

Hartley Anderson Limited

Marine Environmental Science and Consultancy

Appropriate Assessment Screening and Appropriate Assessment

Drogheda Port Foreshore Licence Application

Report to
Department of Housing, Local Government
and Heritage



May 2021

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SECTION 1 - INTRODUCTION

1.1 Background

Arup with Hartley Anderson Limited have been commissioned by the Department of Housing, Local Government and Heritage (DHLGH) to conduct an Appropriate Assessment (AA) Screening (stage 1 screening for the likelihood of significant effects on Natura 2000 sites) and if required, an AA (stage 2, for adverse effects on the integrity of any European site), from an application for a Foreshore Licence and Dumping at Sea Permit. The application by Drogheda Port Company covers the continuation of maintenance dredging for the period 2021 to 2029 within the commercial estuary of the River Boyne and seaward approaches and the continued disposal at sea of this material at two sites. A portion of the dredge material may be landed ashore for beneficial reuse

The purpose of the maintenance dredging operations at Drogheda Port is to maintain the safe navigation depths for the commercial traffic, fishing and leisure users of the River Boyne, Drogheda Port Company, its facilities and the town of Drogheda.

1.2 Application documents submitted

A number of application documents submitted by Dublin Port Company have informed this AA Screening and AA, including:

- Application form [Applicant: Drogheda Port Company, 8 July 2020]
- Attachment A: Description of Works
- Attachment B: Hydraulic modelling study [RPS, 25 May 2019]
- Attachment C: Dredging history spreadsheet
- Attachment D: Dredging after weather events
- Attachment E: Dredging extent map
- Attachment I: Location of dumpsites
- Attachment L: Survey report on drogue release at Drogheda offshore dumpsite [Hydrographic Surveys Ltd, 22 November 2006]
- Attachment N: Environmental Report [AWN Consulting, 6 December 2019]
- Attachment P: Sampling and analysis of sediments from Drogheda Port, February 2019 [Aquafact International Services Ltd, July 2019]
- Attachment R: Natura Impact Statement [Scott Cawley Ltd, 22 November 2019]
- Prescribed Body Consultation
 - Prescribed Bodies Observations
 - Applicant's response to Public Bodies Observations.

In addition, and with respect to the Habitats Directive, an Article 12 Assessment of the proposed works is described in Section 5 of this report based on information provided in the Drogheda Port Company application documents (*Attachment N Environmental Report*).

1.3 Relevant consultation responses

The site investigation licence application was open for public consultation between 21st July to 19th August 2020.

Consultation responses from the prescribed bodies are provided in Table 1.1. Note that most of the responses are not directed at the Habitats Directive aspects of the proposal.

Table 1.1: Responses from prescribed bodies to the consultation

Prescribed body	Response
<p>Water Marine Advisor (WMA)</p> <p>Engineering is satisfied that the proposed maintenance dredging campaign will have minimal impact on fishing, navigation and subject to the mitigation measures on the environment. In particular Drogheda Port Co have demonstrated that the commercial reuse option (trialled previously with the construction industry) is not an aggregate dredging or winning of sand operation being primarily driven by the necessity to dredge the mouth and seaward approaches resulting from accretion and weather related events. The Consultants have demonstrated that subject to retention of at least 30,000m³ of dredged material within the coastal cells (A2 or A1) there should be minimal impact on the coastal processes and sediment regimes within the coastal sub cell within which the operation is located.</p> <p>The current Dumping at Sea Permit S0015-02 prohibits the use of site A2 in the months of July and August. This does not create any operational difficulty for Drogheda PC and so can also be included as a Condition in the Foreshore Licence when/if granted.</p> <p>In conclusion Engineering has no objection to the granting of a Foreshore Licence subject to the following conditions:</p> <ol style="list-style-type: none"> 1. Annual dredged volumes not to exceed those quantities as set out in Table on Page 6 of Attachment A "Description of Proposed Works" i.e. 220,000m³ 2. A companion DAS Permit being obtained from the EPA to cover the disposal of dredged material to Disposal Sites A1, A2 as appropriate when the current Dumping at Sea Permit S0015-02 expires. 3. Further to 2 above the foreshore licence to run from 2021 to a date in tandem with the EPA DAS Permit period (a provisional final date of 10/04/2029 is set but this will be subject to adjustment if the EPA sets down a different DAS period with a different end date) 4. The retention of at least 30,000m³ of dredged material per annum within the coastal sells (A1, A2) in accordance with the recommendations as set out at 4.0 "Conclusions" in the RPS Report entitled 'Maintenance Dredging Licence 	<p>DPC responded to the conditions provided by the WMA which are [numbers match those in the conditions listed in the WMA response]:</p> <ol style="list-style-type: none"> 1. No issue with quantities as per application 2. EPA Dump at Sea Permit application in process 3. No issue with Foreshore Licence term as long as it is as requested i.e. 8 years. 4. 30,000m³ will be retained within coastal cell as per application 5. No issue with exclusion of the A2 site in July/August 6. Mitigation measures as described in Section 6.1.3.1 [of the NIS] will be followed 7. Agreed that notification of dredging shall be made to Directorate and vessels/plant will have appropriate certification

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Prescribed body	Response
<p>Application Hydraulic Modelling Study' – dated 25th May 2019 (ref Attachment B)</p> <p>5. Dredged material shall not be disposed of at Dump site A2 during the months of July and August in any year for which this Foreshore Licence remains valid</p> <p>6. Mitigation Measures as set out at Section 6 of the Natura Impact Statement (NIS) dated 22/11/2019 (ref Attachment R) inclusive of those as set out at S 6.1.3.1 of the said NIS to be adopted where relevant unless otherwise varied by or directed by other condition in this Licence.</p> <p>7. Where appropriate Marine notice, lighting and markings to be carried out in consultation with the Maritime Safety Directorate, Department of Transport, Leeson Lane, Dublin 2 and all vessels/plant used in association with the proposed dredging campaigns to have appropriate certification from the Marine Survey Office</p>	
<p>Marine Institute</p> <p>Marine Institute is of the view that, from a sediment chemistry perspective, the material to be dredged can be considered to be clean and the dredging, as proposed, is not likely to have a negative impact on the marine environment.</p> <p>...the current Foreshore Licence application includes the proposal by Drogheda Port Company to bring ashore an annual maximum of 60,000m³ of sand dredged from the entrance channel and its subsequent commercial re-use. This activity was permitted under the previous Foreshore Licence (Ref. No. FS005747) granted in April 2013. The Marine Institute has no object in principle to this activity but, as previously stated, the Marine Institute is not aware of any clear national policy statement or policy guidelines on this activity and would recommend that these be developed without further delay.</p> <p>There are no aquaculture production sites or significant sea-fishing locations within, or adjacent to, there area to be dredged and therefore there will be no impacts on these activities.</p> <p>The Marine Institute has no objections to a licence being granted.</p>	<p>No response provided by DPC.</p>
<p>Marine Survey Office (MSO)</p>	<p>No response provided by DPC.</p>

Prescribed body	Response
<p>Following careful consideration of section 6 of the application, [the Marine Survey Office] is satisfied that there will be little or no adverse impact on navigational safety.</p> <p>In addition to the proposed mitigating measures and public notice regime, the applicant is required to advise the U.K. Hydrographic Office of any dredging activity in order for charts to be kept up to date.</p>	
<p>Department of Agriculture, Food and the Marine (DAFM)</p> <p>Please see below conditions that should be included in any dumping at sea permit that issues to Drogheda Port Company:</p> <ul style="list-style-type: none"> • The Department has no objections to the proposed dredging campaign, however due to the long duration of the permit sought and location within and in close proximity to SACs and Natura 2000 sites, best practice must be followed rigorously during the campaign to ensure the dredging, recovery and dumping at sea operations, as potentially disruptive activities do not adversely impact the local environment, flora and fauna as well as safe navigation and operations. • The Department is aware of a historical mussel fishery in the area directly adjacent to the shipping channel and have no data on the current status of the sub tidal <i>Mystiques delis</i> population in the area. The applicant should consult directly with any active local fishers on their proposed maintenance dredging programme. • It is recommended that the applicant consult with the local angling clubs. The Boyne is also one of the largest salmon producing catchments however the salmon area currently below the conservation limit for the catchment and all effort must be made to minimise the impact on the fish species and habitat in this SAC system. 	<p>The DAFM has requested that DPC consult directly with any active local fishers, particularly a historical closed mussel fishery, on their proposed maintenance dredging programme and that DPC consult with the local angling clubs.</p> <p>DPC responds by reiterating that a meeting was held with IFI and SFPA who have direct responsibility for the closed mussel fishery. The IFI and SFPA raised no issues at this meeting and did not provide any objection to the Foreshore licence application.</p> <p>DPC responds that it will not be consulting with any angling clubs due to the fact that advertisements for both the Dump at Sea Permit application and Foreshore Licence application were placed in local and national newspapers and no responses were received from any angling clubs. DPC also wishes to state that it has not received any complaints or representation of any fishery clubs on any issues with respect to the port operations during the time served by the Harbour Master, Captain Martin Donnelly.</p>
<p>Department of Culture, Heritage and the Gaeltacht (DCHG)</p> <p>Nature Conservation</p>	<p>DPC agrees to adhere these requests and has no further comment.</p>

