RPS

COMHLACHT CHALAFORT ÁTHA CLIATH
DUBLIN PORT COMPANY

Alexandra Basin Redevelopment Project

Further Information in accordance with Section 37F (1) Revisions to NATURA IMPACT STATEMENT

April 2015






1 INTRODUCTION

The text for Section 1 remains unchanged.

2 APPROPRIATE ASSESSMENT SCREENING OF THE PROJECT

The text for Section 2 remains unchanged.

3 APPROPRIATE ASSESSMENT

The text for Sections 3.1 to 3.4 remains unchanged.

3.5 ASSESSMENT OF IN COMBINATION EFFECTS WITH OTHER PLANS OR PROJECTS

Add the following text at the end of Section 3.5.

ESB 220kV replacement crossing of the River Liffey and decommissioning of existing cable

The 220kV replacement cable is required to provide security of electricity supply by maintaining a link between Poolbeg Generating Station and North Wall Generating Station. Design work of this cable has been carried out by ESB and EirGrid. They have provided the following description of the works and methodology to be followed during the construction phase for removing the existing cable and constructing the replacement cable.

Consultation between Dublin Port Company, Eirgrid and ESB Networks indicated that the cable replacement project must be completed in advance of any quay wall demolition works. A full description of the works and the methodology to be employed can be found at Appendix F of this NIS.

A summary of the assessment and the results of the appropriate assessment screening exercise which has been undertaken for the replacement cable project are included below for ease of reference. That screening statement considered whether there were potential significant effects from the proposed cable replacement project on the qualifying interests of any European site within 15km in relation to the following issues:

- electromagnetic fields;
- wetland, marine and coastal habitats with respect to water quality;
- wetland, marine and coastal habitats which are used by marine fauna and/or avifauna;
- human presence, working plant and associated noise and vibration emissions.

Potential impact pathways were established in relation to noise and vibration (acoustics) and visual triggers of disturbance in relation to human presence and working plant.

The AA Screening exercise concluded that the decommissioning and replacement of the North Wall - Poolbeg 220kV sub-aqua cable;

- Will not result in any potential significant effects on any Natura 2000 site.

- Will not give rise to any potential significant effects on the Qualifying Interests or Special Conservation Interests of any European site;
- Will not give rise to any potential significant in-combination or cumulative effects with the other projects considered.
- Specifically will not have any significant effects upon the conservation objective of the Rockabill to Dalkey Island SAC Harbour Porpoise population and
- will not have any significant effects upon the distribution of waterbirds in the South Dublin Bay and River Tolka Estuary SPA

In conclusion, there is no possibility of significant in-combination or cumulative effects as between the Alexandra Basin West Redevelopment Project and the decommissioning and replacement of the North Wall - Poolbeg 220kV sub-aqua cable.

3.6 RESIDUAL EFFECTS ON THE CONSERVATION OBJECTIVES OF NATURA 2000 SITES

The text for Section 3.6 remains unchanged.

4 NIS CONCLUSION

The text for Section 4 remains unchanged.

APPENDIX F: SCREENING FOR APPROPRIATE ASSESSMENT OF THE DECOMMISSIONING AND REPLACEMENT OF THE NORTH WALL – POOLBEG 220KV SUB-AQUA CABLE

Decommissioning and replacement of the North Wall - Poolbeg 220kV sub-aqua cable

Screening for Appropriate Assessment

RPS

DOCUMENT CONTROL SHEET

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Document Title:	Screening for Appropriate Assessment					
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1.0 INTRODUCTION

This report has been prepared by RPS on behalf of EirGrid Plc and ESB Networks. The purpose of the report is to document a screening assessment that the project promoters have conducted in accordance with Article 6(3) of Habitats Directive 92/43/EEC to determine the potential effects that decommissioning and replacement of the North Wall - Poolbeg 220kV sub-aqua cable (refer to Figure 1) may have on the Qualifying Interests of European Sites within the zone of influence of the project. It should be noted that each of the project promoters is a "public body" for the purposes of the European Communities (Birds and Natural Habitats) Regulations 2011, as amended.

1.1 LEGISLATIVE CONTEXT

The European Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Flora and Fauna, better known as "The Habitats Directive", provides the framework for legal protection of 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. This network of sites designated for nature conservation are comprised of Special Areas of Conservation (SACs) as designated under the EU Habitats Directive and Special Protection Areas (SPAs) designated under the Conservation of Wild Birds Directive 2009/147/EC (better known as "The Birds Directive"[1]).

Article 6 sets out provisions which govern the conservation and management of European Sites (Natura 2000 sites). Article 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 Appropriate Assessment (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 and projects, shall be subjected to appropriate 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 implication 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*"

1.2 GUIDANCE FOLLOWED IN THE PREPARATION OF THIS STATEMENT

Appropriate Assessment Guidelines for Planning Authorities were published by the Department of the Environment Heritage and Local Government in February 2010 (DEHLG, 2010). In addition to the advice available from the Department, the European Commission has published a number of documents which provide significant guidance on the requirements of Appropriate Assessment, including, *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*, (EC, 2001), which sets out the principles of how to approach decision making during the process and these have been followed as closely as possible.

The assessment is prepared having due regard to the following guidelines:

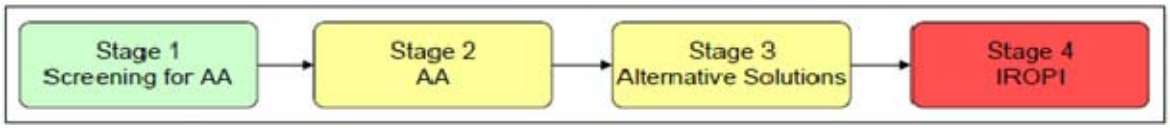
- European Commission, 2000a. Communication from the Commission on the Precautionary Principle., Office for Official Publications of the European Communities, Luxembourg (EC, 2000a);
- Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC, Office for Official Publications of the European Communities, Luxembourg (EC, 2000b);
- European Commission, 2001. Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Articles 6(3) and (4) of the Habitats Directive 92/43/EEC. Office for Official Publications of the European Communities, Brussels (EC, 2001);

[1] Council Directive 2009/147/EC is the codified version of Directive 79/409/EEC.

- European Commission. 2006. Nature and biodiversity cases: Ruling of the European Court of Justice. Office for Official Publications of the European Communities, Luxembourg (EC, 2006);
- 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; (EC, 2007);
- Estuaries and Coastal Zones within the Context of the Birds and Habitats Directives - Technical Supporting Document on their Dual Roles as Natura 2000 Sites and as Waterways and Locations for Ports. European Commission (EC, 2009);
- Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities. Department of the Environment, Heritage and Local Government, Dublin (DEHLG, 2010a);
- Department of Environment Heritage and Local Government Circular NPW 1/10 and PSSP 2/10 on *Appropriate Assessment under Article 6 of the Habitats Directive – Guidance for Planning Authorities* (DEHLG, 2010b);
- Guidance document on the implementation of the birds and habitats directive in estuaries and coastal zones with particular attention to port development and dredging. European Commission (EC, 2011a);
- European Commission Staff Working Document 'Integrating biodiversity and nature protection into port development' (EC, 2011b);
- Marine Natura Impact Statements in Irish Special Areas of Conservation: A working document, National Parks and Wildlife Service, Dublin (NPWS, 2012);
- Interpretation Manual of European Union Habitats. Version EUR 28. European Commission (EC, 2013); and
- Applications for approval for Local Authority Developments made to An Bord Pleanála under 177AE of the Planning and Development Act, 2000, as amended (Appropriate Assessment): Guidelines for Local Authorities. An Bord Pleanála, Dublin (ABP, 2013).

Based on these guidelines, the assessment process is a four-staged approach. An important aspect of the process is that the outcome at each successive stage determines whether a further stage in the process is required.

The four stages are summarised diagrammatically below. Stages 1-2 deal with the main requirements for assessment under Article 6(3). Stage 3 may be part of the Article 6(3) Assessment or may be a necessary precursor to Stage 4. Stage 4 is the main derogation step of Article 6(4).



1.3 SCREENING FOR APPROPRIATE ASSESSMENT

Screening determines whether appropriate assessment is necessary by examining:

1 Whether a plan or project can be excluded from AA requirements because it is directly connected with or necessary to the management of a Natura 2000 site; and

2 Whether the project will have a potentially significant effect on a Natura 2000 site, either alone or in combination with other projects or plans, in view of the site's conservation objectives.

Screening involves the following:

- Description of plan or project;
- Identification of relevant Natura 2000 sites, and compilation of information on their qualifying interests and conservation objectives;
- Assessment of likely effects – direct, indirect and cumulative – undertaken on the basis of available information as a desk study or field survey or primary research as necessary; and
- A Screening Statement with conclusions as to whether an appropriate assessment is required in relation to any of the relevant European sites.

The assessment of whether there is the possibility of significant effects on any designated site is based, firstly, on whether there is the potential for an effect to occur and whether there is an appreciable effect. If the predicted effects are deemed to be significant, potentially significant, or uncertain, or if the screening process becomes overly complicated, then the process must proceed to Stage 2 (AA).

Clearly, one key factor that will determine whether or not a particular proposed development is likely to have a significant effect on a particular European Site is the physical distance between the location of the proposed development and the European site. The Guidelines for Planning Authorities (DEHLG, 2010) recommend that the AA process should include the following European Sites –

- Any European Sites within or adjacent to the plan or project area; or
- Any European Sites within the likely zone of impact of the plan or project.

A distance of 15km is currently recommended in the case of plans, and derives from UK guidance (Scott Wilson *et. al.*, 2006). For some projects, the distance could be much less than 15km, and in some cases less than 100m, but this must be evaluated on a case-by-case basis with reference to the nature, size and location of the project, and the sensitivities of the ecological receptors, and the potential for in combination effects.

This is discussed further in the next section, but as a starting point, all European sites within 15km of the project were initially considered.

