Appropriate Assessment Report:

Name of project or plan:	Proposed Marine Surveys (Archaeological and Ecological), Site Investigation works (Geophysical, Geotechnical, and localised site investigations) and Wind and Current resource assessment, for the proposed development of an offshore wind farm in the vicinity of Clogher Head Co Louth (FS 006787).
Name and location of Natura 2000 site It would be helpful for a map or plan to be provided:	There are a number of Natura 2000 sites adjacent to or within 20Km of the proposed survey site. These are as follows: • Dundalk Bay SPA (004026) (6.5 km from survey site area). • Dundalk Bay SAC (000455) (11 km from survey site area). • Boyne Estuary SPA (004080) (10 km from survey site area). • Carlingford Lough SPA (004078) (12 km from survey site area). • Clogher Head SAC (001459) (small segment of survey site area encroaches into this SAC south of Port Oriel Pier). • Stabannan-Braganstown SPA (004091) (19 km from survey site area). On the basis of: • the data and information provided by the applicant in the application documents, including information provided in Part 3 of the Completed Licence Application Form • as well as the Qualifying Interests / Qualifying Features and the Conservation Objectives of the Natura 2000 sites (available on the NPWS Web site at https://www.npws.ie/) and considering the nature, location, scale and duration of the proposed works on the foreshore it is considered that, with the exception of the Dundalk Bay SPA and the Clogher Head SAC, significant impacts on the other Natura 2000 sites listed above are not likely and these can be

"screened out "from further assessment. There will be no direct impact on these sites, there will be no loss of habitat and habitat or species fragmentation will not occur. There will be no disturbance to key species within these sites. There will be no disturbance to any bird species or wildlife due to distance, nature and scale of the proposed survey and site investigation operations.

Dundalk Bay SPA (Site Code 004026)

Dundalk Bay is a large open shallow sea bay with extensive saltmarshes and intertidal sand/mudflats, extending some 16 km from Castletown River on the Cooley Peninsula, in the north, to Annagassan/ Salterstown in the south.

The extensive sand flats and mud flats have a rich fauna of bivalves, molluscs, marine worms and crustaceans which provides the food resource for most of the wintering waterfowl. The outer part of the bay provides excellent shallow-water habitat for divers, grebes and sea duck. In summer, it is thought to be a major feeding area for auks from the Dublin breeding colonies. The bay is used at night for roosting by wintering flocks of Greylag Goose, Greenland White-fronted Goose and Whooper Swan from Stabannan/Braganstown (inland of Castlebelligham) and other inland sites.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Great Crested Grebe, Greylag Goose, Light-bellied Brent Goose, Shelduck, Teal, Mallard, Pintail, Common Scoter, Red-breasted Merganser, Oystercatcher, Ringed Plover, Golden Plover, Grey Plover, Lapwing, Knot, Dunlin, Black-tailed Godwit, Bar-tailed Godwit, Curlew, Redshank, Black-headed Gull, Common Gull and Herring Gull. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.

The site is of international importance because it regularly supports an assemblage of over 20,000 wintering waterbirds. It also qualifies as a site of

international importance for supporting populations of Light-bellied Brent Goose (370), Knot (9,710), Black-tailed Godwit (1,100) and Bar-tailed Godwit (1,950) - all figures, unless stated otherwise, are five year mean peaks for the period 1995/96 to 1999/2000. A variety of other species occur in numbers of national importance, i.e. Great Crested Grebe (303), Greylag Goose (435), Shelduck (522), Teal (538), Mallard (765), Pintail (117), Common Scoter (581 - five year mean peak for the period 2000/01 to 2004/05), Red-breasted Merganser (121), Oystercatcher (8,746), Ringed Plover (151), Golden Plover (5,967), Grey Plover (204), Lapwing (4,892), Dunlin (11,518), Curlew (1,264) and Redshank (1,659). Other wintering species which occur include Red-throated Diver, Great Northern Diver, Cormorant, Grey Heron, Little Egret, Mute Swan, Wigeon, Goldeneye, Greenshank and Turnstone.

The site also supports nationally important populations of three wintering gull species - Black-headed Gull (6,643), Common Gull (551) and Herring Gull (754).

In spring and autumn the site attracts a range of passage migrants, including Little Stint, Curlew Sandpiper and Ruff.
Dundalk Bay SPA is one of the most important wintering waterfowl sites in the country and one of the few that regularly supports more than 20,000 waterbirds. Four species occur in numbers of international importance and a further 19 species in numbers of national importance. The regular occurrence of Golden Plover, Bar-tailed Godwit, Red-throated Diver, Great Northern Diver and Little Egret is of particular note as these species are listed on Annex I of the E.U. Birds Directive. Dundalk Bay is a Ramsar Convention site and parts of Dundalk Bay SPA are designated as Wildfowl Sanctuaries.

