Department of Housing, Local Government and Heritage

Foreshore Licence Application for Dundalk Port Maintenance Dredging

Environmental Report (Non-statutory)

Rep001

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1 Introduction

Arup with Hartley Anderson were appointed by the Department of Housing, Local Government and Heritage (the Department) as independent environmental consultants in relation to the Foreshore licence application reference number FS007223, for maintenance dredging at Soldiers Point and near Buoy 15 in the navigation channel of Dundalk Port.

Arup and Hartley Anderson's brief included:

- a non-statutory environmental appraisal of the foreshore licence application,
- an assessment of the proposed activity in terms of its consistency with the objectives of the National Marine Planning Framework,
- screening for Appropriate Assessment, an Appropriate Assessment Stage 2, if the screening determined that an Appropriate Assessment Stage 2 was required, and
- a Risk Assessment under Article 12 of the Habitats Directive for the Species listed in Annex IV.

The Department's requirements for the non-statutory environmental appraisal were:

- The examination of environmental aspects of the application, any supplementary information provided, and any relevant information received through consultations, and
- The preparation of an 'Environmental Report (Non-statutory)' with conclusions.

The work should include:

- A comprehensive analysis of all submissions (public and prescribed) received, including the provision of expert commentary,
- Where relevant, the drafting of conditions relating to environmental issues for the inclusion in any Foreshore Consent issued as a result of the application to hand.

This report responds to the Department's requirements. This report presents a non-statutory environmental appraisal of the maintenance dredging in the navigation channel of Dundalk Port.

2 Methodology

2.1 Information Available to Arup

The information regarding the proposed maintenance dredging project, which formed the basis for the Arup environmental appraisal, was obtained from the application file (Ref. FS007223) on the Department's website: https://www.gov.ie/en/foreshore-notice/6387a-dundalk-port-maintenance-dredging/, which was accessed on 12 November 2021.

The information comprised:

- **Application form and supporting documents**
- Application form [Applicant: O'Hanlon and Sons Ltd, 18 March 2021]
- Dundalk Harbour Navigational Channel Stability Study [RPS, dated October 2011]
- Foreshore Licence Map (Admiralty) [Colm Sheehan, dated May 2021]
- Foreshore Licence Map (OS) [P. Herr & Associates, dated May 2021]
- Natura Impact Statement [Anthony D Bates Partnership LLP, dated March 2021]
- Sediment Sampling EPA Threshold Comparison [Anthony D Bates LLP, dated February 2021]
- Dundalk Port Foreshore Application Supporting Information report [Anthony D Bates LLP, dated March 2021]
- **Prescribed Body Consultation**
- Prescribed Bodies Observations
- Applicant's response to Prescribed Bodies Observations.

2.2 Methodology

2.2.1 Information Sources

Arup relied on the information from the Applicant and the statutory bodies contained in the application file on the Department's website (https://www.gov.ie/en/foreshore-notice/6387a-dundalk-port-maintenance-dredging/), accessed in November 2021). Arup relied on the description of the baseline environment and the proposed works provided by the Applicant, and the commitments and proposed mitigation measures proposed by the Applicant.

Arup had regard to the findings of the *Screening for Appropriate Assessment Dundalk Port Maintenance Dredging Foreshore Licence Application* (Hartley Anderson, 2022) and *Article 12 Risk Assessment Dundalk Port Maintenance Dredging Foreshore Licence Application* (Hartley Anderson, 2022).

2.2.2 Guidance

Arup had general regard to the guidance presented in the Environmental Protection Agency (2017) *Revised Guidelines on the Information to be contained in Environmental Impact Statements (Draft August 2017)* when preparing this report.

This environmental report is non-statutory and is not required to meet the statutory requirements of an environmental impact assessment report. However, it covers the main topics of an environmental impact assessment report, where relevant. The characterisation of effects on the environment, in terms of quality, significance, extent, probability and duration, is based on the EPA (2017) guidance.

3 Background

Dundalk Port is owned by Dublin Port Company and leased to a local Dundalk company, O'Hanlon and Sons Ltd. The Castletown River, which is used by boats to access the Harbour, provides a channel through the intertidal zone in the north-west corner of Dundalk Bay. The location of the channel is shown in Figure 1.

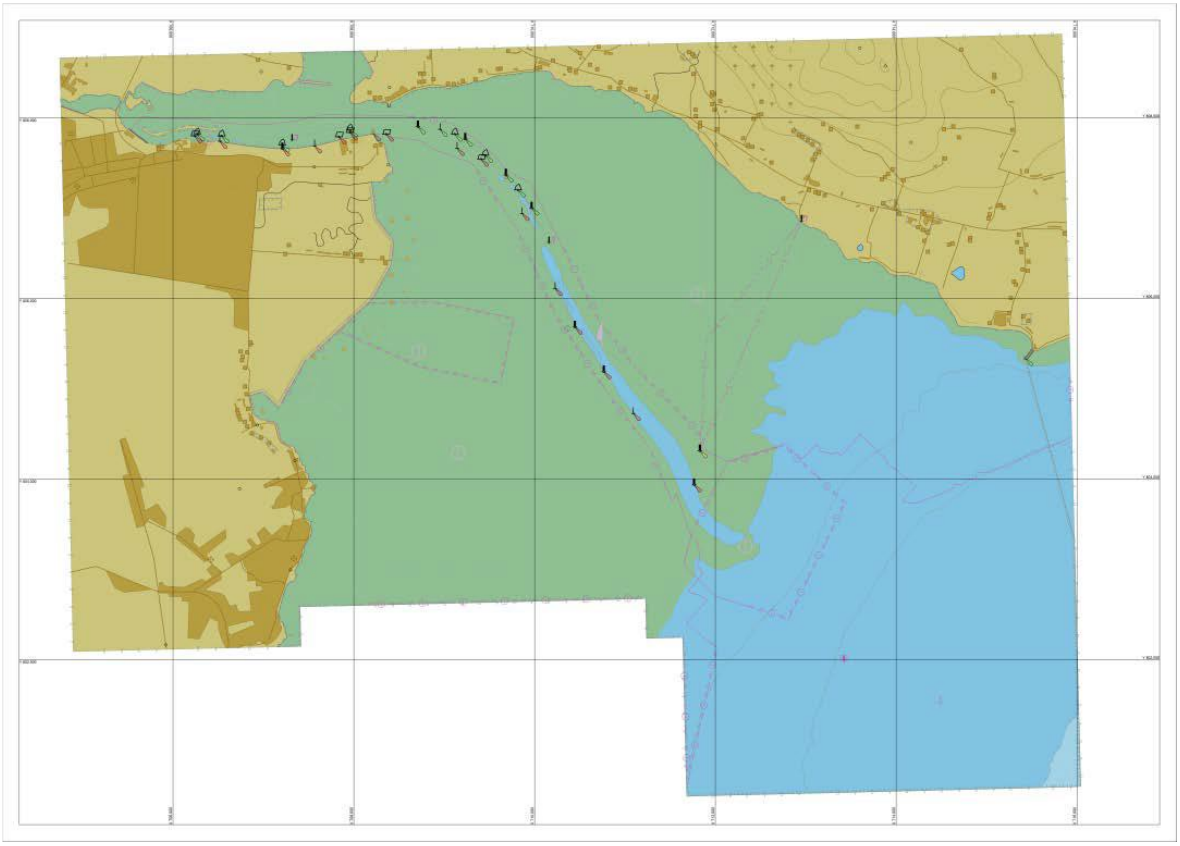

Figure 1: Dundalk Harbour Navigation Channel Source: DHLGH, Foreshore Licence Application Ref. FS007223

Due to ongoing sediment accretion in the approaches to Dundalk Port, vessel access has become limited. This is having a negative impact on the Port's trade and therefore maintenance dredging is required in the areas of Soldiers Point, and Buoy 15 to restore depth in the channel and safe vessel access.

Previous dredging campaigns have been undertaken between two and four times per year since 2001. The most recent Foreshore licence FS006425 for maintenance dredging was granted in 2015.

4 Description of Proposed Maintenance Dredging Project

4.1 Site Location

Dundalk Bay is located on the east coast of Ireland (Figure 2) and stretches for approximately 16 km from the Cooley Peninsula in the north, to Annagassan and Dunany Point in the south. The bay has large expanses of inter-tidal areas which are exposed at low water.

The inner bay is shallow, sandy and intertidal. The hydraulics of the bay are dominated by the sea. However, the bay encompasses the mouths and estuaries of the rivers Dee, Glyne, Fane, Castletown and Flurry. The bay is designated under the EU Habitats Directive as a Special Area of Conservation (SAC). It is a Special Protection Area (SPA) under the EU Birds Directive and a Ramsar Site.

Figure 2: Location of Dundalk Bay on the East Coast of Ireland Source: DHLGH, Foreshore Licence Application Ref. FS007223

The Castletown River is used by vessels to access Dundalk Port. The river provides a channel through the intertidal zone in the north-west corner of the bay and has been used by small ships to access to Dundalk Port for many years. The location of the channel is shown in **Figure 1**.

Dundalk Port which is located in Dundalk town comprises a concrete quay, with a hard-standing area behind for offloading and storage purposes. There are also other facilities and infrastructure on the quay including several mobile cranes, storage warehouses, small mechanical plant and an office/harbour reception building. The Port is shown in **Figure 3**.

The navigation channel for Dundalk was historically maintained at a depth of 0.75m below Chart Datum but currently the Port is trying to maintain at least 0mCD (0.75m shallower) to allow the Port to continue to operate.

Figure 3: Dundalk Port Area - Quay Side, Storage Area and Buildings. Source: DHLGH, Foreshore Licence Application Ref. FS007223

4.2 Tidal and Weather Conditions

The tidal range at Dundalk is relatively large for Irish waters with a mean spring range of 4.7 metres and a mean neap range of 2.6 metres. The bay is exposed to waves generated in the Irish Sea from an east northeast to south- southeast direction.

