



## **Appropriate Assessment Screening Report**

prepared for ARUP

on behalf of Dun-Laoghaire-Rathdown County Council

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### Appendix I

The Qualifying Interests (QIs) and Special Conservation Interests (SCIs) of the European sites in the vicinity of the proposed development site (see Figure 1)

### Appendix II

*ARUP (2021) - Construction Noise Calculation. Coliemore Harbour Remediation Permanent Works.*

## 1 Introduction

- 1 This report, which contains information required for the competent authority (in this instance An Bord Pleanála) to undertake a screening for Appropriate Assessment (AA), has been prepared by Scott Cawley Ltd. on behalf of the applicant. It provides information on, and assesses the potential for, the proposed development to impact on the Natura 2000 network (hereafter referred to as European sites)<sup>1</sup>. The proposed development consists of rock face stabilisation undertaken at Coliemore Harbour, Coliemore Road, Dalkey, Co. Dublin.
- 2 An AA is required if significant effects on European sites arising from a proposed development cannot be ruled out at the screening stage, either alone or in combination with other plans or projects. It is the responsibility of the competent authority to make a decision as to whether or not the proposed development is likely to have significant effects on European sites, either individually or in combination with other plans or projects.

For the reasons set out in detail in this AA Screening Report, an **Appropriate Assessment of the proposed development is required in this instance** as it cannot be concluded, on the basis of objective information, that the proposed development, either individually or in combination with other plans or projects, will not have a significant effect on the following European site(s): Dalkey Islands SPA, Rockabill to Dalkey Island SAC, South Dublin Bay SAC, South Dublin Bay and River Tolka Estuary SPA, North Dublin Bay SAC, North Bull Island SPA, Howth Head Coast SPA, Baldoyle Bay SPA, Ireland's Eye SPA, Malahide Estuary SPA, The Murrough SPA, Lambay Island SAC, Lambay Island SPA and Rogerstown Estuary SPA.

## 2 Methodology

### 2.1 Guidance

This Appropriate Assessment Screening Report has been prepared with regard to the following guidance documents, as relevant:

- *OPR Practice Note PN01. Appropriate Assessment Screening for Development Management* (Office of the Planning Regulator, 2021)
- *Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities*. (Department of Environment, Heritage and Local Government, 2010 revision)
- *Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities*. Circular NPW 1/10 & PSSP 2/10
- *Assessment of Plans and Projects in Relation to Natura 2000 sites: Methodological Guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC* (European Commission, 2021)
- *Communication from the Commission on the precautionary principle* (European Commission, 2000), and

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<sup>1</sup> The Natura 2000 network is a European network of important ecological sites, as defined under Article 3 of the Habitats Directive 92/43/EEC, which comprises both special areas of conservation and special protection areas. Special conservation areas are sites hosting the natural habitat types listed in Annex I, and habitats of the species listed in Annex II, of the Habitats Directive, and are established under the Habitats Directive itself. Special protection areas are established under Article 4 of the Birds Directive 2009/147/EC for the protection of endangered species of wild birds. The aim of the network is to aid the long-term survival of Europe's most valuable and threatened species and habitats.

In Ireland these sites are designed as *European sites* - defined under the Planning Acts and/or the Birds and Habitats Regulations as (a) a candidate site of Community importance, (b) a site of Community importance, (c) a candidate special area of conservation, (d) a special area of conservation, (e) a candidate special protection area, or (f) a special protection area. They are commonly referred to in Ireland as Special Areas of Conservation (SACs) and Special Protection Areas (SPAs).

- *Managing Natura 2000 Sites: The Provisions of Article 6 of the Habitat's Directive 92/43/EEC* (European Commission, 2019)

## 2.2 Assessment Methodology

- 3 The above referenced guidance sets out a staged process for carrying out Appropriate Assessment. To determine if an Appropriate Assessment is required, documented screening is required. Screening identifies the potential for effects on the conservation objectives of European sites, if any, which would arise from a proposed plan or project, either alone or in combination with other plans and projects (i.e. likely significant effects).
- 4 Significant effects on a European site are those that would undermine the conservation objectives supporting the favourable conservation condition of the Qualifying Interest (QI) habitats and/or the QI/Special Conservation Interest (SCI) species of a European site(s).
- 5 Screening for Appropriate Assessment involves the following steps:



- 6 If the conclusions at the end of screening are that there is no likelihood of significant effects occurring on any European sites as a result of the proposed plan or project, either alone or in combination with other plans and projects, then there is no requirement to undertake an Appropriate Assessment.
- 7 In establishing which European sites are potentially at risk (in the absence of mitigation) from the proposed development, a source-pathway-receptor approach was applied. In order for an impact to occur, there must be a risk enabled by having a source (e.g. water abstraction or construction works), a receptor (e.g. a European site or its QI(s) or SCI(s)<sup>2</sup>), and a pathway between the source and the receptor (e.g. pathway by air for airborne pollution, or a pathway by a watercourse for mobilisation of pollution). For an impact to occur, all three elements must exist; the absence or removal of one of the elements means there is no possibility for the impact to occur.
- 8 The identification of source-pathway-receptor connection(s) between the proposed development and European sites essentially is the process of identifying which European sites are within the Zone of Influence (Zol) of the proposed development, and therefore potentially at risk of significant effects. The Zol is the area over which the proposed development could affect the receiving environment such that it could potentially have significant effects on the QI habitats or QI/SCI species of a European site, or on the achievement of their conservation objectives<sup>3</sup>.
- 9 The identification of a source-pathway-receptor link does not automatically mean that significant effects will arise. The likelihood for significant effects will depend upon the characteristics of the source (e.g. extent and duration of construction works), the characteristics of the pathway (e.g. direction and strength of prevailing winds for airborne pollution) and the characteristics of the receptor (e.g. the sensitivities of the European site and its QIs/SCIs).
- 10 The 'likely significant effects' test is based on the precautionary principle<sup>4</sup>. The precautionary principle means that, based on the most reliable available information, where there is uncertainty or doubt as to the absence of significant effects, the project cannot be screened out and an appropriate assessment must be carried out.

### 2.3 Desktop Data Review

- 11 The desktop data sources used to inform the assessment presented in this report are as follows (accessed on the 17<sup>th</sup> February 2022):
  - Online data available on European sites and protected habitats/species as held by the National Parks and Wildlife Service (NPWS) from [www.npws.ie](http://www.npws.ie)<sup>5</sup>, including conservation objectives documents

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<sup>2</sup> The term qualifying interest is used when referring to the habitats or species for which an SAC is designated; the term special conservation interest is used when referring to the bird species (or wetland habitats) for which an SPA is designated.

<sup>3</sup> As defined in the *Guidelines for Ecological Impact Assessment in the UK and Ireland* (CIEEM, 2018)

<sup>4</sup> The precautionary principle is a guiding principle that derives from Article 191 of the Treaty on the Functioning of the European Union and has been developed in the case law of the European Court of Justice (e.g. ECJ case C-127/02 – Waddenzee, Netherlands).

The guidance document *Communication from the Commission on the Precautionary Principle* (European Commission, 2000) notes that the precautionary principle “covers those specific circumstances where scientific evidence is insufficient, inconclusive or uncertain and there are indications through preliminary objective scientific evaluation that there are reasonable grounds for concern that the potentially dangerous effects on the environment, human, animal or plant health may be inconsistent with the chosen level of protection”..

<sup>5</sup> The following SAC and SPA GIS boundary datasets are the most recently available at the time of writing: SAC\_ITM\_2022\_02.shp and SPA\_ITM\_2021\_10.shp

- Online data available on protected species as held by the National Biodiversity Data Centre (NBDC) from [www.biodiversityireland.ie](http://www.biodiversityireland.ie)
- Information on the surface water network and surface water quality in the area available from [www.epa.ie](http://www.epa.ie)
- Information on groundwater resources and groundwater quality in the area available from [www.epa.ie](http://www.epa.ie) and [www.gsi.ie](http://www.gsi.ie)
- Ordnance Survey of Ireland mapping and aerial photography available from [www.osi.ie](http://www.osi.ie)
- Information on the location, nature and design of the proposed development supplied by the applicant's design team
- Dun Laoghaire Rathdown (2016) *Dun Laoghaire Rathdown County Development Plan 2016-2022*
- ARUP (2021) *Construction Environmental Management Plan for Coliemore Harbour Permanent Remedial Works*

### 2.3.1 Consultation

- 12 In collating ecological data for Coliemore Harbour, Arup engaged with a number of organisations to ensure all available data was accounted for. These organisations included the National Parks and Wildlife Service (NPWS), the Irish Whale and Dolphin Group (IWDG) and Dun Laoghaire Rathdown County Council (DLRCC). Responses which are relevant to Appropriate Assessment are detailed below.
- 13 The IWDG previously surveyed the surrounding area and have confirmed records of harbour porpoises near the entrance of Coliemore Harbour but no records of harbour porpoises inside the harbour. The IWDG advised that it is highly likely that seals enter the harbour considering the nearby designated sites providing the perfect habitats. The IWDG advised to assume occasional usage of the harbour by both seals and harbour porpoises.
- 14 The DLRCC advised that data from a recently conducted survey indicated that there are otter holts located along the coastline from Harbour Road approximately 1-1.5km North of Coliemore Harbour. Although the otter holts are not located within Coliemore Harbour itself, the harbour is likely to be within the otter foraging range.

