Moneypoint Security of Supply

Appropriate Assessment Screening and Natura Impact Statement

February 2024

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Contents

Tables

Figures

Photos

1 Introduction

1.1 Project Overview

Mott MacDonald Ireland Limited (Mott MacDonald) have been appointed by the Electricity Supply Board to prepare and lodge a planning application for the continued generation and associated change of fuel type used (ie from coal to Heavy Fuel Oil [HFO]) of Moneypoint Generating Station. The Electricity Supply Board, hereafter referred to as ESB or 'the Applicant', are required to submit a strategic infrastructure development application to An Bord Pleanála under Section 37E of the Planning and Development Act 2000 (as amended) for the project.

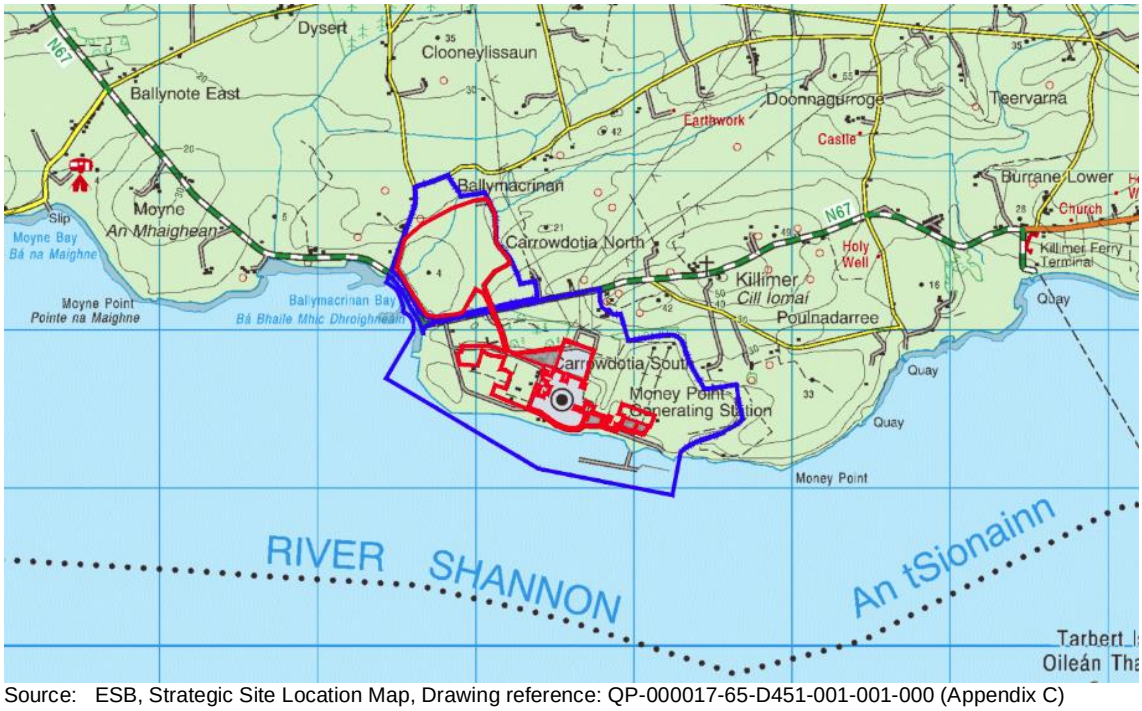
At present Moneypoint Generating Station primarily operates as a coal fired power station. It is proposed to convert its primary fuel source to Heavy Fuel Oil (HFO) with limited run hours from late 2024 until the end of 2029 (hereafter referred to as the "proposed development"). The proposed development will act as an out of market generator of last resort and will operate only when required by the Transmission System Operator (EirGrid) for security of supply reasons.

Moneypoint Generating Station lies on the northern shore of the [Lower] Shannon Estuary, in the townland of Carrowdotia North, Carrowdotia South and Ballymacrinan, County Clare, and is located approximately 4km southeast from Kilrush, the nearest town, and approximately 1.8km west of Killimer village. Figure 1.1 shows the strategic location of Moneypoint Generating Station.

Moneypoint Generating Station lies within a larger ESB landholding comprising approximately 180 hectares of land onshore and approximately 65 hectares within the nearshore. The extent of land above the (historic) high water mark within ESB's ownership is presented in Figure 1.1. The red line boundary indicates the planning application boundary of the proposed development whereas the blue line boundary represents ESB's ownership boundary. There are no works proposed below the (historic) high water mark (i.e. within the nearshore) as part of the proposed development.

Moneypoint Generating Station is a strategically important part of the energy generation network across Ireland and contributes to ensuring that energy needs are met nationwide, meeting on average ca.12-15% of national demand. The project aims to ensure that the power station remains viable as an energy generation node until 2029, whereafter ESB intends on transforming the site and redeveloping it as a hub for the offshore renewable sector as part of the ESB's 'Towards Zero' Strategy. The project also aims to deliver the phasing out of fossil fuels under the Programme for Government (2020).

Figure 1.1: Moneypoint Generating Station – Strategic Location Map



Source: ESB, Strategic Site Location Map, Drawing reference: QP-000017-65-D451-001-001-000 (Appendix C)

The proposed development will comprise of the following:

1. Transition and conversion of the existing coal fired power station's primary fuel from coal to Heavy Fuel Oil (HFO) for limited hours of operation and a temporary period of five years until the 31 December 2029;
2. Construction of 2no. HFO tanks each with a capacity of 25,000 tonnes (approx. 48.7m diameter x 15m H) and associated bund walls (approx. 5.0m high);
3. Construction of a new boiler house (approx. 24m L x 18m W x 11m H) to house 2no. auxiliary boilers (1no. electric and 1.no distillate, each approx. 22.7MW (thermal output), including:
   - 1no. blow down vessel (approx. 4.5m wide x 13m high)
   - 1no. exhaust Stack (approx. 1.0m diameter and 30m H)
   - 1no. annex structure (approx. 10.0m L x 5m W x 4m H)
4. Construction of an extension to each of the existing 3no. Flue Gas Desulphurisation Absorbers (FGD) – units 1, 2 and 3, to provide additional reclaimed ash unloading facilities (ash injection plant extension), comprising:
   - 1no. conveyor enclosure (approx. 7.0m L x 2.5m W x 22m H)
   - 1no. hopper enclosure (approx. 6m L x 5m W x 6m H)
5. Construction of a reclaimed ash unloading facility at the existing landfill capping batching plant, comprising a hopper enclosure adjoining the existing batching plant (approx. 14.0m L x 6.5m W x 6.0m H) and conveyor enclosure (approx. 3.5m L x 3.5m W x 11.5m H)
6. Dismantling and removal of 2no. mobile stacker reclaimers and 1no. coal conveyor bridge;
7. Changes to existing permitted Flue Gas Desulphurisation (FGD) by-product and ash storage area (ASA) arrangements (Pl. Ref. 14/373) to utilise spare capacity in the existing ASA [capping layer thickness increase from 0.6m (*minimum*) up to a maximum of 1.6m] with an overall proposed reduction in height of the currently permitted ASA by approx. 1.85m; and,

8. All associated ancillary site development works to facilitate the proposed development, including a new lighting arrangement, surface water drainage, internal roads and temporary construction compounds and laydown areas.

1.2 Purpose and Scope of this Document

This report has been prepared to assist the relevant competent national authority (An Bord Pleanála) for the proposed development, to fulfil the requirements of Article 6(3) of the EU Habitats Directive 92/43/EEC ('The Habitats Directive').

1.3 Requirement for Appropriate Assessment

1.3.1 European Law

Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (Habitats Directive) requires that where a plan or project is likely to have a significant effect on a European Site, while not directly connected with or necessary to the nature conservation management of the site, it will be subject to 'Appropriate Assessment' to identify any implications for the European site in view of the site's Conservation Objectives. Specifically, Article 6(3) of the Habitats Directive states:

"Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to ***appropriate assessment*** *of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public".*

1.3.2 Irish Law

In the context of the Proposed Development, the Habitats Directive is transposed into Irish law by Part XAB of the Planning and Development Act 2000 (as amended) ('the Planning Acts'), and the Planning and Development Regulations 2001 as amended ('the Planning Regulations').

Under Section 177T(1)(b) of the Planning Acts,

"*A Natura impact statement means a statement, for the purposes of Article 6 of the Habitats Directive, of the implications of a proposed development, on its own or in combination with other plans or projects, for one or more than one European site, in view of the conservation objectives of the site or sites.(2) Without prejudice to the generality of subsection (1), a Natura impact report or a Natura impact statement, as the case may be, shall include a report of a scientific examination of evidence and data, carried out by competent persons to identify and classify any implications for one or more than one European site in view of the conservation objectives of the site or sites."*

Under Section 177U(1) of the Planning Acts,

"A screening for AA of the Proposed Development shall be carried out by the competent authority to assess in view of best scientific knowledge, if the Proposed Development, individually or in combination with another plan or project, is likely to have a significant effect(s) on any European sites."

Under Section 177U(4) of the Planning Acts, the competent authority (in this case, Longford County Council) shall determine that an AA of a Proposed Development is required if it *cannot be excluded* [emphasis added], on the basis of objective information, that the Proposed

Development, individually or in combination with other plans or projects, will have a significant effect on a European site(s).

AA is the process provided for under Article 6(3) of the Habitats Directive to determine whether a project or plan could 'adversely affect the integrity' of any European sites, either alone or in-combination with other plans or projects, in light of the conservation objectives of the European sites in question.

Under Section 177V(1) of the Planning Acts', An appropriate assessment *shall include a determination by the competent authority under Article 6.3 of the Habitats Directive as to whether or not a draft Land use plan or Proposed Development would adversely affect the integrity of a European site*.

Under Section 177V(2) of the Planning Acts', the competent authority shall, in carrying out an appropriate assessment under subsection (1), "*take into account each of the following matters*:

- the Natura impact report or Natura impact statement, as appropriate;
- any supplemental information furnished in relation to any such report or statement;
- if appropriate, any additional information sought by the authority and furnished by the applicant in relation to a Natura impact statement;
- any additional information furnished to the competent authority at its request in relation to a Natura impact report;
- any information or advice obtained by the competent authority;
- if appropriate, any written submissions or observations made to the competent authority in relation to the application for consent for proposed development;
- any other relevant information."

1.4 European Sites and Features

A network of European sites of conservation importance has been identified by each Member State, hosting habitats and/or species identified in the Directives as needing to be either maintained at or returned to 'favourable conservation status'.

The sites of conservation importance known as European sites comprise the Natura 2000 network.

European sites comprise areas designated as Special Areas of Conservation (SACs) and/or Special Protection Areas (SPAs) in Ireland.

The process of designating Candidate Special Areas of Conservation (cSACs) as SACs is ongoing in Ireland. Candidate sites (in Ireland comprising cSACs) have the same legal protection as those whose designation is complete.

The designation features of SACs are referred to as Qualifying Interests (Qis), and these comprise both species (excluding birds), and habitats.

The designation features of SPAs are referred to as Special Conservation Interests (SCIs), and these comprise bird species, as well as wetland bird habitats.

The designation features of European sites are identified in the Statutory Instruments for European sites where such sites have completed the designation process. In all cases, designation features are also identified in Conservation Objectives published by the National Parks and Wildlife Service (NPWS). Any Conservation Objectives referred to in this NIS are referenced to identify the date of publication and version number.

1.5 Statement of Authority

Dr. Elaine Bennett (Technical Principal) prepared this report. Elaine is a qualified and experienced environmental scientist and ecologist. She has over 15 years' experience in the environmental consultancy sector and in the preparation of Environmental Impact Assessment Reports, Environmental Reports, Ecological/Biodiversity Assessments and Appropriate Assessments (Screening and Natura Impact Statements). She has supported clients in providing environmental support for a wide variety of large-scale infrastructure, including wastewater treatment plants and pipelines, gas infrastructure, electrical infrastructure, power stations, wind farms and cables, solar farms, quarries and greenways.

Eliot Taylor (Senior Associate Ecologist) is a freshwater ecologist with over 35 years' experience in: Appropriate Assessment and Natura Impact Statements; Climate change adaption; Environmental aspects of water resources assessment and management; Transboundary river basin management; Wetland planning, management and monitoring; Biological monitoring (especially for water quality); Freshwater ecosystem health and ecological status assessment (especially for the Water Framework Directive); Environmental (Biodiversity) and Ecological Impact Assessment; Design and implementation of freshwater and other ecological fieldwork; River and wetland ecology and hydro-ecology; River and wetland restoration and management, including ecological mitigation; Remediation of eutrophication impacts in lakes; Non-native invasive species impacts, control and management, and; Stakeholder engagement processes.

Eliot has worked in the UK and Ireland, as well as internationally in Guinea, Liberia, Rwanda, Kenya, Uganda, Zambia, Zimbabwe, Mozambique, Malawi, South Africa, Botswana and Namibia.

2 Methodology

2.1 Desk Study

This report has been prepared in accordance with the following European Commission Guidance:

- EC (2021) 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
- EC (2018) Managing Natura 2000 sites. The provisions of Article 6 of the Habitats Directive 92/43/EEC Commission Notice C (2018) 7621.
- DEHLG (2009) Appropriate Assessment of Plans and Projects in Ireland Guidance for Planning Authorities (Revised 2010).
- Office of the Planning Regulator (OPR) (2021) Practice Note PN01 – Appropriate Assessment Screening for Development Management.
- EC (2007) Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC: Clarification of the concepts of alternative solutions and imperative reasons of overriding public interest, compensatory measures, overall coherence, opinion of the Commission.

This report has similarly been prepared in accordance with principles and law laid down by relevant rulings of the Court of Justice of the European Union (CJEU) and the Superior Courts of Ireland.

This assessment includes a desk-based review of available records of protected species and habitats including where appropriate the following sources:

- Conservation Status Assessment Reports (CSARs), Backing Documents and Maps prepared in accordance with Article 17 of the Habitats Directive;
- Site Synopsis and Conservation Objective Reports available from NPWS;
- Published and unpublished NPWS reports on protected habitats and species including Irish Wildlife Manual reports, Species Action Plans, and Conservation Management Plans; and
- Existing relevant mapping and databases, e.g., waterbody status, species and habitat distribution etc. (sourced from the Environmental Protection Agency – http://gis.epa.ie/, the National Biodiversity Data Centre – http://maps.biodiversityireland.ie and the National Parks and Wildlife Services – http://www.npws.ie/mapsanddata/

2.2 Consultation

NPWS responded on 6 October 2023 and made the following observations (the letter is included in Appendix A):

- The proposed development will increase the traffic of delivery oil tankers in the outer estuary and issues arising from this include a cumulative increase in underwater noise, an increase in risk of an oils spill in the outer estuary and an increase in the risk of introduction of invasive marine organisms.
- There is potential for an accidental oil discharge during loading or transport of the heavy fuel oil, and risk of catastrophic oil release.
- An oil spill in the outer estuary would affect many bird species and it is recommended to include offshore and onshore SPAs in the assessment including Magharee Islands SPA, Blasket Islands SPA, Skelligs SPA, Loop Head SPA, Mid-Clare Coast SPA, Cliffs of Moher SPA, Tralee Bay Complex SPA.

- Coastal habitats in Lower River Shannon SAC to be assessed.
- The sufficiency of oil booms to be addressed.
- If contaminated soil is to be built upon, this should be assessed.
- A description of shoreline habitats around the jetty and any new infrastructure to be described in full.
- Noise disturbance to be considered in detail.
- Air dispersion modelling to be considered as part of the EIAR.
- Noted that there is a lesser horseshoe bat roost on site.

Clare County Council responded on 17 October 2023 and made the following observations in relation to the NIS (letter presented in Appendix A):

- Baseline information is available in the Strategic Integrated Framework Plan (SIFP)
- Mitigation measures in SIFP to be reviewed.

Irish Whale and Dolphin Group (IWDG) responded on 27 October 2023 and made the following observations:

- The project doesn't raise any immediate concerns, as there are no in-water works proposed.

3 Receiving Environment

3.1 Moneypoint Generating Station

Moneypoint Generating Station comprises a large complex of structures. Electricity generation occurs at three. Ca. 300MW rated coal-fired units (Units 1 to 3), which entered service between 1985 and 1987. Moneypoint is primarily a coal fired station, with Heavy Fuel Oil (HFO) used as a start-up fuel and in limited other circumstances. The IE licence states that all units are dual-fired, capable of full load on coal and/or HFO firing.

Currently on site, fuel is stored in two existing HFO tanks each with a capacity of 25,000 tonnes, and two existing distillate storage tanks, each with a capacity of 300 tonnes. Therefore, the site has a cumulative HFO and distillate oil storage capacity of 50,600 tonnes. Under the Chemicals Act (Control of Major Accident Hazards involving Dangerous Substances) Regulations 2015 (S.I. No. 209 of 2015) (the “COMAH Regulations”) the existing volume of fuel oil (i.e. dangerous substances) stored on-site categorises Moneypoint Generating Station as an “upper tier establishment”. This classification will remain unchanged as a result of the proposed development and obliges ESB to comply with additional requirements for the prevention of major accidents involving dangerous substances, as specified in the COMAH Regulations.

Moneypoint Generating Station site is licenced by the Environmental Protection Agency (EPA) under an Industrial Emissions (IE) Licence [Register number: P0605-04].

Throughout its operation, Moneypoint Generating Station has been maintained and improved to meet relevant environmental standards, and the IE licence has been amended or reviewed as appropriate.

Set within a rural landscape, Moneypoint is a significant brownfield landbank long associated with the generation of electricity and associated activities including fuel management, wind energy generation and electrical infrastructure.

ESB has long signalled its intention to cease burning coal at Moneypoint Generating Station from the end of 2025 as part of their broader strategy which commits ESB to a zero-carbon future. Furthermore, plans have been announced for the transformation of the Moneypoint site and its re-development as a hub for the offshore renewables sector, this project is known as “Green Atlantic @ Moneypoint”. The Green Atlantic @ Moneypoint project is a multi-billion programme of significant investment to the site over the next decade, which will include a floating offshore wind farm, wind turbine construction hub and the development of green hydrogen production, storage and generation facility. There are no project interdependencies between the subject proposed development and Green Atlantic @ Moneypoint. Green Atlantic @ Moneypoint will be subject to a separate planning consent application.

The proposed development is described in Section 4.

3.2 2023 Field Survey for the Proposed Development Area

The majority of the proposed development is to occur on existing built land, but will require some works within semi-natural habitats, such as scrub and a number of modified grasslands. Additionally, works will be carried out in the vicinity of woodland and coastal habitats.

Historic maps indicate the presence of a number of streams within the proposed development area. Following initial development of this site, and associated land reclamation works, these streams have, however, either been culverted (as is the case for the Mologha stream) or diverted and are no longer present. A drainage network is present, and this provides a

hydrological connection between to the Lower River Shannon SAC and the River Shannon and River Fergus Estuaries SPA.

Figure 3.1 illustrates the habitats present within the Moneypoint site.

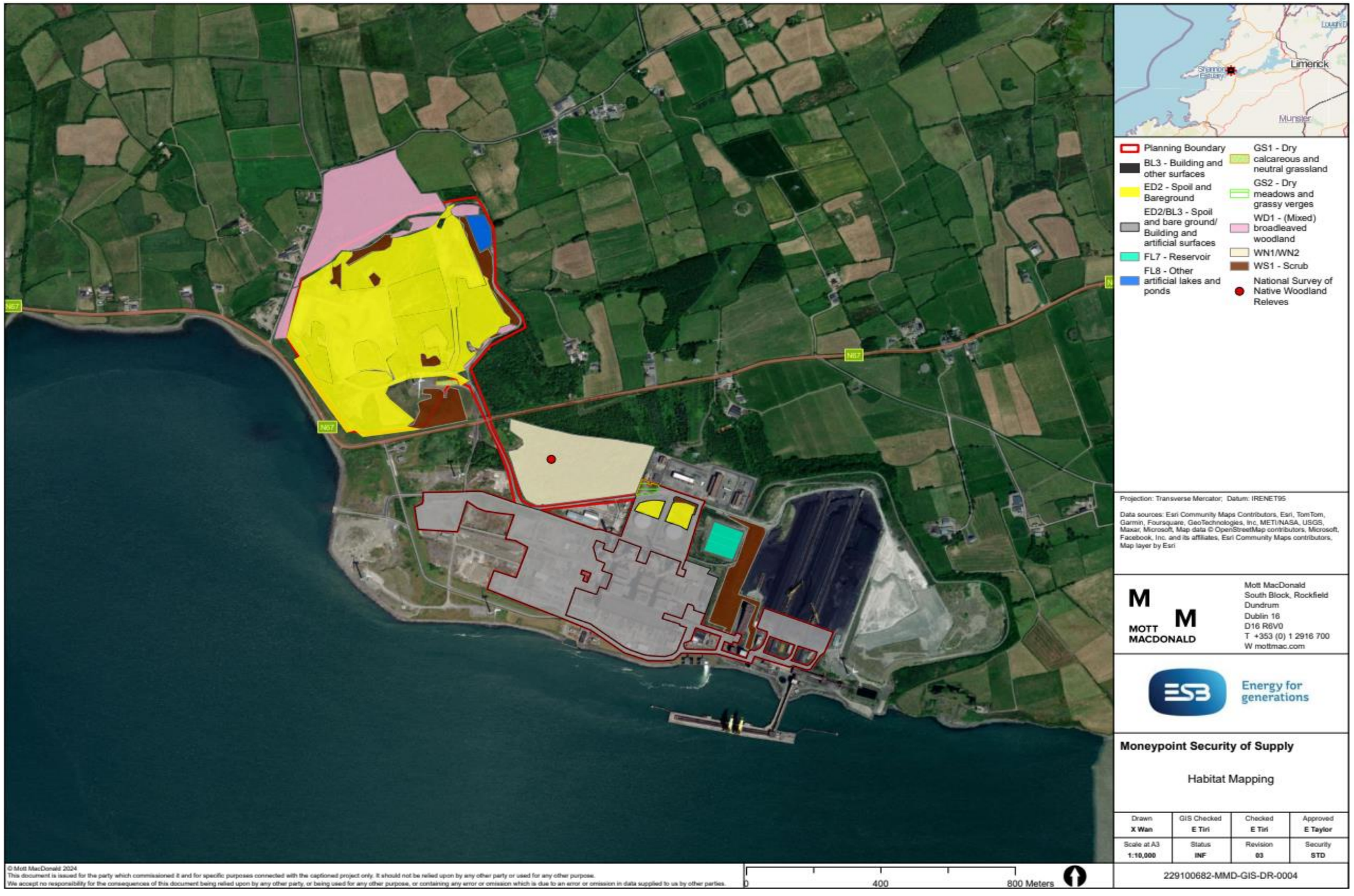
Habitat classification codes are provided with reference to level 3 under Fossit[45].

Sea walls, Piers and Jetties (CC1)

Much of the south and southwestern boundary of the proposed development area is located immediately adjacent to coastal defence structures consisting of large rocks. This habitat was found to be species poor, mainly consisting of bare rock armour with a number of species of disturbed ground, such as bramble (*Rubus fruticosus* agg.), grass species such as Yorkshire fog (*Holcus lanatus*) and the flowering plant lesser hawkbit (*Leontodon saxatilis*) where the coastal defences meet the roadside verge. It is noted that this habitat does not occur within the boundary of the proposed development and does not conform to Annex I quality habitat.

Photo 3.1: Coastal defences immediately south of the proposed development.

Figure 3.1: Habitat Map



Source: Mott MacDonald, 2024

Building and Artificial Surfaces (BL3) and Bare Ground (ED2)

A significant area of the proposed development is considered to be building and artificial surfaces (BL3) and bare ground (ED2), consisting of internal access roads, buildings (including storage sheds), housing for generation equipment, associated industrial infrastructure, and gravelled and hardstanding areas surrounding these features.

Some disused buildings have shown signs of overgrowth and vegetation intrusion, by species such as ivy (*Hedera helix*), gorse (*Ulex europaeus*), bramble (*Rubus fruticosus*) and Willow spp. (*Salix* spp.).

Large sections of bare ground are noted north of the N67 in the ash deposition area. Active ash deposition is ongoing in these areas but where it has ceased in adjacent lands, it has reverted to semi-natural grassland habitat.

Photo 3.2: Building and surrounding gravelled surface within the Moneypoint Generating Station

Photo 3.3: Bare ground located in the Ash Storage Area, north of the N67

Recolonising Bare Ground (ED3)

Some areas of bare ground/gravelled verges have overgrown and are showing signs of reversion to grasslands, particularly Dry Calcareous and neutral grassland (GS1) (Photo 3.4). Species recorded include bee orchid (*Ophrys apifera*), yellow wort (*Blackstonia perfoliata*), common knapweed (*Centaurea nigra*), plantain (*Plantago lanceolata*), birds foot trefoil (*Lotus corniculatus*) and clover (*Trifolium* spp.).

Photo 3.4: Recolonised bare ground within Moneypoint Generating Station

Scrub (WS1)

Areas of scrub are noted to occur across the project area and consist of typical species, such as gorse, ivy and bramble (Photo 3.5). Other common components include spinose plants such as hawthorn (*Crataegus monogyna*), blackthorn (*Prunus spinosa*), and erect or scrambling roses (*Rosa* spp.), in addition to a number of willows, birch (*Betula* spp.) and hazel (*Corylus avellana*).

Medium impact invasive species Japanese rose (*Rosa rugosa*) was also identified within an area of scrub habitat north of the N67 (Photo 3.6).

These habitats occur in a number of contexts, including in mosaics with other woody habitats.

Photo 3.5: Scrub located within the Moneypoint Generating Station

Photo 3.6: Scrub habitat including Japanese rose located within the Ash Storage Area, north of the N67

(Mixed) Broadleaf Woodland (WD1)

Areas of WD1 are located along much of the peripheral boundary of the proposed development north of the N67 and outside, but immediately adjacent to, the northern boundary of the southern section of the proposed development.

These woodlands occur in a number of contexts, including in established mixed and single species stands, and grading into and out of scrub habitats. Species recorded varied from area to area but included oak (*Querus* spp.), ash (*Fraxinus excelsior*), birch spp., willow spp., pine spp. (*Pinus* spp.) and beech (*Fagus* spp.). Semi-natural ground flora was observed in the oak woodland, located to the northwest and western boundaries of the proposed development north of the N67.

An area of potential Ancient Woodland is located to the immediate north of a section of the southern section of the proposed development, with a second section of Potential Ancient Woodland located ca 225m northwest of the proposed development at the most proximal point.

Dry Meadows and Grassy Verges (GS2)

This habitat type is common on the proposed site, being one of the grassland types which has developed on overgrown and reverting ash deposits.

This habitat is typified by occasional maintenance (e.g., mowing) with little to no grazing or fertiliser application. This pattern of management produces grasslands with a high proportion of tall, coarse and tussocky grasses, such as false oat-grass (*Arrhenatherum elatius*) and cock's-foot (*Dactylis glomerata*). Other grasses may include Yorkshire-fog, smooth meadow-grass (*Poa pratensis*), and meadow foxtail (*Alopecurus pratensis*). Broadleaved herbs such as cow parsley (*Anthriscus sylvestris*), hogweed (*Heracleum sphondylium*), nettle (*Urtica dioica*), common knapweed, meadow vetchling (*Lathyrus pratensis*), pignut (*Conopodium majus*), creeping cinquefoil (*Potentilla reptans*) and clovers may also occur.

Photo 3.7: Dry meadow habitat, located north of the N67.

Dry Humid Acid Grassland (GS3)

Two areas of dry humid acid grassland are noted to occur within the western half of section of the proposed development north of the N67.

Dense low swards of narrow-leaved grasses, such as bents (*Agrostis capillaris, A. tenuis*), fescues (*Festuca* spp.), sweet vernal-grass (*Anthoxanthum odoratum*), and wavy hair-grass (*Deschampsia flexuosa*) tend to dominate this habitat. Woodrushes (*Luzula* spp.), small sedges may also make up a significant proportion of the vegetation with common broadleaved herbs including, tormentil (*Potentilla erecta*), white clover (*Trifolium repens*), and common dog violet (*Viola riviniana*). Scattered shrubs of hawthorn or patches of gorse are also common.

Photo 3.8: Dry Humid Acid Grassland, located south of the N67

Other Artificial Lakes and Ponds (FL8)

One pond is located within the vicinity of the proposed development, with one occurring within the boundary of the ash storage area north of the N67. There is also service water reservoir located within the Moneypoint Generating Station. These artificial waterbodies occur in different contexts, with some surrounded by built ground with close connections to the industrial elements on site. Others are surrounded in semi-natural woodland/scrub mosaics.

Photo 3.9: Service Reservoir in located within the Moneypoint Generating Station

Hedgerow / Treeline (WL2)

Hedgerow and treeline habitats are noted throughout the proposed development, particularly along the outer boundaries. Species composition of these habitats varied throughout the site and, in general, species recorded within these linear landscape features included poplar (*Populus* spp.), hawthorn, ash, oak (*Quercus* spp.), alder (*Alnus glutinosa*), pine (*Pinus* spp.), willow, European larch (*Larix decidua*), rowan (*Sorbus aucuparia*), sycamore (*Acer pseudoplatanus*), Chatham Island akeake (*Olearia traversiorum*), and ivy.

3.3 Previous Ecological Surveys

There have been many previous surveys of the Moneypoint site, relevant results are detailed below.

Marine mammal and seabird surveys are ongoing. Bottlenose dolphin, common dolphin and harbour porpoise were recorded in the estuary in addition to seals. A total of at least 25 species have been recorded during seabird surveys, with herring gull and guillemot in every survey to date.

A dropdown video survey was carried out. The dominant subtidal habitat in the area surrounding Moneypoint is a subtidal reef community, corresponding to the NPWS “Anemone-dominated subtidal reef community”. This habitat corresponds with EU Habitats Directive Annex I habitat Reefs (1170),

Field surveys were undertaken at the site between 2022 and 2023. These surveys overlapped with areas of the proposed development. Multiple signs of otter, including spraints and couches, were identified during these surveys. Two of three couches identified during an otter survey in 2022 were re-found. No actual otter holts were confirmed at the site, however, possible holting sites were identified at two locations. One was identified within the armour under the bridge to the jetty and the second was located under the pier towards the east of the site. It was not

possible to thoroughly search these areas, but multiple, large accumulations of spraints at these locations were noted. Furthermore, there is ample holting opportunity within gaps etc. within the well sheltered rock armour under the bridge. These features are located outside of, but in close proximity to, the redline boundary of the proposed development.

Wintering bird surveys were also conducted. A total of 18 species were recorded, of which 14 were species of conservation concern including five of Special Conservation Interests in relation to the River Shannon and River Fergus Estuaries SPA The fourteen species are as follows:

- Black-headed Gull *Chroicocephalus ridibundus (SCI)*
- Teal *Anas crecca (SCI)*
- Redshank *Tringa tetanus (SCI)*
- Ringed Plover *Charadrius hiaticula (SCI)*
- Lapwing *Vanellus vanellus (SCI)*
- Buzzard *Buteo buteo*
- Common Gull *Larus canus*
- Herring Gull *Larus argentatu*
- Kestrel *Falco tinnunculus*
- Kittiwake *Rissa tridactyla*
- Mallard *Anas platyrhynchos*
- Snipe *Gallinago gallinago*
- Sparrowhawk *Accipiter nisus*
- Woodcock *Scolopax rusticola*

Breeding Bird Surveys (BBS) were also undertaken and a total of 37 species were recorded in 2022 within, or flying over, the proposed development site, especially in and around the ASA and to the west of the coal yard. A total of 31 species were recorded in the 2023 season. 24 species were noted as probable or confirmed breeding in 2022, and 19 in 2023 including seven species of conservation concern, these included:

- Coot *Fulicra atra* – confirmed breeding
- Greenfinch *Chloris chloris* – probable breeding
- Linnet *Linaria cannabina* – confirmed breeding
- Meadow Pipit *Anthus pratensis* – confirmed breeding
- Ringed plover *Charadrius hiaticula* – confirmed breeding
- Swallow *Hirundo rustica* – confirmed breeding
- Wheatear *Oenanthe Oenanthe* – confirmed breeding

In general, these birds occur outside of the redline boundary of the proposed development, with the exception of the ASA which hosts BOCCI Amber listed Swallow, Ringed Plover and Linnet, and Red listed Meadow Pipit. These species are considered to be within the ZoI of the proposed development.

4 Description of the Proposed Development

4.1 Introduction

Moneypoint Generating Station comprises a large complex of structures. Electricity generation occurs at three 300MW rated coal-fired units, which entered service between 1985 and 1987. A service road was developed beneath the N67, linking the station with the northern 50 hectare parcel of land, where the station's ash disposal facility was developed. Moneypoint Generating Station lies within ESB's 180 hectare onshore landholding.

Moneypoint Generating Station is a coal fired station with HFO used as a start-up fuel and in limited circumstances. Coal and HFO are delivered to Moneypoint by ship via the dedicated jetty located on the southern boundary of the site. Distillate, as diesel and propane, which are used as startup fuels, are delivered to the site by road. Further key features of the site are identified on Figure 4.1.

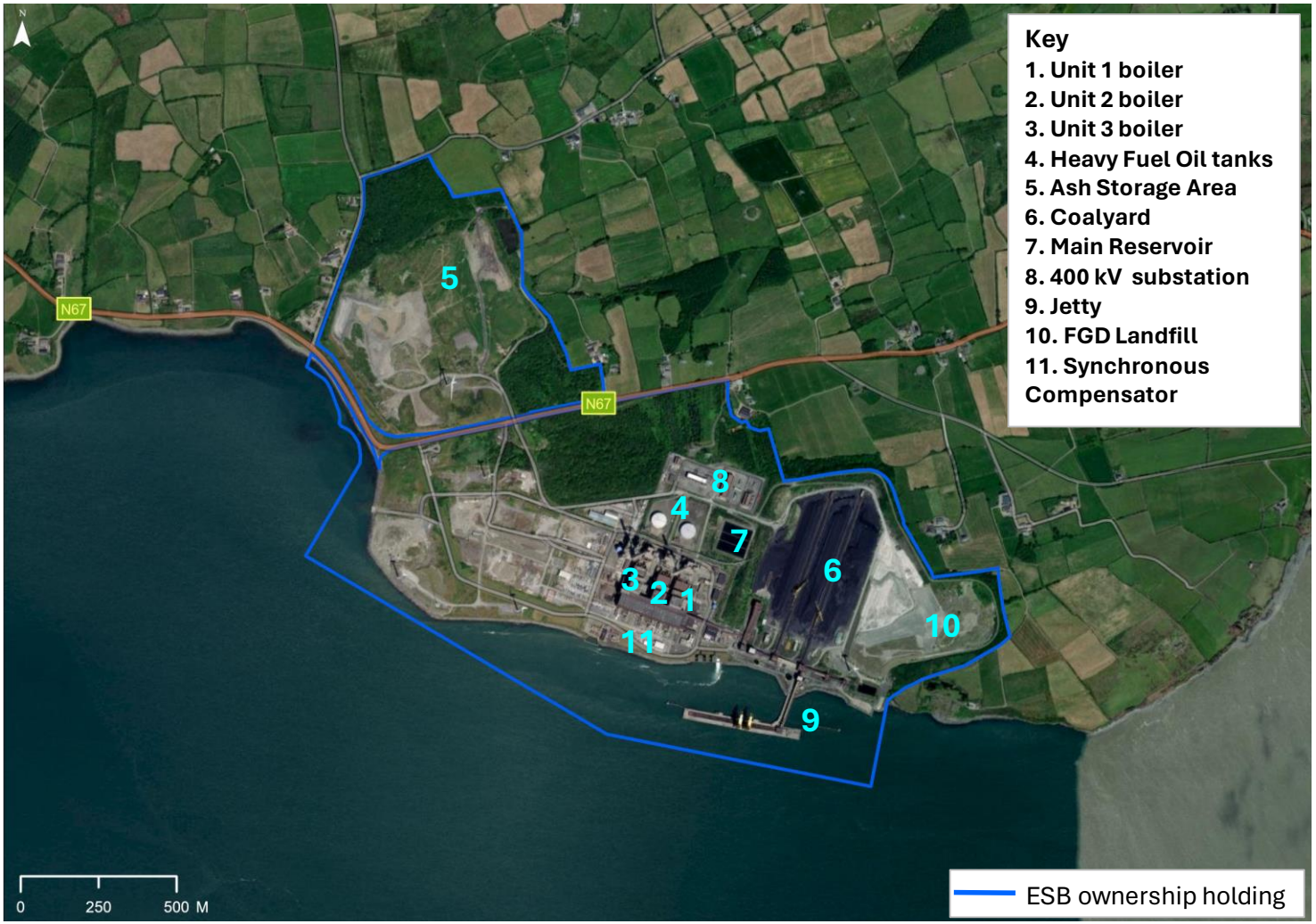
ESB propose to transition and convert the primary fuel source at Moneypoint from coal to HFO with limited run hours (described in terms of generating hours, per unit, per year) from late 2024 until late 2029 when Moneypoint Generating Station will cease generation.