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Prescribed body	Response
<p>The proposed seabed dredging operations within Drogheda Port has been evaluated by a Natura Impact Statement and other documentation. The conclusion of the Natura Impact Statement document is that the proposed works are unlikely to pose a significant likely risk to nature conservation interests in the vicinity provided appropriate mitigation is implemented. The Department concur with this conclusion.</p> <p>The proponent should also ensure that other activities not covered by the Foreshore Consent application take account of requirements for assessment under European and National legislation for nature conservation.</p> <p>Underwater Archaeology No dredging shall take place within 10m of the wreck known as the “Boyne Boat” (53.72443N, 6.28670W) located in close proximity to the Queensborough navigational beacon.</p> <p>No dredging shall take place within 10m of the wrecks of the four barges (053 43 09.14N, 006 18 30.22W) located adjacent to the turning area at Harbourville, Stagreenan.</p> <p>Drogheda Port shall forward a chart to the National Monuments Service showing the above exclusions in relation to the proposed dredging area in advance of any dredging taking place.</p>	
<p>Sea Fisheries Protection Authority (SFPA)</p> <p>Wild Fisheries Historically the lower stretches of the River Boyne were commercially fished for the blue mussel, <i>Mytilus edulis</i>. Following a settlement to the Mornington fishermans group the classified mussel beds were declassified and no fishing currently take place. The area is no longer part of the routine shellfish sampling programme in the river.</p> <p>An extensive classified shellfish bed for razor clams <i>Ensis siliqua</i> occur north and south of the mouth of the River Boyne. The razor clams fishery is prosecuted by dedicated vessels from the ports of Dundalk, Clogherhead,</p>	<p>No response provided by DPC.</p>

Prescribed body	Response
<p>Skerries and Balbriggan on a regular basis. There has been no issue in the past with the SFPA conduction control activities in the area.</p> <p>Shellfish Production Areas The foreshore application area is adjacent to the classified production area of Gormanstown. The depth and type of water within the applied area is such that fishing for razor clams cannot be undertaken by the razor fleet and should therefore be of little concern. The razor fleet is fully aware of annual operations of the DPC dredging operations and knows the locations of the licenced dumpsites for dredged spoil.</p> <p>There is no issue with the SFPA conducting official control activities during the dredging/dumping campaign.</p> <p>Seafood Safety The dredging operations have in the past caused no concern regarding both the removal and deposition of spoil on the licenced dumpsites which are adjacent to the Gormanstown shellfish production area. The current application does not differ from the methodology employed in previous campaigns and therefore should not cause any issue with the quality of harvested razor clam or any microbiological contamination. The operators regularly liaise with the SFPA Eastern region regarding operations and are also aware the need for immediate contact should a pollution event occur while the dredger is operating both in the river and at sea.</p>	
<p>Inland Fisheries Ireland (IFI)</p> <p>The application contained a number of detailed reports on natural and environmental assessments. The Drogheda Port Company has a 5 yearly sediment monitoring programme with the Marine Institute to assess the long-term effects of dredging on sediment in the area. This is very important to determine the impact that the disturbance of silt has especially on sea trout who can migrate along the coast and visit different estuaries.</p> <p>On Pg 95 of the nature impact report there is a detailed list of fish species that are found in the estuary. IFI would request that where possible the scheduling of works takes into account the migratory window for salmon, sea trout, eel and</p>	<p>The IFI have requested the scheduling of the works outside the March-May migratory period. The IFI further qualify if works are needed then to be undertaken outside of the low water period.</p> <p>DPC responds that unfortunately the March -- May exclusion period is not possible as it is not possible to predict or schedule the storm events that generate the navigation restrictions due to accretion at the entrance of the channel.</p> <p>However, DPC can commit to no dredging over the low water period as indeed is currently the practice. The beneficial re-use dredging with the current contracted plant does take place from 1st April onward. However,</p>

Prescribed body	Response
<p>sea lamprey. We recommend scheduling works outside the March – May period when salmon and sea trout smolts are travelling through the estuary and when shad are spawning. If works need to be undertaken in this window following extreme weather events we would request that work does not take place on a low tide as this reduces the dilution of suspended sediment in the water column.</p> <p>The application states (page 116 Environmental report for dredging) that:</p> <p>Fish Assuming the full and successful implementation of the mitigations measures, there will be no significant residual impacts on the fish populations at any geographical scale</p> <p>The effect of dredging on the habitat and the noise generated during the operation while potentially significant the temporary nature of the work coupled with the occasional timings of the dredging operations (as shown in the dredging history) spread out across different months per year will mitigate the effects of the dredging. The amount of dredging can vary from 1 operation to 5 but averages at 2.5 operations per year.</p> <p>There is a detailed pollution plan in place as outlined in the Natura impact statement report.</p> <p>The Boyne Estuary is a well renowned angling location with particular emphasis on sea trout and bass. IFI would recommend liaising with the local angling clubs. The Boyne is also one of the largest salmon producing catchments however the salmon are currently below the conservation limit for the catchment and all effort must be made to minimise the impact on the fish species and habitat in this SAC system.</p>	<p>currently that's only 1 load per day, on a rising tide, generally daylight, Mon-Fri. This current TS Dredger is small in its physical dimensions and capacity, therefore its impact within the scale of the 100m wide channel at the breakwaters is minimal and diminishes further as the dredger operates out into the open sea to the 700m channel outer extremity. Additionally, beneficial re-use dredging only takes place at the entrance and seaward approaches, not within the enclosed estuary, berths and swing basins.</p> <p>This may be subject to change/frequently with a change of contractor or plant.</p>

1.4 Legislative context

The *Foreshore Act 1933* (as amended), requires that a lease or licence must be obtained from the Minister for Housing, Local Government and Heritage for the carrying out of works or placing structures or material on, or for the occupation of or removal of material from, State-owned foreshore. Under the Act, foreshore consent is required in relation to maintenance dredging activities. Additionally, a Dumping at Sea Permit is required for the disposal of dredge material at sea, which is subject to the provisions of the *Dumping at Sea Act 1996* (as amended).

The 1992 EU Habitats Directive (Council Directive 92/43/EC) and Birds Directive (2009/147/EC) are transposed into Irish law by Part XAB of the *Planning and Development Act 2000* (as amended) and the *European Communities (Birds and Natural Habitats) Regulations 2011* (as amended). The latter outlines the requirements for screening for AA and AA under Regulation 42:

42. (1) A screening for Appropriate Assessment of a plan or project for which an application for consent is received, or which a public authority wishes to undertake or adopt, and which is not directly connected with or necessary to the management of the site as a European Site, shall be carried out by the public authority to assess, in view of best scientific knowledge and in view of the conservation objectives of the site, if that plan or project, individually or in combination with other plans or projects is likely to have a significant effect on the European site.

(2) A public authority shall carry out a screening for Appropriate Assessment under paragraph (1) before consent for a plan or project is given, or a decision to undertake or adopt a plan or project is taken.

(6) The public authority shall determine that an Appropriate Assessment of a plan or project is required where the plan or project is not directly connected with or necessary to the management of the site as a European Site and if it cannot be excluded, on the basis of objective scientific information following screening under this Regulation, that the plan or project, individually or in combination with other plans or projects, will have a significant effect on a European site.

In addition to the requirement to consider potential effects of a plan or project on European Sites under Article 6(3) of the Habitats Directive, the Directive requires consideration of the potential effects on species listed under Annex IV of the Directive (termed Annex IV species). Under Article 12, Annex IV species are afforded strict protection throughout their range, both inside and outside of designated protected areas.

SECTION 2 - DESCRIPTION OF PROPOSED WORKS

2.1 Introduction

The commercial estuary of the River Boyne and seaward approaches is located at Drogheda Port and extends along the coastline of counties Louth and Meath. The river under the jurisdiction of the Drogheda Port Company is approximately 7km in length, from St. Mary's Bridge in Drogheda, to the river mouth at Mornington.

Drogheda Port Company currently holds a Dumping at Sea Permit S0015-02 for the period 2013-2021 and is applying for a Dumping at Sea Permit for the period 2021-2029 for the at sea disposal of the dredged material. The proposed works cover both the dredging of material from the river entrance, seaward approaches, navigation channel, berths and swing basins to maintain safe navigation depths for commercial traffic, fishing and leisure users of the River Boyne, and, the disposal of the dredged material in two disposal sites at sea. Drogheda Port Company will also be engaging in a beneficial re-use option whereby a portion of the dredged material may be beneficially reused within the construction industry.

2.2 Summary of proposed works

2.2.1 Dredging operation

Dredging at the river mouth and port approaches is generally driven by weather events that cannot be predicted or scheduled. If the entrance or seaward approaches silts up due to a weather event resulting in impaired navigational safe depths, then dredging is immediately required. If depths are not impaired, no dredging takes place.

The primary locations for maintenance dredging are the entrance and seaward approaches, all berths, artificial berth dredged pockets, berths, ship swing basins and the main navigation channel (Figure 2.1). While some areas are dredged more than others, all areas will be dredged at some point over the duration of the permit.