2.0 DESCRIPTION OF THE PROJECT

Preliminary design of this cable has been carried out by ESB and EirGrid They have provided the following description of the works and methodology to be followed during the construction phase for removing the existing cable and constructing the replacement cable.

The 220kV replacement cable is required to provide security of electricity supply by maintaining a link between Poolbeg Generating Station and North Wall Generating Station.

The proposed route of the replacement cable lies entirely within Dublin Port estate and the grounds of Poolbeg Generating Station as shown on Figure 1.

2.1 RIVER LIFFEY CROSSING

Installation of the replacement cable includes a crossing of the River Liffey will require using Horizontal directional drilling (HDD) technology. The drilling is expected to follow a profile up to 20m below the existing level of the seabed (circa -28m CD) within the port through stiff boulder clay which overlies limestone bedrock (see Section 11.2.3 of Volume 1 of the EIS) and then to rise to approximately 1.5m below ground level where it meets a land trench on both sides. The crossing of the River Liffey will require a directional drill of circa 900m length. The bore of the tunnel will be circa 400mm in order to facilitate the installation of a replacement 220kV cable which will be of circa 200mm diameter.

The following construction methodology will be used for the River Liffey crossing.

2.1.1 Mobilisation and site preparation

Suitable working sites are required at either sides of the drilled crossing. These sites will be fenced off with security fencing. A level, firm area for the HDD rig and ancillary equipment will be prepared by stripping topsoil, where necessary, and laying stone/hardcore.

At the HDD rig site, an area of circa 40m x 40m is required. At the receptor side, an area of circa 30m x 25m is required. Approximate locations for these sites are identified on Figure 1.

Suitable access will be provided to the two sites for all-terrain mobile cranes, 40ft articulated trucks and by other delivery vehicles.

All existing underground services willl be located, marked, and protected as necessary from damage and to ensure the safety of the site operations.

A water supply will be provided to the HDD rig site for mixing of drilling mud and general site usage.

Depending on the size and type of drill rig used, an anchorage assembly will be designed and constructed. The anchorage is used to securely hold the drill rig in position throughout the drilling works including the installation of the 220kV cable. Generally, a reinforced concrete anchor block is used.

Upon delivery of the drilling rig and ancillary equipment to the site, the plant items will be placed in their working positions and all the necessary connections made. The drill rig is set up, anchored and adjusted to give the required ground entry angle.

A typical HDD rig is shown in Plate 1. This rig was used at Stranraer, Scotland for the construction of a long sea outfall and is of a similar size expected to be used for the River Liffey crossing. A typical mud handling plant, the largest associated ancillary plant, is illustrated in Plate.2. This plant contains the drilling mud and uses screens, shakers and centrifuges to recycle the drilling mud and separate cuttings arising from the bored tunnel.

The environmental appraisals, including in-combination effects and cumulative impacts, have been undertaken for two construction options, i.e., drilling from one side of the river to the other or drilling from both sides and meeting in the middle.

2.1.2 Pilot drilling operation

A pilot bored tunnel is first constructed. The drilling head is driven forward along a predetermined drill profile by the drilling rig. The push force generated at the drilling rig is transmitted to the drilling head by hollow drilling rods. Drilling mud is pumped at high pressure through the hollow drill rods to lubricate the drill head and to flush cuttings arising from the boring process back to the drills entry point. The drilling mud also provides support to the bored hole. Each drilling rod is followed by another one from the drilling rig and the drilling process continues in cycles until the drilling head punches out at the target destination.

The position of the drilling head underground is determined with the aid of a sensor located directly behind the drilling head providing an accurate record of progress and position of the pilot drill.

The drilling mud is produced by mixing, ground and refined bentonite, with additives and water. The mud handling plant is designed to recycle the drilling mud and separate cuttings arising from the bored tunnel. The cuttings arising are expected to be inert and will be disposed of at a licensed landfill. The volume of cuttings is expected to be circa 200 cubic metres equivalent to 350 tonnes.

Once the pilot hole is complete, drilling mud emerges from the reception side. This mud will be captured, contained and returned to the drill site by road tanker.

2.1.3 Reaming operations

After the main pilot hole has been completed it is necessary to enlarge the pilot hole sufficiently to receive the pipe ducting for the 220kV cable. This is achieved by changing the drilling head to a reaming tool. The bored hole is enlarged by the reaming tool which rotates as the drilling rods are pulled back towards the drilling rig.

The reaming process may require a number of passes to create the final circa 400mm tunnel.

2.1.4 Pipe-string preparation and pull back operation

The pipeline which will act as the ducting for the 220kV cable will be welded into pipeline strings on site before being pulled into the bored tunnel by the drilling rig. The pipeline string follows the final pass of the reamer through the drilled hole up to the entry pit in front of the drilling rig. The crossing is then completed by pulling the 220 kV cable through the ducting using a pull-wire.

2.1.5 Environmental Protection Measures associated with the River Liffey Crossing

The following measures will be adopted to ensure that there is imperceptible impact to the receiving environment.

- The bored tunnel will be constructed entirely below the River Liffey and will not impact on the foreshore or Navigation Channel.
- The bored tunnel will also be constructed entirely below the Great South Wall, located along the southern shoreline of the crossing.
- The mud handling ancillary equipment and containment facilities will be bunded to ensure an adequate over-capacity in storage volume to ensure containment of the drilling mud in the event of a leakage.
- The boulder clay median through which the bored tunnel will be constructed is suitable for the successful use of horizontal directional drilling technology and has been successfully used in the past to install the existing cables across and under the River Liffey. The risk of drilling mud escaping to the water environment during the drilling operations is negligible given the nature of the clay material and the depth of overburden between the bored tunnel and the seabed. However, notwithstanding the very low level of risk, the developers of the River Liffey cable crossing (ie, ESB and/or EirGrid) will ensure that monitoring is put in place to detect any leakage at a very early stage. Additives will be kept on site which quickly solidifies the drilling mud and effectively seals the route of escape.
- Noise levels will be kept to a maximum of 85 dB(A) at the boundary to the site compound.
- The drilling works will be undertaken over the winter months between September and March when there are no terns present at the nearby colony at the ESB Dolphin, Poolbeg.

2.1.6 Programme

The River Liffey crossing will require a construction period of 4-6 months inclusive of mobilisation and site preparation works. The drilling works will be undertaken during the winter months between September and March.

2.2 LAND ROUTE

The landfall at the southern end of the River Liffey crossing brings the replacement 220kV cable directly to the grounds of Poolbeg Generating Station.

The landfall at the northern end of the River Liffey Crossing brings the replacement 220 kV cable to the eastern extremity of the Port's lands. The proposed land route to complete the connection between Poolbeg Generating Station and North Wall Generating Station is shown in Figure 1.

2.2.1 Land Route Characteristics

Total Distance	1,962m
Soft Ground Dig	962m
Road Excavation Dig	1,000m

No existing culverts are available

(Note: all distances are approximate and are subject to detailed design)

2.2.2 Land Route Construction

The land route requires the following construction activities:

- The opening of trenches of approximately 1.5m depth and 1.5m- 2.0m width;
- The installation of ducts to house the 220kV cable;
- The provision of access chambers along the route;
- The backfilling and reinstatement of trenches; and
- The pulling of the 220kV cable through the ducting.

The proposed trenching will occur within land and roads owned by Dublin Port Company. Trench Guidelines issued by the Government of Ireland Department of Environment and Local Government in April 2002, with subsequent Revisions of December 2002 and September 2005, are intended for opening or forming trenches in public roads in Ireland. The construction activities will take account of the relevant sections of these Guidelines where applicable.

Pipeline installation along the internal road network is likely to be by a traditional main lay technique. The pipeline route will be marked out on the road and all services will be identified from utilities information and Cable Avoidance Tool Surveys prior to breaking ground. All services will be positively identified by hand digging prior to any machine excavation. Machine excavation will be prohibited within 1m of a service.

Where the works are carried out on live carriageways, barriers and traffic management measures including possibly temporary Traffic Lights will be installed prior to the commencement of the works to ensure segregation of the public and live traffic from the works. No open excavations will be left outside of working hours.

The three main activities of excavation, installation and reinstatement will happen concurrently with sufficient separation of operations so as not to impact on the other. There will be no more than 80 to 100m of excavation open at any one time as the main lay technique will mean that once reinstated the working area is cleared and moved forward to a new area ready for excavation.

The pipeline will be bedded on a 150mm bedding of fine material such as sand or quarry dust. Once the pipe is placed in the trench and welded, it will backfilled with the same bedding material to 150mm above the crown of the pipe. The reminder of the trench will be backfilled using the original material

excavated from the trench. The backfill will be compacted in 150mm layers to an appropriate compaction value.

Reinstatement of the road surface will be in accordance with the Trench Guidelines referenced above.

2.3 DECOMMISSIONING THE EXISTING 220KV CABLE

The existing 220 kV cable, which landfalls at a section of the North Wall Quay Extension which is to be demolished as part of the DPC ABR Project will be decommissioned.

This cable is currently housed within steel ducting under the River Liffey. The cable is encased with layers of fabric which is impregnated with oil and operates under pressure.

The following procedure will be used to remove the cable.

- De- energize and earth the cable and cut off (depressurize) the fluid supply to the steel pipe;
- Drill two holes into the steel pipe, one at either end of the River Liffey crossing;
- Suck out as much of the fluid as possible from the pipeline all along its length into suitable receptor tanks located within bunded areas;
- Pull out the cable at bunded pits;
- Chop the cable into 1.2m lengths and load and transport them using a suitably authorised waste contractor;
- On the river section, as the cable is being pulled out, pull in a draw wire which is attached to the far end of the cable being pulled out;
- Use this draw wire to pull in a series of tight fitting swabs which, when the draw wire is pulled out, will bring any fluid left in the U river shaped crossing to the bunded surface pit;
- Once in the bunded pit, skim off the fluid onto a suitable fluid tank;
- The draw wire can be reinserted to give multiple cleaning runs of the underwater steel pipe section;
- Cleansing fluid will then be pumped into the underwater steel pipe to remove any residual fluid;
- This swabbing and flushing regime will also be applied to the land cable sections.