HFO for the units will be provided from the existing two HFO storage tanks and two new HFO tanks with upgraded bunding. HFO deliveries will be via marine oil tanker and off loaded at the existing oil jetty using the existing infrastructure. Two (2 No.) new auxiliary boilers, one diesel boiler and one electric boiler, are proposed to be located in a new auxiliary boiler house. Distillate for the diesel auxiliary boiler will be supplied from the existing distillate (diesel) storage tanks and forwarding system. Distillate (diesel) will still be delivered by road tanker. The second auxiliary boiler will be electrical fired and will import power from the grid under the existing connection agreement with EirGrid.

There will be no change to the existing generating boilers, turbines, transformers or associated equipment. No changes to the HFO forwarding systems will be required to facilitate the proposed transition to HFO. Each unit is connected to the national grid through the existing 400kV substation which will not change.

The Moneypoint Generating Station site operates, and will continue to operate, under the existing Industrial Emissions licence (Register Number: P0605-04), regulated by the Environmental Protection Agency (EPA).

Figure 4.1: Key Features of Moneypoint Generating Station (existing)



Source: Mott MacDonald (Satellite imagery source: Maxar, Microsoft, Esri, TomTom, Garmin, Foursquare, GeoTechnologies, Inc, METI/NASA, USGS')

4.2 The Proposed Development

ESB is proposing a development consisting of the following elements:

1. Transition and conversion of the existing coal fired power station's primary fuel from coal to Heavy Fuel Oil (HFO) for limited hours of operation and a temporary period of five years until the 31 December 2029;
2. Construction of 2no. HFO tanks each with a capacity of 25,000 tonnes (approx. 48.7m diameter x 15m high) and associated bund walls (approx. 5.0m high);
3. Construction of a new boiler house (approx. 24m L x 18m W x 11m H) to house 2no. auxiliary boilers (1no. electric and 1.no distillate, each 22.7MW (thermal output), including:
   – 1no. Blow down vessel (approx. 4.5m wide x 13m high)
   – 1no. Exhaust Stack (approx. 1.0m diameter and 30m H)
   – 1no. Annex structure (approx. 10.0m L x 5m W x 4m H)
4. Construction of an extension to each of the existing 3no. Flue Gas Desulphurisation Absorbers (FGD) – units 1, 2 and 3, to provide additional reclaimed ash unloading facilities (ash injection plant extension), comprising:
   – 1no. conveyor enclosure (approx. 7.0m L x 2.5m W x 22m H)
   – 1no. hopper enclosure (approx. 6m L x 5m W x 6m H)
5. Construction of a reclaimed ash unloading facility at the existing landfill capping batching plant, comprising of a hopper enclosure adjoining the existing batching plant (approx. 14.0m L x 6.5m W x 6.0m H) and conveyor enclosure (approx. 3.5m L x 3.5m W x 11.5m H)
6. Dismantling and removal of 2no. mobile stacker reclaimers and 1no. coal conveyor bridge;
7. Changes to existing permitted Flue Gas Desulphurisation (FGD) by-product and Ash Storage Area (ASA) arrangements (Pl. Ref. 14/373) to utilise spare capacity in the existing ASA [capping layer thickness increase from 0.6m (*minimum*) up to a maximum of 1.6 meters] with an overall proposed reduction in height of the currently permitted ASA by approx. 1.85m; and,
8. All associated ancillary site development works to facilitate the proposed development, including a new lighting arrangement, surface water drainage, internal roads and temporary construction compounds and laydown areas.

The details of the proposed changes are discussed in sections below and are also presented in the Proposed Site Layout planning drawings, QP-000017-65-D451-005-001-000 to 005-003-000 (Appendix C).

Subject to a grant of planning permission, it is intended that the proposed development will result in the phasing out of coal sourced energy production and provide opportunity to support renewable energy infrastructure in its replacement from 2029 onwards. Final decommissioning of the station and any future use of the site beyond 2029 will be subject of a separate grant of planning permission. There are no project interdependencies between any future developments and the proposed development.

4.2.1 Transition and Conversion to HFO

ESB propose to transition and convert the primary fuel source at Moneypoint from coal to HFO with limited run hours (described in terms of generating hours, per unit, per year) from October 2024 until the end of 2029, when Moneypoint Generating Station will cease generation.

The existing generating units were originally designed to be fuelled using 100% coal, 100% HFO or a combination of both. The IE licence also states that all units are dual-fired, capable to fire full load on coal and/or HFO.

It is currently part of normal operations to co-fire HFO and coal during start-up, and during full load if there are issues with flame stability using coal only. HFO is also utilised for load changes and during maintenance or repairs. In exceptional circumstances individual units have been fired on 100% HFO for short periods.

The majority of the existing infrastructure at Moneypoint can be utilised without significant, if any, modification thereby negating the need to undertake extensive works to the generating units and associated infrastructure themselves. There is therefore no requirement, beyond normal maintenance and repairs, for upgrades to the generating station itself, other than as described in this section, to fuel the generating station using HFO.

Under the conditions of the Targeted Contracting Mechanism (TCM) agreed between ESB and EirGrid, the plant will no longer be a base load plant in the energy supply market. The proposed development will operate as an out of market generator of last resort for an average of 3,000 hours per annum per unit. Typically, the plant will run during the winter months and at times of low renewable generation e.g. low wind and solar energy production. This contrasts significantly with the existing regime whereby generation can take place 365 days, 24hr per day at all three units i.e. up to 8,760 hours per unit per year (total 26,280 hours over three units).

While it is envisaged the station will operate for an average of 3,000 hours per unit per year over the TCM period; each of the three units must also be available to operate for up to 5,000 hours per unit per year to provide capacity in times of extreme tightness in the electricity system. Regardless, the total maximum run hours across the three units over the full five-year period of the TCM will not exceed 45,000 run hours. All environmental assessments of this proposal have considered impacts arising from this maximum running time of 45,000 hours across the three units over the five years.

Whilst run hours will be limited to times of grid stress, the station will be required by EirGrid to operate on a must run basis. It is EirGrid that will ultimately control the number of hours that each unit must run, and this decision will be made based on the supply of and demand for electricity at any time.

Given that it is ESB's stated policy to cease coal firing by 2025, it is proposed to run down coal stocks up to the end of 2025. A transition period of co-firing, from October 2024 to the end of 2025 will be required to ensure all remaining coal in the coal yard can be consumed. During this period one or more units may be fired using a combination of HFO and coal or fully on one fuel or the other. From the end of 2025 it is proposed to cease coal firing fully and fuel the plant solely using HFO with distillate (diesel) and propane used for start-up and shut down.

4.2.2 Proposed New HFO Tanks

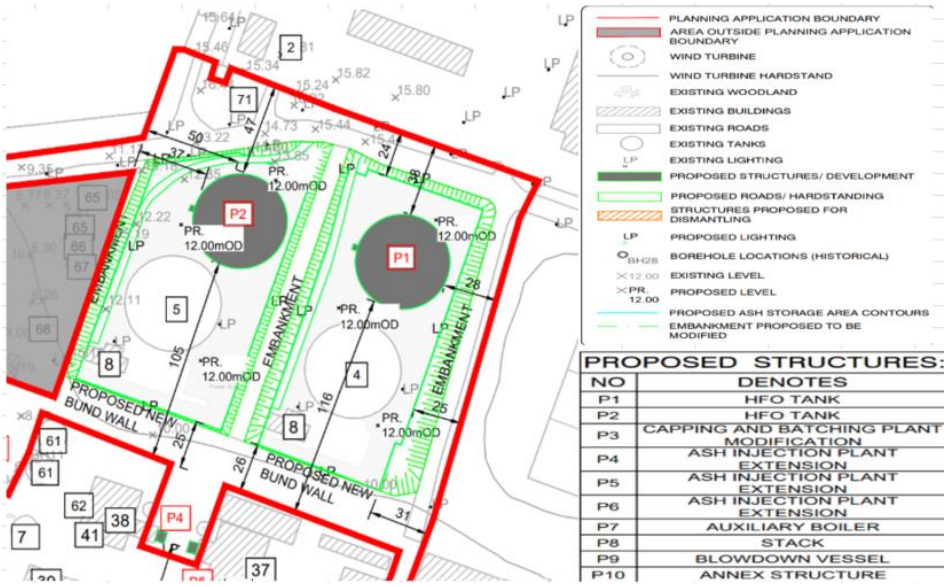
The two new HFO storage tanks are proposed to be located within the existing bunds to the north of the existing tanks, as shown in Figure 4.4. The HFO and auxiliary steam connections will be tied into the existing supply and return pipework and will utilise the existing HFO forwarding pumps and HFO supply line from the Jetty.

The tanks will have a proposed capacity of 25,000 tonnes (ca. 25,773m^3) each. This will result in a total HFO storage capacity of 100,000 tonnes or 20 days of storage running at full capacity.

The proposed tanks will be the same height and diameter as the existing tanks. They will be clad in a similar coated metal finish in Dusty Grey (RAL colour 7037) or similar, to match the colour of the existing tanks.

Existing HFO pumping and piping will be used for the purposes of filling the new and existing HFO tanks as well as supplying the boilers with fuel. Only new connections to the new tanks will be required.

Figure 4.2: Proposed HFO tanks



Source: Extracted from Planning Drawing QP-000017-65-D451-005-001-000

The existing bund will be upgraded to include a concrete floor across the entire bund. New bund walls will be constructed from reinforced concrete to a height of approximately 3.98m (bund 1) to 4.41m (bund 2), to ensure containment volumes of ca. 30,406m^3 and ca. 30,545m^3 respectively. This takes into account 110% of the largest tank oil volume, a potential extreme rainfall event to cover any emergency response periods and an additional 3,981 m^3 for any potential firefighting water to take into account requirements in the Guidance Note to Industry on Fire Water Retention Facilities (EPA, 2019) and CIRIA Guidance C736.

Due to the proposed increase in height of the bund walls, the access ramp will be upgraded to ensure a safe gradient is maintained, this ramp from the roadway to the north of the HFO storage area will be raised by ca. 1.4m to allow access into the bund. Lamp posts will also be installed to the permitter of the bund.

4.2.3 Proposed Auxiliary Boilers

Two (2 No.) new auxiliary boilers are proposed to be located in a new auxiliary boiler house, to the west of Unit 3 boiler house and close to an existing pipe rack with the necessary services. The purpose of these boilers are for HFO and deaerator (D/A) heating, and boiler start up. It is proposed to include one electric and one diesel fired boiler each ca. 22.7MW (thermal output). See Section 4.5.1.1 regarding the operation of these auxiliary boilers.

It is envisaged that the electric boiler will be the primary auxiliary boiler to be used while the plant is on standby due to its faster start up time and reduced GHG emissions. However, the diesel auxiliary boiler will also start up during times of electricity supply shortfall where the energy for the electric auxiliary boiler may not be available and during multiple unit starts. Designs have been developed on the basis of 15 cold unit starts and 15 warm unit starts but ultimately the number of starts will be dependent on electricity supply and demand and will be controlled by EirGrid.

The proposed diesel auxiliary boiler stack is located at the southwestern corner of the proposed boiler house and is proposed to be 30m in height. This will be metal clad. As required in the IE licence, an access platform for the purposes of emissions monitoring is proposed in line with

Guidance Note on Site Safety Requirements for Air Emissions Monitoring (AG1) (EPA, 2020), Air Emissions Monitoring Guidance Note (AG2) (EPA, 2021), Guidance Note on monitoring of Stack Gas Emissions from Medium Combustion Plants (AG11) (EPA, 2021) and EN15259. It is proposed that the platform will be located 14.5m above ground level, 360 degrees around the stack at a depth of 3m from the stack. A railing is provided for at a height of minimum 1.1m above the platform. The platform is proposed to be accessed via an access ladder on the west side of the stack from ground level. The access platform and associated structures will be constructed from galvanized steel.

The building finish will be clad in metal cladding coated in a Sepia brown (RAL Colour 8014), or similar.

4.2.4 Changes to FGD By-product and Ash Storage Area Arrangements

When the existing FGD by-product Landfill Area A reaches full capacity, it is proposed to utilise the spare capacity in the existing ASA to store the FGD by-product. At present bottom ash, which is generated in the furnace and is a much courser ash, is segregated in separate cells within the ASA and discussion are ongoing with block manufacturers regarding using this material as a substitute in low density blocks.

Fly ash, or what is often referred as PFA, is collected form the flue gas and is typically drier and finer. It is stored dry in three storage silos on site, before either being sold to cement manufacturers as a cement substitute or conditioned with water before being landfill in the ASA. Sales of PFA have been dropping over the last number of years due to lower cost of alternatives and the longer transport distances.

The reclamation of ash from the existing ash area appears to have been considered in the IE licence under Condition 10.6.2 – *"The final capping shall, as and where appropriate, be designed and constructed to facilitate the future recovery of ash deposited in the landfills".* Note that approval will be required from the EPA in accordance with the relevant Waste Regulations.

Given that FGD Landfill Area A is nearing capacity and the land use requirements for area B, FGD by-product produced in the period 2025 to 2029, will require an alternative storage arrangement. Furthermore, relatively little ash and significantly less FGD by-product will be produced in the years 2025-2029 compared with continuous operation fuelled by coal. The ash concentration as a result of HFO combustion is a maximum of 0.15%, compared to coal firing, which has an ash concentration of 7.7% to 9.1%. There will therefore be negligible volumes of ash to be stored once the plant is fuelled using HFO. It is therefore proposed to utilise the spare capacity in the ASA by increasing the cap thickness for the purposes of managing ash and FGD by product for the years between 2025-2029.

It is proposed to increase the thickness of the FGD/Ash capping layer from 0.6 m up to a maximum of 1.6 m in order to store all the FGD by-product produced during the years 2025 to 2029. This coupled with a reduced quantity of ash to be stored overall will result in a reduced height of up to 1.85m when compared to what was granted under permission P14/373 while maintaining the same profile.

It should be noted that the final volume of FGD material produced and therefore the final ASA height will be highly dependent on run hours. As noted previously, EirGrid will have control on how many run hours the plant is operational for and therefore the amount of FGD material produced. The final profile may be at a lower level. As was previously permitted, once complete the final profile will resemble a dome-like shape and will be finished with a layer of topsoil and seeded with meadow grass mix of native provenance.

A chemical/physical analysis is presently ongoing to ensure HFO generated PFA/FGD by-product has similar physical and chemical properties of coal generated material. Periodic

sampling and analysis is undertaken and the results submitted to the EPA as a condition of the IEL for their review and agreement.

A feasibility and high-level design study by a materials handling specialist has proposed a reclaimed truck unloading facility to the west of the Batching plant, and direct feed of the wet reclaimed ash upstream of the existing batching mixer into the existing dry PFA feed line. This proposal utilising the existing batching plant and weighbridges will ensure a consistent blended capping material is produced. A summary of the proposed solution:

- Recovered ash from the ASA will be dumped into a lorry unloading hopper to the west of the Batching plant. Dust will not be an issue however a partial housing should be instructed to minimise wind and rain impacts.
- Ash is then fed to a series of rotating disks/shredders which ensure all lumps are broken down and the material is retuned to a fine consistency.
- Conditioned ash is then raised to the 12.3m level and injected into the existing PFA inspection points on mixer A and B.
- Mixing rates will be controlled by varying the speed of the feeder screw. The existing feed control system can be modified to incorporate this new source.
- Any process dust will be vented into the existing extraction system.

4.2.4.1 FGD By-product Batching

ASA site capping and berm construction comprises a mixture of 47.5% fly ash, 47.5% FGD by-product and 5% cement. The capping material is mixed in the batching plant building upstream of the pipe conveyor and truck loading bay, water is added to the mixture to bring the moisture ratio to 15%.

The proposed capping material has been tested and has similar properties and permeability as the existing blend. Minimal leachate is produced through the proposed capping blend and relevant topics will be included in the Annual Landfill Status Report to ensure compliance with Schedule F of the current IE licence.

After the plant begins operation on HFO, an insufficient volume of fly ash for capping material batching will be produced. Hence, ash will need to be reclaimed from the ASA and mixed in accordance with the capping material ratios above. This will ensure consistent minimum permeability rates to those in the existing ASA arrangements.

Fly ash is proposed to be recovered by front loader or excavator at the ASA. It will then be transported by dumper truck to the existing capping material batching plant via the existing underpass under the N67. It is proposed to be tipped into a new hopper sump located adjacent to the existing batching plant. From this hopper it is proposed to be conveyed into the existing batching plant where it will be blended with FGD by product and cement before being returned to the ASA as capping material.

The cladding to this building extension will be a brown cladding (RAL 8014), or similar, to match the existing.

4.2.5 Ash Reclamation for FGD System

Ash is required in the flue gas desulphurisation (FGD) system to create a fluidised bed for the process. HFO ash content is up to 0.15% compared with 7.7%-9.1% for coal. Fly ash in the flue gas when fuelled by HFO is therefore significantly reduced and is not sufficient to create fluidised bed conditions in the FGD system. When firing with HFO alone it is proposed to reclaim ash from the ASA for use in the FGD system to create the required fluidised bed conditions.

Based on experience, it is likely that approximately 30 tonnes per unit per week of fly ash will be required for bed stability. This equates to approximately 120 tonnes per week, allowing for an additional 30 tonnes for any free lime fluctuations and flexible operations i.e. multiple starts and stops. This approximate 120 tonnes of ash per week will be recovered from the newer fly ash cells using a low loader or excavator and tipper truck. The tipper truck will transport the material via the existing underpass under the N67 to underneath the existing ash storage silos. Once coal firing ceases, these ash storage silos will no longer be in use. From here ash will be transported using a separate low loader to one of the three (3No.) proposed five tonne shovel feed hoppers below the existing 3No. FGD absorbers. This reclaimed ash will then be fed back into the FGD process through a proposed system of bucket conveyors, shredders and screw conveyors. All of this equipment will be contained within the proposed new building annex.

The proposed building annexes will be clad in a brown cladding (RAL 8014), or similar, to match the existing.

4.2.6 Surface Water Drainage

The addition of two new HFO tanks necessitates a refurbishment of the existing earthen HFO bunds. This upgrade will include the addition of an impermeable liner and provision of walls within the bunds. The new floor shall be capped with a 200mm thick reinforced concrete slab.

A network of gullies, aco channels (or similar) and surface water pipelines will be required to convey stormwater to the south of each bund. As with the existing surface water drainage system, discharge of the proposed surface water from the bund areas will be controlled by a manually operated valve. The valve will, as is currently the case, be set to closed position and only opened following inspection in accordance with the IEL conditions to drain each bund. The pathway taken by surface water from here will follow the existing drainage lines to the IEL Surface Water Drain SW2 via an upgraded oil/water separator. The presence and careful management of settling chambers and a shut-off valve upstream of the existing Class 1 full retention oil separator ensure that it will continue to have adequate capacity to treat the additional impermeable area being drained to it.

The proposed auxiliary boiler house, batching plant and FGD ash injection containment building will require roof drainage which will connect into nearby existing surface water drainage but will not necessitate any prior treatment nor flow control measures given the capacity of the downstream drainage network.

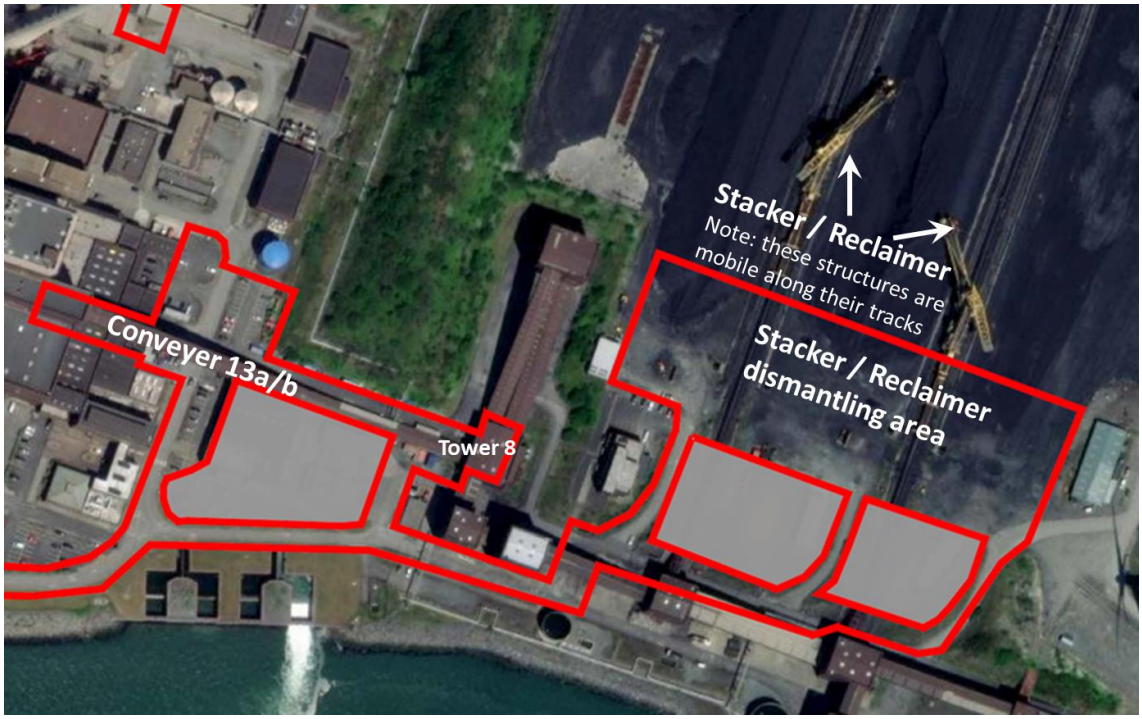
4.2.7 Partial Dismantling and Removal of Coal Handling Plant

The plan is that the coalyard operation will cease in December 2025 as part of the planning application for the proposed development. The expectation is that coal burning will cease at mid-2025 through careful coal stock management. A six month period has been allowed for any residual coal to be used and any coal recovery process to be embarked on in order to minimise coal residual volumes. It is proposed to dismantle and remove the stacker reclaimers within the coal yard and rising conveyors 13A and 13B to ground level. These are largely metal structures and dismantling will be by controlled dismantling only. See Figure 4.3 and Planning Drawing QP-000017-65-D451-003-001-000 to 003-003-000 (Appendix C) for further details.

The scope of this planning application includes the main body of each stacker reclaimer along with the intermediate conveyor structure and main machine ballast. Conveyors 13A and 13B run from ground level at Transfer Tower 8 to the top of the Bunker Bay located between the Turbine Hall and Boilers. In addition to the conveyors, the structural supports and the weather housing structure are to be removed. The ground level reclaimer travel tracks are excluded from the scope of this planning application.

All works will be limited to the removal of the above ground plant/structures, to top of slab/ground level. The opening in the side of the main station building bunker bay will be re-cladded following removal of the rising belt conveyor and associated structure.

Figure 4.3: Limited Dismantling of Coal Handling Equipment



Source: ESB QP-000017-65-D451-003-001-000 to 003-003-000 Site Location (Aerial) -1 of 3

4.2.7.1 Closure Tasks and Programmes

The decommissioning and dismantling of the rising conveyors (13A and 13B) and the stacker reclaimers will involve the following tasks:

- Parking of the stacker reclaimers within the works area
- Hazardous Material Survey
- Plant and Equipment Decontamination
- Plant and Equipment Decommissioning
- Dismantle of Coalyard Equipment

Further details on each of these tasks are set out in Section 4.2.7.2 to Section 4.2.7.6.

4.2.7.2 Parking

The stacker reclaimers are mobile along their tracks. They will first be parked within the proposed works area as shown in Drawing QP-000017-65-D451-005-001-000 (Appendix C).

4.2.7.3 Hazardous Insulation Material Surveys

Prior to any works taking place ESB will undertake an inspection to identify the presence of all hazardous materials used in the construction of the structures and within the plant. Such

materials can include; asbestos, refractory ceramic fibres, ozone depleting foams, Polychlorinated Biphenyls (PCBs) in transformer oils, etc.

Where possible these will be removed prior to dismantling, however it is anticipated that there will be no hazardous insulating materials in the plant and structures to be demolished, as part of the dismantling works. The use of specialist contractors and the production of task specific method statements in line with relevant legislation and best practice will be implemented as per the Construction Environmental Management Plan (CEMP) and Resource and Waste Management Plan (RWMP).

4.2.7.4 Plant and Equipment Decontamination

The two known substances that require removal are remaining coal (dust) and residual oils in machinery (motors, etc.). The structures to be dismantled and decommissioned will be washed down to remove and collect coal which will be disposed of or recycled. All waste will be managed in accordance with the Waste Management Act 1996 and associated regulations. The level of coal decontamination will be determined to ensure that the demolition methodology (Section 4.2.6.6) does not result in significant airborne organic dust. Any remaining coal dust and coal, not removed previously, will be managed collected, and disposed of by the demolition contractor. Dust monitoring and suppression methods will be in place during demolition.

Oil will be drained, collected, and disposed of from all machinery. It should be noted, however, residues will still be present.

4.2.7.5 Plant and Equipment Decommissioning

All plant and equipment will be isolated and air-gapped from respective services (cabled and piped). Documentation will be provided to confirm isolations.

4.2.7.6 Dismantle of Coalyard Equipment

It should be noted that the selected contractor will be suitably experienced to undertake the dismantling works. A detailed pre-qualification process prior to inviting tenders will be caried out.

Stacker reclaimers will be dismantled in one of two general methods:

- Controlled collapse to ground level for processing, or

  Stacker reclaimers will be pre-weakened (following a detailed structural engineering assessment and justification) and collapsed. Once on the floor the structures will be size reduced utilising shears mounted on demolition excavators and secondary processing by hot cutting.
- Dismantling by large section crane lifts.

  Sections of the structures will be piecemeal removed (following structural assessment to ensure temporary stability is maintained), using at least two cranes, with the items progressively lowered to ground level for further size reduction using hydraulic shears mounted on demolition excavators and secondary processing by hot cutting.

Conveyors 13A and 13B will be dismantled in the following manner.

- Firstly, the length supported above ground level will be lifted down in sections (including support legs), utilising two large mobile cranes with a third smaller support crane, and mobile platforms.
- Each section will be laid down to the east of the power station (adjacent and on the eastern road) where demolition excavators will initially size reduce them prior to secondary processing by hot cutting.

- The opening formed in the eastern elevation of the bunker bay due to the removal of the conveyors will be sealed using sheeting purlins and steel sheeting to match existing (reused from removed conveyors).
- The section from Transfer Tower 8, to approximately halfway to the bunker bay, is located at ground floor level and will be demolished using shears mounted on demolition excavators and secondary processing by hot cutting.

4.3 Construction Phase Activities

4.3.1 Construction Schedule

Construction of the proposed development is expected to take ca. 21 months from September 2024, subject to grant of planning permission.

During this period, the three existing generating units will be undergoing maintenance overhauls. One unit will switch to firing HFO followed by the other two units as stocks of coal are reduced.

A contractor compound and laydown area and associated welfare facilities are long established on the Moneypoint Generating Station site complex. It is proposed to utilise these facilities for the proposed development. As such, no preconstruction or site mobilising works are anticipated prior to commencement of the construction works.

It is anticipated that the construction works will be undertaken in one phase and each element of the works will be constructed sequentially. An indicative schedule is set out in Table 4.1.

Table 4.1: Indicative Construction Programme

Months	Construction Activities
21 Months	**Electrical Aux Boiler followed by Distillate Aux Boiler**
Months 1 to 21	● Auxiliary boiler building and enabling works ● Equipment installation (M&E construction) ● Commissioning
13 Months	**ASA Injection and Batching Plant**
Months 7 to 19	● Absorber and batching civil construction (equipment supply) ● Absorber and batching M&E construction (site erection) ● Commissioning
19 Months	**HFO Tanks Construction**
Months 3 to 21	● HFO tanks construction ● HFO bund construction – Base and floor – Bund walls and ramp

It is proposed to dismantle and remove the stacker reclaimers and metal steelwork within the coal yard and rising conveyors 13A and 13B to ground level, once all coal stocks have been exhausted. These are largely metal structures and dismantling will be by controlled dismantling only. It is envisaged that a separate contract will be required to undertake this element of the works. The dismantling process is expected to take four months and these works will not coincide with the construction works.

4.3.2 Construction Access

All construction traffic will arrive via the N67 national road via the same entrance to the operation site. Heavy Goods Vehicles (HGVs) from outside the local area will be required to access the N67 via the N68 and the M18. Smaller vehicles including Light Goods Vehicles

(LGVs) and cars will be permitted to use more local roads to travel to and from the construction site.

4.3.3 Construction Personnel

It is expected that construction personnel will peak at ca. 100 persons. It has been assumed that construction personnel will travel to site using van/minibus or private passenger vehicle (in some cases accommodating more than one occupant). It is noted that the facility is already securely fenced, and access controlled. The proposed development is within the Moneypoint station complex which is controlled by a security team at a security entrance via the N67 Road. The facility security arrangements and access control are not proposed to change as a result of The proposed development.

4.3.4 Hours of Work

Construction works will for the most part take place within normal business hours, 07:00-19:00 Monday to Friday, and 08:00-14:00 on Saturday. However, given the urgent need for this project for security of electricity supply there will be a need to undertake some works outside of these times including concrete pours, floating, works inspections and possibly other work. Construction and dismantling works outside the abovementioned construction hours will only be undertaken with prior written approval of the local authority.

4.3.5 Construction Traffic

From experience on other projects, peak HGV traffic movements are likely during the material moving operations associated with the site preparation stage of the construction programme. This is applicable to the proposed development as the HFO tank base and auxiliary boiler works will overlap, generating peak HGV traffic in Q1 2025. The daily average is calculated as a maximum of 8no. HGV (resulting in 16no. daily movements) in any given year. During the peak construction period a maximum of 17no. HGVs serving the site (resulting in 33no. two-way movements) has been calculated, in any given year, approximately one-two per hour. This results in a peak daily requirement of 70-80 vehicles (approximately 140-160 two-way movements per day). This would mean a requirement for up to 80 temporary car parking spaces in a robust case scenario.

For abnormal loads, haulage will likely take place outside of peak traffic times and the Contractor may be required to arrange a special escort with An Garda Síochána. Appropriate permits for designated haul routes will be sought and agreed with the Local Authorities during the detailed design phase. It is expected that the auxiliary boilers, boiler stack, cranes and possibly parts of the HFO tanks will be assembled off site and potentially delivered as abnormal load during the construction phase. However, preference will be for oversized loads to arrive via ship, but the exact load sizes and delivery methods will not be known until construction tender stage is complete.

The appointed Contractor will implement and develop the construction Traffic Management Plan (TMP), in ongoing consultation with Clare County Council. The TMP will remain a ‘live’ document which will be implemented as a minimum.

4.3.6 Temporary Construction Compounds/Laydown Areas

The construction phase will necessitate the provision of a temporary contractor’s compound along with welfare facilities. The temporary contractor’s compound is located along the western boundary within the existing operational compound, as mentioned in Section 4.3.1.

Existing toilet and washing facilities are located at the established contractor laydown area. Additional toilet and welfare facilities are located across the site, and available for contractors.

Electrical and water connections are available in the Contractor compound for any temporary portacabins etc supplied by the Contractors. The main station canteen is also available to all contractors. Temporary car parking for contractors' vehicles is provided within the temporary contractor's compound.

4.3.7 Groundworks

4.3.7.1 Groundworks for the HFO Bund

Prior to any groundworks taking place ESB will ensure that:

- Design shall be in accordance with the principles of the CIRIA Guidance on 'Containment Systems for the Prevention of Pollution' (C736F) and take due account of the station's EPA Industrial Emissions Licence.
- The risk arising from filled pipework and tanks in close proximity to the works will be assessed and appropriately managed.
- Subject to condition assessment, existing concrete slab underneath and adjacent to pipework, valves and pump house will either be broken out or remediated to ensure integrity.
- Excavations and rock-breaking of existing gravel surface and existing sub-grade, if required, will be carried out for the foundations of all structures including the bund wall, tank, floor, new access ramp, etc. and for drainage installations.
- Excavated arisings at surface level will be scraped back and set aside for assessment for reuse. If they cannot be reused, they will be removed from site in line with the relevant Waste Management Regulations.

The final sequencing of the works will be determined by the Contractor but it is anticipated that the construction sequence in the HFO bunds will be broadly as follows:

- Clean fill material will be imported and compacted to the required design level.
- A liner material will be laid in accordance with the detailed bund design and manufacturer's requirements together with the installation of the sub-surface drainage system.
- Steel reinforcement will be placed along with form work and associated components for liquid-tight joints in accordance with detailed design.
- The foundations of all structures including the bund wall, tank, floor, new access ramp, etc., will be poured in sections, to be determined by detailed design and the construction methodology.
- The concrete will be required to cure for a period (dependent on detailed design and construction methodology).
- The installation of the land drainage network and the permeable fill surround (located adjacent to the outside of the perimeter wall) will take place in concert with the construction of the bund walls.
- Works on the bund wall, tank, pipework and associated above ground supporting structures and infrastructure will be completed.

4.3.7.2 Groundworks for the Boiler House, Ash Injection Plant and Capping Material Batching Plant

The final sequencing of the works will be determined by the Contractor but it is anticipated that the construction sequence will be broadly as follows:

- Excavations and rock-breaking of existing concrete or gravel surfacing and existing sub-grade, if required, will be carried out for the foundations of all structures.

- Excavated arisings at surface level will be scraped back and set aside for assessment for reuse. If excavated material cannot be reused it will be removed from site along with any demolition waste in line with the relevant Waste Management Regulations.
- Installation of new underground services.
- Clean fill material and blinding will be imported and compacted to the required design level.
- Steel reinforcement will be placed along with formwork in accordance with detailed design.
- Concrete for the foundations of all structures will be poured.
- Works on ground bearing slabs and the above ground structures and infrastructure will be completed in accordance with the Contractors sequencing and methodology.

4.3.8 Plant Construction Works

The Main Contractor will be responsible to ESB for the design and installation of the proposed development. This will include the design, supply, and installation of all equipment and the installation of all equipment foundations.

Most of the new equipment will be skid mounted or containerised elements fabricated off site and delivered finished or for final assembly on site. The main exception to this is the Auxiliary Boiler Building and pipe and cable corridor which will contain the plant pipework (HFO, fire water etc) and cables (power cables, control cables etc) which will have to be fabricated on site. The delivery of abnormal loads on site is discussed in Section 4.3.5.

The Contractor will be responsible to ESB for the construction of the equipment foundations, including the excavation and appropriate disposal of excavated material as well as the construction of the main equipment foundations and any piled foundations needed. The Contractor will manage the excavation of material and the safe disposal of this material to a suitably licenced waste disposal facility. In-situ concrete casting will be fully controlled to ensure that cement bound materials are confined within the formwork.

In-situ concrete casting will be fully controlled to ensure that cement bound materials are confined within the formwork.

