

Appropriate Assessment Report

Site Investigations off Dublin and Wicklow coast in the vicinity of the Kish and Bray Banks (FS007029).

Project Description:

Innogy Renewables Ireland Ltd has submitted an application for a Foreshore Licence to carry out site investigations in the western Irish Sea off the coast of Dublin and Wicklow in the vicinity of the Kish and Bray Banks.

The location of the proposed site investigations area is shown in the following drawing submitted by the applicant:

- Drawing No 1330-B-01 application , “Foreshore Licence Map 1 Foreshore Licence, Geophysical Survey Area and Metocean Monitoring” , Ver 3 dated 30/08/2019

The overall aim of the site investigations is to collect the necessary data and information required to inform the Environmental Impact Assessment Report (EIAR), Natura Impact Statement (NIS) and preliminary design for a proposed wind farm array and ancillary infrastructure in the vicinity of the Kish and Bray Banks.

The possible installation of a windfarm and associated infrastructure in the area in the future would be the subject of a separate Foreshore Lease / Licence application and is not the subject of this current application.

It is proposed that the site investigations will include:

Geophysical Survey - involving the use of multibeam echo sounder, magnetometer, sub-bottom profiler and side scan sonar

Geotechnical survey – involving cone penetration testing as well as vibrocoring and drilling of boreholes. The exact location, quantity and type of geotechnical samples collected would be subject to the results of the geophysical survey. The following indicative numbers, may be collected:

- 48 vibrocores – approximately 150mm diameter and penetration depth of up to 6m
- 15 cone penetration tests – in intertidal areas, approximately 4cm diameter and depth of up to 15m
- 3 boreholes – approximately 10cm diameter and depth of up to 20m

Ecological Survey – It is anticipated that benthic grab samples will be collected at up to 30 sampling sites in the survey area. The exact location would be subject to the results of the geophysical survey. Drop down video will also be collected.

It is also intended to deploy of 2 No. buoy mounted Floating Lidar (FLidar) units and up to 2 Wave Rider Buoys incorporating wave and current devices in the survey area.

The indicative location of the geotechnical sampling sites, benthic grab samples as well as the proposed location for the deployment of the LIDAR buoy and Wave Rider Buoys is shown in the following drawings submitted by the applicant:

- Drawing No. 1330-B-02-application, “Foreshore Licence Map 2 Indicative Benthic Sampling Stations” , Ver 3 dated 30/08/2019
- Drawing No. 1330-B-03-application, “Foreshore Licence Map 3 Indicative Vibrocore Sampling Stations” , Ver 3 dated 30/08/2019
- Drawing No. 1330-B-04-application, “Foreshore Licence Map 4 Poolbeg / ShellyBanks Intertidal Area” , Ver 3 dated 30/08/2019
- Drawing No. 1330-B-05-Pre-application, “Foreshore Licence Map 5 Shanganagh Cliffs Intertidal Area” , Ver 3 dated 30/08/2019
- Drawing No. 1330-B-06-Pre-application, “Foreshore Licence Map 6 Shanganagh Park Intertidal Area” , Ver 3 dated 30/08/2019
- Drawing No. 1330-B-01-application, “Foreshore Licence Map 7 Overall Survey and Sampling” Ver 1, dated 30/08/2019.

Additional details of the proposed survey including survey methods, equipment to be used, proposed survey schedule etc are provided in the following document submitted by the applicant:

“Planning Report for in support of the Foreshore Licence Application for Geophysical, Geotechnical, Environmental, Archaeological Metocean Survey of Dublin Array Wind Farm and Export Cable Route Corridors. Revision 6: 17th September 2019. This report includes, at Appendix E an AA Screening report and Natura Impact Statement (NIS) entitled “Appropriate Assessment Screening & Natura Impact Statement - Information for a Stage 1 (AA Screening) and Stage 2 (Natura Impact Statement) AA for the Foreshore Licence for Site Investigation of Dublin Array site and cable corridors and Metocean Data Collection”, dated 19th September 2019, prepared by Altamar Ltd.

It is intended that the proposed geophysical survey and seabed sampling works would likely be carried out between 1st March and 31st October within the two years following the granting of the Foreshore Licence. The total duration of these elements of the survey campaign is expected to be 4 to 5 months and some works may be carried out concurrently. The metocean monitoring equipment is likely to be deployed during Q3 2020; the equipment will remain on site for a minimum of two years.

Identification of Natura 2000 sites

Based on the guidance set out in NPWS (2009)¹ the following Natura 2000 sites within 15Km of the proposed site investigation area were identified and considered in the assessment process.