Drogheda Port Company employs its own internal hydrographical unit to maintain an ongoing monitoring programme of the entrance and seaward approaches, berths, swing basins and channel. Some pre-planning of maintenance dredging at the river mouth and seaward approaches is possible given the historical database of information over the previous decade and knowledge of the sediment transport, taking into account weather and on-going monitoring. However, given the weather sensitive nature and effects of storm events, unplanned maintenance dredging also takes places to maintain safe navigation. For that reason, Drogheda Port maintains an open 24/7/365 days per year maintenance dredging policy for the river mouth and seaward approaches which is essential to maintain the viability of port operations.

Over the decades the port has accumulated data and experience on the performance of the river, entrance and seaward approaches and the effects of weather. This, coupled with mathematical modelling, allows realistic figures to be placed on the maintenance dredging quantity predictions over the next permit application period 2021-2029. Estimated annual quantities of maintenance dredging are shown in Table 2.1. These estimates are averages, based on the last 18 years of data on actual quantities dredged. Annual requirements may increase or decrease on this estimated average depending on the severity of wind weather events.

Table 2.1: Estimated annual quantities of maintenance dredging

Location	Estimated annual quantities
Channel from town to sea, including all berths and ship swing areas	30,000 m ³
Entrance and seaward approaches	90,000 m ³
Contingency	100,000 m ³

Note: An annual contingency of an additional 100,000m³ is to allow for the unexpected and unplanned events, weather or otherwise, that may impair the safe navigational depth.

The Dumping at Sea Permit is sought for a period of 8 years to cover maintenance dredging requirements from 2021-2029. Other than the licence start and finish date, there is no date, time constraint or time limit sought for the maintenance dredging. Dredging at the river mouth and port approaches is generally driven by weather events that cannot be predicted or scheduled.

2.2.2 Dredging operations

Typical dredging plant used on the river Boyne estuary, berths, artificial dredged pockets, ship swing basins, entrance and seaward approaches are:

1. Trailer Suction Dredger (TSD): the dredging vessel drags a pipe on the river bed while underway and material is sucked up into the hold of the vessel. The material settles in the hold and excess water from the suction operation is returned to the sea as the hold reaches capacity. Once the hold is full, the vessel proceeds to the approved spoil dump site and discharges the material through bottom doors in the hull that open to release the hold contents. The vessel continuously passes over the area to be dredged gradually increasing the depths to the required levels.

This is the primary method of dredging contracted at Drogheda Port. The typical vessel used is approximately 80m in length and can manoeuvre with ease at the entrance and seaward approaches, linear berths, town quay berths, Flogas LPG terminal, Premier Periclase berth, Tom Roes Point berths and the general estuary. By virtue that the plant must be underway to dredge, its efficiency and productivity is reduced when engaged to dredge the swing basins.

2. Backhoe dredger: this is a stationary dredger similar to a flat top barge with an excavator attached. The vessel is maintained in position by spud legs that anchor it to the ground and the excavator digs the area to be dredged. The material is loaded into a self-propelled barge that moors alongside the backhoe. As each area is dredged to the required depth, the spud legs are raised, the backhoe re-positions itself and the anchoring/digging process is repeated. This plant is ideally suitable to Drogheda for dredging of the ship swing basins and berth.
3. Split barge: this is a purpose built barge for receiving dredged material from a dredging vessel such as the backhoe. Once the hold of the vessel is filled, it sails to the approved dumpsite and through bottom doors in the hull that opens and releases the material.
4. Grab dredger: a vessel with a grabbing crane on board and dredges using a clam shell bucket. The material is generally deposited into the vessel's hold for later sea disposal

via bottom doors. This is a coarse dredger method, dredging holes to create the required depth. On occasions, bed levelling may be required following the dredging where the material does not naturally slump.

5. Bed levelling: this is where a small tug or similar vessel tows a cage or plough and removes material to the required level. It is particularly useful after the work of the trailer suction dredger or backhoe to level out high spots remaining to obtain the required dredge level.
6. Plough: similar to bed levelling, this is where a cage or plough is towed behind a small tug or similar vessel. The water is agitated with the material being placed in suspension and then carried away by strong currents to be recovered by the trailer suction dredger some distance downstream of the plough operations where the sediments settle out. Such plant would be used where larger vessels due to the size and manoeuvring characteristics cannot operate.

Dredging and dumping (see below) is carried out by the same plant, which is usually a TSD.

2.2.3 Dumping operations and beneficial re-use

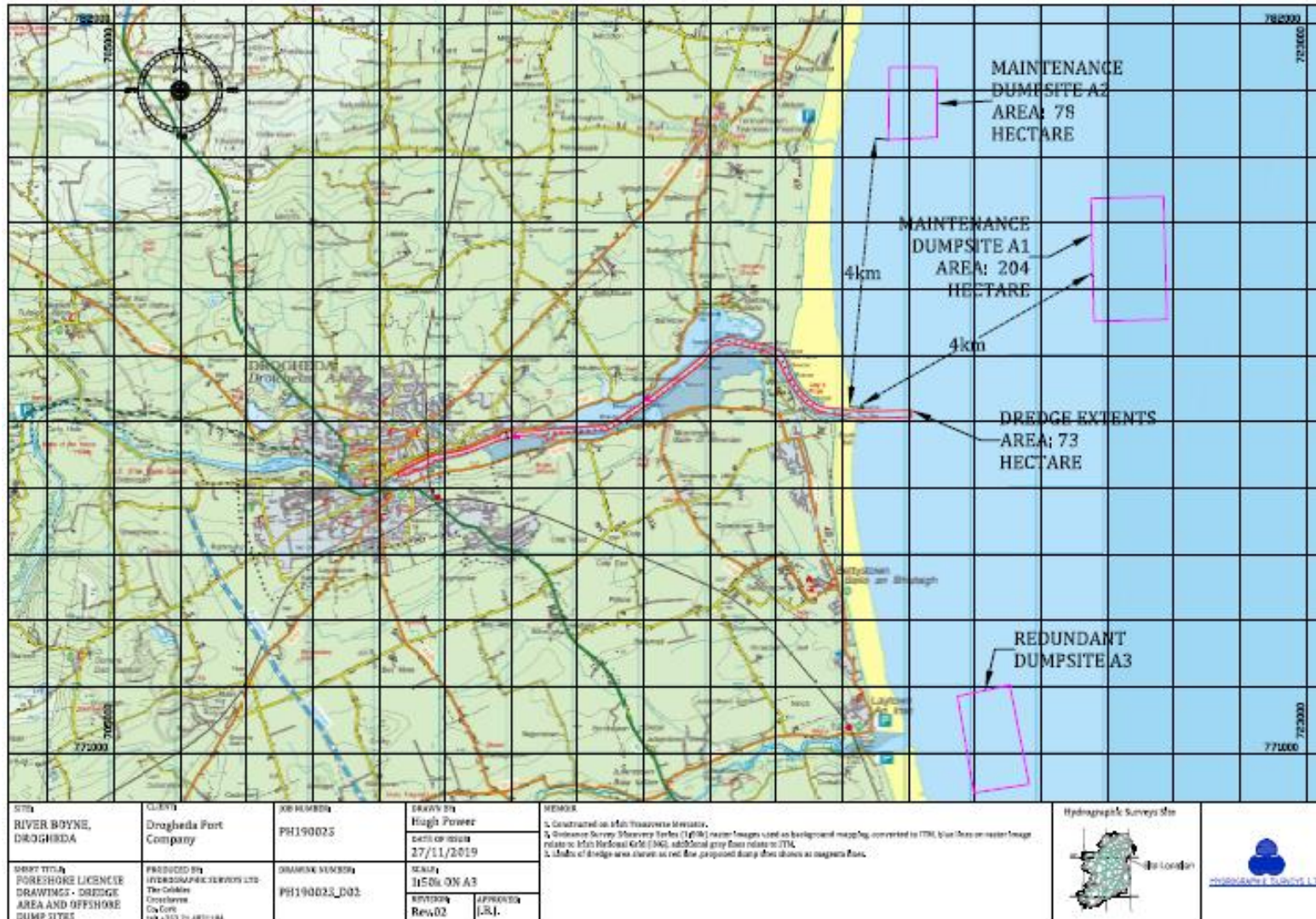
The site is located within the designated anchorage of Drogheda Port approximately 2.5km from the shore at depths of 13-15m. The majority of the dredged material will be dumped at dump site 'A1' (Figure 2.1) in 13-15m of water. This site is considered to be the primary, all weather and all material site, which has been used over the last three decades. It is proposed that this site continues as the primary site for the future maintenance dredging disposal from the berths, artificial berth dredge pockets, ship swinging basins and the overall channel (i.e. from town to the river entrance catering for the full range of dredge material; muds, silts, sand and gravels). Additionally, it is proposed the site is used for the disposal of sand from the river mouth and seaward approaches when dump site 'A2' (below) is not available.

A portion of the dredged material will also be disposed of at a dump site close to the surf zone (dump site 'A2') in water depths of 2.3-6.6m. Material dumped at this site will only be clean sand from the channel entrance and seaward approaches; hydraulic and hydrodynamic mathematic computer modelling has determined dumping of such material at the to be advantageous to aid the coastal process and beach re-nourishment, as part of a beneficial re-use process (refer to applicant's Attachment B). The current Dumping at Sea Permit prohibits the use of the site between the months of July and August. Dump site A2 is located within the defined pilotage limits of the Drogheda Port Company and regulated as such from a navigational and control of shipping perspective.

A third dump site, 'A3', is redundant and is not for consideration in this application.