In the areas where the HFO bunds and Auxiliary boiler house and stack are to be installed, the existing surface water network will need to be modified and re-routed. Surface water drains will also be re-routed and/or sealed in advance of any concrete being cast.

Trucks, mixers, and concrete pumps that have contained concrete will be washed out in a designated impermeable area to prevent pollution. A designated area for concrete truck / shute washout will be provided on site comprising a lined bund to contain wash out. Concrete waste will be removed at regular intervals (every 2-3 days) and reused on site or disposed off-site with other construction waste materials.

As described above the maximum proposed excavation will not exceed a depth of 1.5m for the foundations for auxiliary boiler house. The maximum proposed excavation depth for the HFO bunds is 400mm. If piled foundations are required, it is envisaged that these would require a similar depth of below ground excavation.

4.3.9 Construction Environmental Management Plan

A Construction Environmental Management Plan (CEMP) is submitted as part of this planning application (Appendix C of the EIAR) and will be implemented during the construction phase in consultation with Clare County Council. The CEMP will remain a ‘live’ document which will be implemented as a minimum. It will be reviewed and revised as necessary in consultation and agreement with the local authority to ensure that the measures implemented are effective. The

CEMP will be a key contract document, which will ensure that all mitigation measures are implemented.

The primary objective of the CEMP is to safeguard the environment, site personnel and nearby sensitive receptors from site activity which may cause harm or nuisance. As such, the CEMP sets out a project framework to ensure that key mitigation measures and conditions set out as part of the planning consent process are translated into measurable actions and are appropriately implemented during the construction phase of the proposed development. As part of this framework, transparent and effective monitoring of the receiving environment during construction will be used to inform and manage on-going activities on site and to demonstrate effectiveness of the measures outlined therein. ESB will monitor the contractor(s) performance on a regular basis and will undertake various compliance checks throughout the duration of the construction period including;

- Review contractor documents against the requirements of the CEMP;
- Undertake regular audits;
- Continuously check records;
- Set up a contractor reporting structure; and
- Conduct regular meetings (at least fortnightly) where Environmental Health and Safety is an agenda item.

The CEMP will be required to take account of all relevant legislation in reducing the environmental impacts of the works and best practice guidance such as:

- CIRIA C741 Environmental Good Practice on Site (4th edition) (CIRIA, 2015)
- CIRIA C532 Control of Water Pollution from Construction Sites (CIRIA, 2001)

In general, disturbance arising from construction works may result from various activities including preparatory works, diversion of services, noise and vibration from the plant, excavation and fill operations, stockpiling and handling, construction traffic and the duration and timing of the construction phase. The CEMP will include all mitigation measures listed in the NIS.

4.3.9.1 Resource and Waste Management Plan (RWMP)

Prior to commencement of the development, the appointed Contractor will implement the construction Resource and Waste Management Plan (included as part of the CEMP) which will ensure that optimum levels of waste prevention, reduction, reuse, recycling, and recovery are achieved throughout the duration of the proposed development. The RWMP will remain a 'live' document which will be implemented as a minimum. The RWMP will be reviewed and revised as necessary in consultation and agreement with the local authority to ensure that the measures implemented are effective.

The RWMP has been prepared in accordance with waste management guidance and principles as outlined in *Best practice guidelines for the preparation of resource & waste management plans for construction & demolition projects* (EPA, 2021) and 'Design Out Waste: A design team guide to waste reduction in construction and demolition projects' (EPA, 2015). All operations at the site will be managed and programmed in such a manner as to prevent/minimise waste production and maximise upper tier waste management (i.e. reuse, recycle, and recovery) in line with the Waste Hierarchy where possible.

The requirement to develop, maintain and operate the construction phase RWMP will form part of the contract documents for the proposed development and will be updated by the appointed Contractor in advance of the commencement of construction activities on site.

Waste sent off site for recovery or disposal will only be conveyed by an authorised waste contractor and transported from the proposed development site to an authorised site of recovery

/ disposal in a manner which will not adversely affect the environment. All employees will be required to comply with the obligations under the Plan. The RWMP will be available for inspection at the site office at all reasonable times for examination by the Consenting Authority.

4.3.9.2 Traffic Management Plan

The appointed Contractor will implement and develop the construction Traffic Management Plan (TMP) included in the CEMP, in ongoing consultation with Clare County Council. The TMP will remain a 'live' document which will be implemented as a minimum. The TMP will be reviewed and revised as necessary in consultation and agreement with the local authority to ensure that the measures implemented are effective. The implementation of the TMP will mitigate potential construction traffic impacts on the public road network. All construction activities, including construction traffic, will be managed through the CEMP.

The TMP will ensure that potential impacts resulting from construction traffic on the local community, businesses and other industry adjacent to the site. The Contractor will be required to develop their construction Traffic Management Plan to suit the access and egress of the site, their delivery and laydown requirements, expected movements of construction traffic, the size of the Contractor's compound along with their programme of works.

Specific haul routes, details of any oversized loads (if required) and a Traffic Management Plan will be prepared in advance of construction. This TMP will be agreed with the Clare County Council, if required.

4.3.10 Environmental Supervision and Monitoring

An Environmental Clerk of Works (EnCoW) will be employed by the Contractor to oversee implementation of mitigation. This will include monitoring and auditing the works and contractor programmes and works method statements, to ensure mitigation is correctly implemented.

The Contractor's Environmental Clerk of Works (EnCoW) will have suitable environmental qualifications and the necessary experience and knowledge appropriate to the role. The EnCoW will be delegated sufficient powers under the construction contract so that she / he will be permitted to instruct the Contractor to stop works and apply emergency response mitigation should an environmental incident occur.

The EnCoW will also manage consultation with environmental bodies including the NPWS and IFI. The EnCoW will be responsible for carrying out regular monitoring of the Contractors CEMP and will report monitoring findings in writing to ESB on a regular basis (at least weekly, but immediately in the case of incidents or accidents).

An independent EnCoW will be retained on behalf of the Employers Representative team (i.e. the ESBN), who will review and comment on the pre-construction survey reports, mitigation proposals, monitoring and compliance reports generated by the Contractor's EnCoW. The independent EnCoW will have the necessary experience and knowledge appropriate to the role and will be a member of a relevant professional body, such as the Institute of Environmental Management and Assessment (IEMA).

In addition to the above, the CEMP includes an Environment Incident Response Plan (Section 5 of the CEMP). In the unlikely event of an incident, the Environmental Incident Response Plan will ensure that any incident is dealt will effectively, and that the response is timely and appropriate. This plan will be further developed by the appointed Contractor, in line with the mitigation measures detailed in the CEMP, to describe the procedures, lines of authority and processes that will be followed to ensure that all incident response efforts are prompt, efficient and appropriate to the particular incident. Inland Fisheries Ireland and the EPA will be notified in the event of an incident or accident.

The Contractor will be responsible to ESB for the construction of the equipment foundations, including the excavation and appropriate disposal of excavated material as well as the construction of the main equipment foundations and any piled foundations needed. The Contractor will manage the excavation of material and the safe disposal of this material to a suitably licenced waste disposal facility. In-situ concrete casting will be fully controlled to ensure that cement bound materials are confined within the formwork.

4.4 Operation and Maintenance

4.4.1 Proposed Operational Profile

This section sets out a summary of the expected operational profile of the Moneypoint Generating Station once the operation is switched to security of supply rather than base load operation. It is important to note that EirGrid will ultimately have control over how and when Moneypoint operates and that controls are automated.

4.4.1.1 Auxiliary Boiler Operation

During the winter months, one of the auxiliary boilers will be left in the standby state i.e. it will maintain a minimum temperature and pressure automatically. Preference will be given to using the electrical boiler for this purpose but if electricity demand is high the diesel boiler will need to be used. When steam is required for HFO tank heating, deaerator or generating unit start the auxiliary boiler will fire up/turn on automatically and provide steam as required.

If there is no demand for heat or forecasted unit running the auxiliary boiler main outlet valve will be closed to preserve pressure. The auxiliary boiler setpoint will also be turned down, similar to turning down a thermostat on a domestic boiler. This will reduce the periodic start requirements and energy demand.

The second auxiliary boiler will either be stored dry or left in the ready state (filled with water). It will either be left cold or at a lower standby temperature and pressure depending on the projected electricity demand and renewable energy forecasts.

During the summer months, one boiler will likely be drained down and stored dry, the second boiler may be started weekly, depending on weather, to keep the HFO tanks and deaerator warm. During summer the temperature and pressure in the auxiliary boiler will not be maintained between operation cycles.

4.4.1.2 Main Unit Start

The following steps are roughly what will occur to start a main generating unit at Moneypoint when no generating units are running.

- Station receives command to start single unit through EirGrid's automated electronic dispatch system EDIL (Electronic Dispatch Instructions Logger).
- Regarding the Auxiliary Boilers, the operator either:
  - Does nothing, if the first auxiliary boiler is the standby state and aux pressure setpoint is already at the appropriate pressure.
  - Changes the auxiliary pressure setting and open the auxiliary steam outlet valve to start as set out in Section 4.4.1.1.
- The operator follows either the Hot, Warm or Cold start procedure for the generating unit dispatched.
- The operator may then decide to move the second aux boiler into standby state to provide redundancy.

- Once the main generating boiler unit is synchronised the first auxiliary boiler pressure will be reduced and will provide backup to the unitised auxiliary steam system. The second auxiliary boiler will be either shut down or turned down to minimum temperature and pressure.

4.4.1.3 Second and Third Unit Start

The following steps are roughly what will occur to start a second main generating unit at Moneypoint when one generating unit is already running.

- Station receives a command through the EDIL system once one unit is already synchronised to start a second generating unit.
  - Pressure in the first auxiliary boiler will be increased to provide steam as required to support the second unit startup, or
  - The first unit will be used for auxiliary steam supply and the aux boiler will act as backup only.

4.4.1.4 Start Two or Three Units Together

The following steps are roughly what will occur when a command from EirGrid is received to start two or three generating units when no units are already running.

- Station receives a command through the EDI system to start two or more units when none are a currently running.
  - Second auxiliary boiler will be started.
  - The first auxiliary boiler setpoint will ramp up to temperature and pressure to provide steam for the first unit and subsequent units starts up its maximum capacity.
  - The second aux boiler will then ramp up to meet any additional load requirements.
  - The operator initiates the first Unit start as per Hot, Warm and Cold Start sequence procedures.
  - The second and third units will be started as instructed by EirGrid.
  - When two or more units are running at stable load, both auxiliary boilers will be shutdown with valves closed to maintain heat, one may be left in a standby state with pressure set to medium or low range.
- In a hot start scenario, the main generating boilers will be full and have some temperature and pressure retained. There may be some but limited requirement for supplementary auxiliary steam in this case. One auxiliary boiler will be left in a ready state to provide redundancy to the main unit auxiliary steam system.
- For a cold start there will be up to an eight hour delay between subsequent second and third unit starts. This will ensure that the second auxiliary boiler has sufficient time to get up to temperature and pressure.

4.4.2 Ash Reclamation and Storage

The process of recovery of ash and FGD injection and capping of the ASA repository when firing on HFO alone is set out in Section 4.2.5.

4.4.3 Working Hours

The proposed development will be available to operate 24-hours per day, seven days per week and will operate as an out of market generator of last resort only.

4.4.4 Operational Staff

4.4.4.1 Existing Staff Numbers

There are approximately 130 Full Time Equivalent (FTE) personnel working on site on a daily basis. This consists of ESB staff and contractors.

All work is as business needs require. During outages and overhauls contractor numbers increase with the workload up to 250 additional resources.

4.4.4.2 Proposed Staff Numbers

Staffing numbers are to remain as business needs require. Post 2025, following the completion of the last major overhaul, the change in contractor numbers for outages will not be discernible for the numbers currently employed on site.

4.4.5 Operational Site Access and Security

The facility is already securely fenced and access controlled. The proposed development is within the Moneypoint station complex which is controlled by a security team at a security entrance via the N67 Road. The facility security arrangements and access control are not proposed to change as a result of the proposed development.

4.4.6 Drainage and Wastewater Management

4.4.6.1 Surface Water Drainage

Overall flow at IEL SW2 location will be limited such that the overall discharge will not exceed the existing IEL flow limits of 25m^3/hour or 400m^3/day. In addition to this, the current monitoring requirements and emission limit values (ELVs) associated with discharge at SW2 will continue to be complied with (pH, mineral oil, suspended solids, and ammonia (as N)).

In addition to the measures set out in Section 4.2.6, drainage on site will continue to be managed in accordance with the conditions of the site's IE licence including but not limited to the following:

- Prevention of "environmentally polluting substance or matter" entering surface water or storm waters
- Weekly visual inspections
- Maintenance as required
- Monitoring of discharges from SW2
- Emission limit values set on SW2
- Reporting to the EPA

4.4.6.2 Foul Water

There are no changes to the management of foul water at the site as part of this proposed development. A foul water service is not needed for the proposed development.

4.4.6.3 Water Treatment Wastewater

Demineralised water is produced at Moneypoint's water treatment plant for steam production. Raw water is supplied from local mains and stored at the onsite reservoir. The raw water's positive and negatively charged ions are removed by cation and anion exchange resins. The demineralised water is stored in the raw feed water tank and then dispersed to smaller holding tanks for each unit.

The resins are regenerated with either sulphuric acid or sodium hydroxide to ensure effective removal of ions. The water used in the regeneration process is stored in the neutralisation sump where the pH is balanced by acid or caustic injection as required. This water is either discharged through SW7 or diverted to the industrial water tank for flue gas temperature control in the FGD.

There are no proposed increases to water treatment arrangements, as per the IEL, or additional water demand as part of this proposed development.

4.4.6.4 Process Wastewater

The only proposed change to process water on site will be boiler blowdown from the proposed auxiliary boiler house as described in Section 4.3.8. It is proposed to connect this process water to the existing system which discharges to the Shannon Estuary at IEL emission point SW2 or diverted to the industrial water recovery tank for flue gas temperature control in the FGD. The current process water discharge monitoring requirements and ELVs associated with discharge at SW2 will continue to be complied with (pH, mineral oil, suspended solids, and ammonia (as N)).

Discharges on site will continue to be managed in accordance with the conditions of the site's IE licence, some of the related measures are listed under Section 4.4.6.1 and are equally applicable to all discharges from SW2.

4.4.7 Lighting

Currently tank farm only has localised lighting for each tank farm stairwell and localised at the entrance of the pumping house to the northern entry point. It is proposed that the lighting will comply with the Recommended Lighting Practices published by the Permian Basin Petroleum Association, the Texas Oil and Gas Association, the American Petroleum Institute, University Lands, and the McDonald Observatory[1]. This includes:

- Use of full cut-off luminaires
- Directing of lighting to eliminate light spill and trespassing
- Amber lighting
- Control of lighting so as not to exceed the minimum number, intensity and coverage required for safety and basic security
- Area lighting to be controlled by timers, sensors or switches available to operators
- Focused task lighting, portable light towers, or flashlights to be used instead of area lighting, where feasible

The proposed development will not be lit permanently as there is no requirement for the site to be permanently occupied. Lighting will be provided when personnel are on site to assist any night-time maintenance visits comprising lighting from the car park to the control room and other building entrances.

External lighting will be automatic with motion detection and will be linked back to a security system if activated. There will be an option to override the control to turn on/off the system remotely or within the compound. Lighting will consist of LED luminaires due to their sharp cut-off, lower intensity and good colour rendition. A warm white spectrum will be adopted to reduce blue light component. Only luminaires with an upward light ratio of 0% and with good optical control will be used and there should be no upward tilt.

[1] Recommended Lighting Practices (Permian Basin Petroleum Association, Texas Oil and Gas Association, American Petroleum Institute, University Lands, and McDonald Observatory)

Lighting requirements for the HFO development are proposed as follows, with lux values to be assumed at ground level:

- Light poles 'LP': Min 10 lux at ground level
- Spot lights will be installed to the eves heights of main buildings, HV switchgear, transformer and maintenance areas – Min 20 lux at ground level
- Everywhere else on development: Min 2 lux at ground level
- Outside development fences: Existing lighting in Moneypoint station complex

The proposed light poles are presented in the site plans and detailed in Planning Drawing QP-000017-65-D451-018-001-000 (Appendix C).

4.4.8 Fuel Deliveries

HFO is currently delivered to site by ship to the HFO unloading arm on the jetty and pumped to the existing HFO tanks via a pipeline. This is the existing arrangement and is not proposed to change. Ship delivery numbers are proposed to remain similar in frequency to firing at baseload with coal at up to 24 ships per year. However, HFO ships are generally much smaller with an average payload of ca. 27,000 tonnes, or just over one full tank. This compares with an average ship payload of ca.180,000 tonnes for a coal ship. The existing jetty is designed to cater for ships with a payload of up to 200,000 tonnes. It takes 2-4 days to unload a HFO ship compared with 2-3 weeks to unload a coal ship.

There will be on average ca. 40 diesel deliveries via road to Moneypoint Generating Station per year.

A "procedure for unloading oil ships", shore side check list for ship unloading and "Oil Spill Response Plan" is in place on site which contains measures and checks to ensure compliance with the conditions of the IE licence including the prevention and response to spills. There is also a spill containment area to capture any spills that might occur at the unloading arm.

It is important to note that shipping of HFO and coal to the Moneypoint site are part of the existing operations. There is a history of HFO shipping in the estuary; HFO has been shipped to Tarbert since 1969 and Moneypoint since the early 1980s. To our knowledge there has never been a major HFO spill that resulted in significant ecological impact within the Shannon estuary.

HFOs are dense, viscous oils. The Technical Land Use Planning Assessment Report submitted as part of this application (Appendix D of the EIAR), includes the physico-chemical properties of the HFO and states that its water solubility is "negligible, predominantly hydrophobic". The TLUP also states that HFO is considered to be very toxic to aquatic life with long lasting effects. However, due to the low water solubility of their chemical constituents, the toxicity of HFO to aquatic organisms is expected to be lower than that of other petroleum products including diesel (National Oceanic and Atmospheric Administration, 2019)[2]. The TLUP also states that the pour point (the temperature below which the oil becomes a semi-solid and will not flow) for HFOs is often 30ºC or higher, and therefore many HFOs will act as viscous semi-solids after being spilled and cooled at ambient temperatures.

It should also be noted that the last remaining operational HFO fuelled electricity generating unit at Tarbert Generating Station (TB3), located across the estuary at Tarbert, Co. Kerry and operated by SSE Airtricity, officially closed in December 2023. Units TB1, TB2 and TB4 ceased normal operation during 2021 and officially closed in December 2023[3]. It is estimated that around 540,000 tonnes HFO per year would have been consumed at Tarbert when the plant was fully operational as a mid-merit plant. This would equate to ca.14 HFO ship deliveries at

[2] Heave Fuel Oil Spills (NOAA, 2019)

[3] Ten-Year Generation Capacity Statement 2023–2032 (EirGrid, SONI, 2024)

40,000 tonnes each. A representative of Tarbert confirmed that HFO deliveries to the site, when it was fully operational, averaged ca.12 to 14 per year and that ships of 35,000 - 40,000 tonnes were the more common ship sizes. These HFO deliveries in the estuary to Tarbert have therefore have now ceased with no proposal for them to recommence in the short to medium term, reducing the traffic of HFO tanker ships in the estuary, as shown in Table 4.2 which provides a context of coal and HFO ship movement in the estuary.

Table 4.2: Coal and HFO Ships in the Shannon Estuary

	Baseline Annual Ships	Proposed Future Annual Ships
Coal Ships To Moneypoint (average 180,000 tonnes)	15 (2021)	0
HFO Ships To Moneypoint (ca. 24,000-35,000 tonnes)	9 (2021)	24
HFO Ships to Tarbert Generating Station (ca.35,000-40,000 tonnes)	12 – 14	0
Cumulative Ships Total	**36 – 38**	**24**
Cumulative HFO Ships*	**21-23**	**24**

* It should be noted that HFO may be transported in the estuary to other sites.
Source: ESB, 2024

In conclusion, Table 4.2 shows that the increase in HFO shipping in the estuary as a result of the proposed development in combination with the closure of the Tarbert HFO fired Generating Station will likely be only one ship annually.

Additionally, all vessels as required by law governed by the provisions of the Sea Pollution Act 1991, as amended, will be compliant with the International Convention for the Prevention of Pollution from Ships (MARPOL) with specific attention to Regulations 37 and 17 and will adhere to published guidelines and best working practices such as the National Maritime Oil/HNS Spill Contingency Plan (NMOSCP)[4]. These contain the necessary steps to initiate an external response for any oil-related discharges, or in the case of a maritime accident/collision that results in an oil spill and will be adhered to, to ensure that the likelihood of accidental spills is extremely low. In addition, all substances handled and/or used required to be handled, used, stored and documented in accordance with assessments and the Chemicals Act 2008 (No. 13 of 2008) and Chemicals (Amendment) Act 2010 (No. 32 of 2010) and associated Regulations.

All vessels will also be fit for purpose, certified and capable of safely undertaking the required work. Vessels shall have a Health, Safety and Environmental Managements system which should conform to the requirements of the latest International Maritime Organization (IMO), Safety of Life at Sea (SOLAS) and environmental requirements for their classification and with any national requirement of the territorial or continental/EEZ (Exclusive Economic Zone) waters to be operated in.

4.4.9 Industrial Emission Licence

The proposed development is located within the boundary of an existing Industrial Emissions (IE) licenced facility: the Moneypoint Generating Station (Register Number: P0605-04), regulated by the EPA.

It is not proposed to change any of the existing emission limit values in the IE licence. The proposed development will require an update to the existing IE licence from the EPA namely to add the proposed auxiliary boiler stack as an emission point. Ultimately the EPA is the competent authority in relation to the IE licence, emissions, and environmental management.

[4] National Maritime Oil/HNS Spill Contingency Plan (NMOSCP) (Department of Transport, 2020)

ESB made a Request Technical Amendment for Best Available Techniques (BAT) Conclusions to the EPA on 15 December 2023 to include the proposed development under the IE licence. Public notification was issued in the Irish Times on the 8 January 2024.

4.4.10 Chemical Storage

A schedule of existing chemical storage on site is included in Table 4.3, no changes are proposed to this schedule.

Table 4.3: Schedule of Existing Chemical Storage on Site

Chemical	No of Tanks	Storage (Tonnes)	Total (Tonnes)
Sulphuric acid (98%)	2	60	120
Sodium hydroxide (47%)	2	60	120
Ammonia (30%)	1	45	45
Bulk Hydrazine (5%)	2	3	6
Hydrochloric acid (7%)	1	1	1
Urea dissolved (40%)	2	1250	2500
Calcium Oxide	2	9000	18000
Calcium Hydroxide	3	60	180
Hydrochloric acid (conc.)	1	2.2	2.2
Hydrazine	1	1	1
Ammonia (dilute)	3	2	6
Ammonia (conc.)	1	1.6	1.6
Hydrazine (dilute)	1	1	1

Source: ESB IEL, 2023

A schedule of existing hydrocarbons storage on site is included in Table 4.4. The two proposed HFO tanks, each with a capacity of 25,000 tonne, will add to the hydrocarbons storage on site.

Table 4.4: Schedule of Existing Hydrocarbons Storage on Site

Oil	Capacity	Comments
Heavy Fuel Oil Storage		
HFO Tank 1	25,000t	Bunded
HFO Tank 2	25,000t	Bunded
Diesel Storage		
Diesel for boilers. Installed 1984.	2 x 300 t	Bunded
White Diesel for vehicles:	24.56 m^3	Bunded
Green Diesel for Vehicles	83 T tank and 14.7 m3	Bunded
Bio-Diesel	1x 2000 lt	Bunded
Various Lube Products	53750 L	Dedicated Stores
Diesel	11001	Bunded
Various Oils	10 off 45 gl	Drip Tray Drum
Unit Oil Tanks		
Turbine Lube Oil Tank	24.4 m3	Bunded
Boiler Feed Pump	2 x 3.5 m3	Bunded
HP Hydraulic Fluid Tank	0.6 m3	Bunded
Lube Oil Stores		

Oil	Capacity	Comments
65 various grades of lube oil and other lube products held in the dedicated stores at Moneypoint	Maximum potential inventory on-site is 53,570 L	
Waste Oil Storage		
Waste Oil – Drums and Underground Sump		De Commissioned
Waste Oil – Emergency Waste Oil Tank	4000 Gals	Bunded
Solvent		De Commissioned
Waste Oil – Mobile Plant Maintenance	1.4 m3	Bunded
Waste Oil – Waste oil Container Area	Drums	Bunded Plinth
Solvents – Waste Solvents Area	Drums	Bunded Plinth

Source: ESB IEL, 2023

A schedule of existing gas storage on site is included in Table 4.5, no changes are proposed to this schedule.

Table 4.5: Schedule of Existing Gas Storage on Site

Description	Capacity	Comments
LPG – Calor Gas. This is used to ignite the boilers	68 m3	Fenced
Hydrogen – is stored in bottles mounted on Trailers	2x ca. 260kg per trailer	Fenced Compound
Carbon dioxide – used for purging hydrogen (20 spare bottles in gas storage compound)	24 bottles per unit	
SF6	0.537 m3	Hermitically sealed in various switchgear and electrical components on site

Source: ESB IEL, 2023

All chemicals stored on the proposed development will be regulated under the IE licence.

All fuels and chemicals stored on site will be subject to a COSHH (Control of Substances Hazardous to Health) assessment and compliance with the requirements of REACH:

- All containers and bunds will be inspected regularly;
- Accidental spillages will be contained and cleaned immediately;
- Any environmental incidents, including spills, will be reported to the EPA and other relevant competent authorities;
- All chemical storage areas to have adequate supply of spill kit(s). Once used, the absorbent material to be disposed of at an appropriate facility (Condition 3.8). All potentially polluting substances including waste will be stored in designated areas in appropriate containers within bunds, drip trays or spill pallets, as required.
- All personnel handling chemicals and fuels to ensure awareness and competence in their work area (Condition 2.2.2.12).
- Potentially polluting substances stored in designated areas to be labelled clearly (Condition 3.7.5).

- All storage tanks, containers, and drum storage areas that contain liquid material other than water, to have leak detection system in place (Condition 3.77).
- The loading and unloading of materials to be carried out in designated areas protected against spillage and leachate run-off (Condition 8.5).
- Waste and materials shall be stored in designated areas, protected as may be appropriate against spillage and leachate run-off (Condition 8.6).

All tanks containing liquids whose spillage could be harmful to the environment will be bunded. No tanks or pipework containing liquids such as fuel, oils or chemicals will be stored below ground.

4.5 Decommissioning

The proposed development is expected to be operational until the end of 2029. On cessation of activities the plant will be decommissioned, and the site remediated and restored in line with any requirements of the planning permission and IE licence, unless otherwise authorised.

A Decommissioning Management Plan (DMP) and Closure, Restoration and Aftercare Management Plan (CRAMP) has been submitted to and agreed with the EPA in accordance with condition 10 of the IEL. The DMP and CRAMP state that "*Successful decommissioning is determined as being completed when all buildings, equipment, wastes or any other materials that could result in environmental pollution are removed from the site and recycled, recovered or disposed of in accordance with all regulations in force at that time. The DMP will result in a decommissioned site suitable for future industrial use. All buildings and some site services, whilst emptied and cleaned as part of the DMP, will remain in place following decommissioning*."

All chemicals and oils will be stored in bunded areas.

The DMP and CRAMP will be updated to include the proposed development for agreement with the EPA once construction is substantially complete.

On decommissioning some of the structures on site may be used for future developments such as those which may be linked to the Green Atlantic @ Moneypoint project which is in the early design and feasibility study stages.

4.6 Health and Safety Considerations

4.6.1 Firefighting Systems and Controls

A fire at the HFO tanks is considered very unlikely as HFO has a relatively high flash point of >70C. Refer to the Technical Land Use Planning Report submitted with this application (Appendix D of the EIAR) for details on fire and other safety risks.

In the event of a fire, firefighting on site would be predominately carried out by manual fire suppression using the existing fire water hydrant network on site. The existing fire water network on the site may be used for the protection of the equipment that is proposed to be installed as required by the local fire authority. Fire safety evacuation drills and training will be provided as appropriate. National Fire Protection Association (NFPA) guidance will be followed as appropriate. An "Emergency Procedure in the Event of Fire" is in place in relation to HFO storage and handling and was prepared in consultation with the local Fire Services. All these measures are already in place at Moneypoint Generating Station and will be incorporated for the proposed development.

The station's existing fire protection system comprises a hydrant main and deluge system. The ring main is equipped with facilities for the use of both foam and high-pressure water systems. There is a total of 36,368 m^3 (8 million gallons) of firewater stored in three reservoirs to the north

of the site, adjacent to the HFO tanks. The associated Pump House is located adjacent to the Water Treatment Plant to the south of the reservoirs. There are two electric pumps and one diesel pump, each with a capacity of 2.3m^3/min at 8.3 bar pressure. Automatic and manual operated high-pressure deluge systems protect the areas of the plant most at risk. There are no proposed changes to this system.

The current firefighting strategy for the HFO tanks Is to fight the fire for ca. 30-90 min. If the fire cannot be extinguished in this time a controlled burn strategy would be adopted. It is not proposed to change this strategy.

In the event of a fire at one of the HFO tanks, the affected bund can provide firewater retention. The shut-off valves on the bund drainage system will be set to closed by default. Discharge of contaminated firewater from the HFO tank farm will therefore be shut off and any water in the bund would be required to be characterised (including analysis) to determine the options for proper disposal in accordance with Condition 3 and Condition 6 of the IE licence and in agreement with the EPA and other relevant authorities.

4.7 Existing Measures during Operation

The following are measures and procedures which ESB are currently implementing and will continue to implement at the site. These measures are subject to regular review and are subject to change.

Measures to prevent an oil spill from the tankers

Measures will be implemented during the transit of the HFO vessels to Moneypoint including that the oil tankers shipping the HFO will have regard to the International Safety Guide for Oil Tankers and Terminals (ISGOTT 6) produced by Oil Companies International Marine Forum (OCIMF) and the International Chamber of Shipping (ICS). In addition, the recommendations of the International Maritime Organization will be reviewed and implemented, as necessary.

Measures in place in the event of a spill in the Shannon Estuary

Moneypoint Generating Station is part of the Shannon Estuary Anti-Pollution Team (SEA-PT). SEA-PT has developed an Oil Spill Contingency Plan that covers the Shannon estuary from Limerick City to the mouth of the Shannon Estuary, at a notional line from Loop Head (County Clare) to Kerry Head (County Kerry). The objectives of the plan are:

- To prevent further pollution/damage caused by the spill.
- To contain and clean up a marine spill.
- Cause no further damage to the marine environment or create unacceptable risk to those responding to or impacted by the incident.

  More specifically, the plan will:
- Mobilise appropriate personnel, equipment and other resources.
- Make all necessary notification to relevant authorities and agencies.
- Instigate appropriate containment, recovery and clean-up operations to control and mitigate the effects of the spill and contribute to the restoration of the environment.
- Initiate, as appropriate, wildlife rescue and rehabilitation operations.
- Gather evidence throughout the operation for possible legal action.
- Maintain accurate records so that the cost of the response operation may be accurately assessed.

The plan contains measures to be implemented in the event of an oil spill, including:

- Discovery and notification of the appropriate personnel.

- Identification of a Tier 1, 2 or 3 incident:
  - Tier 1: a Tier 1 incident is one in which a small spill can be dealt with by personnel in the immediate vicinity and that has no external impact. Each installation / works area in the area of the plan has enough equipment to respond to a Tier 1 incident. In the event of a Tier 1 being activated, the spiller or installation personnel will respond in accordance with their local procedures and the Duty Harbour Master will monitor the response.
  - Tier 2: a Tier 2 incident is one that will require the combined resources of the organisations represented on the SEA-PT team. It will also require the involvement of regulatory bodies, local authorities, advisors and advisory bodies. In general, all spills in the Shannon Estuary, other than minor ones, will require a Tier 2 response. A Tier 2 response will require the activation of Shannon Foynes Port Company (SFPC) Incident Management Team and the SEA-PT. This will instigate notifications to the Coast Guard and Local Authorities and Tier 2 response specialists.
  - Tier 3: a Tier 3 incident is a major oil pollution event with potential for environmental, social and economic impacts that are beyond the capability of local resources. It will require local, national and probably international resources. A Tier 3 response is initiated by contacting the Coast Guard. A response at this level will be coordinated under the National Contingency Plan and within the Management of Major Emergencies Framework.
- Incident notification and response process is detailed.
- Tier escalation matrix is provided.
- An Incident Response and an Incident Action Plan are in place.
- ESB has a supply of oil booms available, and this is also a requirement for the IE licence.

It should also be noted that the last remaining operational HFO fired electricity generating unit at Tarbert Generating station (TB3), located across the estuary at Tarbert, Co. Kerry and operated by SSE Airtricity, officially closed in December 2023. Units TB1, TB2 and TB4 ceased normal operation during 2021 and officially closed in December 2023 (source: Pg 37 & 80 of EirGrid SONI GCS 2023-2032). It is estimated that around 540,000 Tonnes HFO per year would have been consumed at Tarbert when the plant was fully operational as a mid-merit plant. This would equate to ca.14 HFO ship deliveries at 40,000 tonnes each. A representative of Tarbert confirmed that HFO deliveries to the site, when it was fully operational, averaged ca.12 to 14 per year and that ships of 35,000 – 40,000 tonne were the more common ship sizes. These HFO deliveries in the estuary to Tarbert have, therefore, have now ceased with no proposal for them to recommence in the short to medium term, reducing the traffic of HFO tanker ships in the estuary.

Measures in place for HFO unloading

The following measures are in place and will continue to be implemented during HFO unloading:

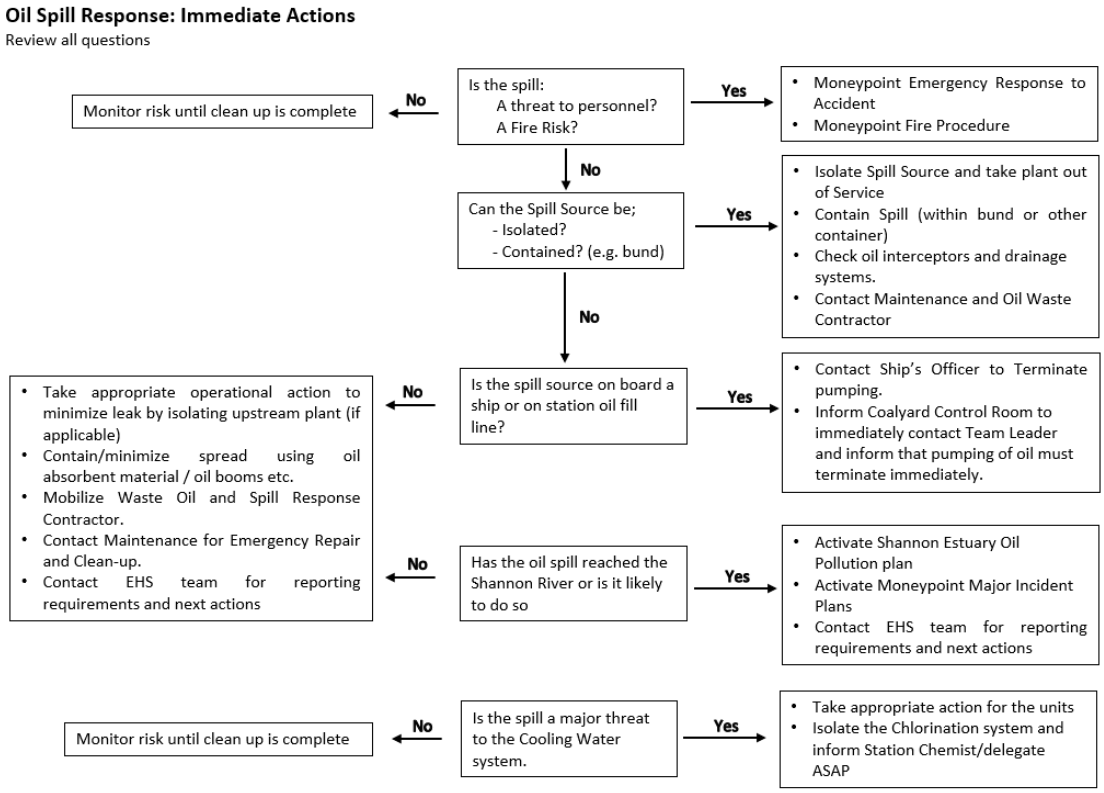
- Oil unloading arm and valves on the jetty are manned at all times.
- The full length of the HFO fuel line is inspected periodically (currently frequency, every 2 hours)
- Pressure and temperature is constantly checked and recorded
- Radio contact is maintained with the ship, the control room and persons involved in the procedure
- The oil sump located underneath the jetty is emptied prior to arrival of the oil ship
- Security is maintained on the jetty while unloading
- Firefighting equipment is positioned in place prior to arrival of the oil ship
- Oil spill containment equipment is located on the jetty

- Oil dry is positioned on the jetty(currently 2 tonne minimum)
- Jetty oil unloading arm area and the HFO. Tank head space are designated as Atmospheres Explosiibles (ATEX) Areas
- Hot work and smoking is prevented while unloading is taking place
- The pipework and valves are maintained as per oil tank and pipework technical standards

ESB Moneypoint Oil Spill Response Plan within the site

In the event of an oil spill within the Moneypoint site, the immediate assessment and actions to be undertaken by the Operations Team Leader or Designated Team Member are set out in Figure 4.4 below.