South Dublin Bay and River Tolka Estuary SPA (Site Code 004024)
North Bull Island SPA (Site Code 004006)
Dalkey Islands SPA (Site Code 004172)
Howth Head Coast SPA (Site Code 004113)
Baldoyle Bay SPA (Site Code 004016)
Ireland's Eye SPA (Site Code [004117])
Malahide Estuary SPA (Site Code 004025)
The Murrough SPA (Site Code 004186)
Wicklow Mountains SPA (Site Code 004040)
South Dublin Bay SAC (Site Code 000210)
Rockabill to Dalkey Island SAC (Site Code 003000)
North Dublin Bay SAC (Site Code 000206)
Bray Head SAC (Site Code 000714)
Howth Head SAC (Site Code 000202)
Ballyman Glen (Site Code 000713)
Knocksink wood SAC (Site Code 00072)
Glen of the Downs SAC (Site Code 000719)
Baldoyle Bay SAC (Site Code 000199)
Ireland's Eye SAC (Site Code 002193)
The Murrough Wetlands SAC (Site Code 002249)
Wicklow Mountains SAC (Site Code 002122)
Malahide Estuary SAC (Site Code 000205)
Carriggower Bog SAC (Site Code 000716)
Glenasmole Valley SA (Site Code (001209)
Codling Fault Zone SAC (Site Code 003015)

South Dublin Bay and River Tolka SPA (Site Code 004024),

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.

The site investigations are partly located within this site

The Conservation Objectives for this site are²

- To maintain the favourable conservation condition of Light-bellied Brent Goose in South Dublin Bay and River Tolka Estuary SPA
- To maintain the favourable conservation condition of Oystercatcher in South Dublin Bay and River Tolka Estuary SPA,

¹ NPWS (2009) Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities

² 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.

- To maintain the favourable conservation condition of Ringed Plover in South Dublin Bay and River Tolka Estuary SPA,
- To maintain the favourable conservation condition of Knot in South Dublin Bay and River Tolka Estuary SPA
- To maintain the favourable conservation condition of Sanderling in South Dublin Bay and River Tolka Estuary SPA,
- To maintain the favourable conservation condition of Dunlin in South Dublin Bay and River Tolka Estuary SPA,
- To maintain the favourable conservation condition of Bar-tailed Godwit in South Dublin Bay and River Tolka Estuary SPA,
- To maintain the favourable conservation condition of Redshank in South Dublin Bay and River Tolka Estuary SPA,
- To maintain the favourable conservation condition of Black-headed Gull in South Dublin Bay and River Tolka Estuary SPA,
- To maintain the favourable conservation condition of Roseate Tern in South Dublin Bay and River Tolka Estuary SPA,
- To maintain the favourable conservation condition of Common Tern in South Dublin Bay and River Tolka Estuary SPA
- To maintain the favourable conservation condition of Arctic Tern in South Dublin Bay and River Tolka Estuary SPA
- 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.

North Bull Island SPA (Site Code 004006),

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. The North Bull Island SPA is an excellent example of an estuarine complex and is one of the top sites in Ireland for wintering waterfowl. It is of international importance on account of both the total number of waterfowl and the individual populations of Lightbellied Brent Goose, Black-tailed Godwit and Bar-tailed Godwit that use it. Also of significance is the regular presence of several species that are listed on Annex I of the E.U. Birds Directive, notably Golden Plover and Bar-tailed Godwit, but also Ruff and Short-eared Owl.

This site is located circa 600m from the nearest boundary of the site investigation area-

The Conservation Objectives for this site are³

- To maintain the favourable conservation condition of Light-bellied Brent Goose in North Bull Island SPA

³ NPWS (2015) Conservation Objectives: North Bull Island SPA 004006. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

- To maintain the favourable conservation condition of Shelduck in North Bull Island SPA
- To maintain the favourable conservation condition of Teal in North Bull Island SPA,
- To maintain the favourable conservation condition of Pintail in North Bull Island SPA
- To maintain the favourable conservation condition of Shoveler in North Bull Island SPA
- To maintain the favourable conservation condition of Oystercatcher in North Bull Island SPA,
- To maintain the favourable conservation condition of Golden Plover in North Bull Island SPA,
- To maintain the favourable conservation condition of Grey Plover in North Bull Island SPA
- To maintain the favourable conservation condition of Knot in North Bull Island SPA
- To maintain the favourable conservation condition of Sanderling in North Bull Island SPA
- To maintain the favourable conservation condition of Dunlin in North Bull Island SPA,
- To maintain the favourable conservation condition of Black-tailed Godwit in North Bull Island SPA
- To maintain the favourable conservation condition of Bar-tailed Godwit in North Bull Island SPA,
- To maintain the favourable conservation condition of Curlew in North Bull Island SPA
- To maintain the favourable conservation condition of Redshank in North Bull Island SPA
- To maintain the favourable conservation condition of Turnstone in North Bull Island SPA
- To maintain the favourable conservation condition of Black-headed Gull in North Bull Island SPA,
- 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

Dalkey Island SPA (Site Code 004172)

The site comprises Dalkey Island, Lamb Island and Maiden Rock, the intervening rocks and reefs, and the surrounding sea to a distance of 200 m. Dalkey Island, which is the largest in the group, lies circa 400 m off Sorrento Point on the Co. Dublin mainland from which it is separated by a deep channel. The island is low-lying, the highest point of which (c. 15 m) is marked by a Martello Tower. Lamb Island lies to the north of Dalkey Island, and at low tide is connected by a line of rocks. It has a thin soil cover and some vegetation, mainly of grasses, Nettles (*Urtica dioica*) and Hogweed. Further north lies Maiden Rock, a bare angular granite rock up to 5 m high that is devoid of higher plant vegetation.