4.3 Description of Proposed Dredging Activity

Dundalk Port seeks a foreshore licence to facilitate proposed maintenance dredging at Soldiers Point and near Buoy 15 in the Navigation Channel.

It is proposed to carry out maintenance dredging in the area highlighted in **Figure 4.** All areas proposed to be dredged are within the navigational channel and have been dredged previously. It is planned to dredge the seabed to at least 0mCD and if possible, restore the historical navigation levels of 0.75m below CD during the maintenance dredging operations. The estimated volume of material to be removed is approximately 5,000m³ per year. A hydrographic survey was completed in the navigation channel in September 2020 and the depths over the area to be dredged range up to 0.8m above Chart Datum, severely restricting tidal access to the Port.

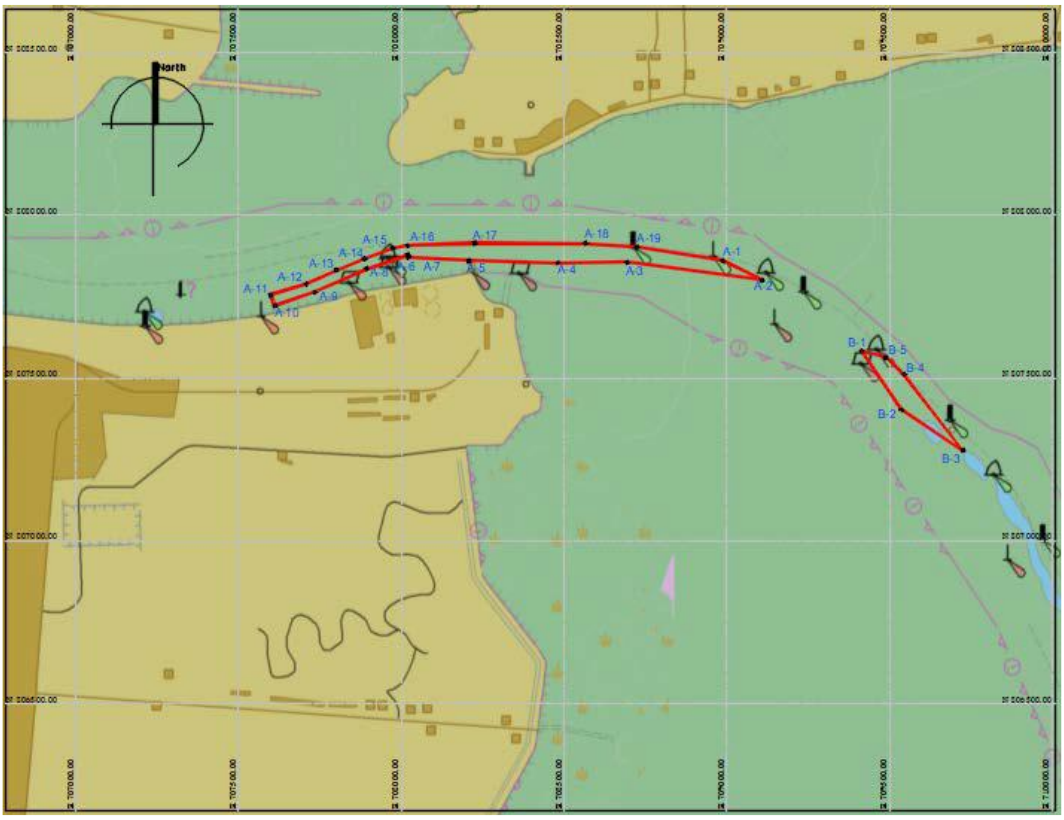

Figure 4: Proposed Dredging Areas in Channel at Soldiers Point and Buoy 15. Source: DHLGH, Foreshore Licence Application Ref. FS007223

The material to be removed is primarily clean fine to medium sand with an average grain size of 0.21mm. The chemical and physical properties of the sediment are described in the supporting information document of the foreshore application. Refer to **Section 4.4** below.

It is proposed that the sandy material dredged will not be disposed of at an offshore disposal site. The dredged sand will be brought ashore and used beneficially as a product, as in 2014, or, failing this for any reason, will be responsibly managed and placed in an appropriate facility.

The Foreshore Licence is sought for a 10-year period from 2022 to 2031 inclusively, with an annual dredging allowance of 5,000m³.

Dundalk Port proposes to use the Trailer Suction Hopper Dredger (TSHD) "Argus" (or similar) to carry out the dredging operations. This vessel is owned by Londonderry Port and Harbour Commissioners, which uses it to maintain depths at Foyle Port and on the approaches in Lough Foyle. The TSHD Argus is also used at Drogheda Port. Figure 5 shows a diagram of the typical operating characteristics of a TSHD, similar to TSHD Argus.

A TSHD works by raising sediment to the surface by suction. The suction plant is contained within a dedicated vessel. A pipe is lowered through the water column into the sediments.

Suction is then created in the pipe by the rapid rotation of an impeller drawing sediments and water into the pipe.

The mixture of sediment and water then passes through the pump and into the hopper of the vessel via a sequence of sealed pipes. If the material is resistant to removal by suction alone then water jets may be employed at the lower end of the pipe to fluidise the sediment as the suction head passes over it.

The vessel will travel over the area to be dredged at a very slow speed, typically less than 2 knots. As the vessel progresses along the site the suction head passes over the area requiring dredging producing a trench in the sediment. Successive passes over the area result in the total removal of all sediments above a specific level. The dredge master monitors the depth of the suction head at all times.

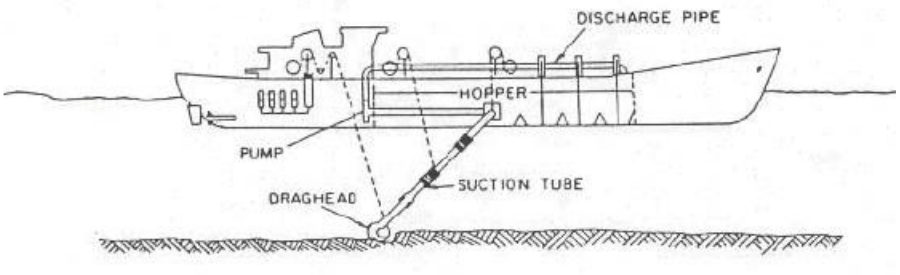

Figure 5: Typical operating characteristics of a TSHD. Source: DHLGH, Foreshore Licence Application Ref. FS007223

The dredger will operate by going along the area to be dredged in an east-west direction in straight lines. The bed will be lowered each time until the required target depth is achieved. By moving along the seabed in this way, other vessels can pass by the dredger when it is working and enter or exit Dundalk Port unimpeded. In this way, navigation will not be interfered with during the dredging operations.

The dredged sediment is raised to the surface by hydraulic action and stored within the hopper of the vessel. Once the vessel is full of a mixture of sediments and water the dredging process may continue in order to increase the sediment to water ratio in the hopper. This is achieved by allowing the surface water, in the hopper, to overflow through a dedicated weir system within the hopper. The optimum period of overflow will depend on the particle size and density of the material being dredged. Based on the sediment test results and the Port's experience in 2014, it is expected that most of the material dredged will be retained in the hopper.

Once the hopper is full, dredging stops and the suction pipe is raised to the surface and stowed on the deck of the vessel. The vessel will then return to Dundalk Port and berth alongside the quay. The sand will be off-loaded from the hopper using a grab. After the sediment is off-loaded, the dredger will return to the dredging area on a reciprocal course and the cycle will commence again.

Should a suitable TSHD not be available, then the dredging may alternatively be undertaken mechanically by a Backhoe dredger or by a Grab (Clamshell) Dredger. The sand would be excavated, transported within a hopper/hold, and unloaded, as outlined above, at the quay at Dundalk Port.

Following a weather event, where the TSD dredge has been tasked to respond to impaired depths at the entrance and seaward approaches, a contract duration of twelve to fourteen days, dredging twice daily would not be un-typical, based on previous experience. Initially dredging is slow with low productivity as the TSD dredger must work its way over the created shoal dredge area with productivity increasing as the contract progresses and depth increase. Spring or neap tide may also impact the dredger progress and the depth over the shoal will vary.

The works will be undertaken in compliance with industry best practice including the following measures:

- Dredging will be undertaken as efficiently as possible so that the number of dredger movements is minimized,
- There will be no ancillary waste deposited into the sea from the dredger at any time,
- Maintaining a low speed during dredging,
- Bilge water and wastewater from the dredger would be brought onshore for proper removal and disposal by a licensed waste contractor,
- Contractors working on site during the operation would be responsible for the collection, control and disposal of all wastes generated by the works,
- Refuelling of the dredging vessel will take place at the quayside using suitable hoses etc. to avoid any spillages; and
- Dredging will be carried out over a period outside of the months of March to May, which is the migratory period of juvenile salmon (smolts).

4.4 Characteristics of Sediments to be Dredged

Sediment samples were taken from the dredging area and analysed for parameters stipulated in the Cronin, M., McGovern, E., McMahon, T. & Boelens, R., *Guidelines for the Assessment of Dredge Material for Disposal in Irish Waters*, Marine Environment and Health Series No. 24, Marine Institute 2006, Sampling and Analysis Plan, to ascertain if the dredged material is contaminated and if it is suitable for reuse ashore.

The sampling and testing analyses results are presented in FS007223 *Sediment Sampling EPA Threshold Comparison* document in the licence application. The material to be removed is primarily fine to medium, well sorted, clean sand with an average grain size of 0.21mm.

The Marine Institute noted that DDX (DDT, DDD, DDE) pesticide was found in one sample at location 3, but the level did not exceed the effects range low (ERL) level. The Marine Institute considered the Dundalk sediment to be clean.

5 Baseline Environment

In this section the environmental baseline of the proposed maintenance dredging project is described. The aspects of the baseline environment addressed are socio-economic context, residential amenity, commercial and sport fishing and angling, biodiversity, water quality, aquaculture, cultural heritage and material assets. Other projects in the area, which have the potential for a cumulative effect on the environment, are also described.