Plate 1: Typical Horizontal Directional Drilling Rig

Plate 2: Typical Mud Handling Plant (located to rear of the drilling plant)

719000 000000 720000 000000 721000 000000

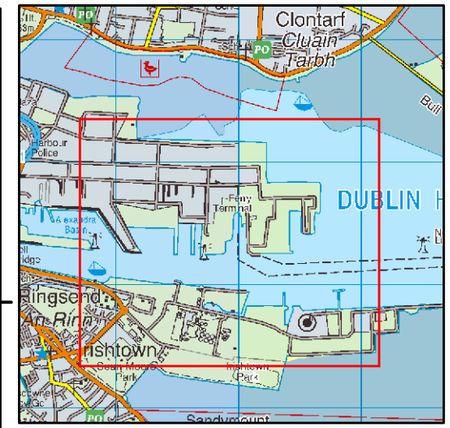
735000 000000

734000 000000

North Wall Generating Station

Poolbeg Generating Station

DUBLIN HARBOUR



Legend

- 22kV Cable - Proposed Route
- Proposed Horizontal Directional Drilling
- Approximate location of Compounds

Coordinate System: IRENET95 Irish Transverse Mercator
Projection: Transverse Mercator
Datum: IRENET95
False Easting: 600,000.0000
False Northing:750,000.0000
Central Meridian: -8.0000
Scale Factor: 0.9998
Latitude of Origin: 53.50000
Units: Meter

TITLE

Figure 1:
220 kV Cable Proposed Routes

CLIENT

DUBLIN PORT Co

PROJECT

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Date : 19/03/15

Drawing No. :
IBE0807_ABRProject_Dwg01_Rev00

0 0.125 0.25 0.5
Km

SCALE AT A3: 1:7,500

3.0 EUROPEN SITES INCLUDED IN THE SCREENING ASSESSMENT

Nineteen European Sites are located within 15km of the cable replacement project as described in Table 1 and illustrated in Figure 2.

Table 1: European Sites located within 15km Buffer zone of the 220kV Cable replacement project

Site Code	Site Name	Special Conservation Interests or Qualifying Interests	Distance from Cable project
IE000210	South Dublin Bay SAC (also Sandymount Strand/Tolka Estuary Ramsar site)	Mudflats and sandflats not covered by seawater at low tide [1140]	300m south beyond the Poolbeg Generating Station at Irishtown.
IE003000	Rockabill to Dalkey Island SAC	Reefs [1170]; Harbour porpoise (*Phocoena phocoena*) [1351]	6.6km seaward
IE000206	North Dublin Bay SAC (also North Bull Island Ramsar site)	Mudflats and sandflats not covered by seawater at low tide [1140]; Annual vegetation of drift lines [1210]; *Salicornia* and other annuals colonizing mud and sand [1310]; *Spartina* swards (*Spartinion maritimae*) [1320]; Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330]; Mediterranean salt meadows (*Juncetalia maritimi*) [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]; Petalwort (*Petalophyllum ralfsii*) [1395]	1.2km northeast at the North Bull Wall boundary
IE000202	Howth Head SAC	Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]; European dry heaths [4030]	6.5km northeast across North Bull Island
IE000199	Baldoyle Bay SAC	Mudflats and sandflats not covered by seawater at low tide [1140]; *Salicornia* and other annuals colonizing mud and sand [1310]; *Spartina* swards (*Spartinion maritimae*) [1320]; Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330]; Mediterranean salt meadows (*Juncetalia maritimi*) [1410]	6.7km northeast across North Bull Island at Sutton Cross DART station
IE002193	Irelands Eye SAC	Perennial vegetation of stony banks [1220]; Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]	9.9km northeast across North Bull Island and Howth
IE000205	Malahide Estuary SAC	Mudflats and sandflats not covered by seawater at low tide [1140]; *Salicornia* and other annuals colonizing mud and sand [1310]; *Spartina* swards (*Spartinion maritimae*) [1320]; Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330]; Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120]; Mediterranean salt meadows (*Juncetalia maritimi*) [1410]; Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]	10.3km northeast across Raheny, Donaghmede and Portmarnock
IE000713	Ballyman Glen SAC	Petrifying springs with tufa formation (*Cratoneurion*) [7220]; Alkaline fens [7230]	14.9km south across South County Dublin
IE000725	Knocksink Wood SAC	Petrifying springs with tufa formation (*Cratoneurion*) [7220]; Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) [91E0]	14.4km south across South County Dublin
IE001209	Glenasmole Valley SAC	Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco Brometalia*) (*important orchid sites) [6210]; *Molinia* meadows on calcareous, peaty or clavey-silt-laden soils (*Molinion caeruleae*) [6410]; Petrifying springs with tufa formation (*Cratoneurion*) [7220]	15km southwest across South County Dublin
IE002122	Wicklow Mountains SAC	Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the *Isoto-Nanojuncetea* [3130]; Natural dystrophic lakes and ponds [3160]; Northern Atlantic wet heaths with *Erica tetralix* [4010]; European dry heaths [4030]; Alpine and Boreal heaths [4060]; Species-rich *Nardus* grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe) [6230]; Blanket bog (*active only)	13.1km south across South County Dublin

Site Code	Site Name	Special Conservation Interests or Qualifying Interests	Distance from Cable project
		[7130]; Siliceous scree of the montane to snow levels (*Androsacetalia alpinae* and *Galeopsietalia ladani*) [8110]; Calcareous rocky slopes with chasmophytic vegetation [8210]; Siliceous rocky slopes with chasmophytic vegetation [8220]; Old sessile oak woods with *Ilex* and *Blechnum* in British Isles [91A0]; Otter (*Lutra lutra*) [1355]	
IE004006	North Bull Island SPA	Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]; Shelduck (*Tadorna tadorna*) [A048]; Teal (*Anas crecca*) [A052]; Pintail (*Anas acuta*) [A054]; Shoveler (*Anas clypeata*) [A056]; Knot (*Calidris canutus*) [A143]; Oystercatcher (*Haematopus ostralegus*) [A130]; Golden Plover (Pluvialis apricaria) [A140]; Grey Plover (*Pluvialis squatarola*) [A141]; Sanderling (*Calidris alba*) [A144]; Dunlin (*Calidris alpina*) [A149]; Black-tailed Godwit (*Limosa limosa*) [A156]; Bar-tailed Godwit (*Limosa lapponica*) [A157]; Curlew (*Numenius arquata*) [A160]; Redshank (*Tringa totanus*) [A162]; Turnstone (*Arenaria interpres*) [A169]; Black-headed Gull (*Larus ridibundus*) [A179]; Wetlands & Waterbirds [A999]	1.2km northeast at the North Bull Wall boundary
IE004024	South Dublin Bay & River Tolka Estuary SPA	Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]; Oystercatcher (*Haematopus ostralegus*) [A130]; Ringed Plover (*Charadrius hiaticula*) [A137]; Grey Plover (*Pluvialis squatarola*) [A140]; Knot (*Calidris canutus*) [A143]; Sanderling (*Calidris alba*) [A144]; Dunlin (*Calidris alpina*) [A149]; Bar-tailed Godwit (*Limosa lapponica*) [A157]; Redshank (*Tringa totanus*) [A162]; Black-headed Gull (*Croicocephalus ridibundus*) [A179]; Roseate Tern (*Sterna dougallii*) [A192]; Common Tern (*Sterna hirundo*) [A193]; Arctic Tern (*Sterna paradisaea*) [A194]; Wetlands & Waterbirds [A999]	Approximately 10m - Cable route runs adjacent to SPA boundary along Alexandra Road on approach to River Liffey
IE004016	Baldoyle Bay SPA (also Baldoyle Bay Ramsar site)	Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]; Shelduck (*Tadorna tadorna*) [A048]; Ringed Plover (*Charadrius hiaticula*) [A137]; Golden Plover (*Pluvialis apricaria*) [A140]; Grey Plover (*Pluvialis squatarola*) [A141]; Bar-tailed Godwit (*Limosa lapponica*) [A157]; Wetlands & Waterbirds [A999]	6.7km northeast across North Bull Island at Sutton Cross DART station
IE004172	Dalkey Islands SPA	Roseate Tern (*Sterna dougallii*) [A192]; Common Tern (*Sterna hirundo*) [A193]; Arctic Tern (*Sterna paradisaea*) [A194]	9.3km southeast across South Dublin Bay and Dun Laoghaire Harbour
IE004025	Malahide Estuary SPA (also Broadmeadow Estuary Ramsar site)	Great Crested Grebe (*Podiceps cristatus*) [A005]; Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]; Shelduck (*Tadorna tadorna*) [A048]; Pintail (*Anas acuta*) [A054]; Goldeneye (*Bucephala clangula*) [A067]; Red-breasted Merganser (*Mergus serrator*) [A069]; Golden Plover (*Pluvialis apricaria*) [A140]; Oystercatcher (*Haematopus ostralegus*) [A130]; Grey Plover (*Pluvialis squatarola*) [A141]; Knot (*Calidris canutus*) [A143]; Dunlin (*Calidris alpina*) [A149]; Black-tailed Godwit (*Limosa limosa*) [A156]; Bar-tailed Godwit (*Limosa lapponica*) [A157]; Redshank (*Tringa totanus*) [A162]; Wetlands & Waterbirds [A999]	10.9km northeast across Raheny, Donaghmede and Portmarnock
IE004040	Wicklow Mountains SPA	Merlin (*Falco columbarius*) [A098]; Peregrine (*Falco peregrinus*) [A103]	13.2km south across South County Dublin
IE004113	Howth Head Coast SPA	Kittiwake (*Rissa tridactyla*) [A188]	9km northeast across North Dublin Bay and Howth
IE004117	Ireland's Eye SPA	Cormorant (*Phalacrocorax carbo*) [A017]; Guillemot (*Uria aalge*) [A199]; Herring Gull (*Larus argentatus*) [A184]; Kittiwake (*Rissa tridactyla*) [A188]; Razorbill (*Alca torda*) [A200]	9.8km northeast across North Bull Island and Howth Peninsula