The Conservation Objectives[1] for Dundalk Bay SPA are:

[1] **NPWS (2011) Conservation Objectives: Dundalk Bay SAC 000455 and Dundalk Bay SPA 004026. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht. Dated 19/07/2011**

To maintain the favourable conservation condition of the bird species for which the SPA has been selected:

A005 Great Crested Grebe *Podiceps cristatus* wintering
A043 Greylag Goose *Anser anser* wintering
A046 Light-bellied Brent Goose *Branta bernicla hrota* wintering
A048 Shelduck *Tadorna tadorna* wintering
A052 Teal *Anas crecca* wintering
A053 Mallard *Anas platyrhynchos* wintering
A054 Pintail *Anas acuta* wintering
A065 Common Scoter *Melanitta nigra* wintering
A069 Red-breasted Merganser *Mergus serrator* wintering
A130 Oystercatcher *Haematopus ostralegus* wintering
A137 Ringed Plover *Charadrius hiaticula* wintering
A140 Golden Plover *Pluvialis apricaria* wintering
A141 Grey Plover *Pluvialis squatarola* wintering
A142 Lapwing *Vanellus vanellus* wintering
A143 Knot *Calidris canutus* wintering
A149 Dunlin *Calidris alpina* wintering
A156 Black-tailed Godwit *Limosa limosa* wintering
A157 Bar-tailed Godwit *Limosa lapponica* wintering
A160 Curlew *Numenius arquata* wintering
A162 Redshank *Tringa totanus* wintering
A179 Black-headed Gull *Chroicocephalus ridibundus* wintering
A182 Common Gull *Larus canus* wintering
A184 Herring Gull *Larus argentatus* wintering
A999 Wetlands & Waterbirds

Clogher Head SAC (Site Code 001459)

Clogher Head is a promontory of Silurian quartzite, located approximately 10 km north-east of Drogheda in Co. Louth. The rocks are covered with a thin layer of soil that, in places, supports a coastal heath community. Areas of sea cliff, bedrock shore and dry grassland also occur within the site.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species

listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes):
[1230] Vegetated Sea Cliffs
[4030] Dry Heath

The dry heath at Clogher Head is dominated by Gorse (*Ulex europaeus*), Bell Heather (*Erica cinerea*), Heather (*Calluna vulgaris*), Crested Dog's-tail (*Cynosurus cristatus*), Sweet Vernal-grass (*Anthoxanthum odoratum*), English Stonecrop (*Sedum anglicum*) and Common Bird's-foot-trefoil (*Lotus corniculatus*). Other species at the site include Lousewort (*Pedicularis sylvatica*), Cock's-foot (*Dactylis glomerata*) and Ribwort Plantain (*Plantago lanceolata*).
Cliff-top vegetation at the site includes such species as Thrift (*Armeria maritima*), Sea Campion (*Silene vulgaris* subsp. *maritima*), Wild Carrot (*Daucus carota*), Buck's-horn Plantain (*Plantago coronopus*), Burnet Rose (*Rosa pimpinellifolia*), amongst others. Spring Squill (*Scilla verna*), Golden-samphire (*Inula crithmoides*), Knotted Clover (*Trifolium striatum*) and Bird's-foot Clover (*Trifolium ornithopodioides*), all scarce plants in Ireland, have also been recorded from the site.

A salt-tolerant community, comprised of Thrift, Common Scurvygrass (*Cochlearia officinalis*), Sea Rush (*Juncus maritimus*) and Distant Sedge (*Carex distans*), occurs along the shore.

The main land use at Clogher Head is sheep grazing. The site is very susceptible to damage from a variety of sources including fire, over-grazing and amenity pressures such as littering and building.

This headland supports one of the best known examples of coastal heath in Co. Louth. It contains two habitats listed on Annex I of the E.U. Habitats Directive and supports a good diversity of coastal heath plants.

The Conservation Objectives of the Clogher Head SAC are[2]

[2] **NPWS (2017) Conservation Objectives: Clogher Head SAC 001459 Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht and dated 27/1/2017**