This site is located circa 1.2Km from the nearest boundary of the site investigation area

The Conservation Objectives for this site are⁴

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

- Roseate Tern
- Common Tern
- Artic Tern

Howth Head Coast SPA (004113)

The site comprises the sea cliffs extending from just east of the Nose of Howth to the tip of the Bailey Lighthouse peninsula. The marine area to a distance of 500 m from the cliff base, where seabirds socialise and feed, is included within the site.

This site is located circa 3.8Km from the nearest boundary of the site investigation area

The Conservation Objectives for this site are⁵

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

- Kittiwake

Baldoyle Bay SPA (Site Code 004016)

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.

This site is located circa 5.4Km from the nearest boundary of the site investigation area

The Conservation Objectives of this site are⁶

- To maintain the favourable conservation condition of Light-bellied Brent Goose in Baldoyle Bay SPA
- To maintain the favourable conservation condition of Shelduck in Baldoyle Bay SPA
- To maintain the favourable conservation condition of Ringed Plover in Baldoyle Bay SPA
- To maintain the favourable conservation condition of Golden Plover in Baldoyle Bay SPA
- To maintain the favourable conservation condition of Grey Plover in Baldoyle Bay SPA

⁴ NPWS (2015) Conservation objectives for Dalkey Islands SPA [004172]. Generic Version 4.0. Department of Arts, Heritage and the Gaeltacht.

⁵ NPWS (2015) Conservation objectives for Howth Head Coast SPA [004113]. Generic Version 4.0. Department of Arts, Heritage and the Gaeltacht.

⁶ NPWS (2013) Conservation Objectives: Baldoyle Bay SPA 004016. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

- To maintain the favourable conservation condition of Bar-tailed Godwit in Baldoyle Bay SPA,
- To maintain the favourable conservation condition of the wetland habitat in Baldoyle Bay SPA,

Ireland's Eye SPA (Site Code 004117)

Ireland's Eye is an uninhabited island located about 1.5 km north of Howth in Co. Dublin. The site encompasses Ireland's Eye, Rowan Rocks, Thulla, Thulla Rocks, Carrageen Bay and a seaward extension of 200m in the west and 500m to the north and east. The island has an area of c. 24 ha above the high tide mark

This site is located circa 7.8Km from the nearest boundary of the site investigation area-

The Conservation Objectives of this site are⁷

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

- Cormorant
- Herring Gull
- Kittiwake
- Guillemot
- Razorbill

Malahide Estuary SPA (Site Code 004025)

Malahide Estuary is situated in north Co. Dublin, between the towns of Malahide and Swords. The site encompasses the estuary, saltmarsh habitats and shallow subtidal areas at the mouth of the estuary. A railway viaduct, built in the 1800s, crosses the site and has led to the inner estuary becoming lagoonal in character and only partly tidal. Much of the outer part of the estuary is well-sheltered from the sea by a large sand spit, known as "The Island". This spit is now mostly converted to golf-course. The outer part empties almost completely at low tide and there are extensive intertidal flats exposed.

This site is located circa 11.2Km from the nearest boundary of the site investigation area

The Conservation Objectives for this site are⁸

- To maintain the favourable conservation condition of Great Crested Grebe in Malahide Estuary SPA,
- To maintain the favourable conservation condition of Light-bellied Brent Goose in Malahide Estuary SPA,
- To maintain the favourable conservation condition of Shelduck in Malahide Estuary SPA

⁷ NPWS (2020) Conservation objectives for Ireland's Eye SPA [004117]. Generic Version 7.0. Department of Culture, Heritage and the Gaeltacht.

⁸ NPWS (2013) Conservation Objectives: Malahide Estuary SPA 004025. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

- To maintain the favourable conservation condition of Pintail in Malahide Estuary SPA,
- To maintain the favourable conservation condition of Goldeneye in Malahide Estuary SPA,
- To maintain the favourable conservation condition of Red-breasted Merganser in Malahide Estuary SPA,
- To maintain the favourable conservation condition of Oystercatcher in Malahide Estuary SPA,
- To maintain the favourable conservation condition of Golden Plover in Malahide Estuary SPA,
- To maintain the favourable conservation condition of Grey Plover in Malahide Estuary SPA,
- To maintain the favourable conservation condition of Knot in Malahide Estuary SPA,
- To maintain the favourable conservation condition of Dunlin in Malahide Estuary SPA
- To maintain the favourable conservation condition of Bar-tailed Godwit in Malahide Estuary SPA,
- To maintain the favourable conservation condition of Redshank in Malahide Estuary SPA,
- To maintain the favourable conservation condition of the wetland habitat in Malahide Estuary SPA as a resource for the regularly-occurring migratory waterbirds that utilise it.