Figure 4.4: Oil spill response plan



Source: ESB

- Major environmental damage can be controlled and prevented by prompt isolation and containment of an oil spill, such as by isolating local drains, deployment of absorbent booms, securing the area against vehicular traffic, containing the spill using oil absorbent material and monitoring oil interceptor outlets to detect oil spill to the Shannon.
- ESB carry out regular emergency preparedness exercises, to ensure all staff are aware of measures to be implemented during emergency events.

Measures to prevent and address an oil spill from the HFO tanks on site

- All storage tanks, containers and drum storage areas that contain HFO will have leak containment bunds and leak detection systems in place.
- All chemicals stored on the site will be regulated under the IE licence. All fuels and COMAH substances stored on site will be subject to a COSHH (Control of substances Hazardous to Health) assessment and compliance with the requirements of REACH.

- In the event of a fire at one of the HFO tanks, the affected bund can provide firewater retention. The shut-off valves on the bund drainage system will be set to closed by default. Discharge of contaminated firewater from the HFO tank farm will therefore be shut off and any water in the bund would be required to be characterised (including analysis) to determine the options for proper disposal in accordance with the condition of the IE licence and in agreement with the EPA and other relevant authorities.
- Following the accidental release of HFO within the existing HFO bund on 05 May 2021 (see Section 12.4.2.1 of EIAR Chapter 12 Lands, Soils and Hydrogeology), additional measures are now in place. A quantitative risk assessment was also conducted and found that the risk of HFO migrating laterally through groundwater and beyond the site boundary impacting the Shannon Estuary was very low and likewise for migrating along the impacted drain. The following measures have been implemented on site as a result of this accidental release:
  - All shifts were briefed as to the significance of this incident and the potential damage which could have been caused to the station.
  - All tanks in the oil farm have alarmed level indicators fitted.
  - The signage in the oil farm was brought up to standard.
  - The SOPs (Standard Operating Procedures) were reviewed.

Invasive Species Control Measures

Ships carrying HFO to Moneypoint are required to adhere to the International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM).

In order to minimise the transfer of invasive marine aquatic species, it is recommended that the 2023 Guidelines for the Control and Management of Ships' Biofouling to Minimize the Transfer of Invasive Aquatic Species (Resolution MEPC.378 (80), adopted on 7 July 2023) are followed by shipping companies, including the following measures:

- An Anti-Fouling System (AFS) will be installed and maintained.
- Reinstalling, reapplying or repairing the AFS will be in accordance with manufacturer's guidance that includes measures for surface preparation to facilitate good adhesion and durability.
- A ship-specific contingency action plan based on specific triggers from monitoring of biofouling parameters will be described in the Biofouling Management Plan (BFMP).
- The contingency action plan will include:
  - proactive actions can be implemented to lower the risk of biofouling accumulation if a higher biofouling risk may be predicted owing to planned operational changes
  - corrective actions to operating profile, maintenance or other repair plans, if the monitoring identifies an early indication of elevated risk.
  - inspection may be necessary to determine biofouling accumulation if the monitoring of biofouling parameters identifies an indication of prolonged elevated risk.
- The ship specific BFMP will include, but not necessarily be limited to, the following:
  - identification of the officer, or the position (e.g., chief engineer), responsible for the BFMP, ensuring that the plan is properly implemented
  - details of the type of AFS installed and where on the ship it is installed
  - details of the recommended operating conditions suitable for the selected AFS to avoid deterioration of AFS, including recommended conditions such as temperature, salinity, speed
  - details of expected AFC efficacy throughout AFC lifetime including the need for inspection or maintenance, if relevant
  - description of monitoring on biofouling risk parameters

- regime for cleaning, if any
- details of hull and niche areas where biofouling may accumulate
- schedule for fixed inspections of areas
- procedures for reactive cleaning actions that should be performed if triggered by inspection results
- contingency action plan based on specific triggers from monitoring of biofouling risk parameters
- regime for repairs, maintenance and renewal of AFS, when relevant, in accordance with the manufacturer's instructions
- process for monitoring and maintenance of MGPS as per the manufacturer's instructions to ensure their effectiveness in minimizing biofouling
- details of the documentation/reports required to document biofouling activities.

5 Screening for Appropriate Assessment

5.1 Process for Screening for Appropriate Assessment

The European Commission Guidance '*Assessment of plans and projects significantly affecting Natura 2000 sites; Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC*' (2021) prescribes a 4-step process in Screening for Appropriate Assessment as follows:

- Determine whether the project or plan is directly connected with or necessary to the management of the site.
- Describe the project or plan and describe and characterise other projects or plans that in combination have the potential for having significant effects on the Natura 2000 site / European site (Natura 2000 sites are referred to in Irish legislation as European sites).
- Identify the potential effects on the European site.
- Assess the significance of any effects on the European site.

This report has been structured to reflect the 4-step screening process set out in the European Guidelines.

5.2 Management of European Sites

The proposed development is not directly connected with or necessary to the 'management' of European sites within the Natura 2000 Network having regard to Article 6 of the Habitats Directive. As such it is appropriate that the proposed development is subjected to screening for AA.

This screening assessment assesses, in view of best scientific knowledge, whether the proposed development, individually or in combination with other plans and projects, would be likely to have a significant effect on European sites. This report considers the likelihood of significant effects on European sites from the construction, operation, and decommissioning of the proposed development.

Measures intended to avoid or reduce the harmful effects of the proposed development on European sites (ie "mitigation measures") or best practice measures have not been taken into account in the screening stage appraisal.

A description of the proposed development has been described in Section 3. The location of the proposed development in relation to European sites is presented in Appendix B.

5.2.1 Source Pathway Receptor Assessment

Projects have the potential to impact on European sites beyond the footprint of the project itself. National Guidance[5] states that screening for AA should be carried out for any European site within the likely ZoI of a plan or project. For projects, the guidance recommends that ZoI must be evaluated on a case-by-case basis with reference to the nature, size and location of the project, the sensitivities of the ecological receptors, and the potential for in-combination effects.

[5] Appropriate Assessment of Plans and Projects in Ireland, Guidance for Planning Authorities, Department of the Environment, Heritage and Local Government, 2009

In order to establish the ZoI of the Proposed Development, desktop and field survey data on protected habitats and species was mapped using a Geographic Information System. This data was interrogated for source-pathway-receptor connectivity.

The source (potential impacts from the Proposed Development), pathways (hydrological, physical or ecological connectivity) and receptors (QIs and SCIs of the European sites) were identified through a combination of bespoke field survey, and desktop survey including use of Geographic Information System software and through examination of aerial photography. Any European sites identified to have a viable source-pathway-receptor link to the Proposed Development were then examined further to determine the potential for significant effects.

The potential environmental effects of the Proposed Development can be summarised as:

5.2.1.1 Construction Phase

The following outlines potential impacts identified associated with the works:

- **Disturbance to resting and roosting sites:** There is potential for disturbance to SCI bird species through temporary works within the site.
- **Noise disturbance:** There will be a temporary increase in noise due to the proposed development. Construction noise associated with any piling works required, could affect bird species. Birds using the shoreline for feeding or roosting, might be affected up to 355m from the site. Otters have the potential to be affected up to 150m from the site. These moderate, temporary effects are not likely to result in significant effects as the site is industrial and most fauna using the area are likely habituated to the noise levels on-site.
- **Discharges (other than an oil spill at sea) to water:** There is a small potential for localised spills, e.g., of diesel fuel, engine oil, cement and other construction related chemicals and substances on site. With the existing drainage and bunding system, combined with current responses plans for such eventualities already in place, as well as new ones proposed, there is very little chance of impacts to the water quality of the estuary and its associated habitats
- **Light disturbance:** Local increases in light levels during the construction phase may impact habitat use and suitability for a number of sensitive receptors, such as otter.
- **Spread of invasive species:** There is potential for the introduction and/or spread of invasive species due to construction phase activities.

5.2.1.2 Operation and Maintenance Phase

The following outlines potential impacts identified associated with the works:

- **Generation of Air pollutants:** There is the potential for the generation of airborne pollutants capable of deposition within the wider landscape. Nitrogen and Acid deposition may have a significant impact on plant communities and water quality both adjacent to and away from the Generating Station. However, and the EIAR Air Chapter & refers:
  - The maximum annual mean NOx PC is 0.4% of the AQS of for Scenario 1 and is located approximately 2.8km to the northeast of the proposed development. For Scenario 2, the maximum PC is 4.1% of the AQS and is located approximately 250m to the south of the proposed development. Both locations are within the River Shannon and River Fergus Estuaries SPA. The maximum annual mean NOx PEC is 32.4% of the AQS for Scenario 1 and 35.5% of the AQS for Scenario 2.
  - The maximum annual mean SO2 PC is 0.3% of the AQS of 20µg/m3 for Scenario 1 and 0.3% of the AQS for Scenario 2 is also predicted at River Shannon and River Fergus Estuaries SPA. The maximum SO2 PEC is 8.6% of the AQS for Scenario 1 and 8.7% of the AQS for Scenario 2.

  - The potential impacts on the ecological environment are assessed separately and presented in Chapter 10 Biodiversity of this EIAR which concludes that direct impacts from atmospheric NOx and SO2 are negligible. Overall, the PCs and PECs indicate that the increases in NOx and SO2 concentrations as a result of the proposed development are small relative to the background concentrations adopted for this assessment and would not result in exceedances of the AQS for NOx or SO2. On this basis, the direct impacts from atmospheric NOx and SO2 at ecological sites are negligible
  - Critical Loads (Acidification and Nitrogen Deposition)–- the annual mass emissions for the proposed development are lower than those for the existing operation on coal and the modelling for the proposed development has assumed continuous operation all year which is unlikely to occur due to the agreements in place. Therefore, the proposed development's contribution to nitrogen deposition would also be lower relative to the existing licenced operation. With a reduced contribution to levels of nitrogen deposition, there would be no adverse effects on designated habitat sites.
- **Noise disturbance:** Operational phase noise at the proposed development will not change from the pre-existing levels. The site operates in line with an existing IE licence (Register Number: P0605-04. It is not proposed to change any of the existing emission limit values in the IE licence. Ship delivery numbers are proposed to remain similar in frequency to firing at baseload with coal at up to 24 ships per year. However, HFO ships are generally much smaller with an average payload of ca. 27,000 tonnes, or just over one full tank. This compares with an average ship payload of ca.180,000 tonnes for a coal ship. The existing jetty is designed to cater for shops with a payload of up to 200,000 tonnes. It takes 2-4 days to unload a HFO ship compared with 2-3 weeks to unload a coal ship. Underwater noise will be reduced as a result of the proposed development as the coal shipments are eliminated. In terms of operational noise, noise levels are modelled as being well below 55dB (ca. 30-40dB) – this is a low noise level effect (Cutts et al., 2013) and is not likely to have a significant effect on water birds.
- **Discharges to water:**
  - There is a notable, but remote, risk of accidental oil spillage, each with the potential to have potentially significant effects to the habitats and species within Shannon Estuary and waterbodies up to 120km away from the site. Oil spill might occur under any one of three key circumstances, namely,
    - In the estuary on approach to Moneypoint due to collision, grounding, or leakage of and from oil vessels, leading to a catastrophic oil spill.
    - Accidental spillage of oil at the jetty during HFO tank filling operations.
    - Potential leakages of oil from tanks and pipes on site during operation of the generation station.
  - There is a small potential for localised spills / discharge, e.g., of chemicals, hydrocarbons and sediment on site. With the existing drainage and bunding system, combined with current responses plans for such eventualities already in place, as well as new ones proposed, there is very little chance of impacts to the water quality of the estuary and its associated habitats.
  - Process wastewater discharges will not change, and the existing emission limit value will continue to be complied with.
- **Light disturbance:** Changes to and increases from the existing light levels are proposed following installation of additional lights within the proposed development that will run during the operation of the proposed development.
- **Noise and visual disturbance:** There is potential for a temporary increase in personnel and machinery presence during HFO delivery events which may disturb species, however these events will be brief and infrequent (ca. 2 events per year).

Spread of invasive species: There is potential for the introduction and/or spread of invasive marine species via HFO delivery vessels, as a result of biofouling on ship hulls.

Table 5.1 presents the 'source-pathway-receptor' assessment for the proposed Development. All European sites within the Natura 2000 network were considered in the course of compiling the source-pathway-receptor assessment.

Appendix B includes figures which illustrate the location of these European sites outlined relative to the proposed development.

No additional European sites are likely to be within the ZoI of the proposed development based on detailed consideration of potential impacts and nature and scale of the proposed development.

5.2.2 European Sites in the Zone of Influence

In the context of on ecological impact assessment generally the zone of influence (ZoI) for a proposed development is defined[6] as:

"*the area over which ecological features may be affected by biophysical changes as a result of the proposed development and associated activities. This is likely to extend beyond the development site, for example where there are ecological or hydrological links beyond the site boundaries*" and that "*the zone of influence will vary for different ecological features depending on their sensitivity to an environmental change*."

The ZoI varies depending on the construction and operational activity and the sensitivity of the receptor (eg flora, birds, terrestrial mammals) to the effect encountered.

The ZoI identified for various ecological receptors, having regard to the potential for impact as outlined previously are as detailed below:

- **Direct impacts** on terrestrial habitats is within the physical footprint of the proposed development.
- Coastal and marine habitats and species, including Annex II fish species, like Salmon (*Salmo salar*), may be impacted up to 120 km from site in case of catastrophic **oil spill** in the estuary. This distance is based on information found in guidance and documents, such as ITOPF Fate of Marine Spills Technical Information Paper 2[7], the Global Marine Oil Pollution Information Gateway[8], information from the press and public sources about well-known and recorded oil spills[9] [10], as well as guidance received from NPWS (letter Ref: G Pre00216/2023, 06/10/2023), and expert advice provided by Mott MacDonald's Senior Associate Marine Ecologist, who is also an 'on-scene commander of oil spills' and who has extensive experience in Oil Spill Contingency Planning (OSCP). 120km has been chosen as a reasonable distance to consider potential impacts on marine and coastal habitats and birds and marine mammals.

[6] CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.2. Chartered Institute of Ecology and Environmental Management, Winchester.

[7] https://www.itopf.org/fileadmin/uploads/itopf/data/Documents/TIPS_TAPS_new/TIP_2_Fate_of_Marine_Oil_Spills.pdf

[8] http://oils.gpa.unep.org/facts/fate.htm

[9] https://www.treehugger.com/the-largest-oil-spills-in-history-4863988

[10] https://www.biologicaldiversity.org/programs/public_lands/energy/dirty_energy_development/oil_and_gas/gulf_oil_spill/a_deadly_toll.html

- Nesting, foraging and feeding wetland and terrestrial bird species, within the local vicinity, may be impacted by **noise** effects[11] for up to 253m from the Development site. The noise study (Allegro acoustics[12], Jun 2022 and Jan 2023, respectively), although focussed on waterbirds, found that the construction phase works noise will fall to below 55dB within up to 253m of the proposed development. As such, areas of suitable habitat in the vicinity of works are taken as the ZoI for the construction related noise impacts to all (terrestrial and water) nesting, foraging and feeding birds within the local vicinity.
- 150m for **disturbance** to breeding otter holts (NRA, 2006)[13]..
- According to EPA mapping, a watercourse is shown running through the ASA in the north west corner of the proposed development. However, since the development of the area in the 1980's when the land was developed this local watercourse no longer takes an overland path through this area. Instead it is culverted through the ASA to a collection chamber which collects other surface water arriving at the external boundary of the ASA before discharging to the estuary. A natural pre-existing pond located to the east of the ASA and upstream of the culvert inlet serves to attenuate flow rates and settle out solids before entering the culvert and entering the estuary. The levels in the area of the culvert inlet and pond are significantly lower than the ash storage area (minimum level 14 mOD) by approximately 9 m. There are also a series of formal drains to carry surface water away during rain events etc. The ZoI for surface **water discharge** is, therefore, within the tidal limit of the Shannon Estuary. The development is located entirely in River Shannon catchment and works are hydrologically connected to the River Shannon estuary.

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

[12] Moneypoint Generating Station, Environmental noise monitoring, Allegro acoustics reports DC2229-01 and DC2287-01, Jun 2022 and Jan 2023, respectively

[13] National Roads Authority (2006). Guidelines for the Treatment of Otters prior to the Construction of National Road Schemes.

Table 5.1: Source-Pathway-Receptor Assessment for all SPAs and SACs within the ZoIs

Site Name (Code), and Conservation Objectives Reference	Distance between the works and European site (straight line) at closest point	Qualifying Interests / Special Conservation Interests (SCI) of the European site (* denotes priority habitat, breeding birds only noted otherwise wintering)	Conservation Objective (to maintain the favourable conservation condition or to restore the favourable conservation condition) and identification of likely significant effects	Source-Pathway-Receptor Assessment
SPAs				
River Shannon and River Fergus Estuaries SPA 004077 (NPWS 2012)	6m	• Cormorant (*Phalacrocorax carbo)* breeding + wintering • Whooper Swan (*Cygnus cygnus)* wintering • Light‑bellied Brent Goose (*Branta bernicla hrota)* wintering • Shelduck (*Tadorna tadorna)* wintering • Wigeon (*Anas Penelope)* wintering • Teal (*Anas crecca)* wintering • Pintail (*Anas acuta)* wintering • Shoveler (*Anas clypeata)* wintering • Scaup (*Aythya marila)* wintering • Ringed Plover (*Charadrius hiaticula)* wintering • Golden Plover (*Pluvialis apricaria)* wintering • Grey Plover (*Pluvialis squatarola)* wintering • Lapwing (*Vanellus vanellus)* wintering • Knot (*Calidris canutus)* wintering • Dunlin (*Calidris alpina)* wintering • Black‑tailed Godwit (*Limosa limosa)* wintering • Bar‑tailed Godwit (*Limosa lapponica)* wintering • Curlew (*Numenius arquata)* wintering • Redshank (*Tringa tetanus)* wintering • Greenshank (*Tringa nebularia)* wintering • Black‑headed Gull (*Chroicocephalus ridibundus)* wintering • Wetlands	For all bird species and wetlands, the conservation objective is to maintain the favourable conservation condition. All bird species and wetlands are screened in.	Due to the proximity of the proposed development to this SPA, there is potential for disturbance effects due to construction activities (increased noise, light, human presence) during the construction phase of the proposed development, in the absence of mitigation. There is also potential for effects in the unlikely event of a catastrophic oil spill in the estuary. There is also potential for the spread of invasive species via shipping vessels in the absence of mitigation. In terms of the HFO exploding, this would have a catastrophic effect on the SCIs.
Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA 004161 (NPWS 2022)	12.5km	• A082 Hen Harrier (*Circus cyaneus*)	To restore the favourable conservation condition	Due to the distance between the proposed development and this SPA, there is no potential for effects given the nature of the SCI and no source-pathway-receptor link exists.
Mid-Clare Coast SPA 004182 (NPWS 2014)	14.5km	• A017 Cormorant (Phalacrocorax carbo) • A045 Barnacle Goose (Branta leucopsis) • A137 Ringed Plover (Charadrius hiaticula) • A144 Sanderling (Calidris alba) • A148 Purple Sandpiper (Calidris maritima) • A149 Dunlin (Calidris alpina alpina) • A169 Turnstone (Arenaria interpres) • A999 Wetlands	For all bird species and wetlands, the conservation objective is to maintain the favourable conservation condition All bird species and wetlands are screened in.	There is a remote likelihood of effects to this SPA. There is also potential for effects to bird species in the estuary in the unlikely event of a catastrophic oil spill in the estuary. There is also potential for the spread of invasive species via shipping vessels in the absence of mitigation.
Illaunonearaun SPA 004114 (NPWS, 2022)	15km	• Barnacle Goose	To maintain or restore the favourable conservation condition. Screened in	There is a remote likelihood of effects to this SPA. There is also potential for effects in the unlikely event of a catastrophic oil spill in the estuary.
Magheree Islands SPA 004125 (NPWS 2022)	44km	• A014 Storm Petrel *Hydrobates pelagicus* • A018 Shag *Phalacrocorax aristotelis* • A045 Barnacle Goose *Branta leucopsis* • A182 Common Gull *Larus canus*	To maintain or restore the favourable conservation condition All bird species are screened in.	There is a remote likelihood of effects to this SPA. There is also potential for effects in the unlikely event of a catastrophic oil spill in the estuary.

Site Name (Code), and Conservation Objectives Reference	Distance between the works and European site (straight line) at closest point	Qualifying Interests / Special Conservation Interests (SCI) of the European site (* denotes priority habitat, breeding birds only noted otherwise wintering)	Conservation Objective (to maintain the favourable conservation condition or to restore the favourable conservation condition) and identification of likely significant effects	Source-Pathway-Receptor Assessment
		• A193 Common Tern *Sterna hirundo* • A194 Arctic Tern *Sterna paradisaea* • A195 Little Tern *Sterna albifrons*		
Blasket Island SPA 004008 (NPWS 2022)	91km	• A009 Fulmar *Fulmarus glacialis* • A013 Manx Shearwater *Puffinus puffinus* • A014 Storm Petrel *Hydrobates pelagicus* • A018 Shag *Phalacrocorax aristotelis* • A183 Lesser Black-backed Gull *Larus fuscus* • A184 Herring Gull *Larus argentatus* • A188 Kittiwake *Rissa tridactyla* • A194 Arctic Tern *Sterna paradisaea* • A200 Razorbill *Alca torda* • A204 Puffin *Fratercula arctica* • A346 Chough *Pyrrhocorax pyrrhocorax* (Screened out)	To maintain or restore the favourable conservation condition All bird species and wetlands are screened in.	There is a remote likelihood of direct and indirect effects to the SCI species and wetlands within all the SPAs detailed here.. There is also potential for effects in the unlikely event of a catastrophic oil spill in the estuary. As Chough are not waterbirds, they are screened out from the assessment.
Skelligs SPA 004007 (NPWS 2022)	117km	• A009 Fulmar *Fulmarus glacialis* • A013 Manx Shearwater *Puffinus puffinus* • A014 Storm Petrel *Hydrobates pelagicus* • A016 Gannet *Morus bassanus* • A188 Kittiwake *Rissa tridactyla* • A199 Guillemot *Uria aalge* • A204 Puffin *Fratercula arctica*	To maintain or restore the favourable conservation condition All bird species and wetlands are screened in.	
Loop Head SPA 004119 (NPWS 2022)	31km	• A188 Kittiwake *Rissa tridactyla* • A199 Guillemot *Uria aalge*	To maintain or restore the favourable conservation condition All bird species and wetlands are screened in.	
Cliffs of Moher SPA 004005 (NPWS 2022)	35km	• A009 Fulmar *Fulmarus glacialis* • A188 Kittiwake *Rissa tridactyla* • A199 Guillemot *Uria aalge* • A200 Razorbill *Alca torda* • A204 Puffin *Fratercula arctica* • A346 Chough *Pyrrhocorax pyrrhocorax* (Screened out)	To maintain or restore the favourable conservation condition All bird species and wetlands are screened in.	
Tralee Bay Complex SPA 004188 (NPWS 2014)	36.5km	• A038 Whooper Swan *Cygnus cygnus* • A046 Brent Goose *Branta bernicla hrota* • A048 Shelduck *Tadorna tadorna* • A050 Wigeon *Anas 53onstruc* • A052 Teal *Anas crecca* • A053 Mallard *Anas platyrhynchos* • A054 Pintail *Anas acuta* • A062 Scaup *Aythya marila* • A130 Oystercatcher *Haematopus ostralegus* • A137 Ringed Plover *Charadrius hiaticula* • A140 Golden Plover *Pluvialis apricaria* • A141 Grey Plover *Pluvialis squatarola* • A142 Lapwing *Vanellus vanellus*	For all bird species and wetlands, the conservation objective is to maintain the favourable conservation condition All bird species and wetlands are screened in.	

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		• A144 Sanderling *Calidris alba* • A149 Dunlin *Calidris alpina alpina* • A156 Black-tailed Godwit *Limosa limosa* • A157 Bar-tailed Godwit *Limosa lapponica* • A160 Curlew *Numenius arquata* • A162 Redshank *Tringa 54onstru* • A169 Turnstone *Arenaria interpres* • A179 Black-headed Gull *Chroicocephalus ridibundus* • A182 Common Gull *Larus canus* • A999 Wetlands		
Kerry Head SPA 004189 (NPWS 2022)	24.5km	• A009 Fulmar *Fulmarus glacialis* • A346 Chough *Pyrrhocorax pyrrhocorax* (Screened out)	To maintain or restore the favourable conservation condition All bird species and wetlands are screened in.	
Dingle Peninsula SPA 004153 (NPWS 2022)	60km	• A009 Fulmar *Fulmarus glacialis* • Peregrine *Falco peregrinus* • A346 Chough *Pyrrhocorax pyrrhocorax* (Screened out)	To maintain or restore the favourable conservation condition All bird species and wetlands are screened in.	
Puffin Island SPA 004003	107km	• Fulmar (*Fulmarus glacialis*) [A009] • Manx Shearwater (*Puffinus puffinus*) [A013] • Storm Petrel (*Hydrobates pelagicus)* [A014] • Lesser Black-backed Gull (*Larus fuscus*) [A183] • Razorbill (*Alca torda)* [A200] • Puffin (*Fratercula arctica*) [A204]	To maintain or restore the favourable conservation condition of the bird species listed as SCI for this SPA	
Castlemaine Harbour SPA 004029	55km	• Red-throated Diver (*Gavia stellata*) [A001] • Cormorant (*Phalacrocorax carbo*) [A017] • Light-bellied Brent Goose (*Branta bernicla hrota*) [A046] • Wigeon (*Anas penelope*A050] • Mallard (*Anas platyrhynchos*) [A053] • Pintail (*Anas acuta*) [A054] • Scaup (*Aythya marila*) [A062] • Common Scoter (*Melanitta nigra*) [A065] • Oystercatcher *(Haematopus ostralegus*) [A130] • Ringed Plover (*Charadrius hiaticula*) [A137] • Sanderling (*Calidris alba*) [A144] • Bar-tailed Godwit (*Limosa lapponica*) [A157] • Redshank (*Tringa totanus*) [A162] • Greenshank (*Tringa nebularia*) [A164] • Turnstone (*Arenaria interpres*) [A169] • Chough (*Pyrrhocorax pyrrhocorax*) [A346] (Screened out) • Wetland and Waterbirds [A999]	To maintain or restore the favourable conservation condition of the bird species listed as SCI for this SPA	
Inner Galway Bay SPA 004031	59km	• Black-throated Diver (*Gavia arctica*) [A002] • Great Northern Diver (*Gavia immer*) [A003] • Cormorant (*Phalacrocorax carbo*) [A017] • Grey Heron (*Ardea cinerea*) [A028]	To maintain or restore the favourable conservation condition of the bird species listed as SCI for this SPA	

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		• Light-bellied Brent Goose (*Branta bernicla hrota*) [A046] • Wigeon *(Anas penelope*) [A050] • Teal (*Anas crecca*) [A052] • Red-breasted Merganser (*Mergus serrator*) [A069] • Ringed Plover (*Charadrius hiaticula*) [A137] • Golden Plover (*Pluvialis apricaria*) [A140] • Lapwing (*Vanellus vanellus*) [A142] • Dunlin (*Calidris alpina*) [A149] • Bar-tailed Godwit (*Limosa lapponica*) [A157] • Curlew (*Numenius arquata*) [A160] • Redshank (*Tringa totanus*) [A162] • Turnstone (*Arenaria interpres*) [A169] • Black-headed Gull (*Chroicocephalus ridibundus*) [A179] • Common Gull (*Larus canus*) [A182] • Sandwich Tern (*Sterna sandvicensis*) [A191] • Common Tern (*Sterna hirundo)* [A193] • Wetland and Waterbirds [A999]		
The Bull and the Cow Rocks SPA 004066	124km	• Storm Petrel (*Hydrobates pelagicus*) [A014] • Gannet (*Morus bassanus*) [A016] • Puffin (*Fratercula arctica)* [A204]	To maintain or restore the favourable conservation condition of the bird species listed as SCI for this SPA	
High Island, Inishshark and Davillaun SPA 004152	116km	• Fulmar (*Fulmarus glacialis*) [A009] • Barnacle Goose (*Branta leucopsis*) [A045] • Arctic Tern (*Sterna paradisaea*) [A194]	To maintain or restore the favourable conservation condition of the bird species listed as SCI for this SPA	
Inishmore SPA 004152	54km	• Kittiwake (*Rissa tridactyla*) [A188] • Arctic Tern (*Sterna paradisaea)* [A194] • Little Tern (*Sterna albifrons*) [A195] • Guillemot (*Uria aalge*) [A199]	To maintain or restore the favourable conservation condition of the bird species listed as SCI for this SPA	
Iveragh Peninsula SPA 004154	72km	• Fulmar (*Fulmarus glacialis*) [A009] • Peregrine (*Falco peregrinus)* [A103] • Kittiwake (*Rissa tridactyla*) [A188] • Guillemot (*Uria aalge*) [A199] • Chough (*Pyrrhocorax pyrrhocorax*) [A346] (Screened out)	To maintain or restore the favourable conservation condition of the bird species listed as SCI for this SPA	
Beara Peninsula SPA 004155	108km	• Fulmar (*Fulmarus glacialis*) [A009] • Chough (*Pyrrhocorax pyrrhocorax*) [A346] (Screened out)	To maintain or restore the favourable conservation condition of the bird species listed as SCI for this SPA	
Slynae Head to Ardmore Point Island SPA 004175	76km	• Barnacle Goose (*Branta leucopsis*) [A045] • Sandwich Tern (*Sterna sandvicensis*) [A191] • Arctic Tern (*Sterna paradisaea*) [A194] • Little Tern (*Sterna albifrons*) [A195]	To maintain or restore the favourable conservation condition of the bird species listed as SCI for this SPA	
Cruagh Island SPA 004170	113km	• Manx Shearwater (*Puffinus puffinus*) [A013] • Barnacle Goose (*Branta leucopsis*) [A045]	To maintain or restore the favourable conservation condition of the bird species listed as SCI for this SPA	

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Deenish Island and Scariff Island SPA 004175	110km	• Fulmar (*Fulmarus glacialis*) [A009] • Manx Shearwater (*Puffinus puffinus*) [A013] • Storm Petrel (*Hydrobates pelagicus)* [A014] • Lesser Black-backed Gull (*Larus fuscus*) [A183] • Arctic Tern (*Sterna paradisaea*) [A194]	To maintain or restore the favourable conservation condition of the bird species listed as SCI for this SPA	
Connemara Bog Complex SPA 004181	72km	• Cormorant (*Phalacrocorax carbo*) [A017] • Merlin (*Falco columbarius*) [A098] • Golden Plover (*Pluvialis apricaria*) [A140] • Common Gull (*Larus canus)* [A182]	To maintain or restore the favourable conservation condition of the bird species listed as SCI for this SPA	
Mid-Clare Coast SPA 004182	15km	• Cormorant (Phalacrocorax carbo) [A017] • Barnacle Goose (Branta leucopsis) [A045] • Ringed Plover (Charadrius hiaticula) [A137] • Sanderling (Calidris alba) [A144] • Purple Sandpiper (Calidris maritima) [A148] • Dunlin (Calidris alpina) [A149] • Turnstone (Arenaria interpres) [A169] • Wetland and Waterbirds [A999]	To maintain or restore the favourable conservation condition of the bird species listed as SCI for this SPA	
Inishbofin, Omey Island and Turbot Island SPA 004231	109km	• Corncrake (*Crex crex*) [A122] (Screened out)	To maintain or restore the favourable conservation condition of the bird species listed as SCI for this SPA	
SACs				
Lower River Shannon SAC 002165 (NPWS 2012)	6m	• Sandbanks which are slightly covered by sea water all the time [1110] • Estuaries [1130] • Mudflats and sandflats not covered by seawater at low tide [1140] • Coastal lagoons [1150]* • Large shallow inlets and bays [1160] • Reefs [1170] • Perennial vegetation of stony banks [1220] • Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] Screened out • Salicornia and other annuals colonising mud and sand [1310] • Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330] • Mediterranean salt meadows (*Juncetalia maritimi*) [1410] • Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260] Screened out • Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410] Screened out • Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) [91E0]* Screened out • *Margaritifera margaritifera* (Freshwater Pearl Mussel) [1029] • *Petromyzon marinus* (Sea Lamprey) [1095] • *Lampetra planeri* (Brook Lamprey) [1096] Screened out • *Lampetra fluviatilis* (River Lamprey) [1099] • *Salmo salar* (Salmon) [1106] • *Tursiops truncatus* (Common Bottlenose Dolphin) [1349] • *Lutra lutra* (Otter) [1355]	To maintain or restore the favourable conservation condition.	Due to the proximity of this SAC to the proposed development, there is potential for pollution events to affect the SAC in terms of water quality and for disturbance effects due to construction activities (increased noise, light, human presence) to otter and bottlenose dolphin. However, there will be no increase in the number of tankers delivering HFO to the site. There is also potential for effects in the unlikely event of a catastrophic oil spill in the estuary, which could affect both habitats and species within the SAC. There is also potential for the spread of invasive species via shipping vessels in the absence of mitigation. In terms of the HFO exploding, this would have a catastrophic effect on the qIs. In terms of nitrogen deposition, this has been modelled and the air quality limit of 30µg/m^3 will not be exceeded. The critical loads for nitrogen and acid deposition will be less than the current scenario and therefore there is no potential for significant effects and therefore effects on vegetation qualifying interests are screened out for these pathways. There is no potential for direct effects to watercourses or freshwater pearl mussel as there is no hydrological connectivity between

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				these qualifying interests and the proposed development however, as freshwater pearl mussel depends on salmon at juvenile stage, any effects on salmon could therefore effect freshwater pearl mussel. It is noted that seals, while not a QI for this site, are present in the estuary.
Black Head Poulsallagh Complex SAC 000020 (NPWS 2014)	44.2km	• Reefs [1170] • Perennial vegetation of stony banks [1220] • Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260] (Screened out) • Alpine and Boreal heaths [4060] (Screened out) • Juniperus communis formations on heaths or calcareous grasslands [5130] (screened out) • Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) [6210] (Screened out) • Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis) [6510] (Screened out) • Petrifying springs with tufa formation (Cratoneurion) [7220] (Screened out) • Limestone pavements [8240] (Screened out) • Submerged or partially submerged sea caves [8330] • Petalophyllum ralfsii (Petalwort) [1395]	To maintain or restore the favourable conservation condition	There is a remote likelihood of effects to this SAC. There is also potential for effects in the unlikely event of a catastrophic oil spill in the estuary.
Inagh River Estuary SAC 000036 (NPWS 2017)	35.5km	• Salicornia and other annuals colonising mud and sand [1310] • Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330] • Mediterranean salt meadows (Juncetalia maritimi [1410] • Shifting dunes along the shoreline with Ammophila arenaria (white dunes) [2120] • Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]	To maintain or restore the favourable conservation condition	There is a remote likelihood of effects to this SAC. There is also potential for effects in the unlikely event of a catastrophic oil spill in the estuary.
Glengariff Harbour and Woodland SAC 000090 (NPWS 2015)	92.9km	• Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [91A0] (Screened out) • Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae) [91E0] (Screened out) • *Geomalacus maculosus* (Kerry Slug) [1024] (Screened out) • *Rhinolophus hipposideros* (Lesser Horseshoe Bat) [1303] (Screened out) • *Lutra lutra* (Otter) [1355] • *Phoca vitulina* (Harbour Seal) [1365]	To maintain or restore the favourable conservation condition	There is a remote likelihood of effects to this SAC. There is also potential for effects in the unlikely event of a catastrophic oil spill in the estuary.
Caha Mountains SAC 000093	91km	• Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) [3110] • Natural dystrophic lakes and ponds [3160] • Northern Atlantic wet heaths with *Erica tetralix* [4010] • European dry heaths [4030] • Alpine and Boreal heaths [4060] • Species-rich *Nardus* grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe) [6230] • Blanket bogs (* if active bog) [7130] • Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani) [8110] • Calcareous rocky slopes with chasmophytic vegetation [8210] • Siliceous rocky slopes with chasmophytic vegetation [8220] • *Geomalacus maculosus* (Kerry Slug) [1024] • *Trichomanes speciosum* (Killarney Fern) [1421]	To maintain or restore the favourable conservation condition	No source pathway identified – all qIs screened out

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Inishmaan Island SAC 000212	51.1km	• Reefs [1170] • Perennial vegetation of stony banks [1220] • Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] (Screened out) • Embryonic shifting dunes [2110] • Shifting dunes along the shoreline with Ammophila arenaria (white dunes) [2120] • Machairs (* in Ireland) [21A0] • European dry heaths [4030] (Screend out) • Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) [6210] (Screened out) • Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis) [6510] (Screened out) • Limestone pavements [8240] (Screened out)	To maintain or restore the favourable conservation condition	There is a remote likelihood of effects to this SAC. There is also potential for effects in the unlikely event of a catastrophic oil spill in the estuary.
Inishmore Island SAC 000213	52km	• Coastal lagoons [1150] • Reefs [1170] • Perennial vegetation of stony banks [1220] • Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] (Screened out) • Embryonic shifting dunes [2110] • Shifting dunes along the shoreline with Ammophila arenaria (white dunes) [2120] • Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] • Dunes with Salix repens ssp. Argentea (Salicion arenariae) [2170] • Humid dune slacks [2190] • Machairs (* in Ireland) [21A0] • European dry heaths [4030] (Screened out) • Alpine and Boreal heaths [4060] (Screened out) • Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) [6210] (Screened out) • Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis) [6510] (Screened out) • Limestone pavements [8240] (Screened out) • Submerged or partially submerged sea caves [8330] • *Vertigo angustior* (Narrow-mouthed Whorl Snail) [1014] (Screened out)	To maintain or restore the favourable conservation condition	There is a remote likelihood of effects to this SAC. There is also potential for effects in the unlikely event of a catastrophic oil spill in the estuary.
Galway Bay Complex SAC 000268	59km	• Mudflats and sandflats not covered by seawater at low tide [1140] • Coastal lagoons [1150] • Large shallow inlets and bays [1160] • Reefs [1170] • Perennial vegetation of stony banks [1220] • Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] (Screened out) • *Salicornia* and other annuals colonising mud and sand [1310] • Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330] • Mediterranean salt meadows (Juncetalia maritimi) [1410] • Turloughs [3180] (Screened out) • *Juniperus communis* formations on heaths or calcareous grasslands [5130] (Screened out) • Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) [6210] (Screened out) • Calcareous fens with *Cladium mariscus* and species of the Caricion davallianae [7210] (Screened out) • Alkaline fens [7230] (Screened out) • Limestone pavements [8240] (Screened out)	To maintain or restore the favourable conservation condition	There is a remote likelihood of effects to this SAC. There is also potential for effects in the unlikely event of a catastrophic oil spill in the estuary.