5.1 Population

5.1.1 Socio-Economic Context

Dundalk Port is listed in the National Ports Policy as a port of regional significance, alongside other ports such as Killybegs, Drogheda, Galway and New Ross. The National Ports Policy states that *"while commercial shipping in Ireland is centered on the five Ports of National Significance, 14 other ports handle commercial traffic and function as important facilitators of trade for their regional and local hinterland".*

The National Ports Policy recognises the importance of smaller ports around the country such as Dundalk Port and how they fulfil an important role in the local economy.

Approximately 45 commercial vessels use Dundalk Port annually. The main items which are imported into Dundalk Port are coal, timber and animal feed. Bord na Móna operates a large coal importing business at the Harbour and imports loose coal which it then packs onto pallets for the Dublin market. Bord na Móna imports in the region of 35,000 - 40,000 tonnes per year of coal into Dundalk Harbour. There are large storage sheds at the Port for the storage of animal feeds. A local firm, Wood Concepts, is involved in the importation of timber from Riga, Latvia.

The Port has a business in exporting baled municipal waste which is collected mostly in the Dublin Region and brought to Dundalk Port for export. The waste is exported by ship to Moerdijk in The Netherlands where it is incinerated, and the energy produced is used for municipal heating purposes. The Port has a waste permit from the local authority for the export of up to 50,000 tonnes per year of waste in this format. If the navigation channel was dredged at the locations proposed, it would increase the number of ships which can access the Port and therefore, more waste could be exported. Other items which are exported from the Port include scrap metal and tyres. The current Port operator is confident that if maintenance dredging was carried out, it would bring more business to the port and safeguard the existing trade which is ongoing at present.

A pilot boat is based at the Port and pilotage is required to accompany all vessels over a certain size and draught when entering and exiting the navigation channel and the inner Harbour. The types of vessels which can access the Port are naturally restricted by the draught and in recent years, this has become even more restrictive as the navigation channel is becoming shallower.

Several small trawlers berth at the quays in Dundalk Harbour. These boats are involved in razor clam fishing in Blackrock Bay. The fishing boats berth at the western end of the Harbour and do not interfere with the docking of commercial vessels further up the quay to the east. There is an amicable and collaborative relationship between the fishery interests and commercial interests using Dundalk Port and both industries progress without hampering or interfering with the other's operations.

5.1.2 Residential Amenity

There is a cluster of dwellings on Point Road, the closest of which is circa 100m south of Soldier's Point. On the northern side of the estuary, there is a row of dwellings and small commercial premises at Bellurgan Point.

5.1.3 Commercial Fishing, Sports Fishing Angling and Recreational Activities

The Sea Fisheries Protection Authority and the Marine Institute noted that there are two bivalve fisheries in Dundalk Bay, Cockle, *Cerastoderma edule* and Razor Clam, *Ensis siliqua*. Static gear fishing is undertaken for crustaceans adjacent to the areas to be dredged. The Castletown Estuary and Dundalk Bay support a wide range of marine fish species and migratory salmonids, European eel and sea lamprey travel through this area on their journey to/from the sea. The Castletown and Flurry Rivers contain several species, which migrate through the Dundalk Bay, namely salmon, sea trout, eels and sea lamprey.

No leisure boats use the Harbour for berthing. Facilities currently do not exist at the existing piers for boats such as yachts to safely moor and for people to easily disembark onto the pier.

5.2 Biodiversity

The Licence application was accompanied by a Natura Impact Statement (NIS) prepared by Anthony D Bates Partnership LLP (March 2021). A summary of the biodiversity baseline, documented in the NIS, is presented below.

5.2.1 Natura 2000 Sites

There are five Natura 2000 sites within 17km of the site of the proposed maintenance dredging project. The Screening for Appropriate Assessment (Hartley Anderson, 2022) determined that the proposed works had the potential to have an impact on five Natura 2000 sites. These sites are:

- Dundalk Bay SAC (IE000455)
- Carlingford Shore SAC (IE002306)
- Dundalk Bay SPA (IE004026)
- Carlingford Lough SPA (IE004078)
- Stabannan-Braganstown SPA (IE004091)

5.2.2 Dundalk Bay SAC

The dredge site lies within Dundalk Bay SAC (IE000455). This section describes the qualifying features for the designation of the Natura 2000 site.

The site supports six habitats listed on Annex I of the EU Habitats Directive:

- [1130] Estuaries,
- [1140] Mudflats and sandflats not covered by seawater at low tide,
- [1220] Perennial vegetation of stony banks,
- [1310] Salicornia and other annuals colonizing mud and sand,
- [1330] Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*); and
- [1410] Mediterranean salt meadows (*Juncetalia maritimi*).

Sandflats and mudflats [1140] exposed at low tide total over 400 ha or 90 % of the total designated area. A rich fauna of molluscs, marine worms and crustaceans occur within these habitats form the main food source for tens of thousands of waterfowl. Two types of saltmarsh vegetation occur, Atlantic salt meadows [1330] and Mediterranean salt meadows [1410]. Atlantic salt meadows are commonest and are characterised by a band of sea- purslane (*Halimione portulacoides*) along with species such as common saltmarsh-grass (*Puccinellia maritima*), thrift (*Armeria maritima*) and common scurvy-grass (Cochlearia officinalis). Mediterranean salt marshes are mostly confined to the upper levels of the saltmarshes where species such as sea rush (*Juncus maritimus*), sea arrowgrass (*Triglochin maritima*) and sea Aster (*Aster tripolium*) occur. Waterfowl use the saltmarshes as high-tide roosts while the grazing birds (significantly Brent Goose *Branta bernicla* and Wigeon (*Anas penelope*) feed on the saltmarsh grasses, areas of *Zostera* (eel-grasses) and other grassland vegetation.

Particularly well represented are shingle beaches [1220] supporting perennial herbs and grasses including spearleaved orache (*Atriplex prostrata*), sea mayweed (*Matricaria maritima*), sea beet (*Beta vulgaris* subsp. *maritima*) and sea rocket (*Cakile maritima*). Overall, the site is of significant conservation value due to the occurrence of clear examples of coastal habitats listed on Annex I of the Habitats Directive, which in turn support significant numbers of bird species.

5.2.3 Carlingford Shore SAC

Carlingford Shore SAC (IE002306) is located approximately 13 km (by sea) from the proposed project. This section describes the qualifying features of the Natura 2000 site. The principal conservation interests are the Annex I habitats:

- [1210] Annual vegetation of drift lines; and
- [1220] Perennial vegetation of stony banks.

These shingle and drift line habitats occur continuously from Greenore to Cooley Point. The other Annex habitats are mudflats and sandflats not covered by water at low tide [1140] and patches of Atlantic salt meadows [1330].

Perennial vegetation of the stony, shingle banks (above the high tide mark) is wide ranging and includes sea beet, sea radish (*Raphanus raphanistrum* subsp. *Maritimum*), sea-milkwort (*Glaux maritima)* and lyme-grass (*Leymus arenarius*). The drift lines (along the high tide mark) support a sparse array of species including prickly saltwort (*Salsola kali)*, sea rocket (*Cakile maritima)* and sea mayweed (*Matricaria maritima*). Oysterplant (*Mertensia maritima*), a perennial protected under the Flora (Protection) Order, 1999 also occurs. Nearer Carlingford small patches of saltmarsh occur amid the outcropping reefs. Much of the SAC is comprised of mudflats and sandflats (more sand than mud) primarily between Carlingford Harbour and Greenore Point.

Other notable adjoining habitats include dry grassland and broadleaved deciduous woodland. In single years the threshold for internationally important numbers of birds has been exceeded. The site is Nationally important for a number of bird species such as ringed plover and great crested grebe (*Podiceps cristatus*).

5.2.4 Dundalk Bay SPA

The dredge site lies within Dundalk Bay SPA (IE004026). This section describes the qualifying features of the Natura 2000.

The site includes a large area of open shallow sea. Over 4,000 ha of sand and mud flats provide a rich invertebrate fauna for foraging wintering waterfowl. The salt marsh habitats support herbivorous waterfowl (notably brent geese and wigeon) that feed on saltmarsh grasses as well as areas of eel-grass and green algae on the mudflats. Many birds roost on the continuous stretches of shingle beach at high tide. The outer bay is an excellent shallow- water habitat for divers, grebes and sea duck.

The site is one of the few sites in the country which regularly supports more than 20,000 wildfowl and is therefore one of the most important.

Three species occur in numbers of International Importance and a further fifteen in numbers of National Importance. Six Annex I species listed on the EU Birds Directive occur: Golden Plover (*Pluvialis apricaria*), Bar-tailed Godwit (*Limosa lapponica*), Red-throated Diver (*Gavia stellata*) and Great-northern Diver (*Gavia immer*).

5.2.5 Carlingford Lough SPA

Carlingford Lough SPA (IE004078) is located approximately 17 km (by sea) from the proposed project. This section describes the qualifying features of the Natura 2000 site.

The SPA extends from Carlingford harbour to Ballagan Point. It includes all of the intertidal sand and mud flats to the low tide mark but excludes the area of shoreline at Greenore Port. As updated in 2011 Carlingford Lough qualifies for designation under Article 4.1 of the Birds Directive by supporting internationally important populations of Pale-bellied Brent Goose (*Branta bernicla hrota*).

The intertidal flats also support a range of other wintering waterfowl species notably Wigeon (*Anas Penelope)*, Oystercatcher, Dunlin, Bar-tailed Godwit, Redshank and Turnstone, but all in relatively low numbers. Bar-tailed Godwit is of significant note due to its enlistment on Annex I of the Birds Directive. The sub-tidal areas outside the SPA also support a range of wintering species including Great Crested Grebe, Cormorant and Red-throated Diver.

5.2.6 Stabannan-Braganstown SPA

Stabannan-Braganstown SPA (IE004091) is located approximately 14 km northeast from the proposed project. This section describes the qualifying features of the Natura 2000 site.