Malahide Estuary SAC
Broadmeadow Estuary Ramsar
Broadmeadow/Swords Estuary SPA
Lambay Island SPA
Baldoyle Bay SAC
Baldoyle Bay Ramsar
Baldoyle Bay SPA
Ireland's Eye SAC
Ireland's Eye SPA
Howth Head SAC
Howth Head Coast SPA
North Dublin Bay SAC
North Bull Island Ramsar
North Bull Island SPA
Rockabill to Dalkey Island SAC
South Dublin Bay SAC
Sandymount Strand/Tolka Estuary Ramsar
South Dublin Bay and River Tolka Estuary SPA
Dalkey Islands SPA
Glenasmole Valley SAC
Wicklow Mountains SPA
Wicklow Mountains SAC
Knocksink Wood SAC
Ballyman Glen SAC

LEGEND

North Wall - Poolbeg 220kV Cable

Horizontal Directional Drill Route

Land Route Options

Drilling Compound

Special Protection Area

Special Area of Conservation

Ramsar site

ISSUE DETAILS

Drawn:	JMC	Project	NI 1439
Chkd:	JMC		
Appd:	RB		
Date:	29.03.2015		Rev. 01
Scale:	1:115,000 (A3)		

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PROJECT & FIGURE DETAILS

Project Title: North Wall-Poolbeg 220kV cable

Figure Title: European sites within 15km of the project

Figure Number: 2

3.1 ESTABLISHING AN IMPACT PATHWAY

The possibility of significant effects is considered in this report using the source-pathway-receptor model. 'Source' is defined as the individual elements of the proposed development that have the potential to affect the identified ecological receptors. 'Pathway' is defined as the means or route by which a source can affect the ecological receptor. 'Ecological receptor' is defined as the Special Conservation Interests (for SPAs) or Qualifying Interests (of SACs) for which conservation objectives have been set for the European sites being screened. Each element can exist independently however an effect is created where there is a linkage between the source, pathway and receptor.

The existing cables are at a depth of circa -18m CD within the River Liffey navigation channel. The proposed capital dredging scheme will deepen the navigation channel from – 7.8m CD to – 10m CD, that is, an average depth of 2.2m. Section 2 of this report outlines how the project shall be executed, including seasonal timing and environmental design mitigation. The replacement cable shall be located in the stiff boulder clay which overlies limestone bedrock up to 20m below the existing level of the seabed within the harbour and in any event, not shallower (i.e. closer to the river bed level) than the existing cable.

Any electromagnetic fields which radiate from the existing infrastructure shall remain the same once the replacement cable is energised. There will be no increase in the magnitude of electromagnetic field strength radiating from the new cable infrastructure through to the Liffey water column.There is no evidence of cetacean migration being affected by sub-sea cable electromagnetic fields. Harbour porpoise migration across the Skagerrak and western Baltic Sea has been observed unhindered despite several crossings over operating subsea HVDC cables (Walker, 2001)[2].

For the purpose of AA screening, an electromagnetic field effect pathway upon marine fauna has been considered and ruled out. Owing to the rapid attenuation of EMF with distance from the cable, combined with lack of evidence of effects upon cetaceans in literature, there is no possibility of EMF displacing marine species from navigating the River Liffey, and the issue does not require further consideration.

There is no wet working proposed to be undertaken in the River Liffey channel. All drilling works shall be undertaken in the overwintering season. Measures are outlined to prevent any drilling by-product escaping. There is no reasonable scientific doubt as to the effectiveness of such measures. For the purpose of AA screening, a potential hydrological pathway between the proposed cabling development and European sites has been considered and ruled out. On that basis –

- There is no possibility of an effect on wetland, marine and coastal habitats with respect to their water quality and favourable conservation status; and
- There is no possibility of an effect on wetland, marine and coastal habitats which are used by marine fauna and/or avifauna and which are necessary to the favourable conservation status of those species.

For the purpose of AA screening, human presence, working plant and associated noise and vibration emissions may possibly result in changes to the usual behavioural patterns or displacement of some marine fauna and/or avifauna. On that basis –

- an aerial or water column pathway of effect has been established in relation to noise and vibration; and
- a visual pathway of effect has been established in relation to human presence and working plant.

Accordingly, there is the possibility that such effects may occur and hence the significance of these potential effects must be considered further. Tables 2 and 3 summarise this stage of the screening assessment. Section 3.1 screens those ecological receptors of the nineteen European sites which are relevant to the pathways of effect which have been established.

[2] Walker, T.I. (2001) Basslink Project Review of Impacts of High Voltage Direct Current Sea Cables and Electrodes on Chondrichthyan Fauna and Other Marine Life. Report to NSR Environmental Consultants Pty Ltd. 20. 77pp.

Table 2: SAC Qualifying Interests screened for possible impact pathways

Relevant Site Code	Qualifying Interest	Impact pathway	Are effects above a *de minimis* threshold possible?
SPECIES			
IE000206	Petalwort	None	There is no pathway to effect. Significant effects on the site from the proposed development are not possible
IE002122	Otter	Acoustic and Visual	A possible pathway has been established, however the drilling works will be undertaken over 13km from the Wicklow Mountains and adverse effects upon that otter population are not possible.
IE003000	Harbour porpoise	Acoustic	A possible pathway has been established, and the possibility of adverse effects on Harbour porpoise is considered further in Section 3.2.
HABITATS			
IE000199 IE000205 IE000206 IE000210	Mudflats and sandflats not covered by seawater at low tide	None	There is no pathway to effect. Significant effects on the site from the proposed development are not possible
IE003000	Reefs	None	There is no pathway to effect. Significant effects on the site from the proposed development are not possible
IE000199 IE000205 IE000206	Annual vegetation of drift lines *Salicornia* and other annuals colonizing mud and sand *Spartina* swards Atlantic salt meadows Mediterranean salt meadows Embryonic shifting dunes Shifting dunes along the shoreline with *Ammophila arenaria* Fixed coastal dunes with herbaceous vegetation Humid dune slacks	None	There is no pathway to effect. Significant effects on the site from the proposed development are not possible
IE000202 IE000205 IE002122 IE002193	Vegetated sea cliffs of the Atlantic and Baltic coasts European dry heaths	None	There is no pathway to effect. Significant effects on the site from the proposed development are not possible
IE002193	Perennial vegetation of stony banks	None	There is no pathway to effect. Significant effects on the site from the proposed development are not possible
IE000713 IE000725 IE001209	Petrifying springs with tufa formation Alkaline fens	None	There is no pathway to effect. Significant effects on the site from the proposed development are not possible

Relevant Site Code	Qualifying Interest	Impact pathway	Are effects above a *de minimis* threshold possible?
IE000725	Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior*	None	There is no pathway to effect. Significant effects on the site from the proposed development are not possible
IE001209	Semi-natural dry grasslands and scrubland facies on calcareous substrates *Molinia* meadows on calcareous, peaty or clavey-silt-laden soils	None	There is no pathway to effect. Significant effects on the site from the proposed development are not possible
IE002122	Oligotrophic to mesotrophic standing waters Natural dystrophic lakes and ponds Northern Atlantic wet heaths with *Erica tetralix* Alpine and Boreal heaths Species-rich *Nardus* grasslands, on siliceous substrates in mountain areas Blanket bog (*active only) Siliceous scree of the montane to snow levels Calcareous rocky slopes with chasmophytic vegetation Siliceous rocky slopes with chasmophytic vegetation Old sessile oak woods with *Ilex* and *Blechnum* in British Isles	None	There is no pathway to effect. Significant effects on the site from the proposed development are not possible

Table 3: SPA Features of Conservation Interest screened for possible impact pathways

Relevant Site Code	Special Conservation Interests	Impact pathway	Are effects above a *de minimis* level possible?
SPECIES			
IE000406 IE004016 IE004024 IE004025	Light-bellied Brent Goose Black-tailed Godwit Bar-tailed Godwit Black-headed Gull Shelduck Oystercatcher Sanderling Knot Pintail Shoveler Curlew Teal Grey Plover Redshank Turnstone	Acoustic and Visual	For three of the four SPA sites considered, the drilling works will be undertaken over 1km from the sites and there will be no appreciable effect on the sites. Accordingly, such sites may be excluded. For South Dublin Bay & River Tolka Estuary SPA, the possibility of significant adverse effects is considered further in Section 3.2.
IE004016 IE004024 IE004025 IE004172	Ringed Plover Dunlin	Acoustic and Visual	
IE004024 IE004172	Roseate Tern Common Tern Arctic Tern	None	The drilling works will be undertaken at a time of year when this breeding population is not present. There will be no appreciable effect on the sites and accordingly, such sites may be excluded.
IE004016 IE004025	Golden Plover	Acoustic and Visual	A pathway to effect has been established; however the drilling works will be undertaken over 1km from these SPA sites. There will be no appreciable effect on the sites and accordingly, such sites may be excluded.
IE004025	Great Crested Grebe Goldeneye Red-breasted Merganser	Acoustic and Visual	
IE004040	Merlin Peregrine	None	The drilling works are located over 13km from this SPA and will be undertaken at a time of year when this breeding population is not present. There will be no appreciable effect on the site and accordingly, such sites may be excluded.
IE004113 IE004117	Kittiwake	None	The drilling works will be undertaken over 9km from this SPA and at a time of year when this breeding population is not present. There will be no appreciable effect on the site and accordingly, it may be excluded.
IE004117	Cormorant Guillemot Herring Gull Razorbill	None	
HABITATS			
IE004006 IE004016 IE004024 IE004025	Wetlands	None	There is no pathway to effect. Significant effects on the site from the proposed development are not possible

3.2 SCREENING ASSESSMENT

The purpose of this screening exercise is to consider those impact pathways which have been established from a preliminary consideration of effects upon the Special Conservation Interests (for SPAs) or Qualifying Interests (of SACs) from Section 3.1 as summarised in Tables 2 and 3, in order to evaluate whether there are possible significant effects on any designated site which require to be considered as part of a Stage Two Appropriate Assessment.