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		• *Lutra lutra* (Otter) [1355] • *Phoca vitulina* (Harbour Seal) [1365]		
Inishbofin and Inishshark SAC 000278	120km	• Coastal lagoons [1150] • Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) [3110] (Screened out) • Northern Atlantic wet heaths with *Erica tetralix* [4010] (Screened out) • European dry heaths [4030] (Screened out) • *Halichoerus grypus* (Grey Seal) [1364]	To maintain or restore the favourable conservation condition	There is a remote likelihood of effects to this SAC. There is also potential for effects in the unlikely event of a catastrophic oil spill in the estuary.
Rosroe Bog SAC 000324	92km	• Blanket bogs (* if active bog) [7130] (Screened out) • Depressions on peat substrates of the Rhynchosporion [7150] (Screened out)	To maintain or restore the favourable conservation condition	No source pathway identified – all qIs screened out
Slyne Head Islands SAC 000328	101km	• Reefs [1170] • *Tursiops truncatus*(Common Bottlenose Dolphin) [1349] • *Halichoerus grypus* (Grey Seal) [1364]	To maintain or restore the favourable conservation condition	There is a remote likelihood of effects to this SAC. There is also potential for effects in the unlikely event of a catastrophic oil spill in the estuary.
Tully Mountain SAC 000330	113km	• European dry heaths [4030] (Screened out) • Alpine and Boreal heaths [4060] (Screened out)	To maintain or restore the favourable conservation condition	No source pathway identified – all qIs screened out
Akreagh, Banna and Barrow Harbour SAC 000332	36km	• Annual vegetation of drift lines [1210] • Salicornia and other annuals colonising mud and sand [1310] • Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330] • Mediterranean salt meadows (Juncetalia maritimi) [1410] • Embryonic shifting dunes [2110] • Shifting dunes along the shoreline with Ammophila arenaria (white dunes) [2120] • Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] • Humid dune slacks [2190] • European dry heaths [4030] (Screened out)	To maintain or restore the favourable conservation condition	There is a remote likelihood of effects to this SAC. There is also potential for effects in the unlikely event of a catastrophic oil spill in the estuary.
Ballinskelligs Bay and Inny Estuary SAC 000335	96km	• Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330] • Mediterranean salt meadows (Juncetalia maritimi) [1410] • *Petalophyllum ralfsii* (Petalwort) [1395]	To maintain or restore the favourable conservation condition	There is a remote likelihood of effects to this SAC. There is also potential for effects in the unlikely event of a catastrophic oil spill in the estuary.
Castlemaine Harbour SAC 000343	53km	• Estuaries [1130] • Mudflats and sandflats not covered by seawater at low tide [1140] • Annual vegetation of drift lines [1210] • Perennial vegetation of stony banks [1220] • Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] (Screened out) • *Salicornia* and other annuals colonising mud and sand [1310] • Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330] • Mediterranean salt meadows (Juncetalia maritimi) [1410] • Embryonic shifting dunes [2110] • Shifting dunes along the shoreline with Ammophila arenaria (white dunes) [2120] • Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] • Dunes with *Salix repens* ssp. *argentea* (Salicion arenariae) [2170] • Humid dune slacks [2190] • Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae) [91E0] (Screened out) • *Petromyzon marinus* (Sea Lamprey) [1095]	To maintain or restore the favourable conservation condition	There is a remote likelihood of effects to this SAC. There is also potential for effects in the unlikely event of a catastrophic oil spill in the estuary.

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		• *Lampetra fluviatilis* (River Lamprey) [1099] • *Salmo salar* (Salmon) [1106] • *Lutra lutra* (Otter) [1355] • *Petalophyllum ralfsii* (Petalwort) [1395]		
Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC 000365	53km	• Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) [3110] (Screened out) • Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoeto-Nanojuncetea [3130] (Screened out) • Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260] (Screened out) • Northern Atlantic wet heaths with *Erica tetralix* [4010] (Screened out) • European dry heaths [4030] (Screened out) • Alpine and Boreal heaths [4060] (Screened out) • *Juniperus communis* formations on heaths or calcareous grasslands [5130] (Screened out) • Calaminarian grasslands of the Violetalia calaminariae [6130] (Screened out) • *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) [6410] (Screened out) • Blanket bogs (* if active bog) [7130] (Screened out) • Depressions on peat substrates of the Rhynchosporion [7150] (Screened out) • Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [91A0] (Screened out) • Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae) [91E0] (Screened out) • *Taxus baccata* woods of the British Isles [91J0] (Screened out) • *Geomalacus maculosus* (Kerry Slug) [1024] (Screened out) • *Margaritifera margaritifera* (Freshwater Pearl Mussel) [1029] (Screened out) • *Euphydryas aurinia* (Marsh Fritillary) [1065] (Screened out) • *Petromyzon marinus* (Sea Lamprey) [1095] • *Lampetra planeri* (Brook Lamprey) [1096] (Screened out) • *Lampetra fluviatilis* (River Lamprey) [1099] • *Salmo salar* (Salmon) [1106] • *Rhinolophus hipposideros* (Lesser Horseshoe Bat) [1303] (Screened out) • *Lutra lutra* (Otter) [1355] • *Trichomanes speciosum* (Killarney Fern) [1421] (Screened out) • *Najas flexilis* (Slender Naiad) [1833] (Screened out) • *Alosa fallax killarnensis* (Killarney Shad) [5046]	To maintain or restore the favourable conservation condition	There is a remote likelihood of effects to this SAC. There is also potential for effects in the unlikely event of a catastrophic oil spill in the estuary.
Lough Yganavan and Lough Nambrackdarrig SAC 000370	64km	• Atlantic decalcified fixed dunes (Calluno-Ulicetea) [2150] • Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) [3110] (Screened out) • *Geomalacus maculosus* (Kerry Slug) [1024] (Screened out)	To maintain or restore the favourable conservation condition	There is a remote likelihood of effects to this SAC. There is also potential for effects in the unlikely event of a catastrophic oil spill in the estuary.
Mount Brandon SAC 000375	57km	• Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] (Screened out) • Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) [3110] (Screened out) • Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoeto-Nanojuncetea [3130] (Screened out) • Northern Atlantic wet heaths with *Erica tetralix* [4010] (Screened out) • European dry heaths [4030] (Screened out) • Alpine and Boreal heaths [4060] (Screened out) • Species-rich *Nardus* grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe) [6230] (Screened out)	To maintain or restore the favourable conservation condition	There is a remote likelihood of effects to this SAC. There is also potential for effects in the unlikely event of a catastrophic oil spill in the estuary.

Site Name (Code), and Conservation Objectives Reference	Distance between the works and European site (straight line) at closest point	Qualifying Interests / Special Conservation Interests (SCI) of the European site (* denotes priority habitat, breeding birds only noted otherwise wintering)	Conservation Objective (to maintain the favourable conservation condition or to restore the favourable conservation condition) and identification of likely significant effects	Source-Pathway-Receptor Assessment
		• Blanket bogs (* if active bog) [7130] (Screened out) • Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani) [8110] (Screened out) • Calcareous rocky slopes with chasmophytic vegetation [8210] (Screened out) • Siliceous rocky slopes with chasmophytic vegetation [8220] (Screened out) • *Margaritifera margaritifera* (Freshwater Pearl Mussel) [1029] (Screened out) • *Trichomanes speciosum* (Killarney Fern) [1421] (Screened out)		
Carrowmore Point to Spanish Point and Islands SAC 001021	17km	• Coastal lagoons [1150] • Reefs [1170] • Perennial vegetation of stony banks [1220] • Petrifying springs with tufa formation (Cratoneurion) [7220] (Screened out)	To maintain or restore the favourable conservation condition	There is a remote likelihood of effects to this SAC. There is also potential for effects in the unlikely event of a catastrophic oil spill in the estuary.
Aughrusbeg Machair and Lake SAC 001228	114km	• Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoeto-Nanojuncetea [3130] (Screened out) • Northern Atlantic wet heaths with *Erica tetralix* [4010] (Screened out)	To maintain or restore the favourable conservation condition	No source pathway identified – all qIs screened out
Cregduff Lough SAC 001251	91km	• Transition mires and quaking bogs [7140] (Screened out) • *Najas flexilis* (Slender Naiad) [1833] (Screened out)	To maintain or restore the favourable conservation condition	No source pathway identified – all qIs screened out
Dog's Bay SAC 001257	90km	• Annual vegetation of drift lines [1210] • Embryonic shifting dunes [2110] • Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120] • Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] • European dry heaths [4030] (Screened out)	To maintain or restore the favourable conservation condition	There is a remote likelihood of effects to this SAC. There is also potential for effects in the unlikely event of a catastrophic oil spill in the estuary.
Inisheer Island SAC 001275	48km	• Coastal lagoons [1150] • Reefs [1170] • European dry heaths [4030] (Screened out) • Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) [6210] (Screened out) • Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis) [6510] (Screened out) • Limestone pavements [8240] (Screened out)	To maintain or restore the favourable conservation condition	There is a remote likelihood of effects to this SAC. There is also potential for effects in the unlikely event of a catastrophic oil spill in the estuary.
Omey Island Machair SAC 001309	112km	• Machairs (* in Ireland) [21A0] • Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. [3140] (Screened out) • *Petalophyllum ralfsii (*Petalwort) [1395]	To maintain or restore the favourable conservation condition	There is a remote likelihood of effects to this SAC. There is also potential for effects in the unlikely event of a catastrophic oil spill in the estuary.
Rusheenduff Lough SAC	116km	• Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoeto-Nanojuncetea [3130] (Screened out) • *Najas flexilis* (Slender Naiad) [1833] (Screened out)	To maintain or restore the favourable conservation condition	No source pathway identified – all qIs screened out
Glanmore Bog SAC 001879	102km	• Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) [3110] (Screened out) • Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260] (Screened out) • Northern Atlantic wet heaths with *Erica tetralix* [4010] (Screened out) • Species-rich *Nardus* grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe) [6230] (Screened out) • Blanket bogs (* if active bog) [7130] (Screened out) • *Margaritifera margaritifera* (Freshwater Pearl Mussel) [1029] (Screened out) • *Trichomanes speciosum* (Killarney Fern) [1421] (Screened out)	To maintain or restore the favourable conservation condition	No source pathway identified – all qIs screened out

Site Name (Code), and Conservation Objectives Reference	Distance between the works and European site (straight line) at closest point	Qualifying Interests / Special Conservation Interests (SCI) of the European site (* denotes priority habitat, breeding birds only noted otherwise wintering)	Conservation Objective (to maintain the favourable conservation condition or to restore the favourable conservation condition) and identification of likely significant effects	Source-Pathway-Receptor Assessment
Connemara Bog Complex SAC 002034	69km	• Coastal lagoons [1150] • Reefs [1170] • Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) [3110] (Screened out) • Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoeto-Nanojuncetea [3130] (Screened out) • Natural dystrophic lakes and ponds [3160] (Screened out) • Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260] (Screened out) • Northern Atlantic wet heaths with *Erica tetralix* [4010] (Screened out) • European dry heaths [4030] (Screened out) • *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) [6410] (Screened out) • Blanket bogs (* if active bog) [7130] (Screened out) • Transition mires and quaking bogs [7140] (Screened out) • Depressions on peat substrates of the Rhynchosporion [7150] (Screened out) • Alkaline fens [7230] (Screened out) • Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [91A0] (Screened out) • *Euphydryas aurinia* (Marsh Fritillary) [1065] (Screened out) • *Salmo salar* (Salmon) [1106] • *Lutra lutra* (Otter) [1355] • *Najas flexilis* (Slender Naiad) [1833] (Screened out)	To maintain or restore the favourable conservation condition	There is a remote likelihood of effects to this SAC. There is also potential for effects in the unlikely event of a catastrophic oil spill in the estuary.
Tralee Bay and Magharees Peninsula, West to Cloghane SAC 002070	43km	• Estuaries [1130] • Mudflats and sandflats not covered by seawater at low tide [1140] • Coastal lagoons [1150] • Large shallow inlets and bays [1160] • Reefs [1170] • Annual vegetation of drift lines [1210] • Perennial vegetation of stony banks [1220] • Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] • Salicornia and other annuals colonising mud and sand [1310] • Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330] • Mediterranean salt meadows (Juncetalia maritima) [1410] • Embryonic shifting dunes [2110] • Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120] • Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] • Dunes with *Salix repens* ssp. *argentea* (Salicion arenariae) [2170] • Humid dune slacks [2190] • *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) [6410] (Screened out) • Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae) [91E0] (Screened out) • *Lutra lutra* (Otter) [1355] • *Petalophyllum ralfsii* (Petalwort) [1395]	To maintain or restore the favourable conservation condition	There is a remote likelihood of effects to this SAC. There is also potential for effects in the unlikely event of a catastrophic oil spill in the estuary.
Slyne Head Peninsula SAC 002074	98km	• Coastal lagoons [1150] • Large shallow inlets and bays [1160] • Reefs [1170] • Annual vegetation of drift lines [1210]	To maintain or restore the favourable conservation condition	There is a remote likelihood of effects to this SAC. There is also potential for effects in the unlikely event of a catastrophic oil spill in the estuary.

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		• Perennial vegetation of stony banks [1220] • Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330] • Mediterranean salt meadows (Juncetalia maritimi) [1410] • Embryonic shifting dunes [2110] • Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120] • Machairs (* in Ireland) [21A0] • Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) [3110] (Screened out) • Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoeto-Nanojuncetea [3130] (Screened out) • Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. [3140] (Screened out) • European dry heaths [4030] (Screened out) • *Juniperus communis* formations on heaths or calcareous grasslands [5130] (Screened out) • Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) [6210] (Screened out) • *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) [6410] (Screened out) • Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis) [6510] (Screened out) • Alkaline fens [7230] (Screened out) • *Tursiops truncatus* (Common Bottlenose Dolphin) [1349] • *Petalophyllum ralfsii* (Petalwort) [1395] • *Najas flexilis* (Slender Naiad) [1833] (Screened out)		
Kilkieran Bay and Islands SAC 002111	66km	• Mudflats and sandflats not covered by seawater at low tide [1140] • Coastal lagoons [1150] • Large shallow inlets and bays [1160] • Reefs [1170] • Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330] • Mediterranean salt meadows (Juncetalia maritimi) [1410] • Machairs (* in Ireland) [21A0] • Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoeto-Nanojuncetea [3130] (Screened out) • Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis) [6510] (Screened out) • *Lutra lutra* (Otter) [1355] • *Phoca vitulina* (Harbour Seal) [1365] • *Najas flexilis* (Slender Naiad) [1833] (Screened out)	To maintain or restore the favourable conservation condition	There is a remote likelihood of effects to this SAC. There is also potential for effects in the unlikely event of a catastrophic oil spill in the estuary.
Barnahallia Lough SAC 002118	111km	• Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoeto-Nanojuncetea [3130] (Screened out) • *Najas flexilis* (Slender Naiad) [1833] (Screened out)	To maintain or restore the favourable conservation condition	No source pathway identified – all qIs screened out
Lough Nageeron SAC 002119	83km	• Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoeto-Nanojuncetea [3130] (Screened out) • *Najas flexilis* (Slender Naiad) [1833] (Screened out)	To maintain or restore the favourable conservation condition	No source pathway identified – all qIs screened out
Murvey Machair SAC 002129	93km	• Machairs (* in Ireland) [21A0] • *Petalophyllum ralfsii* (Petalwort) [1395	To maintain or restore the favourable conservation condition	There is a remote likelihood of effects to this SAC. There is also potential for effects in the unlikely event of a catastrophic oil spill in the estuary.
Tully Lough SAC 002130	114km	• Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoeto-Nanojuncetea [3130] (Screened out) • *Najas flexilis* (Slender Naiad) [1833] (Screened out)	To maintain or restore the favourable conservation condition	No source pathway identified – all qIs screened out

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Kenmare River SAC 002158	81km	• Large shallow inlets and bays [1160] • Reefs [1170] • Perennial vegetation of stony banks [1220] • Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] (Screened out) • Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330] • Mediterranean salt meadows (*Juncetalia maritimi*) [1410] • Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120] • Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] • European dry heaths [4030] (Screened out) • *Juniperus communis* formations on heaths or calcareous grasslands [5130] (Screened out) • Calaminarian grasslands of the Violetalia calaminariae [6130] (Screened out) • Submerged or partially submerged sea caves [8330] • *Vertigo angustior* (Narrow-mouthed Whorl Snail) [1014] (Screened out) • *Rhinolophus hipposideros* (Lesser Horseshoe Bat) [1303] (Screened out) • *Lutra lutra* (Otter) [1355] • *Phoca vitulina* (Harbour Seal) [1365]	To maintain or restore the favourable conservation condition	There is a remote likelihood of effects to this SAC. There is also potential for effects in the unlikely event of a catastrophic oil spill in the estuary.
Blasket Islands SAC 002172	87km	• Reefs [1170] • Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] (Screened out) • European dry heaths [4030] (Screened out) • Submerged or partially submerged sea caves [8330] • *Phocoena phocoena* (Harbour Porpoise) [1351] • *Halichoerus grypus* (Grey Seal) [1364]	To maintain or restore the favourable conservation condition	There is a remote likelihood of effects to this SAC. There is also potential for effects in the unlikely event of a catastrophic oil spill in the estuary.
Slieve Mish Mountains SAC 002185	44km	• Northern Atlantic wet heaths with *Erica tetralix* [4010] (Screened out) • European dry heaths [4030] (Screened out) • Alpine and Boreal heaths [4060] (Screened out) • Blanket bogs (* if active bog) [7130] (Screened out) • Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani) [8110] (Screened out) • Calcareous rocky slopes with chasmophytic vegetation [8210] (Screened out) • Siliceous rocky slopes with chasmophytic vegetation [8220] (Screened out) • *Trichomanes speciosum* (Killarney Fern) [1421] (Screened out)	To maintain or restore the favourable conservation condition	No source pathway identified – all qIs screened out
Carrowmore Dunes SAC 002250	15km	• Reefs [1170] • Embryonic shifting dunes [2110] • Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120] • Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] • *Vertigo angustior* (Narrow-mouthed Whorl Snail) [1014] (Screened out)	To maintain or restore the favourable conservation condition	There is a remote likelihood of effects to this SAC. There is also potential for effects in the unlikely event of a catastrophic oil spill in the estuary.
Magharee Islands SAC 002261	42km	• Reefs [1170]	To maintain or restore the favourable conservation condition	There is a remote likelihood of effects to this SAC. There is also potential for effects in the unlikely event of a catastrophic oil spill in the estuary.
Valencia Harbour/Portmagee Channel SAC 002262	92km	• Mudflats and sandflats not covered by seawater at low tide [1140] • Large shallow inlets and bays [1160] • Reefs [1170]	To maintain or restore the favourable conservation condition	There is a remote likelihood of effects to this SAC. There is also potential for effects in the unlikely event of a catastrophic oil spill in the estuary.

Site Name (Code), and Conservation Objectives Reference	**Distance between the works and European site (straight line) at closest point**	**Qualifying Interests / Special Conservation Interests (SCI) of the European site (* denotes priority habitat, breeding birds only noted otherwise wintering)**	**Conservation Objective (to maintain the favourable conservation condition or to restore the favourable conservation condition) and identification of likely significant effects**	**Source-Pathway-Receptor Assessment**
Kerry Head Shoal SAC 002263	38km	• Reefs [1170]	To maintain or restore the favourable conservation condition	There is a remote likelihood of effects to this SAC. There is also potential for effects in the unlikely event of a catastrophic oil spill in the estuary.
Kilkee Reefs SAC 002264		• Large shallow inlets and bays [1160] • Reefs [1170] • Submerged or partially submerged sea caves [8330]	To maintain or restore the favourable conservation condition	There is a remote likelihood of effects to this SAC. There is also potential for effects in the unlikely event of a catastrophic oil spill in the estuary.
Kingstown Bay SAC 002265		• Large shallow inlets and bays [1160]	To maintain or restore the favourable conservation condition	There is a remote likelihood of effects to this SAC. There is also potential for effects in the unlikely event of a catastrophic oil spill in the estuary.
Tullaher Lough and Bog SAC 002343		• Active raised bogs [7110] (Screened out) • Degraded raised bogs still capable of natural regeneration [7120] (Screened out) • Transition mires and quaking bogs [7140] (Screened out) • Depressions on peat substrates of the Rhynchosporion [7150] (Screened out)	To maintain or restore the favourable conservation condition	No source pathway identified – all qIs screened out
West Connacht Coast SAC 002998		• *Tursiops truncatus* (common Bottlenose Dolphin) [1349]	To maintain or restore the favourable conservation condition	There is a remote likelihood of effects to this SAC. There is also potential for effects in the unlikely event of a catastrophic oil spill in the estuary.

5.3 Overview of European Sites Screened in for further Assessment

5.3.1 SPAs

5.3.1.1 River Shannon and River Fergus Estuaries SPA 004077

The site has vast expanses of intertidal flats which contain a diverse macroinvertebrate community, e.g., *Macoma-Scrobicularia-Nereis*, which provides a rich food resource for the wintering birds. Salt marsh vegetation frequently fringes the mudflats, and this provides important high tide roost areas for the wintering birds. Elsewhere in the site the shoreline comprises stony or shingle beaches.

The site is the most important coastal wetland site in the country and regularly supports in excess of 50,000 wintering waterfowl (57,133 is the five-year mean for the period 1995/96 to 1999/2000), a concentration easily of international importance. The site has internationally important populations of:

- Light-bellied Brent Goose (494)
- Dunlin (15,131)
- Black-tailed Godwit (2,035) and
- Redshank (2,645)

A further 17 species have populations of national importance:

- Cormorant (245),
- Whooper Swan (118)
- Shelduck (1,025)
- Wigeon (3,761)
- Teal (2,260)
- Pintail (62)
- Shoveler (107)
- Scaup (102)
- Ringed Plover (223)
- Golden Plover (5,664)
- Grey Plover (558)
- Lapwing (15,126), Knot (2,015)
- Bar-tailed Godwit (460)
- Curlew (2,396)
- Greenshank (61)
- Black-headed Gull (2,681)

Figures are five year mean peak counts for the period 1995/96 to 1999/2000. The site is among the most important in the country for several of these species, notably Dunlin (13 % of national total), Lapwing (6% of national total) and Redshank (9% of national total). The site also supports a nationally important breeding population of Cormorant (93 pairs in 2010).

The River Shannon and River Fergus Estuaries SPA is an internationally important site that supports an assemblage of over 20,000 wintering waterbirds. It holds internationally important populations of four species, i.e., Light-bellied Brent Goose, Dunlin, Black-tailed Godwit and Redshank. In addition, there are 17 species that have wintering populations of national importance. The site also supports a nationally important breeding population of Cormorant. Of

particular note is that three of the species which occur regularly are listed on Annex I of the E.U. Birds Directive, i.e., Whooper Swan, Golden Plover and Bar-tailed Godwit. Parts of the River Shannon and River Fergus Estuaries SPA are Wildfowl Sanctuaries.

5.3.1.2 Mid-Clare Coast SPA 004182

The Mid-Clare Coast SPA site extends along the Co. Clare coastline in a south-south-westerly direction from Spanish Point (3 km west of Milltown Malbay) to just west of Doonbeg Bay, a distance of some 14 km. It comprises the mainland shoreline, Mutton Island and Mattle Island, a series of rocky reefs and the open marine water of Mal Bay between the islands and the mainland.

The Mid-Clare Coast SPA is of high ornithological importance and supports an internationally important population of Purple Sandpiper, and nationally important populations of wintering Barnacle Goose and four wader species. In summer it is utilised by a range of breeding seabirds including a nationally important colony of Cormorant. Of particular note is that Barnacle Goose, Storm Petrel, Golden Plover, Great Northern Diver and Red-throated Diver are listed on Annex I of the E.U. Birds Directive. Part of the Mid-Clare Coast SPA is a Wildfowl Sanctuary.

5.3.1.3 Illaunonearaun SPA 004114

Illaunonearaun is a small inaccessible island located approximately 300 m off the west Co. Clare coast, about 7 km south-west of Kilkee. It is a large flat-topped sea stack surrounded by high cliffs and a rocky shore.

The island is regularly used in winter by a Barnacle Goose flock. Flock size varies as birds move between here and Mutton Island to the north; up to 200 birds have been recorded (as, for example, in spring 1988), but numbers are usually less than this, such as in 1994 (22 birds) and 1998 (142 birds).

5.3.1.4 Magheree Islands SPA 004125

Magharee Islands SPA is of high ornithological importance for breeding seabirds, especially terns, as well as for wintering Barnacle Geese, which are at the most southerly point of their range in Europe. It is of note that six of the species that occur, i.e., Storm Petrel, Barnacle Goose, Chough, Common Tern, Arctic Tern and Little Tern are listed on Annex I of the E.U. Birds Directive.

5.3.1.5 Blasket Island SPA 004008

The Blasket Islands SPA is one of the most important seabird colonies in the country, with at least 11 species of seabird breeding regularly. It is the most important site in the country for Storm Petrel and Manx Shearwater, with internationally important populations of both (c. 52,141 and 19,534 pairs respectively in the 2000/2001 survey).

The Blasket Islands SPA is one of the most important seabird colonies in the country, with at least 11 species of seabird breeding regularly. It is the most important site in the country for Storm Petrel and Manx Shearwater, with internationally important populations of both (c. 52,141 and 19,534 pairs respectively in the 2000/2001 survey).

5.3.1.6 Skelligs SPA 004007

This site is one of the top five seabird sites in the country and is of international importance on account of both the assemblage of over 10,000 pairs of breeding seabirds and the individual populations of Storm Petrel and Gannet. The site also holds nationally important populations of a further five species of breeding seabird. Also of note is the regular presence of three species, Storm Petrel, Chough and Peregrine, which are listed on Annex I of the E.U. Birds Directive.

5.3.1.7 Loop Head SPA 004119

Loop Head SPA is of high ornithological importance as it supports two seabird species, Kittiwake and Guillemot, with populations of national importance. Two species, Chough and Peregrine, which are listed on Annex I of the E.U. Birds Directive, breed here in small numbers.

5.3.1.8 Cliffs of Moher SPA 004005

The Cliffs of Moher SPA is one of the most important seabird colonies in the country, with nationally important populations of five species. A nationally important population of Chough were recorded breeding at the site in 2002/03. The site holds the largest Kittiwake and Razorbill colonies in the country, and the second largest Fulmar colony (after Clare Island). The presence of two species that are listed on Annex I of the E.U. Birds Directive, Chough and Peregrine, is of note. Owing to the importance of the bird populations, the site was designated as a Refuge for Fauna in 1988.

5.3.1.9 Tralee Bay Complex SPA 004188

Tralee Bay Complex SPA is of high ornithological importance as it annually supports over 20,000 wintering waterbirds, including an international important population of Light-bellied Brent Goose and nationally important populations of 21 other species. It is of note that three of the species that regularly occur, Whooper Swan, Golden Plover and Bar-tailed Godwit, are listed on Annex I of the E.U. Birds Directive. Tralee Bay is a Ramsar Convention site and parts of the Tralee Bay Complex SPA are designated as Nature Reserves. Lough Gill is a Wildfowl Sanctuary.

5.3.1.10 Kerry Head SPA 004189

Kerry Head SPA is one of the most important sites in the country for Chough. It also supports a population of Fulmar of national importance. The presence of Chough and Peregrine, both species that are listed on Annex I of the E.U. Birds Directive, is of particular significance.

5.3.1.11 Dingle Peninsula SPA 004153

The Dingle Peninsula SPA is of ornithological importance as it supports an internationally important population of Chough. It also supports nationally important populations of Fulmar and Peregrine. The presence of Chough and Peregrine, both species that are listed on Annex I of the E.U. Birds Directive, is of particular significance. Part of the Dingle Peninsula SPA is a Statutory Nature Reserve.

5.3.1.12 Puffin Island SPA 004003

Puffin Island SPA is of international importance for its breeding seabird assemblage. The presence of Chough and Storm Petrel is of particular note as these species are listed on Annex I of the E.U. Birds Directive. The island is owned by BirdWatch Ireland and is managed for conservation. Puffin Island is a Statutory Nature Reserve.

5.3.1.13 Castlemaine Harbour SPA 004029

Castlemaine Harbour SPA is a very important ornithological site, with one species, Light-bellied Brent Goose, occurring in numbers of international importance. In addition, it supports nationally important populations of a further fifteen species. Of particular note is that five species that occur regularly are listed on Annex I of the E.U. Birds Directive, i.e., Red-throated Diver, Great Northern Diver, Golden Plover, Bar-tailed Godwit and Chough. Castlemaine Harbour is a Ramsar Convention site and parts of Castlemaine Harbour SPA are designated as a Statutory Nature Reserve and as Wildfowl Sanctuaries.

5.3.1.14 Inner Galway Bay SPA 004031

Inner Galway Bay SPA is of high ornithological importance with two wintering species having populations of international importance and a further sixteen wintering species having populations of national importance. The breeding colonies of Sandwich Tern, Common Tern and Cormorant are also of national importance. Also of note is that six of the regularly occurring species are listed on Annex I of the E.U. Birds Directive, i.e., Black-throated Diver, Great Northern Diver, Golden Plover, Bartailed Godwit, Sandwich Tern and Common Tern. Inner Galway Bay is a Ramsar Convention site and part of the Inner Galway Bay SPA is a Wildfowl Sanctuary.

5.3.1.15 The Bull and the Cow Rocks SPA 004066

The Bull and the Cow Rocks SPA is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Storm Petrel, Gannet and Puffin. The site holds one of the most important seabird colonies in the country, with populations of Storm Petrel and Gannet of at least national importance. The petrels breed on both the Cow and the Bull but have not been censused in recent times. The Seabird 2000 survey estimated that there were 3,500 pairs at the site. The Gannet colony on the Bull is long established and had 3,694 pairs in 2004 – this is the second largest colony in Ireland. Storm Petrel is listed on Annex I of the E.U. Birds Directive. Owing to their importance, both islands have been designated as Refuges for Fauna.

5.3.1.16 High Island, Inishshark and Davillaun SPA 004144

High Island, Inishshark and Davillaun SPA is of ornithological importance for its wintering Barnacle Goose and breeding seabird populations. The presence of Barnacle Goose and Arctic Tern is of note as both species are listed on Annex I of the E.U. Birds Directive.

5.3.1.17 Inishmore SPA 004152

The Inishmore SPA is an important site for breeding seabirds, with four migratory species having populations of national importance. Of note is that two of the seabird species, Arctic Tern and Little Tern, as well as the resident Peregrine and Chough, are listed on Annex I of the E.U. Birds Directive.

5.3.1.18 Iveragh Penninsula SPA 004154

The Iveragh Peninsula SPA is of ornithological importance as it supports an internationally important population of Chough and is the second most important site in the country for this species. The site also supports nationally important populations of Peregrine and three species of breeding seabirds Guillemot, Fulmar and Kittiwake. The presence of Chough and Peregrine, both species that are listed on Annex I of the E.U. Birds Directive, is of particular significance.

5.3.1.19 Beara Penninsula SPA 004155

The Beara Peninsula SPA is one of the most important sites in the country for Chough, with a breeding population of international importance occurring. It also supports a nationally important population of Fulmar. The presence of Chough and Peregrine, both species that are listed on Annex I of the E.U. Birds Directive, is of particular significance.

5.3.1.20 Slyne Head to Ardmore Point Islands SPA 004159

Slyne Head to Ardmore Point Islands SPA is of high ornithological importance as it supports an internationally important Barnacle Goose population. It also has nationally important populations of three tern species, including the largest breeding population of Arctic Tern in the country.

Barnacle Goose, Sandwich Tern, Arctic Tern, Little Tern, Common Tern and Roseate Tern are all listed on Annex I of the E.U. Birds Directive.

5.3.1.21 Cruagh Island SPA 004170

Cruagh Island SPA is of ornithological importance on account of its internationally important population of nesting Manx Shearwater and nationally important population of wintering Barnacle Goose. The presence of a nationally important colony of Great Black-backed Gull, a resident species, is also of note.