## 3 Provision of Information for Screening for Appropriate Assessment

- 15 The following sections provide information to facilitate the Appropriate Assessment screening of the proposed development to be undertaken by the competent authority.
- 16 A description of the proposed development and the receiving environment is provided to identify the potential ecological impacts. The environmental baseline conditions are discussed, as relevant to the assessment of ecological impacts where they may highlight potential pathways for impacts associated with the proposed development to affect the receiving ecological environment (e.g. geological, hydrogeological and hydrological data).
- 17 The potential impacts are examined in order to define the potential zone of influence of the proposed development on the receiving environment. This then informs the assessment of whether the proposed development will result in significant effects on any European sites; i.e. affect the conservation objectives supporting the favourable conservation condition of the European site's QIs or SCIs.

### 3.1 Background and Description of the Proposed Development

- 18 On 13<sup>th</sup> August 2020, a localised collapse of the granite stone bedrock supporting the footpath leading to the southern jetty in Coliemore Harbour occurred. A large section of granite bedrock beneath the footpath sheared off and fell into the harbour. This led to the closure of access to the southern jetty and restricted

access to the harbour due to concerns around the integrity of the bedrock. A temporary gangway was installed to allow public access to the Coliemore jetty for the 2021 summer season.

- 19 The proposed development involves permanent works to reinstate public access to Coliemore Harbour, with a design aim for minimum intrusion. This includes the grouting and infill works, rock anchoring and dentition of the voids utilising up to 16 rock anchors and reinstatement of the walkway as per original.

#### *Timing of Works*

- 20 The proposed works will be carried out in the autumn/winter season of 2022. The duration of the works is anticipated to be eight weeks. The core construction working hours for the proposed development will be 8am to 6pm from Monday to Friday and 8am to 2pm on Saturdays, with drilling works carried out within these periods as required, dependent on the suitability of the tides. All rock breaking/fracturing activities and pile driving will be undertaken during daytime hours. The removal of waste material off site by road and regular deliveries to site will be confined to daytime hours, from 10am to 4pm outside of peak traffic hours, where feasible.

#### *Site preparation*

- 21 The temporary walkway will be removed, prior to works commencing. Two granite bollards will be removed from the viewing platform for accessibility. A single land traffic closure will be required for approximately four hours during this period. The laydown and works area will be secured.

#### *Pointing*

- 22 This initial step seals the stone masonry wall as much as possible, with the aim of limiting grout or water leaking from the masonry wall during the compensation grouting. A crane will be setup in a lifting position.
- 23 The crane will be set up on the adjacent platform and will lift the man basket into position above the rock face, directed by a banksman via 2-way radio communication. After cleaning, the operative will apply lime mortar to the small joints in the masonry wall using a trowel.

#### *Compensation Grouting*

- 24 This secondary step fills the voids behind the rock face prior to rock anchor installation.
- 25 Grout injection will be carried out from the existing tarmac walkway via vertical holes drilled using a mini piling rig (Technodrill TD 308).
- 26 Grouting will be carried out in a bottom-up sequence as follows:
- Stage 1 grouting will be carried out in two rows along the walkway at 2m centres on either side of the walkway and to depth not exceeding 2m.
  - Stage 2 grouting will be carried out in similar fashion but at 1 m centres and to depth not exceeding 6m.

- 27 Where larger voids are found sand filler will be used within the grout and the drill string will be removed and replaced with a 35mm grout lance. Measures will be taken to ensure that grout losses will be curtailed as far as possible to ensure minimal grout can enter the harbour.

#### *Boring to depth*

- 28 The drilling rig is set up over the pin position by positioning the drilling head directly above setup position.
- 29 The required depth is achieved by means of rotary percussive driving of the drilling head fitted with rock bit (approximately 85 - 110mm). The "returns" are flushed out from the hole via swivel through the drilling head. This process uses air flushing to target depth to avoid spoil contaminating the surrounding environment / harbour water.
- 30 The pre-prepared hollow stem rods of the correct length and size are inserted into the bore holes. The additional lengths will be added in sections. The final depth will be checked by means of checking rod lengths.



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### *Grouting of pile*

- 31 Grout is pumped through a hollow stem rod when drilling is completed, injecting grout at the bottom of the hole to displace any water and to ensure that the tendon is completely encased with grout. The grout is mixed in a Putzmeister SP11 mixer and pumped by the pumping operative. Any cement bags will be disposed of in a site skip. The grout pump will be bunded with heavy duty polythene to maintain onsite housekeeping.
- 32 The volume of injected grout per borehole will be recorded and noted on the daily report sheet.
- 33 If grout is detected to be rising to the top of the borehole, the drill rig operator will immediately direct the grout pump operator to stop pumping, to minimise liquid grout discharged to the surrounding area.
- 34 The bottom of walkway will be bunded to catch any flowing grout which escapes the top of the bores. Any escaped grout will be scraped up once it sets at the bund and will be disposed of offsite.
- 35 During compensation grouting, the operative will be in a man basket at the rock face, monitoring the rock joints for escaping grout. If grout leakage is detected, the operative will signal for the pumping to cease immediately, and the joint will be repointed locally to re-seal it.
- 36 Rods will be withdrawn from position at each location. On completion of all positions, the rock anchor installation can commence.

### *Installation of Rock Anchors*

- 37 The purpose of this step is to install tie-back anchors which keep the rock mass in place for the design life duration. The access arrangements to the rock face will be via crane and man basket.
- 38 The contractor will core a hole within the granite rock face to enable the headplate and rock anchor to be recessed flush to the rock face.
- 39 A cradle-mounted drill will be used to install the inclined anchors. The objective is to bore to depth by means of a rotary percussive drilling head using a compressed air as a flush for the bored materials and then to fill the resultant hole with grout and reinforcement.
- 40 The pile diameter is envisaged to be 85-110mm nominal diameter R51N DYWI type hollow stem pile founded with embedment into existing rock.
- 41 Boring to depth will be carried out as above, except the drill rod will be driven by a cradle-mounted unit rather than drill rig.
- 42 Grouting of rock anchors will be via standard procedure using natural hydraulic lime mortar mix or a 'prompt' mix which is a fast-setting mix to ensure the repointing works set before high waters. Alternatively, a dry grout/resin capsule bored in with drill rod which is activated during drilling, will be used. The capsule, if used, would further reduce the risk of liquid grout leaking or spilling to the seawater. It will be determined by detailed design if this option can be used. It is likely the standard procedure will be used and is considered the worst-case option in terms of potential for grout leak/spill. Once the headplate is installed, a grey olive metal ring will be welded to the top of the bar.

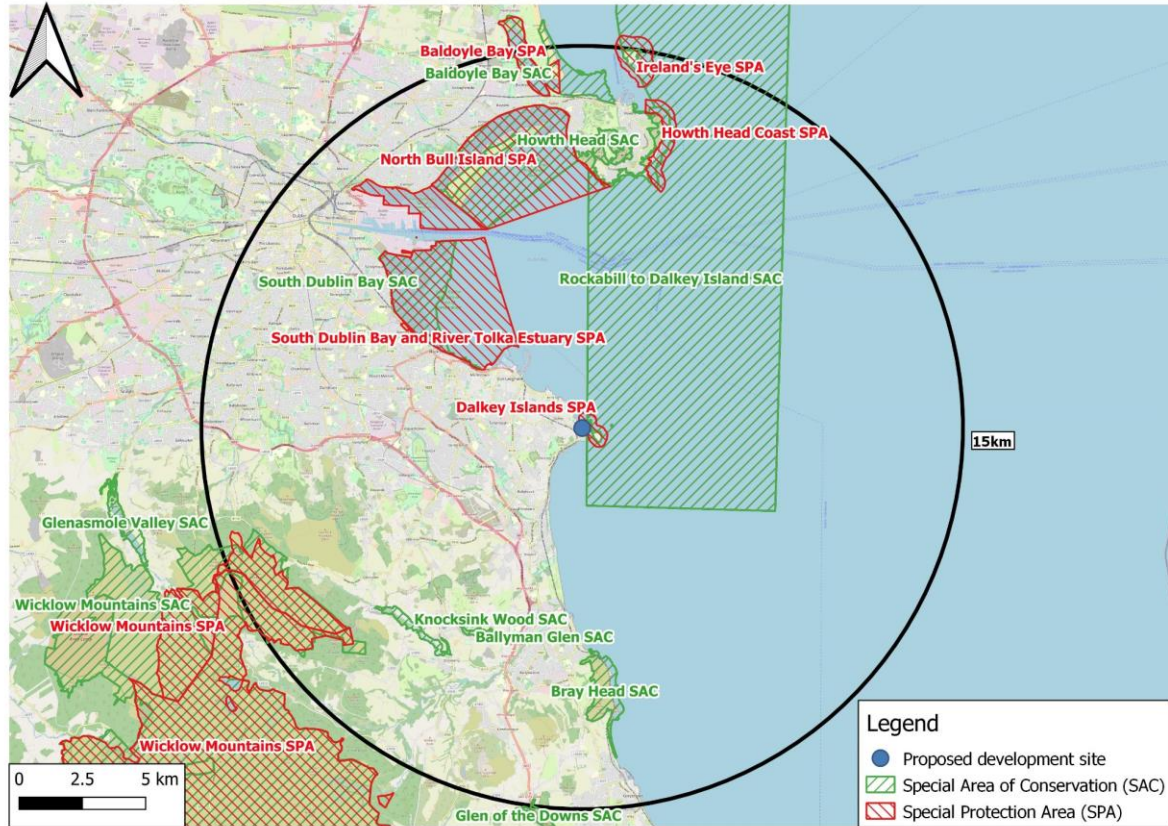
## **3.2 Overview of the Receiving Environment**