The Murrough SPA (Site Code 004186)

The Murrough SPA comprises a coastal wetland complex that stretches for 13 km from Kilcoole Station, east of Kilcoole village in the north to Wicklow town in the south, and extends inland for up to 1 km in places. The site includes an area of marine water to a distance of 200m from the low water mark. A shingle ridge runs along the length of the site and carries the Dublin-Wexford railway line.

This site is located circa 8.7Km from the nearest boundary of the site investigation area

The Conservation Objectives for this site are⁹

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

- Red-throated Diver
- Greylag Goose
- Light-bellied Brent Goose
- Wigeon
- Teal
- Black-headed Gull
- Herring Gull
- Little Tern
- To maintain or restore the favourable conservation condition of the wetland habitat at The Murrough SPA as a resource for the regularly-occurring migratory waterbirds that utilise it.

⁹ NPWS (2020) Conservation objectives for The Murrough SPA [004186]. Generic Version 7.0. Department of Culture, Heritage and the Gaeltacht.

Wicklow Mountains SPA (Site Code 004040)

This is an extensive upland site, comprising a substantial part of the Wicklow Mountains. Most of the site is in Co. Wicklow, but a small area lies in Co. Dublin.. Most of site is over 300 m, with much ground being over 600 m; the highest peak is Lugnaquilla (925 m). The substrate over much of site is peat, with poor mineral soil occurring on the slopes and lower ground. Exposed rock and scree are features of the site. The predominant habitats present are blanket bog, heaths and upland grassland.

This site is located circa 8.2Km from the nearest boundary of the site investigation area

The Conservation Objectives for this site are¹⁰

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

- Merlin
- Peregrine

South Dublin Bay SAC (Site Code 000210)

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.

The site investigations are partly located within this site

The Conservation Objectives for this site are¹¹

- To maintain the favourable conservation condition of Mudflats and sandflats not covered by seawater at low tide in South Dublin Bay SAC

Rockabill to Dalkey Island SAC (Site Code 003000)

This site includes a range of dynamic inshore and coastal waters in the western Irish Sea. These include sandy and muddy seabed, reefs, sandbanks and islands. This site extends southwards, in a strip approximately 7 km wide and 40 km in length, from Rockabill, running adjacent to Howth Head, and crosses Dublin Bay to Frazer Bank in south Co. Dublin. The site encompasses Dalkey, Muglins and Rockabill islands.

The site investigations are partly located within this site

¹⁰ NPWS (2020) Conservation objectives for Wicklow Mountains SPA [004040]. Generic Version 7.0. Department of Culture, Heritage and the Gaeltacht.

¹¹ NPWS (2013) Conservation Objectives: South Dublin Bay SAC 000210. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

The Conservation Objectives for this site are¹²

- To maintain the favourable conservation condition of Reefs in Rockabill to Dalkey Island SAC,
- To maintain the favourable conservation condition of Harbour porpoise in Rockabill to Dalkey Island SAC

North Dublin Bay SAC (Site Code 000206),

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.

This site is located circa 500m from the nearest boundary of the site investigation area

The Conservation Objectives for this site are¹³

- To maintain the favourable conservation condition of Mudflats and sandflats not covered by seawater at low tide in North Dublin Bay SAC
- To restore the favourable conservation condition of Annual vegetation of drift lines in North Dublin Bay SAC
- To restore the favourable conservation condition of Salicornia and other annuals colonizing mud and sand in North Dublin Bay SAC
- To maintain the favourable conservation condition of Atlantic salt meadows (*Glaucopuccinellietalia maritima*) in North Dublin Bay SAC
- To maintain the favourable conservation condition of Mediterranean salt meadows (*Juncetalia maritimi*) in North Dublin Bay SAC
- To restore the favourable conservation condition of Embryonic shifting dunes in North Dublin Bay SAC,
- To restore the favourable conservation condition of Shifting dunes along the shoreline with *Ammophila arenaria* ('white dunes') in North Dublin Bay SAC,
- To restore the favourable conservation condition of Fixed coastal dunes with herbaceous vegetation ('grey dunes') in North Dublin Bay SAC,
- To restore the favourable conservation condition of Humid dune slacks in North Dublin Bay SAC,
- To maintain the favourable conservation condition of Petalwort in North Dublin Bay SAC

Bray Head SAC (Site Code 000714)

This coastal site is situated in the north-east of Co. Wicklow between the towns of Bray and Greystones. Bray Head consists of a plateau of high ground, with five prominent quartzite

¹² NPWS (2013) Conservation Objectives: Rockabill to Dalkey Island SAC 003000. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht

¹³ NPWS (2013) Conservation Objectives: North Dublin Bay SAC 000206. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

knolls and has a maximum height of 241 m. The more exposed higher ground has a covering of shallow acidic soils, with protruding bedrock and scree. Elsewhere, deeper soils are formed by drift deposits and are calcareous in character.

