aim of the Habitats Directive is to maintain or restore the "Favourable Conservation Status" of habitats and species of European Community Interest. These habitats and species are listed in the Habitats and Birds Directives (Council Directive 2009/147/EC on the conservation of wild birds) with Special Areas of Conservation and Special Protection Areas designated to afford protection to the most vulnerable of them. These two designations are collectively known as European Sites.

European and national legislation places a collective obligation on Ireland and its citizens to maintain habitats and species in European Sites at favourable conservation condition. The Government and its agencies are responsible for the implementation and enforcement of regulations (in particular Part XAB of the Planning and Development (Amendment) Act 2010 and the European Communities (Birds and Natural Habitats) Regulations, 2011 (S.I. 477) (often referred to as the Habitats Regulations) to ensure the ecological integrity of these sites. Appropriate Assessment (AA) is an assessment of whether a plan or project, alone and in combination with other plans or projects, could have significant effects on a European Site in view of the site's conservation objectives.

A Strategic Environmental Assessment (SEA) has been undertaken to assess the impacts of the Planning Scheme on a number of environmental considerations including biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage, landscape and the interrelationship between these considerations, whenever applicable.

1.2 Legislative Context

The Appropriate Assessment process (AA) is an assessment of the potential for adverse or negative effects of a plan or project, in combination with other plans or projects, on the conservation objectives of a European Site. These sites consist of Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) and provide for the protection and long-term survival of Europe's most valuable and threatened species and habitats.

The Habitats Directive provides legal protection for habitats and species of European importance. Articles 3 to 9 provide the legislative means to protect habitats and species of Community interest through the establishment and conservation of an EU-wide network of sites known as Natura 2000. In Ireland, these are candidate Special Areas of Conservation (cSACs) designated under the Habitats Directive and Special Protection Areas (SPAs) designated under the Conservation of Wild Birds Directive (79/409/ECC), hereafter referred to as European Sites.

Articles 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans and projects likely to affect European Sites. Article 6(3) establishes the requirement for AA:

"Any plan or project not directly connected with or necessary to the management of the [Natura 2000] site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subjected to appropriate

¹ Directive 92/43/EEC

assessment of its implications for the site in view of the site's conservation objectives. In light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.

If, in spite of a negative assessment of the implications for the [Natura 2000] site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, Member States shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.

Where the site concerned hosts a priority natural habitat type and/or a priority species the only considerations which may be raised are those relating to human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest."

These requirements are implemented in the Republic of Ireland by the European Communities (Birds and Natural Habitats) Regulations 2011. These regulations consolidate the European Communities (Natural Habitats) Regulations 1997 to 2005 and the European Communities (Birds and Natural Habitats) (Control of Recreational Activities) Regulations 2010, as well as addressing transposition failures identified in judgements of the Court of Justice of the European Union (CJEU).

If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project may nevertheless be carried out for "Imperative Reasons of Overriding Public Interest", including those of a social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of European Sites is protected. It shall inform the Commission of the compensatory measures adopted. Where the site concerned hosts a priority natural habitat type and/or a priority species, the only considerations which may be raised are those relating to human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest.

Appropriate Assessment should be based on best scientific knowledge and Planning Authorities should ensure that scientific data (ecological and hydrological expertise) is utilised. This report details a Natura Impact Report to inform the AA process which is finalised by the statutory authority.

1.3 Guidance

This Natura Impact Report has been prepared in accordance with the following guidance:

- *Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities. Department of the Environment, Heritage and Local Government, 2010.*
- *Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC, European Commission Environment DG, 2002.*
- *Managing Natura 2000 sites: The Provisions of Article 6 of the Habitats Directive 92/43/EEC: European Commission, 2000.*
- *Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC, Office for Official Publications of the European Communities, Luxembourg (EC 2001);*

- *Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC – Clarification of the concepts of: alternative solutions, imperative reasons of overriding public interest, compensatory measures, overall coherence, opinion of the commission. Office for Official Publications of the European Communities, Luxembourg (EC 2007).*
- *Flora (Protection) Order, 1999 (As amended 2016)*

In addition, a detailed online review of published scientific literature and 'grey' literature was conducted. This included a detailed review of the National Parks and Wildlife Website including mapping and available reports for relevant sites and in particular sensitive qualifying interests/special conservation interests described and their conservation objectives. The EPA Envision Map-viewer (www.epa.ie) and available reports were also reviewed.

Definitions of conservation status, integrity and significance used in this assessment are defined in accordance with 'Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC' (EC, 2000).

- The conservation status of a natural habitat is defined as the sum of the influences acting on a natural habitat and its typical species that may affect its long-term natural distribution, structure and functions as well as the long-term survival of its typical species;
- The conservation status of a species is defined as the sum of the influences acting on the species concerned that may affect the long-term distribution and abundance of its population;
- The integrity of a European Site is defined as the coherence of the site's ecological structure and function, across its whole area, or the habitats, complex of habitats and/or populations of species for which the site is or will be classified;
- Significant effect should be determined in relation to the specific features and environmental conditions of the protected site concerned by the plan or project, taking particular account of the site's conservation objectives.

1.4 Stages of Screening Assessment

There are four main stages in the AA process; the requirements for each depending on likely effects to European Sites (SACs/ SPAs).

Stage One: Screening

The process which identifies the likely impacts upon a European Site of a project or plan, either alone or in combination with other projects or plans, and considers whether these impacts are likely to be significant.

Stage Two: Appropriate Assessment

The consideration of the impact on the integrity of the European Site of the project or plan, either alone or in combination with other projects or plans, with respect to the site's structure and function and its conservation objectives. Additionally, where there are adverse impacts, an assessment of the potential mitigation of those impacts. If adequate mitigation is proposed to ensure no significant adverse impacts on European Sites, then the process may end at this stage. However, if the likelihood of significant impacts remains, then the process must proceed to Stage 3.

Stage Three: Assessment of Alternative Solutions

The process which examines alternative ways of achieving the objectives of the project or plan that avoids adverse impacts on the integrity of the European Site.

Stage Four: Assessment where no alternative solutions exist and where adverse impacts remain

An assessment of compensatory measures where, in the light of an assessment of imperative reasons of overriding public interest (IROPI), it is deemed that the project or plan should proceed.

The Habitats Directive promotes a hierarchy of avoidance, mitigation and compensatory measures. First, the plan should aim to avoid any effects on European Sites by identifying possible impacts early in the plan-making process and writing the plan in order to avoid such effects. Second, mitigation measures should be applied, if necessary, during the AA process to the point where no adverse impacts on the site(s) remain. If the plan is still likely to result in effects to European Sites, and no further practicable mitigation is possible, then it must be rejected. If no alternative solutions are identified and the plan is required for imperative reasons of overriding public interest (IROPI test) under Article 6(4) of the Habitats Directive, then compensation measures are required for any remaining adverse effect.

1.4.1 Source-Pathway-Receptor Process

Ecological impact assessment of potential impacts on European Sites is conducted following a standard source-pathway-receptor process, where, in order for an impact to be established all three elements of this mechanism must be in place. The absence or removal of one of the elements of the mechanism is sufficient to conclude that a potential effect is not of any relevance or significance.

- Source(s) – e.g. pollutant run-off from works.
- Pathway(s) – e.g. groundwater connecting to nearby qualifying wetland habitats.
- Receptor(s) – qualifying aquatic habitats and species of European Sites.

In the interest of this report, receptors are the ecological features which are known to be utilised by the qualifying interests or special conservation interests of a European Site. A source is any identifiable element of the Planning Scheme provision which is known to have interactions with ecological processes. The pathways are any connections or links between the source and the receptor. This report determines if direct, indirect and cumulative adverse effects (however minor) will arise from the development.

1.4.2 Zone of Influence

Following the source-pathway-receptor process a Zone of Influence (ZOI) will be determined based on the characteristics of the development (detailed in section 2) and the foreseen distribution of likely effects through any pathways identified. Once the ZOI is established, all European Sites within it will be assessed with specific reference to the sensitive receptors of each site and pathways for effect that relate to the ecological integrity of the site.

1.5 Relationship between the Appropriate Assessment process and the Plan

Appropriate Assessment (AA) needs to be fully integrated with the various stages of the development plan process in order to ensure that the ecological implications of the plan do not impact upon any areas designated as European Sites. As the AA process, has been managed by part of the Forward Planning team, interaction has occurred from the early stages of writing of the Planning Scheme to impress the importance of protection of the European Sites and that the plan should be formulated to avoid adverse impacts on these sites. In addition, the Strategic Environmental Assessment process has been taken into account in the appropriate assessment process. The screening of objectives and the assessment of objectives in the context of mitigation measures and potential impacts of the designated sites, has been an iterative process throughout each stage of the plan-making process.

1.6 Consultation Process

The SDZ Planning Scheme is the subject of a statutory consultation process. However, in order to inform the preparation of the Scheme an extensive pre-draft consultation exercise has been carried out over 6 months since July 2016, following the designation by the Government.

This consultation has included meetings with the business community, the local residential community and a range of statutory bodies and service providers. The Elected Representatives for the area have also been engaged in the preparation of the Planning Scheme by way of regular updates and feedback. Statutory consultees were engaged such as the Environmental Protection Agency (EPA) and the National Parks and Wildlife Services (NPWS). Meetings with these consultees informed the preparation of the Planning Scheme with concerns or issues raised during the consultation process addressed. Responses received during SEA scoping and subsequent consultation of the Planning Scheme have informed the content and scope of the AA.

2 Description of the Planning Scheme and Receiving Environment

2.1 Context of the Planning Scheme

The Dublin City Development Plan 2016-2022 (DCDP) identified the Poolbeg West area as one of 18 Strategic Development and Recreation Areas (SDRA), and from this the Poolbeg West SDZ Planning Scheme was prepared. The Planning Scheme must be compliant with all the policies and measures set out within the higher-level planning City Development Plan. The SDRA has set specific development principals in Section 15.1.1.6 for the Poolbeg West area in the following areas:

- Housing
- Employment
- Education
- Social
- Economic
- Business
- Maritime
- Marketing
- Environment
- Movement/Transport
- Land-Use/Urban Design
- Flood Risk
- Implementation

The SDRAs have been developed to be consistent with the Regional Planning Guidelines directions and to be developed out under the provisions of the Dublin City Development Plan and in particular protecting and future conservation of designated sites.

2.2 Current Operation

Poolbeg West, Dublin City Order (S.I No. 279 of 2016). The SDZ lands which comprise approximately 34 hectares are deemed to be of economic and social importance to the State.

The area specified in the Order is for a mixed-use development which may principally include residential development, commercial and employment activities including, office, hotel, leisure and retail facilities, port related activities and the provision of educational facilities, transport infrastructure, emergency services and the provision of community facilities as referred to in Part III of the First Schedule to the Act, including health and childcare services, as appropriate.

The southern portion of the Poolbeg West SDZ contains the former Irish Glass Bottle (IGB) land and the adjacent Fabrizia land. The IGB land comprises 10.1 hectares of land bounded by Sean Moore Road along its north-western edge. It occupies a gateway location to the remainder of the Poolbeg peninsula to the east. The Fabrizia land is a brownfield site of 4.6 hectares in private ownership. The land is closely related to the IGB land in character and position but is closer to Dublin Bay and further from existing residential areas and from the main road network.

The eastern portion of the Poolbeg West SDZ comprises a 10.7 ha site, currently under the ownership of Dublin Port. The majority of this site is open with the western third occupied by concrete production facilities and smaller miscellaneous industrial uses. The southern edge is adjacent to Dublin Bay and the northern edge is bounded by the major utilities installations located in the centre of the peninsula.

The northern portion of the SDZ lands comprises a 7.5 ha site, which forms part of the Dublin Port container park. It is currently owned by Dublin Port and is in active use as a trailer and container storage area to serve the Dublin Port Load on Load off (LoLo) shipping facility. Whitebank Road runs south west to north east through this portion of SDZ lands.

The individual sites when combined have an area of 32.9 ha, with the overall study area including roads etc. having an area of approximately 34 ha.

2.3 Description of the Planning Scheme

The main aim of the Planning Scheme is to set out a framework for the physical development of the Poolbeg West SDZ area so that growth may take place in a coordinated, sensitive and orderly manner, while at the same time being sensitive to the environment.

Within the 34ha of the Poolbeg West SDZ, there is potential for significant development for major economic and community expansion, a substantial scale in the context of city-centre regeneration. The North Lotts and Grand Canal Dock SDZ (22ha) identified 305,000m² of commercial floorspace equating to c23,000 workers and on this basis, the SDZ could accommodate 80,000 – 100,000m² commercial floor space, providing employment for up to c8,000 workers.

As detailed above the policies and objectives outlined in the Planning Scheme are in addition to the development principles, policies and objectives contained in the Dublin City Development Plan 2016-2022.

2.3.1 Planning Scheme Vision

Several studies, masterplans and development frameworks have been prepared in the past to guide development within the Poolbeg Peninsula, each outlining a unique vision. More recently the Dublin City Development Plan (DCDP) sets out a series of principles to guide the development of Poolbeg West (see Section 15.1.1.9 of the DCDP). The visions for the Poolbeg Peninsula, past and present, have all sought to connect with the transport infrastructure and social and economic fabric of the City, to create a new high quality ‘place’ that is unique and to protect the surrounding environment and ongoing functions of the port and municipal facilities. A number of these objectives also emerged throughout the pre-draft consultation process, with a particular emphasis the need for integration with local communities and amenities.

These themes of ‘Connect’, ‘Create’ and ‘Protect’ encompass a holistic set of values that form the basis of a new three-tiered vision for the development of Poolbeg West:

- CONNECT with the physical, environmental, economic and social fabric of the city, the bay and adjoining neighbourhoods.
- CREATE a new sustainable urban neighbourhood that responds to the areas unique location and enhances the enjoyment of local amenities.
- PROTECT the special status of Dublin Bay, the intrinsic functions of the port/municipal facilities and the amenity of existing and future residents.

This vision is expanded below as set of Key Principles that will shape the development of the Poolbeg West. These principles should also be read in conjunction with the Concept Plan, which will further guide the physical development of the Poolbeg West.

2.4 Relationship with other Relevant Plans and Programmes

The Poolbeg SDZ Planning Scheme sits within a hierarchy of land use forward planning strategic actions. The Planning Scheme must comply with relevant higher level strategic actions and may, in turn, guide lower level strategic actions. The Poolbeg SDZ sits within a planning hierarchy beneath the Dublin City Development Plan (DCDP) 2016-2022 which itself sits beneath and must be consistent with higher level strategies and plans such as the National Spatial Strategy and the Regional Planning Guidelines.

2.4.1 The National Spatial Strategy

The National Spatial Strategy sets out the strategic planning framework for the future development of Ireland. The NSS focuses on the physical consolidation of the metropolitan area, which includes the entire functional area of DCC. This necessitates the sustainable development of all vacant, derelict and underused lands including areas of underutilised physical and social infrastructure.

2.4.2 Regional Planning Guidelines

The Regional Planning Guidelines for the greater Dublin area 2010-2022 translate the national strategy to regional level. The RPG settlement hierarchy seeks to prioritise and focus investment and growth to achieve integration in services, infrastructure, transport, economic activity and new housing. The Dublin Regional Authority have been replaced by Eastern and Midlands regional assembly with a Regional spatial and economic strategy for the region being published following the publication of the National Planning Framework.

2.4.3 Dublin City Development Plan 2016-2022

Dublin City Development Plan (2016-2022) provides an integrated, coherent framework to ensure the development of the city in an inclusive way which includes the quality of living for current citizens and making it a more appealing place to work or live. Poolbeg West presents an opportunity to deliver significant levels of private and public housing, employment, schools and community and recreational facilities within the life of the plan.

2.4.4 Environmental Protection Objectives

The Planning Scheme is subject to a number of high level environmental protection policies and objectives with which it must comply. Examples of Environmental Protection Objectives include the aims of the EU Habitats Directive which is to contribute towards ensuring biodiversity through the conservation of natural habitats and of wild fauna and flora in the European territory of Member States and the purpose of the Water Framework Directive which is to establish a framework for the protection of inland surface waters, transitional waters, coastal waters and groundwater which, among other things, prevents deterioration in the status of all water bodies and protects, enhances and restores all waters with the aim of achieving good status.

3 Screening for Appropriate Assessment

3.1 Introduction to Screening

3.1.1 Background to Screening

This stage of the process identifies any likely significant impacts upon European Sites from a project or plan, either alone or in combination with other projects or plans. The screening phase was progressed in the following stages. A series of questions are asked during the Screening Stage of the AA process in order to determine:

- Whether a plan or project can be excluded from AA requirements because it is directly connected with or necessary to the management of a European Site.
- Whether the project will have a potentially significant effect on a European Site, either alone or in combination with other projects or plans, in view of the site's conservation objectives or if residual uncertainty exists regarding potential impacts.

An important element of the AA process is the identification of the 'conservation objectives', 'Qualifying Interests' and/ or 'Special Conservation Interests' of European Sites requiring assessment. Qualifying Interests (QI's) are the habitat features and species listed in Annex I & II of the EU Habitats Directive (92/43/EEC) for which each European Site has been designated and afforded protection. The 'Special Conservation Interests' (SCI's) are wetland habitats and bird species listed within Annex I & II of the Birds Directive. It is also vital that the threats to the ecological / environmental conditions that are required to support QI's and SCI's are considered as part of the assessment.

Site specific conservation objectives have been designed to define favourable conservation status for a particular habitat or species at that site. According to the European Commission interpretation document 'Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC', paragraph 4.6(3) states:

"The integrity of a site involves its ecological functions. The decision as to whether it is adversely affected should focus on and be limited to the site's conservation objectives."

Favourable conservation status of a habitat is achieved when:

- its natural range, and area it covers within that range, are stable or increasing,
- 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.

The favourable conservation status of a species is achieved when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats,
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

The screening stage of the Appropriate Assessment takes account of the elements detailed above with regard to the details and characteristics of the project or plan to determine if potential for effects to the integrity of the European Site are likely. The characteristics of the Planning Scheme were constructed through an iterative process, as a result the European Sites which are screened below may differ from those of high level plans, due to refinements in the methods/project details available.

3.1.2 Desktop Studies

The ecological desktop study completed for the Planning Scheme comprised the following elements:

- Identification of European Sites within 15km with identification of potential pathways links for specific sites (if relevant) greater than 15km from the development study area;
- Review of the NPWS site synopsis and conservation objectives for European Sites with identification of potential pathways from the development; and
- A series of ecological desk studies were undertaken in March 2017. This included but is not limited to the collation of information on protected species including Bats, Otters, Bird species (including Annex I species), Annex II habitat types, protected and Red Data Book Flora species, invertebrates and amphibians. The results of these studies are included as part of the Appropriate Assessment where they were deemed relevant to the European Sites and their QI's/SCI's.

3.2 Identification of Relevant European Sites

This section of the screening process describes the European Sites which exist within the Zone of Influence of the site. The DoEHLG (2009) Guidance on Appropriate Assessment recommends a 15km buffer zone be considered around the site. It is not foreseen that in the absence of significant hydrological links the characteristics of this plan (detailed above) will impose impacts beyond this Zone of Influence. The coastal nature, topography and characteristics of the site limits the level of groundwater interactions present, the GSI groundwater vulnerability ranking of the area is 'Low' ².

Those European Sites that occur within 15km of the Planning Scheme area or that were identified to have hydrological linkages to the Planning Scheme Area are listed in Table 3-1 and illustrated in Figure 1 below. None of the sites identified are vulnerable to groundwater effects.

In order to determine the potential for effects from the Planning Scheme, information on the qualifying features, known vulnerabilities and threats to site integrity pertaining to any potentially affected European Sites was reviewed. Background information on threats to individual sites and vulnerability of habitats and species that was used during this assessment included the following:

- *Ireland's Article 17 Report to the European Commission "Status of EU Protected Habitats and Species in Ireland" (NPWS, 2013).*
- *Site Synopses.*
- *NATURA 2000 Standard Data Forms.*

Since the conservation objectives for the European Sites focus on maintaining the favourable conservation condition of the QI's/SCI's of each site, the screening process concentrated on assessing the potential implications of the Poolbeg West SDZ against the QI's/SCI's of each site. The attributes and targets associated with the conservation objectives for each site were considered in the assessment. In general terms, these related to habitat extent or population trends of designated features and the maintenance or improvement of habitat quality or population trends (Appendix II).

² GSI (2017) <http://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=bc0dba38f3f5477c8fd400f66b5eedcd>

Table 3-1 European Sites within the 15km Zone of Influence of the Poolbeg West SDZ Planning Scheme, or that have been identified with significant hydrological links to the Poolbeg West SDZ area.

Site Code	Site Name	Distance (km)
004024	South Dublin Bay and River Tolka Estuary SPA ³	Within SDZ Boundary
000210	South Dublin Bay SAC ⁴	0 – Directly Adjacent
004006	North Bull Island SPA ⁵	2.6
000206	North Dublin Bay SAC ⁶	2.69
003000	Rockabill to Dalkey Island SAC ⁷	7.37
000202	Howth Head SAC ⁸	7.76
000199	Baldoyle Bay SAC ⁹	8.13
004016	Baldoyle Bay SPA ¹⁰	8.13
004172	Dalkey Island SPA ¹¹	9.49
004113	Howth Head Coast SPA ¹²	10.13
004117	Ireland's Eye SPA ¹³	11.28
002193	Ireland's Eye SAC ¹⁴	11.48
000205	Malahide Estuary SAC ¹⁵	11.67
002122	Wicklow Mountain SAC ¹⁶	11.9
004040	Wicklow Mountains SPA ¹⁷	12.15
004025	Malahide Estuary SPA ¹⁸	12.35
001209	Glenasmole Valley SAC ¹⁹	13.46
000725	Knocksink Wood SAC ²⁰	13.78
000713	Ballyman Glen SAC ²¹	14.41

³ NPWS (2015) Conservation Objectives: South Dublin Bay and River Tolka Estuary SPA 004024. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

⁴ NPWS (2013) Conservation Objectives: South Dublin Bay SAC 000210. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

⁵ NPWS (2015) Conservation Objectives: North Bull Island SPA 004006. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

⁶ NPWS (2013) Conservation Objectives: North Dublin Bay SAC 000206. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

⁷ NPWS (2013) Conservation Objectives: Rockabill to Dalkey Island SAC 003000. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

⁸ NPWS (2016) Conservation Objectives: Howth Head SAC 000202. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.

⁹ NPWS (2012) Conservation Objectives: Baldoyle Bay SAC 000199. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

¹⁰ NPWS (2013) Conservation Objectives: Baldoyle Bay SPA 004016. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

¹¹ NPWS (2016) Conservation objectives for Dalkey Islands SPA [004172]. Generic Version 5.0. Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.

¹² NPWS (2016) Conservation objectives for Howth Head Coast SPA [004113]. Generic Version 5.0. Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs

¹³ NPWS (2016) Conservation objectives for Ireland's Eye SPA [004117]. Generic Version 5.0. Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.

¹⁴ NPWS (2017) Conservation Objectives: Ireland's Eye SAC 002193. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.

¹⁵ NPWS (2013) Conservation Objectives: Malahide Estuary SAC 000205. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

¹⁶ NPWS (2016) Conservation objectives for Wicklow Mountains SAC [002122]. Generic Version 5.0. Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.