### *3.2.1 European sites*

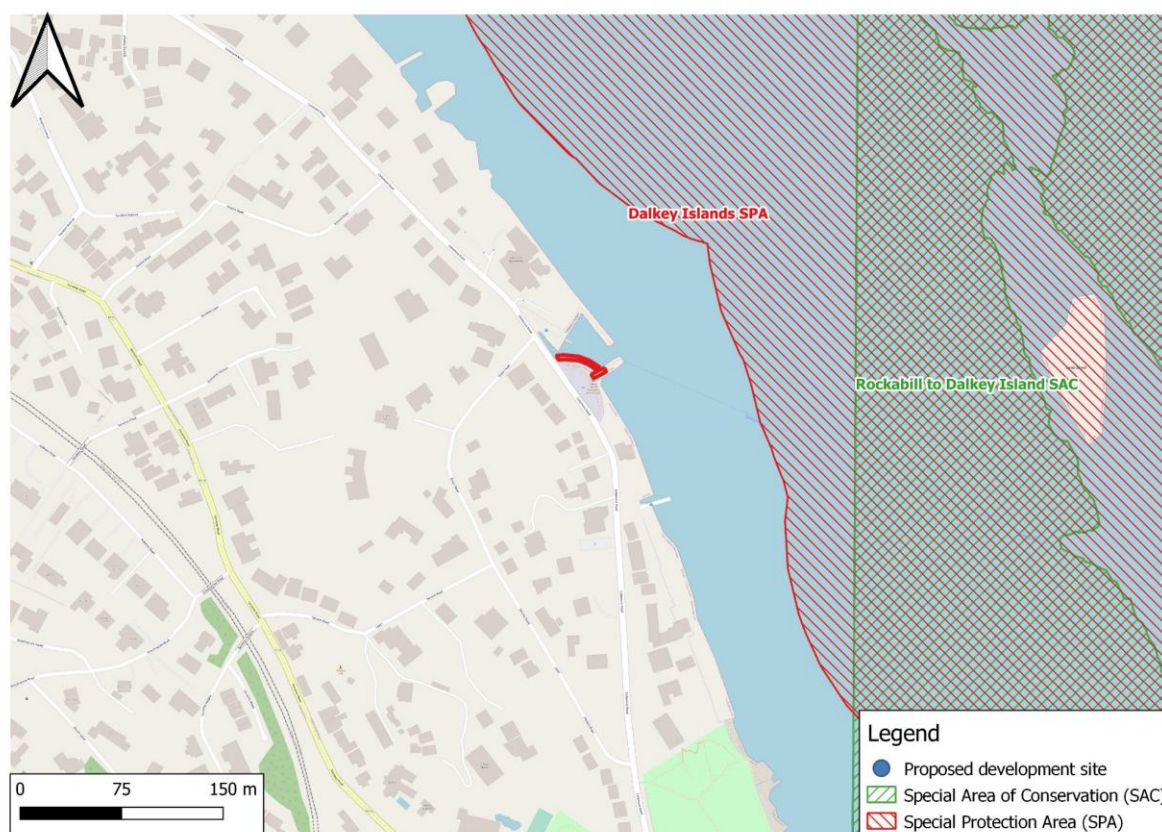
- 43 The proposed development does not overlap with any European sites. The nearest European site to the proposed development is Dalkey Islands SPA, c. 93m east. The next nearest European site to the proposed development is Rockabill to Dalkey Island SAC located c. 183m east. The proposed development is also hydrologically connected to European sites in Dublin Bay, including South Dublin Bay SAC, North Dublin Bay SAC, South Dublin Bay and River Tolka Estuary SPA, North Bull Island SPA, Howth Head Coast SPA, Baldoyle SPA and Ireland's Eye SPA. There is potential that populations of SCI and/or QI species of other European sites use Dublin Bay and its habitats for foraging, commuting and/or roosting, including Malahide Estuary SPA, The Murrrough SPA, Lambay Island SAC, Lambay Island SPA and Rogerstown Estuary SPA.

- 44 Howth Head SAC and Bray Head SAC are both present in the vicinity of the proposed development, however, the QI habitats for which these sites have been designated are terrestrial habitats above the high tide line. Therefore, these European sites have been excluded from consideration going forward
- 45 All of the European sites present in the vicinity of the proposed development are shown on Figure 1 below. The QIs/SCIs of the European sites in the vicinity of the proposed development are provided in Appendix I.

**Figure 1** *European sites in the vicinity of the proposed development*



**Figure 2** *European sites in close proximity to the proposed development*



### 3.2.2 Habitats

- 46 The proposed development site is located in a coastal setting in Coliemore Harbour, with urban residential areas to the north, west and south, and the Irish Sea to the east. The proposed development involves the permanent rock face stabilisation of the existing harbour wall which is of 'Sea walls, piers and jetties (CC1)' habitat. Terrestrial and intertidal habitat surveys were carried out to inform the Ecological Impact Assessment prepared for this development<sup>6</sup>. None of the habitats recorded within the proposed development site boundary, or Coliemore Harbour itself correspond to any Annex I habitat type.

### 3.2.3 Flora and Fauna Species

- 47 The desktop study did not find records for any Annex II flora in the vicinity of the proposed development site. The field survey undertaken to inform the Ecological Impact Assessment in 2022 at the proposed development site did not record any Annex II flora within Coliemore Harbour.
- 48 With regards to records for non-native invasive species within c. 2km of the proposed development, the NBDC database search returned records for the following non-native invasive species which are listed on the Third Schedule of the *European Communities (Birds and Natural Habitats) Regulations, 2011* (as amended).:
- Three cornered garlic *Allium triquetrum*,
  - Hottentot fig *Carpobrotus edulis*,
  - Giant hogweed *Heracleum mantegazzianum*,

<sup>6</sup> Scott Cawley Ltd. (2022). *Ecological Impact Assessment. Coliemore Harbour Remedial Works.*

- Japanese wireweed *Sargassum muticum*,
- 49 No non-native invasive flora listed on the Third Schedule of the *European Communities (Birds and Natural Habitats) Regulations, 2011 (as amended)* were recorded within the proposed development site during the survey in 2022.
- 50 The desktop study found the following records for the following Annex I and Annex II species for which European sites illustrated in Figure 1 and listed in Appendix 1 are designated within c.100m of the development site:
- Common Porpoise (*Phocoena phocoena*)
  - Arctic Tern (*Sterna paradisaea*)
  - Common Tern (*Sterna hirundo*)
  - Sandwich Tern (*Thalasseus sandvicensis*)
  - Roseate Tern (*Sterna dougallii*)
- 51 The desktop study returned records of the following species for which European sites illustrated in Figure 1 and listed in Appendix 1 are designated within c. 2km of the development site:
- Harbour Porpoise (*Phocoena phocoena*)
  - Bottle-nosed dolphin (*Tursops truncates*)
  - Harbour/Common seal (*Phoca vitulina*)
  - Grey seal (*Halichoerus grypus*)
  - Otter (*Lutra lutra*)
  - Peregrine Falcon (*Falco peregrinus*)
  - Arctic Tern (*Sterna paradisaea*)
  - Common Tern (*Sterna hirundo*)
  - Dunlin (*Calidris aplina*)
  - Red Throated Diver (*Gavia stellata*)
  - Sandwich Tern (*Thalasseus sandvicensis*)
  - Roseate Tern (*Sterna dougallii*)
  - Light-bellied brent goose (*Branta bernicla subsp. hrota*)
  - Black-headed gull (*Larus ridibundus*)
  - Guillemot (*Uria aalge*)
  - Redshank (*Tringa totanus*)
  - Shelduck (*Tadorna tadorna*)
  - Cormorant (*Phalacrocorax carbo*)
  - Curlew (*Numenius arquata*)
  - Oystercatcher (*Haematopus ostralegus*)
  - Shag (*Phalacrocorax aristotelis*)
  - Herring gull (*Larus argentatus*)
  - Razorbill (*Alca torda*)
  - Turnstone (*Arenaria interpres*)