The site is a flat alluvial plain adjacent to the River Glyde. The site was formerly marshland or wetland but has been drained and improved for grass, cereals and root crops. The site supports an internationally important wintering population of Greylag goose, over 35 % of the National total.

Greylag goose is one of four Annex I species of the Birds Directive found on site. The other three are Greenland white-fronted goose (*Anser albifrons flavirostris*), Whooper swan (*Cygnus cygnus*) and Golden plover (*Pluvialis apricaria*). Whooper swan numbers were once of international importance but have but have declined in recent years. Numbers of Bewick's swan (*Cygnus columbianus bewickii*) have fallen to just few individuals. At night most of the swans and geese roost in Dundalk Bay.

5.2.7 Marine Mammals

The Irish Whale and Dolphin Group (IWDG) maintain a sightings' record of marine mammals and some fish species observed around the coastline of Ireland. The IWDG website was consulted about sightings of marine mammals and elasmobranchs (sharks and rays) in the vicinity of the proposed maintenance dredging at Soldiers Point and Buoy 15.

From a recent review of the website, no recent sights were noted. However, in the 2014 foreshore application the following sightings were recorded for Dundalk Bay up to 2012:

Record #	Date	Animals	Species	Location
16	Oct-12	12	bottlenose dolphin	Dundalk Bay, Louth
27	Aug-11	1	minke whale	Dundalk Bay, Louth
36	Jun-10	5	dolphin species	Dundalk Bay, Louth
424	Jun-09	2	basking shark	Dundalk Bay, Louth
52	Jun-08	4	basking shark	Dundalk Bay, Louth
617	Nov-02	1	harbour porpoise	Dundalk Bay, Louth
77	Jul-01	1	dolphin species, possibly harbour porpoise	Dundalk Bay, Louth

Figure 6:1 Marine Mammals Sighting Record to 2012.

From the information up to 2012, it is noted that all of the marine mammal and shark sightings took place in the Outer Dundalk Bay area.

More recent IWDG sightings data were submitted in a report prepared as part of a Drogheda Port maintenance dredging Foreshore Licence application (FS007359).

The sightings data included validated records of whale and dolphin sightings off the coasts of Louth, Meath and North Dublin in the period 2000-2019. 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).

5.2.8 Other Annex IV Species

Otter and marine turtles are listed in Annex IV of Directive 92/43/EC, the Habitats Directive. The Applicant did not provide any information on the potential presence of otter or marine turtles in the area.

The National Biodiversity Data Centre provides several records from Castletown River and Blackrock beach, so they are likely to be present in areas of appropriate habitats. The most important areas tend to be characterised by better quality semi-natural river channel with good riparian cover and lower levels of encroachment and or associated disturbance (Macklin et al. 2019). The coastal fringe in proximity to the proposed dredging area appears to be a public footpath with limited tree cover and access to fresh water, limiting its suitability for otters. Dundalk Port is an industrial area with high levels of disturbance.

Data from the National Biodiversity Data Centre is that the predominance of marine turtle sightings is in the south and west of Ireland, and relatively few sightings in the Irish Sea, the latest of which was recorded in 2004. Aerial surveys for the ObSERVE project from 2015-2016 recorded a handful of leatherback turtle sightings at the southern limits of Irish offshore waters in summer; none were observed in the Irish Sea (Rogan et al. 2018). No marine turtles were recorded during the monthly boat-based and aerial surveys of the proposed Oriel windfarm (FS007383).

5.3 Water Quality

The EPA provides data on water quality on the website EPA Maps, accessed in December 2021. The outer part of Dundalk Bay, east of a line from just south of Blackrock to Gyles Quay, is designated coastal waterbody 'Outer Dundalk Bay', under the Water Framework Directive (WFD). The WFD water quality status for the Outer Dundalk Bay in the monitoring period 2031 – 2018 was good. The area from Soldier's Point and Bellurgan Point to the western boundary of the Outer Bay, described above, is designated Dundalk Inner Bay, a transitional waterbody, under the WFD. The WFD water quality status for the Inner Dundalk Bay in the monitoring period 2031 – 2018 was moderate. The Castletown Estuary is the area extending westwards from Soldier's Point and Bellurgan Point to just west of the railway bridge in Dundalk.

The estuary is also designated as a transitional waterbody, under the WFD. The WFD water quality status for Castletown Estuary in the monitoring period 2031 – 2018 was poor. This waterbody was determined to be 'at risk' of failing to meet its Water Framework Directive (WFD) objectives by 2027. The data show that the rivers which flow into the estuary are experiencing water quality pressure due to agricultural run-off. The Castletown Estuary and Inner Dundalk Bay are indicated as nutrient sensitive areas.

5.4 Aquaculture

The Sea Fisheries Protection Authority noted that Dundalk Bay is classified as a shellfish production area for both cockle and razor clam and that the proposed works fall inside the classified shellfish production area. The inner bay, to the west of a line extending northwards from Dunany Point to the Cooley Peninsula, is closed to cockle fishing. The razor clam fishery operates on an annual basis whereas the cockle fishery is seasonal and normally operates from July to October. The Marine Institute noted that there are no licensed aquaculture sites within the proposed areas to be dredged. Carlingford Lough to the north has an abundance of licensed site both in the Republic and in Northern Ireland waters. The proposed dredge area is remote from any licensed site, with the closest being 1.5km in distance. The aquaculture sites are for the cultivation of cockles and oysters.

There is support for this project from the aquaculture interests in the Bay as indicated in their letter provided in Appendix D of this *FS007223 Natura Impact Statement report.* This was a letter from the consortium of trawler owners.

5.5 Cultural Heritage

The navigation channel at Dundalk has been dredged many times in the past. The proposed dredging at Soldier's Point and Buoy 15, to which this application refers, is a maintenance dredging campaign. The purpose of the dredging is to lower the channel to its previously advertised depth of -0.75mCD. The areas will not be deepened to a level they have not been before. Dundalk Port personnel, who have been involved in previous dredging campaigns along this length of the navigation channel, have remarked that no items of archaeological significance were uncovered before. Also, they are not aware of any archaeological sites or wrecks in the vicinity. The National Monuments Service archive identifies two wrecks in Dundalk Bay. One wreck, reference number W00275, is located off Soldier's Point. The description of this wreck is as follows: *"Two wrecks lie alongside old slip 1038, 345ft from end of training wall. They dry out, but do not reach above MHWS."*

Another wreck, reference number W00118, lies close to Dundalk Town, more than 1km to the west of the area which will be dredged. The description of this wreck is "*Dublin vessel bought by Dundalk Harbour Commissioners. Crane mounted on vessel for work in the docks. Sold to Mr Heraty for drying nets. Later towed to the far side of the river beyond the walls, sunk. A vessel is still visible at this location."*

These known shipwreck sites are outside the area of proposed dredging.

5.6 Material Assets

It is proposed that the sandy material dredged, circa 5,000m^3 per year, will not be disposed of at an offshore disposal site. The dredged sand will be brought ashore and used beneficially as a product, as happened in 2014, or, failing this for any reason, will be responsibly managed and placed in an appropriate facility.

5.7 Other Projects in the Area

A Foreshore licence was granted in July 2020 to Drogheda Port company for maintenance dredging in the River Boyne. The mouth of the River Boyne is more than 30km south of Buoy 15. A Foreshore licence was granted to Louth County Council for maintenance dredging at Annagasson Harbour which lies in Dundalk Bay. This harbour is approximately 14km south of the dredge site. Foreshore licenses were granted in 2018 to Hibernian Wind Power and Oriel Windfarm Ltd for site investigations east of Dundalk Bay. No other known works are currently planned near the proposed dredging works.

6 Potential Impacts

6.1 Population

6.1.1 Economic Development

While the dredging is underway, the dredger could potentially obstruct the channel and impede commercial shipping entering and leaving the port. This would be a potential significant temporary adverse impact on economic activity in the port.

Approximately 45 ships visit the Port annually. If the navigation channel is dredged at the locations proposed, this will provide access to the Port over a wider range of the tidal cycle. This would increase the number of ships which can access the Port, bringing more business to the Port and safeguard the existing trade. This will be a permanent significant positive effect on economic activity in the Port and surrounding area.

6.1.2 Residential and Recreational Amenity

The closest dwellings to the dredging operation are the houses on Point Road, south of Soldier's Point. The dredging works may be audible at the closest of these dwellings, but the noise levels will be low. This would be a slight temporary adverse impact on residential amenity arising from the proposed dredging works. While the dredging is underway, the dredger could potentially obstruct the channel and impede leisure craft entering and leaving the Port. This would be a potential moderate temporary adverse impact.

Once completed, the works will have a permanent significant positive effect on recreational amenity as it will provide access for leisure craft to Dundalk Harbour over a wider range of the tidal cycle.

There will be no effect on residential amenity once the works are competed.

6.1.3 Commercial Fishing, Sports Fishing and Angling and Recreational Activities

The Sea Fisheries Protection Authority noted that there are static gear fishing operations for crustaceans adjacent to the areas to be dredged. All static gear will have to be removed from the proposed areas and that dredging for razor clams may be restricted while the dredger is operating. This would be a potential moderate temporary adverse impact. The Marine Institute considered that, given the confined nature of the dredging activity, it is unlikely to impact on commercial fishing and the fish resources. While the dredging is underway, the dredger could potentially obstruct the channel and impede vessels entering and leaving the Port. This would be a potential moderate temporary adverse impact.

Once completed, the proposed channel maintenance dredging will give the fishermen greater flexibility for accessing their aquaculture sites as they will not be restricted to entering and exiting the Harbour at or close to high tide. The dredging will provide access to the Port over a wider range of the tidal cycle. This will be a permanent significant positive effect.

6.1.4 Navigational Safety

While the dredging is underway, the dredger could potentially obstruct the channel and impede shipping entering and leaving the Port. This would be a potential significant temporary adverse impact on navigational safety.

Once completed, the dredging is likely to improve the safety of vessels using the Port as it will provide access to the port over a wider range of the tidal cycle. This will be a permanent significant positive effect on navigational safety.