¹⁷ NPWS (2016) Conservation objectives for Wicklow Mountains SPA [004040]. Generic Version 5.0. Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.

¹⁸ NPWS (2013) Conservation Objectives: Malahide Estuary SPA 004025. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

¹⁹ NPWS (2016) Conservation objectives for Glenasmole Valley SAC [001209]. Generic Version 5.0. Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.

²⁰ NPWS (2016) Conservation objectives for Knocksink Wood SAC [000725]. Generic Version 5.0. Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.

²¹ NPWS (2016) Conservation objectives for Ballyman Glen SAC [000713]. Generic Version 5.0. Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.

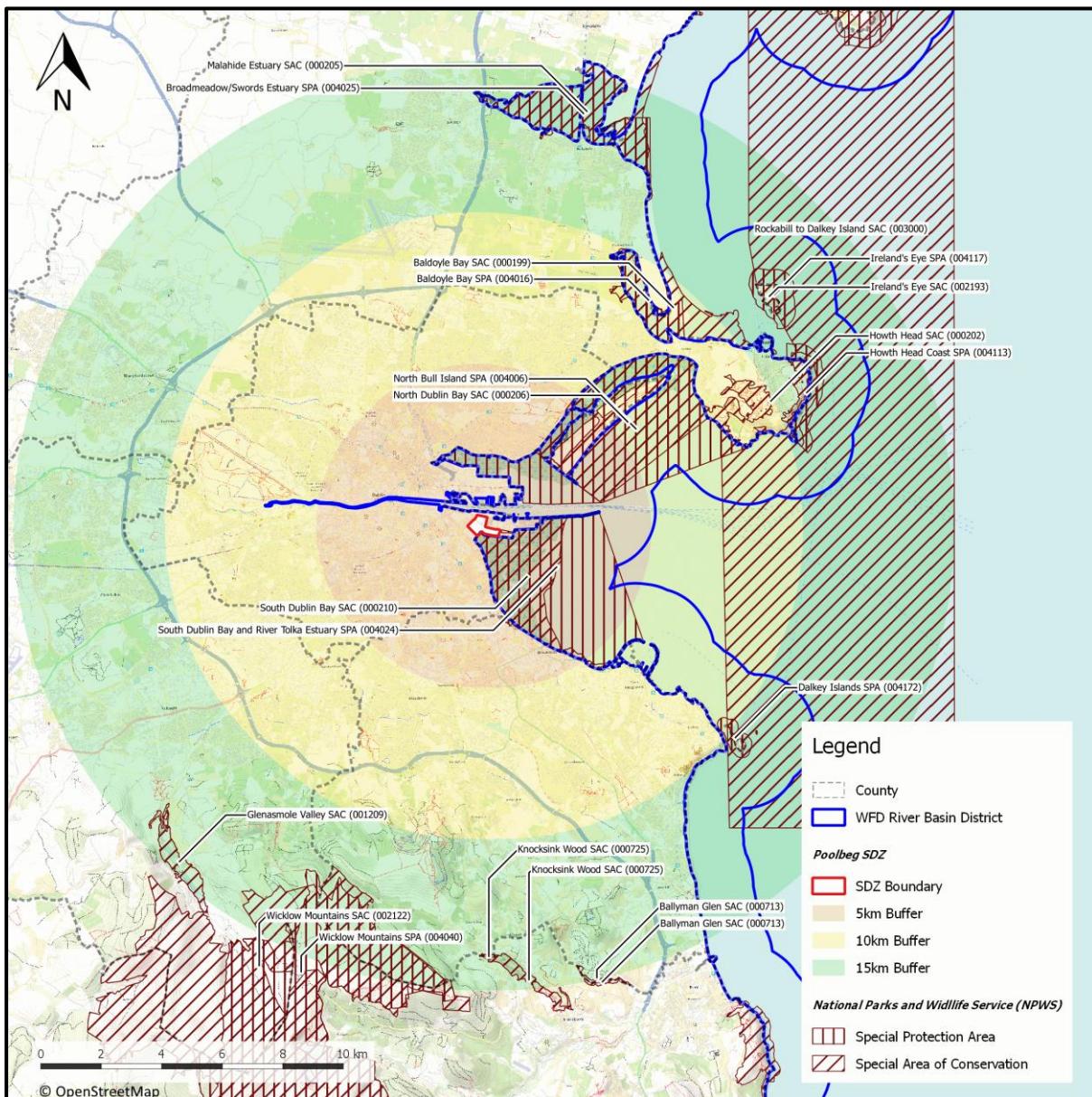


Figure 1 European Sites with Hydrological Links or Within 15 km of the Planning Scheme Area

Source: NPWS (datasets downloaded November 2016)

3.3 Assessment Criteria

3.3.1 Is the Plan Necessary to the Management of European Sites?

Under the Habitats Directive, Plans that are directly connected with or necessary to the management of a European Site do not require AA. For this exception to apply, management is required to be interpreted narrowly as nature conservation management in the sense of Article 6(1) of the Habitats Directive. This refers to specific measures to address the ecological requirements of annexed habitats and species (and their habitats) present on a site(s). The relationship should be shown to be direct and not a by-product of the plan, even if this might result in positive or beneficial effects for a site(s).

The Planning Scheme is a tool to provide a framework for development within the Poolbeg West Area, this area was identified as zone of SDRA by the DCDP. Therefore, primary purpose of the Planning Scheme is not the nature conservation management of European Sites but to provide for development within the Poolbeg West SDZ area. Therefore, the Planning Scheme is not considered by the Habitats Directive to be directly connected with or necessary to the management of European designated sites.

3.3.2 Elements of the Planning Scheme with Potential to Give Rise to Significant Effects

This screening assessment process identifies whether the changes brought about by the Planning Scheme are likely to cause any direct, indirect or secondary impacts (either alone or in combination with other plans or projects) on European Sites. During this assessment, a number of factors were taken into account including the sites' conservation objectives and known threats. The overall aim of the assessment is to attempt to predict the consequences that can be reasonably foreseen by implementation of a policy or objective.

It should be noted that the policies and objectives that make up the Planning Scheme are strategic in nature and therefore the impact assessment can at best be generalised.

The overall aim of the Planning Scheme is to set out a framework for the physical development of the Poolbeg West SDZ area so that growth may take place in a coordinated, sensitive and orderly manner, while at the same time being sensitive to the environment. As its primary focus is development within the area sections 3 to 11 within the Planning Scheme contain provisions that could, in the absence of mitigation, potentially give rise to significant effects to European Sites. These provisions include:

- Residential development
- The development of community facilities such as schools
- The development of commercial offices and other commercial units
- Increases public service facilities within the area
- Provision on public roadway/pathway improvements etc.

No projects giving rise to significant adverse direct, indirect, or secondary impacts on the integrity of any European Sites having regard to their conservation objectives, arising from their size or scale, shall be permitted on the basis of this Planning Scheme (either individually or in combination with other plans or projects)²².

3.3.3 Identification of Potential Likely Significant Effects

This section documents the final stage of the screening process. It has used the information collected on the sensitivity of each European Site and describes any likely significant effects resulting from the

²² Except as provided for in Section 6(4) of the Habitats Directive, viz. There must be:
a) no alternative solution available,
b) imperative reasons of overriding public interest for the plan to proceed; and
c) Adequate compensatory measures in place.

implementation of the Planning Scheme. This assumes the absence of any controls, conditions, or mitigation measures. In determining the potential for significant effects, a number of factors have been taken into account. Firstly, the sensitivity and reported threats to the European Site. Secondly, the individual elements of the Planning Scheme and the potential effect they may cause on the site were considered.

Sites are screened out based on one or a combination of the following criteria:

- where it can be shown that there are pathways for effects such as no hydrological links between activities Poolbeg and Environs, and the site to be screened;
- where the site is located at such a distance from Poolbeg SDZ that effects are not foreseen;
- where it is that known threats or vulnerabilities at a site cannot be linked to potential impacts that may arise from implementation of the Planning Scheme.

The screenings of individual European Sites within 15km of the Poolbeg West SDZ area or with identified hydrological linkages to Planning Scheme are presented in Table 3-2 below (sites sorted by distance from the Planning Scheme boundary).

Table 3-2 Screening of European Sites within 15 km of the Poolbeg West SDZ Planning Scheme Area

Site Code	European Site	Distance	Qualifying Interests & Special Conservation Interests²³ (Sensitive Receptors)	Potential effects (Sources of effects with regard to the qualifying interests, special conservation interests and/or conservation objectives of the European Site)	Pathway for Significant Effects	Potential for In-Combination Effects
004024	South Dublin Bay and River Tolka Estuary SPA 004024	Within Site	Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] Oystercatcher (<i>Haematopus ostralegus</i>) [A130] Ringed Plover (<i>Charadrius hiaticula</i>) [A137] Grey Plover (<i>Pluvialis squatarola</i>) [A141] Knot (<i>Calidris canutus</i>) [A143] Sanderling (<i>Calidris alba</i>) [A144] Dunlin (<i>Calidris alpina</i>) [A149] Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] Redshank (<i>Tringa totanus</i>) [A162] Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179] Roseate Tern (<i>Sterna dougallii</i>) [A192] Common Tern (<i>Sterna hirundo</i>) [A193] Arctic Tern (<i>Sterna paradisaea</i>) [A194] Wetland and Waterbirds [A999]	All construction phase works within the Planning Scheme have potential to affect the SCI's of this site. There is no direct habitat loss of SPA contained within the Planning Scheme however, there is potential for significant direct effect to the habitat quality and other effects to the special conservation interests of the SPA during construction phase. Noise disturbance is the greatest effect foreseen for the SCI's. Similarly, there is potential for effects during the operational phase through activities such as increased amenity usage of the SPA. Contamination may arise through poor working practices, leakages or accidental spillage of materials if efficient pollution control measures are not fully implemented and maintained. There is a hydrological link between the Poolbeg West SDZ area and the SAC.	Yes	Yes
000210	South Dublin Bay SAC 000210	0km	Mudflats and sandflats not covered by seawater at low tide [1140] Annual vegetation of drift lines [1210] Salicornia and other annuals colonising mud and sand [1310] Embryonic shifting dunes [2110]	All construction phase works within the Planning Scheme have potential to affect the QI's of this site. There is no direct habitat loss of the qualifying interests contained within the Planning Scheme however, there is potential for significant direct effects on the habitats and other qualifying interests of the SAC. Similarly, there is potential for effects during the operational phase through activities such as increased amenity usage of the SAC. The QI's are particularly sensitive to amenity usage and the pressures associated with a 'tidy'	Yes	Yes

				appearance' of coastlines with an unfavourable view of drift line vegetation. Contamination may arise through poor working practices, leakages or accidental spillage of materials if efficient pollution control measures are not fully implemented and maintained There is a hydrological link between the Poolbeg West SDZ area and the SAC.		
004006	North Bull Island SPA 004006	2.6km	Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] Shelduck (<i>Tadorna tadorna</i>) [A048] Teal (<i>Anas crecca</i>) [A052] Pintail (<i>Anas acuta</i>) [A054] Shoveler (<i>Anas clypeata</i>) [A056] Oystercatcher (<i>Haematopus ostralegus</i>) [A130] Golden Plover (<i>Pluvialis apricaria</i>) [A140] Grey Plover (<i>Pluvialis squatarola</i>) [A141] Knot (<i>Calidris canutus</i>) [A143] Sanderling (<i>Calidris alba</i>) [A144] Dunlin (<i>Calidris alpina</i>) [A149] Black-tailed Godwit (<i>Limosa limosa</i>) [A156] Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] Curlew (<i>Numenius arquata</i>) [A160] Redshank (<i>Tringa totanus</i>) [A162] Turnstone (<i>Arenaria interpres</i>) [A169] Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179] Wetland and Waterbirds [A999]	Bull Island is a Biosphere within Dublin and a natural draw for recreational users. Recreation activities are the most prevalent issues for the qualifying interests of the SPA. There are no significant effects foreseen as a direct result of the plan itself due to its distance from the Poolbeg West SDZ recreational use is expected to be very low. However, it is foreseen that the Planning Scheme has potential to have in-combination effects on the SCI's of the SPA through disturbance. Contamination may arise through poor working practices, leakages or accidental spillage of materials if efficient pollution control measures are not fully implemented and maintained	No	Yes
000206	North Dublin Bay SAC 000206	2.69km	Mudflats and sandflats not covered by seawater at low tide [1140] Annual vegetation of drift lines [1210] Salicornia and other annuals colonising mud and sand [1310] Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330] Mediterranean salt meadows (<i>Juncetalia maritim</i>) [1410]	The pressures at this site include threats to Annex 1 habitats protected under the EU Habitats Directive. These threats include impacts caused by digging. Due to the proximity of the Planning Scheme area to this European Site it is likely that significant effects could arise due to the plan. Contamination may arise through poor working practices, leakages or accidental	Yes	Yes

			Embryonic shifting dunes [2110] Shifting dunes along the shoreline with Ammophila arenaria (white dunes) [2120] Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] Humid dune slacks [2190] <i>Petalophyllum ralfsii</i> (Petalwort) [1395]	spillage of materials if efficient pollution control measures are not fully implemented and maintained. There is a hydrological link between the Poolbeg West SDZ area and the SAC.		
003000	Rockabill to Dalkey Island SAC 003000	7.37km	Reefs [1170] <i>Phocoena phocoena</i> (Harbour Porpoise) [1351]	Siltation changes may occur during piling operations, along with the dumping and removal of mud. Discharges from the Planning Scheme area will be controlled as detailed within the design of the plan itself. Threats to this site include indirect noise impacts as which may affect the harbour porpoise, however the distance between the Scheme area and the SAC is significant. Taking into account the attenuation of sound in Salt Water, the effects to the harbour porpoise are expected to be very low given the scope of works and the distance. Following the source-pathway-receptor process the absence or removal of one of the elements of the mechanism is sufficient to conclude that a potential effect is not of any relevance or significance. There are no pathways for significant effects present.	No	No
000202	Howth Head SAC 000202	7.76km	Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] European dry heaths [4030]	There are no effects foreseen to be likely due to the Planning Scheme. The habitats and pressures identified in the SSCO indicate that amenity use and land erosion are the biggest concern for the Sac. It is not foreseen that the Planning Scheme will contribute to these factors. Following the source-pathway-receptor process the absence or removal of one of the elements of the mechanism is sufficient to conclude that a potential effect is not of any relevance or significance. There are no pathways for significant effects present.	No	No
000199	Baldoyle Bay SAC	8.13km	Mudflats and sandflats not covered by seawater at low tide [1140]	The qualifying interests of the SAC are for tidal habitats which are 8.13km north of the	Yes	Yes

	000199		Salicornia and other annuals colonising mud and sand [1310] Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) [1330] Mediterranean salt meadows (<i>Juncetalia maritim</i>) [1410]	Planning Scheme area. The details of the Planning Scheme are not expected to effect tidal conditions or add to the site pressures of the SAC identified in the NPWS Site Synopsis. The hydrological link between the Planning Scheme area and Baldoyle Bay is negligible due to the attenuation distance of over 8km however due to the sensitivity of the qualifying interests and the digging works planned as part of the Planning Scheme, a precautionary approach is being adopted to bring this European Site to Stage 2.		
004016	Baldoyle Bay SPA 004016	8.13km	Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] Shelduck (<i>Tadorna tadorna</i>) [A048] Ringed Plover (<i>Charadrius hiaticula</i>) [A137] Golden Plover (<i>Pluvialis apricaria</i>) [A140] Grey Plover (<i>Pluvialis squatarola</i>) [A141] Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] Wetland and Waterbirds [A999]	The SCI's of this SPA are wading birds which are habitualised to urban environs; therefore, not expected to be effected by the Planning Scheme due to the distance and nature of the Scheme. The SPA however is sensitive to pollution and the qualifying Wetland Habitat is pollutant sensitive and further investigations into the hydrological links may be required.	Yes	Yes
004172	Dalkey Island SPA 004172	9.49km	Roseate Tern (<i>Sterna dougallii</i>) [A192] Common Tern (<i>Sterna hirundo</i>) [A193] Arctic Tern (<i>Sterna paradisaea</i>) [A194]	There is no significant link between the SCI's of this European Site and the Poolbeg West SDZ. Due to the large distance between the sites, combined with the absence of a hydrological link, there are no significant adverse effects foreseen from the Planning Scheme Area on the ecological integrity of the European Site. Following the source-pathway-receptor process the absence or removal of one of the elements of the mechanism is sufficient to conclude that a potential effect is not of any relevance or significance. There are no pathways for significant effects present.	No	No
004113	Howth Head Coast SPA 004113	10.13km	Kittiwake (<i>Rissa tridactyla</i>) [A188]	There is no significant link between the SCI's of this European Site and the Poolbeg West SDZ. Due to the large distance between the sites, combined with the absence of a hydrological link, there are no significant	No	No

				<p>adverse effects foreseen from the Planning Scheme on the ecological integrity of the European Site.</p> <p>Following the source-pathway-receptor process the absence or removal of one of the elements of the mechanism is sufficient to conclude that a potential effect is not of any relevance or significance. There are no pathways for significant effects present.</p>		
004117	Irelands Eye SPA 004117	11.28km	Cormorant (<i>Phalacrocorax carbo</i>) [A017] Herring Gull (<i>Larus argentatus</i>) [A184] Kittiwake (<i>Rissa tridactyla</i>) [A188] Guillemot (<i>Uria aalge</i>) [A199] Razorbill (<i>Alca torda</i>) [A200]	<p>There is no significant link between the SCI's of this European Site and the Poolbeg West SDZ. Due to the large distance between the sites, combined with the absence of a hydrological link, there are no significant adverse effects foreseen from the Planning Scheme on the ecological integrity of the European Site.</p> <p>Following the source-pathway-receptor process the absence or removal of one of the elements of the mechanism is sufficient to conclude that a potential effect is not of any relevance or significance. There are no pathways for significant effects present.</p>	No	No
002193	Irelands Eye SAC 002193	11.48km	Perennial vegetation of stony banks [1220] Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]	<p>There is no significant hydrological link between this European Site and the Planning Scheme area. Due to the large distance between the sites, combined with the absence of a hydrological link, there are no significant adverse effects foreseen from the Planning Scheme on the qualifying interests of the European Site.</p> <p>Following the source-pathway-receptor process the absence or removal of one of the elements of the mechanism is sufficient to conclude that a potential effect is not of any relevance or significance. There are no pathways for significant effects present.</p>	No	No
000205	Malahide Estuary SAC 000205	11.67km	Mudflats and sandflats not covered by seawater at low tide [1140]	Siltation changes may occur during piling operations, along with the dumping and removal of mud. Discharges from the Planning	No	No

			<p>Salicornia and other annuals colonising mud and sand [1310]</p> <p>Spartina swards (<i>Spartinion maritima</i>) [1320]</p> <p>Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330]</p> <p>Mediterranean salt meadows (<i>Juncetalia maritim</i>) [1410]</p> <p>Shifting dunes along the shoreline with Ammophila arenaria (white dunes) [2120]</p> <p>Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]</p>	<p>Scheme area will be controlled as detailed within the design of the Planning Scheme itself. There is no significant hydrological link between this European Site and the Planning Scheme area. Due to the large distance between the sites, combined with the absence of a hydrological link, there are no significant adverse effects foreseen from the Planning Scheme on the qualifying interests of the European Site.</p> <p>Following the source-pathway-receptor process the absence or removal of one of the elements of the mechanism is sufficient to conclude that a potential effect is not of any relevance or significance. There are no pathways for significant effects present.</p>		
002122	Wicklow Mountain SAC 002122	11.9km	<p>Oligotrophic waters containing very few minerals of sandy plains (<i>Littorellatalia uniflorae</i>) [3110]</p> <p>Natural dystrophic lakes and ponds [3160]</p> <p>Northern Atlantic wet heaths with Erica tetralix [4010]</p> <p>European dry heaths [4030]</p> <p>Alpine and Boreal heaths [4060]</p> <p>Calaminarian grasslands of the <i>Violetalia calaminariae</i> [6130]</p> <p>Species-rich Nardus grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe) [6230]</p> <p>Blanket bogs (* if active bog) [7130]</p> <p>Siliceous scree of the montane to snow levels (<i>Androsacetalia alpinae</i> and <i>Galeopsietalia ladanii</i>) [8110]</p> <p>Calcareous rocky slopes with chasmophytic vegetation [8210]</p> <p>Siliceous rocky slopes with chasmophytic vegetation [8220]</p> <p>Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0]</p> <p><i>Lutra lutra</i> (Otter) [1355]</p>	<p>There is no significant hydrological link between this European Site and the Planning Scheme area. Due to the large distance between the sites, combined with the absence of a hydrological link, there are no significant adverse effects foreseen from the Planning Scheme on the ecological integrity of the European Site.</p> <p>Following the source-pathway-receptor process the absence or removal of one of the elements of the mechanism is sufficient to conclude that a potential effect is not of any relevance or significance. There are no pathways for significant effects present.</p>	No	No

004040	Wicklow Mountains SPA 004040	12.15km	Merlin (<i>Falco columbarius</i>) [A098] Peregrine (<i>Falco peregrinus</i>) [A103]	<p>There is no significant link between the SCI's of this European Site and the Poolbeg West SDZ. Due to the large distance between the sites, combined with the absence of a hydrological link, there are no significant adverse effects foreseen from the Planning Scheme on the ecological integrity of the European Site.</p> <p>Following the source-pathway-receptor process the absence or removal of one of the elements of the mechanism is sufficient to conclude that a potential effect is not of any relevance or significance. There are no pathways for significant effects present.</p>	No	No
004025	Malahide Estuary SPA 004025	12.35km	Great Crested Grebe (<i>Podiceps cristatus</i>) [A005] Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] Shelduck (<i>Tadorna tadorna</i>) [A048] Pintail (<i>Anas acuta</i>) [A054] Goldeneye (<i>Bucephala clangula</i>) [A067] Red-breasted Merganser (<i>Mergus serrator</i>) [A069] Oystercatcher (<i>Haematopus ostralegus</i>) [A130] Golden Plover (<i>Pluvialis apricaria</i>) [A140] Grey Plover (<i>Pluvialis squatarola</i>) [A141] Knot (<i>Calidris canutus</i>) [A143] Dunlin (<i>Calidris alpina</i>) [A149] Black-tailed Godwit (<i>Limosa limosa</i>) [A156] Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] Redshank (<i>Tringa totanus</i>) [A162] Wetland and Waterbirds [A999]	<p>There is no significant link between the SCI's of this European Site and the Poolbeg West SDZ. Due to the large distance between the sites, combined with the absence of a hydrological link, there are no significant adverse effects foreseen from the Planning Scheme on the ecological integrity of the European Site.</p> <p>Following the source-pathway-receptor process the absence or removal of one of the elements of the mechanism is sufficient to conclude that a potential effect is not of any relevance or significance. There are no pathways for significant effects present.</p>	No	No
001209	Glenasmole Valley SAC 001209	13.46km	Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>) (* important orchid sites) [6210] Molinia meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>) [6410]	<p>There is no significant hydrological link between this European Site and the Planning Scheme area. Due to the large distance between the sites, combined with the absence of a hydrological link, there are no significant adverse effects foreseen from the Planning</p>	No	No

			Petrifying springs with tufa formation (Cratoneurion) [7220]	<p>Scheme on the qualifying interests of the European Site.</p> <p>Following the source-pathway-receptor process the absence or removal of one of the elements of the mechanism is sufficient to conclude that a potential effect is not of any relevance or significance. There are no pathways for significant effects present.</p>		
000725	Knocksink Wood SAC 000725	13.78km	Petrifying springs with tufa formation (Cratoneurion) [7220] Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion, Alnion incanae, Salicion albae</i>) [91E0]	<p>There is no significant link between this European Site and the Planning Scheme area. Due to the large distance between the sites, combined with the absence of a hydrological link, there are no significant adverse effects foreseen from the Plan on the ecological integrity of the European Site.</p> <p>Following the source-pathway-receptor process the absence or removal of one of the elements of the mechanism is sufficient to conclude that a potential effect is not of any relevance or significance. There are no pathways for significant effects present.</p>	No	No
000713	Ballyman Glen SAC 000713	14.41km	Petrifying springs with tufa formation (Cratoneurion) [7220] Alkaline fens [7230]	<p>There is no significant hydrological link between this European Site and the Planning Scheme area. Due to the large distance between the sites, combined with the absence of a hydrological link, there are no significant adverse effects foreseen from the Planning Scheme on the ecological integrity of the European Site.</p> <p>Following the source-pathway-receptor process the absence or removal of one of the elements of the mechanism is sufficient to conclude that a potential effect is not of any relevance or significance. There are no pathways for significant effects present.</p>	No	No

3.4 Other Plans and Programs

Article 6(3) of the Habitats Directive requires an assessment of a plan or project to consider other plans or programmes that might, in combinations with the plan or project, have the potential to adversely impact upon European Sites. There were 6 European Sites identified with potential in-combination effects of the Planning Scheme.