This site is located circa 530m from the nearest boundary of the site investigation area

The Conservation Objectives for this site are¹⁴

- To maintain the favourable conservation condition of Vegetated sea cliffs of the Atlantic and Baltic coasts in Bray Head SAC,
- To restore the favourable conservation condition of European dry heaths in Bray Head SAC

Howth Head SAC (Site Code 002002)

Howth Head is a rocky headland situated on the northern side of Dublin Bay. The peninsula is composed of Cambrian slates and quartzites, joined to the mainland by a post-glacial raised beach. Limestone occurs on the north-west side while glacial drift is deposited against the cliffs in places

This site is located circa 3.4Km from the nearest boundary of the site investigation area

The Conservation Objectives for this site are¹⁵

To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected:

- Vegetated sea cliffs of the Atlantic and Baltic coasts
- European dry heaths

Ballyman Glen (Site Code 000713)

Ballyman Glen is situated approximately 3 km north of Enniskerry and straddles the County boundary between Dublin and Wicklow. It is orientated in an east-west direction with a stream running through the centre. The glen is bounded mostly by steeply sloping pasture with Gorse (*Ulex europaeus*) and areas of wood and scrub.

This site is located circa 3.6Km from the nearest boundary of the site investigation area

The Conservation Objectives for this site are¹⁶

- To restore the favourable conservation condition of Petrifying springs with tufa formation (Cratoneurion)* in Ballyman Glen SAC,

¹⁴ NPWS (2017) Conservation Objectives: Bray Head SAC 000714. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.

¹⁵ NPWS (2015) Conservation objectives for Howth Head SAC [000202]. Generic Version 4.0. Department of Arts, Heritage and the Gaeltacht.

¹⁶ NPWS (2019) Conservation Objectives: Ballyman Glen SAC 000713. Version 1. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.

- To restore the favourable conservation condition of Alkaline fens in Ballyman Glen SAC

* indicates a priority habitat under the Habitats Directive

Knocksink wood SAC (Site Code 00072)

Knocksink Wood is situated in the valley of the Glencullen River, just north-west of Enniskerry in Co. Wicklow. The fast flowing Glencullen River winds its way over granite boulders along the valley floor. The steep sides of the valley are mostly covered with calcareous drift, and support extensive areas of woodland.

This site is located circa 5.6Km from the nearest boundary of the site investigation area

The Conservation Objectives for this site are¹⁷

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:

- Petrifying springs with tufa formation (Cratoneurion)*
- Old sessile oak woods with Ilex and Blechnum in the British Isles
- Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)*

* indicates a priority habitat under the Habitats Directive

Glen of the Downs SAC (Site Code 000719)

Glen of the Downs is a semi-natural oak wood situated within an impressive glacial overflow channel. It is located on the Dublin-Wexford road, about 7 km south of Bray, Co. Wicklow. The underlying rock is mostly quartzite and it outcrops in a few places. The soil is a sandy loam, brown earth to brown podzolic, and is very dry over much of the site. Most of the site has been a Nature Reserve since 1980.

This site is located circa 6.2Km from the nearest boundary of the site investigation area

The Conservation Objectives for this site are¹⁸

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:

- Old sessile oak woods with Ilex and Blechnum in the British Isles

¹⁷ NPWS (2020) Conservation objectives for Knocksink Wood SAC [000725]. Generic Version 7.0. Department of Culture, Heritage and the Gaeltacht.

¹⁸ NPWS (2020) Conservation objectives for Glen of the Downs SAC [000719]. Generic Version 7.0. Department of Culture, Heritage and the Gaeltacht.

Baldoyle Bay SAC (Site Code 00199)

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. This site is located circa 6.4Km from the nearest boundary of the site investigation area

The Conservation Objectives for this site are¹⁹

- To maintain the favourable conservation condition of Mudflats and sandflats not covered by seawater at low tide in Baldoyle Bay SAC
- To maintain the favourable conservation condition of Salicornia and other annuals colonizing mud and sand in Baldoyle Bay SAC
- To maintain the favourable conservation condition of Atlantic salt meadows (*Glaucopuccinellietalia maritimae*) in Baldoyle Bay SAC
- To maintain the favourable conservation condition of Mediterranean salt meadows (*Juncetalia maritimi*) in Baldoyle Bay SAC

Ireland's Eye SAC (Site Code 0021930)

Ireland's Eye is located about 1.5 km north of Howth in Co. Dublin. It is a Cambrian island with quartzite which forms spectacular cliffs on the north-east side. Elsewhere much of the area is covered by drift.

This site is located circa 7.8Km from the nearest boundary of the site investigation area

The Conservation Objectives for this site are²⁰

- To maintain the favourable conservation condition of Perennial vegetation of stony banks in Ireland's Eye SAC
- To maintain the favourable conservation condition of Vegetated sea cliffs of the Atlantic and Baltic coasts in Ireland's Eye SAC,

The Murrough Wetlands SAC (Site Code 002249)

The Murrough is a coastal wetland complex which stretches for 15 km from Ballygannon to north of Wicklow town, and in parts, extends inland for up to 1 km. A shingle ridge stretches the length of the site and carries the mainline Dublin-Wexford railway.

This site is located circa 9.1Km from the nearest boundary of the site investigation area

¹⁹ NPWS (2012) Conservation Objectives: Baldoyle Bay SAC 000199. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

²⁰ 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.