6.1.5 Human Health

The Sea Fisheries Protection Authority noted that the proposed dredging operations will not restrict it in conducting its official control duties in the area. Both the Department of Agriculture, Food and the Marine and the Sea Fisheries Protection Authority noted that there is not expected to be any issues with seafood safety caused by the proposed dredging operations.

6.2 Biodiversity

The potential impacts of the proposed dredging on Natura 2000 sites were considered in the NIS and the Screening for Appropriate Assessment (Hartley Anderson, 2022). The potential adverse effects identified were:

- Habitat loss and/or alteration or disturbance
- Water quality impacts
- Disturbance and/or displacement of species
- Habitat or species fragmentation.

6.2.1 Water Quality

Adverse impacts on water quality have the potential to have an adverse impact on biodiversity. Potential adverse impacts on water quality are addressed in **Section 6.3** below.

6.2.2 Habitat Loss and Alteration

Dundalk Bay SAC

Estuaries

Dredging works will take place within this habitat. There will be habitat disturbance because bed sediments will be removed.

The area is regularly used by commercial shipping where propellor scour will influence the bed community. Post-dredging, further bed sediments will remain, and the total area of estuary habitat will not have decreased. Disturbance will be confined to limited sections of the navigational channel only, totalling 8.72ha or 0.167% of the SAC (5,234ha). Changes to the benthic fauna community within the dredge area are inevitable but these communities should begin to re-establish after the cessation of works as fauna from adjoining, undisturbed areas repopulate the dredge area. The impact is expected to be short term adverse minor to de minimis.

Mudflats and sand flats not covered by seawater at low tide (1140)

There will be no removal of muds or sands from the adjoining Annex I habitat 'Mudflats and sandflats not covered by seawater at low tide 1140'. There is a potential for localised disturbance (subsidence) at the juncture between the low water mark and the channel which is permanently inundated. This would be caused by the removal of supporting material within the existing channel. However, the volume and extent of dredging proposed is very minor in nature. Changes to benthic fauna community at this zone are predicted but only to the outer limits of this Annex I habitat. These faunae, associated with this particular habitat, should begin to re-establish, migrating from surrounding, unaffected areas. The impact is expected to be short term adverse and minor to de minimis.

Perennial vegetation of stony banks (1220)

In the Dundalk Bay SAC this habitat is beyond the immediate area/influence of the proposed of works. Furthermore, it occurs above the high tide mark and is therefore not subject to the same levels of potential disturbance as inter- and sub-tidal environments. Significant effects are not likely.

Salicornia and other annuals colonizing mud and sand (1310)

Part of this community is located approx. 90m south of the dredge works.

It appears to represent only a small percentage of the wider *Salicornia* habitat evidenced. It occupies the outer limit of the Atlantic salt meadow habitat described below. No direct or indirect disturbance is predicted. Significant effects are not likely.

Atlantic salt meadows (Glauco-Puccinellietalia maritimae) (1330)

This habitat lies immediately beyond the *Salicornia* described above, approximately 100m south of the dredge works. No direct or indirect disturbance is predicted. Significant effects are not likely.

Mediterranean salt meadows (Juncetalia maritimi) (1410)

The exact distribution of this habitat within the wider salt marsh habitat is unclear. However, this habitat is known to occupy the upper zone of salt marshes usually on the boundary with terrestrial habitats (NPWS, 2013), thus further removed from the dredge site compared to the Salicornia muds [1310] and Atlantic salt meadows [1330]. Depositing sediments will be negligible. Significant effects are not likely.

Saltmarsh habitats are generally considered to be very vulnerable to oil spills as they form in the upper part of sheltered muddy shores where oil may become concentrated and cause long-term contamination. Given the vulnerability of saltmarsh habitats and the proximity of the dredging area to these, the possibility of LSE to the Salicornia and other annuals colonizing mud and sand, Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) and Mediterranean salt meadows (*Juncetalia maritimi*) Annex I habitats associated with accidental pollution incident cannot be excluded.

Carlingford Shore SAC

Annual vegetation of drift lines (1210)

This habitat is far removed from the immediate area of works (at least 13km). Furthermore, unlike the Annex I habitats 1130 and 1140 described above, this habitat occurs along the high tide mark at the limit of seawater influence. Significant effects are not likely.

Perennial vegetation of stony banks (1220)

This habitat is far removed from the immediate area of works (at least 13km). It is also further removed from the high tide mark thus less subject to seawater disturbance or deposition. Significant effects are not likely.

6.2.3 Disturbance and/or Displacement of Species

Dundalk Bay SPA

Twenty-three bird species, all wintering, are listed qualifying features of the Dundalk Bay SPA. The proposed dredging site already experiences regular shipping activities and there will be a degree of habituation within the proximity of the shipping channel. The presence of an additional small vessel is therefore unlikely to constitute a significant impact. Any disturbance to birds feeding on the estuary in the immediate vicinity of the dredge area will be minimal and temporary in nature. The relatively small area proposed for dredging will enable any potential birds displaced by the presence of the vessel simply to move elsewhere to forage. In addition, the dredging area is entirely submerged during the tidal cycle and no intertidal communities will be directly lost. Significant effects are not likely.

Carlingford Lough SPA

The species of conservation interest of this site is Pale-bellied Brent Goose (*Branta bernicla hrota*) (wintering). The distance to the dredge site from the SPA is approx. 17km, thus noise disturbance is not applicable. No impact is predicted.

Stabannan-Braganstown SPA

The species of conservation interest of this site is Greylag Goose (*Anser anser*) [wintering]. This SPA is over 14km from the dredge site and therefore this species and the habitat upon which it depends is unlikely to incur any impact.

However, the Greylag geese at Stabannan- Braganstown SPA use Dundalk Bay as a night-time roost. However, dredge works will not coincide with late evening or night-time hours. Significant effects are not likely.

6.2.4 Habitat or Species Fragmentation

Special Areas of Conservation

Direct disturbance is predicted to the qualifying Annex I habitats Estuaries [1130] and Mudflats and sandflats not covered by seawater at low tide [1140] at the dredge site. The benthic faunal communities are expected to re-assemble once works have ceased with no lasting impact. The impact is deemed to be short term minor to de minimis. No direct or indirect impacts are predicted on the following adjacent Annex I habitats (at 90m): Salicornia and other annuals colonizing mud and sand [1310]; Atlantic salt meadows (*Glauco-Puccinellietalia maritimae)* [1330] and Mediterranean salt meadows (*Juncetalia maritimi*).

Special Protected Areas

The main potential impact is noise disturbance to wildfowl and waders that are the qualifying interests of the Dundalk Bay SPA. The impact is not deemed significant, given the existing boating activity and relatively short duration of the dredge works. The proposed dredger is also smaller is size than other trade vessels regularly using the channel. There is potential disturbance to the Mudflats and sandflats not covered by sea water at low tide [1140] (where it adjoins the dredge navigation channel) caused by subsidence. This could temporarily affect prey availability (numerous invertebrates) but should these events occur only localized impacts are predicted to be temporary in nature. No significant effects are predicted to Pale-bellied Brent Goose at the Carlingford Lough SPA. No significant effects are predicted on the population of Greylag geese at the Stabannan- Braganstown SPA. In conclusion, there will be no reduction of habitat area. There will be some removal of estuary bed sediments (extracted sand) from the deepest parts of the SAC – but no permanent loss of this habitat. None of the SACs has an Annex II species as a qualifying feature, therefore disturbance to key species does not apply. There will be no fragmentation of habitats because of the works.

6.2.5 Conclusion of the NIS

The NIS concluded that, with the mitigation measures to ensure there will be no adverse impacts on water quality, there will be no likely significant effects because of the proposed dredging operations of the navigation channel at Soldier's Point and buoy 15 on the Qualifying Interests or the Conservation Objectives of the local Natura 2000 sites.

Marine Institute observed that the interactions identified in the NIS are appropriate and, assuming the mitigation measures proposed are implemented in full, the likely interactions are not considered significant to conservation features. The Marine Institute agreed with the conclusions of the NIS.

The conclusion of the *Screening for Appropriate Assessment Dundalk Port Maintenance Dredging Foreshore Licence Application* (Hartley Anderson, 2022) was that likely significant effects can be discounted for the relevant Natura 2000 sites and their qualifying interests, and that Stage 2 Appropriate Assessment is not required.

6.2.6 Identification of Possible Effects

The Screening for Appropriate Assessment (Hartley Anderson, 2022) concluded that the NIS correctly identified most of the possible effects for relevant Natura 2000 sites and their related qualifying interests, from the proposed works. The Screening for Appropriate Assessment also considered whether likely significant effects would arise from underwater noise and accidental events and concluded that likely significant effects would not arise from these sources of effect. The Screening for Appropriate Assessment concluded that the proposed works will not lead to likely significant effects on relevant Natura 2000 sites and their related qualifying interests.

6.2.7 Marine Mammals and Annex IV Species

The Applicant did not consider the potential for underwater noise from the proposed dredging works to cause disturbance to sensitive receptors. 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 those 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.

The limited dredging operations will be carried out by a single TSHD working in the navigation channel to Dundalk Port. The data available for harbour porpoise in the vicinity of the navigation channel 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 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.

The slow speeds at which the dredger will be operating during dredging, and the limited presence of Annex IV species in the area, means that the risk of collision with any relevant species is negligible and not significant at any geographical scale.

There is the potential for disturbance and displacement of otter which may be transiting through or foraging within the navigation channel. However, otter are a primarily nocturnal species and given the relevant coastal area does not appear to represent suitable habitat, the risk of disturbance and displacement is negligible.

There is the potential for disturbance and displacement of otter which may be transiting through or foraging within the navigation channel. However, otter are a primarily nocturnal species and given the relevant coastal area does not appear to represent suitable habitat, the risk of disturbance and displacement is negligible.

Underwater noise generated by dredging may be detectable by leatherback turtles, although their low density and limited seasonal presence in the area dictates that very few individuals are likely to be exposed to noise levels beyond that of the background for the region.