The Planning Scheme was devised as a feature of the higher-level plan DCDP which described other SDRA's, as discussed above, however the in-combination effects of the DCDP and all resulting developments must be assessed. Relevant plans and projects have been reviewed that have potential to result in in-combination effects on European Sites with the Planning Scheme, these plans/projects include:

- Fingal County Development Plan 2017-2023
- South Dublin County Development Plan 2016-2022
- Dún Laoghaire-Rathdown County Development Plan 2016 -2022
- Dublin City Development Plan 2016 -2022
- Dublin Port Master Plan 2012-2040
- Dublin Dockland Masterplan 2008
- North Lotts Grand Canal Dock SDZ Planning Scheme (2013)
- Grangegorman SDZ Planning Scheme (2012)
- Dublin Port National Development Plan study 2009
- The Dublin Port 6-year Dredge Plan
- North Bull Island Management Plan
- Dublin City Biodiversity Action Plan 2015-2020
- The Dublin Waste to Energy Facility project
- Eastern River Basin District (ERBD) Management Plan 2009-2015
- S2S – Dolly mount promenade and flood protection project
- S2S – Cycleway and Footway Interim works 2013 project
- North City Arterial Watermain and Clontarf Flood defences project
- Dublin Eastern Bypass project
- Wastewater Treatment Plan Extension works at Ringsend
- Alexandra Basin Redevelopment Project
- Water Supply Project Eastern and Midland Region
- North Lotts & Grand Canal Dock SDZ Planning Scheme
- Greater Dublin Cycle Network

This AA was undertaken following an iterative process to inform the design of the Planning Scheme, a focused approach of mitigation by avoidance was taken to ensure minimizing any potential effects. The Plans and Projects listed above were assessed and considerations were made for any in-combination effects taking into account existing mitigation measures (Table 3-3).

Table 3-3 Plans or projects within the Zone of Influence of the Poolbeg West SDZ Planning Scheme that may have in-combination effects European Sites

Plan or project	Status	Overview	Possible significant effects from plan or project	Possible significant in-combination effects	Is there a risk of significant in-combination effects with the Poolbeg West SDZ Planning Scheme
Fingal County Development Plan 2017-2023	Published	To plan for support and the continued sustainable development of Fingal as an integrated network of vibrant socially and economically successful settlements, strategic green belts and open countryside, supporting and contributing to the economic development of the County and of the Dublin City Region.	Yes Appropriate Assessment carried out	No Potential impacts are to be avoided through mitigatory policies in the Planning Scheme.	Mitigation Measures within both the Plan and the Planning Scheme are robust. Development proposals which arise as a result of the Development Plan are subject to Appropriate Assessment. This will provide specific project level detail to ensure no adverse significant effects to European Sites.
South Dublin County Development Plan 2016-2022	Published	The Development Plan sets out South Dublin County Council's policies and objectives for the continued development of the County from 2016 to 2022. The Plan seeks to develop and improve in a sustainable manner the social, economic, cultural and environmental assets of the County.	No Stage 1 Appropriate Assessment carried out	No Potential impacts are to be avoided through avoidance policies in the Planning Scheme.	South Dublin County Development Plan has generally been formulated to ensure that uses, developments, and effects arising from permissions based upon the Plan (either individually or in combination with other plans or projects) shall not give rise to significant adverse impacts on the ecological integrity of any European sites.
Dún Laoghaire-Rathdown County Development Plan 2016 -2022	Published	The Plan sets out Dún Laoghaire-Rathdown County Council's policies for the sustainable development of the County to 2016 and beyond.	No Stage 1 Appropriate Assessment carried out	No Impact avoidance measures put in place.	Mitigation Measures within both the Plan and the Planning Scheme are robust. Development proposals which arise as a result of the Development Plan are subject to Appropriate Assessment. This will provide specific project level detail to ensure no adverse significant effects to European Sites.
Dublin City Development Plan 2016 -2022	Published	The Dublin City Development Plan sets out policies and objectives for Dublin City. This plan guides how and where development will take place in the city over the next 6 years. This includes SDRA sites including the Poolbeg Peninsula.	Yes Appropriate Assessment carried out	No Potential impacts are to be avoided through mitigatory policies in the Planning Scheme.	Major projects within the Dublin City Development Plan will be subject to an Environmental Impact Assessment and all statutory requirements, including a public consultation process, by the relevant authorities. An Appropriate

					Assessment of the project is also required in accordance with the Habitats Directive. The Poolbeg West Planning Scheme is a feature of this higher-level plan, there are no in combination impacts foreseen.
Dublin Port Master Plan 2012-2040	Published	The Master Plan is prepared for future sustainable growth and changes in facilitating seaborne trade in goods and passenger movements to and from Ireland and the Dublin Region.	Yes Appropriate Assessment carried out	No Potential impacts are to be avoided through mitigatory policies in the Planning Scheme.	Section 7.3 of the Dublin Port Master Plan NIS "Mitigation Principles and Strategies" will address any significant impacts on European sites.
North Lotts Grand Canal Dock SDZ Planning Scheme (2013)	Published	The Planning Scheme sets out development objectives for the sustainable development of North Lotts and Grand Canal Strategic Development Zone Area.	Yes Appropriate Assessment carried out	No Potential impacts are to be avoided through mitigatory policies in the Planning Scheme.	Appropriate Assessment "Mitigation Measures" will address any significant impacts on designated sites and significant development proposals are subject to Appropriate Assessment.
Grangegorman SDZ Planning Scheme (2012)	Published	The Planning Scheme sets out development objectives for the sustainable development of Educational Campus Complex.	No Stage 1 Appropriate Assessment carried out	No Potential impacts are to be avoided through avoidance policies in the Plan	It is concluded that the Grangegorman Planning Scheme, alone or in combination with other plans and projects, will not result in likely significant effects on European sites subject to the detailed design features being implemented correctly and sufficient capacity availability at the municipal wastewater treatment facility at Ringsend.
Dublin Port National Development Plan study 2009	Published	The report concerns an assessment of the role and future development of Dublin Port within the context of the National Development Plan.	No	No	The plan is an economic document and does not involve any physical development works.
The Dublin Port 6-year Dredge Plan	Approved	This document supports an application for a Dumping at Sea Permit for a 6-year maintenance dredging plan for the period from 2009-2014.	Yes	No	Any dredging and dumping at sea requirements for Dublin Port will be subject to Licence by the EPA.
North Bull Island Management Plan	Published	The North Bull Island Management Plan aimed to summarize and update the key data, particularly about the current status of habitats and species of	No	No	The purpose of this plan was to identify issues that could potentially affect North Bull Island and propose recommendations to address them.

		conservation status, to discuss the current management issues affecting natural heritage importance of the island and to outline specific recommendations to manage these issues.			The plan will not have any adverse effects on the European site. This plan allows for the accommodation of additional resource user which is by the Poolbeg West SDZ Planning Scheme.
Dublin City Biodiversity Action Plan 2015-2020	Published	The Biodiversity Action Plan is in place to aid with the objectives of the Dublin City Development Plan relating to quality of life, greenspace and amenity provision, planning development, and the protection of natural heritage in the city.	No	No	The purpose of this plan is to aid objectives of the Planning Scheme relating to the protection of natural heritage in the city. The plan will not have any adverse effects on the European sites.
The Dublin Waste to Energy Facility project	Approved	The Environmental Protection Agency has issued a Licence to DCC to operate a non-hazardous waste to energy facility. The Dublin Waste to Energy (DWtE) facility will be located on the Poolbeg Peninsula in Dublin.	No	No	There are no significant effects envisaged on any of the European Sites as a result of the DWtE facility. Any impacts on water quality have the potential to interfere with the key relationships and structure of the SPA as the majority of qualifying features are aquatic ecosystem based. However, during construction any discharge will be in accordance with DCC requirements and during operation the cooling water will be discharged into Dublin Bay in accordance with the EPA Waste Licence (0232-01) for the facility. There is the potential for disturbance to the Arctic and common terns nesting on the CDL and ESB Dolphins during the breeding season (May to August) during the construction phase, however mitigation will be put in place to reduce this impact.
Eastern River Basin District (ERBD) Management Plan 2009-2015	Published	The ERBD Management Plan describes the actions that are to ensure the necessary protection of our waters over the coming years. There is a second phase of the management plan due to be created.	No Appropriate Assessment carried out	No Screening for potential effects under Habitats Directive Article 6 process is put in place once details	The actions and objectives in relation to the Water Framework Directive and the ERBD Management plan are to protect and restore Protected Areas.

				of the implementation of the programme of Measures (POMs) under the ERBD are known.	
S2S – Dollymount promenade and flood protection project	Approved	<p>The Dollymount Promenade and Flood Protection Project (DPFPP) is a dual-purpose scheme:</p> <p>1. Provide promenade and cycleway connecting existing sections to complete 8km promenade and cycleway in North Dublin Bay and contribute to the overall aim of providing 22km in Dublin Bay.</p> <p>Provide flood defence between the Wooden Bridge and Causeway Road for residences along Clontarf Road and James Larkin Road.</p>	<p>Yes</p> <p>Appropriate Assessment carried out</p>	<p>No</p> <p>Mitigation policies put in place to minimise impacts.</p>	<p>The project has identified a number of potential impacts to the North Bull Island SPA and the South Dublin Bay and River Tolka Estuary SPA. The Appropriate Assessment report has a number of mitigation measure in relation to the scheme and has concluded on the basis of these that there will be no impact on the integrity of the European sites.</p>
S2S – Cycleway and Footway Interim works 2013 project	Approved	<p>The Works are approximately 2km in length, extending from Bull Road (Wooden Bridge) to Causeway Road linking existing cycle and walking routes at either end.</p>	<p>No</p> <p>Stage 1 Screening. There is no potential for significant effects on the European sites. As such the project is screened out under the Habitats Directive as not requiring a Stage 2 Appropriate Assessment.</p>	<p>No</p>	<p>The AA carried out for the project concludes that the development, with the implementation of the measures detailed in Section 8.0, will have no adverse effect on the integrity of any of the European Sites.</p>
North City Arterial Watermain and Clontarf Flood Defences project	Approved	<p>The New Water Pipeline from Fairview Park to Sutton and construction of flood defences along Clontarf Promenade, Dublin 3 was approved with conditions in 2008.</p> <p>Flood defence works will be carried out affecting the entire area of Clontarf Promenade, an area of public open space with path and cycleways, amenity</p>	<p>No</p> <p>Stage 1 screening.</p> <p>The Report concluded "that the project will have no adverse effect on the integrity of either of the Natura 2000 sites listed and as</p>	<p>No</p>	<p>Some potential temporary effects have been identified in relation to construction activities. However, mitigation measures for wintering waterfowl are principally comprise of seasonal restriction on construction activity on the pipeline in the section adjoining the South Bull Lagoon. The work on this section of the pipeline will be carried out between mid-April</p>

		grassland and ornamental tree and shrub planting. The existing sea wall and the rock-armoured shoreline to the west near Alfie Byrne Road are the boundaries with the area.	such this report returns a conclusion that there is no potential for significant effects on the Natura 2000 sites."		and mid-August. This would ensure that work is completed during the summer months when waterfowl numbers are low, and will minimise disturbance to birds.
Dublin Eastern Bypass project	Feasibility	The Dublin Eastern Bypass will complete a full ring motorway for the city by closing the 11km gap that exists on the south-eastern side between the Dublin Port Tunnel and the M50. A 2007 feasibility study recommended three options that included a viaduct or bored tunnel across the Port, a viaduct or tunnel across Sandymount Strand, and tunnels and cuttings from there to the N11 and Sandyford. Whilst there is a commitment to this project, a detailed timetable is not available. However, the development may be implemented by 2030.	Yes	Yes	The feasibility study concluded that a viaduct would have some limited impacts on the ecology of the South Dublin Bay but also that this would require more detailed examination. Bored tunnels were recommended, but the detailed construction techniques would depend on the geology of the area. Temporary construction shafts may be required in the bay. In addition, surface facilities, such as tunnel ventilation points, could have small ecological impacts. A viaduct across the Strand would result in some loss of intertidal habitat, possible interference with local tidal flows, disturbance of seabirds and impacts on Annex I habitats. Additional information is required to finalize route options and thereby determine potential ecological impacts. Possible Natura 2000 sites affected would be the South Dublin Bay SAC and the South Dublin Bay and River Tolka Estuary SPA.
Wastewater Treatment Plan Extension Works at Ringsend	Approved	The Project aims to extend the Ringsend Wastewater Treatment Works to its full intended capacity and also to end the discharge of treated water at the Liffey River Estuary, moving it instead to a new point further offshore. The new offshore location would be approximately 9 km out from the Poolbeg Peninsula and would take	Yes Appropriate Assessment carried out	No Mitigation measures put in place to minimise effects.	Some potential impacts have been identified in relation to construction activities. To mitigate against such disturbance, solid screening will be erected prior to construction to reduce or eliminate any visual disturbance. Since the water birds are habituated to traffic and machinery noise within Dublin Port

		advantage of improved dilution and dispersion due to greater water depths and stronger tidal currents. It would also be further away from Dublin's bathing waters and wildlife sanctuaries.			and on the Tolka Estuary, they will not be disturbed by construction noise on the site of the development.
Alexandra Basin Redevelopment Project	Approved	The project aims to redevelop Alexandra Basin area in line with the Dublin Port Master Plan 2012-2040 that provides for future sustainable growth and changes in facilitating seaborne trade in goods and passenger movements to and from Ireland and the Dublin Region.	Yes Appropriate Assessment carried out	No Mitigation measures put in place to minimise effects.	Potential disturbance has been identified and the project has provided mitigatory actions to avoid significant adverse effects on European Sites.
Water Supply Project Eastern and Midland Region	Feasibility; Under Assessment	The project aims to fulfill the growing demand for fresh drinking water within the Dublin Region. The current emerging preferred option is for abstraction from the Parteen Weir Site controlled by the ESB. An underground pipeline would connect the abstraction point to a terminal point in west Dublin.	Yes Appropriate Assessment is currently being carried out	No Mitigation measures will be put in place to minimise effects.	There is no hydrological link between the abstraction point and the zone of influence of the Poolbeg West SDZ Planning Scheme. Therefore, only possible local effects were considered in addition to abstraction volume. Mitigation measures are being formulated within the WSP to ensure that the Water Table remains consistent through interactions with the ESB pumping station at Parteen.
North Lotts & Grand Canal Dock SDZ Planning Scheme	Published	This SDZ provides for strategic development within the city; it provides link pathways within the city such as the Dodder Bridge between Grand Canal Dock and Ringsend.	Yes Appropriate Assessment has been undertaken (Stage 2 NIS)	No Mitigation measures have been put in place to minimise effects.	The effects arising from the development are considered by the NIS which concluded there will be no significant adverse effects. This SDZ will have in-combination effects with hydraulically linked sites; mitigation measures will be put in place to ensure any in combination effects will not significantly affect the ecological integrity of any European Site.
Greater Dublin Area Cycle Network Plan	Published	Consolidate and ensure coordination of cycle network plans. The Urban Cycle Network at the Primary, Secondary and Feeder level; The Inter-Urban Cycle Network linking the relevant sections of the Urban Network and including the	Yes Appropriate Assessment carried out	No Mitigation policies put in place to minimise impacts.	This is a high-level plan which encompasses the S2S Projects listed above, which will have the greatest level of interactions with this SDZ. The in-combination effects beyond these projects will not be significant.

		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 Green Route Network being cycle routes developed predominately for tourist, recreational and leisure purposes.			
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3.5 Conclusions

The likely impacts that could arise from the Poolbeg West SDZ Planning Scheme have been examined in the context of a number of factors that could potentially affect the integrity of any European Site. On the basis of the findings of this Screening for AA, it is concluded that the Planning Scheme:

- is not directly connected with or necessary to the management of a European Site; and
- may have significant impacts on any European Site.

Therefore, applying the precautionary principle and in accordance with Article 6(3) of the Habitats Directive, a Stage 2 AA is required (see Section 4 of this report).

4 Stage 2 Appropriate Assessment

4.1 Introduction

The main objective of this stage (Stage 2) in the AA is to determine whether the Poolbeg West SDZ would result in significant adverse impacts on the integrity of any European Site with respect to the site's structure, function, and/or conservation objectives.

The Stage 1 Screening presented above has identified six European Sites with potential to be affected by the Poolbeg SDZ Planning Scheme (see

Table 4-1). Therefore, taking a precautionary approach, Stage 2 AA is required. The potential adverse effects considered at this stage will either be effects occurring as a result of the implementation of the Planning Scheme alone or in-combination with other plans, programmes, and/or projects.

Detailed information relevant to the sites that has been reviewed to inform the AA includes the following:

- *NPWS Site Synopsis*
- *Natura 2000 Standard Data Form*
- *Conservation Objectives and supporting documents*

Table 4-1 European Sites Potentially Impacted upon by the Poolbeg West SDZ Planning Scheme

European Site	Distance (km)
Special Areas of Conservation	
Baldoyle Bay SAC 000199	8.13
North Dublin Bay SAC 000206	2.69
South Dublin Bay SAC 000210	0
Special Protected Areas	
North Bull Island SPA 004006	2.6
Baldoyle Bay SPA 004016	8.13
South Dublin Bay & River Tolka Estuary SPA 004024	Within the Planning Scheme area

4.2 Characterisation of European Sites Potentially Affected

The Poolbeg SDZ Planning Scheme Area has a European Site within its boundaries as well as being directly adjacent to another European Site. The Appropriate Assessment Screening identified seven European Sites with pathway receptors for potential impacts. Therefore, it is necessary to characterise each of these sites and the sensitivities of their qualifying interests, special conservation interests or their conservation objectives.

Table 4-2 characterises each of the qualifying interests of the seven European Sites brought forward from stage 1 (Table 4-1). These are described in context of each of the sites in **Appendix I**. Each of these site characterisations were derived from the NPWS website²³.

²³ NPWS (2016), last accessed 20th March 2017; <https://www.npws.ie/protected-sites>

Table 4-2 Characterisation of the qualifying interests/special conservation interests of each of the European Sites potentially impacted upon by the Poolbeg West SDZ Planning Scheme