	To maintain the favourable onservation conditions of priority Annex I and II Habitats and Species for which the SAC has been selected 1230* Vegetated sea cliffs of the Atlantic and Baltic coasts 4030* European dry heaths *App 1.63km (linear length) of sea cliff is contained within the Clogher Head SAC .The total area for the qualifying habitat of European dry heaths within the SAC is unknown
Description of the project or plan	The types of surveys proposed include geophysical, geotechnical, archaeological and benthic/ecological. Contracts have not yet been awarded for these surveys ,however details of typical equipment is outlined with reference to Section 1.4 of the completed Application Form and also with reference to the Outline Contractors Method Statement (dated 18/12/2017) and Appendices A and C. The location for all of the proposed survey points (spot locations) is shown on Drawing No's QS-000247-02-D460-002 and QS-000247-02-D460-003. A brief summary of surveys proposed is as follows: <u>Geophysical Survey</u> • Bathometry (use of Multibeam Echo Sounder MBES) • Magnetometry • Geophysical Acquisition systems/sub bottom profiling • Seismic sound source (applied acoustics boomer plate AA251/AA301 or similar) • Sidescan Sonar System • DGPS Positioning • Steamer Hydrophone (Applied Acoustics or similar)

- Seismic Energy Source (Applied Acoustics CSP-L or similar)

Geotechnical Investigations (subject to results of the Geophysical and Archaeological surveys)

- Grab Sampling, 80 No Grab samples at representative locations within the proposed cable route corridor locations.
- Core Sampling, 160 No Core Samples at representative locations within proposed cable route corridor and offshore area locations
- Cone Penetrating Testing (CPT)-use of seabed cone penetrometer -, 160 No CPT's at representative locations within proposed cable route corridor and offshore area locations.
- Chemical Testing and Sample analyses

The survey area extent and proposed cores and CPT locations are indicated on Drawing No QS-000247-02-D460-002.These locations are subject to archaeological survey results.

Archaeological Survey

- Desk Study
- Identification of metallic and other targets recorded during marine magnetometer survey
- Assessment of archaeological significance of identified targets to include sidescan analysis and diving as required

Marine Ecological Survey

- Intertidal and sub tidal surveys
- Marine benthic, flora and fauna surveys
- Fisheries and Shellfish surveys
- Seabed surveys and collision risk assessment
- Marine Mammal Survey: Static Acoustic Monitoring by use of CPODS deployed on seabed, -
- Towed hydrophonic acoustic array marine habitat identification , classification and mapping-
- Marine water quality sampling

Benthic Ecology Survey

- Sediment grab sampling as required
- Drop down video survey at appropriate locations to undertake benthic assessment
- Near shore diver surveys
- Intertidal core samples along transect locations

Wind and Current Resource Assessment

- Deployment of 1 Seawatch wind Lidar Buoy or similar at one location specified on Drawing No QS-000247-02-D460-002-
- Deployment of 1 ADCPs at locations specified on Drawing No QS-000247-02-D460-002
- Deployment of 1 Marker Buoy at location specified on Drawing No QS-000247-02-D460-002-

Details of the vessels to be used for these Surveys and Site Investigations will not be known until the award of the contract. All vessels taking part in the survey/investigation works will comply with full certification requirements and shall be of an adequate size and navigation ability to ensure the works are carried out in a safe manner. Typical vessel type and sizes which may be used are shown in Appendix A. In terms of the Marine Ecological Survey Works, it is anticipated that a vessel of similar type and size to the "Cuan Ban" as shown in Appendix A could be used for this survey.

All buoys to be deployed within the survey area will comply with CIL standard navigation requirements with regard to lighting, positioning and mooring.

Duration of Proposed Marine Surveys and Site Investigations

The provisional programme for undertaking the surveys and site investigations, subject to weather conditions, is outlined at 1.8 of the completed Foreshore Application Form and is as follows:

	• Geophysical Survey – Three (3) months duration • Geotechnical Investigations – Three (3) months duration • Archaeological Survey – One (1) month duration • Ecological Surveys – Three (3) years duration seasonal • Wind resource Monitoring – Minimum of one (1) year and a maximum of three (3) years duration • Current Resource Monitoring – Two (2) months duration A proposed condition of the foreshore licence when/if granted will be a requirement that all of the proposed marine surveys will be carried out in compliance with the NPWS (2014) "Guidance to Manage the risk Marine Mammals from Man-made Sound sources in Irish Waters" including the employment of a Marine Mammal Observer . Marine activities will be affected only to the extent of keeping clear of the survey vessel in compliance with standard procedures for safety at sea. Marine Notices and Marine Radio announcements will conform to the requirements of the Marine Safety Directorate (Dept. of Transport)
Is the project or plan directly connected with or necessary to the management of the site (provide details)?	No.
Are there other projects or plans that together with the project or plan being assessed could affect the site (provide details)?	The site lies close to the proposed Oriel Bank Wind farm lease area (is app 1km south of this area). The site lies within the Gaelectric Development Ltd SI area off the Louth/Meath coast (this has not been advanced past preliminary pre- application phase). The in combination effect of the existing lease area and the proposed SI and Surveys off Clogher Head will be negligible. This application just relates to Surveys and Site Investigations of limited extent