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*Marine mammals*

- 52 The desktop study returned records for four Annex II marine mammal species within c. 2km of the proposed development site: bottle-nosed dolphin (*Tursops truncates*), harbour porpoise (*Phocoena phocoena*), harbour seal (*Phoca vitulina*) and grey seal (*Halichoerus grypus*). As part of the consultation process for the proposed development Arup consulted with the Irish Whale and Dolphin Group (IWDG). The IWDG have previously surveyed the area surrounding Coliemore Harbour and have confirmed records of harbour porpoise near the entrance of the harbour but not within it. The nearest European site designated for harbour porpoise is Rockabill to Dalkey Island SAC, located c. 183m east at its closest point, and the nearest European sites designated for the seal species is Lambay Island SAC, located c. 23.5km north. Given the nearby sites designated for marine mammals, and the habitats in the vicinity of Coliemore Harbour, the IWDG have advised to assume the occasional usage of the harbour by both seal species and harbour porpoise. All European sites designated for bottle-nosed dolphin in Ireland are located on the west coast. Therefore, it is not considered that bottle-nosed dolphins present in the vicinity of the proposed development site are associated with any European site, and they have been excluded from consideration going forward.

*Otter*

- 53 The desktop study returned records of otter (*Lutra lutra*), an Annex II and IV species within c. 2km of the proposed development site. DLRCC have advised that there are recent records of otter holts along the coastline, approximately 1-1.5km north of Coliemore Harbour. Although the otter holts are not located within the harbour itself, Coliemore Harbour is likely to be within the foraging range of these otter. The nearest European site designated for otter is Wicklow Mountains SAC, located c. 12km from the proposed development site (as the crow flies). The Wicklow Mountains SAC is hydrologically connected to Dublin Bay and the Irish Sea via a network of rivers. The closest river with hydrological connectivity to the Wicklow Mountains SAC is the Glencullen River which flows into Bray Harbour via the River Dargle. The outfall of the River Dargle in Bray Harbour is located approximately c. 12.7km downstream of the Wicklow Mountains SAC (measured along the length of the river), and Bray Harbour is located c. 8.2km south of Coliemore Harbour (measured along the coastline). Therefore, the Wicklow Mountains SAC is located c. 20.9km from the proposed development site, via habitats suitable to support otter.

*SCI bird species*

- 54 Records of several SCI bird species within c. 2km of the proposed development site were returned from the desk study (see above). The waters in and around Coliemore Harbour are considered to be suitable to support feeding and loafing SCI waterbirds. Additionally, rocky shorelines in the vicinity of Coliemore Harbour are suitable to support SCI waders.
- 55 Aquatic and shoreline habitats present in the vicinity of Coliemore Harbour are likely to support a range of SCI wintering waterbird species for which European sites in the vicinity are designated, including gulls, waders, waterfowl and divers. SCI wintering waterbirds for which European sites are designated are generally present between September and March, with peak numbers present in the middle of this season. SCI birds associated with the populations of the following European sites could utilise habitats in the vicinity of the proposed development site: River Tolka Estuary SPA, North Bull Island SPA, Howth Head Coast SPA, Baldoye SPA, Malahide Estuary SPA, The Murrough SPA, Lambay Island SPA, Rogerstown Estuary SPA and Ireland's Eye SPA.
- 56 There were records of peregrine (*Falco peregrinus*) returned from the desk study. The habitats in the proposed development site offer no suitable nesting sites for peregrine, and limited hunting opportunities due to the small size of the harbour. The nearest SPA designated for this species is Wicklow Mountains SPA, which is located c. 12km south-west of the proposed development site.
- 57 Dalkey Islands SPA is designated for roseate tern *Sterna dougallii*, common tern *Sterna hirundo* and Arctic tern *Sterna paradisea*. The Dalkey Islands are important for breeding and staging terns, and there is a well-established colony of common tern and smaller numbers of Arctic tern present. Roseate tern have bred on Dalkey Island in the past (in 2003 and 2004). Dalkey Islands SPA is used by the three tern species as a post-breeding/pre-migration autumn roost area. Nesting tern colonies in Ireland are largely confined

to offshore islands where predator populations (such as rats) are actively managed. There is no suitable shingle habitat for nesting terns within Coliemore Harbour or the surrounding area on the mainland. However, the open marine environment adjacent to Coliemore Harbour is likely to support foraging terns during their breeding and pre-migration seasons (May-September).

#### 3.2.4 Hydrology

- 58 The nearest watercourse to the proposed development site is the Kill-O-The-Grange Stream, which outfalls to Killiney Bay, c. 3.3km south of the proposed development site. Coliemore Harbour is not hydrologically connected to this river waterbody. Under the Water Framework Directive (WFD) (2000/60/EC) the Kill-O-The-Grange Stream (Kill of the Grange Stream\_010) has a status of 'poor' and is considered 'at risk'. According to the EPA Map Viewer, the most recent surface water quality information for the Kill of the Grange Stream downstream of the proposed development site at monitoring point RS10K020200 indicated a Q-value score of 3 indicating 'poor' water quality status.
- 59 The proposed development site is located within coastal waters that connect the proposed development site to Dublin Bay and the Irish Sea. The Water Framework Directive (WFD) (2000/60/EC) status 2013-2018 of Dublin Bay (HA10) is considered to be 'Good' and is 'Not at Risk' of not meeting the WFD objectives. Water Quality data from 2010-2012 indicate that the coastal waterbody is 'Unpolluted'.

#### 3.2.5 Hydrogeology

- 60 Geological Survey of Ireland (GSI) data indicates that the site is underlain by a "poor aquifer", which is described as "bedrock which is generally unproductive except for local zones".
- 61 The Groundwater Body (GWB) underlying the site is the 'Kilcullen' groundwater body, which is currently classified by the EPA (2013-2018) as having "Good" groundwater status and "Not at Risk" of achieving good status under the Water Framework Directive. The vulnerability rating for the groundwater beneath site is "E" – extreme vulnerability of potential contaminants passing through the bedrock and into the groundwater.
- 62 Geological Survey of Ireland (GSI) data indicates that the bedrock formation on site is 'Type 2p microcline porphyritic (Northern and Upper Liffey Valley Plutons), comprised of Granite with microcline phenocrysts.

### 3.3 Assessment of Effects on European Sites

- 63 This section identifies all the potential impacts associated with the proposed development, examines whether there are any European sites within the ZoI of effects from the proposed development, and assesses whether there is any risk of the proposed development resulting in a significant effect on any European site, either alone or in combination with other plans or projects.
- 64 In assessing the potential for the proposed development to result in a significant effect on any European sites, any measures intended to avoid or reduce the harmful effects of the project on European sites are not taken into account.

#### 3.3.1 Habitat loss and fragmentation

- 65 The proposed development does not overlap with the boundary of any European site. Therefore, there are no European sites at risk of direct habitat loss impacts.
- 66 QI/SCI fauna species such as marine mammals and waterbirds may be transiently present in Coliemore Harbour. As the proposed development involves permanent rock stabilisation, the proposed development will result in the temporary fragmentation and loss of habitat suitable to support the QI/SCI populations of the European sites and machinery associated with the construction phase of the proposed development may result in temporary loss of suitable high tide loafing/foraging habitat for QI/SCI populations.
- 67 As the proposed development will result in temporary habitat loss and fragmentation outside the European sites, but impacting on species associated with the European sites, there is the potential for in combination effects to occur, however, these are considered to be low impacts and temporary in nature.

### 3.3.2 *Habitat degradation as a result of hydrological impacts*

- 68 Surface water run-off and discharges from the proposed development will drain to the coastal waters in Coliemore Harbour which flow into Dublin Bay and the Irish Sea. Therefore, the Zone of Influence (Zoi) of potential effects on water quality from the proposed development could extend to Dublin Bay and the Irish Sea.

#### *Construction phase*

- 69 An accidental pollution event during construction, has the potential to affect water quality in Dublin Bay. A pollution event, of a sufficient magnitude, 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 European sites closest to, or hydrologically connected to the site, i.e., Dalkey Islands SPA, Rockabill to Dalkey Island SAC, South Dublin Bay SAC and North Dublin Bay SAC, and the special conservation interests/qualifying interests of South Dublin Bay and River Tolka Estuary SPA, North Bull Island SPA, Howth Head Coast SPA, Baldoyle SPA, Malahide Estuary SPA, The Murrough SPA, Lambay Island SAC, Lambay Island SPA, Rogerstown Estuary SPA and Ireland's Eye SPA.