It has been determined that human presence, working plant and associated noise and vibration emissions may possibly result in changes to the usual behavioural patterns or displacement of some marine fauna and/or avifauna. An aerial or water column pathway of effect has been established in relation to acoustics and a visual pathway of effect has been established in relation to human presence and working plant.

The ecological receptors which have been linked to the source of a potential effect via pathways described above are –

- Harbour porpoises in the Rockabill to Dalkey Island SAC; and
- Fourteen[3] overwintering waterbird species in the South Dublin Bay & River Tolka Estuary SPA.

3.2.1 Harbour Porpoise Conservation Objective

The conservation objective for this species is to maintain the favourable conservation condition of Harbour porpoise in Rockabill to Dalkey Island SAC, which is defined by the attributes and targets set out in Table 4.

Table 4: Attributes and Targets of the Harbour Porpoise Conservation Objective

Attribute	Measure	Target
Access to suitable habitat	Number of artificial barriers	Species range within the site should not be restricted by artificial barriers to site use
Disturbance	Level of impact	Human activities should occur at levels that do not adversely affect the harbour porpoise community at the site

Underwater noise expert Mr Eugene McKeown, who has significant personal and professional experience measuring underwater noise levels in Dublin Bay, has contributed to this report.

Mr McKeown noted that, generally, there is significant noise attenuation in the shallow waters of Dublin Bay. There will be some underwater noise but this will be low frequency at a relatively low level, and probably undetectable beyond 10m from the tunnel route. It should be noted that the tunnel route will be deeper than 10m below Liffey bed level for a proportion of its length. It is important that the scale of the operation is placed in context. Tunnel boring for road/rail projects does result in a level of noise in locations overhead but this relates to a situation where the tunnel is >8m in diameter, the whole bore is taken out in one cut and the machine doing this is located at the cutting location, none of which is comparable to the cable replacement project considered here. Also, in a site specific study undertaken in Dublin Bay in 2014 for the Alexandra Basin Redevelopment project, Mr McKeown measured piling noise at various locations. The results showed that noise from piling at the Alexandra Basin was not detectable in the measurements taken near the end of the North Bull and Great South walls (at 3570m from noise source). The point where pile driving noise was not detectable at all near the end of the North Bull and Great South walls is located 4.4km from the Rockabill to Dalkey Island SAC.

In his expert opinion, the noise from ship movements and harbour vessels will effectively drown out any acoustic energy which penetrates through the boulder clays and into the Liffey channel from the tunnel boring. Noise from this activity will not be audible in any location within the cSAC. Accordingly, there will not be any appreciable effect from the cable replacement project on the cSAC.

[3] 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. Source: NPWS (2015) Conservation Objectives: South Dublin Bay and River Tolka Estuary SPA 004024 (Version 1).

Marine Mammal expert Dr Simon Berrow, concluded that based on the above scientific analysis and evaluation there would be no possibility of a significant effect upon the marine mammals which form the Qualifying Interest for this European site, either on the population level or on individuals of the species.

On the basis that there will be no appreciable effect from the proposed cable replacement project, by means of underwater acoustic energy, in respect of the Rockabill to Dalkey Island cSAC harbour porpoise population, that European site does not require further consideration.

3.2.2 Overwintering Waterbird Conservation Objectives

The conservation objective for the fourteen overwintering species is to maintain the favourable conservation condition of the species concerned in South Dublin Bay and River Tolka Estuary SPA, which is defined by the attributes and targets set out in Table 5.

Table 5: Attributes and Targets of the overwintering bird species Conservation Objectives

Attribute	Measure	Target
Population trend	Percentage change	Long term population trend stable or increasing
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by the species concerned, other than that occurring from natural patterns of variation

As can be seen from Table 5, disturbance is not in itself a measured attribute of the conservation objective. Disturbance does however influence 'range, timing and intensity of use of areas' and is an important influencing factor in distribution.

Ornithological expert Mr Richard Nairn was consulted for this report.

Effects of drilling noise

The sounds that birds hear can be divided into (1) non-threatening sounds, to which birds may be habituated and (2) threatening sounds. Examples of non-threatening sounds are wave noise on a beach or constant traffic noise. Threatening sounds include impulsive sounds such as thunder or gunfire. HDD drilling is a constant noise that is not threatening to birds and to which they are likely to habituate rapidly.

Cutts *et al*. (2009) considered impacts to birds utilising the Humber Estuary and summarised the general thresholds due to the potential effects of construction disturbance on birds. Noise up to 50dB(A) is found to have no effect.

Noise expert Mr Stephen Cleary was consulted. He was asked to provide a modelled noise level at the closest roosting point of the SPA to the drilling compound as illustrated by black arrow in Figure 3.

Noise predictions at the location indicated in Figure 3 relative to the approximate location of the HDD plant is <45 dB (A). This finding must be considered in light of the literature cited above, which notes that "noise up to 50 dB (A) is found to have no effect" (Cutts *et al.,* 2009).

It is concluded that HDD drilling activities will produce airborne noise levels which will have no effect.

On this basis, there will be no appreciable effect on the fourteen waterbird species populations and the European site does not require further consideration.

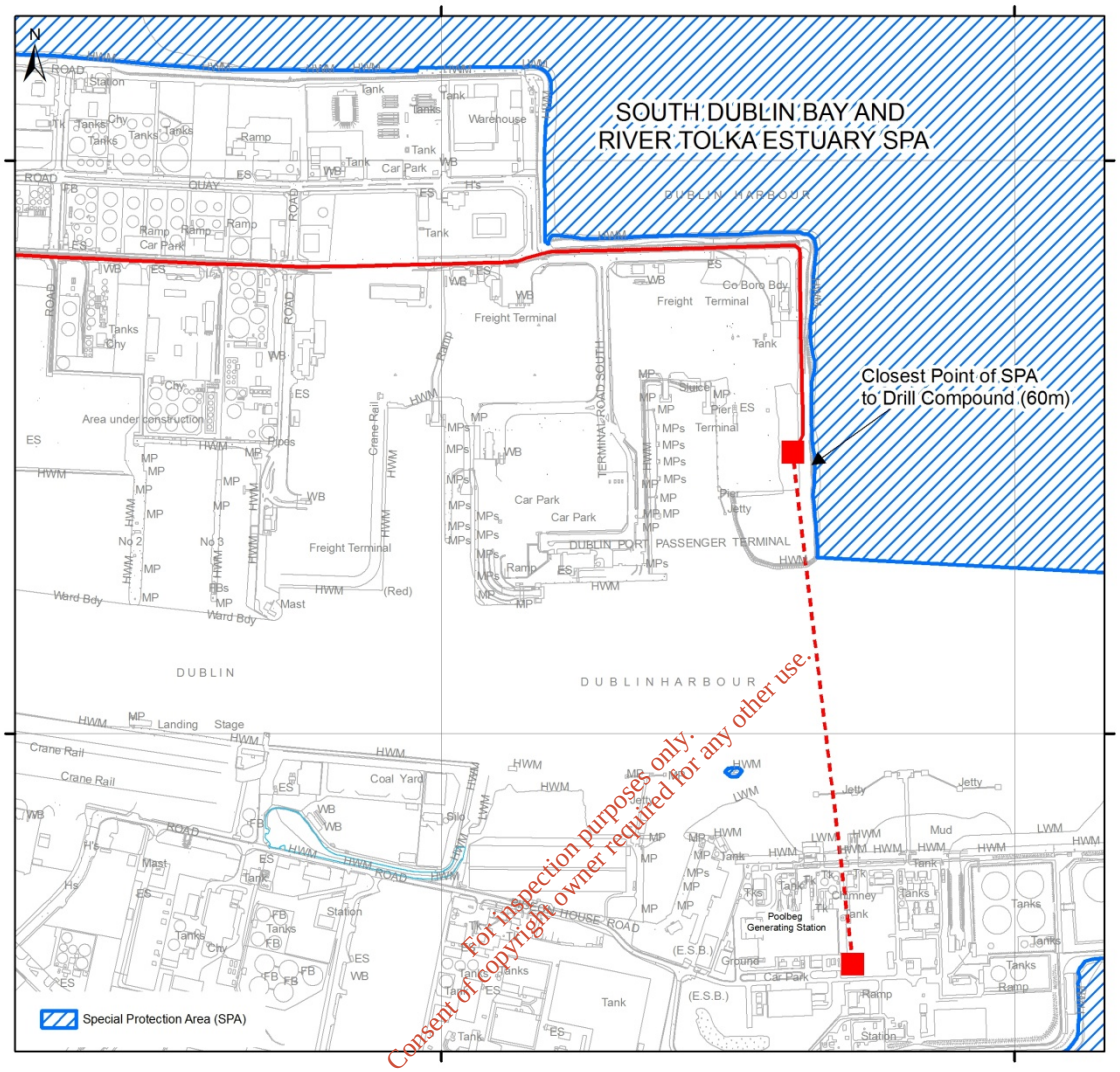


Figure 3: Location of closest roosting point in South Dublin Bay and River Tolka Estuary SPA

Visual Disturbance

The area of the port which contains the HDD drill compound closest to the SPA (refer Figure 4) is screened from the Tolka Estuary on eastern and northern sides by the elevated embankment of the seawall, by stock-piles of sand and gravel and by buildings and other port structures. This will block a visual trigger of disturbance caused by any human movements or working plant at ground height in proximity to the HDD compound and along the route of the land cable following Alexandra Road.

On this basis there is no possibility of visual disturbance causing a significant effect upon the conservation objectives of the fourteen waterbird species populations.

4.0 IN-COMBINATION EFFECTS

Article 6(3) of the Habitats Directive requires that in-combination effects with other plans or projects are considered. On this basis, a range of other projects were considered in terms of their potential to have in-combination effects with the decommissioning and replacement of the North Wall - Poolbeg 220kV sub-aqua cable. Appendix 1 provides a synopsis of information gathered on some of the other projects.