A portion of the dredged material (up to 60,000 m³) from the river entrance and seaward approaches may be taken ashore for beneficial re-use in the construction industry.

Figure 2.1: Extent of dredging operations and location of dumpsites



2.3 Review of proposed works

EC (2002) guidance indicates that a project description should identify all those elements of the project, alone or in combination with other projects or plans, that have the potential for having significant effects on the Natura 2000 site. To this end, the guidance provides a checklist of the main type of project parameters that will normally need to be identified which has been applied to the description of the proposed works provided by Drogheda Port Company in their application.

Size, scale, area, land-take, etc.	Yes: relevant information regarding size and scale of the works can be found in Section 3 of the NIS (Attachment R), Attachment A Description of Proposed Works. The proposed dredging extent and dumping locations are provided in Figure 2.1, (also see applicant's Attachment E Dredge Extent Map and, I Location of Dumpsites). There will be no land-take in relation to the works.
Project sector	Yes. The project is in the port sector.
Physical changes that will flow from the project (from excavation, piling, dredging, etc.)	Yes: The potential for physical changes to the environment from the proposed dredging and disposal activities are discussed in Section 5 of the NIS.
Resource requirements	Yes: The dredging plant that will be required is summarised in Section 2.2.2 above, based on Section 3 of the NIS and, Attachment A Description of the Works.
Emissions and waste	Yes. Potential emissions to water (increased suspended sediment and accidental spillages) described and assessed in Sections 5 and 6 of the NIS. Waste management not directly addressed in the NIS but covered by Section 7 of the ER (Attachment N).
Transportation requirements	Yes. Section 3 of the NIS and Attachments A and H provide details of potential vessels to be used during the works.
Duration of construction, operation, decommissioning, etc.	Partly. As indicated in Section 2.2.1 above, the licence is required for a period of 8 years to cover maintenance dredging requirements from 2021 to 2029. Other than the licence start and finish date, there is no date, time constraint or time limit sought for the maintenance dredging. This is a function of the responsive nature of much of the works, primarily related to weather events.
Project implementation period	Yes. As indicated above Drogheda Port Company are applying for a licence for a period of 8 years to cover maintenance dredging requirements from 2021 to 2029.
Distance from Natura 2000 site or key features of the site	Yes. See Section 3 of this report.
Cumulative impacts with other projects or plans	Yes addressed in Section 4.3 of this report.

SECTION 3 - STAGE 1 SCREENING FOR APPROPRIATE ASSESSMENT

3.1 Basis for screening the project

Article 6(3) of the Habitats Directive indicates that, “Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site’s conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4¹, 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.” These provisions are transposed under regulation 42 of the *European Communities (Birds and Natural Habitats) Regulations 2011* (as amended).

The project, as defined in Section 2, is not directly connected with the management of a Natura 2000 site, and under the provisions of the *European Communities (Birds and Natural Habitats) Regulations 2011* (as amended), and the Competent Authority (in this case the Department of Housing, Local Government and Heritage) must therefore determine whether an Appropriate Assessment is required.

Section 1.2 of the Environmental Report (Attachment N) indicates that a separate Appropriate Assessment (AA) Screening Report has been prepared, with Section 2.3.3.1 of the same report indicating that “The proposal has been screened for requirement for a Natura Impact Statement and this found an NIS to be required.” The AA Screening Report referred to is not part of the current application package² and has not been reviewed as part of the current process. The following review is therefore based on the information provided in the NIS.

As part of their application, Drogheda Port Company have provided details of what they consider to be the potential impacts of the operations, their potential zone of influence, the Natura 2000 sites within the zone of influence and an assessment of likely significant effects (LSE) (Section 5 of the applicant’s NIS, Attachment R).

3.2 Identification of likely significant effects

Based on the baseline ecological environment (described in Section 4 of the NIS) and the extent and characteristics of the operation (Section 3 of the NIS and Section 2 of this report), the following potential impacts arising from the maintenance dredging operation were identified (Section 5 of the NIS):

Habitat loss and disturbance: There will be direct habitat loss or disturbance of dredged material within those sites within which the operation site lies (see Section 3.3).

Effects from siltation: Maintenance dredging works will produce a sediment plume and has the potential to affect water quality in the receiving tidal extent and downstream hydrological environment of the River Boyne, Boyne Estuary and Irish Sea. It is not clearly stated by the

¹ Article 6(4) relates to plans or projects which must be undertaken despite identification of an assessment determining a negative effect on a given site due to imperative reasons of overriding public interest (IROPI), including those of a social or economic nature. Suitable compensatory measures are required to maintain the coherence of the network should such a case be made.

²<https://www.gov.ie/en/foreshore-notice/38923-drogheda-port-company-dredging-of-river-boyne/?referrer=http://www.gov.ie/en/publication/a2f98-drogheda-port-company-dredging-of-river-boyne/>

applicant whether operational works refers to the dredging works solely or also includes the disposal operations. The Boyne River and Estuary are dynamic hydrological environments that are tidal, and in full spate, often have suspended sediment in the water column which exceed levels of suspended solids created by the dredging works.

Disturbance and displacement impacts: Disturbance and displacement of fauna could potentially occur within the vicinity of the works. For mammals such as otter, disturbance effects would not be expected to extend beyond 150m³. For birds, disturbance effects are not expected to extend beyond a distance of ca. 100m, a distance typically avoided by birds where high average boat activity occurs (Cutts *et al.* 2009).

The noise levels generated during dredging operations depends on the characteristics of the vessel used, as well as the nature of the dredged material, with gravel being noisier than sand (Robinson *et al.* 2011). Given that the material to be dredged is predominantly sand with some silt, the noise generated by the dredger will be similar to that generated by a normal vessel of a similar size, and in the region of 180 dB re 1 µPa (DAHG 2014, Robinson *et al.* 2011). Noise in the water column attenuates due to a range of factors including distance from source, water temperature, salinity, water depth and sediment type. Using a simple mixed spreading model, the noise levels likely to cause a temporary threshold shift (TTS) in harbour porpoise hearing would only occur within 200m of the dredger. Defra (2003) found that the TSHD Arco Adur was not detectable above ambient levels at a range of 500m. Short-term avoidance by harbour porpoises at ranges of 600m from a TSHD operating to the west of Sylt (Germany) was recorded by Diederichs *et al.* (2010). Richardson *et al.* (1995) summarised harbour porpoise avoidance of ships as possible from a distance of 1-1.5km, with a stronger reaction within 400m. The noise signature of a TSHD is generally above those of the other dredgers that may be used in the proposed activity (MMO 2015) and so the impact of the other dredger types can be considered to be lower.

DAHG (2014) guidance to manage the risk to marine mammals from man-made sound sources in Irish waters indicates that while sound exposure levels from coastal dredging operations are thought to be below that expected to cause injury to a marine mammal, they have the potential to cause lower level disturbance, masking or behavioural impacts. It notes that dredging activity tends to occur in a fixed area for a prolonged period of days or weeks and it therefore has the potential to introduce continuous anthropogenic sound at levels that may impact upon marine mammal individuals and/or local populations.

Mortality as a result of a pollution event: An accidental pollution event i.e. spill/leak of hydrocarbons from plant used for the operation of the maintenance dredging and dump at sea works, has the potential to affect water quality in the receiving tidal extent and downstream hydrological environment of the River Boyne, Boyne Estuary and Irish Sea. An accidental pollution event of a significant magnitude is highly unlikely given the small volumes of hydrocarbons carried on dredging plant. The River Boyne and Irish Sea are tidal waterbodies and it is expected that any spill of minor quantities would readily dissipate.

Reduced prey availability: Maintenance dredging produces a sediment plume which temporarily changes the turbidity of the water column in an area localised to the dredging works. The sediment plume has the potential to affect the foraging efficiency of birds that dive

³ The applicant indicated that this is consistent with Transport Infrastructure Ireland (TII) guidance (*Guidelines for the Treatment of Otters prior to the Construction of National Road Schemes and Guidelines for the Treatment of Badgers prior to the Construction of National Road Schemes*) documents, noting that this is a precautionary distance, and likely to be moderated by the screening effect provided by surrounding vegetation and buildings, with the actual zone of influence of construction related disturbance likely to be much less in reality.

through the water column (e.g. little terns) in search of prey items. There is potential for reduced prey availability as a result of increased turbidity and reduced visibility, deteriorating the detection of prey items, to be experienced by Atlantic salmon, river lamprey and otter.

Mortality as a result of entrapment: Dredging works will be carried out using a range of dredging plant, however works will most likely be carried out by a trailer suction dredger. Interactions between the dredger and fish within the estuary has the potential to result in mortality of species which are qualifying interests of relevant sites, including Atlantic salmon and river lamprey, for which the River Boyne and River Blackwater SAC is designated.

Mortality as a result of collision: Marine mammals can suffer injury, or even death, as a result of collision with boats and ships. Various factors affect the likelihood of collision, including species, age and sex, habitat, vessel size, vessel speed, shipping density (Van Waerebeek *et al.* 2007).

Summary: It is concluded that the applicant adequately identifies and describes the potential sources of likely significant effect for relevant Natura 2000 sites and their related qualifying interests, from the dredging and disposal activities. While other sources of information may have been used to inform the relative sensitivity of birds to vessel movements (e.g. Garthe & Hüppop 2004, Fliessbach *et al.* 2019), it is not considered that this would alter the list of sites identified by the applicant as relevant to the proposed works (see below).