#### *Operational phase*

- 70 The proposed development involves rock face stabilisation work at Coliemore Harbour. Once in place and operational it is not considered likely that this proposed development would result in any effects on surface water quality within the harbour and surrounding marine environment.
- 71 Therefore, there is no possibility of the proposed development undermining the conservation objectives of any of the qualifying interests or special conservation interests of the European sites in, or associated with, Dublin Bay as a result of surface water run-off or discharges during the operational phase.

### 3.3.3 *Habitat degradation as a result of hydrogeological impacts*

- 72 The proposed development lies within the Kilcullen Groundwater Body (Kilcullen GWB). The only European site within the Kilcullen GWB that is designated for groundwater dependant habitats and/or species is the Glenasmole Valley SAC. Of the qualifying interests of the Glenasmole Valley SAC, the priority Annex I habitat Petrifying springs with tufa formation is dependent upon the existing condition and functioning of the groundwater regime. Based on information published by Geological Survey Ireland (GSI) on the Kilcullen GWB<sup>1</sup>, 'The general groundwater flow direction in this aquifer is 'towards numerous small springs and streams that discharge flow towards the coast'. As the proposed development will not interact directly with the underlying groundwater body, and lies down gradient of the Glenasmole Valley SAC, it cannot influence groundwater conditions in the European site.
- 73 Therefore, there is no possibility of the proposed development undermining the conservation objectives of any of the qualifying interests or special conservation interests of any European sites, either alone or in combination with any other plans or projects, as a result of hydrogeological effects.

### 3.3.4 *Disturbance and displacement impacts*

#### *Construction phase*

- 74 Construction-related disturbance and displacement of fauna species could potentially occur within the vicinity of the proposed development for the eight week duration of the project. For mammal species such as otter, disturbance effects would not be expected to extend beyond 150m<sup>7</sup>. For birds, disturbance effects

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<sup>7</sup> 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. This is a precautionary distance, and likely to be moderated by the screening effect provided by surrounding vegetation and buildings, with the actual Zoi of construction related disturbance likely to be much less in reality.

would not be expected to extend beyond a distance of c.300m, for general construction activities as noise levels would attenuate to close to background levels at that distance<sup>8</sup>.

- 75 Noisy activities associated with the proposed development include the use of equipment such as a grout mixer and pump, mobile telescopic crane, hand-held pneumatic rock drill, and hand-held pneumatic breaker (see full details of noisy equipment in Appendix III- Construction Noise Calculation). The noisiest piece of equipment that will be used during the proposed works is the hand-held pneumatic rock breaker, which will generate a sound pressure level of up to 95dBA at 10m. Noise modelling was carried out on the four noisiest pieces of equipment (95dBA, 90dBA, 86dBA and 84dBA). There is no potential for more than one of any of these four noisiest pieces of equipment to be in operation at the same time. Simultaneous operation of equipment sums to a total equivalent sound pressure of 97dBA at 10m from construction activity. At 100m, the sound pressure will be 77dBA, and at 300m, the sound pressure will be 68dBA. The highest possible noise levels modelled will only occur for relatively short periods of time, i.e. up to 30 minutes at a time. This is likely to cause brief disturbance effects<sup>9</sup> to shorebirds in the vicinity of the proposed development<sup>10</sup>.
- 76 The closest area of suitable habitat for nesting tern species is Lamb Island, which is located approximately 300m from the proposed works. In a worst-case scenario, noise levels of up to 68dBA may be experienced at Lamb Island which is likely to result in moderate levels of disturbance to birds for short periods of time. This is below the 70dB threshold, above which would likely result in birds moving out of the affected zone. Therefore, given that in a worst-case scenario noise levels will not reach this threshold, and that works will be completed within eight weeks, it is not considered that the proposed works will result in significant effects on nesting tern species associated with the Dalkey Islands SPA. Additionally, it is proposed that works will be carried out in the autumn/winter season of 2022. Therefore, the majority of the disturbance works will be carried out outside of the breeding and pre-migration season for tern species (May-September). A range of SCI waterbird species were returned from the desk study, the majority of which are wintering waterbirds associated with nearby European sites, in Dublin Bay and the Irish Sea. The waters in and around Coliemore Harbour are considered to be suitable to support feeding and loafing SCI waterbirds. Additionally, rocky shorelines in the vicinity of Coliemore Harbour are suitable to support SCI waders. Works are proposed to be carried out in the autumn/winter season of 2022. Therefore, there is potential that temporary noise and vibration associated with the construction of the proposed development could result in disturbance and displacement of SCI wintering waterbird species. However, noise produced as a result of the proposed development will not result in effects on breeding SCI or wintering waterbird species

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<sup>8</sup> The disturbance zone of influence for waterbirds is based on the relationship between the noise levels generated by general construction traffic/works (BS 5228:2009 Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 1 Noise) and the proximity of those noise levels to birds – as assessed in Cutts, N. Phelps, A. & Burdon, D. (2009) *Construction and Waterfowl: Defining Sensitivity, Response, Impacts and Guidance*, and Wright, M., Goodman, P & Cameron, T. (2010) Exploring Behavioural Responses of Shorebirds to Impulsive Noise. *Wildfowl* (2010) 60: 150–167. At 300m, noise levels are below 60dB or, in most cases, are approaching the 50dB threshold below which no disturbance or displacement effects would arise.

<sup>9</sup> The duration of effects has been described based on information within ‘Guidelines on the Information to be Contained in Environmental Impact Assessment Reports’ (EPA, 2017)

<sup>10</sup> Current understanding of construction related noise disturbance to shorebirds is based on the research presented in Cutts et al. (2013) and Wright et al. (2010). In terms of construction noise, levels below 50dB would not be expected to result in any response from foraging or roosting birds. Noise levels between 50dB and 70dB would provoke a moderate effect/level of response from birds, i.e. birds becoming alert and some behavioural changes (e.g. reduced feeding activity), but birds would be expected to habituate to noise levels within this range. Noise levels above 70dB would likely result in birds moving out of the affected zone, or leaving the site altogether. At c. 300m, typical noise levels associated with construction activity (BS 5228) are generally below 60dB or, in most cases, are approaching the 50dB threshold.

Cutts, N., Hemingway, K. and Spencer, J. (2013). Waterbird Disturbance Mitigation Toolkit Informing Estuarine Planning & Construction Projects. Version 3.2. Institute of Estuarine & Coastal Studies (IECS) University of Hull.

Wright, M., Goodman, P., Cameron, T. (2010). Exploring behavioural responses of shorebirds to impulsive noise. Institute of Integrative and Comparative Biology, University of Leeds



that would affect the population size or distribution due to the brief nature of the works which will only be undertaken over the course of a single wintering bird season (as outlined in detail above). Given that there are extensive areas of suitable alternative foraging and loafing habitat for waterbirds in Dublin Bay and the Irish Sea, no population level effects on SCI waterbirds associated with European sites (including River Tolka Estuary SPA, North Bull Island SPA, Howth Head Coast SPA, Baldoyle SPA, Malahide Estuary SPA, The Murrough SPA, Lambay Island SPA, Rogerstown Estuary SPA and Ireland's Eye SPA) will occur as a result of disturbance and displacement arising from the construction stage of the proposed development.

- 77 There are two European sites within the disturbance Zol (i.e. Dalkey Islands SPA and Rockabill to Dalkey Island SAC) where there is the potential for qualifying/special conservation interests to be disturbed and displaced from foraging within the site for the duration of construction and/or operation. These qualifying species include the roseate tern, common tern, Arctic tern and harbour porpoise. Records of grey seal and harbour seal have been returned in the vicinity of the proposed development site. Therefore, there is potential that noise and vibration associated with the construction phase of the proposed development could result in temporary disturbance and displacement effects on marine mammals associated with European sites (i.e. Lambay Island SAC). However, given the brief nature of the proposed works (as outlined in detail above), and the extent of suitable alternative foraging habitat and haul out sites within Dublin Bay and the Irish Sea, disturbance and displacement impacts associated with the construction of the proposed development have no potential to result in any population level effects on seal species.
- 78 Records of otter have been returned in the vicinity of the proposed development site. The nearest SAC to the proposed development site for which otter has been designated is Wicklow Mountains SAC. Research carried out by Ó Néill *et al.* (2008)<sup>11</sup> on ranging behaviours of otter on river systems in Ireland found that female otter ranges averaged 7.5km while male otter home ranges varied between 7-19km. The proposed development site is located c.20.9km from the Wicklow Mountains SAC when measured along the coastline and river network. Therefore, the proposed development site is located outside of the normal foraging range of otter associated with the SAC population associated with Wicklow Mountains SAC. Additionally, otter are a largely nocturnal species and the proposed works will be carried out during daylight hours, and there are no confirmed holts within the disturbance Zol. Therefore the proposed development has no potential to result in significant effects on QI otter populations.
- 79 As the proposed development has the potential to result in the disturbance/displacement of the qualifying/special conservation interest species of any European site, there is the potential for in combination effects to occur.

#### *Operational phase*

- 80 The proposed development involves the permanent reinstatement of public access to the southern jetty at Coliemore Harbour. As Coliemore Harbour is an existing public amenity, reinstating public access to the southern jetty as a result of this proposed development would not result in any disturbance/displacement effects during the operational stage that would have an effect on breeding or wintering SCI bird populations.