5.3.1.22 Deenish Island and Scariff Island SPA 004175

Deenish Island and Scariff Island SPA is a site of high ornithological importance on account of the internationally important population of Storm Petrel and nationally important populations of Manx Shearwater, Fulmar, Lesser Black-backed Gull and Arctic Tern. Also of note is that Storm Petrel and Arctic Tern, as well as Chough, are listed on Annex I of the E.U. Birds Directive.

5.3.1.23 Connemara Bog Complex SPA 004181

Connemara Bog Complex SPA is of high ornithological importance, in particular for its nationally important breeding populations of Cormorant, Merlin, Golden Plover and Common Gull. It is of note that three of the regularly occurring species, Greenland White-fronted Goose, Merlin and Golden Plover, are listed on Annex I of the E.U. Birds Directive.

5.3.1.24 Mid-Clare Coast SPA 004182

The Mid-Clare Coast SPA is of high ornithological importance and supports an internationally important population of Purple Sandpiper, and nationally important populations of wintering Barnacle Goose and four wader species. In summer it is utilized by a range of breeding seabirds including a nationally important colony of Cormorant. Of particular note is that Barnacle Goose, Storm Petrel, Golden Plover, Great Northern Diver and Red-throated Diver are listed on Annex I of the E.U. Birds Directive. Part of the Mid-Clare Coast SPA is a Wildfowl Sanctuary.

5.3.1.25 Inishbofin, Omey Island and Turbot Island SPA 004231

Inishbofin, Omey Island and Turbot Island SPA is of high ornithological importance as it supports a nationally important population of Corncrake, a globally threatened species. Corncrake is also listed on Annex I of the E.U. Birds Directive.

5.3.2 SACs

5.3.2.1 Lower River Shannon SAC 002165

The Shannon and Fergus Estuaries form the largest estuarine complex in Ireland. They form a unit stretching from the upper tidal limits of the Shannon and Fergus Rivers to the mouth of the Shannon Estuary (considered to be a line across the narrow strait between Kilcredaun Point and Kilconly Point).

Both the Fergus and inner Shannon Estuaries feature vast expanses of intertidal mudflats, often fringed with saltmarsh vegetation. In the transition zone between mudflats and saltmarsh, specialised colonisers of mud predominate. For example, swards of Common Cordgrass (*Spartina anglica*) frequently occur in the upper parts of the estuaries.

The site supports an excellent example of a large shallow inlet and bay. Littoral sediment communities in the mouth of the Shannon Estuary occur in areas that are exposed to wave action and also in areas extremely sheltered from wave action. Characteristically, exposed sediment communities are composed of coarse sand and have a sparse fauna.

The intertidal reefs in the Shannon Estuary are exposed or moderately exposed to wave action and subject to moderate tidal streams. Known sites are steeply sloping and show a good zonation down the shore.

Other coastal habitats that occur within the site include stony beaches and bedrock shores (these support a typical zonation of seaweeds such as *Fucus* spp., *Ascophyllum nodosum* and kelps), shingle beaches (with species such as Sea Beet, Sea Mayweed – *Matricaria maritima,* Sea Campion and Curled Dock – *Rumex crispus*), sandbanks which are slightly covered by sea water at all times (e.g. in the area from Kerry Head to Beal Head) and sand dunes (a small area occurs at Beal Point, where Marram – *Ammophila arenaria* is the dominant species).

Five species of fish listed on Annex II of the E.U. Habitats Directive are found within the site. These are Sea Lamprey (Petromyzon marinus), Brook Lamprey (*Lampetra planeri*), River Lamprey (*Lampetra fluviatilis*), Twaite Shad *(Allosa fallax fallax*) and Salmon (*Salmo salar*). The three lampreys and Salmon have all been observed spawning in the lower Shannon or its tributaries.

This site is of great ecological interest as it contains a high number of habitats and species listed on Annexes I and II of the E.U. Habitats Directive, including the priority habitats lagoon and alluvial woodland, the only known resident population of Bottle-nosed Dolphin in Ireland and all three Irish lamprey species.

5.3.2.2 Black Head Poulsallagh Complex SAC 000020

Black Head Poulsallagh Complex SAC encompasses a complete range of rocky Burren habitats from coastal, glacially planed limestone pavements to high level heaths offering a fine example of these geological features. The northern part of Black Head also hosts approximately 25 breeding pairs of Black Guillemot while up to 15 Black-throated Divers winter there (this species is listed in Annex I of the E.U. Birds Directive.

5.3.2.3 Inagh River Estuary SAC 000036

The Inagh River Estuary SAC is a large site with a range of coastal, tidal and terrestrial habitats that are of considerable ecological interest, five of which are listed under Annex I of the E.U. Habitats Directive. The extensive and relatively secluded low-lying wet grasslands provide a natural and legally protected refuge for wildfowl.

5.3.2.4 Glengariff Harbour and Woodland SAC 000090

The Glengariff Harbour and Woodland SAC is of importance because it is the only sizeable area of old oak woodland remaining in west Cork and is considered second only to Killarney as an example of Oceanic Sessile Oak/Holly woodlands. Furthermore, the site supports populations of a number of animal species listed on Annex II of the Habitats Directive.

5.3.2.5 Inishmaan Island SAC 000212

Inishmaan Island SAC is of considerable scientific interest primarily for the wide range of good quality habitats which occur, and the floristic richness of many of these habitats. The island supports an impressive array of critically rare and threatened plant species. The cultural heritage of Inishmaan (and in particular the continuation of traditional, low-intensity farming practices) is intrinsically linked with its scientific interest.

5.3.2.6 Inishmore Island SAC 000213

Inishmore Island SAC is of considerable scientific interest primarily for the wide range of good quality habitats which occur, and the floristic richness of many of these habitats. The island supports an impressive array of rare and threatened plant species, and it also provides excellent

habitat for several bird species. The cultural heritage of Inishmore (and in particular the continuation of traditional, low-intensity farming practices) is intrinsically linked with its scientific interest.

5.3.2.7 Galway Bay Complex SAC 000268

Galway Bay Complex SAC is of immense conservation importance, with many habitats listed on Annex I of the E.U. Habitats Directive, four of which have priority status Version date: 10.12.2015 5 of 5 000268_Rev15.Docx (lagoon, Cladium fen, turlough and orchid-rich calcareous grassland). The examples of shallow bays, reefs, lagoons and saltmarshes found within this site are amongst the best in the country. The site supports an important Common Seal colony and a breeding Otter population (Annex II species), and six regular Annex I E.U. Birds Directive species. The site also has four Red Data Book plant species, plus a host of rare or scarce marine and lagoonal animal and plant species.

5.3.2.8 Inishbofin and Linishshark SAC 000278

Inishbofin and Inishshark SAC is of considerable conservation significance for the presence of an excellent example of a lagoon, a habitat listed with priority status on Annex I of the E.U. Habitats Directive, and for the good examples of heath, sea cliff, hay meadow and other vegetation communities typical of exposed western islands that it supports. The presence of a breeding colony of Grey Seal, a species that is listed on Annex II of the E.U. Habitats Directive, as well as populations of rare Red Data Book plant species and of important bird populations adds significantly to the importance of the site.

5.3.2.9 Slyne Head Islands SAC 000328

Slyne Head Islands SAC an important example of exposed low-lying western islands with good examples of reefs, a significant grey seal population and important colonies of breeding birds. The site is also of conservation importance due to the occurrence of groups of Bottlenose Dolphin, a species listed on Annex II of the E.U. Habitats Directive.

5.3.2.10 Akreagh, Banna and Barrow Harbour SAC 000332

Akreagh, Banna and Barrow SAC is of major ecological interest due both to its range of floristically rich coastal habitats, nine of which are listed on Annex I of the E.U. Habitats Directive, including one priority habitat, and as a wintering site for significant numbers of waterfowl (including two Annex I species).

5.3.2.11 Ballinskelligs Bay and Inny Estuary SAC 000335

Ballinskelligs Bay and Inny Estuary SAC is an important example of exposed low-lying western islands with good examples of reefs, a significant grey seal population and important colonies of breeding birds. The site is also of conservation importance due to the occurrence of groups of Bottlenose Dolphin, a species listed on Annex II of the E.U. Habitats Directive.

5.3.2.12 Castlemaine Harbour SAC 000343

Castlemaine Harbour SAC is of major ecological importance. It contains a range of coastal habitats of excellent quality, including many that are listed on Annex I of the E.U. Habitats Directive, and two which are listed with priority status (fixed dunes and alluvial forests). It also includes long stretches of river and stream which are excellent habitats for Salmon, Lamprey and Otter. The Version date: 10.12.2015 4 of 4 000343_Rev15.Docx site supports internationally important waterfowl populations, rare plant species, the rare Natterjack Toad, as well as populations of several animal species that are listed on Annex II of the E.U. Habitats Directive. Part of the site is designated a Special Protection Area (SPA) and is listed as a site

under the Ramsar Convention. Part of Castlemaine Harbour is a Statutory Nature Reserve, while Inch and Rosbehy are Wildfowl Sanctuaries.

5.3.2.13 Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC 000365

The site supports most of the Irish mammal species. Of particular note is the occurrence of two E.U. Habitats Directive Annex II species: Lesser Horseshoe Bat, with a total population of about 300 individuals distributed at several locations, including both nursery and hibernation sites, and Otter. The site is valuable for its rare fish species, five of which are listed on Annex II of the E.U. Habitats Directive: Brook Lamprey (Lampetra planeri), River Lamprey (Lampetra fluviatilis), Sea Lamprey (Petromyzon marinus), Atlantic Salmon (Salmo salar) and Killarney Shad (Alosa fallax killarnensis). The site has six bird species which are listed on Annex I of the E.U. Birds Directive. A small flock of Greenland White-fronted Goose, which winters on the boglands within the National Park, is now the only regular flock in the south-west. The site has one of Version date: 20.08.2013 5 of 6 000365_Rev13.Doc the highest concentrations of breeding Peregrines in the country, as well as some breeding Merlin. Chough is found both in the coastal and inland areas of the site, with possibly up to 30 pairs breeding. Overall, the site is of high ecological value because of the diversity, quality and extensiveness of many of the habitats, and impressive list of rare species of flora and fauna. In recognition of its importance the Killarney National Park has been designated a World Biosphere Reserve.

5.3.2.14 Mount Brandon SAC 000375

Mount Brandon SAC is of high conservation value due to the presence of good quality examples of 11 habitats that are listed on Annex I of the E.U. Habitats Directive, as well as populations of two species that are listed on Annex II of this Directive. The presence of the E.U. Birds Directive Annex I species, Chough and Peregrine, as well as of populations of a suite of rare Red Data Book plant species, adds considerably to the significance of the site.

5.3.2.15 Carrowmore Point to Spanish Point and Islands SAC 001021

Carrowmore Point to Spanish Point and Islands SAC contains a diversity of habitats, plant and animal communities and species, and is notable for the occurrence of several habitats listed on Annex I of the E.U. Habitats Directive. The presence of lagoons and petrifying springs, both habitats accorded priority status on this Annex, is of particular significance. The range of birds that use the site and the large populations of several of these add considerably to the importance of the site. Additionally, the site has been highly rated for the diversity of marine plant and animal species it supports.

5.3.2.16 Dog's Bay SAC 001257

Dog's Bay SAC is an important site as it provides a fine example of a tombolo. The Foraminfera sand is also of great interest, this being one of the few beaches worldwide where Foraminifera sand is found onshore. The coastal habitats are of conservation importance, notably the fixed dune vegetation which is a priority habitat on Annex I of the E.U. Habitats Directive.

5.3.2.17 Inisheer Island SAC 001275

Inisheer Island SAC is of major ecological importance due to the quality and floristic richness of limestone pavement, grassland and coastal habitats present. The presence of a number of rare plant species enhances the conservation value of this site, while the islan''s coastline provides habitat for a number of rare bird species. Traditional farming methods practised on the island are intrinsically linked with its high conservation value. The botanical, historical, archaeological and cultural interest of the island make this an extremely valuable site for educational and scientific purposes.

5.3.2.18 Omey Island Machair SAC 001309

Omey Island Machair SAC is of considerable conservation significance. It is particularly important because of the presence of habitats which are listed on Annex I of the E.U. Habitats Directive, one of which, machair, is accorded priority status. The population of *Petalophyllum ralfsii* and the regular presence of two Annex I Birds Directive species also add to the significance of the site.

5.3.2.19 Connemara Bog Complex SAC 002034

The Connemara Bog Complex SAC encompasses a large area of relatively undamaged lowland Atlantic blanket bog of high conservation significance both in Ireland and at a European level. The site also contains good examples of at least 13 other habitats listed on Annex I of the E.U. Habitats Directive, as well as four species listed in Annex II. Further, the site supports a number of threatened and protected plant species. The site is internationally important for Cormorant and nationally important for Greenland White-fronted Goose and contains nesting sites for Golden Plover.

5.3.2.20 Tralee Bay and Magharees Peninsula, West to Cloghane SAC 002070

Tralee Bay and Magharees Peninsula, west to Cloghane SAC is of considerable ecological and conservation significance for the excellent diversity of habitats it contains, many of which are listed on Annex I of the E.U. Habitats Directive. The occurrence of a species listed on Annex II of the E.U. Habitats Directive adds further importance to the site. The presence of a number of Red Data Book species, including the largest population of Natterjack Toads in Ireland, is also notable, as is the occurrence of several species listed on Annex I of the E.U. Birds Directive.

5.3.2.21 Slyne Head Peninsula SAC 002074

Slyne Head Peninsula SAC is of ecological importance for the range and diversity of its semi-natural habitats, many of which are listed on Annex I of the Habitats Directive. The interface between calcareous sand dunes, machair, heath and grassland communities is of particular note. The site is also important for a number of rare and scarce species, especially the liverwort *Petalophyllum ralfsii*. The site is also of marine conservation importance due to the occurrence of groups of Bottlenose Dolphin, a species listed on Annex II of the Directive.

5.3.2.22 Kilkieran Bay and Islands SAC 002111

Kilkieran Bay and Islands SAC is an extensive coastal complex site that is of high conservation value, particularly for the fine examples of marine and terrestrial E.U. Habitats Directive Annex I habitats that it supports and for its important Slender Naiad, Otter, seal and seabird populations.

5.3.2.23 Murvey Machair SAC 002129

Murvey Machair SAC is of value primarily for its machair, a priority habitat listed on Annex I of the E.U. Habitats Directive. The lakes are also of importance in that they provide a good example of vegetational succession and are the site of two rare and protected plant species, one of which is listed on Annex II of the E.U. Habitats Directive.

5.3.2.24 Kenmare River SAC 002158

Kenmare River SAC contains an exceptional complement of marine and terrestrial habitats, many of which are listed on Annex I of the E.U. Habitats Directive, as well as four species that are listed on Annex II of this Directive. The presence of populations of rare Red Data Book species, in particular of Kerry Lily, together with the ornithological interest of the area, adds to the conservation significance of the site.

5.3.2.25 Blasket Islands SAC 002172

The Blasket Islands SAC are traditional sites for Peregrine (1-2 pairs) and Chough (11 pairs in 2002). Both of these species are listed under the E.U. Birds Directive. The Blaskets formerly had wintering populations of Greenland White-fronted Goose and Barnacle Goose. This extreme south-western maritime site has high conservation value owing to the occurrence of good examples of several habitats that are listed on Annex I of the E.U. Habitats Directive, i.e., vegetated sea cliffs, dry heath, marine caves and reefs, as well as populations of Grey Seal and Harbour Porpoise, both species that are listed on Annex II of this Directive. The site is also one of the most important seabird sites in the country, with the populations of two species present being of international importance and at least a further nine being of national importance.

5.3.2.26 Carrowmore Dunes SAC 002250

The Carrowmore Dunes SAC site is of considerable conservation significance, supporting good examples of four habitats that are listed on Annex I of the E.U. Habitats Directive, as well as a population of the rare Annex II snail, *Vertigo angustior.*

5.3.2.27 Magharee Islands SAC 002261

Magharee Islands SAC is of conservation significance in particular for the reefs and associated communities which it hosts. The fact that the site supports important bird colonies adds further to its value. Illaunbarnagh is of national importance for breeding terns. In 1995 there were 46 pairs of Common Tern and 68 pairs of Arctic Tern. All tern species are listed on Annex I of the E.U. Birds Directive. Illaunabarnagh and Mucklaghbeg also have a nationally important population of Black Guillemots.

5.3.2.28 Valencia Harbour/Portmagee Channel SAC 002262

Valencia Harbour/Portmagee Channel SAC is of particular interest and importance because it contains good examples of three habitats listed on Annex I of the E.U. Habitats Directive – tidal mudflats and sandflats, large shallow inlets and bays, and reefs.

5.3.2.29 Kerry Head Shoal SAC 002263

Kerry Head Shoal SAC supports a remarkable diversity of fauna and flora, including the best-known example of the Axinellid sponge community in Ireland. The presence of a number of very rare sponge species (*Tetilla cranium, Axinella flustra, Hexadella racovitzai, T. zetlandica and Quasillina brevis*), known from only one or two other locations in Ireland, is of particular note.

5.3.2.30 Kilkeel Reefs SAC 002264

Kikeel Reefs SAC is of conservation importance as it has excellent examples of reefs and includes examples of a shallow bay and marine caves, all habitats listed on Annex I of the E.U. Habitats Directive.

5.3.2.31 Kingstown Bay SAC

Kingstown Bay SAC is of high conservation importance owing to the presence of an excellent example of a sheltered bay, a habitat that is listed on Annex I of the E.U. Habitats Directive. It is particularly important as it hosts very unusual red coralline algae formations.

5.3.2.32 West Connacht Coast SAC 002998

The waters of the West Connacht Coast SAC represent an exceptional area of key conservation importance for Bottle-nosed Dolphin in Ireland. Bottle-nosed Dolphin occurs within the site in all seasons and the area comprises a key habitat for the species both regionally and within Irish

waters as a whole. Survey data show that Bottle-nosed Dolphin occurrence within the site compares favourably with another designated site in Ireland, the Lower River Shannon. Local population estimates off south-west Co. Mayo and Connemara, Co. Galway describe a minimum of 123 dolphins, with possibly up to 150-200 individuals or more, occurring within the site as a whole, exceeding estimates for the Shannon Estuary population. Significant structural linkages have been established between groups of dolphins Version date: 10.02.2014 2 of 2 002998_Rev13.Doc utilising various coastal habitats within the site.

5.4 Summary of Potential for Effects

With regards to the European sites within the zone of influence (coastal and estuarine sites within 120km) as detailed in Table 5.1 above, there are several pathways by which effects could occur:

- Disturbance – construction noise could affect species such as otter on and around the proposed Development site only. Underwater noise will not increase as a result of the proposed development as the number of ships to the site will not change and there are no underwater works. In terms of construction noise, modelling has been conducted and at the shoreline to the south of the proposed development, noise levels may reach up to 62dB Laeq during the partial dismantling of the coal yard. Cutts et al., (2013) assessed effects on waterbirds and regular noise between 60-72dB is assessed as having a 'moderate' noise level effect. This moderate temporary effect is not likely to result in significant effects on waterbirds as the site is industrial and waterbirds using the shoreline are likely to become habituated to the noise levels on-site. During the operational phase, noise levels are modelled as being well below 55dB (ca. 30-40dB) – this is a low noise level effect (Cutts et al., 2013) and is not likely to have a significant effect on water birds.
- Discharges – during construction there is potential for accidental discharges of pollutants entering the estuary in the absence of mitigation. During operation there is potential for pollutants to runoff and enter the estuary in the absence of mitigation. Process wastewater will not change, and the existing emission limit value will continue to be complied with.
- Oil spill – there is potential for oil spill under three main circumstances[14]:
  - Catastrophic oil spill as a result of collision, grounding or leakage from oil vessels in the estuary in transit to Moneypoint
  - Spill at the jetty during off-load of oil to tanks on site
  - Leakage of the HFO tanks or pipes on site
- Critical levels (atmospheric NO_x and SO_2) – modelling has been carried out for the proposed development and the increases in NO_x and SO_2 concentrations as a result of the proposed development are small relative to the background concentrations adopted for this assessment and would not result in exceedances of the AQS for NO_x or SO_2. On this basis, the direct impacts from atmospheric NO_x and SO_2 at ecological sites are negligible.
- Critical loads (Nitrogen and acidification) – Contributions to nitrogen deposition (eutrophication) and acid deposition (acidification) at designated sites has been derived from the dispersion modelling, for designated sites including the Lower River Shannon SAC and Tullagher Lough and Bog SAC. The critical loads for nitrogen and acid deposition are greater than 1% of the minimum critical load; however, they will be less than the current coal operation. Therefore, there is no potential for significant effects and therefore effects on vegetation qualifying interests are screened out for these pathways.
- Lighting – an increase in temporary lighting may deter otters from using the shoreline

[14] It is noted that the Safety Data Sheet (provided by ESB) states that for the HFO, there are no chemical groups associated with explosive properties present in the substance. Therefore, the likelihood of explosion of HFO tanks is not considered further in this assessment.

- Spread of invasive species – due to the shipping of HFO to the site, there is a risk of invasive marine species being introduced, although the risk already exists and the number of vessels will only increase by 1 per annum as a result of the proposed Development.

5.5 In combination effects

A search of planning applications was conducted to identify the potential for in-combination effects with the proposed development. These are detailed in Table 5.2.

Table 5.2: Planning history in respect to relevant developments

Project	Planning Reference	Location	Date Submitted or Granted	Development Description	Potential for in-combination effects
Prospect to Tarbert Cable Project	23350 (Kerry County Council) / 23195 (Clare County Council)	Tarbert Substation (Co. Kerry) / Kilkerrin Point LCIM to Prospect Substation (Co. Clare)	Granted by Kerry CC 17/0124: Clare CC decision made 13/12/23 (awaiting final grant)	The proposed development will comprise works to Tarbert substation compound and associated 220 kV switchgear bay/ An extension of the existing Kilkerin Point 220 kV Line Cable Interface Mast (LCIM) compound/A new fibre optic cable measuring an approximate length of 8.9km routed between Kilkerin Point LCIM compound (townland of Lakyle North) and Prospect 220 kV substation (townland of Ballygeery West)	No – following the implementation of mitigation measures for both projects, it is not likely that significant in combination effects would occur. Likewise, following implementation of mitigation, operational effects are not likely to be significant.
Tarbert temporary generation plant (not constructed)	EE08.315838	Tarbert Power Station, Tarbert, Island, Co. Clare	29/03/2023 (Recommendations signed by the Minister)	The Designated Development consists of the installation of three OCGT units which will collectively have the capacity to generate 150 Mwe of temporary emergency electricity, site development and associated ancillary works required for the operation of the plant. The plant will operate as an emergency plant, with a maximum running time of 500 hours per annum, spending the majority of time on standby, and will be run to meet emergency security of supply needs while complementing renewable power generation sources.	No – this development is across the estuary and is not likely to have significant effects on the estuary. In terms of operational effects, the air quality model produced for the proposed development included for the operation of the temporary Tabert generation plant and effects from nOx and SOx were deemed neglibile. Therefore the construction and operation of the temporary generating plant is not likely to result in significant in combination effects.
Kilpaddoge high inertia synchronous compensator (not constructed)	21549	Kilpaddoge, Tarbert, Co. Kerry	Granted – 20/08/2021	A high inertia synchronous compensator (HISC) compound containing 1 no. HISC unit enclosed within a steel-clad framed style structure (12.1m max height). Located on lands where a grid stabilisation facility was previously permitted under planning register no 19/115.	No – this development is across the estuary and would not have significant construction or operational effects following the implementation of mitigation and therefore there are no likely significant in combination effects.
Cross Shannon Cable Project (construction phase – 2022/2023)	ABP-307798-20	Between Kilpaddoge Electrical Substation, Co. Kerry and Moneypoint 400	Approved – 04/06/2021	Proposed 400 kV electricity transmission cables, extension to the existing Kilpaddoge Electrical Substation and associated works, between the existing Moneypoint 400 kV Electrical Substation in the townland of Carrowdoita South County Clare and existing	No - The construction of the cable is underway and is not likely to coincide with the construction of the proposed development. Once operational, the cable is unlikely to have effects that would act in combination

Project	Planning Reference	Location	Date Submitted or Granted	Development Description	Potential for in-combination effects
		kV Electrical Substation, Co. Clare		Kilpaddoge 220/110kV Electrical Substation in the townland of Kilpaddoge County Kerry.	with the proposed development, resulting in significant effects.
Kilpaddoge BESS (not constructed)	18/878 and ABP appeal Ref. PL08.305739	Kilpaddoge, Tarbert, Co. Kerry	Grant permission with revised conditions – 10/02/2020	Ten-year permission for the construction of a Battery Energy Storage System (BESS) Facility, to include up to 26 no. self-contained battery container units and associated works.	No – this development is across the estuary and would not have construction or operational effects within the estuary and therefore there are no likely significant in combination effects.
Kilpaddoge Peaker Plant (operational)	13138 / 20850	Kilpaddoge, Tarbert, Co. Kerry	Granted 21/10/2013 and 16/12/2020 respectively	Construct an electricity peaker power generating plant / change the energy source for the charging of the battery energy storage system (BESS) containers from diesel to charging off the national grid	No – located across the estuary from Moneypoint. Due to the confined nature of the site and separation distance from the proposed development, these projects are not likely to act in combination to produce significant effects.
Tarbet BESS (not constructed)	18392	Tabert Power Station, Co. Kerry	Granted 18/02/2019	Battery storage facility within a total site area of up to 2.278ha, to include 50 no. self-contained battery container units.	No – this development is across the estuary and would not have construction or operational effects within the estuary and therefore there are no likely significant in combination effects.
ESB's Green Atlantic @ Moneypoint – Offshore Wind Farm	ABP – PC03.312734	Moneypoint Generating Station, Co. Clare	Pre-application submitted 14/02/2022	Floating offshore wind farm of 1,400MW will be developed off the coast of counties Clare and Kerry in two phases by ESB.	No – ESB noted that the Green Atlantic @ Moneypoint project would succeed the proposed development and details of the project are not known at the time of writing this EIAR. There are no project interdependencies between the subject proposed development and Green Atlantic @ Moneypoint. Green Atlantic @ Moneypoint will be subject to a separate planning consent application. It was noted that the estimate timelines will not overlap with the proposed development.
Moneypoint Hub SI Works	Maritime Area Regulatory Authority (MARA) – LIC230008	Lower River Shannon SAC	Application submitted 23 November 2023 – Decision pending	The SI works include geophysical, geotechnical and environmental investigations in both the terrestrial (land-based) and the marine environments	These SI works to be carried out in the estuary are scheduled for 2024 but will not coincide with the start of operation of the proposed development. The proposed works are temporary and limited in scale. Following the implementation of mitigation measures for the SI and those specified for the proposed development, significant in-combination effects are not likely to occur.

Overall, it can be concluded that there are no in-combination effects of the proposed development with any other projects.

5.6 Screening Outcome

This assessment has investigated the potential of the proposed development to have significant effects on European Sites, alone and in combination with other plans and projects.

This AA Screening report concludes that:

"*It cannot be excluded on the basis of objective evidence, and in view of best scientific knowledge, and in the absence of any measures intended to avoid or reduce harmful effects on European sites, that there will not be any likely significant effects from the Proposed Development alone, and in combination with other plans or projects, on the following European sites only:*

- *SPAs:*
  - *River Shannon and River Fergus Estuaries SPA 004077*
  - *Mid-Clare Coast SPA 004182*
  - *Illaunonearaun SPA 004114*
  - *Magheree Islands SPA 004125*
  - *Blasket Island SPA 004008*
  - *Skelligs SPA 004007*
  - *Loop Head SPA 004119*
  - *Cliffs of Moher SPA 004005*
  - *Tralee Bay Complex SPA 004188*
  - *Kerry Head SPA 004189*
  - *Dingle Peninsula SPA 004153*
  - *Inishmore SPA 004152*
  - *Iveragh Peninsula SPA 004154*
  - *Beara Peninsula SPA 004155*
  - *Slyne Head to Ardmore Point Islands SPA 004159*
  - *Cruagh Island SPA 004170*
  - *Deenish Island and Scariff Island SPA 004175*
  - *Connemara Bog Complex SPA 004181*
  - *Mid-Clare Coast SPA 004182*
  - *Inishbofin, Omey Island and Turbot Island SPA 004231*
  - *Castlemaine Harbour SPA 004029*
  - *Inner Galway Bay SPA 004031*
  - *The Bull and The Cow Rocks SPA 004066*
  - *High Island, Inishshark and Davillaun SPA 004144*
  - *Puffin Island SPA*
- *SACs*
  - *Lower River Shannon SAC 002165*
  - *Black Head Poulsallagh Complex SAC 000020*
  - *Inagh River Estuary SAC000036*
  - *Glengarriff Harbour and Woodland SAC 000090*
  - *Inishmaan Island SAC 000212*

- *Inishmore Island SAC 000213*
- *Galway Bay Complex SAC 000268*
- *Inishbofin and Inishshark SAC 000278*
- *Slyne Head Islands SAC 000328*
- *Akeragh, Banna and Barrow Harbour SAC 000332*
- *Ballinskelligs Bay and Inny Estuary SAC 000335*
- *Castlemaine Harbour SAC 000343*
- *Killarney National Park, Macgillycudd"s Reeks and Caragh River Catchment SAC 000365*
- *Lough Yganavan and Lough Nambrackdarrig SAC 000370*
- *Mount Brandon SAC 000375*
- *Carrowmore Point to Spanish Point and Islands SAC 001021*
- *Do"s Bay SAC 001257*
- *Inisheer Island SAC 001275*
- *Omey Island Machair SAC 001309*
- *Glanmore Bog SAC 001879*
- *Connemara Bog Complex SAC 002034*
- *Tralee Bay and Magharees Peninsula, West to Cloghane SAC 002070*
- *Kilkieran Bay and Islands SAC 002111*
- *Murvey Machair SAC 002129*
- *Kenmare River SAC 002158*
- *Blasket Islands SAC 002172*
- *Carrowmore Dunes SAC 002250*
- *Magharee Islands SAC 002261*
- *Valencia Harbour/Portmagee Channel SAC 002262*
- *Kerry Head Shoal SAC 002263*
- *Kilkee Reefs SAC 002264*
- *Kingstown Bay SAC 002265*
- *West Connacht Coast SAC 002998*"

6 Natura Impact Statement

6.1 Assessment of Potential for Adverse Effects

European and national legislation places a collective obligation on Ireland as a Member State to maintain/restore habitats and species in the Natura 2000 network at favourable conservation condition. Ireland has determined conservation objectives for European Sites that define favourable conservation conditions for habitats and species protected under the Habitats Directive and Birds Directive. In addition, site-specific conservation objectives have been developed, for a proportion of European Sites in Ireland, which provide detailed measurable targets relative to the ecology of individual species or habitats for which a site is designated which must be achieved or maintained to meet favourable conservation status.

Favourable conservation condition of a habitat is achieved when:

- its natural range, and area it covers within that range, are stable or increasing;
- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future; and
- the conservation status of its typical species is favourable.

The favourable conservation status of a species is achieved when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long- term basis as a viable component of its natural habitats;
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future; and,
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

The conservation objectives for a site act as a reference point from which an assessment may be made of whether a project has potential for significant effects on a site. Where a project has potential to significantly affect the achievement / maintenance of the favourable conservation conditions, potential for adverse effects on site integrity must be assumed.

6.2 Impact Prediction

6.2.1 Construction Phase Activities

6.2.1.1 Discharges to water

During construction, the principal risk arises from heavy rainfall causing surface water runoff which then flows into nearby drains transporting sediment that may subsequently adversely affect water quality in the estuary. High risk activities, such as pouring concrete and refuelling vehicles, will also have the potential to cause polluted runoff that may enter unprotected drains. Polluting matter entering drains has the potential to discharge to Lower Shannon Estuary in the south.

A number of chemicals will be stored and used on site during the construction phase, including fuel and oil. In the absence of control measures, and should these contaminants enter the water environment through accidental spillages, they have the potential to adversely impact on water quality in the estuary.

6.2.1.2 Temporary Lighting

Changes in the current lighting arrangement resulting from construction may deter birds and otter from using the shoreline. However, it is noted that there is existing lighting near the shore and the site is currently active, therefore otter and birds are likely to be acclimatised to this lighting.

6.2.2 Operational Phase Activities

6.2.2.1 Discharges to water

During the operational phase and as is currently the case, there is potential for pollutants, including oil, to runoff and enter the estuary. There is also a risk of an accidental spillage of oil from shipping vessels, accidental release of oil during tank filling and potential leakages of oil from bunds. Procedures for these ongoing activities are detailed in Section 4.

Oil spills from shipping vessels have the potential to significantly adversely affect seabirds (including many of the listed SCIs for SPAs in the 120km zone), aquatic species (such as sea-going stages of qIs listed from relevant SACs in the 120km zone), marine mammals (such as qIs *Phoca vitulina* [harbour seal] and *Tursiops truncatus* [common bottlenosed dolphin]) and estuarine and coastal OI SAC habitats (such as annual vegetation of drift lines [1210], embryonic shifting dunes [2110], shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120] etc.). It is estimated that 0.5 to 8.4 million tonnes of petroleum oil per year are released into the marine environment, with approximately 35% of this volume due to shipping and drilling rigs (Troisi et al., 2016).

Seabird populations are particularly vulnerable due to their distribution, foraging and breeding behaviour. If oil smothers a bird, it can cause suffocation and it can disrupt feather integrity, leading to loss of waterproofing, thermal insulation and buoyancy, resulting in birds not being able to dive or fly and preventing them from feeding. If the birds are preening and feeding, the polycyclic aromatic hydrocarbons (PAHs) found in oils, can have chronic effects and result in pathological changes in the intestinal tract, lungs, liver, kidneys and salt gland (Troisi et al., 2016).

In relation to otters, oil can cause their fur to mat, preventing insulation and this can lead to hypothermia. The ingestion of oil during cleaning can cause liver and kidney failure and cause severe damage to their lungs and eyes.

6.2.2.2 Permanent Lighting

There is proposed new lighting around the HFO bund, which will only be used as required. As with the construction phase, changes (increase, newly lit areas etc) to the current lighting arrangement may deter birds, and otter from using the shoreline

6.2.2.3 Spread of Invasive species

There is potential for the introduction of invasive marine species via shipping vessels. Species can be introduced via the hull of ships. Biofouling is one of the main vectors for invasive organisms – this is the accumulation of microorganisms, plants, algae and animals on submerged structures (including hulls).

The introduction of invasive species has the potential to cause significant effects within European sites and mitigation is required to minimise the risk.

6.2.3 Other Plans and Projects Which Might Act in Combination

As detailed in Section 5.5, a planning search was completed to identify other plans or projects which could act in combination with the proposed development. For the reasons outlined in Section 5.5, the proposed development will not act in combination with other plans or projects to result in a significant effect.

6.3 Potential for Adverse Effects on European Site Integrity

6.3.1 Potential for Adverse Effects on European Sites

Tables 6.1 and 6.2 assess the potential for adverse effects on the qualifying interests of the relevant SACs and the Special Conservation Interests of the SPAs which have been screened in, in Table 5.1. Following a review of the conservation objectives for each SAC and SPA, the overall conservation objectives' attributes and targets for each QI/SCI are detailed in these tables along with an assessment with regards to whether there is potential for effects on the integrity of the sites which contain these QIs and SCIs.