The Conservation Objectives for this site are²¹

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:

- Annual vegetation of drift lines
- Perennial vegetation of stony banks
- Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)
- Mediterranean salt meadows (*Juncetalia maritimi*)
- Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae**
- Alkaline fens

* indicates a priority habitat under the Habitats Directive

Wicklow Mountains SAC (Site Code 002122)

Wicklow Mountains SAC is a complex of upland areas in Counties Wicklow and Dublin, flanked by the Blessington reservoir to the west and Vartry reservoir in the east, Cruagh Mountain in the north and Lybagh Mountain in the south. Most of the site is over 300 m, with much ground over 600 m. The highest peak is 925 m at Lugnaquilla. The topography is typical of a mountain chain, showing the effects of more than one cycle of erosion. The massive granite has weathered characteristically into broad domes. Most of the western part of the site consists of an elevated moorland, covered by peat. High corrie lakes, deep valleys and moraines are common features of this area. The substrate over much of the area is peat, usually less than 2 m deep. Poor mineral soil covers the slopes, and rock outcrops are frequent.

This site is located circa 10.7Km from the nearest boundary of the site investigation area

The Conservation Objectives for this site are²²

- To maintain the favourable conservation condition of Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*) in Wicklow Mountains SAC,
- To maintain the favourable conservation condition of Natural dystrophic lakes and ponds in Wicklow Mountains SAC,
- To restore the favourable conservation condition of Northern Atlantic wet heaths with *Erica tetralix* in Wicklow Mountains SAC,
- To restore the favourable conservation condition of European dry heaths in Wicklow Mountains SAC,
- To restore the favourable conservation condition of Alpine and Boreal heaths in Wicklow Mountains SAC,
- To maintain the favourable conservation condition of Calaminarian grasslands of the *Violetalia calaminariae* in Wicklow Mountains SAC,

²¹ NPWS (2020) Conservation objectives for The Murrough Wetlands SAC [002249]. Generic Version 7.0. Department of Culture, Heritage and the Gaeltacht.

²² NPWS (2017) Conservation Objectives: Wicklow Mountains SAC 002122. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.

- To restore the favourable conservation condition of Species-rich *Nardus* grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe)* in Wicklow Mountains SAC,
- To restore the favourable conservation condition of Blanket bogs (* if active bog) in Wicklow Mountains SAC,
- To restore the favourable conservation condition of Siliceous scree of the montane to snow levels (*Androsacetalia alpinae* and *Galeopsietalia ladani*) in Wicklow Mountains SAC,
- To restore the favourable conservation condition of Calcareous rocky slopes with chasmophytic vegetation in Wicklow Mountains SAC,
- To restore the favourable conservation condition of Siliceous rocky slopes with chasmophytic vegetation in Wicklow Mountains SAC,
- To restore the favourable conservation condition of Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles in Wicklow Mountains SAC,
- To maintain the favourable conservation condition of Otter in Wicklow Mountains SAC

* indicates a priority habitat under the Habitats Directive

Malahide Estuary SAC (Site Code 000205)

Malahide Estuary is situated immediately north of Malahide and east of Swords in Co. Dublin. It is the estuary of the River Broadmeadow. The site is divided by a railway viaduct which was built in the 1800s.

This site is located circa 10.4Km from the nearest boundary of the site investigation area

The Conservation Objectives for this site are²³

- To maintain the favourable conservation condition of Mudflats and sandflats not covered by seawater at low tide in Malahide Estuary SAC,
- To maintain the favourable conservation condition of *Salicornia* and other annuals colonising mud and sand in Malahide Estuary SAC,
- To restore the favourable conservation condition of Atlantic salt meadows (*Glaucopuccinellietalia maritima*) in Malahide Estuary SAC,
- To maintain the favourable conservation condition of Mediterranean salt meadows (*Juncetalia maritimi*) in Malahide Estuary SAC,
- To restore the favourable conservation condition of Shifting dunes along the shoreline with *Ammophila arenaria* ('white dunes') in Malahide Estuary SAC,
- To restore the favourable conservation condition of Fixed coastal dunes with herbaceous vegetation ('grey dunes') in Malahide Estuary SAC,

Carriggower Bog SAC (Site Code 000716)

Carriggower Bog is situated on Calary plateau at the eastern edge of the Wicklow Mountains. The site is an area of wet bog and poor fen, flanked by the Vartry River on the south-western side.

²³ NPWS (2013) Conservation Objectives: Malahide Estuary SAC 000205. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

This site is located circa 11.2Km from the nearest boundary of the site investigation area

The Conservation Objectives for this site are²⁴

- To maintain the favourable conservation condition of Transition mires and quaking bogs in Carriggower Bog SAC,

Glenasmole Valley SAC (Site Code 001209)

Glenasmole Valley in south Co. Dublin lies on the edge of the Wicklow uplands, approximately 5 km from Tallaght. The River Dodder flows through the valley and has been impounded here to form two reservoirs which supply water to south Dublin. The non-calcareous bedrock of the Glenasmole Valley has been overlain by deep drift deposits which now line the valley sides. They are partly covered by scrub and woodland, and on the less precipitous parts, by a herb-rich grassland. There is much seepage through the deposits, which brings to the surface water rich in bases, which induces local patches of calcareous fen and, in places, petrifying springs.