#### *3.3.5 Summary*

- 81 The potential temporary habitat loss and fragmentation, habitat degradation due to hydrological impacts and disturbance and displacement impacts associated with the proposed development have the potential to affect the receiving environment and, consequently, have the potential to affect the conservation objectives supporting the qualifying interest/special conservation interests of a European site(s). Therefore, the proposed development is likely to have significant effects on a European site(s).
- 82 As the proposed development itself is likely to affect the QIs/SCIs or conservation objectives of a European site(s), there is also the potential for other plans or projects to act in combination with it to result in likely significant effects on European sites.
- 83 The potential impacts of the proposed development on the receiving environment, their Zol, and the European sites at risk of likely significant effects are summarised in Table 1 below. In assessing the potential

for the proposed development to result in a significant effect on any European sites, any measures intended to avoid or reduce the harmful effects of the project on European sites are not taken into account.

**Table 1 Summary of Analysis of Likely Significant Effects on European sites**

Potential Direct, Indirect In Combination Effects and the Zol of the Potential Effects	Are there any European sites within the Zol of the proposed development?
<p>Habitat loss</p> <p>Habitat loss will be confined to the lands within the proposed development boundary.</p>	<p>Yes</p> <p>There are no European sites within the proposed development boundary.</p> <p>As the proposed development works involves permanent rock stabilisation, during the repair works the proposed development will result in the temporary loss of habitat suitable to support the QI/SCI populations of Dalkey Islands SPA, Rockabill to Dalkey Island SPA, South Dublin Bay and River Tolka Estuary SPA, North Bull Island SPA, Howth Head Coast SPA, Baldoyle SPA, Malahide Estuary SPA, The Murrrough SPA, Lambay Island SAC, Lambay Island SPA, Rogerstown Estuary SPA and Ireland's Eye SPA.</p>
<p>Habitat degradation as a result of hydrological impacts</p> <p>Habitats and species downstream of the proposed development site and the associated surface water drainage discharge points, and downstream of offsite wastewater treatment plants.</p>	<p>Yes</p> <p>The European sites at risk of hydrological effects associated with the proposed development are Dalkey Islands SPA, Rockabill to Dalkey Island SAC, South Dublin Bay SAC, North Dublin Bay SAC, and the special conservation interests/qualifying interests of South Dublin Bay and River Tolka Estuary SPA, North Bull Island SPA, Howth Head Coast SPA, Baldoyle SPA, Malahide Estuary SPA, The Murrrough SPA, Lambay Island SAC, Lambay Island SPA, Rogerstown Estuary SPA and Ireland's Eye SPA</p>
<p>Habitat degradation as a result of hydrogeological impacts</p> <p>Groundwater-dependant habitats, and the species those habitats support, in the local area that lie downgradient of the proposed development site.</p>	<p>No</p> <p>There are no European sites at risk of hydrogeological effects associated with the proposed development</p>
<p>Disturbance and displacement impacts</p> <p>Potentially up to several hundred metres from the proposed development boundary, dependent upon the predicted levels of noise, vibration and visual disturbance associated with the proposed development, taking into account the sensitivity of the qualifying interest species to disturbance effects</p>	<p>Yes</p> <p>There are no SCI/QI populations of European sites at risk of disturbance and displacement from their breeding sites.</p> <p>Noise produced as a result of the construction of the proposed development will not result in significant effects on breeding SCI or wintering waterbird species.</p> <p>Foraging QI/SCI populations associated with Dalkey Islands SPA and Rockabill to Dalkey Island SAC are within the potential zone of influence of disturbance effects associated</p>

Potential Direct, Indirect In Combination Effects and the Zol of the Potential Effects	Are there any European sites within the Zol of the proposed development?
	with the construction of the proposed development.

#### 4 Conclusions of Screening Assessment Process

- 84 Following an examination, analysis and evaluation of the best available information, and applying the precautionary principle, it can be concluded that there is the possibility for significant effects on the following European sites, either arising from the project alone or in combination with other plans and projects, as a result of temporary habitat loss and fragmentation, habitat degradation due to hydrological impacts and disturbance and displacement: Dalkey Islands SPA, Rockabill to Dalkey Island SAC, South Dublin Bay SAC, South Dublin Bay and River Tolka Estuary SPA, North Dublin Bay SAC, North Bull Island SPA, Howth Head Coast SPA, Baldoyle Bay SPA, Ireland’s Eye SPA, Malahide Estuary SPA, The Murrrough SPA, Lambay Island SAC, Lambay Island SPA, Rogerstown Estuary SPA.
- 85 In reaching this conclusion, the nature of the project and its potential relationship with all European sites within the zone of influence, and their conservation objectives, have been fully considered.
- 86 Therefore, it is the professional opinion of the authors of this report that the application for consent for the proposed development does require an Appropriate Assessment and the preparation of a Natura Impact Statement (NIS).

## Appendix I

### The Qualifying Interests (QIs) and Special Conservation Interests (SCIs) of the European sites in the vicinity of the proposed development site (see Figure 1)

European Site Name [Code] and its Qualifying interest(s) / Special Conservation Interest(s) (*Priority Annex I Habitats)	Location Relative to the Proposed Development Site
<b>Special Area of Conservation (SAC)</b>	
<p><b>Rockabill to Dalkey Island SAC [003000]</b>            1170 Reefs            1351 Harbour porpoise <i>Phocoena phocaena</i></p> <p><i>S.I. No. 94/2019 - European Union Habitats (Rockabill To Dalkey Island Special Area Of Conservation 003000) Regulations 2019</i>            NPWS (2013) <i>Conservation Objectives: Rockabill to Dalkey Island SAC 003000</i>. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	<p>Approximately 183m east of the proposed development</p>
<p><b>South Dublin Bay SAC [000210]</b>            1140 Mudflats and sandflats not covered by seawater at low tide            1210 Annual vegetation of drift lines            1310 <i>Salicornia</i> and other annuals colonising mud and sand            2110 Embryonic shifting dunes</p> <p><i>S.I. No. 525/2019 - European Union Habitats (South Dublin Bay Special Area of Conservation 000210) Regulations 2019</i>            NPWS (2013) <i>Conservation Objectives: South Dublin Bay SAC 000210</i>. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	<p>Approximately 4.6km northwest of the proposed development</p>
<p><b>North Dublin Bay SAC [000206]</b>            1140 Mudflats and sandflats not covered by seawater at low tide            1210 Annual vegetation of drift lines            1310 <i>Salicornia</i> and other annuals colonising mud and sand            1330 Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>)            1395 Petalwort <i>Petalophyllum ralfsii</i>            1410 Mediterranean salt meadows (<i>Juncetalia maritimi</i>)            2110 Embryonic shifting dunes            2120 Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes)            2130 Fixed coastal dunes with herbaceous vegetation (grey dunes)            2190 Humid dune slacks</p> <p><i>S.I. No. 524/2019 - European Union Habitats (North Dublin Bay Special Area of Conservation 000206) Regulations 2019</i>            NPWS (2013) <i>Conservation Objectives: North Dublin Bay SAC 000206</i>. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	<p>Approximately 8.7km north of the proposed development</p>

European Site Name [Code] and its Qualifying interest(s) / Special Conservation Interest(s) (*Priority Annex I Habitats)	Location Relative to the Proposed Development Site
<p><b>Bray Head SAC [000714]</b></p> <p>1230 Vegetated sea cliffs of the Atlantic and Baltic coasts</p> <p>4030 European dry heaths</p> <p><i>S.I. No. 620/2017 - European Union Habitats (Bray Head Special Area of Conservation 000714) Regulations 2017</i></p> <p>NPWS (2017) <i>Conservation Objectives: Bray Head SAC 000714</i>. Version 1. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.</p>	<p>Approximately 8.7km south of the proposed development</p>
<p><b>Ballyman Glen SAC [000713]</b></p> <p>7220 Petrifying springs with tufa formation (Cratoneurion)*</p> <p>7230 Alkaline fens</p> <p><i>S.I. No. 92/2019 - European Union Habitats (Ballyman Glen Special Area Of Conservation 000713) Regulations 2019</i></p> <p>NPWS (2019) <i>Conservation Objectives: Ballyman Glen SAC 000713</i>. Version 1. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.</p>	<p>Approximately 8.7km southwest of the proposed development</p>
<p><b>Howth Head SAC [000202]</b></p> <p>1230 Vegetated sea cliffs of the Atlantic and Baltic coasts</p> <p>4030 European dry heaths</p> <p><i>S.I. No. 524/2021 - European Union Habitats (Howth Head Special Area of Conservation 000202) Regulations 2021</i></p> <p>NPWS (2016) <i>Conservation Objectives: Howth Head SAC 000202</i>. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.</p>	<p>Approximately 9.5km north of the proposed development</p>
<p><b>Knocksink Wood SAC [000725]</b></p> <p>7220 Petrifying springs with tufa formation (Cratoneurion)*</p> <p>91A0 Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles</p> <p>91E0 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><i>S.I. No. 93/2019 - European Union Habitats (Knocksink Wood Special Area Of Conservation 000725) Regulations 2019</i></p> <p>NPWS (2021) <i>Conservation objectives for Knocksink Wood SAC [000725]</i>. Generic Version 8.0. Department of Housing, Local Government and Heritage.</p>	<p>Approximately 9.9km southwest of the proposed development</p>
<p><b>Wicklow Mountains SAC [002122]</b></p> <p>3110 Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflora</i>)</p> <p>3160 Natural dystrophic lakes and ponds</p> <p>4010 Northern Atlantic wet heaths with <i>Erica tetralix</i></p> <p>4030 European dry heaths</p> <p>4060 Alpine and Boreal heaths</p>	<p>Approximately 12km southwest of the proposed development</p>