3.3 Identification of relevant sites

Section 5 of the applicant's NIS provided details of the zone of influence of the potential impacts associated with the works and identified the sites at risk of likely significant effects. It should be noted that with respect to some of the potential impacts, the zone of influence is not clearly defined by the applicant.

Habitat loss and disturbance: The maintenance dredging operation site lies within three European sites; the River Boyne and River Blackwater SAC, the Boyne Coast and Estuary SAC, and the Boyne Estuary SPA. There will be direct habitat loss or disturbance of dredged material as result of the maintenance dredging operation within these areas.

Effects from siltation: Silt plumes of a sufficient magnitude (not clearly defined by applicant although it is noted that the RPS (2019) hydraulic modelling study (Attachment B) provides information on the likely extent of the plume at different dredging locations and tidal states), have the potential to affect the receiving aquatic and marine environments (either alone or in combination with other pressures on water quality) to an extent that undermines the conservation objectives of the River Boyne and River Blackwater SAC, the Boyne Coast and Estuary SAC, and the Boyne Estuary SPA, River Boyne and River Blackwater SPA, and River Nanny and Estuary SPA located ca. 3.7km south of the Boyne Estuary.

Disturbance and displacement impacts: Potential to affect aquatic and marine mammals, birds and fish populations that occur in the receiving aquatic and marine environment (either alone or in combination with other disturbance and displacement pressures) to an extent that undermines the conservation objectives of European sites in the immediate vicinity; River Boyne and River Blackwater SAC, the Boyne Estuary SPA, River Nanny and Estuary SPA, and River Boyne and River Blackwater SPA; and, European sites designated for mobile fauna species which could occur within the zone of influence; Rockabill to Dalkey Island SAC, Dundalk Bay SPA, and Rockabill SPA.

Mortality as a result of a pollution event: A pollution event, of a sufficient magnitude (not clearly defined by applicant), has the potential to affect the receiving aquatic and marine environments (either alone or in combination with other pressures on water quality) to an extent that undermines the conservation objectives of the River Boyne and River Blackwater SAC, the Boyne Coast and Estuary SAC, and the Boyne Estuary SPA, River Boyne and River Blackwater SPA, and River Nanny and Estuary SPA located ca. 3.7km south of the Boyne Estuary.

Populations of Atlantic salmon and river lamprey occur with the River Boyne which migrate upstream to spawning grounds near the headwaters and could be vulnerable to pollution events in the lower reaches of the river, during migration. Otter occurring in the River Boyne, and marine mammals occurring in the Irish Sea close to the Boyne Estuary, could also be vulnerable to a pollution incident affecting the water quality in the receiving environment.

Internationally important numbers of wintering birds and a colony of breeding little tern use intertidal and estuarine habitats in the Boyne Estuary for feeding and roosting. These species would be vulnerable to an accidental pollution incident either directly e.g. through direct contact with oil or other polluting chemicals, or indirectly by affecting the habitats and food supply on which they rely for feeding and roosting.

A pollution event of a sufficient magnitude (again, not clearly defined by applicant), has the potential to affect wintering and breeding waterbird populations, marine and aquatic mammals, and fish populations that utilise the receiving aquatic and marine environment (either alone or in combination with other pressures on water quality) to an extent that undermines the conservation objectives of European sites in the immediate vicinity of the maintenance dredging and dump at sea sites River Boyne and River Blackwater SAC, Boyne Estuary SPA, River Nanny and Estuary SPA, and River Boyne and River Blackwater SPA.

Mobile bird species associated with European sites located at a greater distance from the maintenance dredging and dump at sea sites could also be affected by a pollution event if they occur close to the proposed operation. These European sites could include; Rockabill to Dalkey Island SAC, Dundalk Bay SPA, and Rockabill SPA.

Reduced prey availability: Maintenance dredging produces a sediment plume which temporarily changes the turbidity of the water column in an area localised to the dredging works. The sediment plume has the potential to affect the foraging efficiency of birds that dive through the water column in search of prey items that may feed within the plume zone and therefore reduce prey availability in the receiving hydrological environment of the River Boyne, Boyne Estuary and Irish Sea (see RPS (2019) hydraulic modelling study (Attachment B) for likely extent of dredging plume). A plume event, of a sufficient magnitude (not clearly defined by applicant), has the potential to affect the prey availability of diving birds species in the receiving aquatic and marine environments (either alone or in combination with other pressures on prey availability) to an extent that undermines the conservation objectives of the Boyne Coast and Estuary SAC, the Boyne Estuary SPA, and Rockabill SPA.

Mortality as a result of entrapment: Interactions between the dredger and fish within the estuary has the potential to result in mortality of the qualifying interest species, Atlantic salmon and river lamprey, for which the River Boyne and River Blackwater SAC is designated.

Mortality as a result of collision: Marine mammals can suffer injury, or even death, as a result of collision with boats and ships. Various factors affect the likelihood of collision, including species, age and sex, habitat, vessel size, vessel speed, shipping density (Van Waerebeek *et al.* 2007). Interactions between the dredger and marine mammals within the estuary has the potential to result in mortality of qualifying interest species (e.g. harbour

porpoise from Rockabill to Dalkey Island SAC foraging within the area). The applicant indicates that Atlantic salmon and river lamprey, for which the River Boyne and River Blackwater SAC is designated may also be vulnerable to mortality from collision with the dredger but this is thought unlikely to be significant.

Summary: The basis of information provided to understand the spatial extent of impacts of the works (i.e. a Zone of Influence) is at times not clearly defined. However, it is considered that the applicant has correctly identified the relevant sites and qualifying interests to be subject to screening for AA.

3.4 Sites identified by the applicant to be screened for AA

The sites which were identified by the applicant to be relevant to the project (as described in Table 2 of the NIS) were subject to screening assessment. The high level outcome for each site is presented in Table 3.1. The table lists the sources of potential likely significant effect which are considered against each of the relevant sites. Where a potential for LSE has been identified this is indicated for each site against the relevant source of effect. Shaded cells indicate those impacts where there is no potential for LSE, and which have therefore been screened out for specific sites.

Table 3.1: Sites screened for likely significant effect and the high level outcome for each site

Site name	Site code	Distance to application area	Qualifying interests	Habitat loss or disturbance	Effects of siltation	Disturbance and displacement impacts	Mortality as a result of a pollution event	Reduced prey availability	Mortality as a result of entrapment	Mortality as a result of collision
SACs										
Boyne Coast and Estuary SAC	IE001957	Overlaps	Estuaries [1130] Mudflats and sandflats not covered by seawater at low tide [1140] Salicornia and other annuals colonizing mud and sand [1310] <i>Spartina</i> swards (<i>Spartinion maritimae</i>) [1320] Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) [1330] Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410] Embryonic shifting dunes [2110] Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]	LSE	LSE		LSE			

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Site name	Site code	Distance to application area	Qualifying interests	Habitat loss or disturbance	Effects of siltation	Disturbance and displacement impacts	Mortality as a result of a pollution event	Reduced prey availability	Mortality as a result of entrapment	Mortality as a result of collision
River Boyne and River Blackwater SAC	IE002299	Overlaps	Alkaline fens [7230] Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, Alnion incanae, Salicion albae) [91E0] Atlantic Salmon (<i>Salmo salar</i>) [1106] River Lamprey (<i>Lampetra fluviatilis</i>) [1099] Otter (<i>Lutra lutra</i>) [1355]	LSE	LSE	LSE	LSE	LSE	LSE	
Clogher Head SAC	IE001459	8.2km	Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] European dry heaths [4030]							
Dundalk Bay SAC	IE000455	13.5km	Estuaries [1130] Mudflats and sandflats not covered by seawater at low tide [1140] Perennial vegetation of stony banks [1220] <i>Salicornia</i> and other annuals colonizing mud and sand [1310] Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330] Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410]							
Rockabill to Dalkey Island SAC	IE003000	15km	Reefs [1170] Harbour porpoise (<i>Phocoena phocoena</i>) [1351]			LSE	LSE			LSE

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Site name	Site code	Distance to application area	Qualifying interests	Habitat loss or disturbance	Effects of siltation	Disturbance and displacement impacts	Mortality as a result of a pollution event	Reduced prey availability	Mortality as a result of entrapment	Mortality as a result of collision
SPAs										
Boyne Estuary SPA	IE004080	Overlaps	Shelduck (<i>Tadorna tadorna</i>) [A048] Oystercatcher (<i>Haematopus ostralegus</i>) [A130] Golden Plover (<i>Pluvialis apricaria</i>) [A140] Grey Plover (<i>Pluvialis squatarola</i>) [A141] Lapwing (<i>Vanellus vanellus</i>) [A142] Knot (<i>Calidris canutus</i>) [A143] Sanderling (<i>Calidris alba</i>) [A144] Black-tailed Godwit (<i>Limosa limosa</i>) [A156] Redshank (<i>Tringa totanus</i>) [A162] Turnstone (<i>Arenaria interpres</i>) [A169] Little Tern (<i>Sterna albifrons</i>) [A195] Wetland and Waterbirds [A999]	LSE	LSE	LSE	LSE	LSE		
River Boyne and River Blackwater SPA	IE004232	3.5km	Kingfisher (<i>Alcedo atthis</i>) [A229]				LSE			