Table 6.1: Assessment of potential adverse effects on qIs of relevant SACs (those screened in)

Attribute	Measure	Target	Potential Impact	Potential for Adverse Effects on Site Integrity	Relevant SAC/s
Estuaries					
Habitat area	Hectares	The permanent habitat area is stable or increasing, subject to natural processes.	There is no potential for habitat area to be affected by the proposed development	There is potential for adverse effects in relation to the conservation objectives for this habitat. This would constitute a negative effect on site integrity. While the risk is low, measures are required to reduce this risk further.	Lower River Shannon SAC 002165 (NPWS 2012) Castlemaine Harbour SAC 000343 Tralee Bay and Magharees Peninsula, West to Cloghane SAC 002070
Community distribution	Hectares	Conserve the following community types in a natural condition: Intertidal sand to mixed sediment with polychaetes, molluscs and crustaceans community complex; Estuarine subtidal muddy sand to mixed sediment with gammarids community complex; Subtidal sand to mixed sediment with *Nucula nucleus* community complex; Subtidal sand to mixed sediment with *Nephtys* spp. community complex; Fucoid-dominated intertidal reef community complex; Faunal turf-dominated subtidal reef community; and Anemone-dominated subtidal reef community	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site and this would have negative impacts in shallower waters and there is potential for adverse effects on intertidal sand communities. There is also potential for invasive species to be introduced which would have a negative effect on plant and animal communities within the estuary.		
Mudflats and sandflats not covered by seawater at low tide					
Habitat area	Hectares	The permanent habitat area is stable or increasing, subject to natural processes.	There is no potential to affect the habitat area	There is potential for adverse effects in relation to the conservation objectives for this habitat. This would constitute a negative effect on site integrity. Whilst the risk is low, measures are required to reduce this risk further.	Lower River Shannon SAC 002165 (NPWS 2012) Galway Bay Complex SAC 000268 Castlemaine Harbour SAC 000343 Tralee Bay and Magharees Peninsula, West to Cloghane SAC 002070 Kilkieran Bay and Islands SAC 002111 Valencia Harbour/Portmagee Channel SAC 002262
Community distribution	Hectares	Conserve the following community types in a natural condition: Intertidal sand with *Scolelepis squamata* and *Pontocrates* spp. community; and Intertidal sand to mixed sediment with polychaetes, molluscs and crustaceans community complex	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site and this would have negative impacts in shallower waters and there is potential for adverse effects on intertidal sand communities. There is also potential for invasive species to be introduced which would have a negative effect on plant and animal communities within the estuary.		
Coastal Lagoons*					
Habitat area	Hectares	Area stable or increasing, subject to natural processes.	There is no potential to affect the habitat area	There is potential for adverse effects in relation to the conservation objectives for this habitat. This would constitute a negative effect on site integrity. Whilst the risk is low, measures are required to reduce this risk further.	Lower River Shannon SAC 002165 (NPWS 2012) Inishmore Island SAC 000213 Galway Bay Complex SAC 000268 Inishbofin and Inishshark SAC 000278 Carrowmore Point to Spanish Point and Islands SAC 001021 Inisheer Island SAC 001275 Connemara Bog Complex SAC 002034 Tralee Bay and Magharees Peninsula, West to Cloghane SAC 002070 Slyne Head Peninsula SAC 002074 Kilkieran Bay and Islands SAC 002111
Habitat distribution	Occurrence	No decline, subject to natural processes	There is no potential to affect the habitat distribution		
Salinity regime	practical salinity units (psu)	Median annual salinity and temporal variation within natural ranges	There is no potential to affect salinity		
Hydrological regime	Metres	Annual water level fluctuations and minima within natural ranges	There is no potential to affect the hydrological regime		
Barrier: connectivity between lagoon and sea	Permeability	Appropriate hydrological connections between lagoons and sea, including where necessary, appropriate management	There is no potential for a barrier		
Water quality: chlorophyll A	µg/L	Annual median chlorophyll a within natural ranges and less than 5µg/L	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site and this would have the potential to adversely affect water quality and the occurrence of macrophytes, plants and animal species typical of lagoons.		
Water quality: Molybdate Reactive Phosphorus (MRP)	mg/L	Annual median MRP within natural ranges and less than 0.1mg/L			
Water quality: Dissolved Inorganic Nitrogen (DIN)	mg/L	Annual median DIN within natural ranges and less than 0.15mg/L			
Depth of macrophyte colonisation	Metres	Macrophyte colonisation to maximum depth of lagoons	There is potential for invasive species to be introduced which would have a negative effect on plant and animal communities within the estuary.		
Typical plant species	number and m²	Maintain number and extent of listed lagoonal specialists, subject to natural variation			
Typical animal species	number	Maintain listed lagoon specialists, subject to natural variation			
Negative indicator species	Number and % cover	Negative indicator species absent or under control			

Attribute	Measure	Target	Potential Impact	Potential for Adverse Effects on Site Integrity	Relevant SAC/s
Large shallow inlets and bays					
Habitat area	Hectares	The permanent habitat area is stable or increasing, subject to natural processes.	There is no potential for effects on habitat area	There is potential for adverse effects in relation to the conservation objectives for this habitat. This would constitute a negative effect on site integrity. Whilst the risk is low, measures are required to reduce this risk further.	Lower River Shannon SAC 002165 (NPWS 2012) Galway Bay Complex SAC 000268 Tralee Bay and Magharees Peninsula, West to Cloghane SAC 002070 Slyne Head Peninsula SAC 002074 Kilkieran Bay and Islands SAC 002111 Kenmare River SAC 002158 Valencia Harbour/Portmagee Channel SAC 002262 Kilkee Reefs SAC 002264 Kingstown Bay SAC 002265
Community distribution	Hectares	Conserve the following community types in a natural condition: Intertidal sand with *Scolelepis squamata* and *Pontocrates* spp. community; Intertidal sand to mixed sediment with polychaetes, molluscs and crustaceans community complex; Subtidal sand to mixed sediment with *Nucula nucleus* community complex; Subtidal sand to mixed sediment with *Nephtys* spp. community complex; Fucoid-dominated intertidal reef community complex; Mixed subtidal reef community complex; Faunal turf-dominated subtidal reef community; Anemone- dominated subtidal reef community; and Laminaria- dominated community complex	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site and this would have negative impacts in shallower waters and there is potential for adverse effects on intertidal sand communities. There is also potential for invasive species to be introduced which would have a negative effect on plant and animal communities within the estuary.		
***Salicornia* and other annuals colonising mud and sand**					
Habitat area	Hectares	Area stable or increasing, subject to natural processes, including erosion and succession.	There is no potential for habitat area to be affected	There is potential for adverse effects in relation to the conservation objectives for this habitat. This would constitute a negative effect on site integrity. Whilst the risk is low, measures are required to reduce this risk further.	Lower River Shannon SAC 002165 (NPWS 2012) Inagh River Estuary SAC 000036 (NPWS 2017) Galway Bay Complex SAC 000268 Akreagh, Banna and Barrow Harbour SAC 000332 Castlemaine Harbour SAC 000343 Tralee Bay and Magharees Peninsula, West to Cloghane SAC 002070
Habitat distribution	Occurrence	No decline, or change in habitat distribution, subject to natural processes.	There is no potential for habitat distribution to be affected		
Physical structure: sediment supply	Presence/ absence of physical barriers	Maintain natural circulation of sediments and organic matter, without any physical obstructions	There will be no physical obstructions as part of the proposed development		
Physical structure: creeks and pans	Occurrence	Maintain/restore creek and pan structure, subject to natural processes, including erosion and succession	There will be no effect on physical structure		
Physical structure: flooding regime	Hectares flooded; frequency	Maintain natural tidal regime	There will be no effect on the tidal regime		
Vegetation structure: zonation	Occurrence	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site and this has the potential to negatively impact zonation, height and vegetation communities.		
Vegetation structure: vegetation height	Centimeters	Maintain structural variation within sward			
Vegetation structure: vegetation cover	Percentage cover at a representative sample of monitoring stops	Maintain more than 90% of area outside creeks vegetated			
Vegetation composition: typical species and sub-communities	Percentage cover	Maintain the presence of species-poor communities with typical species listed in Saltmarsh Monitoring Project (McCorry and Ryle, 2009)	There is also potential for invasive species to be introduced which would have a negative effect on plant and animal communities within the estuary.		
Vegetation structure: negative indicator species- *Spartina anglica*	Hectares	No significant expansion of common cordgrass (*Spartina anglica)*	There is no potential for the proposed development to affect the expansion of cordgrass		
Atlantic salt meadows					

Attribute	Measure	Target	Potential Impact	Potential for Adverse Effects on Site Integrity	Relevant SAC/s
Habitat area	Hectares	Area stable or increasing, subject to natural processes, including erosion and succession.	There is no potential for habitat area to be affected	There is potential for adverse effects in relation to the conservation objectives for this habitat. This would constitute a negative effect on site integrity. Whilst the risk is low, measures are required to reduce this risk further.	Lower River Shannon SAC 002165 (NPWS 2012) Inagh River Estuary SAC 000036 (NPWS 2017) Galway Bay Complex SAC 000268 Akreagh, Banna and Barrow Harbour SAC 000332 Ballinskelligs Bay and Inny Estuary SAC 000335 Castlemaine Harbour SAC 000343 Tralee Bay and Magharees Peninsula, West to Cloghane SAC 002070 Slyne Head Peninsula SAC 002074 Kilkieran Bay and Islands SAC 002111 Kenmare River SAC 002158
Habitat distribution	Occurrence	No decline or change in habitat distribution, subject to natural processes.	There is no potential for habitat distribution to be affected		
Physical structure: sediment supply	Presence/ absence of physical barriers	Maintain natural circulation of sediments and organic matter, without any physical obstructions	There is no potential for physical changes		
Physical structure: creeks and pans	Occurrence	Maintain creek and pan structure, subject to natural processes, including erosion and succession			
Physical structure: flooding regime	Hectares flooded; frequency	Maintain natural tidal regime			
Vegetation structure: zonation	Occurrence	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site and this has the potential to negatively impact zonation, height and vegetation communities.		
Vegetation structure: vegetation height	Centimetres	Maintain structural variation within sward			
Vegetation structure: vegetation cover	Percentage cover at a representative sample of monitoring stops	Maintain more than 90% of the saltmarsh area vegetated			
Vegetation composition: typical species and sub-communities	Percentage cover at a representative sample of monitoring stops	Maintain range of sub- communities with typical species listed in Saltmarsh Monitoring Project (McCorry and Ryle, 2009)	There is also potential for invasive species to be introduced which would have a negative effect on plant and animal communities within the estuary.		
Vegetation structure: negative indicator species- *Spartina anglica*	Hectares	No significant expansion of common cordgrass (*Spartina anglica)*	There is no potential for the proposed development to affect the expansion of cordgrass		
Mediterranean salt meadows					
Habitat area	Hectares	Area increasing, subject to natural processes, including erosion and succession.	There is no potential for the habitat area to be affected by the proposed development	There is potential for adverse effects in relation to the conservation objectives for this habitat. This would constitute a negative effect on site integrity. While the risk is low, measures are required to reduce this risk further.	Lower River Shannon SAC 002165 (NPWS 2012) Inagh River Estuary SAC 000036 (NPWS 2017) Galway Bay Complex SAC 000268 Akreagh, Banna and Barrow Harbour SAC 000332 Ballinskelligs Bay and Inny Estuary SAC 000335 Castlemaine Harbour SAC 000343 Tralee Bay and Magharees Peninsula, West to Cloghane SAC 002070 Slyne Head Peninsula SAC 002074 Kilkieran Bay and Islands SAC 002111 Kenmare River SAC 002158
Habitat distribution	Occurrence	No decline, or change in habitat distribution, subject to natural processes	There is no potential for the habitat distribution to be affected by the proposed development		
Physical structure: sediment supply	Presence/absence of physical barriers	Maintain natural circulation of sediments and organic matter, without any physical obstructions	There is no potential for the physical structure of the habitat to be affected by the proposed development		
Physical structure: creeks and pans	Occurrence	Maintain/restore creek and pan structure, subject to natural processes, including erosion and succession			
Physical structure: flooding regime	Hectares flooded; frequency	Maintain natural tidal regime			
Vegetation structure: zonation	Occurrence	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site and this has the potential to negatively impact zonation, height and vegetation communities.		
Vegetation structure: vegetation height	Centimetres	Maintain structural variation within sward			
Vegetation structure: vegetation cover	Percentage cover at a representative sample of monitoring stops	Maintain more than 90% of area outside creeks vegetated			

Attribute	Measure	Target	Potential Impact	Potential for Adverse Effects on Site Integrity	Relevant SAC/s
Vegetation composition: typical species	Percentage cover	Maintain range of sub- communities with typical species listed in Saltmarsh Monitoring Project (McCorry and Ryle, 2009)	There is also potential for invasive species to be introduced which would have a negative effect on plant and animal communities within the estuary.		
Vegetation structure: negative indicator species - *Spartina anglica*	Hectares	No significant expansion of common cordgrass (*Spartina anglica*), with an annual spread of less than 1%	There is no potential for the proposed development to affect the expansion of cordgrass		
Reefs					
Habitat Area	Hectares	The permanent habitat area is stable or increasing subject to natural processes	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect reef communities	There is potential for adverse effects in relation to the conservation objectives for this habitat. This would constitute a negative effect on site integrity. Whilst the risk is low, measures are required to reduce this risk further.	Lower River Shannon SAC 002165 (NPWS 2012) Black Head Poulsallagh Complex SAC 000020 (NPWS 2014) Inishmaan Island SAC 000212 Inishmore Island SAC 000213 Galway Bay Complex SAC 000268 Slyne Head Islands SAC 000328 Carrowmore Point to Spanish Point and Islands SAC 001021 Inisheer Island SAC 001275 Connemara Bog Complex SAC 002034 Tralee Bay and Magharees Peninsula, West to Cloghane SAC 002070 Slyne Head Peninsula SAC 002074 Kilkieran Bay and Islands SAC 002111 Kenmare River SAC 002158 Blasket Islands SAC 002172 Carrowmore Dunes SAC 002250 Magharee Islands SAC 002261 Valencia Harbour/Portmagee Channel SAC 002262 Kerry Head Shoal SAC 002263 Kilkee Reefs SAC 002264
Distribution	Occurrence	The distribution of reefs is stable or increasing, subject to natural processes			
Community structure	Biological composition	Conserve the following community types in a natural condition: Intertidal reef community complex; Laminaria-dominated community complex			
Perennial vegetation of stony banks					
Habitat Area	Hectares	The permanent habitat area is stable or increasing subject to natural processes, including erosion and succession	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect vegetation communities	There is potential for adverse effects in relation to the conservation objectives for this habitat. This would constitute a negative effect on site integrity. Whilst the risk is low, measures are required to reduce this risk further.	Lower River Shannon SAC 002165 (NPWS 2012) Black Head Poulsallagh Complex SAC 000020 (NPWS 2014) Inishmaan Island SAC 000212 Inishmore Island SAC 000213 Galway Bay Complex SAC 000268 Castlemaine Harbour SAC 000343 Carrowmore Point to Spanish Point and Islands SAC 001021 Tralee Bay and Magharees Peninsula, West to Cloghane SAC 002070 Slyne Head Peninsula SAC 002074 Kenmare River SAC 002158 Blasket Islands SAC 002172
Distribution	Occurrence	No decline, or change in habitat distribution, subject to natural processes			
Physical structure: functionality and sediment supply	Presence/absence of physical barriers	Maintain the natural circulation of sediment and organic matter, without any physical obstructions			
Vegetation structure: zonation	Occurrence	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession			
Vegetation composition typical species and sub-communities	Percentage cover at a representative number of monitoring stops	Maintain the typical vegetated shingle flora including the range of sub-communities within the different zones			
Vegetation composition: negative indicator species	Percentage cover	Negative indicator species (including non-natives) to represent less than 5% cover			
Submerged or partially submerged sea caves					
Distribution	Occurrence	The distribution of sea caves is stable, subject to natural processes		There is potential for adverse effects in relation to the conservation objectives for this habitat. This would	Black Head Poulsallagh Complex SAC 000020 (NPWS 2014)

Attribute	Measure	Target	Potential Impact	Potential for Adverse Effects on Site Integrity	Relevant SAC/s
Community structure	Biological composition	Human activities should occur at levels that do no adversely affect the ecology of sea caves in this SAC	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect the ecology of sea caves	constitute a negative effect on site integrity. Whilst the risk is low, measures are required to reduce this risk further.	Inishmore Island SAC 000213 Kenmare River SAC 002158 Kilkee Reefs SAC 002264
Fixed coastal dunes with herbaceous vegetation (grey dunes)					
Habitat area	Hectares	Area stable or increasing, subject to natural processes including erosion and succession	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect coastal dune communities in the event of oil being washed up onto the shoreline	There is potential for adverse effects in relation to the conservation objectives for this habitat. This would constitute a negative effect on site integrity. Whilst the risk is low, measures are required to reduce this risk further.	Inagh River Estuary SAC 000036 (NPWS 2017) Inishmore Island SAC 000213 Akreagh, Banna and Barrow Harbour SAC 000332 Castlemaine Harbour SAC 000343 Dog's Bay SAC 001257 Tralee Bay and Magharees Peninsula, West to Cloghane SAC 002070 Kenmare River SAC 002158 Carrowmore Dunes SAC 002250
Habitat distribution	Occurrence	No decline or change in habitat distribution, subject to natural processes			
Physical structure: functionality and sediment supply	Presence/absence of physical barriers	Maintain the natural circulation of sediment and organic matter, without any physical obstructions			
Vegetation structure: zonation	Occurrence	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession			
Vegetation structure: bare ground	Percentage cover	Bare ground should not exceed 10% of fixed dune habitat, subject to natural processes			
Vegetation structure: sward height	Centimetres	Maintain structural variation within sward			
Vegetation composition: typical species and sub-communities	Percentage cover at a representative number of monitoring stops	Maintain range of sub-communities with typical species listed in Delaney et al. (2013)			
Vegetation composition: negative indicator species (including *Hippophae rhamnoides*)	Percentage cover	Negative indicator species (including non-native species) to represent less than 5% cover			
Vegetation composition: scrub/trees	Percentage cover	No more than 5% cover or under control			
Machair					
Habitat area	Hectares	Area stable or increasing, subject to natural processes including erosion and succession	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect this habitat in the event that oil was washed up onto the shore	There is potential for adverse effects in relation to the conservation objectives for this habitat. This would constitute a negative effect on site integrity. Whilst the risk is low, measures are required to reduce this risk further.	Inishmaan Island SAC 000212 Inishmore Island SAC 000213 Omey Island Machair SAC 001309 Slyne Head Peninsula SAC 002074 Kilkieran Bay and Islands SAC 002111 Murvey Machair SAC 002129
Habitat distribution	Occurrence	No decline, subject to natural processes			
Physical structure: functionality and sediment supply	Presence/ absence of physical barriers	Maintain the natural circulation of sediment and organic matter, without any physical obstructions			
Physical structure: hydrological and flooding regime	Water table levels; groundwater fluctuations (metres)	Maintain natural hydrological regime			
Vegetation structure: zonation	Occurrence	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession			
Vegetation structure: bare ground	Percentage cover	Bare ground should not exceed 10% of Machair habitat, subject to natural processes			
Vegetation structure: sward height	Centimetres	Maintain structural variation within sward			
Vegetation composition: typical species and sub-communities	Percentage cover at a representative number of monitoring stops	Maintain range of subcommunities with typical species listed in Ryle et al. (2009)			

Attribute	Measure	Target	Potential Impact	Potential for Adverse Effects on Site Integrity	Relevant SAC/s
Vegetation composition: negative indicator species	Percentage cover	Negative indicator species (including non-natives) to represent less than 5% cover			
Vegetation composition: scrub/trees	Percentage cover	No more than 5% cover or under control			
Vegetation composition: bryophytes	Percentage cover	Should always be at least an occasional component of the vegetation			
Embryonic Shifting Dunes					
Habitat area	Hectares	Area stable or increasing, subject to natural processes, including erosion and succession	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect coastal dune communities in the event of oil being washed up onto the shoreline	There is potential for adverse effects in relation to the conservation objectives for this habitat. This would constitute a negative effect on site integrity. Whilst the risk is low, measures are required to reduce this risk further.	Inishmaan Island SAC 000212 Inishmore Island SAC 000213 Akreagh, Banna and Barrow Harbour SAC 000332 Castlemaine Harbour SAC 000343 Dog's Bay SAC 001257 Tralee Bay and Magharees Peninsula, West to Cloghane SAC 002070 Slyne Head Peninsula SAC 002074 Carrowmore Dunes SAC 002250
Habitat distribution	Occurrence	No decline, subject to natural processes			
Physical structure: functionality and sediment supply	Presence/absence of physical barriers	Maintain the natural circulation of sediment and organic matter, without any physical obstructions			
Vegetation structure: zonation	Occurrence	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession			
Vegetation composition: plant health of foredune grasses x	Percentage cover	More than 95% of sand couch grass (*Elytrigia juncea*) and/or lyme grass (*Leymus arenarius)* should be healthy (i.e. green plant parts above ground and flowering heads present)			
Vegetation composition: typical species and sub-communities x	Percentage cover at a representative number of monitoring stops	Maintain the presence of species-poor communities with typical species: sand couch grass (*Elytrigia juncea)* and/or lyme grass (*Leymus arenarius*)			
Vegetation composition: negative indicator species	Percentage cover	Negative indicator species (including non-native species) to represent less than 5% cover			
Dunes with *Salix repens* ssp. *argentea* (Salicion arenariae)					
Habitat area	Hectares	Area stable or increasing, subject to natural processes including erosion and succession	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect coastal dune communities in the event of oil being washed up onto the shoreline	There is potential for adverse effects in relation to the conservation objectives for this habitat. This would constitute a negative effect on site integrity. Whilst the risk is low, measures are required to reduce this risk further.	Inishmore Island SAC 000213 Castlemaine Harbour SAC 000343 Tralee Bay and Magharees Peninsula, West to Cloghane SAC 002070
Habitat distribution	Occurrence	No decline or change in habitat distribution, subject to natural processes			
Physical structure: functionality and sediment supply	Presence/absence of physical barriers	Maintain the natural circulation of sediment and organic matter, without any physical obstructions			
Vegetation structure: zonation	Occurrence	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession			
Vegetation structure: bare ground	Percentage cover	Bare ground should not exceed 10% of fixed dune habitat, subject to natural processes			
Vegetation structure: sward height	Centimetres	Maintain structural variation within sward			
Vegetation composition: typical species and sub-communities	Percentage cover at a representative number of monitoring stops	Maintain range of sub-communities with typical species listed in Ryle et al. (2009)			
Vegetation composition: cover and height of *Salix repens*	Percentage cover; centimetres	Maintain more than 10% cover of *Salix repens* (creeping willow); vegetation height should be in the average range 5 - 20cm			

Attribute	Measure	Target	Potential Impact	Potential for Adverse Effects on Site Integrity	Relevant SAC/s
Vegetation composition: negative indicator species	Percentage cover at a representative number of monitoring stops	Negative indicator species (including non-natives) to represent less than 5% cover			
Vegetation composition: scrub/trees	Percentage cover	For trees and scrub other than creeping willow (*Salix repens*), there should be no more than 5% cover or their presence should be under control			
Humid Dunes Slacks					
Habitat area	Hectares	Area stable or increasing, subject to natural processes including erosion and succession	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect coastal dune communities in the event of oil being washed up onto the shoreline	There is potential for adverse effects in relation to the conservation objectives for this habitat. This would constitute a negative effect on site integrity. Whilst the risk is low, measures are required to reduce this risk further.	Inishmore Island SAC 000213 Akreagh, Banna and Barrow Harbour SAC 000332 Castlemaine Harbour SAC 000343 Tralee Bay and Magharees Peninsula, West to Cloghane SAC 002070
Habitat distribution	Occurrence	No decline or change in habitat distribution, subject to natural processes			
Physical structure: functionality and sediment supply	Presence/absence of physical barriers	Maintain the natural circulation of sediment and organic matter, without any physical obstructions			
Physical structure: hydrological and flooding regime	Water table levels; groundwater fluctuations (metres)	Maintain natural hydrological regime			
Vegetation structure: zonation	Occurrence	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession			
Vegetation structure: bare ground	Percentage cover	Bare ground should not exceed 5% of dune slack habitat, with the exception of pioneer slacks which can have up to 20% bare ground			
Vegetation structure: sward height	Centimetres	Maintain structural variation within sward			
Vegetation composition: typical species and sub-communities	Percentage cover at a representative number of monitoring stops	Maintain range of sub-communities with typical species listed in Ryle et al. (2009)			
Vegetation composition: cover of *Salix repens*	Percentage cover; centimetres	Maintain less than 40% cover of creeping willow (*Salix repens*)			
Vegetation composition: negative indicator species	Percentage cover	Negative indicator species (including non-natives) to represent less than 5% cover			
Vegetation composition: scrub/trees	Percentage cover	No more than 5% cover or under control			
Annual vegetation of drift lines					
Habitat area	Hectares	Area stable or increasing, subject to natural processes including erosion and succession	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect this coastal habitat in the event of oil being washed up onto the shoreline	There is potential for adverse effects in relation to the conservation objectives for this habitat. This would constitute a negative effect on site integrity. Whilst the risk is low, measures are required to reduce this risk further.	Akreagh, Banna and Barrow Harbour SAC 000332 Castlemaine Harbour SAC 000343 Dog's Bay SAC 001257 Tralee Bay and Magharees Peninsula, West to Cloghane SAC 002070 Slyne Head Peninsula SAC 002074
Habitat distribution	Occurrence	No decline or change in habitat distribution, subject to natural processes			
Physical structure: functionality and sediment supply	Presence/absence of physical barriers	Maintain the natural circulation of sediment and organic matter, without any physical obstructions			
Vegetation structure: zonation	Occurrence	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession			
Vegetation composition: typical species and sub-communities	Percentage cover at a representative number of monitoring stops	Maintain the presence of species-poor communities with typical species sea rocket (*Cakile maritima*), sea sandwort			

Attribute	Measure	Target	Potential Impact	Potential for Adverse Effects on Site Integrity	Relevant SAC/s
		(*Honckenya peploides*), prickly saltwort (*Salsola kali*) and oraches (*Atriplex* spp.)			
Vegetation composition: negative indicator species	Percentage cover	Negative indicator species (including non-native species) to represent less than 5% cover			
Atlantic decalcified fixed dunes (Calluno-Ulicetea)					
Habitat area	Hectares	Area stable or increasing, subject to natural processes including erosion and succession	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect coastal dune communities in the event of oil being washed up onto the shoreline	There is potential for adverse effects in relation to the conservation objectives for this habitat. This would constitute a negative effect on site integrity. Whilst the risk is low, measures are required to reduce this risk further.	Lough Yganavan and Lough Nambrackdarrig SAC 000370
Habitat distribution	Occurrence	No decline or change in habitat distribution, subject to natural processes			
Physical structure: functionality and sediment supply	Presence/absence of physical barriers	Maintain the natural circulation of sediment and organic matter, without any physical obstructions			
Vegetation structure: zonation	Occurrence	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession			
Vegetation structure: bare ground	Percentage cover	Bare ground should not exceed 10% of dune habitat, subject to natural processes			
Vegetation structure: sward height	Centimetres	Maintain structural variation within sward			
Vegetation composition: typical species and sub-communities	Percentage cover at a representative number of monitoring stops	Maintain range of sub-communities with typical species			
Vegetation composition: native negative indicator species	Percentage cover	Native negative indicator species cover in any individual monitoring stop should not be more than 25%; no negative indicator species should be present in more than 60% of monitoring stops			
Vegetation composition: non-native species	Percentage cover	Non-native species cover in any individual monitoring stop should not be more than 1%; non-native species should not be present in more than 20% of monitoring stops; cover of non-native species across the whole site should not be more than 1%			
***Phocoena phocoena* (Harbour Porpoise)**					
Access to suitable habitat	Number of artificial barriers	Species range within the site should not be restricted by artificial barriers to site use	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect harbour porpoise and have detrimental effects on the population and its habitat	There is potential for adverse effects in relation to the conservation objectives for this species. This would constitute a negative effect on site integrity. Whilst the risk is low, measures are required to reduce this risk further.	Blasket Islands SAC 002172
Disturbance	Level of impact	Human activities should occur at levels that do not adversely affect the harbour porpoise community at the site			
***Petromyzon marinus* Sea Lamprey**					
Distribution: extent of anadromy	% of river accessible	Greater than 75% of main stem length of rivers accessible from estuary	The proposed development will not introduce a barrier to sea lamprey	There is no potential for adverse effects in relation to the conservation objectives for sea lamprey as juveniles are present in freshwaters. However, sea lamprey do spend their adult life both in freshwater and at sea. There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which has the potential to affect sea lamprey due to toxicity and this would constitute a negative effect on site integrity. The risk of impact of such a spill is, however, low as lamprey swim further down in the water column.	Lower River Shannon SAC 002165 (NPWS 2012) Castlemaine Harbour SAC 000343 Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC 000365
Population structure of juveniles	Number of age/size groups	At least three age/size groups present	The proposed development will not affect freshwaters		
Juvenile density in fine sediment	Juveniles/m²	Juvenile density at least 1/m²	The proposed development will not affect freshwaters		
Extent and distribution of spawning habitat	m² and occurrence	No decline in extent and distribution of spawning beds	The proposed development will not affect freshwaters		
Availability of juvenile habitat	Number of positive sites i^{n} 3rd order channels (and greater), downstream of spawning areas	More than 50% of sample sites positive	The proposed development will not affect freshwaters		

Attribute	Measure	Target	Potential Impact	Potential for Adverse Effects on Site Integrity	Relevant SAC/s
***Lampetra fluviatilis* River Lamprey**					
Distribution	% of river accessible	Access to all water courses down to first order streams	The proposed development will not introduce a barrier to river lamprey	There is no potential for adverse effects in relation to the conservation objectives for river lamprey as juveniles are present in freshwaters. However, river lamprey spend their adult life both in freshwater and at sea. There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which has the potential to affect river lamprey due to toxicity and this would constitute a negative effect on site integrity. The risk is, however, low as lamprey swim further down in the water column.	Lower River Shannon SAC 002165 (NPWS 2012) Castlemaine Harbour SAC 000343 Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC 000365
Population structure of juveniles	Number of age/size groups	At least three age/size groups of river/brook lamprey present	The proposed development will not affect freshwaters		
Juvenile density in fine sediment	Juveniles/m²	Mean catchment juvenile density of river/brook lamprey at least 2/m²	The proposed development will not affect freshwaters		
Extent and distribution of spawning habitat	m² and occurrence	No decline in extent and distribution of spawning beds	The proposed development will not affect freshwaters		
Availability of juvenile habitat	Number of positive sites i^{n} 2nd order channels (and greater), downstream of spawning areas	More than 50% of sample sites positive	The proposed development will not affect freshwaters		
***Salmo salar* Atlantic Salmon**					
Distribution: extent of anadromy	% of river accessible	100% of river channels down to second order accessible from estuary	The proposed development will not introduce a barrier	There is no potential for adverse effects in relation to the conservation objectives for salmon juveniles, however, there is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect salmon in the estuary due to toxicity and this would constitute a negative effect on site integrity. Effects on salmon numbers could also affect the juvenile freshwater pearl mussels in upstream freshwater catchements.	Lower River Shannon SAC 002165 (NPWS 2012) Castlemaine Harbour SAC 000343 Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC 000365 Connemara Bog Complex SAC 002034
Adult spawning fish	Number	Conservation Limit (CL) for each system consistently exceeded	The proposed development will not affect freshwaters		
Salmon fry abundance	Number of fry/5 minutes electrofishing	Maintain or exceed 0+ fry mean catchment-wide abundance threshold value.	The proposed development will not affect freshwaters		
Out-migrating smolt abundance	Number	No significant decline	The proposed development will not affect freshwaters		
Number and distribution of redds	Number and occurrence	No decline in number and distribution of spawning redds due to anthropogenic causes	The proposed development will not affect freshwaters		
Water quality	EPA Q value	At least Q4 at all sites sampled by EPA	The proposed development will not affect freshwaters		
Sandbanks which are slightly covered be sea water all the time					
Habitat distribution	Occurrence	The distribution of sandbanks is stable, subject to natural processes.	There is no potential for effects on habitat distribution.	There is potential for adverse effects in relation to the conservation objectives for this habitat. This would constitute a negative effect on site integrity. While the risk is low, measures are required to reduce this risk further.	Lower River Shannon SAC 002165 (NPWS 2012)
Habitat area	Hectares	The permanent habitat area is stable or increasing, subject to natural processes.	Habitat area would not be affected by the proposed development		
Community distribution	Hectares	Conserve the following community type in a natural condition: Subtidal sand to mixed sediment with *Nephtys* spp. community complex.	There is a very low risk of a shipping oil spill occurring during the transit of HFO to the site and this would have negative effects on this community. Due to the shallower waters, there is potential for oil to affect polychaetes in the sands.		
Halichoerus grypus (Grey Seal)					
Access to suitable habitat	Number of artificial barriers	Species range within the SAC should not be restricted by artificial barriers to site use	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect seals by the oil sticking to their fur	There is potential for adverse effects in relation to the conservation objectives for this species. This would constitute a negative effect on site integrity. Whilst the risk is low, measures are required to reduce this risk further.	Inishbofin and Inishshark SAC 000278 Slyne Head Islands SAC 000328 Blasket Islands SAC 002172
Breeding behaviour	Breeding sites	Conserve the breeding sites in a natural condition			
Moulting behaviour	Moult haul-out sites	Conserve the moult haul-out sites in a natural condition			
Resting behaviour	Resting haul-out sites	Conserve the resting haul-out sites in a natural condition			
Disturbance	Level of impact	Human activities should occur at levels that do not adversely affect the grey seal population in the SAC			
***Phoca vitulina* (Harbour Seal)**					
Access to suitable habitat	Number of artificial barriers	Species range within the SAC should not be restricted by artificial barriers to site use	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect seals by the oil sticking to their fur	There is potential for adverse effects in relation to the conservation objectives for this species. This would constitute a negative effect on site integrity. Whilst the	Glengariff Harbour and Woodland SAC 000090 (NPWS 2015) Galway Bay Complex SAC 000268 Kilkieran Bay and Islands SAC 002111
Breeding behaviour	Breeding sites	Conserve the breeding sites in a natural condition			