There are potential sources of pollution of the marine environment that may arise as a result of the proposed works, limited to the release of substances from the dredging vessel, including oil and fuel, which have the potential to have an impact on marine mammals and Annex IV species.

6.2.8 Invasive Aquatic Species

Neither the application, the NIS nor the Dundalk Port Foreshore Application Supporting Information report addressed alien invasive aquatic species. There is a risk that the dredging plant could inadvertently introduce alien invasive aquatic species, which would have the potential to have a negative impact on biodiversity. If the TSHD Argus is used the risk would be considerably reduced, since this vessel is already in Irish or Northern Irish waters.

6.3 Water Quality

The proposed maintenance dredging scheme involves the dredging of sands which by their nature is not expected to produce a significant sediment plume. Analyses of the sands determined that they are uncontaminated. A significant adverse impact on water quality from the dredging activity, itself, is considered unlikely.

The dredging of sands is not likely to have an effect on the WFD water quality stratus or objectives for the Castletown Estuary or the Inner Dundalk Bay.

The Screening for Appropriate Assessment (Hartley Anderson, 2022) considered that there are potential sources of pollution of the marine environment that may arise as a result of the proposed works, limited to the release of substances from the dredging vessel, including oil and fuel. The potential for these sources to represent a likely significant effect was not directly considered by the applicant. However, an accidental pollution event of a significant magnitude is highly unlikely given that the vessel is required to be equipped and operate in accordance with MARPOL standards, and the 1972 Convention on the International Regulations for Preventing Collisions at Sea. Further, as noted by the applicant, the dredger will operate by moving along the area to be dredged in an east-west direction in straight lines, allowing other vessels to pass by the dredger when it is working and enter or exit Dundalk Port unimpeded. In this way, navigation will not be interfered with during the dredging operations and the potential for accidents is reduced. The vessel will also travel over the area to be dredged at a very slow speed, typically less than 2 knots, further reducing the risk of accidents with other vessels.

6.4 Aquaculture

The shellfish water designation arises from the EU Shellfish Directive, and it is transposed into Irish Legislation under the Quality of Shellfish Water Regulations (S.I. No. 268 of 2006). There are parameters listed in Annex I of the Shellfish Water Directive specifying guideline and mandatory limits which cannot be exceeded for activities in these waters. In terms of suspended solids, a discharge affecting shellfish waters must not cause the suspended solid content of the waters to exceed the content in unaffected waters by 30%. No notable plume from the dredging operations is anticipated due to the sediment being on average 99.2% sand. It is expected that the limits on the water quality parameters, listed in Annex I of the Shellfish Water Directive, will not be exceeded.

Maintenance dredging has been carried out in the past on the navigation channel and no impact was felt at the licensed aquaculture sites, the nearest of which is 1.5km away.

The Marine Institute and the Sea Fisheries Protection Authority considered that significant effects on aquaculture were unlikely.

6.5 Cultural Heritage

The proposed dredge area does not contain known archaeological sites or features, and therefore, impacts on known cultural heritage are not expected. As the dredging will be in an area that has been dredged before, no unknown archaeological sites or features are likely to be impacted.

6.6 Material Assets

The total volume of material to be dredged is estimated to approximately 5,000m^3 per year. The material dredged will not be dumped at a disposal site offshore. Instead, the dredged sand will be brought onshore and removed to be beneficially used as a product rather than disposed as a waste. This will be a slight permanent positive impact on material assets.

Approximately 45 ships visit the Port annually. If the navigation channel is dredged at the locations proposed, this will provide access to the Port over a wider range of the tidal cycle. This would increase the number of ships which can access the Port, making better use of the existing Port infrastructure. This will be a moderate permanent positive impact on material assets.

6.7 Potential Cumulative Effects

No projects have been identified which have the potential to have a cumulative impact with the proposed dredging project.

7 Mitigation Measures and Monitoring

7.1 General

The Applicant confirmed that it would comply with the specific conditions and or recommendations proposed by the Marine Survey Office, the Inland Fisheries Ireland, the Department of Agriculture, Food and the Marine, the Underwater Archaeology Unit, the Sea Fisheries Protection Authority and Marine Advisor of the Department of Housing, Local Government and Heritage in their observations on the application.

7.2 Population

7.2.1 Recreational Amenity

During the works the Applicant shall ensure that existing public access arrangements are maintained, where possible, and all necessary precautions are put in place to protect the public in accordance with relevant Health and Safety Legislation.

7.2.2 Commercial Fishing, Sports Fishing and Angling

Proposed mitigation for commercial and sports fishing and angling is as follows:

- The Applicant will keep in contact with representatives of the fishermen in Dundalk and Clogherhead to ensure that all static gear is removed from the proposed dredge areas. Dredging for razor clams may be restricted while the dredger is operating.
- The dredger will operate by going along the area to be dredged in an east-west direction in straight lines. By moving along the seabed in this way, other vessels will be able to pass the dredger while it is working and enter or exit Dundalk Port unimpeded. In this way, navigation will not be interfered with during the dredging operations.
- Soft start-up procedures will be developed and implemented during the commencement of loading activities.
- Dredging from March to May inclusively will be avoided to minimise impact on salmon smolts.
- All loading operations will be managed to be as efficient as possible and minimise the duration of the dredging activities.

7.2.3 Navigational Safety

Proposed mitigation for navigational safety is as follows:

- A documented Accident Prevention Procedure will be put in place prior to commencement

- The Applicant will arrange for a local Marine Notice to be published to provide information to local maritime users on the dredging works.
- The dredger will operate by going along the area to be dredged in an east-west direction in straight lines. By moving along the seabed in this way, other vessels will be able to pass the dredger while it is working and enter or exit Dundalk Port unimpeded. In this way, navigation will not be interfered with during the dredging operations.

7.3 Biodiversity

Mitigation measures were proposed in the NIS to minimise the potential adverse effects of the project. The mitigation measures are presented below.

7.3.1 Water Quality

The mitigation measures to minimise impact on water quality will be as follows:

- A documented Emergency Response Procedure will be put in place prior to commencement.
- A full record of the material being dredged will be maintained for each trip.
- Discharging at the quay will be completed using a sealed clamshell grab.
- The sediment will be stored in a confined area within the port limits.
- All loading operations will be managed to be as efficient as possible and minimise the duration of the dredging activities.
- No ancillary waste will be deposited into the sea from the dredger at any time.
- Bilge water and wastewater from the dredger would be brought onshore for proper removal and disposal by a licensed waste contractor.
- Contractors working on site during the operation would be responsible for the collection, control and disposal of all wastes generated by the works.
- Refuelling of the dredging vessel would take place at the quayside using suitable hoses etc. to avoid any spillages.

Arup notes that the dredger must operate in compliance with the regulations of the International Convention for the Prevention of Pollution from Ships (MARPOL). In this respect Annexes I, IV and V of the MARPOL convention, which contains the regulations for the prevention of pollution by oil, the prevention of pollution by sewage from ships and the prevention of pollution by garbage from ships, must be implemented by the vessel operators.

7.3.2 Timing of Dredging

- Dredging from March to May inclusively will be avoided to minimise impact on salmon smolts. The Marine Institute considered this to be an appropriate measure and the measure was welcomed by Inland Fisheries Ireland.

7.3.3 Marine Mammals

As no impacts on marine mammals are considered likely, no mitigation measures or observation/monitoring are proposed.

7.3.4 Alien Invasive Aquatic Species

Neither the application form, the NIS nor the Dundalk Port Foreshore Application Supporting Information report addressed invasive aquatic species. Arup proposes a licence condition to address the potential impact of alien invasive aquatic species. The proposed licence condition is as follows:

An Invasive Species Management Plan shall be prepared and implemented to avoid the potential for the introduction and spread of invasive aquatic species. The plan shall include systems to ensure:

- Boats, barges and marine equipment shall be free of fouling by the use of appropriate application of antifouling paints and/ or washdowns for smaller boats and plant.
- A record of all antifouling procedures implemented shall be kept for the duration of the project.

Arup notes that vessels in Irish waters must comply with the International Convention for the Control and Management of Ship's Ballast Water and Sediments and must hold the relevant certificate of compliance in this regard. This compliance covers the measures for the control and management of the vessel's biofouling to minimise the transfer of invasive aquatic species.

7.4 Water Quality

Water quality mitigation measures are described in **Section 7.3.1** above.

7.5 Aquaculture

As significant effects on aquaculture are considered unlikely, no mitigation measures are proposed.

7.6 Cultural Heritage

It is not envisaged that there will be an impact on known marine archaeology as a result of the proposed maintenance dredging. The dredging crew will be informed of the presence of the two known wrecks. The position of the wrecks in Dundalk Bay will be noted by the dredger's crew and, if possible, displayed on the dredger's onboard navigation systems. If any material of archaeological potential is encountered during the dredging works, the Underwater Archaeology Unit, National Monuments Service, Department of Housing Local Government and Heritage will be notified immediately, and works will cease in the area in question until the Underwater Archaeology Unit has recommended a course of action.

7.7 Material Assets

Adverse impacts on materials assets were not expected and no specific mitigation measures are proposed.

7.8 Cumulative Impacts

As no projects have been identified which have the potential to have a cumulative impact, no mitigation measures have been identified.

8 Prescribed Body Observations

No submissions were received from the public in response to the public consultation. **Table 1** presents a summary of the observations made by the prescribed bodies and the response from the Applicant to the observations.