QI/SCI	Characteristics and Sensitivities of Species/ Habitat Feature
Baldoyle Bay SAC 000199	
Mudflats and sandflats not covered by seawater at low tide [1140]	Intertidal mudflats and sandflats are submerged at high tide and exposed at low tide and are normally associated with inlets, estuaries or shallow bays. The physical structure of these intertidal flats ranges from mobile, coarse-sand beaches on wave exposed coasts to stable, fine-sediment mudflats in estuaries and other marine inlets. They support diverse communities of invertebrates such as the polychaete worms <i>Tubificoides spp.</i> , <i>Capitella spp.</i> , and <i>Malacoceros spp.</i> ; molluscs such as <i>Abra alba</i> and mussel (<i>Mytilus edulis</i>), algae including <i>Ulva spp.</i> and <i>Enteromorpha spp.</i> , and plants, principally eelgrass (<i>Zostera spp.</i>). Mudflats are usually located in the most sheltered areas of the coast where large quantities of silt from rivers are deposited in estuaries. In sheltered areas, communities are typically dominated by polychaete worms and bivalve molluscs. Sandflats occur on open coast beaches and bays where wave action or strong tidal currents prevent the deposition of finer silt. On more exposed coasts the biodiversity may be lower and the communities dominated by crustaceans. The high biomass of invertebrates in tidal sediments often provides an important food source for waders and wildfowl. Intertidal mudflats and sandflats can be part of a mosaic of habitats that occurs in estuaries and shallow inlets and bays.
Mediterranean salt meadows (<i>Juncetalia maritimii</i>) [1410]	Mediterranean Salt Meadows generally occupy the upper zone of saltmarshes and usually occur adjacent to the boundary with terrestrial habitats. They are widespread on the Irish coastline, although they are not as common as Atlantic salt meadows (1330). This habitat is distinguished from Atlantic salt meadows by the presence of tall rushes such as sea rush (<i>Juncus maritimus</i>) and/or sharp rush (<i>J. acutus</i>), along with a range of species typically found in Atlantic salt meadows (1330). These include sea aster (<i>Aster tripolium</i>), sea purslane (<i>A. portulacoides</i>), sea-milkwort (<i>Glaux maritima</i>), saltmarsh rush (<i>Juncus gerardii</i>), parsley water-dropwort (<i>Oenanthe lachenalii</i>), sea plantain (<i>Plantago maritima</i>) and common saltmarsh-grass (<i>Puccinellia maritima</i>).
Salicornia and other annuals colonising mud and sand [1310]	Saltmarshes are stands of vegetation that occur along sheltered coasts, mainly on mud or sand, and are flooded periodically by the sea. The plants and animals are restricted to a small number of specialist species that can survive the salt content of the substrate. Saltmarshes are often dissected by a pattern of muddy channels or "creeks". Swards of glasswort (<i>Salicornia spp.</i>) are pioneer saltmarsh communities and may occur on muddy sediment seaward of established saltmarsh. They may also form patches isolated from other saltmarsh on mudflats within a suitable elevation range. Typical species include lax-flowered sea-lavender (<i>Limonium humile</i>), common saltmarsh-grass (<i>Puccinellia maritima</i>), greater sea-spurrey (<i>Spergularia media</i>), annual sea-blite (<i>Suaeda maritima</i>) and common cord-grass (<i>Spartina anglica</i>). Patches of vegetation dominated by annual sea-blite are much less common or extensive. Short-lived patches of saltmarsh vegetation with sea pearlwort (<i>Sagina maritima</i>) are also much less extensive compared to swards of glasswort (<i>Salicornia spp.</i>), and are generally associated with the transition from saltmarsh to sand-dune that has been recorded in Ireland. The area of Salicornia flats may have contracted slightly in the past due to the infilling, reclamation and embankment of some former saltmarsh and intertidal areas for agricultural purposes at many sites around the country. Very few impacts or activities affect this habitat probably due to its inaccessible position in the lower zone of the saltmarsh. The main impact affecting this habitat is the spread of the invasive species common cord-grass (<i>Spartina anglica</i>). This habitat is short-lived in places, as it is so vulnerable to natural erosion and accretion cycles and storms.
Atlantic salt meadows (<i>Glaucococcinellieta maritimae</i>) [1330]	Atlantic salt meadows generally occupy the widest part of the saltmarsh gradient. They also contain a distinctive topography with an intricate network of creeks and salt pans occurring on medium to large sized saltmarshes. Atlantic salt meadows contain several distinctive zones that are related to elevation and frequency of submergence. The lowest part along the tidal zone is generally dominated by the most halophytic (salt-tolerant) species including common saltmarsh-grass (<i>Puccinellia maritima</i>) and species more usually associated with Salicornia muds (1310). The mid-marsh zone is generally characterised by sea thrift (<i>Armeria maritima</i>), sea plantain (<i>Plantago maritima</i>) and sea aster (<i>Aster tripolium</i>), while sea purslane (<i>Atriplex portulacoides</i>) can dominate sites on the east and south coasts. This mid-zone vegetation generally grades into an herbaceous community in the upper marsh, dominated by red fescue (<i>Festuca rubra</i>), sea milkwort (<i>Glaux maritima</i>), saltmarsh rush (<i>Juncus gerardii</i>) and creeping bent (<i>Agrostis stolonifera</i>). This habitat is also important for wintering waders and wildfowl and other wildlife. Atlantic salt meadows display a wide geographical distribution in Ireland.
QI/SCI	Characteristics and Sensitivities of Species/ Habitat Feature
North Dublin Bay SAC 000206	
Mudflats and sandflats not covered by seawater at low tide [1140]	Intertidal mudflats and sandflats are submerged at high tide and exposed at low tide and are normally associated with inlets, estuaries or shallow bays. The physical structure of these intertidal flats ranges from mobile, coarse-sand beaches on wave exposed coasts to stable, fine-sediment mudflats in estuaries and other marine inlets. They support diverse communities of invertebrates such as the polychaete worms <i>Tubificoides spp.</i> , <i>Capitella spp.</i> , and <i>Malacoceros spp.</i> ; molluscs such as <i>Abra alba</i> and mussel (<i>Mytilus edulis</i>), algae including <i>Ulva spp.</i> and <i>Enteromorpha spp.</i> , and plants, principally eelgrass (<i>Zostera spp.</i>). Mudflats are usually located in the most sheltered areas of the coast where large quantities of silt from rivers are deposited in estuaries. In sheltered areas, communities are typically dominated by polychaete worms and bivalve molluscs. Sandflats occur on open coast beaches and bays where wave action or strong tidal currents prevent the deposition of finer silt. On more exposed coasts the biodiversity may be lower

	and the communities dominated by crustaceans. The high biomass of invertebrates in tidal sediments often provides an important food source for waders and wildfowl. Intertidal mudflats and sandflats can be part of a mosaic of habitats that occurs in estuaries and shallow inlets and bays.
Annual vegetation of drift lines [1210]	Annual vegetation of drift lines is found on beaches along the high tide mark, where tidal litter accumulates. It is dominated by a small number of annual species (i.e. plants that complete their life-cycle within a single season). Tidal litter contains the remains of marine algal and faunal material, as well as a quantity of seeds. Decaying detritus in the tidal litter releases nutrients into what would otherwise be a nutrient-poor environment. The habitat is often represented as patchy, fragmented stands of vegetation that are very short-lived and subject to frequent reworking by the tide. The habitat is mainly associated with a sandy substrate. The vegetation is limited to a small number of highly specialised species that are capable of coping with salinity, wind exposure, an unstable substrate and lack of soil moisture. Typical species include spear-leaved orache (<i>Atriplex prostrata</i>), frosted orache (<i>Atriplex laciniata</i>), sea rocket (<i>Cakile maritima</i>), sea sandwort (<i>Honckenya peploides</i>) and prickly saltwort (<i>Salsola kali</i>).
Salicornia and other annuals colonising mud and sand [1310]	Saltmarshes are stands of vegetation that occur along sheltered coasts, mainly on mud or sand, and are flooded periodically by the sea. The plants and animals are restricted to a small number of specialist species that can survive the salt content of the substrate. Saltmarshes are often dissected by a pattern of muddy channels or "creeks". Swards of glasswort (<i>Salicornia spp.</i>) are pioneer saltmarsh communities and may occur on muddy sediment seaward of established saltmarsh. They may also form patches isolated from other saltmarsh on mudflats within a suitable elevation range. Typical species include lax-flowered sea-lavender (<i>Limonium humile</i>), common saltmarsh-grass (<i>Puccinellia maritima</i>), greater sea-spurrey (<i>Spergularia media</i>), annual sea-blite (<i>Suaeda maritima</i>) and common cord-grass (<i>Spartina anglica</i>). Patches of vegetation dominated by annual sea-blite are much less common or extensive. Short-lived patches of saltmarsh vegetation with sea pearlwort (<i>Sagina maritima</i>) are also much less extensive compared to swards of glasswort (<i>Salicornia spp.</i>), and are generally associated with the transition from saltmarsh to sand-dune that has been recorded in Ireland. The area of <i>Salicornia</i> flats may have contracted slightly in the past due to the infilling, reclamation and embankment of some former saltmarsh and intertidal areas for agricultural purposes at many sites around the country. Very few impacts or activities affect this habitat probably due to its inaccessible position in the lower zone of the saltmarsh. The main impact affecting this habitat is the spread of the invasive species common cord-grass (<i>Spartina anglica</i>). This habitat is short-lived in places, as it is so vulnerable to natural erosion and accretion cycles and storms.
Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) [1330]	Atlantic salt meadows generally occupy the widest part of the saltmarsh gradient. They also contain a distinctive topography with an intricate network of creeks and salt pans occurring on medium to large sized saltmarshes. Atlantic salt meadows contain several distinctive zones that are related to elevation and frequency of submergence. The lowest part along the tidal zone is generally dominated by the most halophytic (salt-tolerant) species including common saltmarsh-grass (<i>Puccinellia maritima</i>) and species more usually associated with <i>Salicornia</i> muds (1310). The mid-marsh zone is generally characterised by sea thrift (<i>Armeria maritima</i>), sea plantain (<i>Plantago maritima</i>) and sea aster (<i>Aster tripolium</i>), while sea purslane (<i>Atriplex portulacoides</i>) can dominate sites on the east and south coasts. This mid-zone vegetation generally grades into an herbaceous community in the upper marsh, dominated by red fescue (<i>Festuca rubra</i>), sea milkwort (<i>Glaux maritima</i>), saltmarsh rush (<i>Juncus gerardii</i>) and creeping bent (<i>Agrostis stolonifera</i>). This habitat is also important for wintering waders and wildfowl and other wildlife. Atlantic salt meadows display a wide geographical distribution in Ireland.
Mediterranean salt meadows (<i>Juncetalia maritim</i>) [1410]	Mediterranean Salt Meadows generally occupy the upper zone of saltmarshes and usually occur adjacent to the boundary with terrestrial habitats. They are widespread on the Irish coastline, although they are not as common as Atlantic salt meadows (1330). This habitat is distinguished from Atlantic salt meadows by the presence of tall rushes such as sea rush (<i>Juncus maritimus</i>) and/or sharp rush (<i>J. acutus</i>), along with a range of species typically found in Atlantic salt meadows (1330). These include sea aster (<i>Aster tripolium</i>), sea purslane (<i>A. portulacoides</i>), sea-milkwort (<i>Glaux maritima</i>), saltmarsh rush (<i>Juncus gerardii</i>), parsley water-dropwort (<i>Oenanthe lachenalii</i>), sea plantain (<i>Plantago maritima</i>) and common saltmarsh-grass (<i>Puccinellia maritima</i>).
Embryonic shifting dunes [2110]	Embryonic dunes are low accumulations of sand that form above the strandline, at the foot of the taller marram dunes. They are sometimes referred to as foredunes, pioneer dunes, or embryo dunes, as they can represent the primary stage of dune formation. They are characterised by the presence of the dune-building grass, sand couch grass (<i>Elytrigia juncea</i>), and at some sites, lyme grass (<i>Leymus arenarius</i>). Strandline species can remain a persistent element of the vegetation. Where sand accumulation is more rapid, marram grass (<i>Ammophila arenaria</i>) begins to invade, initiating the transition to mobile marram dunes. Embryonic dunes are very dynamic systems that are often short-lived. Many sites are subject to natural erosion processes and susceptible to removal by storms or high tides; human activities such as recreation and sand extraction can exacerbate this problem.
Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120]	White dunes or 'Marram dunes' are tall and located further inland than other shifting dunes. They are actively created and dominated by marram grass (<i>Ammophila arenaria</i>), one of the few species that can withstand burial by blowing sand. In fact, marram growth is actively stimulated by sand accumulation. The bare sandy areas between the coarse tussocks of marram may be colonised by sand sedge (<i>Carex arenaria</i>), sea spurge (<i>Euphorbia paralias</i>) and sea-holly (<i>Eryngium maritimum</i>), along with a number of yellow Asteraceae, including cat's-ear (<i>Hypochaeris radicata</i>), groundsel (<i>Senecio vulgaris</i>) and common ragwort (<i>S. jacobaea</i>).
Fixed coastal dunes with herbaceous	Fixed dunes refers to the more stabilised area of dune systems, located in the shelter of the mobile marram dunes, where the wind speed is reduced and the vegetation is removed from the influence of tidal inundation and salt spray. This leads to the development of a more or less closed or 'fixed' carpet of vegetation dominated by a range of sand-binding species. Typical species include sand sedge (<i>Carex</i>

vegetation (grey dunes) [2130]	arenaria), red fescue (<i>Festuca rubra</i>), birdsfoot trefoil (<i>Lotus corniculatus</i>), kidney vetch (<i>Anthyllis vulneraria</i>), lady's bedstraw (<i>Galium verum</i>) and seaside pansy (<i>Viola tricolor</i> subsp. <i>curtisii</i>), along with an abundance of mosses and lichens, particularly the moss <i>Tortula ruralis</i> ssp. <i>ruraliformis</i> . Orchids, such as pyramidal orchid (<i>Anacamptis pyramidalis</i>), bee orchid (<i>Ophrys apifera</i>), autumn lady's-tresses (<i>Spiranthes spiralis</i>), and frog orchid (<i>Coeloglossum viride</i>), can be locally abundant.
Humid dune slacks [2190]	Humid dune slacks are wet or moist depressions between dune ridges. They are characterised by the occurrence of a water-table that is maintained by a combination of groundwater (which may or may not be slightly saline), precipitation and an impermeable layer in the soil. In winter, the water-table normally rises above the soil surface and inundation occurs. In spring and summer, the water level drops, but the top layer of the soil remains wet. Proximity of the water-table to the surface is evidenced in the vegetation, in which rushes (<i>Juncus</i> spp.), sedges (<i>Carex</i> spp.) and moisture-loving herbs such as marsh pennywort (<i>Hydrocotyle vulgaris</i>), bog pimpernel (<i>Anagallis tenella</i>), grass-of-Parnassus (<i>Parnassia palustris</i>), common marsh-bedstraw (<i>Galium palustre</i>) and marsh helleborine (<i>Epipactis palustris</i>) are obvious features. The frequency and duration of flooding, as well as the level of salinity, determines the vegetation composition. A number of sub-communities are recognised within this habitat, including Pioneer slacks, Wet slacks, Dry mature slacks and those with saline influence. As the shrub creeping willow (<i>Salix repens</i>) is found in dune slacks, there is considerable overlap between this habitat and the dunes with creeping willow (2170) habitat.
<i>Petalophyllum ralfsii</i> (Petalwort) [1395]	Petalwort is a small liverwort (a type of moss) that looks like a miniature cabbage (about 1 cm across). It grows in lime-rich sand at the coast where it is confined to damp areas which may flood in winter. It prefers well-grazed areas. First recorded in Ireland from Malahide, north Dublin, in 1861, it is now known to occur at 29 localities, mainly on the west coast.
QI/SCI	Characteristics and Sensitivities of Species/ Habitat Feature
South Dublin Bay SAC 000210	
Mudflats and sandflats not covered by seawater at low tide [1140]	Intertidal mudflats and sandflats are submerged at high tide and exposed at low tide and are normally associated with inlets, estuaries or shallow bays. The physical structure of these intertidal flats ranges from mobile, coarse-sand beaches on wave exposed coasts to stable, fine-sediment mudflats in estuaries and other marine inlets. They support diverse communities of invertebrates such as the polychaete worms <i>Tubificoides</i> spp., <i>Capitella</i> spp., and <i>Malacoceros</i> spp.; molluscs such as <i>Abra alba</i> and mussel (<i>Mytilus edulis</i>), algae including <i>Ulva</i> spp. and <i>Enteromorpha</i> spp., and plants, principally eelgrass (<i>Zostera</i> spp.). Mudflats are usually located in the most sheltered areas of the coast where large quantities of silt from rivers are deposited in estuaries. In sheltered areas, communities are typically dominated by polychaete worms and bivalve molluscs. Sandflats occur on open coast beaches and bays where wave action or strong tidal currents prevent the deposition of finer silt. On more exposed coasts the biodiversity may be lower and the communities dominated by crustaceans. The high biomass of invertebrates in tidal sediments often provides an important food source for waders and wildfowl. Intertidal mudflats and sandflats can be part of a mosaic of habitats that occurs in estuaries and shallow inlets and bays.
Annual vegetation of drift lines [1210]	Annual vegetation of drift lines is found on beaches along the high tide mark, where tidal litter accumulates. It is dominated by a small number of annual species (i.e. plants that complete their life-cycle within a single season). Tidal litter contains the remains of marine algal and faunal material, as well as a quantity of seeds. Decaying detritus in the tidal litter releases nutrients into what would otherwise be a nutrient-poor environment. The habitat is often represented as patchy, fragmented stands of vegetation that are very short-lived and subject to frequent reworking by the tide. The habitat is mainly associated with a sandy substrate. The vegetation is limited to a small number of highly specialised species that are capable of coping with salinity, wind exposure, an unstable substrate and lack of soil moisture. Typical species include spear-leaved orache (<i>Atriplex prostrata</i>), frosted orache (<i>Atriplex laciniata</i>), sea rocket (<i>Cakile maritima</i>), sea sandwort (<i>Honckenya peploides</i>) and prickly saltwort (<i>Salsola kali</i>).
Salicornia and other annuals colonising mud and sand [1310]	Saltmarshes are stands of vegetation that occur along sheltered coasts, mainly on mud or sand, and are flooded periodically by the sea. The plants and animals are restricted to a small number of specialist species that can survive the salt content of the substrate. Saltmarshes are often dissected by a pattern of muddy channels or "creeks". Swards of glasswort (<i>Salicornia</i> spp.) are pioneer saltmarsh communities and may occur on muddy sediment seaward of established saltmarsh. They may also form patches isolated from other saltmarsh on mudflats within a suitable elevation range. Typical species include lax-flowered sea-lavender (<i>Limonium humile</i>), common saltmarsh-grass (<i>Puccinellia maritima</i>), greater sea-spurrey (<i>Spergularia media</i>), annual sea-blite (<i>Suaeda maritima</i>) and common cord-grass (<i>Spartina anglica</i>). Patches of vegetation dominated by annual sea-blite are much less common or extensive. Short-lived patches of saltmarsh vegetation with sea pearlwort (<i>Sagina maritima</i>) are also much less extensive compared to swards of glasswort (<i>Salicornia</i> spp.), and are generally associated with the transition from saltmarsh to sand-dune that has been recorded in Ireland. The area of <i>Salicornia</i> flats may have contracted slightly in the past due to the infilling, reclamation and embankment of some former saltmarsh and intertidal areas for agricultural purposes at many sites around the country. Very few impacts or activities affect this habitat probably due to its inaccessible position in the lower zone of the saltmarsh. The main impact affecting this habitat is the spread of the invasive species common cord-grass (<i>Spartina anglica</i>). This habitat is short-lived in places, as it is so vulnerable to natural erosion and accretion cycles and storms.
Embryonic shifting dunes [2110]	Embryonic dunes are low accumulations of sand that form above the strandline, at the foot of the taller marram dunes. They are sometimes referred to as foredunes, pioneer dunes, or embryo dunes, as they can represent the primary stage of dune formation. They are characterised by the presence of the dune-building grass, sand couch grass (<i>Elytrigia juncea</i>), and at some sites, lyme grass (<i>Leymus arenarius</i>). Strandline species can remain a persistent element of the vegetation. Where sand accumulation is more

	rapid, marram grass (<i>Ammophila arenaria</i>) begins to invade, initiating the transition to mobile marram dunes. Embryonic dunes are very dynamic systems that are often short-lived. Many sites are subject to natural erosion processes and susceptible to removal by storms or high tides; human activities such as recreation and sand extraction can exacerbate this problem.
QI/SCI	Characteristics and Sensitivities of Species/ Habitat Feature
North Bull Island SPA 004006	
Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046]	Winter migrant from high-Arctic Canada. Most occur in Ireland between October and April. They are Amber-listed as the majority winter at less than ten sites. The Irish population is also internationally significant, another amber listing criterion. The European population has been evaluated as Vulnerable as several important populations declined.
Shelduck (<i>Tadorna tadorna</i>) [A048]	Resident and winter migrant - Ireland receives additional birds during the winter (October to March) from Scandinavia and the Baltic. They are Amber-listed in Ireland, as the majority of the wintering population occurs at less than ten sites. The European population is regarded as Secure.
Teal (<i>Anas crecca</i>) [A052]	Resident & winter migrant. Most of the Icelandic population winter in Ireland, and also some from Fennoscandia and northern Russia. They are Amber-listed in Ireland due to a decline in the breeding population. The European population is considered to be Secure
Pintail (<i>Anas acuta</i>) [A054]	Local winter visitor to wetlands throughout Ireland from October to March. They are Red-listed in Ireland, due to a significant decrease in the numbers wintering in Ireland. The European population has been assessed as Declining, due to a moderate ongoing decline
Shoveler (<i>Anas clypeata</i>) [A056]	Resident & winter migrant. Most occur between October and March. Wintering birds originate from breeding populations which range across France, northern Europe, the Baltic and western Russia. Ireland and northern Britain also support the small Icelandic breeding population during the winter. They are Red-listed (National, BoCCI), SPEC 3 declining, moderate recent decline (Europe)
Oystercatcher (<i>Haematopus ostralegus</i>) [A130]	Resident & winter visitor (from Iceland and the Faeroes) - largest numbers in Ireland between September & March. They are Amber-listed as Ireland hosts internationally important numbers of Oystercatchers in winter. The European population is considered to be Secure
Golden Plover (<i>Pluvialis apricaria</i>) [A140]	Summer visitor from France & Iberia (though possibly some remain year-round in Ireland) & winter visitor from Iceland. Most in Ireland between October & February. They are Red-listed in Ireland due to a large decline in the breeding population. The European population is considered to be Secure
Grey Plover (<i>Pluvialis squatarola</i>) [A141]	Winter visitor from Siberia - first birds arrive in Ireland and Britain towards the end of July but most here between September & April. They are Amber-listed as the majority of Grey Plovers winter at less than ten sites. The European population is considered to be Secure
Knot (<i>Calidris canutus</i>) [A143]	Winter visitor from northern Greenland and from the Queen Elizabeth Islands of high Arctic Canada west to Prince Patrick Island. Most occur between October & February. They are Red-listed in Ireland due to concerns over declines in the global population, which is undergoing a moderate decline
Sanderling (<i>Calidris alba</i>) [A144]	Winter visitor. Most birds wintering in Ireland are of Siberian origin, while birds on passage are Nearctic, and pass through on their way towards more southerly wintering areas as far as South Africa. First seen along the Irish coastline in July or August, though most arrive in Ireland between September & April. They are Green-listed in Ireland. The European population is considered to be Secure
Dunlin (<i>Calidris alpina</i>) [A149]	Summer visitor from NW Africa/SW Europe, winter visitor from Scandinavia to Siberia, passage migrant from Greenland (heading south to winter in Africa). Most occur during the mid-winter period. They are Amber-listed in Ireland as the majority of Dunlins winter at less than ten sites. The European population has been evaluated as Depleted, due to a large historical decline
Black-tailed Godwit (<i>Limosa limosa</i>) [A156]	Winter visitor from Iceland. Numbers remain high throughout the winter, especially September. They are Amber-listed in Ireland as the majority of Black-tailed Godwits winter at less than ten sites. The European population is considered to be Vulnerable, due to past and present declines in key populations, such as the Netherlands and Russia
Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157]	Winter visitor to coastal estuaries from October to April from Russia and Scandinavia. They are Amber-listed in Ireland as the majority of the population winter at less than ten sites. The European population is considered to be Secure
Curlew (<i>Numenius arquata</i>) [A160]	Winter visitor to wetlands throughout Ireland, as well as breeding in small numbers in floodplains and bogs. They are Red-listed in Ireland due to its small and declining breeding population. The European population is experiencing similar problems and has been evaluated as Declining
Redshank (<i>Tringa totanus</i>) [A162]	Resident, winter visitor from Iceland and passage migrant (birds on passage from Scandinavia/the Baltic breeding areas to west African wintering areas). Highest numbers occur during the early autumn, when there is overlap of the populations. They are Red-listed in Ireland, due to its small and declining breeding population. The European population has been evaluated as Declining, due to a moderate continuing decline
Turnstone (<i>Arenaria interpres</i>) [A169]	Winter visitor from northeast Canada and northern Greenland, occurs late July to late April. They are Green-listed in Ireland. The European population is considered to be Secure
Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179]	Resident along all Irish coasts, with significant numbers arriving from the Continent in winter. Breeds in small numbers on islands in larger lakes in western Ireland. They are Red-listed due to its rapidly declining and localized breeding population. The European population is regarded as Secure, despite declines in several countries