This site is located circa 14.9Km from the nearest boundary of the site investigation area

The Conservation Objectives for this site are²⁵

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:

- Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco Brometalia) (* important orchid sites)*
- Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)
- Petrifying springs with tufa formation (Cratoneurion)*

*indicates a priority habitat under the Habitats Directive

Codling Fault Zone SAC (Site Code 003015)

Codling Fault Zone is a Special Area of Conservation located around 24 km east of Howth Head, Co. Dublin within the Irish Sea. The length of the site is approximately 7 km and 5 km wide at the greatest extent. The water depth at the site ranges from about 80 to 100 m.

This site is located circa 13.2Km from the nearest boundary of the site investigation area

The Conservation Objectives for this site are²⁶

²⁴ NPWS (2019) Conservation Objectives: Carriggower Bog SAC 000716. Version 1. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.

²⁵ NPWS (2020) Conservation objectives for Glenasmole Valley SAC [001209]. Generic Version 7.0. Department of Culture, Heritage and the Gaeltacht.

²⁶ NPWS (2020) Conservation objectives for Codling Fault Zone SAC [003015]. Generic Version 7.0. Department of Culture, Heritage and the Gaeltacht.

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:

- Submarine structures made by leaking gases

In addition to the above there are a number of UK Marine SAC's in Irish sea (within <250km of the proposed site investigation) with cetaceans as a Feature of Interest . These include

- North Anglesey Marine SAC/ Gogledd Môn Forol (Site Code UK0030398) – this site is circa 38Km from the nearest boundary of the site investigation area
- West Wales Marine SAC / Gorllewin Cymru Forol (Site Code UK0030397)- this site is circa 83Km from the nearest boundary of the site investigation area
- North Channel SAC (Site Code UK0030399) - this site is circa 100Km from the nearest boundary of the site investigation area
- Bristol Channel Approaches SAC / Dynesfeydd Môr Hafren (Site Code UK0030396) - this site is circa 215Km from the nearest boundary of the site investigation area

Screening Assessment

There will be no impact on the water column or seabed arising from the geophysical survey methods intended to be used.

There will be impacts on the seabed resulting from the Geotechnical surveys involving cone penetration testing, vibrocoring and collection of grab samples. The vibrocores which are proposed are of small diameter, up to 150 mm and to a shallow depth, up to 6m. The expected duration of the coring operation at each location is less than 1 minute. Considering the dimensions of the cores, and the short duration involved in coring, significant sediment plumes will not be produced. Depending on the type and size of grab sampler used, volumes of sediment recovered per grab will range from between 0.003 – 0.015m³ and will be circa 20cm deep. No sediment will be removed during cone penetration testing.

Noise and disturbance would be generated from the survey activities which could impact on bird species listed as Special Conservation Interests of SPAs.

The geophysical surveys will introduce underwater noise which could result in impacts on marine mammals in the area.

The proposed marine survey and site investigations would take place solely within the marine environment. There would, therefore, be no spatial overlap with those Natura sites which are purely terrestrial and which have no marine features. Additionally, considering the nature of the proposed marine survey and site investigations, there is no “source – receptor” pathway which could result in impacts on species or habitats or disturbance to species of conservation interest within these sites. There would be no habitat loss and habitat or species fragmentation. On this basis likely significant effects can be excluded and the Natura sites listed below can be “screened out” and are not considered further.

- Ballyman Glen (Site Code 000713)

- Knocksink wood SAC (Site Code 00072)
- Glen of the Downs SAC (Site Code 000719)
- Wicklow Mountains SAC (Site Code 002122)
- Carriggower Bog SAC (Site Code 000716)
- Glenasmole Valley SA (Site Code (001209)

There also would be no spatial overlap and therefore no direct impact on a number of the adjacent Natura sites which have marine features. Considering the nature of the proposed marine survey and site investigations there is no “source – receptor” pathway which could result in impacts on species or habitats within these sites. Similarly, considering the small scale and short duration of the works as well as the minor and localised impacts of the works in the vicinity of these sites, significant disturbance to species of conservation interest are not considered likely. There would be no habitat loss and habitat or species fragmentation. Water quality would not be effected within these Natura sites. Additionally, a number of these sites are located in areas adjacent to locations with existing ship traffic and it is considered that any “additional” disturbance due to the presence, for a short period, of the survey vessel in the area is not likely to be significant. On this basis, likely significant effects on these sites can be also excluded and therefore the Natura sites listed below can also be “screened out” and are not considered further.