Those projects include –

- Alexandra Basin West Redevelopment Project
- Dublin Eastern By-pass
- Dublin Array Wind Farm
- Ringsend Waste Water Treatment Works Extension including long sea outfall
- Poolbeg Waste to Energy Plant

The projects listed above in addition to any assessment documents referred to or summarised in Appendix 1 were reviewed. Only the Alexandra Basin West Redevelopment Project is in such proximity to the cable replacement project that it was considered for possible in-combination effects.

The Alexandra Basin West Redevelopment Project includes demolition of part of the North Wall Quay Extension and the removal of the existing 220kV cable. Consultation with the project designers has confirmed that the cable replacement project considered in this document must be completed in advance of any quay wall demolition works as part of the ABR project. Accordingly, there is no possibility of noise or visual disturbance from both projects occurring simultaneously.

Ornithological assessment and a NIS for the ABR project concluded that there will be no appreciable effect upon the distribution of waterbirds in South Dublin Bay and River Tolka Estuary SPA as measured by range, timing and intensity of use of areas. Likewise, there are no appreciable effects from the cable replacement project alone on any European site.

On this basis, there are no potential significant in-combination projects predicted between the decommissioning and replacement of the North Wall - Poolbeg 220kV sub-aqua cable and the Alexandra Basin West Redevelopment Project in terms of any European site.

5.0 CONCLUSIONS OF SCREENING ASSESSMENT

The Screening Assessment was completed in compliance with the relevant European Commission and national guidelines. The potential impacts during the decommissioning, construction and operation of the North Wall - Poolbeg 220kV sub-aqua cable been considered in the context of the European Sites within 15km, their Qualifying Interests and Special Conservation Interests and any conservation objectives which have been set.

Table 6 summarises the screening exercise conclusions. From the findings of the Screening exercise, it is concluded that the proposed project –

- Is not directly connected with or necessary to the management of any Natura 2000 site;
- Will not give rise to potential significant effects on the Qualifying Interests or Special Conservation Interests of any European site; and
- Will not give rise to potential in-combination or cumulative effects with the other projects considered.

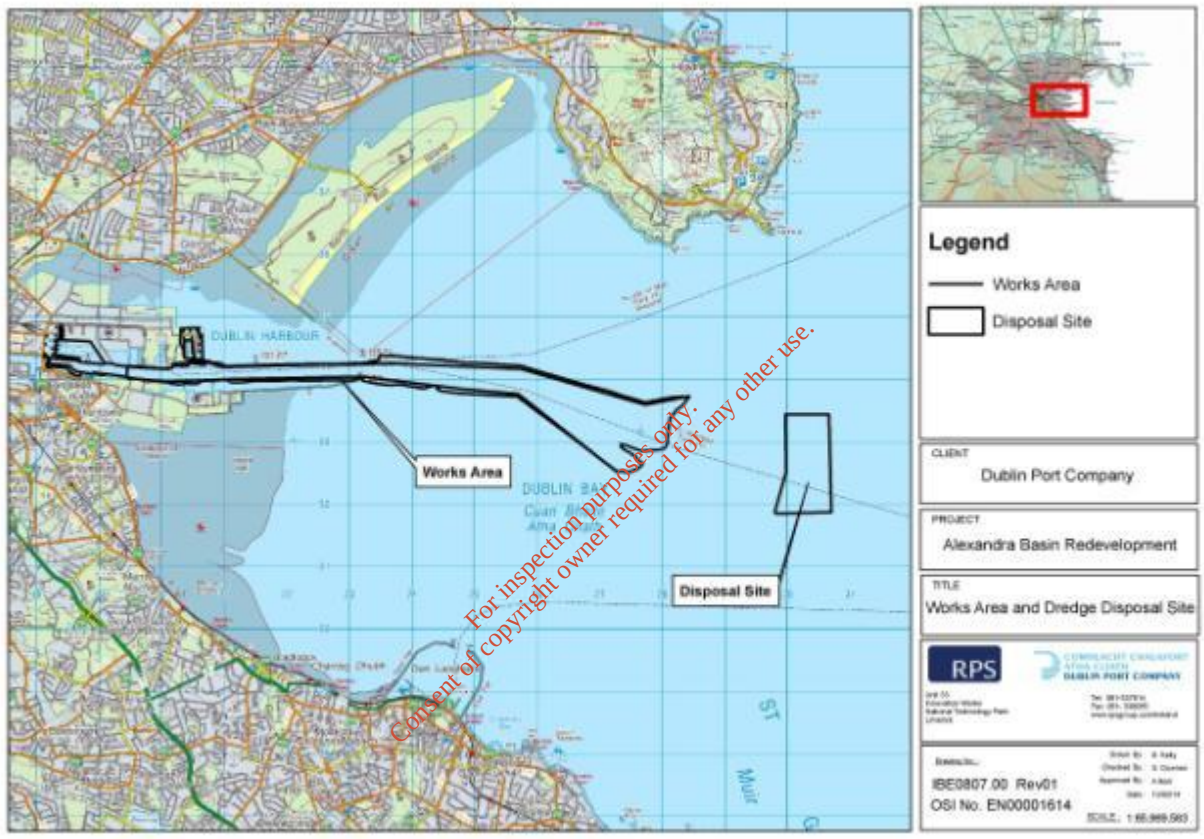
Having regard to the methodology employed and the findings of the screening stage assessment, it has been concluded that Stage 2 Appropriate Assessment is not required in relation to any European site.

APPENDIX 1: IN-COMBINATION EFFECTS PROJECT REVIEW

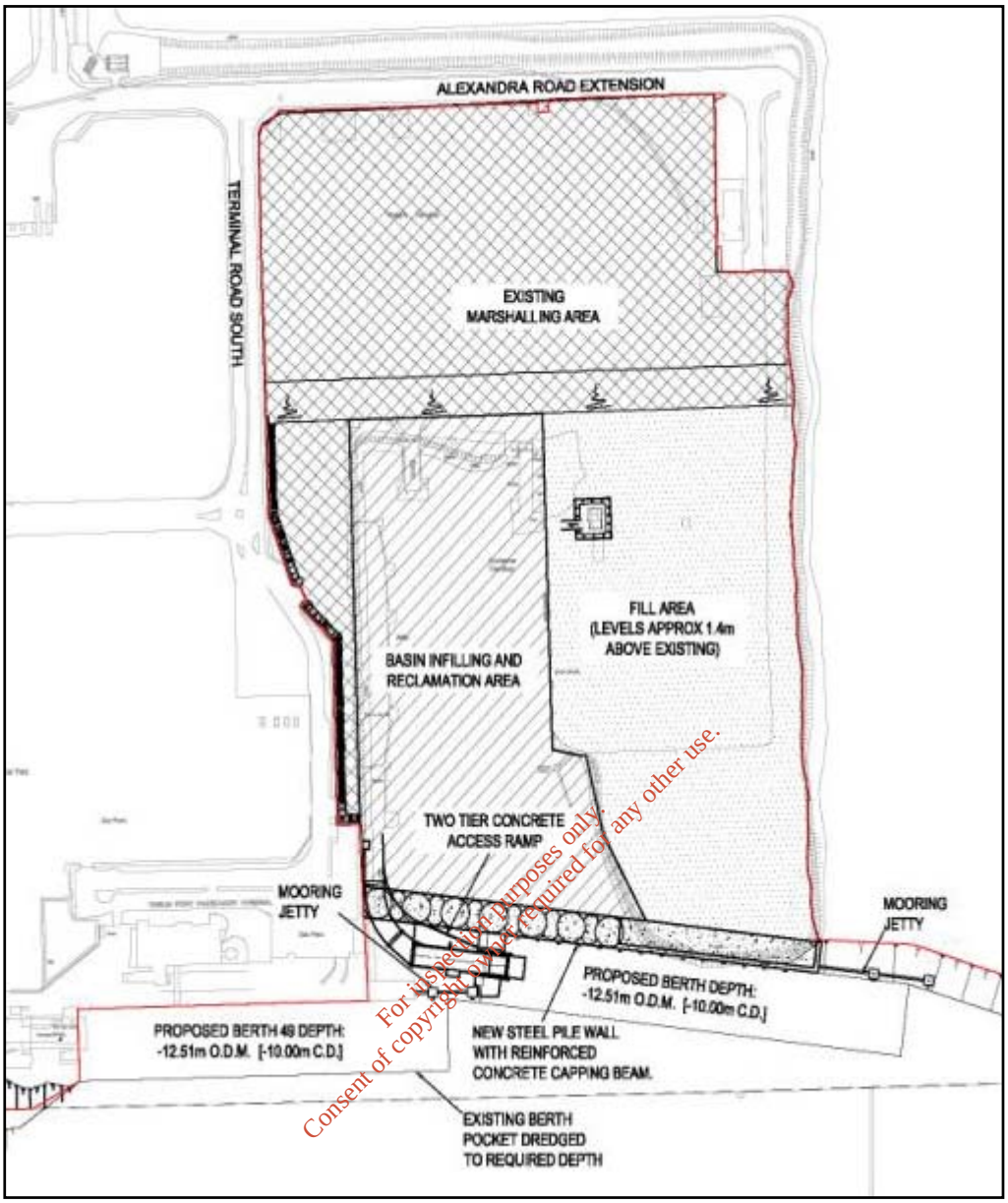
Alexandra Basin West Redevelopment Project

Description: The project involves the upgrading and major redevelopment of the Quays within Alexandra Basin, infilling of Terminal 52 in Dublin Port and the capital dredging of the navigation channel from -7.8m CD to -10m CD.