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Site name	Site code	Distance to application area	Qualifying interests	Habitat loss or disturbance	Effects of siltation	Disturbance and displacement impacts	Mortality as a result of a pollution event	Reduced prey availability	Mortality as a result of entrapment	Mortality as a result of collision
River Nanny and Estuary SPA	IE004158	3.7km	Oystercatcher (<i>Haematopus ostralegus</i>) [A130] Ringed Plover (<i>Charadrius hiaticula</i>) [A137] Golden Plover (<i>Pluvialis apricaria</i>) [A140] Knot (<i>Calidris canutus</i>) [A143] Sanderling (<i>Calidris alba</i>) [A144] Herring Gull (<i>Larus argentatus</i>) [A184] Wetland and Waterbirds [A999]		LSE	LSE	LSE			
Dundalk Bay SPA	IE004026	11km	Great Crested Grebe (<i>Podiceps cristatus</i>) [A005] Greylag Goose (<i>Anser anser</i>) [A043] Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] Shelduck (<i>Tadorna tadorna</i>) [A048] Teal (<i>Anas crecca</i>) [A052] Mallard (<i>Anas platyrhynchos</i>) [A053] Pintail (<i>Anas acuta</i>) [A054] Common Scoter (<i>Melanitta nigra</i>) [A065] Red-breasted Merganser (<i>Mergus serrator</i>) [A069] Oystercatcher (<i>Haematopus ostralegus</i>) [A130] Ringed Plover (<i>Charadrius hiaticula</i>) [A137] Golden Plover (<i>Pluvialis apricaria</i>) [A140] Grey Plover (<i>Pluvialis squatarola</i>) [A141] Lapwing (<i>Vanellus vanellus</i>) [A142] Knot (<i>Calidris canutus</i>) [A143] Dunlin (<i>Calidris alpina</i>) [A149]			LSE	LSE			

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Site name	Site code	Distance to application area	Qualifying interests	Habitat loss or disturbance	Effects of siltation	Disturbance and displacement impacts	Mortality as a result of pollution event	Reduced prey availability	Mortality as a result of entrapment	Mortality as a result of collision
			Black-tailed Godwit (<i>Limosa limosa</i>) [A156] Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] Curlew (<i>Numenius arquata</i>) [A160] Redshank (<i>Tringa totanus</i>) [A162] Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179] Common Gull (<i>Larus canus</i>) [A182] Herring Gull (<i>Larus argentatus</i>) [A184] Wetlands & Waterbirds [A999]							
Rockabill SPA	IE004014	13.5km	Purple Sandpiper (<i>Calidris maritima</i>) [A148] Roseate Tern (<i>Sterna dougallii</i>) [A192] Common Tern (<i>Sterna hirundo</i>) [A193] Arctic Tern (<i>Sterna paradisaea</i>) [A194]			LSE	LSE	LSE		

Finding of no significant effects statement:
The applicant provides a reasonably clear explanation of the basis for site selection based on the nature of the potential effects, their likely zone of influence and the sensitivity of relevant qualifying interests.
SACs
LSE was discounted for Clogher Head SAC and Dundalk Bay SAC. Clogher Head SAC is some distance from the works (at least 8.2km) and contains features which are not considered to be sensitive to the dredge and disposal activities. As such, there is a lack of a potential impact pathway between the proposed works and the primarily terrestrial nature of the qualifying interests of Clogher Head SAC. Similarly, Dundalk Bay SAC is 13.5km from the proposed works and likely significant effects were not identified for the site. All other sites were taken forward for further assessment.
SPAs
None of the relevant sites were discounted for LSE.
Consultation with conservation authorities
The consultation feedback from prescribed bodies is provided in Table 1.1. Comments relating to Natura 2000 aspects of the application were received from the WMA, DAFM, DCHG and IFI, concluding generally that the works would have no significant impact provided that appropriate mitigation measures were adopted, as set out in the NIS.
Screening conclusion
The applicant concluded that there was potential for LSE for a number of Natura 2000 sites from the proposed works. It is considered that the applicant has correctly identified the relevant sources of LSE from the proposed works, and has also identified those sites for which there is potential for LSE. These sites are considered in the Stage 2 Appropriate Assessment (Section 4 of this document).

SECTION 4 - STAGE 2 APPROPRIATE ASSESSMENT

4.1 Assessment of impacts on European Sites

Section 6 of the NIS assesses the direct and indirect impacts of the works that may have a LSE on European sites (as identified in Table 3.1 of this document). For each of these sites, the assessment in the NIS sets out the relevant ecological baseline information, the analysis of the potential impacts, the qualifying interests/special conservation interests at risk of these potential impacts, in view of the sites' conservation objectives, and the mitigation measures (if required) to avoid/reduce the effects of any potential impacts. The following section provides a summary of the information contained within the NIS.

Table 4.1: Potential impacts on sites screened in for Appropriate Assessment and relevant mitigation measures

Site name	Qualifying interest	Consideration of potential impacts	Are mitigation measures required?	Residual impacts?
SACs				
Boyne Coast and Estuary SAC (the site is a coastal complex supporting good examples of eight Annex I habitats)	Estuaries (habitat area estimated as 403ha)	<p>Potential impacts: Habitat loss or disturbance, effects of siltation</p> <p>The mouth of the estuary is a dynamic habitat, which is the reason that dredging is required to keep the shipping channel open after movement of sediment up from the south and also inshore during storm events. Such dredging was part of the site background prior to and since designation. The fauna present have life histories adapted to disturbance. Dredging operations will have a temporary impact on the habitat, with the recovery aided by fauna washed back in through run-off from the dredger and also from adjacent habitats through migration, colonisation and sediment movement. Significant continuous or ongoing disturbance to an area of less than 15% of dynamic marine communities is considered acceptable in relation to meeting the conservation objectives of the site (NPWS, 2012). The total area of proposed dredging is 73ha which is ca. 18% of the estuary habitat (about 2ha are outside the site boundary). However, the proposed</p>	No	No

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Site name	Qualifying interest	Consideration of potential impacts	Are mitigation measures required?	Residual impacts?
		dredging is weather driven with approximately 2 to 4 campaigns per annum and affects a limited area of habitat at any one time, and so a significant adverse effect on this dynamic habitat is not predicted.		
	Mudflats and sandflats not covered by seawater at low tide	Potential impacts: Mortality as a result of a pollution event	Yes. The mitigation measures described in Section 4.2 to protect water quality in the receiving environment, will ensure that water quality in the Boyne Estuary is protected during the dredging operation.	No
	<i>Salicornia</i> and other annuals colonising mud and sand	An accidental pollution event of a sufficient magnitude during operation, either alone or cumulatively with other pollution sources, could affect the quality of the intertidal habitats and the fauna communities they support.		
	Atlantic salt meadows (<i>Glaucopuccinellietalia maritima</i>)			
	Mediterranean salt meadows (<i>Juncaetalia maritima</i>)	Potential impacts: Habitat loss or disturbance, effects of siltation, mortality as a result of a pollution event	No	No
	Embryonic shifting dunes			
	Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes)	Terrestrial habitats above the high tide line are not at risk of effects from the hydrological impacts associated with the dredging operations.		
	*Fixed coastal dunes with herbaceous vegetation (grey dunes)			
River Boyne and River Blackwater SAC	Alkaline fens	Potential impacts: Habitat loss or disturbance, effects of siltation, mortality as a result of a pollution event	No	No

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Site name	Qualifying interest	Consideration of potential impacts	Are mitigation measures required?	Residual impacts?
		<p>Alkaline fens occur a significant distance upstream of the dredge site in the Blackwater catchment, and there is no risk of connectivity between the zone of influence of the maintenance dredging operation and the qualifying habitat.</p>		
	<p>*Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>)</p>	<p>Potential impacts: Habitat loss or disturbance, effects of siltation, mortality as a result of a pollution event</p> <p>The nearest alluvial woodland is ca.5.6km upstream of the dredging works, hydraulic modelling of the dredging works shows the sediment plume does not extend more than 600m upstream (RPS 2019).</p>	No	No
	<p>Atlantic salmon (<i>Salmo salar</i>)</p>	<p>Potential impacts: Habitat loss or disturbance, effects of siltation, disturbance and displacement impacts, reduced prey availability, mortality as a result of entrapment</p> <p>There will be no impact on the habitat of Atlantic salmon within the SAC as a result of the works. The temporary nature of the works and the avoidance behaviour of salmonids from sediment plumes, means that there is limited potential for effects on fish migrating through the Boyne Estuary. The risk of</p>	No	No

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Site name	Qualifying interest	Consideration of potential impacts	Are mitigation measures required?	Residual impacts?
		entrainment by the suction head is negligible.		
	River lamprey (<i>Lampetra fluviatilis</i>)	<p>Potential impacts: Habitat loss or disturbance, effects of siltation, disturbance and displacement impacts, reduced prey availability, mortality as a result of entrapment</p> <p>There will be no impact on the habitat of river lamprey within the SAC as a result of the works. The temporary nature of the works means that there is limited potential for effects on fish migrating through the Boyne Estuary. The risk of entrainment by the suction head is negligible.</p>	No	No
	Otter (<i>Lutra lutra</i>)	<p>Potential impacts: Mortality as a result of a pollution event</p> <p>An accidental pollution event of a sufficient magnitude, either along or cumulatively with other pollution sources, could potentially affect the quality of the aquatic and marine habitats that support the qualifying interest species of the SAC and could potentially result in mortality of qualifying interest species.</p>	Yes. The mitigation measures described in Section 4.2 to protect water quality in the receiving environment, will ensure that water quality in the River Boyne and River Blackwater is protected during the dredging operation.	No
Rockabill to Dalkey Island SAC	Reefs	<p>Potential impacts: N/A</p> <p>Reef habitat is too distant from the area of operations for there to be any adverse effect.</p>	No	No