- Howth Head Coast SPA (Site Code 004113)
- Baldoyle Bay SPA (Site Code 004016)
- Dalkey Islands SPA (Site Code 004172)
- Ireland’s Eye SPA (Site Code [004117)
- Malahide Estuary SPA (Site Code 004025)
- The Murrough SPA(Site Code 004186)
- Wicklow Mountains SPA (Site Code 004040)
- North Dublin Bay SAC (Site Code 000206)
- Bray Head SAC (Site Code 000714)
- Howth Head SAC (Site Code 000202)
- Baldoyle Bay SAC (Site Code 000199)
- Ireland’s Eye SAC (Site Code 002193)
- The Murrough Wetlands SAC (Site Code 002249)
- Malahide Estuary SAC (Site Code 000205)
- Codling Fault Zone SAC (Site Code 003015)

There also would be no spatial overlap and therefore no direct impact on the UK designated Natura sites listed above. There would be no habitat loss and habitat fragmentation. Water quality would not be effected within these Natura sites. However underwater acoustic noise may have the potential for impacts on the cetaceans listed as features of interest in these sites. In the absence of mitigation measures significant impacts cannot be discounted.

Stage 2 Appropriate Assessment

Based on the findings of the Stage 1 AA Screening Assessment above it is concluded that an appropriate assessment of the implications of the proposed marine survey and site investigations on the following European sites in view of certain conservation objectives is required:

South Dublin Bay and River Tolka Estuary SPA (Site Code 004024)

The proposed survey area is within this SPA. Noise and disturbance would be generated from the survey activities which could impact on the qualifying interests of this SPA. In the absence of mitigation measures significant impacts cannot be discounted.

North Bull Island SPA (Site Code 004006)

The works in the vicinity of Poolbeg are not within this SPA but part of the proposed site investigation works are located within 590m of this SPA. Noise and disturbance would be generated from the survey activities which could impact on the qualifying interests of this SPA. In the absence of mitigation measures significant impacts cannot be discounted.

South Dublin Bay SAC (Site Code 000210)

The proposed site investigation area is within this SAC. The proposed intertidal elements of the works in this site are intrusive and will be carried out on the mudflats and sandflats not covered by seawater at low tide with potential impacts to this habitat. In the absence of mitigation measures significant impacts cannot be discounted.

Rockabill to Dalkey Island SAC (Site Code 003000)

The proposed site investigation area is within this SAC. The proposed geophysical survey has the potential to generate noise that exceeds thresholds of injury of marine mammals including harbour porpoise. Disturbance of the seabed can lead to suspension of sediments which can lead to impacts on reef habitat communities within the SAC. In the absence of mitigation measures significant impacts cannot be discounted.

The proposed survey will not impact on the habitat area, habitat distribution and community structure of reef within the Rockabill to Dalkey SAC. Sampling of the seabed has targeted areas of sediment so that samples can be taken so reef areas will be avoided. No significant silt will be generated from the survey that would impact on the Reef habitat.

UK Designated SACs

North Anglesey Marine SAC/ Gogledd Môn Forol (Site Code UK0030398), West Wales Marine SAC / Gorllewin Cymru Forol (Site Code UK0030397), North Channel SAC (Site Code UK0030399) and Bristol Channel Approaches SAC / Dynesfeydd Môr Hafren (Site Code UK0030396) - The proposed geophysical survey has the potential to generate noise that exceeds thresholds of injury of marine mammals originating from these sites which may occur within the site investigation area.

A series of mitigation measures are proposed in the document entitled *Appropriate Assessment Screening & Natura Impact Statement - Information for a Stage 1 (AA Screening) and Stage 2 (Natura Impact Statement) AA for the Foreshore Licence for Site Investigation of Dublin Array site and cable corridors and Metocean Data Collection*, dated 19th September 2019, prepared by Altemar Ltd. These measures include

- The surveys should be carried out outside overwintering season (September to March inclusive) after all over-wintering birds have left and prior to the arrival of species for the overwintering season.
- An ecologist would be on site during the works within the Natura 2000 sites' to minimise disturbance and ensure site integrity is maintained. If roosting birds are

present on the shore, the survey should be postponed until the birds depart, without provocation.

- Drift lines in close proximity to the proposed access and survey routes would contain the highest proportion of potential food source for bird species. If present, these should be avoided by machinery and personnel.
- Noise generated from machinery could cause a disturbance. An ecologist should be present during any seabed disturbance and noise producing activities within Natura 2000 sites to monitor works.
- Any temporary access arrangements or structures that are put in place to allow machinery access to the beach area should be prepared in consultation with an ecologist and the site should be fully reinstated post works.
- Reinstatement of the intertidal habitat should be carried out to pre-survey conditions
- Full implementation of the requirements set out in the NPWS (2014) “Guidance to Manage the Risk to Marine Mammals from Man-made Sound sources in Irish Waters”.

The implementation of these mitigation measure will minimise impacts on habitats and species listed as Features of Interest within the Natura 2000 sites. It is recommended that the implementation of these mitigation measures are included as specific conditions of any licence that may be granted.

Conclusion

Based on the above, and the information provided in the NIS submitted by the applicant, it is concluded that the proposed Site Investigation works are not likely to pose a significant likely risk to nature conservation interests of any of the adjacent Natura 2000 sites considered above provided the recommended mitigation measures are fully implemented.