Summary of Effects upon European Sites: The Natura Impact Statement prepared for this project concluded that in relation to South Dublin Bay & Tolka Estuary SPA, there will be no significant impacts of the proposed development on either breeding birds or wintering birds within the Port or the Liffey Channel or in the approved dredge disposal site, with the implementation of the recommended mitigation measures. It is concluded that there will be no significant impacts of the proposed development on the Conservation Objectives of the Special Protection Area, with regard to the maintenance of the conservation condition of the bird species listed as special conservation interests. An overview of the potential for adverse effects, mitigation measures proposed and the residual impacts with regard to this SPA are presented in NIS Table 3.3 (extract reproduced below). In these circumstances, the proposed development will not adversely affect the integrity of the South Dublin Bay & Tolka Estuary SPA, in view of the site's conservation objectives.



NIS Figure 2.1 Overview of the proposed works areas within the Alexandra Basin and Navigation Channel & Dispoal Site



NIS Figure 2.4 Overview of the proposed Berth 52 / 53 Works

Table 3.3 Summary of the potential impacts, mitigation and residual impacts identified for the Natura 2000 designations within the zone of influence of the proposed Alexandra Basin Redevelopment and associated capital dredging.

Site Name	Qualifying Interests	Potential Impacts	Potential Cumulative Impacts	Proposed Mitigation	Residual Impacts
Candidate Special Areas of Conservation (cSACs)					
North Dublin Bay cSAC	Mudflats and sandflats not covered by seawater at low tide; Annual vegetation of drift lines; *Salicornia* and other annuals colonizing mud and sand; Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*); Mediterranean salt meadows (*Juncetalia maritimi*); Embryonic shifting dunes; Shifting dunes along the shoreline with *Ammophila arenaria* ("white dunes"); * Fixed coastal dunes with herbaceous vegetation ("grey dunes"); Humid dune slacks *Petalophyllum ralfsii*	The proposed redevelopment, including both the construction and operation phase, in addition to the associated capital dredging scheme are not located within this cSAC designation, precluding any direct impacts. Indirect impacts may potentially arise with regard to alteration of coastal processes and water quality impacts affecting the intertidal habitats within the cSAC. These effects are principally associated with the dredging and development of the shipping channel.	Potential cumulative impacts are limited to those that would have the potential to affect the intertidal mudflat and sandflat habitats and saltmarsh habitats within the cSAC. There is no potential for interactions with the remaining Annex I habitats and Annex II species listed as qualifying interests of this site.	Taking account of design stage mitigation with regard to avoidance of direct impacts, as well as indirect water quality impacts, it is considered that no further mitigation for the protection of the Annex I habitats and Annex II species within this cSAC are required.	From the results of the coastal processes modelling included in Appendix C of this report, it is concluded that there will be no impacts arising from the proposal that would affect the sediment transport regime or sediment budget within Dublin Bay, upon which the intertidal Annex I habitats depend. There are therefore no significant impacts identified that would have the potential to give rise to adverse effects on the integrity of this designated site.
South Dublin Bay cSAC	Mudflats and sandflats not covered by seawater at low tide	The proposed redevelopment, including both the construction and operation phase, in addition to the associated capital dredging scheme are not located within this cSAC designation, precluding any direct impacts. Indirect impacts may potentially arise with regard to alteration of coastal processes and water quality impacts affecting the intertidal habitat within the cSAC. These effects are principally associated with the dredging and development of the shipping channel.	Potential cumulative impacts are limited to those that would have the potential to affect the intertidal mudflat and sandflat within the ccSAC.	Taking account of design stage mitigation with regard to avoidance of direct impacts, as well as indirect water quality impacts, it is considered that no further mitigation for the protection of the Annex I habitat within this cSAC are required.	From the results of the coastal processes modelling included in Appendix C of this report, it is concluded that there will be no impacts arising from the proposal that would affect the sediment transport regime or sediment budget within Dublin Bay, upon which this intertidal Annex I habitat depends. There are therefore no significant impacts identified that would have the potential to give rise to adverse effects on the integrity of this designated area.

Site Name	Qualifying Interests	Potential Impacts	Potential Cumulative Impacts	Proposed Mitigation	Residual Impacts
Rockabill to Dalkey Island cSAC	Reefs Harbour porpoise	The proposed redevelopment of Alexandra Basin does not require works within this cSAC; however, the eastern extremity of the required dredging within the shipping channel and the dredge spoil disposal site are within the cSAC boundary. The Annex I reef habitat does not occur within this works area; however the harbour porpoise, a highly mobile species may potentially occur on occasion giving rise to the potential for direct effects. Indirect impacts are identified with regard to the generation of underwater noise and turbidity arising during the piling, dredging and dumping operations which may potentially affect harbour porpoise at a distance, within the cSAC. Reef habitat may also be indirectly affected arising from the dispersal of silt from the dredging and dumping activities which would have a smothering effect on benthic epifaunal communities.	Potential cumulative impacts are identified with regard to existing ongoing background noise impacts associated with shipping and near shore developments within the Dublin Bay area which may cumulatively affect harbour porpoise. There are no impacts affecting reef habitat arising from the current proposal which would have the potential to give rise to in-combination or cumulative effects.	Taking account of the mobility of harbour porpoise populations within the Dublin Bay area, specific mitigation measures are proposed for the avoidance of significant impacts within and outside of the cSAC boundary. Noise reduction measures and monitoring of activity and aversive behaviour are proposed as key mitigation. There are no mitigation measures proposed for reef habitat in the absence of the potential for significant impacts.	From the results of the coastal processes modelling included in Appendix C of this report, it is concluded that there will be no impacts arising from the proposal that would affect the Annex I reef habitat within this designation. With full implementation of the mitigation measures outlined in section 3.4.3, there will be no significant impacts of the proposed development on mammal mammals, including harbour porpoise. It is concluded that there will be no significant impacts of the proposed development on the Conservation Objectives of the Special Areas Conservation in Dublin Bay or neighbouring coastlines, including the Rockabill to Dalkey Island cSAC.
Special Protection Areas (SPAs)					
North Bull Island SPA	Wintering 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; Black-headed gull Waterbirds & wetlands	The proposed redevelopment, including both the construction and operation phase, in addition to the associated capital dredging scheme do not require works within this SPA designation, precluding any direct impacts. Indirect impacts are identified with regard to the presence of Light-bellied brent geese feeding on spilt grain within Dublin Port which would be subject to disturbance during the works. Additional impacts may potentially arise with regard to alteration of coastal processes and water quality impacts affecting the intertidal habitats supporting wintering birds within the SPA. These effects are principally associated with the dredging and development of the shipping channel.	Potential cumulative impacts are limited to those that would have the potential to give rise to disturbance impacts affecting the wintering bird species or alterations to the intertidal habitats within the SPA, which support these wintering bird species.	The wintering geese feeding within the port are evaluated as being habituated to disturbance and as grain shipments will continue, no further mitigation is required (Nairn, 2014). Taking account of design stage mitigation with regard to avoidance of direct impacts, as well as indirect water quality impacts, it is considered that no further mitigation for the protection of the intertidal habitats within this SPA are required.	From the results of the coastal processes modelling included in Appendix C of this report, it is concluded that there will be no impacts arising from the proposal that would affect the sediment transport regime or sediment budget within Dublin Bay, which maintains the structure and function of the intertidal feeding grounds supporting these wintering birds. There are therefore no significant impacts identified that would have the potential to give rise to adverse effects on the integrity of this designated area.

Site Name	Qualifying Interests	Potential Impacts	Potential Cumulative Impacts	Proposed Mitigation	Residual Impacts
South Dublin Bay and Tolka Estuary SPA	Wintering species: Light-bellied Brent goose; Oystercatcher; Ringed plover; Grey plover; Knot; Sanderling; Dunlin; Bar-tailed godwit; Redshank; Black-headed gull Passage species: Roseate tern; Common tern (incl. breeding); Arctic tern Wetlands & waterbirds	The proposed redevelopment, including both the construction and operation phase, in addition to the associated capital dredging scheme do not require works within this SPA designation, precluding any direct impacts. Indirect impacts are identified with regard to the presence of Light-bellied brent geese feeding on spilt grain within Dublin Port which would be subject to disturbance during the works. Additional impacts may potentially arise with regard to alteration of coastal processes and water quality impacts affecting the intertidal habitats supporting wintering birds within the SPA. These effects are principally associated with the dredging and development of the shipping channel. The proposed dredging and spoil disposal works will be limited to the winter months and will therefore not overlap with the passage and breeding seasons for the tern species listed as special conservation interests of this site.	Potential cumulative impacts are limited to those that would have the potential to give rise to disturbance impacts affecting the wintering bird species or alterations to the intertidal habitats within the SPA, which support these wintering bird species.	The wintering geese feeding within the port are evaluated as being habituated to disturbance and as grain shipments will continue, no further mitigation is required (Nairn, 2014). Taking account of design stage mitigation with regard to avoidance of direct impacts, as well as indirect water quality impacts, it is considered that no further mitigation for the protection of the intertidal habitats within this SPA are required.	From the results of the coastal processes modelling included in Appendix C of this report, it is concluded that there will be no impacts arising from the proposal that would affect the sediment transport regime or sediment budget within Dublin Bay, which maintains the structure and function of the intertidal feeding grounds supporting these wintering birds. As the populations of breeding and passage terns are located at a distance from the proposed development works and will be absent from the SPA during the proposed dredging works (limited to winter months) there will be no residual impacts on these species (Nairn, 2014). There are therefore no significant impacts identified that would have the potential to give rise to adverse effects on the integrity of this designated area.

Dollymount Promenade and Flood Protection Project

Description: A proposed cycleway/promenade will run adjacent to Clontarf Road and James Larkin Road from the Wooden Bridge (Old Bull Bridge) to Bull Island Causeway at the northern end. The works will also that will also provide flood defence along this section of Clontarf Road and James Larkin Road.

An Bord Pleanála Inspectors Report: Habitat loss, disturbance and displacement of and collision risk to the overwintering Dublin Bay SPA populations was considered at construction and operation. Potential risks are identified upon turnstone, knot, redshank and brent geese. Certain mitigating measures are included. None of the effects identified by this project can act in combination with ABR effects as there are no significant effects upon those species predicted by the ABR project.