Wetland and Waterbirds [A999]	Wetland area noted to be important for a cohort of breeding and non-breeding migratory species of wading birds. The presence of a number of species designated under the Birds Directive facilitate the designation of the habitat, although there are no specific physical characteristics of this habitat designation apart from presence of water.
QI/SCI	Characteristics and Sensitivities of Species/ Habitat Feature
Baldoyle Bay SPA 004016	
Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046]	Winter migrant from high-Arctic Canada. Most occur in Ireland between October and April. They are Amber-listed as the majority winter at less than ten sites. The Irish population is also internationally significant, another amber listing criterion. The European population has been evaluated as Vulnerable as several important populations declined
Shelduck (<i>Tadorna tadorna</i>) [A048]	Resident and winter migrant - Ireland receives additional birds during the winter (October to March) from Scandinavia and the Baltic. They are Amber-listed in Ireland, as the majority of the wintering population occurs at less than ten sites. The European population is regarded as Secure
Ringed Plover (<i>Charadrius hiaticula</i>) [A137]	Resident & winter visitor from areas further north where this population also breeds (Iceland, the Baltic & southern Scandinavia). Peak numbers between August and early October, and then numbers decline slightly (passage birds move further south) and stabilize between November and January. They are Amber-listed as internationally important numbers winter in Ireland. The European population is considered to be Secure
Golden Plover (<i>Pluvialis apricaria</i>) [A140]	Summer visitor from France & Iberia (though possibly some remain year-round in Ireland) & winter visitor from Iceland. Most in Ireland between October & February. They are Red-listed in Ireland due to a large decline in the breeding population. The European population is considered to be Secure
Grey Plover (<i>Pluvialis squatarola</i>) [A141]	Winter visitor from Siberia - first birds arrive in Ireland and Britain towards the end of July but most here between September & April. They are Amber-listed as the majority of Grey Plovers winter at less than ten sites. The European population is considered to be Secure
Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157]	Winter visitor to coastal estuaries from October to April from Russia and Scandinavia. They are Amber-listed in Ireland as the majority of the population winter at less than ten sites. The European population is considered to be Secure
Wetland and Waterbirds [A999]	Wetland area noted to be important for a cohort of breeding and non-breeding migratory species of wading birds. The presence of a number of species designated under the Birds Directive facilitate the designation of the habitat, although there are no specific physical characteristics of this habitat designation apart from presence of water.
QI/SCI	Characteristics and Sensitivities of Species/ Habitat Feature
South Dublin Bay and River Tolka Estuary SPA 004024	
Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046]	Winter migrant from high-Arctic Canada. Most occur in Ireland between October and April. They are Amber-listed as the majority winter at less than ten sites. The Irish population is also internationally significant, another amber listing criterion. The European population has been evaluated as Vulnerable as several important populations declined
Oystercatcher (<i>Haematopus ostralegus</i>) [A130]	Resident & winter visitor (from Iceland and the Faeroes) - largest numbers in Ireland between September & March. They are Amber-listed as Ireland hosts internationally important numbers of Oystercatchers in winter. The European population is considered to be Secure
Ringed Plover (<i>Charadrius hiaticula</i>) [A137]	Resident & winter visitor from areas further north where this population also breeds (Iceland, the Baltic & southern Scandinavia). Peak numbers between August and early October, and then numbers decline slightly (passage birds move further south) and stabilize between November and January. They are Amber-listed as internationally important numbers winter in Ireland. The European population is considered to be Secure
Grey Plover (<i>Pluvialis squatarola</i>) [A141]	Winter visitor from Siberia - first birds arrive in Ireland and Britain towards the end of July but most here between September & April. They are Amber-listed as the majority of Grey Plovers winter at less than ten sites. The European population is considered to be Secure
Knot (<i>Calidris canutus</i>) [A143]	Winter visitor from northern Greenland and from the Queen Elizabeth Islands of high Arctic Canada west to Prince Patrick Island. Most occur between October & February. They are Red-listed in Ireland due to concerns over declines in the global population, which is undergoing a moderate decline
Sanderling (<i>Calidris alba</i>) [A144]	Winter visitor. Most birds wintering in Ireland are of Siberian origin, while birds on passage are Nearctic, and pass through on their way towards more southerly wintering areas as far as South Africa. First seen along the Irish coastline in July or August, though most arrive in Ireland between September & April. They are Green-listed in Ireland. The European population is considered to be Secure
Dunlin (<i>Calidris alpina</i>) [A149]	Summer visitor from NW Africa/SW Europe, winter visitor from Scandinavia to Siberia, passage migrant from Greenland (heading south to winter in Africa). Most occur during the mid-winter period. They are Amber-listed in Ireland as the majority of Dunlins winter at less than ten sites. The European population has been evaluated as Depleted, due to a large historical decline
Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157]	Winter visitor to coastal estuaries from October to April from Russia and Scandinavia. They are Amber-listed in Ireland as the majority of the population winter at less than ten sites. The European population is considered to be Secure

Redshank (<i>Tringa totanus</i>) [A162]	Resident, winter visitor from Iceland and passage migrant (birds on passage from Scandinavia/the Baltic breeding areas to west African wintering areas). Highest numbers occur during the early autumn, when there is overlap of the populations. They are Red-listed in Ireland, due to its small and declining breeding population. The European population has been evaluated as Declining, due to a moderate continuing decline
Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179]	Resident along all Irish coasts, with significant numbers arriving from the Continent in winter. Breeds in small numbers on islands in larger lakes in western Ireland. They are Red-listed due to its rapidly declining and localised breeding population. The European population is regarded as Secure, despite declines in several countries
Roseate Tern (<i>Sterna dougallii</i>) [A192]	Rare summer visitor from April to October, the majority breeding at two sites in the Irish Sea, with another colony in Wexford. They are Amber-listed in Ireland as the majority of the small European population breeds in the country. Further Amber-listing criteria are the small and highly localized nature of the breeding population. The European population has been evaluated as Rare, due to its small population (2,500 pairs)
Common Tern (<i>Sterna hirundo</i>) [A193]	Summer visitor from March to October to all Irish coasts. They are Amber-listed in Ireland due to its localized breeding population. The European population has been evaluated as Secure
Arctic Tern (<i>Sterna paradisaea</i>) [A194]	Summer visitor from March to September to all Irish coasts. Winters off south Africa and as far south as Antarctica. They are Amber-listed in Ireland due to its localized breeding population. The European population is regarded as Secure
Wetland Waterbirds [A999]	Wetland area noted to be important for a cohort of breeding and non-breeding migratory species of wading birds. The presence of a number of species designated under the Birds Directive facilitate the designation of the habitat, although there are no specific physical characteristics of this habitat designation apart from presence of water.

4.3 Identifying and Characterising Potential Significant Effects

The following parameters are described when characterising impacts (following CIEEM (2016), EPA (2002) and NRA (2009)):

Direct and Indirect Impacts - An impact can be caused either as a direct or as an indirect consequence of a proposed development.

Magnitude - Magnitude measures the size of an impact, which is described as high, medium, low, very low or negligible.

Extent - The area over which the impact occurs – this should be predicted in a quantified manner.

Duration - The time for which the effect is expected to last prior to recovery or replacement of the resource or feature.

- Temporary: Up to 1 Year;
- Short Term: The effects would take 1-7 years to be mitigated;
- Medium Term: The effects would take 7-15 years to be mitigated;
- Long Term: The effects would take 15-60 years to be mitigated;
- Permanent: The effects would take 60+ years to be mitigated.

Likelihood – The probability of the effect occurring taking into account all available information.

- Certain/Near Certain: >95% chance of occurring as predicted;
- Probable: 50-95% chance as occurring as predicted;
- Unlikely: 5-50% chance as occurring as predicted;
- Extremely Unlikely: <5% chance as occurring as predicted.

The Chartered Institute of Ecology and Environmental Management (CIEEM) guidelines for ecological impact assessment (CIEEM 2016) define an ecologically significant impact as an impact (negative or positive) on the integrity of a defined site or ecosystem and/or the conservation status of habitats or species within a given geographic area. The integrity of a site is the coherence of its ecological structure and function, across its whole area, which enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified (CIEEM, 2016).

The Habitats Directive requires the focus of the assessment at this stage to be on the integrity of the site as indicated by its Conservation Objectives. It is an aim of NPWS to draw up conservation management plans for all areas designated for nature conservation. These plans will, among other things, set clear objectives for the conservation of the features of interest within a site.

Site-specific conservation objectives (SSCOs) have been prepared for a number of European Sites. These detailed SSCOs aim to define favourable conservation condition for the qualifying habitats and species at that site by setting targets for appropriate attributes which define the character habitat. The maintenance of the favourable condition for these habitats and species at the site level will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level.

Favourable conservation status of a species can be described as being achieved when: '*population data on the species concerned indicate that it is maintaining itself, and the natural range of the species is neither being reduced or likely to be reduced for the foreseeable future, and there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.*'

Favourable conservation status of a habitat can be described as being achieved when: '*its natural range, and area it covers within that range, is stable or increasing, and the ecological factors that 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.*'

Generic Conservation Objectives for cSACs have been provided as follows:

- *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.*

One generic Conservation Objective has been provided for SPAs as follows:

- *To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.*

4.3.1 Identification of Potential Effects

Potential impacts from the Planning Scheme which have, alone and/or in combination, been identified to result in adverse effects upon the QI's/SCI's or integrity of European Sites. Ecological impact assessment of potential impacts on European Sites is conducted utilising a standard source-pathway-resource process; where, all three elements of this mechanism must be in place to establish an effect arising.

As outlined in the European Commission Environment DG document "*Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC*", impacts that could potentially occur through the implementation of the Planning Scheme can be categorised under a number of headings:

- Loss / reduction of habitat area (e.g. due to the development of new projects)
- Disturbance to Key Species (e.g. increased public access to protected sites, or during the construction phase of infrastructure projects)
- Habitat or species fragmentation
- Reduction in species density
- Changes in key indicators of conservation value such as decrease in water quality / quantity (e.g. through inadequate wastewater treatment, run-off of pollutants during construction and operation of developments, agricultural runoff)

Each of these elements are considered below with reference to the QI's/SCI's of all of the European Sites brought forward from Stage 1 of the AA process. A detailed analysis of each sites individually can be found below in Table 4-3.

The Planning Scheme contributes towards the framework for sustainable development within the Dublin Docklands and Dublin City Development Plans. The Planning Scheme also prescribes particular locations (site specific) of developments of infrastructure. Overall, the Planning Scheme, in combination with other plans and programmes, underpins the development of housing, tourism, communities and the town centre with supporting transport, water, energy, and communication infrastructure within Dublin Docklands and the wider Dublin City Area.

4.3.1.1 Reduction of Habitat Area

One European Site boundary overlaps with the Poolbeg West SDZ Planning Scheme area and another occurs in the immediate vicinity of the Planning Scheme area. No provisions contained within the Planning Scheme are likely to cause direct habitat loss to any European; therefore, there is no habitat loss foreseen as a result of the implementation of the Planning Scheme. However, habitat loss can also occur through the reduction of habitat quality and a loss of important habitat functions. It can arise from the introduction of invasive species, toxic contamination or physical alteration.

Considering the distance from the Planning Scheme to the nearest European Site, the content of the Poolbeg West SDZ Planning Scheme and the nature of the likely developments that may arise, direct or indirect habitat loss resulting from the implementation of the Planning Scheme is not foreseen.

4.3.1.2 Fragmentation

Habitat and species fragmentation can occur through the breaking up of or loss of habitats resulting in interference with existing ecological units. Fragmentation can also result from impediments to the natural movements of species. This is relevant where important corridors for movement or migration are likely to be disrupted such as along river corridors when construction introduces a barrier to the free movement of species from one area of habitat to another.

Given the highly-urbanized profile of the receiving environment the land surrounding the development is expected to have low ecological value. The European Sites which have been identified are all coastal, these coastal habitats will remain intact. The only barrier to movement across the landscape which may be imposed to the area is through noise pollution. Given the urbanised nature of the area and the characteristics of the scheme this effect will be low. Barriers to species movement will be temporary, during construction phase.

4.3.1.3 Disturbance to Key Species

Disturbance to species supported by a European Site is likely to occur where there is an increase in activity levels from recreation and amenity or from developments within or adjacent to designated areas. Sources of disturbance include noise, vibration, light, construction and operation activities or other sources of disturbance arising from recreation and amenity or from the inappropriate timing of works.

The bird species which form the designation for the South Dublin Bay and River Tolka Estuary SPA may utilise habitats within the Planning Scheme Area which could potentially lead to a disturbance. The close proximity of the Poolbeg Development Planning Scheme area to the SPA indicates there is a potential for disturbance through an increase in noise, vibrations, increased visitor numbers etc. Mitigation measures will be required to minimize these effects. The bird species which form the SCI's of the site are known to use pontoons for breeding, these pontoons exist in a heavily industrialized area so these bird colonies are habitualised to high anthropogenic activity.

Disturbance to the qualifying species of The North Bull Island SPA is not foreseen due to the distance between sites of 2.6km. Any potential increased to the visitor numbers of The North Bull Island SPA are facilitated by the Management Plan for North Bull Island 2009. Similarly the Baldoyle Bay SPA is over 8 km and the distance is seen to be significant. However, studies have shown the wading wintering bird populations regularly commute between Dublin Bay North and South²⁴. Temporary disturbances

²⁴ Crowe O., Austin G., Colhoun K., Cranswick P., Kershaw M. And Musgrave A. (2008), Estimates and trends of waterbird number wintering in Ireland, 1994/95 to 2003/04, Bird Study (55), pg 66 – 77

may therefore occur to a sub section of the populations, mitigation measures will need to be put in place to ensure these potential disturbances are not significant.

The species within the other European Sites are sedentary, due to the distance between the sites and the Planning Scheme area, there are no disturbances expected by the activities of the Planning Scheme to these species.

4.3.1.4 Changes of Indicators of Conservation Value

Key indicators of conservation value for relevant European Sites listed in Table 4-3 include sediment characteristics and water quality. Effects to these sites may occur due to the hydrological connection between the sites and the Planning Scheme area. Implementation of the Planning Scheme could result in alterations to the hydrological regime or physical environment of the sites due to vibrations, alteration of flow regime, and discharges of pollutants to watercourses.

Discharges of wastewater or storm water runoff from the Planning Scheme area to the River Tolka Estuary could potentially impact on downstream water quality within those sites occurring downstream of the Planning Scheme area. In-combination effects through wastewater discharges from the wider county and surrounding counties could also potentially affect these sites.

Table 4-3 Characterisation of Potentially Impacted from the Planning Scheme to the Qualifying Interests/Special Conservation Interests of the European Sites brought forward from Stage 1

European Site	Distance	Qualifying Interest/Special Conservation Interests	Characterisation of Potential Effects	Significant Effects	Mitigation Required
South Dublin Bay and River Tolka Estuary SPA 004024	Within Site	Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] Oystercatcher (<i>Haematopus ostralegus</i>) [A130] Ringed Plover (<i>Charadrius hiaticula</i>) [A137] Grey Plover (<i>Pluvialis squatarola</i>) [A141] Knot (<i>Calidris canutus</i>) [A143] Sanderling (<i>Calidris alba</i>) [A144] Dunlin (<i>Calidris alpina</i>) [A149] Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] Redshank (<i>Tringa totanus</i>) [A162] Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179] Roseate Tern (<i>Sterna dougallii</i>) [A192] Common Tern (<i>Sterna hirundo</i>) [A193] Arctic Tern (<i>Sterna paradisaea</i>) [A194] Wetland and Waterbirds [A999]	The key disturbance to the SCI's of this site will be disturbance through noise pollution during construction phase. Therefore, mitigation is required to reduce this potential effect. During the operational phase of Planning Scheme there is potential for disturbance due to an increase in amenity visitors to the sac. Provisions are required to minimise this disturbance.	Yes	Yes, Mitigation to minimize noise pollution and amenity use effects.
South Dublin Bay SAC 000210	0km	Mudflats and sandflats not covered by seawater at low tide [1140] Annual vegetation of drift lines [1210] Salicornia and other annuals colonising mud and sand [1310] Embryonic shifting dunes [2110]	The habitat features within the SAC are sensitive to vibrations and alteration to sediment dynamics. The construction phase of the Planning Scheme has the potential to affect these features through the hydrological link, although effects are expected to be low given the characteristics of the Scheme.	Yes	Yes, Mitigation to minimize vibrations and sediment controls must be put in place.
North Bull Island SPA 004006	2.6km	Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] Shelduck (<i>Tadorna tadorna</i>) [A048] Teal (<i>Anas crecca</i>) [A052] Pintail (<i>Anas acuta</i>) [A054] Shoveler (<i>Anas clypeata</i>) [A056] Oystercatcher (<i>Haematopus ostralegus</i>) [A130] Golden Plover (<i>Pluvialis apricaria</i>) [A140] Grey Plover (<i>Pluvialis squatarola</i>) [A141] Knot (<i>Calidris canutus</i>) [A143]	There are no direct effects foreseen to the qualifying interests of the North Bull Id SPA as a result of the implementation of the Planning Scheme. Indirect impacts such as disturbance due to noise unlikely to affect the bird populations at this SPA, however studies have shown a link between the wading wintering bird populations within the 'Dublin Bay Biosphere'. This could result in low levels of effects which are foreseen to be of low	No	No, Mitigation is not required however best practice guidelines should be followed in all circumstances to ensure minimal noise pollution.

European Site	Distance	Qualifying Interest/Special Conservation Interests	Characterisation of Potential Effects	Significant Effects	Mitigation Required
		Sanderling (<i>Calidris alba</i>) [A144] Dunlin (<i>Calidris alpina</i>) [A149] Black-tailed Godwit (<i>Limosa limosa</i>) [A156] Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] Curlew (<i>Numenius arquata</i>) [A160] Redshank (<i>Tringa totanus</i>) [A162] Turnstone (<i>Arenaria interpres</i>) [A169] Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179] Wetland and Waterbirds [A999]	significance. A study by the SNH ²⁵ identifies the area of disturbance in relation to bird species to be within 1km.		
North Dublin Bay SAC 000206	2.69km	Mudflats and sandflats not covered by seawater at low tide [1140] Annual vegetation of drift lines [1210] Salicornia and other annuals colonising mud and sand [1310] Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) [1330] Mediterranean salt meadows (<i>Juncetalia maritimii</i>) [1410] Embryonic shifting dunes [2110] Shifting dunes along the shoreline with Ammophila arenaria (white dunes) [2120] Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] Humid dune slacks [2190] <i>Petalophyllum ralfsii</i> (Petalwort) [1395]	The habitat features within the SAC are sensitive to vibrations and alteration to sediment dynamics. The construction phase of the Planning Scheme has the potential to affect these features through the hydrological link, although effects are expected to be low given the scope of works and the distance. The planning scheme contains policies and objectives to minimise interactions with water quality and turbidity levels through objectives such as SUDS controls. The planning scheme will not affect tidal conditions for which the habitats are dependent on. No significant sources for interactions with the conservation objectives of this site have been identified and pathways for effects are also minor. Therefore, significant effects are not identified.	No	Yes, Mitigation to minimize vibrations and sediment controls must be put in place.
Baldoyle Bay SAC 000199	8.13km	Mudflats and sandflats not covered by seawater at low tide [1140] Mediterranean salt meadows (<i>Juncetalia maritimii</i>) [1410] Salicornia and other annuals colonising mud and sand [1310]	The habitat features within the SAC are sensitive to vibrations and alteration to sediment dynamics. The construction phase of the Planning Scheme has the potential to affect these features through the hydrological link, although effects are expected to be low given	No	No, Mitigation is not required however; best practice guidelines should be followed in all

²⁵ Ruddock M. & Whitfield D.P. (2007) A Review of Disturbance Distances in Selected Bird Species

European Site	Distance	Qualifying Interest/Special Conservation Interests	Characterisation of Potential Effects	Significant Effects	Mitigation Required
		Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) [1330]	the scope of works and the distance. The planning scheme contains policies and objectives to minimise interactions with water quality and turbidity levels through objectives such as SUDS controls. The planning scheme will not affect tidal conditions for which the habitats are dependent on. No significant sources for interactions with the conservation objectives of this site have been identified and pathways for effects are also minor. Therefore, significant effects are not identified.		circumstances to minimize vibrations and control effects to sedimentation.
Baldoyle Bay SPA 004016	8.13km	Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] Shelduck (<i>Tadorna tadorna</i>) [A048] Ringed Plover (<i>Charadrius hiaticula</i>) [A137] Golden Plover (<i>Pluvialis apricaria</i>) [A140] Grey Plover (<i>Pluvialis squatarola</i>) [A141] Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] Wetland and Waterbirds [A999]	There are no direct effects foreseen to the qualifying interests of the Baldoyle Bay SPA as a result of the implementation of the Planning Scheme. Indirect impacts such as disturbance due to noise unlikely to affect the bird populations at this SPA, however studies have shown a link between the wading wintering bird populations within the 'Dublin Bay Biosphere'. This could result in low levels of effects which are foreseen to be of low significance. A study by the SNH ²⁶ identifies the area of disturbance in relation to bird species to be within 1km.	No	No, Mitigation is not required however; best practice guidelines should be followed in all circumstances to minimize noise pollution.

²⁶ Ruddock M. & Whitfield D.P. (2007) A Review of Disturbance Distances in Selected Bird Species

5 Mitigation Measures

5.1 Introduction

This section outlines measures that have been incorporated into the Planning Scheme in order to mitigate against potential effects to European Sites as identified above.

The Poolbeg West SDZ Planning Scheme was done in an iterative manner whereby Dublin City Council prepared the first of the Planning Scheme which was provided to CAAS who made suggestions for integration into the Planning Scheme. Dublin City Council then reviewed the Planning Scheme to take account of the SEA/AA suggestions and sent the following revision back to CAAS for comment. A similar process was conducted with the NPWS and EPA, whose consideration and concerns were incorporated into the Planning Scheme itself. The Planning Scheme, as detailed above, is a feature of the higher level DCDP and therefore all measures, development principals, policies, aims and objectives contained within it must be adhered to by the Planning Scheme.

In order to demonstrate that there will be no adverse effects from the Planning Scheme, mitigation measures have been devised and incorporated into the text of the Plan, described below. The measures that have been incorporated with those in the SEA Environmental Report and with other relevant plans and programmes such as the programme of measures in the Transport Strategy for the GDA and the River Basin Management Plans along with their associated SEAs.

Based on the types of impacts identified above, the mitigation measures presented below are split into two main categories, 'Measures to Protect Habitats and Species' and 'Measures to Protect Water Quality'. As mentioned previously, the Poolbeg West SDZ Planning Scheme is a lower tier Plan of the Dublin City Development Plan (DCDP), therefore environmental protection measures included in the DCDP must also be adhered to during developments of the Poolbeg Peninsula.

5.2 Measures incorporated into the text of the Poolbeg West SDZ Planning Scheme

5.2.1 Mitigation

As outlined in Section 4.3 of this assessment a number of significant effects that could impact on habitats and species have been identified. No zoning or specific projects are contained within the Planning Scheme that would result in direct impacts on any European Site.

Measures have been included in the policies and objectives of the Planning Scheme that will ensure these impacts are avoided. The Poolbeg West SDZ Planning Scheme sits within a hierarchy of development plans in County Dublin, it is a lower tier plan under the Dublin City Development Plan 2016 – 2022 (DCDP), therefore mitigation measures included in the DCDP also apply to development and land use in the Poolbeg West SDZ area.

Section 4.2 of this assessment identified that impacts on water quality to a number of downstream European Sites have potential to arise through, discharges of wastewater, and possible discharges of sediment and other pollutants from future development and associated works. In addition, any newly proposed or upgraded wastewater treatment plants should fully comply with all Urban Wastewater Regulations requirements 2001 – 2004, and should furthermore comply with all wastewater discharge authorisation requirements as per 2007 Regulations and Urban Wastewater Regulations 2001.