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Site name	Qualifying interest	Consideration of potential impacts	Are mitigation measures required?	Residual impacts?
	Harbour porpoise (<i>Phocoena phocoena</i>)	<p>Potential impacts: Disturbance and displacement impacts, mortality as a result of a pollution event, mortality as a result of collision</p> <p>The attenuation of noise between the operational area of the dredger and the SAC boundary means there will be no significant adverse effect on individuals within the site. Low usage of the coast in the vicinity of the operation by harbour porpoise, along with the noise levels being below those likely to cause injury, means there is little risk to individuals travelling outside the site beyond minor avoidance. Slow speeds at which the dredger, along with the avoidance behaviour of harbour porpoise with respect to ships, means that the risk of collision is negligible.</p>	No	No
		<p>Potential impacts: Mortality as a result of a pollution event</p> <p>An accidental pollution event of a sufficient magnitude, either along or cumulatively with other pollution sources, could potentially affect the quality of the aquatic and marine habitats that support the qualifying interest species of the SAC and could potentially result in mortality of qualifying interest species.</p>	Yes. The mitigation measures described in Section 4.2 to protect water quality in the receiving environment, will ensure that harbour porpoise foraging within the area are protected during the dredging operation.	No

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Site name	Qualifying interest	Consideration of potential impacts	Are mitigation measures required?	Residual impacts?
SPAs				
Boyne Estuary SPA	Waterbird species listed in Table 3.1	<p>Potential impacts: Mortality as a result of a pollution event</p> <p>An accidental pollution event of a sufficient magnitude during operation, either alone or cumulatively with other pollution sources, could affect the quality of the intertidal habitats and the fauna communities they support.</p>	Yes. The mitigation measures described in Section 4.2 to protect water quality in the receiving environment, will ensure that water quality in the Boyne Estuary is protected during the dredging operation.	No
	Little tern (<i>Sterna albifrons</i>)	<p>Potential impacts: Habitat loss or disturbance, effects of siltation, disturbance and displacement impacts, reduced prey availability</p> <p>The dredging works will not directly impact the breeding site at Baltray.</p> <p>Hydraulic modelling carried out for the maintenance dredging works has shown that the total suspended sediment concentrations are very low and the plume does not approach the shoreline immediately adjacent to where the little terns nest on the northern side of the breakwaters, and which appears to be their preferred feeding area, in any modelled scenario (RPS 2019). Therefore suspended sediments will not impede Little tern feeding by way of reduced visibility.</p>	No	No

**Appropriate Assessment Screening and
Appropriate Assessment**

Site name	Qualifying interest	Consideration of potential impacts	Are mitigation measures required?	Residual impacts?
		<p>Removal of dredged material will not result in the removal of any perceptible numbers of prey items to cause any reduction of prey biomass available.</p> <p>Surveys in 2018 at the Baltray colony did not record any disturbance events at the breeding site caused by the existing dredging works, which will continue at the same rate under a renewed licence.</p>		
	Wetlands and Waterbirds	<p>Potential impacts: Habitat loss or disturbance</p> <p>There will be no loss of wetland habitat used by wintering waterbirds as a result of the dredging operation.</p>	No	No
River Boyne and River Blackwater SPA	Kingfisher (<i>Alcedo atthis</i>)	<p>Potential impacts: Mortality as a result of a pollution event</p> <p>An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could potentially affect the quality of aquatic habitats that support the qualifying interest species of the SPA and could potentially result in mortality of qualifying interest species.</p>	Yes. The mitigation measures described in Section 4.2 to protect water quality in the receiving environment, will ensure that water quality in the River Boyne and River Blackwater is protected during the dredging operation.	No
River Nanny and Estuary SPA	Waterbird and gull species listed in Table 3.1	<p>Potential impacts: Mortality as a result of a pollution event</p>	Yes. The mitigation measures described in Section 4.2 to protect water quality in the receiving	No

**Appropriate Assessment Screening and
Appropriate Assessment**

Site name	Qualifying interest	Consideration of potential impacts	Are mitigation measures required?	Residual impacts?
and Dundalk Bay SPA		An accidental pollution event of a sufficient magnitude, either alone or cumulatively with other pollution sources, could affect the quality of the intertidal habitats and the fauna communities they support.	environment, will ensure that water quality in the sites is protected during the dredging operation.	
	Wetlands and Waterbirds	<p>Potential impacts: Effects of siltation, disturbance and displacement impacts, mortality as a result of a pollution event</p> <p>There will be no loss of wetland habitat used by wintering waterbirds as a result of the dredging operation.</p>	No	No
Rockabill SPA	Purple sandpiper (<i>Calidris maritima</i>)	<p>Potential impacts: N/A</p> <p>Purple sandpiper were not recorded at the dredging site or within the zone of influence of the operation</p>	No	No
	Roseate tern (<i>Sterna dougallii</i>), common tern (<i>Sterna hirundo</i>), Arctic tern (<i>Sterna paradisaea</i>)	<p>Potential impacts: Disturbance and displacement impacts, reduced prey availability</p> <p>The nearest colony for all 3 tern species is at Rockabill ca.20km southeast of the dredging operations.</p> <p>Hydraulic modelling carried out for the maintenance dredging works has shown that the total suspended sediment concentrations are very low and disperse relatively quickly</p>	No	No

**Appropriate Assessment Screening and
Appropriate Assessment**

Site name	Qualifying interest	Consideration of potential impacts	Are mitigation measures required?	Residual impacts?
		<p>with the tidal flow (RPS 2019). Furthermore, during easterly weather conditions, wave action causes suspended sediments and greater turbidity in the water column over an extensive shoreline area compared to that produced from dredging operations. Dredging operations will not increase as a result of the continuation of maintenance dredging works under a renewed licence.</p> <p>Removal of dredged material will not result in the removal of any perceptible numbers of prey items to cause any reduction of prey biomass available.</p>		
		<p>Potential impacts: Mortality as a result of a pollution event</p> <p>The tern species are vulnerable to accidental pollution either directly through direct contact with oil or other polluting chemicals, or indirectly by affecting the habitats and food supply on which they rely for feeding and roosting.</p>	<p>Yes. The mitigation measures described in Section 4.2 to protect water quality in the receiving environment, will ensure that tern species foraging within the area are protected during the dredging operation.</p>	<p>No</p>

4.2 Mitigation measures

This section presents the mitigation measures that will be implemented during dredge and disposal works to avoid or reduce impacts which have the potential to result in effects on site conservation objectives. The only source of such effect identified by the applicant is that associated with an accidental pollution event, who notes that the mitigation measures are best practice and will be implemented in full. Mitigation measures include:

- Drogheda Port through the powers of the Harbourmaster is the Local Competent Authority for pollution response as per the Sea Pollution Act 1991, Sea Pollution (Amendment) Act 2009 and the Merchant Shipping (Salvage and Wreck) Act 1993. Under the provisions of the International Convention on Oil Pollution Preparedness, Response and Co-operation 1990 Harbour Authorities must have a contingency plan and requirements for a Tier 1 response in the event of a pollution incident. Drogheda Port has an Emergency Plan that includes its Pollution Response Plan (Appendix 4 of NIS). A Tier 1 level equipment stock is retained on site in a fixed and mobile unit for immediate deployment. Drogheda Port also maintains a contract with a pollution contractor for expertise, labour and equipment response if and when required, supplementing its internal resources. The Emergency Plan (including Pollution Response Plan) is the port's generic document for all activities within the port including dredging vessels (these being subject to the same risks as commercially trading vessels).
- Dredging vessels also have their own approved Pollution Plans with retained pollution response equipment on board.
- An emergency spill kit and oil spill containment equipment will be held on board by dredging operators to be able to deal with potential oil spills during dredging operation.
- An Environmental Liabilities Risk Assessment (2015) has been prepared by Aquafact International Services Ltd and is in-use for dredging and disposal operations at Drogheda Port (Appendix 5 of NIS).

4.3 In-combination effects

Maintenance dredging operations are currently in existence at the dredging site. The renewal licence application does not propose to change the operations in any way. The purpose of the maintenance dredging operations at Drogheda Port is to maintain the safe navigation depths for the commercial traffic, fishing and leisure users of the River Boyne, Drogheda Port Company and its facilities and the town of Drogheda. Continuation of maintenance dredging operations will not increase the level of traffic in the River Boyne, estuary and Irish Sea. Existing baseline conditions in the main channel and estuary, the intermittent and transient nature of noise generated by routine traffic into and out of Drogheda Port, combined with the sporadic and time-limited nature of the dredging operations are not predicted to change as a result of a renewed maintenance dredging licence.