Table 1: Summary of Observations made by Prescribed Bodies and Applicant's Response

Statutory Body	Dundalk Port's Response
Marine Survey Office (MSO): The Marine Survey Office had no objection to the proposed works in the application from a navigational safety perspective. The Marine Survey Office proposed a condition: A local Marine Notice shall be published for the information of all local maritime users detailing the proposed dredging campaign and any associated hazards to navigation arising for the duration of the licence period.	The Applicant welcomed the feedback provided and agreed with the proposed condition.
Marine Institute: The Marine Institute noted that chemical analysis of sediments to be loaded was carried out and presented with the application. The analysis was based upon a plan designed by the Margot Cronin (Environmental Chemist, Marine Institute). Sampling for sediment chemistry was carried out on seven samples taken from along the navigation channel. DDX (DDT, DDD, DDE) pesticide was found in one sample at location 3, but not exceeding the effects range low (ERL) level. Dundalk sediment is considered clean. It should be noted that the assessment guidelines for Dumping at Sea are not used for bringing the sediment on land. If this sediment is being brought up on land, it will need to be assessed using the Waste Assessment Criteria. It is the understanding of the Marine Institute that the EPA issues waste licences for this activity. The Marine Institute noted that the risk to conservation features associated with the proposed activity are communicated in the NIS report. The interactions identified are appropriate and assuming the mitigation measures proposed are implemented in full, the likely interactions are not considered significant to conservation features. The Marine Institute agreed with the conclusions communicated in the NIS. It noted in a separate communication that the activities will not occur during the months of March to May in order to minimise any impact on migratory salmon. This was considered an appropriate measure.	The Applicant welcomed the feedback provided and the conclusion that impacts on aquaculture and sea fishing from the proposed activity are not considered likely.

Statutory Body	Dundalk Port's Response
Interactions with Fisheries and Aquaculture operations: The Marine Institute noted that there are no licensed aquaculture sites within the proposed areas to be dredged. The closest licensed aquaculture site is in Carlingford Lough. Commercial fishing activity is carried out in Dundalk Bay for cockles and razor clams. Given the confined nature of the activity it is unlikely to impact on these activities and the resources they fish. On this basis, and considering the information above, the Marine Institute concluded that impacts on aquaculture and sea fishing from the proposed activity are not considered likely.	
Inland Fisheries Ireland Observation No. 1: Inland Fisheries Ireland requested the applicant to provide the date and duration of the dredging undertaken in previous years, in relation to the previous application (FS006425 – October 2014). If the works had taken place at different times in different years this would minimise the impact on any one fish species or life stage. The time scale that the dredging takes place annually will give an indication of the short and temporary impact on the fish species in the area. This information would be very useful in evaluating the application. The application mentions that there will be no waste deposited into the sea from the dredger at any time. Bilgewater and wastewater from the dredger will be brought onshore for proper removal and disposal by licensed waste contractors. Contractors working on-site during the works will be responsible for the collection, control and disposal of all wastes generated by the works. Refuelling of the dredging vessel will take place at the quayside using suitable hoses etc to avoid any spillages. An effective spillage control procedure must be put in place with all staff properly briefed to prevent poor water quality run off from the stored dredged material. The local Inland Fisheries Ireland office should be notified in advance of the works commencing. The Inland Fisheries Ireland welcomed the close season as a mitigation measure to reduce impact of salmon smolts. **Inland Fisheries Ireland Observation No. 2:** Inland Fisheries Ireland expressed their surprise that the information on the date and duration of the dredging undertaken in previous years, in relation to the previous application (FS006425 – October 2014) is not available.	The Applicant welcomed the submission from the Inland Fisheries Ireland. Unfortunately, a search of the Port's archives for dredging records from 2014 was unsuccessful. Therefore, the time of year and duration of the works is unknown. In relation to Inland Fisheries Ireland's Observation 2, the Applicant agreed that proper records should be maintained and, in the future, will ensure hard and soft copies are stored of the daily progress reports provided by the contractor to ensure historical records are not lost. A foreshore licence condition on this basis is sensible.

Statutory Body	Dundalk Port's Response
Inland Fisheries Ireland requested that the applicant starts to record this information for future foreshore applications. Inland Fisheries Ireland requested the provision of the dates the dredging took place every year (date started, date finished, duration of dredging (days)) to be made a condition for this foreshore licence and potentially all dredging FS licences. Inland Fisheries Ireland noted that since it is a requirement for the port to notify relevant authorities in advance of works commencing it should be easy to keep a record from this year onwards.	
Department of Agriculture, Food and the Marine: The Department of Agriculture, Food and the Marine had no objection to the proposal. The Department of Agriculture, Food and the Marine noted that there is not expected to be any issues with seafood safety caused by the proposed dredging operations. The operators should be aware of the notification process should a pollution incident take place during the survey period. The Sea Fisheries Protection Authority office with responsibility for Dundalk Port is Sea Fisheries Protection Authority Howth and they should be contacted directly on 01-8321910 or sfpahowth@sfpa.ie".	The Applicant welcomed the feedback provided and agreed with the proposed condition.
Underwater Archaeology Unit of the Department of Housing, Local Government and Heritage The Underwater Archaeology Unit had no comment on the application.	
Sea Fisheries Protection Authority The Sea Fisheries Protection Authority's comments were as follows: The applicant should keep in contact with the fishermen representatives in Dundalk and Clogherhead to ensure that all static gear is removed from the proposed areas and that dredging for razor clams may be restricted while the dredger is operating. 1. Wild Fisheries There are two bivalve fisheries within Dundalk Bay, Cockle, *Cerastoderma e*dule and Razor Clam, *Ensis siliqua*. Due to the locations and depths, it is unlikely that there will be any long-term disturbance to either species. Adjacent to the proposed areas there are static fishing operations for crustaceans.	The Applicant welcomed the submission from the Sea Fisheries Protection Authority and their conclusion that there is not expected to be any issues with seafood safety caused by the proposed dredging operations.

Statutory Body	Dundalk Port's Response
The Sea Fisheries Protection Authority noted that the proposed dredging operations will not restrict it in conducting official control duties in the area. 2. Shellfish Production Areas Dundalk Bay is classified as a shellfish production area for both cockle and razor clam and proposed works fall inside the classified shellfish production area. Due to the location and depth, it is unlikely that any long-term damage to either species will occur. The razor clam fishery operates on an annual basis whereas the cockle fishery is seasonal and normally operates from July to October. 3. Seafood Safety There is not expected to be any issues with seafood safety caused by the proposed dredging operations. The operators should be aware of the notification process should a pollution incident take place during the survey period. The Sea Fisheries Protection Authority office with responsibility for Dundalk Port is Sea Fisheries Protection Authority Howth and they should be contacted directly on 01-8321910 or sfpahowth@sfpa.ie.	
Marine Advisor of the Department of Housing, Local Government and Heritage Marine Advisor's comments had no objection to the granting of a Section 3 Foreshore Licence subject to the following conditions: 1. The Licensee shall use that part of the foreshore, the subject matter of this licence for the purposes as outlined in the application and for no other purposes whatsoever. 2. The maintenance dredging operation shall be located on the foreshore as outlined on Map No: 595-FL-5 Rev O Dated 24/05/2021. 3. The Licensee shall notify the Department of Housing, Local Government and Heritage at least 14 days in advance of the commencement of any works on the foreshore. 4. All dredging procedures follow industry best practice as set out in Section 3 of the Natura Impact Statement dated March 2021. 5. The Licence shall remain valid for a 10-year period from 2022 to 2031 inclusive. Dredging of the seabed shall be to a maximum of 0.75m below CD with a maximum dredge volume of 5,000m³ per annum.	The Applicant welcomed the feedback provided and agreed with all of the proposed conditions.

Statutory Body	Dundalk Port's Response
6. During the course of the works the Licensee shall ensure that existing public access arrangements are maintained, where possible, and all necessary precautions are put in place to protect the public in accordance with relevant Health and Safety Legislation. 7. On completion of the works, the surrounding foreshore shall be returned to its natural state to the satisfaction of the Department of Housing, Local Government and Heritage. 8. The Licensee shall ensure that contractors, and their subcontractors, are made aware of all conditions and project specific requirements and they are required to have briefings on these to ensure all parties are fully aware of these requirements.	
National Parks and Wildlife Service (NPWS) No response was received from the National Parks and Wildlife Service.	

9 Environmental Appraisal

This non-statutory appraisal of the environmental effects of the proposed dredging project presents the residual impacts of the project, assuming the proposed mitigation measures and the conditions, recommended in Section 10, are implemented in full. The appraisal is based on the information provided in the foreshore Licence application, the observations of the statutory consultees and the Applicant's responses to those observations.

9.1 Population

9.1.1 Residential and Recreational Amenity

The dredging works may be audible at the closest dwellings, south of Soldier's Point but the noise levels will be low. This would be a slight temporary adverse impact on residential amenity while dredging is underway in the absence of mitigation measures. With the implementation of the proposed mitigation measures, there is not expected to be any impact on recreational amenity while the dredging is underway.

Once completed, the works will have a permanent significant positive effect on recreational amenity as it will provide access for leisure craft to Dundalk Harbour over a wider range of the tidal cycle. There will be no effect on residential amenity once the works are competed.

9.1.2 Commercial Fishing, Sports Fishing and Angling and Recreational Activities

All static gear will be removed from the proposed areas and dredging for razor clams may have to be restricted while the dredger is operating. This will be a moderate temporary adverse impact on static gear fishing in the absence of mitigation. There is not expected to be any impact on the fish resource because of the dredging project. With the implementation of the proposed mitigation measures, there is not expected to be any impact on fishing boats using the navigation channel, while dredging is underway.

Once completed, the proposed channel maintenance dredging will give the fishermen greater flexibility for accessing their aquaculture sites as they will not be restricted to entering and exiting the Harbour at or close to high tide. The dredging will provide access to the port over a wider range of the tidal cycle. This will be a permanent significant positive effect.

9.1.3 Navigational Safety

With the implementation of the proposed mitigation measures, there is not expected to be any impact on vessels using the channel, while dredging is underway.

Once completed, the dredging is likely to improve the safety of vessels using the Port as it will provide access to the Port over a wider range of the tidal cycle. This will be a permanent significant positive effect on navigational safety.

9.1.4 Economic Development

If the navigation channel is dredged at the locations proposed, this will provide access to the Port over a wider range of the tidal cycle. This would increase the number of ships which can access the Port, bringing more business to the Port and safeguard the existing trade. This will be a permanent significant positive effect on economic activity in the Port and surrounding area.