As a result of the AA and Strategic Environmental Assessment of the Planning Scheme, a number of policies and objectives have been developed and existing policies amended to strengthen the protection afforded to European Sites. Amongst other things, these policies and objectives will ensure that appropriate assessments are carried out on all developments. This will ensure that project level effects,

which cannot be predicted at the Plan level, will be mitigated and impacts on protected sites through inappropriate development will be avoided. The Planning Scheme will also comply with measures listed in Section 9 (Table 9.1) of the SEA Environmental Report, which will further mitigate potential adverse effects on the environment. Those measures relevant to the safeguarding all European Sites are reproduced in Table 5-1.

Table 5-1 Measures detailed in Table 9.2 of the SEA Environmental Report relevant to the protection of European Sites

Environmental Component	Potential Significant Effect, if unmitigated	Mitigation Measure
Biodiversity and Flora and Fauna	<ul style="list-style-type: none"> • Arising from both construction and operation of development associated infrastructure: loss of/damage to biodiversity in designated sites (including European Sites and Wildlife Sites) and Annexed habitats and species, listed species, ecological connectivity and non-designated habitats; and disturbance to biodiversity and flora and fauna. • Habitat loss, fragmentation and deterioration, including patch size and edge effects. • Disturbance and displacement of protected species. 	<p>Please also refer to the relevant measures under the environmental components of Water and Landscape.</p> <p>Measures from the Planning Scheme:</p> <p><i>Key Principle: Protect Dublin Bay</i> Key principle: Ensure that all measures are taken to mitigate against any potential impacts on Dublin Bay and its environs.</p> <p>CD3 To support the expansion and growth of existing sports, libraries and leisure facilities, in particular water based sports (consistent with nature conservation policy), in recognition of the waterside context of the SDZ, and the strong maritime traditions of the Ringsend/Irishtown area for the benefit of the local community and in particular programmes that encourage engagement by younger people.</p> <p>IU 13. To ensure the protection of surface and ground water quality in the plan area and surrounding areas, and the protection of protected habitats and species including designated national and international conservation sites in implementing the plan and to meet the requirements of the Water Framework Directive and the provisions of the relevant River Basin Management Plan</p> <p>IU 14. To require that each significant planning application be accompanied by a Construction and Environmental Management Plan, which shall include information on construction traffic routes, hours of operation, control of noise, and environmental effects and associated, detailed mitigation including that relating to the excavation of material and the storage, transport, treatment and disposal of wastes. Where landowners collaborated and prepared a coordinated environmental management plan, this could be submitted with each application for development as appropriate.</p> <p>GI1 To develop a hierarchy of inter-connected open spaces, recreation areas and green landscaped areas, via walking and cycling routes, through the SDZ and ensure that ecosystem functions and existing amenity uses are not compromised and existing biodiversity and heritage is protected and enhanced.</p> <p>GI2 To incorporate open space into the green infrastructure of the SDZ, providing a multi-functional role including urban drainage, flood management, biodiversity, outdoor recreation and carbon absorption.</p> <p>GI3 To require the provision of green landscaping, including tree planting where practical, on key streets within the SDZ and to improve amenity, increase opportunities for wildlife and contribute to improvements in air and water quality and water attenuation.</p> <p>GI4 To respect the integrity of designated nature areas and seek to achieve favourable conservation status of the habitats in these designated areas.</p> <p>GI5 All developments in the SDZ should incorporate the relevant mitigation measures set out in the Strategic Environmental Assessment Environmental Report.</p> <p>GI6 To require that all development proposals, including internal courtyards, maximise the opportunities for ecological and biodiversity enhancement</p> <p>GI7 To ensure that in new residential developments, public and communal open space is provided which is sufficient in quantity and distribution to meet the requirements of the projected population and includes play facilities for children.</p> <p>GI8 To seek the development of Coastal Park, Village Green and Port Park in the SDZ area offering new amenities and recreational activities and to support the upgrade of existing parks and amenity areas adjoining the SDZ</p> <p>GI9 To require Sustainable Urban Drainage Systems (SUDS) in all developments, incorporating a sequence of SUDS techniques that work together in series to control the flow, volume and frequency of runoff as well as preventing or treating pollution as water flows through the development (Management Train).</p> <p>GI10 To integrate new green infrastructure solutions into new developments and in the public realm to boost biodiversity and improve surface water management within the SDZ area, include the use of permeable materials for surfaces, planted roofs, living walls, swales, retention basin/ponds and provision of storm water tree trenches.</p> <p>GI11 Any plan or project with the potential to give rise to significant direct, indirect or secondary impacts on a Natura 2000 site(s) shall be subject to an Appropriate Assessment in accordance with Article (3) of the Habitats Directive.</p> <p>GI12 To promote environmental stewardship by managing invasive species and human-wildlife conflicts with birds' species and to improve water quality. Public Realm Aim: Environmental protection and enhancement: <ul style="list-style-type: none"> • To protect the SDZ area's existing natural reserves and amenity, and enhance its biodiversity through the creation of new parks, green infrastructural routes and corridors. • To improve the environmental quality of the SDZ through new water management proposals using SUDS, swales and water attenuation where appropriate to mitigate against flooding. • To plant native flora to support and develop natural habitats for land/water based fauna. • To create green buffers between new development in the SDZ and the surrounding industrial landscape to soften their visual impact. </p>

Environmental Component	Potential Significant Effect, if unmitigated	Mitigation Measure
		<ul style="list-style-type: none"> • To provide green landscaping including tree planting on streets within the SDZ area to increase opportunities for wildlife and contribute to improvements in air and water quality and water attenuation. • To encourage the use of green roofs and vertical greenery on buildings where appropriate. <p>US3 To distribute land uses throughout Poolbeg West site in a manner that responds to surrounding constraints, protects sensitive areas and residential amenities and creates a series of focal points for residents and workers.</p> <p>US4 To create a varied open space/green infrastructure network that protects the coastal area, integrates with Sean Moore Park and provides a series of ecological and visual connections across Poolbeg West.</p> <p>Also included but not as a numbered provision:</p> <ul style="list-style-type: none"> • Lighting columns and other fixtures can have a significant effect on the appearance of buildings, the environment and the coastal ecological area. Where proposals for new lighting require planning permission, Dublin City Council will ensure that they are carefully and sensitively designed. Lighting fixtures should provide only the amount of light necessary for personal safety and should be designed so as to avoid creating glare or emitting light above a horizontal plane. Lighting fixtures should also have minimum environmental impact and protect light sensitive species such as bats. • To encourage the use of green roofs and vertical greenery on buildings where appropriate. The design of green roofs shall consider whether nesting birds may be attracted and, where conflicts between usage and bird protection are identified, the use of 'swift bricks' and nest boxes should be explored. <p>City Development Plan Measures:</p> <p>Policy GI1: To develop a green infrastructure network through the city, thereby interconnecting strategic natural and semi-natural areas with other environmental features including green spaces, rivers, canals and other physical features in terrestrial (including coastal) and marine areas.</p> <p>Policy GI2: That any plan/project, either individually or in combination with other plans or projects that has the potential to give rise to significant effect on the integrity of any European site(s), shall be subject to an appropriate assessment in accordance with Article 6(3) and 6(4) of the EU Habitats Directive.</p> <p>Policy GI3: To develop linear parks, particularly along waterways, and to link existing parks and open spaces in order to provide green chains throughout the city. Where lands along the waterways are in private ownership, it shall be policy in any development proposal to secure public access along the waterway.</p> <p>Policy GI9: To incorporate open space into the green infrastructure network for the city, providing a multi-functional role including urban drainage, flood management, biodiversity, outdoor recreation and carbon absorption.</p> <p>Policy GI10: To continue to manage and protect and/or enhance public open spaces to meet the social, recreational, conservation and ecological needs of the city and to consider the development of appropriate complementary facilities which do not detract from the amenities of spaces.</p> <p>Policy GI16: To protect and improve the unique natural character and ecological value of all rivers within and forming boundaries to the administrative area of Dublin City Council, in accordance with the Eastern River Basin District management plan.</p> <p>Policy GI17: To develop sustainable coastal, estuarine, canal and riverine recreational amenities to enhance appreciation of coastal natural assets in a manner that ensures that any adverse environmental effects are avoided, remedied or mitigated.</p> <p>Policy GI19: To ensure a co-ordinated approach to the management of Dublin Bay with other State and semi-State agencies through the Dublin Bay Biosphere Partnership to develop a Biosphere Strategy for the sustainable development of Dublin Bay.</p> <p>Policy GI21: To support initiatives to reduce marine pollution in Dublin Bay in partnership with other organisations and to raise awareness by Bay users and the general public and also to have regard to the Marine Strategy Framework Directive (2008/56/EC).</p> <p>Policy GI23: To protect flora, fauna and habitats, which have been identified by Articles 10 and 12 of Habitats Directive, Birds Directive, Wildlife Acts 1976-2012, the Flora (Protection) Order 2015 S.I No. 356 of 2015, European Communities (Birds and Natural Habitats) Regulations 2011 to 2015.</p> <p>Policy GI24: To conserve and manage all Natural Heritage Areas, Special Areas of Conservation and Special Protection Areas designated, or proposed to be designated, by the Department of Arts, Heritage, Regional, Rural and Gaeltacht.</p> <p>Policy GI25: To make provisions for habitat creation/maintenance and facilitate biodiversity by encouraging the development of linear parks, nature trails, wildlife corridors, urban meadows and urban woodlands.</p> <p>Policy GI26: To have regard to the conservation and enhancement of significant non-designated areas of ecological importance in accordance with development standards set out in this plan.</p> <p>Policy GI28: To support the implementation of the Dublin City Tree Strategy, which provides the vision for the long-term planting, protection and maintenance of trees, hedgerows and woodlands within Dublin City.</p>

Environmental Component	Potential Significant Effect, if unmitigated	Mitigation Measure
		<p>Policy GI30: To encourage and promote tree planting in the planning and development of urban spaces, streets, roads and infrastructure projects.</p> <p>Policy SI5: To promote the enhancement of aquatic ecosystems and, with regard to their water needs, terrestrial ecosystems and wetlands directly depending on the aquatic ecosystems.</p>
Population and Human Health	<ul style="list-style-type: none"> • Interactions if effects arising from industrial hazards of unsuitable/incompatible land-uses (such as heavy vehicle traffic, emissions or contaminated soils) are not mitigated. • Interactions if effects upon environmental vectors such as water and air are not mitigated. 	<p>Please also refer to the relevant measures under the environmental components of Soil, Water and Air and Climatic Factors.</p> <p>Measures from the Planning Scheme:</p> <p>Policy Section 8.4.7: SEVESO III Sites: It is policy of Dublin City Council to have regard to the provisions of the Major Accidents Directive relating to the control of major accident hazards involving dangerous substances. Its objectives are to prevent major accidents and limit the consequences of such accidents. Dublin City Council will have regard to the provisions of the Directive and recommendations of the HSA in the assessment of all planning applications located within the consultation distance of such sites.</p> <p>City Development Plan Measures:</p> <p>Policy SI28: To have regard to the provisions of the Major Accidents Directive (2012/18/EU), relating to the control of major accident hazards involving dangerous substances and its objectives are to prevent major accidents and limit the consequences of such accidents. Dublin City Council will have regard to the provisions of the Directive and recommendations of the HSA in the assessment of all planning applications located on or impacted by such sites.</p>
Soil	<ul style="list-style-type: none"> • Loss of soil function. • Issues arising on other environmental components if potentially contaminated soils were not managed appropriately – both during construction and longer term. 	<p>Please also refer to the relevant measures under the environmental component of Population and Human Health and Water.</p> <p>Measures from the Planning Scheme:</p> <p>IU 11. That all undeveloped sites be remediated to internationally accepted standards prior to redevelopment. All applications shall be accompanied by a report from a qualified, expert consultant detailing compliance with the remediation measures as outlined in the Remediation Measures Report. The remediation shall incorporate international best practice and expertise on innovative ecological restoration techniques including specialist planting and green initiatives that create aesthetically improved sites, healthy environments and contribute to the provision of new green open spaces as integral parts of newly created areas. Treatment/management of any contaminated material shall comply as appropriate with the Waste Management Act 1996 (waste licence, waste facility permit) and under the EPA Act 1992 (Industrial Emissions licensing, in particular the First Schedule, Class 11 Waste). These measures will ensure that contaminated material will be managed in a manner that removes any risk to human health and ensures that the end use will be compatible with any risk.</p> <p>City Development Plan Measures:</p> <p>Policy SI23: All potentially contaminated sites shall be remediated to internationally accepted standards prior to redevelopment. Any unearthened contaminants will require some form of remediation measures which may require a licence from the Environmental Protection Agency (EPA).</p>
Water	<ul style="list-style-type: none"> • Adverse impacts upon the status of water bodies²⁷ arising from changes in quality, flow and/or morphology. • Interactions with flood risk. 	<p>Please also refer to the relevant measures under the environmental components of Population and Human Health, Soil, Biodiversity and Flora and Fauna.</p> <p>Measures from the Planning Scheme:</p> <p>IU 1. To require all proposed developments to carry out a site-specific Flood Risk Assessment (SSFRA) that shall demonstrate compliance with:</p> <ul style="list-style-type: none"> • The Planning System and Flood Risk Management, Guidelines for Planning Authorities (Department of the Environment, Heritage and Local Government, November 2009, as may be revised/updated). • The prevailing Dublin City Development Plan. <p>Such assessments shall:</p> <ul style="list-style-type: none"> • Pay particular emphasis to residual flood risks, site-specific mitigation measures, flood resilient design and construction, and any necessary management measures (Appendix B4 of the above mentioned national guidelines refers).

²⁷ Including the Dublin Urban Groundwater body and the River Liffey Estuary Lower Estuary and the Dublin Bay Coastal Water Body within the Liffey and Dublin Bay Catchment in the Eastern River Basin District.

Environmental Component	Potential Significant Effect, if unmitigated	Mitigation Measure
		<ul style="list-style-type: none"> • Give attention (in the SSFRA and in building design) to creating a successful interface with the public realm through good design that addresses flood concerns but also maintains appealing and functional streetscapes • Consider and mitigate any pluvial flood risk, having regard to Pluvial Flood Risk Maps from the Dublin Pluvial Study • Take into account potential increase in flood risk arising from subsidence in areas that have been infilled. • Ensure that Strategic Flood Risk Assessments and site-specific Flood Risk Assessments consider and provide information on the implications of climate change with regard to flood risk in relevant locations. The 2009 OPW Draft Guidance on Assessment of Potential Future Scenarios for Flood Risk Management (or any superseding document) shall be in this regard. • Assess flood risk for all parts of the development including any proposals for underground parking and storage areas, recognising that no underground offices or residential units (whether temporary or permanent) will be allowed. • Demonstrate that relevant development management measures detailed in the Dublin City Development Plan 2016-2022 SFRA have been integrated into the development proposal. <p>IU 3. That all new developments shall be required to comply with the standards set out in the Greater Dublin Strategic Drainage Study (GDSDS)</p> <p>IU 4. To achieve best practice and innovations in SUDS design as part of the planning scheme, including the successful coordination of surface water management with ecology and amenity functions of open space and landscaped areas. All planning applications shall be accompanied by a surface water drainage plan which will include proposals for the management of surface water within sites, protecting the water quality of the existing water bodies and ground water sources, and retrofitting best practice SUDS techniques on existing sites, where possible. Such a plan shall demonstrate that surface water runoff will be limited to current values, as required by the Dublin City Development Plan 2016-2022. Where a planning application depends upon any pipes draining to the sea, such pipes should be fitted with non-return valves in order to prevent back flow from sea where relevant.</p> <p>IU 13. To ensure the protection of surface and ground water quality in the plan area and surrounding areas, and the protection of protected habitats and species including designated national and international conservation sites in implementing the plan and to meet the requirements of the Water Framework Directive and the provisions of the relevant River Basin Management Plan</p> <p>IU 14. To require that each significant planning application be accompanied by a Construction and Environmental Management Plan, which shall include information on construction traffic routes, hours of operation, control of noise, and environmental effects and associated, detailed mitigation including that relating to the excavation of material and the storage, transport, treatment and disposal of wastes. Where landowners collaborated and prepared a coordinated environmental management plan, this could be submitted with each application for development as appropriate.</p> <p>GI2 To incorporate open space into the green infrastructure of the SDZ, providing a multi-functional role including urban drainage, flood management, biodiversity, outdoor recreation and carbon absorption.</p> <p>GI3 To require the provision of green landscaping, including tree planting where practical, on key streets within the SDZ and to improve amenity, increase opportunities for wildlife and contribute to improvements in air and water quality and water attenuation.</p> <p>GI9 To require Sustainable Urban Drainage Systems (SUDS) in all developments, incorporating a sequence of SUDS techniques that work together in series to control the flow, volume and frequency of runoff as well as preventing or treating pollution as water flows through the development (Management Train).</p> <p>GI10 To integrate new green infrastructure solutions into new developments and in the public realm to boost biodiversity and improve surface water management within the SDZ area, include the use of permeable materials for surfaces, planted roofs, living walls, swales, retention basin/ponds and provision of storm water tree trenches.</p> <p>Public Realm Aim: Environmental protection and enhancement:</p> <ul style="list-style-type: none"> • To improve the environmental quality of the SDZ through new water management proposals using SUDS, swales and water attenuation where appropriate to mitigate against flooding. • To provide green landscaping including tree planting on streets within the SDZ area to increase opportunities for wildlife and contribute to improvements in air and water quality and water attenuation. <p>Also included but not as a numbered provision:</p> <ul style="list-style-type: none"> • A Strategic Flood Risk Assessment (SFRA), as required by 'The Planning System and Flood Risk Management Guidelines for Planning Authorities' (DEHLG, 2009), has been undertaken alongside the preparation of the SEA and the preparation of this Planning Scheme. This assessment considers available information on flood risk indicators and delineates flood risk zones. All developments must comply as relevant with the measures included within Section 4 "Recommendations" of the SFRA. <p>City Development Plan Measures:</p>

Environmental Component	Potential Significant Effect, if unmitigated	Mitigation Measure
		<p>Policy SI4: To promote and maintain the achievement of at least good status in all water bodies in the city.</p> <p>Policy SI6: To promote the protection and improvement of the aquatic environment, including through specific measures for the progressive reduction or cessation of discharges and emissions.</p> <p>Policy SI7: To promote the progressive reduction of pollution of groundwater and prevent its further pollution.</p> <p>Policy GI16: To protect and improve the unique natural character and ecological value of all rivers within and forming boundaries to the administrative area of Dublin City Council, in accordance with the Eastern River Basin District management plan.</p> <p>Policy GI19: To ensure a co-ordinated approach to the management of Dublin Bay with other State and semi-State agencies through the Dublin Bay Biosphere Partnership to develop a Biosphere Strategy for the sustainable development of Dublin Bay.</p> <p>Policy GI20: To seek continued improvement in water quality, bathing facilities and other recreational opportunities in the coastal, estuarine and surface waters in the city, having regard to the sensitivities of Dublin Bay and to protect the ecology and wildlife of Dublin Bay.</p> <p>Policy GI21: To support initiatives to reduce marine pollution in Dublin Bay in partnership with other organisations and to raise awareness by Bay users and the general public and also to have regard to the Marine Strategy Framework Directive (2008/56/EC.)</p> <p>Policy CC5: To address flood risk at strategic level through the process of strategic flood risk assessment, and through improvements to the city's flood defences.</p> <p>Policy SI8: To mitigate the effects of floods and droughts subject to environmental assessments.</p> <p>Policy SI9: To assist the Office of Public Works in developing catchment-based Flood Risk Management Plans for rivers, coastlines and estuaries in the Dublin city area and have regard to their provisions/recommendations.</p> <p>Policy SI10: To have regard to the Guidelines for Planning Authorities on the Planning System and Flood Risk Management, and Technical Appendices, November 2009, published by the Department of the Environment, Community, and Local Government as may be revised/updated when assessing planning applications and in the preparation of plans both statutory and non-statutory.</p> <p>Policy SI11: To put in place adequate measures to protect the integrity of the existing Flood Defence Infrastructure in Dublin City Council's ownership and identified in the Strategic Flood Risk Assessment and to ensure that the new developments do not have the effect of reducing the effectiveness or integrity of any existing or new flood defence infrastructure and that flood defence infrastructure has regard also to nature conservation, open space and amenity issues.</p> <p>Policy SI12: To implement and comply fully with the recommendations of the Strategic Flood Risk Assessment prepared as part of the Dublin City Development Plan.</p> <p>Policy SI13: That development of basements or any above-ground buildings for residential use below the estimated flood levels for Zone A or Zone B will not be permitted.</p> <p>Policy SI14: To protect the Dublin City coastline from flooding as far as reasonably practicable, by implementing the recommendations of the Dublin Coastal Flood Protection Project and the Dublin Safer Project.</p> <p>Policy SI15: To minimise the risk of pluvial (intense rainfall) flooding in the city as far as is reasonably practicable and not to allow any development which would increase this risk.</p> <p>Policy SI16: To minimise the flood risk in Dublin City from all other sources of flooding, including fluvial, reservoirs and dams and the piped water system.</p> <p>Policy SI17: To require an environmental assessment of all proposed flood protection or flood alleviation works.</p> <p>Policy SI18: To require the use of Sustainable Urban Drainage Systems in all new developments, where appropriate, as set out in the Greater Dublin Regional Code of Practice for Drainage Works. The following measures will apply:</p> <ul style="list-style-type: none"> • The infiltration into the ground through the development of porous pavement such as permeable paving, swales, and detention basins • The holding of water in storage areas through the construction of green roofs, rainwater harvesting, detention basins, ponds, and wetlands • The slow-down of the movement of water. <p>Policy GI4: To co-ordinate open space, biodiversity and flood management requirements, in progressing a green infrastructure network.</p> <p>Policy GI9: To incorporate open space into the green infrastructure network for the city, providing a multi-functional role including urban drainage, flood management, biodiversity, outdoor recreation and carbon absorption.</p> <p>Objective SIO8: All development proposals shall carry out, to an appropriate level of detail, a Site Specific Flood Risk Assessment (SSFRA) that shall demonstrate compliance with:</p> <ul style="list-style-type: none"> • The Planning System and Flood Risk Management, Guidelines for Planning Authorities, Department of the Environment, Community and Local Government, November 2009, as may be revised/updated and the Strategic Flood Risk Assessment (SFRA) as prepared by this Development Plan.