Ornithological assessment: The design of the scheme has been sensitive to the nature conservation interests of the area and has virtually avoided any direct loss of habitats. Particular care will be taken during the construction phase to minimise disturbance to the habitats that are used by feeding birds. Once constructed, it is considered that there would be no significant disturbance effects to birds on the intertidal mudflats below, due to design of the scheme and to the fact that the birds which frequent the area are already well habituated to the presence of humans. With a net gain in mudflats due to the construction of the prop wall behind the existing sea wall which will be removed, it is considered that the overall impacts on birds by the project will be Neutral or Negligible.

S2S: Sutton to Sandycove Promenade and Cycleway

The main issues relevant to this project are:-

- some loss of inter-tidal habitat
- some loss of high water roosts particularly at the location of the embryonic dune system south of Merrion Gates.
- potential disturbance to birds by promenade users
- potential disturbance to wildlife during construction
- potential damage to eelgrass Zostera noltii at Merrion Gates which is an important source of food, particularly for Brent Geese when they arrive in Dublin Bay every autumn.

There is a requirement to consider and implement any possible mitigation techniques which reduce the direct and indirect impacts of the development. A number of mitigating measures have been recommended and these include:-

- Provision of compensatory habitat
- Provision of alternative roosting sites
- Consideration of alternative inland routes at Strand Road/ Merrion Gates and at Booterstown/Blackrock Park to be further developed at detailed design stage
- Restrictions on access onto foreshore
- Provision of appropriate screening at sensitive locations
- Effective control and enforcement of SPA legislation
- Control of working practices during construction

(Scott Wilson Preliminary Design Report, c.2010)

"The full extent of the possible impacts on the flora and fauna along the S2S route will not be determined until the further studies, which are recommended in the next section are completed. This work would also establish a baseline from which future monitoring can progress"

(AWN Environmental Report, c.2006)

Poolbeg Waste to Energy Plant

Description: The proposed Dublin WtE facility will be located on the Poolbeg Peninsula in Dublin. Most of the Site is located south of Pigeon House Road and is rectangular in shape measuring circa 160 m x 340 m and covers an area of approximately 5.5 hectares (13.6 acres). The location of the Site can be seen in Figure 1.3 below.

Air Quality: Table 8.7 in the WtE EIS is what comes out the stack. Predicted emission concentrations for NO2 are shown in Table 8.10. This is what hits the environment and this shows the max 30.9ug/m3 Annual NO2. The APIS database lists NO2 critical loads on coastal habitats as being 20kg/ha. Para 8.4.6 of that EIS states that "*the annual average NOX concentration (including background concentration) is also below the limit value for the protection of vegetation accounting for 78% of the annual limit value at the worst-case receptor in the region of the SAC, SPA and NHA*."

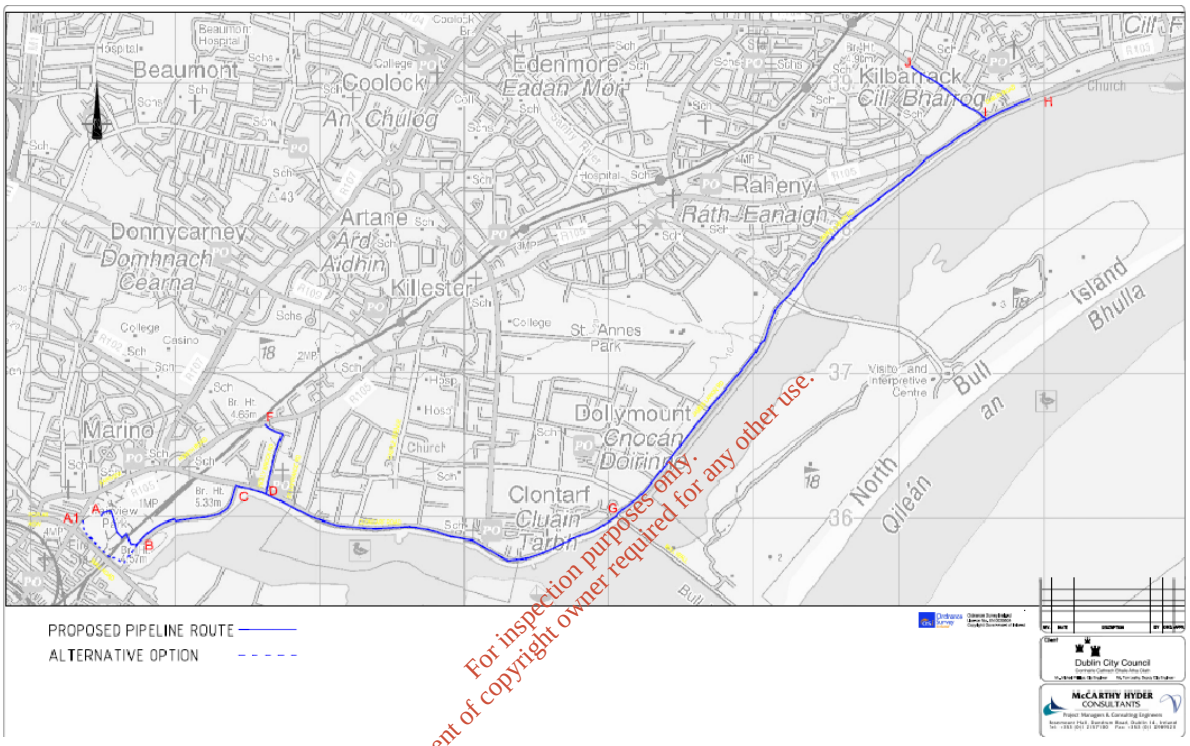
Para 8.4.16 states that "*A cumulative assessment of all significant releases from nearby sites has been carried out based on an analysis of their IPC Licences The modelling results from the cumulative assessment have been incorporated into the background concentrations for these pollutants (i.e. NO2, SO2, PM10 and PM2.5). Hence the cumulative impact of all significant releases from nearby sites has been included when background concentrations are added to the ambient pollutant concentrations under typical, maximum and abnormal operating conditions."*

Marine Ecology: During normal operation of the proposed development, there will be discharges of heat energy and biocides to the Liffey Estuary. These will join discharges from other plants in the area. Consideration should be given to existing discharges when setting conditions for the proposed development to ensure that there will not be significant adverse impacts on marine ecology. Provided that licence conditions take combined effects into account when setting conditions and the proposed development is operated within licence conditions it is predicted that the residual impact of heat and biocides on the marine environment will not be significant.

Dublin North City Arterial Watermain

Description: The North City Arterial Waterman (NCAM) will involve the laying of approximately 9.7km of 400m to 600m diameter trunk main which will be laid through Fairview Park and cross the existing Dublin Belfast / Dart railway line onto the north side of Alfie Byrne Road. The pipeline will be laid alongside the Alfie Byrne Road to its junction with the Clontarf Road at the Clontarf Promenade. The pipeline will then be laid within the Clontarf Promenade, up to the Bull Wall and then along the Clontarf Road, James Larkin Road, Howth Road and Dublin Road to the junction with Bayside Boulevard South. As part of the NCAM two spur pipelines will be laid in the roadbed along Hollybroook Road and Kilbarrack.

The NIS concludes that as a result of the assessment carried out it is the considered view of the author that the proposed development will have no adverse effect on the integrity of either of the Natura 2000 sites listed and as such this report returns a conclusion that there is no potential for significant effects on the Natura 2000 sites.



Ringsend Waste Water Treatment Works Extension including long sea outfall

Planning approved by An Bord Pleanála. Dumping at Sea application withdrawn days after the announcement of the designation of Rockabill to Dalkey Island SAC in Dec 2012.

A diffuser head structure will be constructed at the new location to enhance dispersion of the final treated effluent discharge. The diffuser head structure will extend to approximately 5 to 7 m above the seabed level. Seabed level is approximately 26 m below OD Malin at the site of the proposed diffuser shaft. At this location marine sediments extend to approximately 9 m below seabed level. Marine sediments are underlain by glacial till down to bedrock at about 25 m depth below seabed. The long sea outfall is estimated to take 18 months to construct including the construction of the diffuser head at the deeper water location.

Given that no direct link has been found between the the effluent discharged at Ringsend WWTW and the growth of macroalgae, it is unlikely that the proposed development will have any measurable effect on the species eaten by Brent Geese and other waterbirds. (EIS p263)

Having regard to section 9.5.1 of the Marine Ecology Chapter, the potential impact arising from the proposed transfer of treated wastewater to a long sea outfall would appear to be neutral or possibly somewhat beneficial in respect of the Annex 1-listed habitat Mudflats and sandflats not covered by water at low tide (1140). (EIS p267)

ABP Inspector's Report, p46, conclusion of AA – "*In conclusion I consider the Appropriate Assessment undertaken as part of the application and in particular the Natura Impact Statements submitted in relation to the separate aspects of the proposed development which could potentially impact on the integrity of a designated site which are contained in Appendix I of the EIS, and in light of the foregoing assessment of this information, it is reasonable to conclude on the basis of the information available, including the best scientific knowledge available that the proposed development individually and in combination with other plans and projects would not adversely affect the integrity of European Sites (Site Code Nos.: 004024, 000210, 004006 and 000206) in view of the specific conservation objectives relating to the above sites."*

The Board's assessment is set out at p92 of Inspectors Report –
Construction Impact – The construction of the access road will impact in a minor way on habitats of limited conservation value. All construction activity will be land-based. Wader bird use of the intertidal area in the vicinity of the WWTP is low. However it is considered that in the absence of mitigation measures, the installation of underground electricity cables and the construction of the proposed emergency /occasional access road which could prevent birds feeding in close proximity to the site. The lands which will be affected are classified as species- poor habitat. Noise and vibration during the construction of the long sea outfall pipe is unlikely to impact on the wader bird populations. Mitigation measures for the construction impacts are set out.

Operation Impact – The findings indicate that the reduction in levels of dissolved nutrients will not affect levels of benthic production in Dublin Bay thus it is not considered that the proposal will impact on bird populations of the area.

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