European Site Name [Code] and its Qualifying interest(s) / Special Conservation Interest(s) (*Priority Annex I Habitats)	Location Relative to the Proposed Development Site
<p>6130 <i>Calaminarian</i> grasslands of the <i>Violetalia calaminariae</i></p> <p>6230 Species-rich <i>Nardus</i> grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe)</p> <p>7130 Blanket bogs (* if active bog)</p> <p>8110 Siliceous scree of the montane to snow levels (<i>Androsacetalia alpinae</i> and <i>Galeopsietalia ladani</i>)</p> <p>8210 Calcareous rocky slopes with chasmophytic vegetation</p> <p>8220 Siliceous rocky slopes with chasmophytic vegetation</p> <p>91A0 Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles</p> <p>1355 <i>Lutra lutra</i> (Otter)</p> <p>NPWS (2017) <i>Conservation Objectives: Wicklow Mountains SAC 002122</i>. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.</p>	
<p><b>Baldoye Bay SAC [000199]</b></p> <p>1140 Mudflats and sandflats not covered by seawater at low tide</p> <p>1310 <i>Salicornia</i> and other annuals colonizing mud and sand</p> <p>1330 Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>)</p> <p>1410 Mediterranean salt meadows (<i>Juncetalia maritimi</i>)</p> <p><i>S.I. No. 472/2021 - European Union Habitats (Baldoye Bay Special Area of Conservation 000199) Regulations 2021</i></p> <p>NPWS (2012) <i>Conservation Objectives: Baldoye Bay SAC 000199</i>. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht</p>	<p>Approximately 12.8km north of the proposed development</p>
<p><b>Ireland's Eye SAC [002193]</b></p> <p>1220 Perennial vegetation of stony banks</p> <p>1230 Vegetated sea cliffs of the Atlantic and Baltic coasts</p> <p><i>S.I. No. 501/2017 - European Union Habitats (Ireland's Eye Special Area of Conservation 002193) Regulations 2017</i></p> <p>NPWS (2017) <i>Conservation Objectives: Ireland's Eye SAC 002193</i>. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.</p>	<p>Approximately 14km north of the proposed development</p>
<p><b>Glen of the Downs SAC [000719]</b></p> <p>91A0 Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles</p> <p><i>S.I. No. 526/2019 - European Union Habitats (Glen of the Downs Special Area of Conservation 000719) Regulations 2019</i></p> <p>NPWS (2020) <i>Conservation Objectives: Glen of the Downs SAC 000719</i>. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.</p>	<p>Approximately 14.7km southwest of the proposed development</p>

European Site Name [Code] and its Qualifying interest(s) / Special Conservation Interest(s) (*Priority Annex I Habitats)	Location Relative to the Proposed Development Site
<p><b>Lambay Island SAC [000204]</b>            1170 Reefs            1230 Vegetated sea cliffs of the Atlantic and Baltic coasts            1364 Grey seal <i>Halichoerus grypus</i>            1365 Harbour seal <i>Phoca vitulina</i></p> <p>S.I. No. 294/2019 - European Union Habitats (Lambay Island Special Area Of Conservation 000204) Regulations 2019            NPWS (2013) Conservation Objectives: Lambay Island SAC 000204. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht</p>	<p>Approximately 23.4km north of the proposed development</p>
<b>Special Protection Area (SPA)</b>	
<p><b>Dalkey Islands SPA [004172]</b>            A192 Roseate Tern <i>Sterna dougallii</i>            A193 Common Tern <i>Sterna hirundo</i>            A194 Arctic Tern <i>Sterna paradisaea</i></p> <p>S.I. No. 238/2010 - European Communities (Conservation of Wild Birds (Dalkey Islands Special Protection Area 004172)) Regulations 2010.            NPWS (2022) Conservation objectives for Dalkey Islands SPA [004172]. Generic Version 9.0. Department of Housing, Local Government and Heritage.</p>	<p>Approximately 93m east of the proposed development</p>
<p><b>South Dublin Bay and River Tolka Estuary SPA [004024]</b>            A046 Light-bellied Brent Goose <i>Branta bernicla hrota</i>            A130 Oystercatcher <i>Haematopus ostralegus</i>            A137 Ringed Plover <i>Charadrius hiaticula</i>            A141 Grey Plover <i>Pluvialis squatarola</i>            A143 Knot <i>Calidris canutus</i>            A144 Sanderling <i>Calidris alba</i>            A149 Dunlin <i>Calidris alpina</i>            A157 Bar-tailed Godwit <i>Limosa lapponica</i>            A162 Redshank <i>Tringa totanus</i>            A179 Black-headed Gull <i>Chroicocephalus ridibundus</i>            A192 Roseate Tern <i>Sterna dougallii</i>            A193 Common Tern <i>Sterna hirundo</i>            A194 Arctic Tern <i>Sterna paradisaea</i>            A999 Wetland and Waterbirds</p> <p>S.I. No. 212/2010 - European Communities (Conservation of Wild Birds (South Dublin Bay and River Tolka Estuary Special Protection Area 004024)) Regulations 2010.            NPWS (2015) Conservation Objectives: South Dublin Bay and River Tolka Estuary SPA 004024. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	<p>Approximately 4.0km northwest of the proposed development</p>

European Site Name [Code] and its Qualifying interest(s) / Special Conservation Interest(s) (*Priority Annex I Habitats)	Location Relative to the Proposed Development Site
<p><b>North Bull Island SPA [004006]</b>  A046 Light-bellied Brent Goose <i>Branta bernicla hrota</i>  A048 Shelduck <i>Tadorna tadorna</i>  A052 Teal <i>Anas crecca</i>  A054 Pintail <i>Anas acuta</i>  A056 Shoveler <i>Anas clypeata</i>  A130 Oystercatcher <i>Haematopus ostralegus</i>  A140 Golden Plover <i>Pluvialis apricaria</i>  A141 Grey Plover <i>Pluvialis squatarola</i>  A143 Knot <i>Calidris canutus</i>  A144 Sanderling <i>Calidris alba</i>  A149 Dunlin <i>Calidris alpina</i>  A156 Black-tailed Godwit <i>Limosa limosa</i>  A157 Bar-tailed Godwit <i>Limosa lapponica</i>  A160 Curlew <i>Numenius arquata</i>  A162 Redshank <i>Tringa totanus</i>  A169 Turnstone <i>Arenaria interpres</i>  A179 Black-headed Gull <i>Chroicocephalus ridibundus</i>  A999 Wetlands &amp; Waterbirds</p> <p><i>S.I. No. 211/2010 - European Communities (Conservation of Wild Birds (North Bull Island Special Protection Area 004006)) Regulations 2010.</i>  NPWS (2015) <i>Conservation Objectives: North Bull Island SPA 004006</i>. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	<p>Approximately 8.6km north of the proposed development</p>
<p><b>Howth Head Coast SPA [004113]</b>  A188 Kittiwake <i>Rissa tridactyla</i></p> <p><i>S.I. No. 185/2012 - European Communities (Conservation of Wild Birds (Howth Head Coast Special Protection Area 004113)) Regulations 2012.</i>  NPWS (2022) <i>Conservation objectives for Howth Head Coast SPA [004113]</i>. Generic Version9.0. Department of Housing, Local Government and Heritage.</p>	<p>Approximately 9.8km northeast of the proposed development</p>
<p><b>Wicklow Mountains SPA [004040]</b>  A098 Merlin <i>Falco columbarius</i>  A103 Peregrine <i>Falco peregrinus</i></p> <p><i>S.I. No. 586/2012 - European Communities (Conservation of Wild Birds (Wicklow Mountains Special Protection Area 004040)) Regulations 2012.</i>  NPWS (2022) <i>Conservation objectives for Wicklow Mountains SPA [004040]</i>. Generic Version 9.0. Department of Housing, Local Government and Heritage.</p>	<p>Approximately 12.0km southwest of the proposed development</p>