Environmental Component	Potential Significant Effect, if unmitigated	Mitigation Measure
		<ul style="list-style-type: none"> • The site-specific flood risk assessment (SSFRA) shall pay particular emphasis to residual flood risks, site-specific mitigation measures, flood-resilient design and construction, and any necessary management measures (the SFRA and Appendix B4 of the above mentioned national guidelines refer). Attention shall be given in the site-specific flood risk assessment to building design and creating a successful interface with the public realm through good design that addresses flood concerns but also maintains appealing functional streetscapes. All potential sources of flood risk must be addressed in the SSFRA. <p>Objective SIO9: Proposals which may be classed as 'minor development', for example small-scale infill, small extensions to houses or the rebuilding of houses or paving of front gardens to existing houses, most changes of use and small-scale extensions to existing commercial and industrial enterprises in Flood Zone A or B, should be assessed in accordance with the Guidelines for Planning Authorities on the Planning System and Flood Risk Management & Technical Appendices, November 2009 as may be revised/updated, with specific reference to Section 5.28 and in relation to the specific requirements of the Strategic Flood Risk Assessment. The policy shall be not to increase the risk of flooding and to ensure risk to the development is managed.</p> <p>Objective SIO10: That recommendations and flood maps arising from the Fingal-East Meath CFRAM Study, the Dodder CFRAM Study and the Eastern CFRAM Study are taken into account in relation to the preparation of statutory plans and development proposals. This will include undertaking a review of the Strategic Flood Risk Assessment for Dublin city following the publication of the Final Eastern CFRAM Study, currently being produced by the OPW.</p> <p>Objective SIO11: To work with neighbouring Local Authorities when developing cross-boundary flood management work programmes and when considering cross-boundary development.</p> <p>Objective SIO12: To ensure each flood risk management activity is examined to determine actions required to embed and provide for effective climate change adaptation as set out in the Dublin City Council climate change adaption policy and in the OPW Climate Change Sectoral Adaptation Plan Flood Risk Management applicable at the time.</p> <p>Objective SIO13: To provide additional and improved surface water networks to both reduce pollution and allow for sustainable development.</p> <p>Objective SIO14: To require that any new paving of driveways or other grassed areas is carried out in a sustainable manner so that there is no increase in storm water run-off to the drainage network.</p> <p>Objective GIO28: To identify opportunities for new tree planting to ensure continued regeneration of tree cover across the city, taking account of the context within which a tree is to be planted and planting appropriate tree species for the location.</p> <p>Objective GIO29: To encourage trees to be incorporated in (a) the provision of temporary green spaces (e.g. pop-up parks) either planted into the soil or within moveable containers as appropriate and (b) within sustainable urban drainage systems (SUDS), as appropriate.</p> <p>Policy GI14: To promote the development of soft landscaping in public open spaces, where feasible, in accordance with the principles of Sustainable Urban Drainage Systems.</p>
Material Assets (it is the function of Irish Water to provide for water services needs)	<ul style="list-style-type: none"> • Failure to provide adequate and appropriate waste water treatment (water services infrastructure and capacity is needed to ensure the mitigation of potential conflicts). • Failure to comply with drinking water regulations and serve new development with adequate drinking water that is both wholesome and clean (water services infrastructure and capacity is needed to ensure the mitigation of potential conflicts). • Increases in waste levels 	<p>Measures from the Planning Scheme:</p> <p>IU 2. To require all large development proposals to include water conservation and demand management measures</p> <p>IU 5. To ensure that development is permitted in tandem with available waste water, surface water and water supply, and to manage development, so that new schemes are permitted only where adequate water supply resources exist or will become available within the life of a planning permission</p> <p>IU 9. That all proposed developments of an appropriate scale be district heating-enabled in order to provide an environmentally sustainable option for heating and cooling</p> <p>IU 10. To investigate the feasibility of providing a district heating boiler station in the eastern/industrial portion of the SDZ area.</p> <p>IU 12. That all developments will comply with the waste policy as set out in the Dublin City Development Plan 2016-2022</p> <p>IU 14. To require that each significant planning application be accompanied by a Construction and Environmental Management Plan, which shall include information on construction traffic routes, hours of operation, control of noise, and environmental effects and associated, detailed mitigation including that relating to the excavation of material and the storage, transport, treatment and disposal of wastes. Where landowners collaborated and prepared a coordinated environmental management plan, this could be submitted with each application for development as appropriate.</p> <p>Various Land Use and Phasing provisions (Chapter 9)</p> <p>City Development Plan Measures:</p> <p>Policy SI1: To support and facilitate Irish Water in the provision of high-quality drinking water, water conservation, and in the development and improvement of the water and wastewater systems to meet anticipated demands for clean and resilient water supplies and wastewater requirements for the city and region, all in accordance with the recommendations set out in the 'Greater Dublin Water Supply Strategic Study' and 'The Greater Dublin Strategic Drainage Study'.</p>

Environmental Component	Potential Significant Effect, if unmitigated	Mitigation Measure
		<p>Policy SI2: To support and facilitate Irish Water to ensure the upgrading of wastewater infrastructure, in particular the upgrading of the Ringsend Wastewater Treatment Plan, and to support the development of the Greater Dublin Regional Wastewater Treatment Plant, the North Docklands Sewage Scheme, the Marine Outfall and orbital sewer to be located in the northern part of the Greater Dublin Area to serve the Dublin region as part of the Greater Dublin Strategic Drainage Strategy.</p> <p>Policy SI3: To ensure that development is permitted in tandem with available water supply and wastewater treatment and to manage development, so that new schemes are permitted only where adequate capacity or resources exists or will become available within the life of a planning permission.</p> <p>Policy SI19: To support the principles of good waste management and the implementation of best international practice in relation to waste management in order for Dublin city and the region to become self-reliant in terms of waste management.</p> <p>Policy SI20: To prevent and minimise waste and to encourage and support material sorting and recycling.</p> <p>Policy SI21: To minimise the amount of waste which cannot be prevented and ensure it is managed and treated without causing environmental pollution.</p> <p>Policy SI22: To ensure that effect is given as far as possible to the "polluter pays" principle.</p> <p>Objective SIO15: To provide for municipal/public recycling and recovery facilities in accessible locations throughout the city.</p> <p>Objective SIO16: To require the provision of adequately-sized recycling facilities in new commercial and large-scale residential developments, where appropriate.</p> <p>Objective SIO19: To implement the Eastern-Midlands Waste Management Plan 2015-2021 and achieve the plan targets and objectives.</p>
Air and Climatic Factors/ Sustainable mobility and associated effects (energy usage and emissions to air including noise and greenhouse gases)	<ul style="list-style-type: none"> • Emissions to air including greenhouse gas emissions and other emissions. 	<p>Please also refer to the relevant measures under the environmental component of Water and Population and Human Health.</p> <p>Measures from the Planning Scheme:</p> <p>MV1 To promote a high level of use of sustainable forms of transport including walking, cycling and public transport use having regard to the City Development Plan and national level policies.</p> <p>MV2 To provide an improved public transport services to the area including a core bus link to the City Centre via the proposed Dodder Bridge, enhanced/extended bus services along existing routes, and in the longer term, to provide for delivery of Luas to Poolbeg as part of the planned Red line extension under the National Transport Authority Strategy 2016-2035.</p> <p>MV3 To actively pursue the delivery of the Dodder (or 'Gut') bridge to facilitate the full build-out of the planning scheme in accordance with the Phasing programme as set out in the Land-Use and Phasing chapter. This bridge shall be designed to facilitate public transport and walking/cycling.</p> <p>MV4 To protect the route of the proposed Southern Port Access Route and Eastern Bypass in accordance with the objectives of Transport Infrastructure Ireland and the National Transport Authority Strategy for the Greater Dublin Area 2016-2035. As an interim measure it is proposed to provide a separate road access to the south port area via a new link located north of the existing Séan Moore Roundabout.</p> <p>MV5 To seek the upgrading of roads and junctions in the immediate vicinity of the SDZ to accommodate improved public transport priority and active modes. These works will include new signalised junctions at the Sean Moore Road/ South Bank Road Roundabout, at the Beach Road/ Sean Moore Road junction. A new pedestrian and cycle link across the River Liffey, located immediately parallel to the East link Bridge will also be prioritised.</p> <p>MV7 To promote the development of an improved cycle network in accordance with the NTA's Cycle Network Plan, and to seek (<i>inter alia</i>) the following cycle connections in cooperation with the National Transport Authority:</p> <ul style="list-style-type: none"> • Pigeon house Road to John Rogerson's Quay via proposed Dodder Bridge. • Bremen Road to Bridge Street (R802) via Ringsend Park. • Greenway link from Sean Moore Park to the end of Poolbeg Peninsula, integrated with the proposed coastal promenade walking/cycling route. <p>The above shall link to existing and proposed primary routes including the East Coast trail along Beach Road and both the Liffey and Canal Greenway.</p> <p>MV8 To promote the redirection of port and port-related heavy traffic away from South Bank Road. This will be achieved through provision of alternative routes for such traffic and HGVs and also through traffic management, thereby ensuring a high level of amenity for those occupying non-port commercial and residential buildings.</p> <p>MV9 That all applications for urban blocks are accompanied by Travel Plans demonstrating how commuter based car use can be minimised and other sustainable modes of travel provided in accordance with best practice mobility management (see Appendix 4 of the Dublin City Development Plan)</p> <p>MV10 To provide the cycle routes (including Coastal Greenway) indicated in Figure 6.2.IU 7. To maintain good air quality in accordance with national and EU policy directives on air quality and where appropriate promote compliance with established targets</p> <p>IU 8. To minimise the adverse impacts of noise to all sensitive receptors and promote a good quality of life for the existing and future residents of the plan area, through the effective management of noise in line with the Dublin Agglomerations Noise Action Plan</p>

Environmental Component	Potential Significant Effect, if unmitigated	Mitigation Measure
		<p>IU 14. To require that each significant planning application be accompanied by a Construction and Environmental Management Plan, which shall include information on construction traffic routes, hours of operation, control of noise, and environmental effects and associated, detailed mitigation including that relating to the excavation of material and the storage, transport, treatment and disposal of wastes. Where landowners collaborated and prepared a coordinated environmental management plan, this could be submitted with each application for development as appropriate.</p> <p>IU 15. To promote energy efficiency, energy conservation, and the increased use of renewable energy in the SDZ.</p> <p>Public Realm Aim: Connectivity and Movement:</p> <ul style="list-style-type: none"> • To provide improved connectivity between the Poolbeg SDZ, its surrounding urban villages, and beyond to the city itself (see Figure 10.1). • To prioritise the design of the public realm for pedestrians, cyclists and public transport, to minimise the use of cars and other vehicular traffic. • To promote universal access for the disabled and mobility impaired to live a full life free from discrimination through the design of an 'enabling' environment. • To provide legible, safe connections for all ages and user groups within and through the SDZ area. <p>US5 To create a distinctive and varied built environment that reinforces the urban structure, promotes a strong sense of place, minimises the impacts of overshadowing and ameliorates wind conditions.</p> <p>City Development Plan Measures:</p> <p>Policy SI24: To monitor and improve air quality in accordance with national and EU policy directives on air quality and, where appropriate, promote compliance with established targets.</p> <p>Policy SI25: To seek to preserve and maintain air and noise quality in the city in accordance with good practice and relevant legislation.</p> <p>Objective SIO20: To promote sustainable design and construction to help reduce emissions from the demolition and construction of buildings.</p> <p>Policy CC1: To prioritise measures to address climate change by way of both effective mitigation and adaptation responses in accordance with available guidance and best practice.</p> <p>Policy CC2: To mitigate the impacts of climate change through the implementation of policies that reduce energy consumption, reduce energy loss/wastage, and support the supply of energy from renewable sources.</p> <p>Policy CC3: To promote energy efficiency, energy conservation, and the increased use of renewable energy in existing and new developments.</p> <p>Policy GI9: To incorporate open space into the green infrastructure network for the city, providing a multi-functional role including urban drainage, flood management, biodiversity, outdoor recreation and carbon absorption.</p> <p>Policy MT2: Whilst having regard to the necessity for private car usage and the economic benefit to the city centre retail core as well as the city and national economy to continue to promote modal shift from private car use towards increased use of more sustainable forms of transport such as cycling, walking and public transport, and to co-operate with the NTA, Transport Infrastructure Ireland (TII) and other transport agencies in progressing an integrated set of transport objectives. Initiatives contained in the Government's 'Smarter Travel' document and in the NTA's Draft Transport Strategy are key elements of this approach.</p> <p>Objective SIO22: To maintain and manage a Dublin ambient air quality monitoring network and to make available to the public the resulting air quality measurements.</p> <p>Objective SIO23: To implement the Dublin Agglomeration Environmental Noise Action Plan (2013 – 2018) in co-operation with the other local authorities in Dublin and the Irish Aviation Authority.</p> <p>Objective SIO25: To support new technologies and practices as a power source in transport to reduce noise.</p> <p>Objective SIO26: To protect residents of mixed-use developments from noise emanating from other uses such as shops, offices, nightclubs, late night busking, public houses and other night time uses through the planning system.</p> <p>Objective SIO27: To give careful consideration to the location of noise-sensitive developments, including the horizontal and vertical layout of apartment schemes, so as to ensure they are protected from major noise sources where practical.</p> <p>Objective SIO28: To support and facilitate the monitoring and enforcement by the environmental health department of noise reduction measures in areas experiencing excess noise.</p> <p>Objective SIO29: To take cognisance of the Dublin Agglomeration Environmental Noise Action Plan 2013-2018 during the development and implementation of any policies for the city and before any major planning developments commence within Dublin.</p>

5.2.2 Monitoring Programme

As part of the SEA and AA process a Monitoring Programme has been developed with the aim of monitoring the environmental effects of the Planning Scheme. The full details of the environmental monitoring programme are presented in Section 10 of the SEA Environmental Report. Monitoring can enable, at an early stage, the identification of unforeseen adverse effects and the undertaking of appropriate remedial action.

Monitoring is based around indicators which allow quantitative measures of trends. Each indicator to be monitored is accompanied by the target(s) which were identified with regard to the relevant strategic actions. Table 5-2 below shows the indicators and targets relevant to any European Sites which have been selected for monitoring the likely significant effects of the implementation of the Planning Scheme. The source of data and frequency is also indicated. In addition to existing monitoring datasets, the output of lower-tier environmental assessment and decision making, including a review of project approvals granted and associated documents, will also be utilised as part of the Monitoring Programme. Where significant effects, including positive, negative, cumulative and indirect, have the potential to occur as a result of the undertaking of individual projects or multiple individual projects such instances should be identified and recorded and should feed into the monitoring evaluation.

Monitoring is an ongoing process and the programme allows for flexibility and the further refinement of indicators and targets. The Monitoring Programme may also be updated to deal with specific environmental issues, including unforeseen effects, as they arise. A stand-alone Monitoring Report on the significant environmental effects of the Planning Scheme will be prepared in advance of the review of the Plan.

Table 5-2 Extracted from the SEA report section 10; Table 10.4 Selected Indicators, Targets and Monitoring Sources

Environmental Component	Selected Indicator(s)	Selected Target(s)	Source (Frequency)
Biodiversity, Flora and Fauna	B1: Conservation status of habitats and species as assessed under Article 17 of the Habitats Directive	B1: Maintenance of favourable conservation status for all habitats and species protected under National and International legislation to be unaffected by implementation of the Planning Scheme ²⁸	<ul style="list-style-type: none"> • Internal monitoring of likely significant environmental effects of grants of permission (grant by grant). • Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs' report of the implementation of the measures contained in the Habitats Directive - as required by Article 17 of the Directive (every 6 years). • Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs' National Monitoring Report for the Birds Directive under Article 12 (every 3 years). • Consultations with the NPWS (at monitoring evaluation) • Information from the Dublin Waste to Energy Facility Wildfowl Monitoring Reports prepared in response to An Bord Pleanála 2007 planning approval Condition 13
	B2: Percentage loss of functional connectivity without remediation resulting from development provided for by the Planning Scheme	B2: No significant ecological networks or parts thereof which provide functional connectivity to be lost without remediation resulting from development provided for by the Planning Scheme	
	B3i: Number of significant impacts on relevant habitats, species, environmental features or other sustaining resources in designated sites including Wildlife Sites resulting from development provided for by the Planning Scheme	B3i: Avoid significant impacts on relevant habitats, species, environmental features or other sustaining resources in designated sites including Wildlife Sites resulting from development provided for by the Planning Scheme	
	B3ii: Number of significant impacts on the protection of listed species	B3ii: No significant impacts on the protection of listed species	
Soil	S1: Area of brownfield land available for re-use	S1: To maximise the re-use of available brownfield land	<ul style="list-style-type: none"> • Internal monitoring of likely significant environmental effects of grants of permission (grant by grant).
Water	W1: Classification of Overall Status (comprised of ecological and chemical status) under the European Communities Environmental Objectives	W1: Not to cause deterioration in the status of any surface water or affect the ability of any surface water to achieve 'good status'	<ul style="list-style-type: none"> • Internal monitoring of likely significant environmental effects of grants of permission (grant by grant).

²⁸ Except as provided for in Section 6(4) of the Habitats Directive, viz. There must be:

- (a) no alternative solution available;
- (b) imperative reasons of overriding public interest for the plan/project to proceed; and
- (c) adequate compensatory measures in place.

Environmental Component	Selected Indicator(s)	Selected Target(s)	Source (Frequency)
	(Surface Waters) Regulations 2009 (SI No. 272 of 2009)		<ul style="list-style-type: none"> • Data issued under the Water Framework Directive Monitoring Programme for Ireland (multi-annual).
	W2: Groundwater Quality Standards and Threshold Values under Directive 2006/118/EC	W2: Not to affect the ability of groundwaters to comply with Groundwater Quality Standards and Threshold Values under Directive 2006/118/EC	
	W3: Number of incompatible developments granted permission on lands which pose - or are likely to pose in the future - a significant flood risk	W3: Minimise developments granted permission on lands which pose - or are likely to pose in the future - a significant flood risk in compliance with <i>The Planning System and Flood Risk Management Guidelines for Planning Authorities</i>	<ul style="list-style-type: none"> • Internal monitoring of likely significant environmental effects of grants of permission (grant by grant).
Air and Climatic Factors	C1: Percentage of resident and employment populations travelling to work, school or college by public transport or non-mechanical means	C1: Maximise the percentage of the resident and employment populations travelling to work, school or college by public transport or non-mechanical means	<ul style="list-style-type: none"> • CSO Area Population Data (every c. 5 years). • Internal monitoring of likely significant environmental effects of grants of permission (grant by grant).

6 Conclusion

Stage 1 Screening and Stage 2 AA of the Poolbeg West SDZ Planning Scheme has been carried out. Implementation of the Planning Scheme has the potential to result in impacts to the integrity of any European Sites, if unmitigated.

The risks to the safeguarding and integrity of the qualifying interests, special conservation interests and conservation objectives of the European Sites have been addressed by the inclusion of mitigation measures that will prioritise the avoidance of effects in the first place and mitigate impacts where these cannot be avoided. In addition, all lower level plans and projects arising through the implementation of the Planning Scheme will themselves be subject to AA when further details of design and location are known.

Having incorporated mitigation measures, it is considered that the Planning Scheme will not have a significant adverse effect on the integrity of any European Site²⁹.

²⁹ Except as provided for in Section 6(4) of the Habitats Directive, viz. There must be:
a) no alternative solution available,
b) imperative reasons of overriding public interest for the plan to proceed; and
c) Adequate compensatory measures in place.

7 Appendices

Appendix I - Site specific characteristic detailed for the European Sites brought forward into Stage 2 for the Appropriate Assessment.

Each of the European Sites brought forward to stage 2 (Table 4-1) are designated for species and habitat features with unique sensitivities as detailed in section Table 4-2 above. Site specific interactions and characteristics are detailed below.

Baldoyle Bay SAC

The Baldoyle Bay SAC extends from just below Portmarnock village to the west pier at Howth in Co. Dublin. It is a tidal estuarine bay protected from the open sea by a large sand-dune system. Two small rivers, the Mayne and the Sluice, flow into the bay. Large areas of intertidal flats are exposed at low tide at this site. These are mostly sands but grade to muds in the inner sheltered parts of the estuary. Extensive areas of Common Cord-grass (*Spartina anglica*) occur in the inner estuary. Both the Narrow-leaved Eelgrass (*Zostera angustifolia*) and the Dwarf Eelgrass (*Z. noltii*) are also found here. During summer, the sandflats of the sheltered areas are covered by mats of green algae (*Enteromorpha* spp. and *Ulva lactuca*). The sediments have a typical macrofauna, with Lugworm (*Arenicola marina*) dominating the sandy flats. The tubeworm *Lanice conchilega* is present in high densities at the low tide mark and the small gastropod *Hydrobia ulvae* occurs in the muddy areas, along with the crustacean *Corophium volutator*. Areas of saltmarsh occur near Portmarnock Bridge and at Portmarnock Point, with narrow strips along other parts of the estuary. Species such as glassworts (*Salicornia* spp.), Sea-purslane (*Halimione portulacoides*), Sea Plantain (*Plantago maritima*) and Sea Rush (*Juncus maritimus*) are found here. Portmarnock Spit formerly had a welldeveloped sand dune system but this has been largely replaced by golf courses and is mostly excluded from the site. A few dune hills are still intact at Portmarnock Point, and there are small dune hills east of Cush Point and below the Claremont Hotel. These are mostly dominated by Marram (*Ammophila arenaria*), though Lymegrass (*Leymus arenarius*) is also found. The site includes a brackish marsh along the Mayne River. Soils here have a high organic content and are poorly drained, and some pools occur. Rushes (*Juncus* spp.) and salt tolerant species such as Common Scurvygrass (*Cochleria officinalis*) and Version date: 12.08.2013 2 of 2 000199_Rev13.Doc Greater Sea-spurrey (*Spergularia media*) are typical of this area. Knotted Hedgeparsley (*Torilis nodosa*), a scarce plant in eastern Ireland, has been recorded here, along with Brackish Water-crowfoot (*Ranunculus baudotti*), a species of brackish pools and ditches which has declined in most places due to habitat loss. Two plant species, legally protected under the Flora (Protection) Order, 1999, occur in the Mayne marsh, Borrer's Saltmarsh-grass (*Puccinellia fasciculata*) and Meadow Barley (*Hordeum secalinum*). Baldoyle Bay is an important bird site for wintering waterfowl and the inner part of the estuary is a Special Protection Area under the E.U. Birds Directive as well as being a Statutory Nature Reserve. Internationally important numbers of Pale-bellied Brent Goose (418) and nationally important numbers of two Annex I Birds Directive species - Golden Plover (1,900) and Bar-tailed Godwit (283) - have been recorded. Four other species also reached nationally important numbers: Shelduck (147), Pintail (26), Grey Plover (148) and Ringed Plover (218) - all figures are average peaks for four winters 1994/95 to 1997/1998. Breeding wetland birds at the site include Shelduck, Mallard and Ringed Plover. Small numbers of Little Tern, a species listed on Annex I of the E.U. Birds Directive, have bred on a few occasions at Portmarnock Point but not since 1991. The area surrounding Baldoyle Bay is densely populated and so 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.