	and duration and will be completed long before any of these other plans or projects get started.
Describe how the project or plan (alone or in combination) is likely to affect the Natura 2000 site.	• Sediment release from sediment sampling operations associated with the near shore Site Investigation Works may impact on habitats through smothering • Potential for accidental spills from marine SI Works into the water column has potential to impact on habitats. • Noise and vibration associated with the Geotechnical S.I. and Benthic Ecology survey (near shore) has potential to impact on birds • Noise associated with vessel movements to service the various surveys and sediment sampling operations may impact on bird populations • Noise emissions/Sound propagation from the proposed survey equipment involved in side scan sonar, magnetometer , and sub bottom profiling offshore surveys may displace or disturb marine mammals which frequent the area • Access to near shore Geotechnical SI ,movement of machinery on the shore ,may result in temporary localised compression of sediments which may damage intertidal habitats from trampling/compaction and use of vehicles and cause loss of food to bird species
Explain why these effects are not considered significant.	While sediment release is likely to occur as a result of the Geotechnical SI and Benthic Ecology surveys (near shore operations), impacts will be minimal and localised and of limited extent and duration. No impact is predicted from sediment release to SAC and SPA Sites. The interaction with any marine mammals will be mitigated by the full implementation of the requirements set out in the NPWS (2014) "Guidance to Manage the risk Marine Mammals from Man-made Sound sources in Irish Waters" including the employment of a Marine Mammal Observer.

The proposed surveys will be at least 6.5km from Dundalk Bay SPA and some elements are within the Clogher Head SAC. The near shore Geotechnical SI and the Benthic/Ecological surveys will consist of some grab sampling and CPT/Vibrocores while Geophysical surveys will include use of survey vessel and are of a non – intrusive nature.

In relation to prey biomass available and barriers to connectivity the presence of a survey vessel carrying out the geophysical survey within or adjacent to the SAC and at a distance from the SPA would not be seen as resulting in prey biomass decline or result in a significant increase in barriers to connectivity. No significant impact is foreseen on the population trends, distribution, breeding population abundance and productivity rate for the various birds species designated as "Qualifying interests " within the Dundalk Bay SPA. In further mitigation the surveys are planned for the summer /autumn periods which will avoid any potential impact to the various bird species designated for protection under this SPA which are all "overwintering" birds.

The adoption of best practice methods for all marine survey and SI works, adoption of strict environmental controls, will minimise the risk of any harmful fluids such as fuels, chemicals and/or oils entering the water column through accidental spills or leakage .The potential impact to SAC and SPA sites from pollution/accidental spillages is therefore not considered to be significant.

It is considered highly unlikely that the marine Geophysical Survey works (echo sounder, magnetometer, side scan sonar, sub bottom profiling etc.) will cause harm or disturbance to any marine mammals subject to the implementation of the requirements set out in the NPWS (2014) "Guidance to Manage the risk Marine Mammals from Man-made Sound sources in Irish Waters" including the employment of a Marine Mammal Observer who will have to be on site during all such survey operations.

Impacts on bird species from the noise associated with the survey vessels is not considered likely as it is consistent with normal marine traffic noise in the area.

The geophysical surveys are non-intrusive and do not involve the placement of any structures on the foreshore. The proposed Geotechnical Site Investigations and Benthic/Ecological survey operations will result in a very small area of interaction with the seabed The impact from altered hydrology will be minimal and insignificant.

The proposed surveys will be localised and of limited extent and duration. The mainstay of the proposed surveys is of non-intrusive nature and there will be no impact on coastal erosion, coastal morphology and in particular to the Qualifying Interests 'Vegetated sea cliffs" and the "European Dry Heaths" along the 1.63km of Clogher Head cliff length and for which this Clogher Head SAC has specifically been designated.

The impacts of the works will be temporary and localised. The works will not result in habitat loss, there will not be significant disturbance to key species and there will be no habitat or species fragmentation within the SAC and SPA. The integrity of the sites will not be affected.

There will be no direct discharge of pollutants into the environment during the works and water quality will not be affected.

The proposed works will not result in the species range within the sites being restricted by artificial barriers to site use.

On the basis of the above it is considered that there will be no significant negative effects as a result of the proposed Marine Surveys (Archaeological and Ecological), Site Investigation works (Geophysical, Geotechnical, and localised site investigations) and Wind and Current resource assessment, in the vicinity of Clogher Head Co. Louth, on the 'Qualifying Interests' or the 'Conservation Objectives' of the

	Clogher Head SAC (Site Code 001459) and the Dundalk Bay SPA (Site Code 004026).
Who carried out the assessment?	Marine Licensing Vetting Committee, 13th November 2018.