European Site Name [Code] and its Qualifying interest(s) / Special Conservation Interest(s) (*Priority Annex I Habitats)	Location Relative to the Proposed Development Site
<p><b>Baldoyle Bay SPA [004016]</b>  A046 Light-bellied Brent Goose <i>Branta bernicla hrota</i>  A048 Shelduck <i>Tadorna tadorna</i>  A137 Ringed Plover <i>Charadrius hiaticula</i>  A140 Golden Plover <i>Pluvialis apricaria</i>  A141 Grey Plover <i>Pluvialis squatarola</i>  A157 Bar-tailed Godwit <i>Limosa lapponica</i>  A999 Wetland and Waterbirds</p> <p><i>S.I. No. 275/2010 - European Communities (Conservation of Wild Birds (Baldoyle Bay Special Protection Area 004016)) Regulations 2010.</i>  NPWS (2013) <i>Conservation Objectives: Baldoyle Bay SPA 004016. Version 1.</i> National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	<p>Approximately 13.0km north of the proposed development</p>
<p><b>Ireland's Eye SPA [004117]</b>  A017 Cormorant <i>Phalacrocorax carbo</i>  A184 Herring Gull <i>Larus argentatus</i>  A188 Kittiwake <i>Rissa tridactyla</i>  A199 Guillemot <i>Uria aalge</i>  A200 Razorbill <i>Alca torda</i></p> <p><i>S.I. No. 240/2010 - European Communities (Conservation of Wild Birds (Ireland's Eye Special Protection Area 004117)) Regulations 2010.</i>  NPWS (2022) <i>Conservation objectives for Ireland's Eye SPA [004117].</i> Generic Version 9.0. Department of Housing, Local Government and Heritage.</p>	<p>Approximately 13.6km north of the proposed development</p>
<p><b>Malahide Estuary SPA [004025]</b>  A005 Great Crested Grebe <i>Podiceps cristatus</i>  A046 Light-bellied Brent Goose <i>Branta bernicla hrota</i>  A048 Shelduck <i>Tadorna tadorna</i>  A054 Pintail <i>Anas acuta</i>  A067 Goldeneye <i>Bucephala clangula</i>  A069 Red-breasted Merganser <i>Mergus serrator</i>  A130 Oystercatcher <i>Haematopus ostralegus</i>  A140 Golden Plover <i>Pluvialis apricaria</i>  A141 Grey Plover <i>Pluvialis squatarola</i>  A143 Knot <i>Calidris canutus</i>  A149 Dunlin <i>Calidris alpina</i>  A156 Black-tailed Godwit <i>Limosa limosa</i>  A157 Bar-tailed Godwit <i>Limosa lapponica</i>  A162 Redshank <i>Tringa totanus</i>  A999 Wetland and Waterbirds</p>	<p>Approximately 18.5km north of the proposed development</p>

European Site Name [Code] and its Qualifying interest(s) / Special Conservation Interest(s) (*Priority Annex I Habitats)	Location Relative to the Proposed Development Site
<p><i>S.I. No. 285/2011 - European Communities (Conservation of Wild Birds (Malahide Estuary Special Protection Area 004025)) Regulations 2011.</i></p> <p>NPWS (2013) <i>Conservation Objectives: Malahide Estuary SPA 004025. Version 1.</i> National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	
<p><b>The Murrough SPA [004186]</b></p> <p>A001 Red-throated Diver <i>Gavia stellata</i>  A043 Greylag Goose <i>Anser anser</i>  A046 Light-bellied Brent Goose <i>Branta bernicla hrota</i>  A050 Wigeon <i>Anas penelope</i>  A052 Teal <i>Anas crecca</i>  A179 Black-headed Gull <i>Chroicocephalus ridibundus</i>  A184 Herring Gull <i>Larus argentatus</i>  A195 Little Tern <i>Sterna albifrons</i>  A999 Wetland and Waterbirds</p> <p><i>S.I. No. 298/2011 - European Communities (Conservation of Wild Birds (The Murrough Special Protection Area 004186)) Regulations 2011.</i></p> <p>NPWS (2022) <i>Conservation objectives for The Murrough SPA [004186].</i> Generic Version 9.0. Department of Housing, Local Government and Heritage.</p>	<p>Approximately 19km south of the proposed development</p>
<p><b>Lambay Island SPA [004069]</b></p> <p>A009 Fulmar <i>Fulmarus glacialis</i>  A017 Cormorant <i>Phalacrocorax carbo</i>  A018 Shag <i>Phalacrocorax aristotelis</i>  A043 Greylag Goose <i>Anser anser</i>  A183 Lesser Black-backed Gull <i>Larus fuscus</i>  A184 Herring Gull <i>Larus argentatus</i>  A188 Kittiwake <i>Rissa tridactyla</i>  A199 Guillemot <i>Uria aalge</i></p> <p><i>S.I. No. 242/2010 - European Communities (Conservation of Wild Birds (Lambay Island Special Protection Area 004069)) Regulations 2010.</i></p> <p>NPWS (2022) <i>Conservation objectives for Lambay Island SPA [004069].</i> Generic Version 9.0. Department of Housing, Local Government and Heritage.</p>	<p>Approximately 23.2km north of the proposed development</p>
<p><b>Rogerstown Estuary SPA [004015]</b></p> <p>A043 Greylag Goose <i>Anser anser</i>  A046 Brent Goose <i>Branta bernicla hrota</i>  A048 Shelduck <i>Tadorna tadorna</i>  A056 Shoveler <i>Anas clypeata</i>  A130 Oystercatcher <i>Haematopus ostralegus</i>  A137 Ringed Plover <i>Charadrius hiaticula</i></p>	<p>Approximately 23.8km north of the proposed development</p>

European Site Name [Code] and its Qualifying interest(s) / Special Conservation Interest(s) (*Priority Annex I Habitats)	Location Relative to the Proposed Development Site
<p>A141 Grey Plover <i>Pluvialis squatarola</i>  A143 Knot <i>Calidris canutus</i>  A149 Dunlin <i>Calidris alpina alpina</i>  A156 Black-tailed Godwit <i>Limosa limosa</i>  A162 Redshank <i>Tringa totanus</i>  A999 Wetlands</p> <p><i>S.I. No. 271/2010 - European Communities (Conservation of Wild Birds (Rogerstown Estuary Special Protection Area 004015)) Regulations 2010.</i></p> <p><i>NPWS (2013) Conservation Objectives: Rogerstown Estuary SPA 004015. Version 1.</i>  National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	

## Appendix II

### Construction Noise Calculation. Coliemore Harbour Remediation Permanent Works.

Prepared by Arup (2021).

## 1 Schedule of Noise-Generating Equipment<sup>11</sup>

Equipment	Sound Pressure L <sub>Aeq</sub> dB at 10m	Comment
Hand-held pneumatic breaker	95	
Hand-held pneumatic rock drill	90	
Compressor	86	
Mobile telescopic crane 80t	84	
Water pump	81	
Grout mixer and pump	80	
3kW Hand-held circular saw	79	May be used if additional prep of rock-face needed
167kW concrete mixer	76	
Mini piling rig (worst case)	76	
45kW compressor for mini piling	75	
Lorry	70	
Concrete pump	67	
Diesel generator	59	

## 2 Noise Calculation

The noisiest piece of equipment (hand-held pneumatic breaker) will generate a sound pressure level of up to 95dBA at 10m for relatively brief periods of time. In operation, this will effectively mask noise generated by other equipment with sound pressure levels more than 10dB lower. The four noisiest pieces of equipment (which range in sound pressure levels of 95dBA down to 84dBA at 10m) which may

<sup>11</sup> Data from BS 5228-1:2009+A1:2014

operate simultaneously were therefore selected for modelling. This is a worst-case scenario, and there is no potential for more than one of any of these four pieces of equipment to be in operation at the same time.

Applying the following formula:

Total sound pressure level ( $SPL_{Total}$ ) =  $\{ \text{sum of } 10^{((SPL1+SPL2+...)/10)} \}$  dB.

Simultaneous operation of equipment with sound pressure levels of 95+90+86+84dBA logarithmically sums to a total equivalent sound pressure level of 97dBA at 10m from the construction activity.

Sound attenuates by 6dB for each doubling of distance assuming point source propagation (which is reasonable in this case), so at 100m, the sound pressure level will be 77dBA, and at 300m, the sound pressure level will be 68dBA.

### 3 Noise Impact Assessment

The closest identified sensitive ecological receptor is a Tern nesting site at Lamb's Island, which is approximately 300m from the site of the proposed works. The consulting ecologist has identified that there is a risk of impact on nesting terns if noise levels exceed 70dB at the nesting location.

The highest noise levels modelled in this assessment will only occur for relatively short periods of time, as the hand-held pneumatic breaker breaks through the outer face of the rock, for each of the piles (conservatively assumed to be a 30-minute period for each pile).

During these periods, noise levels of up to 68dB attributable to the construction activities may be experienced at Lamb's Island. This is a worst-case assessment, and below the identified threshold of 70dB for adverse effects on nesting terns, and therefore no impact is predicted at the identified ecological sensitive receptor.