North Dublin Bay SAC

This site covers the inner part of north Dublin Bay, the seaward boundary extending from the Bull Wall lighthouse across to the Martello Tower at Howth Head. The North Bull Island is the focal point of this site. North Bull Island is a sandy spit which formed after the building of the South Wall and Bull Wall in the 18th and 19th centuries. It now extends for about 5 km in length and is up to 1 km wide in places. A well-developed and dynamic dune system stretches along the seaward side of the

island. Various types of dunes occur, from fixed dune grassland to pioneer communities on foredunes. Marram Grass (*Ammophila arenaria*) is dominant on the outer dune ridges, with Lyme-grass (*Leymus arenarius*) and Sand Couch (*Elymus farctus*) on the foredunes. Behind the first dune ridge, plant diversity increases with the appearance of such species as Wild Pansy (*Viola tricolor*), Kidney Vetch (*Anthyllis vulneraria*), Common Bird's-foot-trefoil (*Lotus corniculatus*), Common Restharrow (*Ononis repens*), Yellow-rattle (*Rhinanthus minor*) and Pyramidal Orchid (*Anacamptis pyramidalis*). In these grassy areas and slacks, the scarce Bee Orchid (*Ophrys apifera*) occurs. About 1 km from the tip of the island, a large dune slack with a rich flora occurs, usually referred to as the 'Alder Marsh' because of the presence of Alder trees (*Alnus glutinosa*). The water table is very near the surface and is only slightly brackish. Saltmarsh Rush (*Juncus maritimus*) is the dominant species, with Meadowsweet (*Filipendula ulmaria*) and Devil's-bit Scabious (*Succisa pratensis*) being frequent. The orchid flora is notable and includes Marsh Helleborine (*Epipactis palustris*), Twayblade (*Listera ovata*), Autumn Lady's-tresses (*Spiranthes spiralis*) and Marsh Orchids (*Dactylorhiza spp.*). Saltmarsh extends along the length of the landward side of the island. The edge of the marsh is marked by an eroding edge which varies from 20 cm to 60 cm high. The marsh can be zoned into different levels according to the vegetation types present. On the lower marsh, Glasswort (*Salicornia europaea*), Common Saltmarsh-grass (*Puccinellia maritima*), Annual Sea-blite (*Suaeda maritima*) and Greater Sea-spurrey (*Spergularia media*) are the main species. Higher up in the middle marsh Sea Plantain (*Plantago maritima*), Sea Aster (*Aster tripolium*), Sea Arrowgrass (*Triglochin maritima*) and Thrift (*Armeria maritima*) appear. Above the mark of the normal high tide, species such as Common Scurvygrass (*Cochlearia officinalis*) and Sea Milkwort (*Glaux maritima*) are found, while on the extreme upper marsh, the rushes *Juncus maritimus* and *J. gerardi* are dominant. Towards the tip of the island, the saltmarsh grades naturally into fixed dune vegetation. The habitat 'annual vegetation of drift lines' is found in places, along the length of Dollymount Strand, with species such as Sea Rocket (*Cakile maritima*), Oraches (*Atriplex spp.*) and Prickly Saltwort (*Salsola kali*). The island shelters two intertidal lagoons which are divided by a solid causeway. The sediments of the lagoons are mainly sands with a small and varying mixture of silt and clay. The north lagoon has an area known as the "Salicornia flat", which is dominated by Salicornia dolichostachya, a pioneer glasswort species, and covers about 25 ha. Beaked Tasselweed (*Ruppia maritima*) occurs in this area, along with some Narrow-leaved Eelgrass (*Zostera angustifolia*). Dwarf Eelgrass (*Z. noltii*) also occurs in Sutton Creek. Common Cordgrass (*Spartina anglica*) occurs in places but its growth is controlled by management. Green algal mats (*Enteromorpha spp.*, *Ulva lactuca*) cover large areas of the flats during summer. These sediments have a rich macrofauna, with high densities of Lugworms (*Arenicola marina*) in parts of the north lagoon. Mussels (*Mytilus edulis*) occur in places, along with bivalves such as Cerastoderma edule, Macoma balthica and Scrobicularia plana. The small gastropod *Hydrobia ulvae* occurs in high densities in places, while the crustaceans *Corophium volutator* and *Carcinus maenas* are common. The sediments on the seaward side of North Bull Island are mostly sands. The site extends below the low spring tide mark to include an area of the sublittoral zone. Three rare plant species which are legally protected under the Flora Protection Order, 1999 (Amended 2016) have been recorded on the North Bull Island. These are Lesser Centaury (*Centaurium pulchellum*), Red Hemp-nettle (*Galeopsis angustifolia*) and Meadow Saxifrage (*Saxifraga granulata*). Two further species listed as threatened in the Red Data Book, Wild Clary/Sage (*Salvia verbenaca*) and Spring Vetch (*Vicia lathyroides*), have also been recorded. A rare liverwort, *Petalophyllum ralfsii*, was first recorded from the North Bull Island in 1874 and has recently been confirmed as still present. This species is of high conservation value as it is listed on Annex II of the E.U. Habitats Directive. The North Bull is the only known extant site for the species in Ireland away from the western seaboard. North Dublin Bay is of international importance for waterfowl. Some of these species frequent South Dublin Bay and the River Tolka Estuary for feeding and/or roosting purposes (mostly Brent Goose, Oystercatcher, Ringed Plover, Sanderling and Dunlin). The tip of the North Bull Island is a traditional nesting site for Little Tern. However, nesting attempts have not been successful since the early 1990s. Ringed Plover, Shelduck, Mallard, Skylark, Meadow Pipit and Stonechat also nest. A well-known population of Irish Hare is resident on the island. The main land uses of this site are amenity activities and nature conservation. The North Bull Island is the main recreational beach in Co. Dublin and is used throughout the year. Much of the land surface of the island is taken up by two golf courses. Two separate Statutory Nature Reserves cover much of the island east of the Bull Wall and the surrounding intertidal flats. The site is used regularly for educational purposes. North Bull Island has been designated a Special Protection Area under the E.U. Birds Directive and it is also a statutory

Wildfowl Sanctuary, a Ramsar Convention site, a Biogenetic Reserve, a Biosphere Reserve and a Special Area Amenity Order site.

South Dublin Bay SAC

This site lies south of the River Liffey in Co. Dublin, and extends from the South Wall to the west pier at Dun Laoghaire. It is an intertidal site with extensive areas of sand and mudflats. The sediments are predominantly sands but grade to sandy muds near the shore at Merrion Gates. The main channel which drains the area is Cockle Lake. There is a bed of Dward Eelgrass (*Zostera noltii*) found below Merrion Gates is the largest stand on the east coast. Green algae (*Enteromorpha spp.* and *Ulva lactuca*) are distributed throughout the area at a low density. Fucoid algae occur on the rocky shore in the Maretimo to Dún Laoghaire area. Species include *Fucus spiralis*, *F. vesiculosus*, *F. serratus*, *Ascophyllum nodosum* and *Pelvetia canaliculata*. Several small, sandy beaches with incipient dune formation occur in the northern and western sectors of the site, notably at Poolbeg, Irishtown and Merrion/ Booterstown. The formation at Booterstown is very recent. Drift line vegetation occurs in association with the embryonic and incipient fore dunes. Typically drift lines occur in a band approximately 5 m wide, though at Booterstown this zone is wider in places. The habitat occurs just above the High Water Mark and below the area of embryonic dune. Species present are Sea Rocket (*Cakile maritima*), Frosted Orache (*Atriplex laciniata*), Spear-leaved Orache (*A. prostrata*), Prickly Saltwort (*Salsola kali*) and Fat Hen (*Chenopodium album*). Also occurring is Sea Sandwort (*Honkenya peploides*), Sea Beet (*Beta vulgaris* subsp. *maritima*) and Annual Sea-blite (*Suaeda maritima*). A small area of pioneer saltmarsh now occurs in the lee of an embryonic sand dune just north of Booterstown Station. This early stage of saltmarsh development is here characterised by the presence of pioneer stands of glassworts (*Salicornia spp.*) occurring below an area of drift line vegetation. As this is of very recent origin, it covers a small area but ample areas of substrate and shelter are available for the further development of this habitat. Lugworm (*Arenicola marina*), Cockles (*Cerastoderma edule*) and annelids and other bivalves are frequent throughout the site. The small gastropod *Hydrobia ulvae* occurs on the muddy sands off Merrion Gates. South Dublin Bay is an important site for waterfowl. Although birds regularly commute between the south bay and the north bay, recent studies have shown that certain populations which occur in the south bay spend most of their time there. It is also an important tern roost in the autumn, regularly holding 2000-3000 terns including Roseate Terns, a species listed on Annex I of the E.U. Birds Directive. South Dublin Bay is largely protected as a Special Protection Area. At low tide the inner parts of the south bay are used for amenity purposes. Baitdigging is a regular activity on the sandy flats. At high tide some areas have windsurfing and jet-skiing.

North Bull Island SPA

This site covers all of the inner part of north Dublin Bay, with the seaward boundary extending from the Bull Wall lighthouse across to Drumleck Point at Howth Head. The North Bull Island sand spit is a relatively recent depositional feature, formed as a result of improvements to Dublin Port during the 18th and 19th centuries. It is almost 5 km long and 1 km wide and runs parallel to the coast between Clontarf and Sutton. Part of the interior of the island has been converted to golf courses. Saltmarsh extends along the length of the landward side of the island and provides the main roost site for wintering birds in Dublin Bay. The island shelters two intertidal lagoons which are divided by a solid causeway. These lagoons provide the main feeding grounds for the wintering waterfowl. The sediments of the lagoons are mainly sands with a small and varying mixture of silt and clay. Green algal mats (*Ulva spp.*) are a feature of the flats during summer. These sediments have a rich macro-invertebrate fauna, with high densities of Lugworm (*Arenicola marina*) and Ragworm (*Hediste diversicolor*). The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: 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 and Black-headed Gull. The site is also of special conservation interest for holding an assemblage of over 20,000 wintering waterbirds. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds. The North Bull Island SPA is of international importance for waterfowl on the basis that it regularly supports in excess of 20,000 waterfowl. The site is one of the most important in the country for Light-bellied

Brent Goose. The populations of Pintail and Knot are of particular note as they comprise 14% and 10% respectively of the all-Ireland population totals. Other species that occur regularly in winter include Grey Heron, Little Egret, Cormorant, Wigeon, Goldeneye, Red-breasted Merganser, Ringed Plover and Greenshank. Gulls are a feature of the site during winter and, along with the nationally important population of Black-headed Gull. While some of the birds also frequent South Dublin Bay and the River Tolka Estuary for feeding and/or roosting purposes, the majority remain within the site for much of the winter. The North Bull Island SPA is a regular site for passage waders, especially Ruff, Curlew Sandpiper and Spotted Redshank. These are mostly observed in single figures in autumn but occasionally in spring or winter. The site formerly had an important colony of Little Tern but breeding has not occurred in recent years. Several pairs of Ringed Plover breed, along with Shelduck in some years. Breeding passerines include Skylark, Meadow Pipit, Stonechat and Reed Bunting. The island is a regular wintering site for Short-eared Owl, with up to 5 present in some winters.

Baldoyle Bay SPA

Baldoyle Bay, located to the north and east of Baldoyle and to the south of Portmarnock, Co. Dublin, is a relatively small, narrow estuary separated from the open sea by a large sand dune system. Two small rivers, the Mayne River and the Sluice River, flow into the inner part of the estuary. Large areas of intertidal flats are exposed at low tide. These are mostly sands but grade to muds in the inner sheltered parts of the estuary. Extensive areas of Common Cord-grass (*Spartina anglica*) occur in the inner estuary. Both the Narrow-leaved Eelgrass (*Zostera angustifolia*) and the Dwarf Eelgrass (*Z. noltii*) are also found here. During summer, the sandflats of the sheltered areas are covered by mats of green algae (*Ulva spp.*). The sediments have a typical macrofauna, with Lugworm (*Arenicola marina*) dominating the sandy flats. Areas of saltmarsh occur near Portmarnock Bridge and at Portmarnock Point, with narrow strips found along other parts of the estuary. Species such as Glasswort (*Salicornia spp.*), Sea-purslane (*Halimione portulacoides*), Sea Plantain (*Plantago maritima*) and Sea Rush (*Juncus maritimus*) are found here. The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Light-bellied Brent Goose, Shelduck, Ringed Plover, Golden Plover, Grey Plover and Bar-tailed Godwit. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds. Baldoyle Bay is an important site for wintering waterfowl, providing good quality feeding areas and roost sites for an excellent diversity of waterfowl species. Regular breeding birds include Shelduck, Mallard and Ringed Plover. In autumn, passage migrants such as Curlew Sandpiper, Spotted Redshank and Green Sandpiper are regular in small numbers. Little Egret, a species which has recently colonised Ireland, also occurs at this site.

South Dublin Bay and River Tolka Estuary SPA

The South Dublin Bay and River Tolka Estuary SPA comprises a substantial part of Dublin Bay. It includes the intertidal area between the River Liffey and Dun Laoghaire, and the estuary of the River Tolka to the north of the River Liffey, as well as Booterstown Marsh. A portion of the shallow marine waters of the bay is also included. In the south bay, the intertidal flats extend for almost 3 km at their widest. The sediments are predominantly well-aerated sands. Several permanent channels exist, the largest being Cockle Lake. A small sandy beach occurs at Merrion Gates, while some bedrock shore occurs near Dun Laoghaire. The landward boundary is now almost entirely artificially embanked. There is a bed of Dwarf Eelgrass (*Zostera noltii*) below Merrion Gates which is the largest stand on the east coast. Green algae (*Ulva spp.*) are distributed throughout the area at a low density. The macroinvertebrate fauna is well-developed, and is characterised by annelids such as Lugworm (*Arenicola marina*), *Nephthys spp.* and Sand Mason (*Lanice conchilega*), and bivalves, especially Cockle (*Cerastoderma edule*) and Baltic Tellin (*Macoma balthica*). The small gastropod Spire Shell (*Hydrobia ulvae*) occurs on the muddy sands off Merrion Gates, along with the crustacean *Corophium volutator*. Sediments in the Tolka Estuary vary from soft thixotropic muds with a high organic content in the inner estuary to exposed, well-aerated sands off the Bull Wall. The site includes Booterstown Marsh, an enclosed area of saltmarsh and muds that is cut off from the sea by the Dublin/Wexford railway line, being linked only by a channel to the east, the Nutley stream. Sea water incursions into the marsh occur along this stream at high tide. An area of grassland at Poolbeg, north of Irishtown Nature Park, is also included in the site. The site is a Special Protection Area (SPA) under

the E.U. Birds Directive, of special conservation interest for the following species: Light-bellied Brent Goose, Oystercatcher, Ringed Plover, Grey Plover, Knot, Sanderling, Dunlin, Bar-tailed Godwit, Redshank, Black-headed Gull, Roseate Tern, Common Tern and Arctic Tern. The E.U. Birds Directive pays particular attention to wetlands, and as these form part of the SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds. The site is an important site for wintering waterfowl, being an integral part of the internationally important Dublin Bay complex. Although birds regularly commute between the south bay and the north bay, recent studies have shown that certain populations which occur in the south bay spend most of their time there. The breeding population of Common Tern at this site has increased. This increase was largely due to the ongoing management of the site for breeding terns. More recent data highlights this site as one of the most important Common Tern sites in the country with over 400 pairs recorded here in 2007. South Dublin Bay is an important staging/passage site for a number of tern species in the autumn (mostly late July to September). The origin of many of the birds is likely to be the Dublin breeding sites (Rockabill and the Dublin Docks) though numbers suggest that the site is also used by birds from other sites, perhaps outside the state. This site is selected for designation for its autumn tern populations: Roseate Tern (2,000 in 1999), Common Tern (5,000 in 1999) and Arctic Tern (20,000 in 1996). The South Dublin Bay and River Tolka Estuary SPA is of ornithological importance as it supports an internationally important population of Light-bellied Brent Goose and nationally important populations of a further nine wintering species. Furthermore, the site supports a nationally important colony of breeding Common Tern and is an internationally important passage/staging site for three tern species. It is of note that four of the species that regularly occur at this site are listed on Annex I of the E.U. Birds Directive, i.e. Bar-tailed Godwit, Common Tern, Arctic Tern and Roseate Tern. Sandymount Strand/Tolka Estuary is also a Ramsar Convention site.

Appendix II – Conservation Objective of the European Sites identified within the Zone of Influence.

Site Code	Site Name	Distance (km)	Conservation Objectives
004024	South Dublin Bay and River Tolka Estuary SPA ³	Within SDZ Boundary	To maintain the favourable conservation condition of Light-bellied Brent Goose, Oystercatcher, Ringed Plover, Knot, Sanderling, Dunlin, Bar-tailed Godwit, Redshank and Black-headed Gull in South Dublin Bay and River Tolka Estuary SPA, which is defined by the following list of attributes and targets: Population Trend & Distribution
			Grey Plover is proposed for removal from the list of Special Conservation Interests for South Dublin Bay and River Tolka Estuary SPA. As a result, a site-specific conservation objective has not been set for this species.
			To maintain the favourable conservation condition of Roseate Tern, Common Tern and Arctic Tern in South Dublin Bay and River Tolka Estuary SPA, which is defined by the following list of attributes and targets: Breeding population abundance, Productivity rate, Passage population, Distributions, Prey biomass, Connectivity, Disturbance
			To maintain the favourable conservation condition of the wetland habitat in South Dublin Bay and River Tolka Estuary SPA as a resource for the regularly occurring migratory waterbirds that utilise it. This is defined by the following attribute and target: Habitat Area
000210	South Dublin Bay SAC ⁴	0 – Directly Adjacent	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, Community Extent, Structure & Distribution
004006	North Bull Island SPA ⁵	2.6	To maintain the favourable conservation condition of the SCI species in the North Bull Island SPA, which is defined by the following list of attributes and targets: Population and Distribution
			To maintain the favourable conservation condition of the wetland habitat 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: Habitat Area
000206	North Dublin Bay SAC ⁶	2.69	To maintain the favourable conservation condition of Mudflats and sandflats not covered by seawater at low tide in North Dublin Bay SAC, which is defined by the following list of attributes and targets: Habitat Area, Community Extent, Structure & Distribution
			To restore the favourable conservation condition of Annual vegetation of drift lines, Salicornia and other annuals colonizing mud and sand, Atlantic salt meadows, Mediterranean salt meadows, Embryonic shifting dunes, Shifting dunes along the shoreline with Ammophila arenaria ('white dunes') and Fixed coastal dunes with herbaceous vegetation ('grey dunes') in North Dublin Bay SAC, which is defined by the following list of attributes and targets: Area, distribution, Structure/functionality, Composition
			To restore the favourable conservation condition of Humid dune slacks in North Dublin Bay SAC, which is defined by the following list of attributes and targets: Area, Distribution, Structure/Functionality, Hydrological Characteristics, Composition
			To maintain the favourable conservation condition of Petalwort in North Dublin Bay SAC, which is defined by the following list of attributes and targets: Distribution, Population Size, Area of Suitable Habitat, Hydrological/Soil condition, Structure
003000	Rockabill to Dalkey Island SAC ⁷	7.37	To maintain the favourable conservation condition of Reefs in Rockabill to Dalkey Island SAC, which is defined by the following list of attributes and targets: Area, Distribution, Community Structure
			To maintain the favourable conservation condition of Harbour porpoise in Rockabill to Dalkey Island SAC, which is defined by the following list of attributes and targets: Access to suitable Habitat, Disturbance

Site Code	Site Name	Distance (km)	Conservation Objectives
000202	Howth Head SAC ⁸	7.76	To maintain the favourable conservation condition of Vegetated sea cliffs of the Atlantic and Baltic coasts and European dry heaths in Howth Head SAC, which is defined by the following list of attributes and targets: Area, Distribution, Ecosystem Functionality, Community Dynamics, Composition/Structure, Distinctiveness
000199	Baldoyle Bay SAC ⁹	8.13	To maintain the favourable conservation condition 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, Community Extent, Structure & Distribution
			To maintain the favourable conservation condition of Salicornia and other annuals colonizing mud and sand, Atlantic salt meadows (<i>Glauco-</i> <i>Puccinellietalia maritimae</i>) and Mediterranean salt meadows (<i>Juncetalia maritimi</i>) in Baldoyle Bay SAC, which is defined by the following list of attributes and targets: Area Distribution, Structure, Vegetation Composition
004016	Baldoyle Bay SPA ¹⁰	8.13	To maintain the favourable conservation condition of Light-bellied Brent Goose, Shelduck, Ringed Plover, Golden Plover, Grey Plover and Bar-tailed Godwit in Baldoyle Bay SPA, which is defined by the following list of attributes and targets: Population Trend & Distribution
			To maintain the favourable conservation condition of the wetland habitat in Baldoyle Bay SPA as a resource for the regularly occurring migratory waterbirds that utilise it. This is defined by the following attribute and target: Habitat Area
004172	Dalkey Island SPA ¹¹	9.49	To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA
004113	Howth Head Coast SPA ¹²	10.13	To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA
004117	Irelands Eye SPA ¹³	11.28	To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA
002193	Irelands Eye SAC ¹⁴	11.48	To maintain the favourable conservation condition of Perennial vegetation of stony banks in Ireland's Eye SAC, which is defined by the following list of attributes and targets: Area, Distribution, Structure/Functionality, Vegetation Composition
			To maintain the favourable conservation condition of Vegetated sea cliffs of the Atlantic and Baltic coasts in Ireland's Eye SAC, which is defined by the following list of attributes and targets: Habitat Length, Distribution, Structure/Functionality, Vegetation Composition
000205	Malahide Estuary SAC ¹⁵	11.67	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: Area, Extent, Community Dynamics
			To maintain the favourable conservation condition of Salicornia and other annuals colonising mud and sand and Atlantic salt meadows (<i>GlaucoPuccinellietalia maritimae</i>) in Malahide Estuary SAC, which is defined by the following list of attributes and targets: Area, Distribution, Structure/Functionality, Hydrological Characteristics, Vegetation Structure/Composition
			Spartina swards (<i>Spartinion maritimae</i>) 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 (<i>Spartina maritima</i>) and Townsend's cordgrass (<i>S. x townsendii</i>). However, Preston et al. (2002) considers both forms to be alien. In addition, all stands of cordgrass in Ireland are now regarded as common cordgrass (<i>S. anglica</i>) (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.
002122		11.9	To maintain the favourable conservation condition of Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>) and Natural dystrophic lakes and ponds in Wicklow Mountains SAC, which is defined by the following

Site Code	Site Name	Distance (km)	Conservation Objectives
	Wicklow Mountain SAC ¹⁶		<p>list of attributes and targets: Area, Distribution, 'typical' species, Vegetation Composition/Structure, Hydrological Characteristics, Water Quality, Water Nutrient/Chemical Composition, Lake Substratum, Community Dynamics/Abundance of Algae Macrophytes, Acid Status, Turbidity, Fringe Habitat Area & Condition,</p> <p>To restore the favourable conservation condition of European dry heaths, Species-rich Nardus grasslands, on siliceous substrates in mountain areas (and sub-mountain areas, in Continental Europe) and Alpine and Boreal heaths in Wicklow Mountains SAC, which is defined by the following list of attributes and targets: Area, Distribution, Ecosystem Functionality, Community Dynamics, Composition/Structure, Distinctiveness</p> <p>To maintain the favourable conservation condition of Calaminarian grasslands of the <i>Violetalia calaminariae</i> in Wicklow Mountains SAC, which is defined by the following list of attributes and targets: Area, Distribution, Structure, Soil Toxicity, Vegetation Composition/Structure</p>
004040	Wicklow Mountains SPA ¹⁷	12.15	To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA
004025	Malahide Estuary SPA ¹⁸	12.35	To maintain the favourable conservation condition of Great Crested Grebe, Brent Goose, Shelduck, Pintail, Goldeneye, Red-breasted, Oystercatcher, Golden Plover, Grey Plover, Knot, Dunlin, Black-tailed Godwit, Bar-tailed Godwit and Redshank in Malahide Estuary SPA, which is defined by the following list of attributes and targets: Population Trend & Distribution
001209	Glenasmole Valley SAC ¹⁹	13.46	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
000725	Knocksink Wood SAC ²⁰	13.78	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
000713	Ballyman Glen SAC ²¹	14.41	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