The potential for in-combination effects with razor clam fishing which occurs off the coast of Drogheda under licence from the Sea Fisheries Protection Authority is noted. However, fishing within the shipping fairway to and from Drogheda Port is discouraged. These fishing methods create suspended solids and turbidity in the water column. It is unlikely given the sporadic nature of the dredging operations, the temporary nature of the physical impacts from both activities e.g. sediment plumes, and the presumed physical separation of the fishing activities and dredging areas, that significant in-combination effects on Natura 2000 sites will result.

Whilst not described by the applicant, there are a number of applications for foreshore licences for marine survey work of potential offshore wind development sites of potential relevance (e.g. North Irish Sea Array, NISA (under consultation)⁴, Braymore Point (under consultation)⁵). Both survey programmes are likely to be carried out between April and October over a five year period following award. Significant in-combination effects with the dredging and disposal activities are not likely given the low number of survey vessels likely to be involved, the five year time period over which the surveys will be carried out, and the predominantly offshore nature of much of the survey work (e.g. NISA is over 15km from where the proposed works will take place).

4.4 Transboundary effects

No potential transboundary effects are identified.

Supporting information
The applicant provides sufficient ecological baseline information and details of the Conservation Objectives for each of the Natura 2000 sites assessed (Section 6, NIS). In general this information is objective and scientifically grounded although in some cases, the baseline information is dated. For example, with respect to the River Boyne and River Blackwater SAC, Section 6.1.1.2 indicates that “A survey of juvenile lamprey populations in the Boyne catchment was undertaken on behalf of the National Parks and Wildlife Service in the summer of 2005 (O’Connor, 2006)”. However, the applicant has gone to considerable effort, including undertaking baseline surveys (as described in Section 2.5) to provide relevant baseline information. The supporting information is sufficient to inform the assessment.
Consideration of impacts
The applicant provides adequate information of sufficient quality to assess the potential for direct and indirect effects on the Conservation Objectives of the relevant sites.
Mitigation measures
The mitigation measures described in Section 4.2 are sufficient to avoid significant impacts on the relevant sites.
In-combination effects
Section 4.3 provides an adequate assessment of other activities that could potentially have in-combination effects with the dredging and disposal activities. No significant in-combination effects are expected.
Transboundary effects
No transboundary effects were identified or are considered likely.
Appropriate Assessment conclusion

⁴<https://www.gov.ie/en/foreshore-notice/75eec-fs007031-statkraft-north-irish-sea-array-nisa-site-investigations/?referrer=http://www.gov.ie/en/publication/cf656-fs007031-statkraft-north-irish-sea-array-nisa-site-investigations/>

⁵<https://www.gov.ie/en/foreshore-notice/7f010-sse-renewables-braymore-point/?referrer=http://www.gov.ie/en/publication/ef0ed-sse-renewables-braymore-point/>

The applicant's NIS provides sufficient data and information on the proposed works, the relevant sites and analysis of potential effects on those sites, to allow the Competent Authority to complete an AA.

The applicant has shown that the operations will not adversely affect (either directly or indirectly) the integrity of any European site, either alone or in combination with other plans or projects, and there is no reasonable scientific doubt in relation to this conclusion.

SECTION 5 - ARTICLE 12 ASSESSMENT

5.1 Relevant Annex IV species

Under Article 12 of the Habitats Directive, Annex IV species are afforded strict protection throughout their range, both inside and outside of designated protected areas.

An assessment on the impact of the proposed investigative works on Annex IV cetacean species is provided in Section 8 of the Environmental Report (Attachment N). Those Annex IV species that could potentially occur in the survey area are described in Section 8.3 of that report which makes use of data from the IWDG's sightings database.

The sightings data analysed show validated records of whale and dolphin sightings off the coasts of Louth, Meath and North Dublin in the period 2000-2019 (IWDG 2019). There were 397 separate records, comprising 1,494 individuals. In this period, nine species were confirmed as being sighted within the study area: Harbour porpoise, bottlenose Dolphin, minke whale, common dolphin, humpback whale, killer whale, fin whale, northern bottlenose whale and bowhead whale. Of the confirmed species, only the first five were sighted more than once in the period considered. Harbour porpoise was the most commonly sighted species, with 326 sightings totalling 1,101 individuals (including those recorded as 'possible harbour porpoise'), followed by bottlenose dolphin (23 sightings, 228 individuals), minke whale (18 sightings, 22 individuals), common dolphin (6 sightings, 87 individuals) and humpback whale (3 sightings, 3 individuals).

Focusing on the area from the Boyne Estuary out to the spoil dump sites, and the immediate surrounds, there are confirmed sightings for only two cetacean species: harbour porpoise (88 sightings, 360 individuals) and bottlenose dolphin (10 sightings, 149 individuals).

Berrow *et al.* (2011) carried out a visual and hydro-acoustic survey in a block within the northern Irish Sea, extending from Carlingford Lough, Co. Louth in the north to Bray Head, Co. Wicklow in the south. Harbour porpoise was by far the most commonly recorded marine mammal species, with 51 sightings comprising 83 individuals. It is clear from the distribution of the sightings, that the marine mammal activity in the inshore area was concentrated in the section from Skerries, Co. Dublin down to Bray Head, Co. Wicklow. Only a small number of harbour porpoise sightings were made north of Skerries, with no sightings recorded directly offshore from the Boyne Estuary.

There have been nine validated sightings of bottlenose dolphins between Clogherhead and Skerries (IWDG 2019). These sightings mainly occurred between 2007 and 2011, with one sighting of 50 individuals occurring in 2014.

The data collected in the course of the desk study and the field survey suggests that the Boyne Estuary and adjacent marine waters are of low importance for marine mammals.

5.2 European Protected Species Risk Assessment

The potential effects on Annex IV marine mammal species from potential impacts from the dredging works is considered in Section 8.5 of the Environmental Report.

Dredging operations within the Boyne Estuary shipping channel will mainly be undertaken by a trailing suction hopper dredger (TSHD). Potential impacts from the operation of the dredger on marine mammals are related to noise and collision.

The noise levels generated during dredging operations depends on the characteristics of the vessel used, as well as the nature of the dredged material, with gravel being noisier than sand (Robinson *et al.* 2011). Given that the material to be dredged is predominantly sand with some silt, the noise generated by the dredger will be similar to that generated by a normal vessel of a similar size, and in the region of 180 dB re 1 μ Pa (DAHG 2014, Robinson *et al.* 2011). Noise in the water column attenuates due to a range of factors including distance from source, water temperature, salinity, water depth and sediment type. Using a simple mixed spreading model, the noise levels likely to cause a temporary threshold shift (TTS) in harbour porpoise hearing would only occur within 200m of the dredger. Defra (2003) found that the TSHD Arco Adur was not detectable above ambient levels at a range of 500m. Short-term avoidance by harbour porpoises at ranges of 600m from a TSHD operating to the west of Sylt (Germany) was recorded by Diederichs *et al.* (2010). Richardson *et al.* (1995) summarised harbour porpoise avoidance of ships as possible from a distance of 1-1.5km, with a stronger reaction within 400m. The noise signature of a TSHD is generally above those of the other dredgers that may be used in the proposed activity (MMO 2015) and so the impact of the other dredger types can be considered to be lower.

The distribution data available for harbour porpoise in the vicinity of the Boyne Estuary mouth and adjacent waters suggests there is likely to be limited exposure of harbour porpoises to noise generated by the dredger due to low occurrence of the species.

This, combined with the tendency of harbour porpoises to avoid ships within 400m, means that any physical effect on harbour porpoises in the form of TTS is highly unlikely. The only likely effect of the proposed dredging is an avoidance of the immediate vicinity of the dredger, which will not have any significant impact on the species at any geographical scale.

Harbour porpoises are considered to be particularly sensitive to noise, and are the most commonly occurring cetacean in the waters off Louth/Meath, therefore, the impact of the proposed dredging on other species of cetacean that may occur in the area is also considered to be not significant at any geographical scale.

Marine mammals can suffer injury, or even death, as a result of collision with boats and ships. Various factors affect the likelihood of collision, including species, age and sex, habitat, vessel size, vessel speed, shipping density (Van Waerebeek *et al.* 2007). A study by Baker & Martin (1992) on 41 stranded harbour porpoises found no evidence of vessel collision. Similarly, Deaville (2016) reported no stranded harbour porpoise with injuries consistent with boat collision for 2014 and 2015, with ship strike identified as the major cause of death in less than 5% of UK stranded harbour porpoises for the period 2011-2013. Collision impacts on small marine mammals tend to be from smaller, faster watercraft, including jet skis. The slow speeds at which the dredger will be operating during dredging and transit to the spoil dump site, and the limited presence of large cetaceans in the area, means that the risk of collision with any marine mammal is negligible and not significant at any geographical scale.

As no significant impacts at any geographical scale were identified on marine mammals from the proposed dredging, no mitigation measures are required to protect these species. This conclusion is in line with the possible outcomes of the risk analysis as set out in Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters (DAHG 2014).

5.3 Article 12 Conclusion

The Article 12 assessment of the potential impacts on EPS from activities associated with the proposed dredging works concluded that:

- Displacement resulting from noise associated with the dredging works would be very localised and of short duration;
- Any physical effect on harbour porpoises in the form of TTS is highly unlikely;
- The potential for collision is negligible.

Therefore, it is concluded that the proposed dredging works will not give rise to significant impacts to species listed under Annex IV of the Habitats Directive.

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