9.2 Biodiversity

9.2.1 Marine Mammals and Other Annex IV Species

With the implementation of mitigation measures to minimise the risk of accidental pollution and the compliance of the vessels engaged in dredging with MARPOL, is not expected that there will be any impact on marine mammals because of the proposed dredging operations.

The conclusion of the *Article 12 Risk Assessment Dundalk Port Maintenance Dredging Foreshore Licence Application* (Hartley Anderson, 2022) is that the proposed dredging works will not give rise to significant impacts to species listed under Annex IV of the Habitats Directive.

9.2.2 Natura 2000 Sites

The NIS concluded that there will be no likely significant effects as a result of the proposed dredging operations of the navigation channel at Soldier's Point and buoy 15 on the 'Qualifying Interests' or the 'Conservation Objectives' of the local Natura 2000 sites.

The Screening for Appropriate Assessment (Hartley Anderson, 2022) concluded that likely significant effects can be discounted for the relevant Special Areas of Conservation, and their qualifying interests, and the relevant Special Protection Areas, and their special conservation interests, and that Stage 2 Appropriate Assessment is not required.

9.2.3 Invasive Aquatic Species

With compliance with the proposed condition that an Invasive Species Management Plan shall be prepared and implemented, a significant negative impact from invasive aquatic species is not expected.

9.3 Water Quality

With the implementation of the proposed mitigation measures, there is not expected to be any impact on water quality, while dredging is underway, and none is expected on completion of dredging.

9.4 Cultural Heritage

There will be no impact on known cultural heritage features. The dredging is unlikely to have an impact on unknown archaeology, as the areas have been dredged previously.

9.5 Material Assets

The total volume of material to be dredged is estimated to approximately 5,000m^3 per year. The dredged sand will be brought onshore and removed to be beneficially used as a product. This will be a slight permanent positive impact on material assets.

Approximately 45 ships visit the Port annually. If the navigation channel is dredged at the locations proposed, this will provide access to the Port over a wider range of the tidal cycle. This would increase the number of ships which can access the Port, making better use of the existing Port infrastructure. This will be a moderate permanent positive impact on material assets.

9.6 Air, Noise and Climate

There are not expected to be any significant impacts on climate or air quality because of the dredging works. The dredging works will result in temporary, slight increase in noise emissions.

9.7 Landscape and Seascape

It is expected that the dredger will take 12 to 14 days, dredging twice daily, to complete the dredging required after a storm event. The presence of the dredger is not expected to have a significant effect on the landscape or seascape.

9.8 Cumulative Impacts

No significant cumulative impacts are expected.

9.9 Major Accidents and Disaster

The area of the proposed dredging operation is not susceptible to earthquakes, subsidence, landslides, erosion or flooding. The location is susceptible to severe weather conditions.

The dredging equipment will be appropriate for the weather conditions likely to be experienced.

The mitigation measures proposed for safe navigation including adherence to strict maritime regulations, and normal vessel operating standards and precautions will ensure the risk from severe weather will not result in a significant effect on the environment. Consequently, the proposed project is not likely to cause a major accident or disaster in the area and is not likely to be vulnerable to a major accident or disaster, which could affect the area.

9.10 Conclusion of Environmental Appraisal

Arup examined the environmental effects of Dundalk Port's maintenance dredging proposal. The environmental aspects of most relevance to the proposed dredging project were addressed.

In preparing this report, Arup relied on the information from the Applicant and the statutory bodies contained in the application file on the Department's website. Arup also referred to publicly available data sources listed in **Section 11** below

Arup relied on the description of the baseline environment and the proposed works, and the commitments with regard to mitigation measures which would be implemented, provided by the Applicant.

Arup's conclusion is that the nature, scale and location of the proposed maintenance dredging is such that, with the implementation of the proposed mitigation measures and the recommended conditions, there is no real likelihood of significant effects on the environment arising from it.

Arup has taken account of the conclusion of the *Screening for Appropriate Assessment Dundalk Port Maintenance Dredging Foreshore Licence Application* (Hartley Anderson, 2022), that likely significant effects can be discounted for the relevant Natura 2000 sites and their qualifying interests, and that Stage 2 Appropriate Assessment is not required, and the conclusion of the *Article 12 Risk Assessment Dundalk Port Maintenance Dredging Foreshore Licence Application* (Hartley Anderson, 2022), that the proposed dredging works will not give rise to significant impacts to species listed under Annex IV of the Habitats Directive.

10 Recommended Conditions

Should the Minister decide to give grant a licence, Arup recommends the conditions, listed below, be attached to it. The recommended conditions are based on the conditions proposed by the Prescribed Bodies in their observations, the Applicant's responses to the Prescribed Bodies' observations, the mitigation measures proposed in the NIS and considerations arising from the environmental appraisal.

Recommended conditions for the licence for dredging works:

1. The Licensee shall use that part of the foreshore, the subject matter of this licence for the purposes as outlined in the application and for no other purposes whatsoever.
2. The maintenance dredging operation shall be located on the foreshore as outlined on Map No: 595-FL-5 Rev O Dated 24/05/2021.
3. The Licence shall remain valid for a 10-year period from 2022 to 2031 inclusive. Dredging of the seabed shall be to a maximum of 0.75m below CD with a maximum dredge volume of 5,000m³ per annum.
4. The Licensee shall notify the Department of Housing, Local Government and Heritage and the local Inland Fisheries Ireland office at least 14 days in advance of the commencement of any works on the foreshore.
5. During the works the Licensee shall ensure that existing public access arrangements are maintained, where possible.
6. The Licensee shall ensure that contractors, and their subcontractors, are made aware of all conditions and project specific requirements and they are required to have briefings on these to ensure all parties are fully aware of these requirements.
7. In advance of the works, the Licensee shall arrange to have a Marine Notice published. The Marine Notice shall detail the proposed dredging campaign and any associated hazards to navigation.
8. In advance of the works, the Licensee shall inform the representatives of the fishermen in Dundalk and Clogherhead of the details of the proposed dredging campaign.
9. The dredger crew shall be informed of the presence of two wrecks, reference numbers W00275 and W00118, which are indicated in the National Monuments Service Wreck Viewer website: https://dahg.maps.arcgis.com/apps/webappviewer/index.html?id=89e50518e5f4437abfa6284ff39fd640. If possible, the wreck shall be displayed on the dredger's onboard navigation systems.

10. If any material of archaeological potential is encountered during the dredging works, the Underwater Archaeology Unit, National Monuments Service, Department of Housing Local Government and Heritage shall be notified immediately, and works shall cease in the area in question until Underwater Archaeology Unit has recommended a course of action. The Underwater Archaeology Unit recommendation shall be implemented.
11. All dredging procedures shall follow industry best practice as set out in Section 3 of the Natura Impact Statement dated March 2021.
12. Dredging shall be undertaken as efficiently as possible so that the number of dredger movements is minimized. A low speed shall be maintained during dredging. The dredger shall operate by going along the area to be dredged in an approximate east-west direction in straight lines.
13. A documented Accident Prevention Procedure will be put in place prior to commencement.
14. A documented Emergency Response Procedure shall be put in place prior to commencement of the works. The procedure shall include an effective spillage control procedure. All staff involved in the works shall be properly briefed to prevent spills and leaks.
15. An Invasive Aquatic Species Management Plan shall be prepared and implemented to avoid the potential for the introduction and spread of alien invasive aquatic species. The plan shall include systems to ensure:
    - Boats, barges and marine equipment shall be free of fouling by the use of appropriate application of antifouling paints and/ or washdowns for smaller boats and plant.
    - A record of all antifouling procedures implemented shall be kept for the duration of the project.
16. No waste shall be deposited into the sea from the dredger at any time. All waste, bilge water and wastewater from the dredger shall be brought onshore for proper removal and disposal by a licensed waste contractor.
17. Contractors working on site during the operation shall be responsible for the collection, control and disposal of all wastes generated by the works.
18. Refuelling of the dredging vessel shall take place at the quayside using suitable hoses etc. to avoid any spillages.
19. Discharging of dredge material at the quay will be completed using a sealed clamshell grab.
20. The dredge material shall be stored in a confined area within the port. Measures shall be implemented to prevent poor water quality run off, from the stored dredged material, entering the Harbour.
21. The Licensee shall notify the Sea Fisheries Protection Authority Howth if a pollution incident occurs. The Sea Fisheries Protection Authority shall be contacted directly on 01-8321910 or “sfpahowth@sfpa.ie”.

22. A full record of the material being dredged will be maintained for each trip. The dates the dredging takes place each year (date started, date finished, duration of dredging (days)) shall be recorded and the forwarded to the local Inland Fisheries Ireland office.
23. Dredging shall be carried out over a period outside of the months of March to May
24. On completion of the works, the surrounding foreshore shall be returned to its natural state to the satisfaction of the Department of Housing, Local Government and Heritage.

11 References

Department of Housing, Local Government and Heritage Foreshore consents website https://www.gov.ie/en/collection/f2196-foreshore-applications-and-determinations/#2021, accessed December 2021

Environmental Protection Agency (2017) *Revised Guidelines on the Information to be contained in Environmental Impact Statements (Draft August 2017)*

EPA mapping EPA Maps

Hartley Anderson *Article 12 Risk Assessment Dundalk Port Maintenance Dredging Foreshore Licence Application* (2022).

Hartley Anderson *Screening for Appropriate Assessment Dundalk Port Maintenance Dredging Foreshore Licence Application* (2022)

National Monuments Service Wreck Viewer website: https://dahg.maps.arcgis.com/apps/webappviewer/index.html?id=89e50518e5f4437abfa6284ff39fd640 (accessed December 2021)

Sea Fisheries Protection Authority website 9093_SFPA_Razor Clam Area_DR4_Update_CA2 https://www.sfpa.ie/LinkClick.aspx?fileticket=X6-f8UOC5SE%3d&portalid=0 (accessed December 2021)