Attribute	Measure	Target	Potential Impact	Potential for Adverse Effects on Site Integrity	Relevant SAC/s
Moulting behaviour	Moult haul-out sites	Conserve the moult haul-out sites in a natural condition		risk is low, measures are required to reduce this risk further.	Kenmare River SAC 002158
Resting behaviour	Resting haul-out sites	Conserve the resting haul-out sites in a natural condition			
Disturbance	Level of impact	Human activities should occur at levels that do not adversely affect the harbour seal population in the SAC			
***Tursiops truncatus* Bottlenose Dolphin**					
Access to suitable habitat	Number of artificial barriers	Species range within the site should not be restricted by artificial barriers to site use.	There is no potential for installing artificial barriers	There is potential for adverse effects in relation to the conservation objectives for this species This would constitute a negative effect on site integrity. Whilst the risk is low, measures are required to reduce this risk further.	Lower River Shannon SAC 002165 (NPWS 2012) Slyne Head Islands SAC 000328 Slyne Head Peninsula SAC 002074 West Connacht Coast SAC 002998
Habitat use: critical areas	Location and hectares	Critical areas, representing habitat used preferentially by bottlenose dolphin, should be maintained in a natural condition.	There is potential for habitat used preferentially by bottlenose dolphin to be affected if a shipping oil spill occurred during the transit of HFO to the site		
Disturbance	Level of impact	Human activities should occur at levels that do not adversely affect the bottlenose dolphin population at the site	There will be an increase in human activity on land at the proposed development site, but there will be no increase in underwater noise that could affect this species, as the number of shipments to the site will not increase and there are no works in the estuary.		
***Lutra lutra* Otter**					
Distribution	Percentage positive survey sites	No significant decline	During construction there will be noise generated and there will be an increase in human activity at the site. This has the potential to deter otter from using the shoreline to the south.	There is potential for adverse effects in relation to the conservation objectives for this species This would constitute a negative effect on site integrity. Whilst the risk is low, measures are required to reduce this risk further.	Lower River Shannon SAC 002165 (NPWS 2012) Glengariff Harbour and Woodland SAC 000090 (NPWS 2015) Galway Bay Complex SAC 000268 Castlemaine Harbour SAC 000343 Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC 000365 Connemara Bog Complex SAC 002034 Tralee Bay and Magharees Peninsula, West to Cloghane SAC 002070 Kilkieran Bay and Islands SAC 002111 Kenmare River SAC 002158
Extent of terrestrial habitat	Hectares	No significant decline.	There is no potential for otter terrestrial habitat to be affected by the proposed works.		
Extent of marine habitat	Hectares	No significant decline.	There is potential for marine habitat used by otter to be affected if an oil spill occurred		
Extent of freshwater (river) habitat	Kilometers	No significant decline.	There is no potential for otter freshwater habitat to be affected by the proposed works.		
Extent of freshwater (lake/lagoon) habitat	Hectares	No significant decline.	There is no potential for otter freshwater habitat to be affected by the proposed works.		
Couching sites and holts	Number	No significant decline	No couch/holts were identified along the boundary or within the proposed development site during the current survey.		
Fish biomass available	Kilograms	No significant decline	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site and, should this occur, otter may be directly, through oiling, or indirectly, through toxic impacts on fish as prey species, then being ingested. Fish kills would reduce the biomass available also.		
Barriers to connectivity	Number	No significant increase	There is no potential for the creation of barriers.		
***Petalophyllum ralfsii* (Petalwort)**					
Distribution of populations	Number and geographical spread	No decline of known populations	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect coastal sands containing Petalwort in the event of oil being washed up onto the shoreline	There is potential for adverse effects in relation to the conservation objectives for this species. This would constitute a negative effect on site integrity. Whilst the risk is low, measures are required to reduce this risk further.	Black Head Poulsallagh Complex SAC 000020 (NPWS 2014) Ballinskelligs Bay and Inny Estuary SAC 000335 Castlemaine Harbour SAC 000343 Omey Island Machair SAC 001309 Tralee Bay and Magharees Peninsula, West to Cloghane SAC 002070 Slyne Head Peninsula SAC 002074 Murvey Machair SAC 002129
Population size	Number of individuals	No decline			
Area of suitable habitat	Hectares	No decline			
Hydrological conditions: soil moisture	Occurrence of damp soil conditions	Maintain hydrological conditions so that substrate is kept moist and damp throughout the year, but not subject to prolonged inundation by flooding in winter			
Vegetation: open structure	Height and percentage cover of vegetation	Maintain open, low vegetation, with a high percentage cover of bryophytes (small acrocarps and liverwort turf and bare ground			
Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes)					

Attribute	Measure	Target	Potential Impact	Potential for Adverse Effects on Site Integrity	Relevant SAC/s
Habitat area	Hectares	Area stable or increasing, subject to natural processes including erosion and succession	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect coastal dune communities in the event of oil being washed up onto the shoreline	There is potential for adverse effects in relation to the conservation objectives for this habitat. This would constitute a negative effect on site integrity. Whilst the risk is low, measures are required to reduce this risk further.	Inagh River Estuary SAC 000036 (NPWS 2017) Inishmaan Island SAC 000212 Inishmore Island SAC 000213 Akreagh, Banna and Barrow Harbour SAC 000332 Castlemaine Harbour SAC 000343 Dog's Bay SAC 001257 Tralee Bay and Magharees Peninsula, West to Cloghane SAC 002070 Slyne Head Peninsula SAC 002074 Kenmare River SAC 002158 Carrowmore Dunes SAC 002250
Habitat distribution	Occurrence	No decline or change in habitat distribution, subject to natural processes			
Physical structure: functionality and sediment supply	Presence/absence of physical barriers	Maintain the natural circulation of sediment and organic matter, without any physical obstructions			
Vegetation structure: zonation	Occurrence	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession			
Vegetation composition: plant health of dune grasses	Percentage cover	More than 95% of marram grass (*Ammophila arenaria*) and/or lyme-grass (*Leymus arenarius*) should be healthy (i.e. green plant parts above ground and flowering heads present)			
Vegetation composition: typical species and sub-communities	Percentage cover at a representative number of monitoring stops	Maintain the presence of species-poor communities dominated by marram grass (*Ammophila arenaria*) and/or lyme-grass (*Leymus arenarius*)			
Vegetation composition: negative indicator species	Percentage cover	Negative indicator species (including non-native species) to represent less than 5% cover			

Table 6.2: Assessment of potential adverse effects on SCIs of relevant SPAs (those screened in)

Attribute	Measure	Target	Potential Impact	Potential for Adverse Effects on Site Integrity	Relevant SPA
Red-throated Diver (*Gavia stellata*)					
Population trend	Percentage change	Long term population trend stable or increasing	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect birds by the oil sticking to their feathers, leeching into suitable habitat or entering the food chain toxifying food sources Oil spills can contaminate suitable habitat for both bird species and preferred food/prey items and can cause a degradation in habitat suitability which will in turn impact distribution as birds begin to alter foraging/hunting grounds for food impacting upon the population size and productivity rate of the species at the site.	There is potential for adverse effects in relation to the conservation objectives for this species. This would constitute a negative effect on site integrity. While the risk is low, measures are required to reduce this risk further.	Castlemaine Harbour SPA 004029
Distribution	Number and range of areas used by waterbirds	No significant decrease in the numbers or range of areas used by waterbirds species, other than that occurring from natural patterns of variation			
Cormorant (*Phalacrocorax carbo*)					
Population trend	Percentage change	Long term population trend stable or increasing	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect birds by the oil sticking to their feathers, leeching into suitable habitat or entering the food chain toxifying food sources Oil spills can contaminate suitable habitat for both bird species and preferred food/prey items and can cause a degradation in habitat suitability which will in turn impact distribution as birds begin to alter foraging/hunting grounds for food impacting upon the population size and productivity rate of the species at the site.	There is potential for adverse effects in relation to the conservation objectives for this species. This would constitute a negative effect on site integrity. While the risk is low, measures are required to reduce this risk further.	River Shannon and River Fergus Estuaries SPA 004077 (NPWS 2012) Mid-Clare Coast SPA 004182 (NPWS 2014) Castlemaine Harbour SPA 004029 Inner Galway Bay SPA 004031 Connemara Bog Complex SPA 004181 Mid-Clare Coast SPA 004182
Distribution	Number and range of areas used by waterbirds	No significant decrease in the number or range of areas used by waterbird species, other than that occurring from natural patterns of variation			
Light-bellied Brent Goose (*Branta Bernicia hrota*)					
Population trend	Percentage change	Long term population trend stable or increasing	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect birds by the oil sticking to their feathers, leeching into suitable habitat or entering the food chain toxifying food sources	There is potential for adverse effects in relation to the conservation objectives for this species. This would constitute a negative effect on site integrity. While the risk is low, measures are required to reduce this risk further.	Castlemaine Harbour SPA 004029 Inner Galway Bay SPA 004031
Distribution	Number and range of areas used by waterbirds	No significant decrease in the numbers or range of areas used by waterbird species,			

		other than that occurring from natural patterns of variation	Oil spills can contaminate suitable habitat for both bird species and preferred food/prey items and can cause a degradation in habitat suitability which will in turn impact distribution as birds begin to alter foraging/hunting grounds for food impacting upon the population size and productivity rate of the species at the site.		
Wigeon (*Anas Penelope*)					
Population trend	Percentage change	Long term population trend stable or increasing	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect birds by the oil sticking to their feathers, leeching into suitable habitat or entering the food chain toxifying food sources Oil spills can contaminate suitable habitat for both bird species and preferred food/prey items and can cause a degradation in habitat suitability which will in turn impact distribution as birds begin to alter foraging/hunting grounds for food impacting upon the population size and productivity rate of the species at the site.	There is potential for adverse effects in relation to the conservation objectives for this species. This would constitute a negative effect on site integrity. While the risk is low, measures are required to reduce this risk further.	River Shannon and River Fergus Estuaries SPA 004077 (NPWS 2012) Tralee Bay Complex SPA 004188 (NPWS 2014) Castlemaine Harbour SPA 004029 Inner Galway Bay SPA 004031
Distribution	Number and range of areas used by waterbirds	No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation			
Mallard (*Anas platyrhynchos*)					
Population trend	Percentage change	Long term population trend stable or increasing	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect birds by the oil sticking to their feathers, leeching into suitable habitat or entering the food chain toxifying food sources Oil spills can contaminate suitable habitat for both bird species and preferred food/prey items and can cause a degradation in habitat suitability which will in turn impact distribution as birds begin to alter foraging/hunting grounds for food impacting upon the population size and productivity rate of the species at the site.	There is potential for adverse effects in relation to the conservation objectives for this species. This would constitute a negative effect on site integrity. While the risk is low, measures are required to reduce this risk further.	Tralee Bay Complex SPA 004188 (NPWS 2014) Castlemaine Harbour SPA 004029
Distribution	Number and range of areas used by waterbirds	No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation			
Pintail (*Anas cuta*)					
Population trend	Percentage change	Long term population trend stable or increasing	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect birds by the oil sticking to their feathers, leeching into suitable habitat or entering the food chain toxifying food sources Oil spills can contaminate suitable habitat for both bird species and preferred food/prey items and can cause a degradation in habitat suitability which will in turn impact distribution as birds begin to alter foraging/hunting grounds for food impacting upon the population size and productivity rate of the species at the site.	There is potential for adverse effects in relation to the conservation objectives for this species. This would constitute a negative effect on site integrity. While the risk is low, measures are required to reduce this risk further.	River Shannon and River Fergus Estuaries SPA 004077 (NPWS 2012) Tralee Bay Complex SPA 004188 (NPWS 2014) Castlemaine Harbour SPA 004029
Distribution	Number and range of areas used by waterbirds	No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation			
Scaup (*Aythya marilla*)					
Population trend	Percentage change	Long term population trend stable or increasing	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect birds by the oil sticking to their feathers, leeching into suitable habitat or entering the food chain toxifying food sources Oil spills can contaminate suitable habitat for both bird species and preferred food/prey items and can cause a degradation in habitat suitability which will in turn impact distribution as birds begin to alter foraging/hunting grounds for food impacting upon the population size and productivity rate of the species at the site.	There is potential for adverse effects in relation to the conservation objectives for this species. This would constitute a negative effect on site integrity. While the risk is low, measures are required to reduce this risk further.	River Shannon and River Fergus Estuaries SPA 004077 (NPWS 2012) Tralee Bay Complex SPA 004188 (NPWS 2014) Castlemaine Harbour SPA 004029
Distribution	Number and range of areas used by waterbirds	No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation			
Common Scoter (*Melanitta nigra*)					
Population trend	Percentage change	Long term population trend stable or increasing	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect birds by the oil sticking to their feathers, leeching into suitable habitat or entering the food chain toxifying food sources Oil spills can contaminate suitable habitat for both bird species and preferred food/prey items and can cause a degradation in habitat suitability which will in turn impact distribution as birds begin to alter foraging/hunting grounds	There is potential for adverse effects in relation to the conservation objectives for this species. This would constitute a negative effect on site integrity. While the risk is low, measures are required to reduce this risk further.	Castlemaine Harbour SPA 004029
Distribution	Number and range of areas used by waterbirds	No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation			

			for food impacting upon the population size and productivity rate of the species at the site.		
Oystercatcher (*Haematopus ostralegus*)					
Population trend	Percentage change	Long term population trend stable or increasing	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect birds by the oil sticking to their feathers, leeching into suitable habitat or entering the food chain toxifying food sources Oil spills can contaminate suitable habitat for both bird species and preferred food/prey items and can cause a degradation in habitat suitability which will in turn impact distribution as birds begin to alter foraging/hunting grounds for food impacting upon the population size and productivity rate of the species at the site.	There is potential for adverse effects in relation to the conservation objectives for this species. This would constitute a negative effect on site integrity. While the risk is low, measures are required to reduce this risk further.	Tralee Bay Complex SPA 004188 (NPWS 2014) Castlemaine Harbour SPA 004029
Distribution	Number and range of areas used by waterbirds	No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation			
Ringed Plover (*Charadrius hiaticula*)					
Population trend	Percentage change	Long term population trend stable or increasing	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect birds by the oil sticking to their feathers, leeching into suitable habitat or entering the food chain toxifying food sources Oil spills can contaminate suitable habitat for both bird species and preferred food/prey items and can cause a degradation in habitat suitability which will in turn impact distribution as birds begin to alter foraging/hunting grounds for food impacting upon the population size and productivity rate of the species at the site.	There is potential for adverse effects in relation to the conservation objectives for this species. This would constitute a negative effect on site integrity. While the risk is low, measures are required to reduce this risk further.	River Shannon and River Fergus Estuaries SPA 004077 (NPWS 2012) Mid-Clare Coast SPA 004182 (NPWS 2014) Tralee Bay Complex SPA 004188 (NPWS 2014) Castlemaine Harbour SPA 004029 Inner Galway Bay SPA 004031 Mid-Clare Coast SPA 004182
Distribution	Number and range of areas used by waterbirds	No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation			
Sanderling (*Calidris alba*)					
Population trend	Percentage change	Long term population trend stable or increasing	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect birds by the oil sticking to their feathers, leeching into suitable habitat or entering the food chain toxifying food sources Oil spills can contaminate suitable habitat for both bird species and preferred food/prey items and can cause a degradation in habitat suitability which will in turn impact distribution as birds begin to alter foraging/hunting grounds for food impacting upon the population size and productivity rate of the species at the site.	There is potential for adverse effects in relation to the conservation objectives for this species. This would constitute a negative effect on site integrity. While the risk is low, measures are required to reduce this risk further.	Mid-Clare Coast SPA 004182 (NPWS 2014) Tralee Bay Complex SPA 004188 (NPWS 2014) Castlemaine Harbour SPA 004029 Mid-Clare Coast SPA 004182
Distribution	Number and range of areas used by waterbirds	No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation			
Bar-tailed Godwit (*Limosa lapponica*)					
Population trend	Percentage change	Long term population trend stable or increasing	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect birds by the oil sticking to their feathers, leeching into suitable habitat or entering the food chain toxifying food sources Oil spills can contaminate suitable habitat for both bird species and preferred food/prey items and can cause a degradation in habitat suitability which will in turn impact distribution as birds begin to alter foraging/hunting grounds for food impacting upon the population size and productivity rate of the species at the site.	There is potential for adverse effects in relation to the conservation objectives for this species. This would constitute a negative effect on site integrity. While the risk is low, measures are required to reduce this risk further.	Tralee Bay Complex SPA 004188 (NPWS 2014) Castlemaine Harbour SPA 004029 Inner Galway Bay SPA 004031
Distribution	Number and range of areas used by waterbirds	No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation			
Redshank (Tringa totanus*)*					
Population trend	Percentage change	Long term population trend stable or increasing	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect birds by the oil sticking to their feathers, leeching into suitable habitat or entering the food chain toxifying food sources Oil spills can contaminate suitable habitat for both bird species and preferred food/prey items and can cause a degradation in habitat suitability which will in turn impact distribution as birds begin to alter foraging/hunting grounds for food impacting upon the population size and productivity rate of the species at the site.	There is potential for adverse effects in relation to the conservation objectives for this species. This would constitute a negative effect on site integrity. While the risk is low, measures are required to reduce this risk further.	River Shannon and River Fergus Estuaries SPA 004077 (NPWS 2012) Tralee Bay Complex SPA 004188 (NPWS 2014) Castlemaine Harbour SPA 004029 Inner Galway Bay SPA 004031
Distribution	Number and range of areas used by waterbirds	No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation			
Greenshank (*Tringa nebularia*)					
Population trend	Percentage change	Long term population trend stable or increasing	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect birds by the oil	There is potential for adverse effects in relation to the conservation objectives for this species. This would	River Shannon and River Fergus Estuaries SPA 004077 (NPWS 2012)

Distribution	Number and range of areas used by waterbirds	No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation	sticking to their feathers, leeching into suitable habitat or entering the food chain toxifying food sources Oil spills can contaminate suitable habitat for both bird species and preferred food/prey items and can cause a degradation in habitat suitability which will in turn impact distribution as birds begin to alter foraging/hunting grounds for food impacting upon the population size and productivity rate of the species at the site.	constitute a negative effect on site integrity. While the risk is low, measures are required to reduce this risk further.	Castlemaine Harbour SPA 004029
Turnstone (*Arenaria intercpres*)					
Population trend	Percentage change	Long term population trend stable or increasing	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect birds by the oil sticking to their feathers, leeching into suitable habitat or entering the food chain toxifying food sources Oil spills can contaminate suitable habitat for both bird species and preferred food/prey items and can cause a degradation in habitat suitability which will in turn impact distribution as birds begin to alter foraging/hunting grounds for food impacting upon the population size and productivity rate of the species at the site.	There is potential for adverse effects in relation to the conservation objectives for this species. This would constitute a negative effect on site integrity. While the risk is low, measures are required to reduce this risk further.	Mid-Clare Coast SPA 004182 (NPWS 2014) Tralee Bay Complex SPA 004188 (NPWS 2014) Castlemaine Harbour SPA 004029 Inner Galway Bay SPA 004031 Mid-Clare Coast SPA 004182
Distribution	Number and range of areas used by waterbirds	No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation			
Wetlands and Waterbirds [A999]					
Habitat area	Hectares	The permanent area occupied by the wetland habitat should be stable and not significantly less than the areas of 7472, 3983 and 322 hectares for subtidal, intertidal and supratidal habitats respectively	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect wetland habitats and water birds in the event that any waterbirds affected by the oil spill make it make it inland to wetland sites or the oil spill itself travelling into wetland habitats via any hydrological links	There is potential for adverse effects in relation to the conservation objectives for this habitat. This would constitute a negative effect on site integrity. Whilst the risk is low, measures are required to reduce this risk further.	Castlemaine Harbour SPA 004029 Inner Galway Bay SPA 004031 Mid-Clare Coast SPA 004182

Great Northern Diver (*Gavia immer*)					
Population trend	Percentage change	Long term population trend stable or increasing	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect birds by the oil sticking to their feathers, leeching into suitable habitat or entering the food chain toxifying food sources Oil spills can contaminate suitable habitat for both bird species and preferred food/prey items and can cause a degradation in habitat suitability which will in turn impact distribution as birds begin to alter foraging/hunting grounds for food impacting upon the population size and productivity rate of the species at the site.	There is potential for adverse effects in relation to the conservation objectives for this species. This would constitute a negative effect on site integrity. While the risk is low, measures are required to reduce this risk further.	Inner Galway Bay SPA 004031
Distribution	Range, timing and intensity of use of areas	No significant decrease I the range, timing or intensity of use of areas by great northern diver, other than that occurring from natural patterns of variation			
Grey Heron (*Ardea cinerea*)					
Population trend	Percentage change	Long term population trend stable or increasing	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect birds by the oil sticking to their feathers, leeching into suitable habitat or entering the food chain toxifying food sources Oil spills can contaminate suitable habitat for both bird species and preferred food/prey items and can cause a degradation in habitat suitability which will in turn impact distribution as birds begin to alter foraging/hunting grounds for food impacting upon the population size and productivity rate of the species at the site.	There is potential for adverse effects in relation to the conservation objectives for this species. This would constitute a negative effect on site integrity. While the risk is low, measures are required to reduce this risk further.	Inner Galway Bay SPA 004031
Distribution	Number and range of areas used by waterbirds	No significant decrease in the numbers or range of areas used by grey heron, other than that occurring from natural patterns of variation			
Teal (*Anas crecca*)					
Population trend	Percentage change	Long term population trend stable or increasing	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect birds by the oil	There is potential for adverse effects in relation to the conservation objectives for this species. This would	River Shannon and River Fergus Estuaries SPA 004077 (NPWS 2012)

Distribution	Number and range of areas used by waterbirds	No significant decrease in the numbers or range of areas used by teal, other than that occurring from natural patterns of variation	sticking to their feathers, leeching into suitable habitat or entering the food chain toxifying food sources Oil spills can contaminate suitable habitat for both bird species and preferred food/prey items and can cause a degradation in habitat suitability which will in turn impact distribution as birds begin to alter foraging/hunting grounds for food impacting upon the population size and productivity rate of the species at the site.	constitute a negative effect on site integrity. While the risk is low, measures are required to reduce this risk further.	Tralee Bay Complex SPA 004188 (NPWS 2014) Inner Galway Bay SPA 004031
Red-breasted Merganser (*Mergus serrator*)					
Population trend	Percentage change	Long term population trend stable or increasing	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect birds by the oil sticking to their feathers, leeching into suitable habitat or entering the food chain toxifying food sources Oil spills can contaminate suitable habitat for both bird species and preferred food/prey items and can cause a degradation in habitat suitability which will in turn impact distribution as birds begin to alter foraging/hunting grounds for food impacting upon the population size and productivity rate of the species at the site.	There is potential for adverse effects in relation to the conservation objectives for this species. This would constitute a negative effect on site integrity. While the risk is low, measures are required to reduce this risk further.	Inner Galway Bay SPA 004031
Distribution	Number and range of areas used by waterbirds	No significant decrease in the numbers or range of areas used by red-breasted merganser, other than that occurring from natural patterns of variation			
Golden Plover (*Pluvialis apricaria*)					
Population trend	Percentage change	Long term population trend stable or increasing	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect birds by the oil sticking to their feathers, leeching into suitable habitat or entering the food chain toxifying food sources Oil spills can contaminate suitable habitat for both bird species and preferred food/prey items and can cause a degradation in habitat suitability which will in turn impact distribution as birds begin to alter foraging/hunting grounds for food impacting upon the population size and productivity rate of the species at the site.	There is potential for adverse effects in relation to the conservation objectives for this species. This would constitute a negative effect on site integrity. While the risk is low, measures are required to reduce this risk further.	River Shannon and River Fergus Estuaries SPA 004077 (NPWS 2012) Tralee Bay Complex SPA 004188 (NPWS 2014) Inner Galway Bay SPA 004031 Connemara Bog Complex SPA 00418
Distribution	Number, range, timing, and intensity of use of areas	No significant decrease in the numbers or range of areas used by golden plover, other than that occurring from natural patterns of variation			
Lapwing (*Vanellus vanellus*)					
Population trend	Percentage change	Long term population trend stable or increasing	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect birds by the oil sticking to their feathers, leeching into suitable habitat or entering the food chain toxifying food sources Oil spills can contaminate suitable habitat for both bird species and preferred food/prey items and can cause a degradation in habitat suitability which will in turn impact distribution as birds begin to alter foraging/hunting grounds for food impacting upon the population size and productivity rate of the species at the site.	There is potential for adverse effects in relation to the conservation objectives for this species. This would constitute a negative effect on site integrity. While the risk is low, measures are required to reduce this risk further.	River Shannon and River Fergus Estuaries SPA 004077 (NPWS 2012) Tralee Bay Complex SPA 004188 (NPWS 2014) Inner Galway Bay SPA 004031
Distribution	Number, range, timing, and intensity of use of areas	No significant decrease in the numbers or range of areas used by lapwing, other than that occurring from natural patterns of variation			
Dunlin (*Callidris alpina alpina*)					
Population trend	Percentage change	Long term population trend stable or increasing	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect birds by the oil sticking to their feathers, leeching into suitable habitat or entering the food chain toxifying food sources Oil spills can contaminate suitable habitat for both bird species and preferred food/prey items and can cause a degradation in habitat suitability which will in turn impact distribution as birds begin to alter foraging/hunting grounds for food impacting upon the population size and productivity rate of the species at the site.	There is potential for adverse effects in relation to the conservation objectives for this species. This would constitute a negative effect on site integrity. While the risk is low, measures are required to reduce this risk further.	River Shannon and River Fergus Estuaries SPA 004077 (NPWS 2012) Mid-Clare Coast SPA 004182 (NPWS 2014) Tralee Bay Complex SPA 004188 (NPWS 2014) Inner Galway Bay SPA 004031 Mid-Clare Coast SPA 004182
Distribution	Number, range, timing and intensity of use of areas	No significant decrease in the numbers or range of areas used by dunlin, other than that occurring from natural patterns of variation			
Curlew (*Numenius arquate*)					
Population trend	Percentage change	Long term population trend stable or increasing	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect birds by the oil sticking to their feathers, leeching into suitable habitat or entering the food chain toxifying food sources Oil spills can contaminate suitable habitat for both bird species and preferred food/prey items and can cause a degradation in habitat suitability which will in turn impact	There is potential for adverse effects in relation to the conservation objectives for this species. This would constitute a negative effect on site integrity. While the risk is low, measures are required to reduce this risk further.	River Shannon and River Fergus Estuaries SPA 004077 (NPWS 2012) Tralee Bay Complex SPA 004188 (NPWS 2014) Inner Galway Bay SPA 004031
Distribution	Number, range, timing, and intensity of use of areas	No significant decrease in the numbers or range of areas used by curlew, other than that occurring from natural patterns of variation			

			distribution as birds begin to alter foraging/hunting grounds for food impacting upon the population size and productivity rate of the species at the site.		
Black-headed Gull (*Chriococephalus ridibundus*)					
Population trend	Percentage change	Long term population trend stable or increasing	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect birds by the oil sticking to their feathers, leeching into suitable habitat or entering the food chain toxifying food sources Oil spills can contaminate suitable habitat for both bird species and preferred food/prey items and can cause a degradation in habitat suitability which will in turn impact distribution as birds begin to alter foraging/hunting grounds for food impacting upon the population size and productivity rate of the species at the site.	There is potential for adverse effects in relation to the conservation objectives for this species. This would constitute a negative effect on site integrity. While the risk is low, measures are required to reduce this risk further.	Tralee Bay Complex SPA 004188 (NPWS 2014) Inner Galway Bay SPA 004031
Distribution	Number and range of areas used by waterbirds	No significant decrease in the range, timing and intensity of use of areas used by black-headed gull other than that occurring from natural patterns of variation			
Common Gull (*Larus canus*)					
Population trend	Percentage change	Long term population trend stable or increasing	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect birds by the oil sticking to their feathers, leeching into suitable habitat or entering the food chain toxifying food sources Oil spills can contaminate suitable habitat for both bird species and preferred food/prey items and can cause a degradation in habitat suitability which will in turn impact distribution as birds begin to alter foraging/hunting grounds for food impacting upon the population size and productivity rate of the species at the site.	There is potential for adverse effects in relation to the conservation objectives for this species. This would constitute a negative effect on site integrity. While the risk is low, measures are required to reduce this risk further.	Magheree Islands SPA 004125 (NPWS 2022) Tralee Bay Complex SPA 004188 (NPWS 2014) Inner Galway Bay SPA 004031 Connemara Bog Complex SPA 004181
Distribution	Number and range of areas used by waterbirds	No significant decrease in the range, timing and intensity of use of areas used by common gull other than that occurring from natural patterns of variation			
Sandwich Tern (*Sterna sandvicensis*)					
Breeding population abundance: apparently occupied nests (AONs)	Number	No significant decline	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect birds by the oil sticking to their feathers, leeching into suitable habitat or entering the food chain toxifying food sources Oil spills can contaminate suitable habitat for both bird species and preferred food/prey items and can cause a degradation in habitat suitability which will in turn impact distribution as birds begin to alter foraging/hunting grounds for food impacting upon the population size and productivity rate of the species at the site.	There is potential for adverse effects in relation to the conservation objectives for this species. This would constitute a negative effect on site integrity. While the risk is low, measures are required to reduce this risk further.	Inner Galway Bay SPA 004031 Slyne Head to Ardmore Point Island SPA 004175
Productivity rate: fledged young per breeding pair	Mean number	No significant decline			
Distribution: breeding colonies	Number; location; area (Hectares)	No significant decline			
Prey biomass available	Kilogrammes	No significant decline			
Barriers to connectivity	Number; location; shape; area (hectares)	No significant increase			
Disturbance at breeding site	Level of impact	Human activities should occur at levels that do not adversely affect the breeding sandwich tern population			
Common Tern (*Sterna hirundo*)					
Breeding population abundance: apparently occupied nests (AONs)	Number	No significant decline	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect birds by the oil sticking to their feathers, leeching into suitable habitat or entering the food chain toxifying food sources Oil spills can contaminate suitable habitat for both bird species and preferred food/prey items and can cause a degradation in habitat suitability which will in turn impact distribution as birds begin to alter foraging/hunting grounds for food impacting upon the population size and productivity rate of the species at the site.	There is potential for adverse effects in relation to the conservation objectives for this species. This would constitute a negative effect on site integrity. While the risk is low, measures are required to reduce this risk further.	Magheree Islands SPA 004125 (NPWS 2022) Inner Galway Bay SPA 004031
Productivity rate: fledged young per breeding pair	Mean number	No significant decline			
Distribution: breeding colonies	Number; location; area (Hectares)	No significant decline			
Prey biomass available	Kilogrammes	No significant decline			
Barriers to connectivity	Number; location; shape; area (hectares)	No significant increase			
Disturbance at breeding site	Level of impact	Human activities should occur at levels that do not adversely affect the breeding common tern population			
Fulmar (*Fulmarus glacialis*)					
Breeding population abundance: apparently occupied sites (AOSs)	Number	No significant decline	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect birds by the oil	There is potential for adverse effects in relation to the conservation objectives for this species. This would	Blasket Island SPA 004008 (NPWS 2022) Skelligs SPA 004007 (NPWS 2022)

Productivity rate	Mean number	No significant decline	sticking to their feathers, leeching into suitable habitat or entering the food chain toxifying food sources Oil spills can contaminate suitable habitat for both bird species and preferred food/prey items and can cause a degradation in habitat suitability which will in turn impact distribution as birds begin to alter foraging/hunting grounds for food impacting upon the population size and productivity rate of the species at the site.	constitute a negative effect on site integrity. While the risk is low, measures are required to reduce this risk further.	Cliffs of Moher SPA 004005 (NPWS 2022) Kerry Head SPA 004189 (NPWS 2022) Dingle Peninsula SPA 004153 (NPWS 2022)
Distribution: breeding colonies	Number; location; area (hectares)	No significant decline			
Prey biomass available	Kilogrammes	No significant decline			
Barriers to connectivity	Number; location; shape; area (hectares)	No significant increase			
Disturbance at the breeding site	Level of impact	No significant increase			
Disturbance at marine areas immediately adjacent to the colony	Level of impact	No significant increase			
Gannet (*Morus bassanus*)					
Breeding population abundance: apparently occupied sites (AONs)	Number	No significant decline	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect birds by the oil sticking to their feathers, leeching into suitable habitat or entering the food chain toxifying food sources Oil spills can contaminate suitable habitat for both bird species and preferred food/prey items and can cause a degradation in habitat suitability which will in turn impact distribution as birds begin to alter foraging/hunting grounds for food impacting upon the population size and productivity rate of the species at the site.	There is potential for adverse effects in relation to the conservation objectives for this species. This would constitute a negative effect on site integrity. While the risk is low, measures are required to reduce this risk further.	Skelligs SPA 004007 (NPWS 2022) The Bull and the Cow Rocks SPA 004066
Productivity rate	Mean number	No significant decline			
Distribution: breeding colonies	Number; location; area (hectares)	No significant decline			
Prey biomass available	Kilogrammes	No significant decline			
Barriers to connectivity	Number; location; shape; area (hectares)	No significant increase			
Disturbance at the breeding site	Level of impact	No significant increase			
Disturbance at marine areas immediately adjacent to the colony	Level of impact	No significant increase			
Lesser Black-backed Gull (*Larus fuscus*)					
Breeding population abundance: apparently occupied sites (AONs)	Number	No significant decline	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect birds by the oil sticking to their feathers, leeching into suitable habitat or entering the food chain toxifying food sources Oil spills can contaminate suitable habitat for both bird species and preferred food/prey items and can cause a degradation in habitat suitability which will in turn impact distribution as birds begin to alter foraging/hunting grounds for food impacting upon the population size and productivity rate of the species at the site.	There is potential for adverse effects in relation to the conservation objectives for this species. This would constitute a negative effect on site integrity. While the risk is low, measures are required to reduce this risk further.	Blasket Island SPA 004008 (NPWS 2022) Puffin Island SPA 004003 Deenish Island and Scariff Island SPA 004175
Productivity rate	Mean number	No significant decline			
Distribution: breeding colonies	Number; location; area (hectares)	No significant decline			
Prey biomass available	Kilogrammes	No significant decline			
Barriers to connectivity	Number; location; shape; area (hectares)	No significant increase			
Disturbance at the breeding site	Level of impact	No significant increase			
Kittiwake (*Rissa tridactyla*)					
Breeding population abundance: apparently occupied sites (AONs)	Number	No significant decline	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect birds by the oil sticking to their feathers, leeching into suitable habitat or entering the food chain toxifying food sources Oil spills can contaminate suitable habitat for both bird species and preferred food/prey items and can cause a degradation in habitat suitability which will in turn impact distribution as birds begin to alter foraging/hunting grounds for food impacting upon the population size and productivity rate of the species at the site.	There is potential for adverse effects in relation to the conservation objectives for this species. This would constitute a negative effect on site integrity. While the risk is low, measures are required to reduce this risk further.	Blasket Island SPA 004008 (NPWS 2022) Skelligs SPA 004007 (NPWS 2022) Loop Head SPA 004119 (NPWS 2022) Cliffs of Moher SPA 004005 (NPWS 2022) Inishmore SPA 004152 Iveragh Peninsula SPA 004154
Productivity rate	Mean number	No significant decline			
Distribution: breeding colonies	Number; location; area (hectares)	No significant decline			
Prey biomass available	Kilogrammes	No significant decline			
Barriers to connectivity	Number; location; shape; area (hectares)	No significant increase			
Disturbance at the breeding site	Level of impact	No significant increase			
Guillemot (*Uria aalge*)					
Breeding population abundance: individual adult	Number	No significant decline	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect birds by the oil	There is potential for adverse effects in relation to the conservation objectives for this species. This would	Skelligs SPA 004007 (NPWS 2022)

Productivity rate	Mean number	No significant decline	sticking to their feathers, leeching into suitable habitat or entering the food chain toxifying food sources Oil spills can contaminate suitable habitat for both bird species and preferred food/prey items and can cause a degradation in habitat suitability which will in turn impact distribution as birds begin to alter foraging/hunting grounds for food impacting upon the population size and productivity rate of the species at the site.	constitute a negative effect on site integrity. While the risk is low, measures are required to reduce this risk further.	Loop Head SPA 004119 (NPWS 2022) Cliffs of Moher SPA 004005 (NPWS 2022) Inishmore SPA 004152 Iveragh Peninsula SPA 004154
Distribution: breeding colonies	Number; location; area (hectares)	No significant decline			
Prey biomass available	Kilogrammes	No significant decline			
Barriers to connectivity	Number; location; shape; area (hectares)	No significant increase			
Disturbance at the breeding site	Level of impact	No significant increase			
Disturbance at marine areas immediately adjacent to the colony	Level of impact	No significant increase			
Razorbill (*Alco torda)*					
Breeding population abundance: individual adult	Number	No significant decline	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect birds by the oil sticking to their feathers, leeching into suitable habitat or entering the food chain toxifying food sources Oil spills can contaminate suitable habitat for both bird species and preferred food/prey items and can cause a degradation in habitat suitability which will in turn impact distribution as birds begin to alter foraging/hunting grounds for food impacting upon the population size and productivity rate of the species at the site.	There is potential for adverse effects in relation to the conservation objectives for this species. This would constitute a negative effect on site integrity. While the risk is low, measures are required to reduce this risk further.	Blasket Island SPA 004008 (NPWS 2022) Cliffs of Moher SPA 004005 (NPWS 2022) Puffin Island SPA 004003
Productivity rate	Mean number	No significant decline			
Distribution: breeding colonies	Number; location; area (hectares)	No significant decline			
Prey biomass available	Kilogrammes	No significant decline			
Barriers to connectivity	Number; location; shape; area (hectares)	No significant increase			
Disturbance at the breeding site	Level of impact	No significant increase			
Disturbance at marine areas immediately adjacent to the colony	Level of impact	No significant increase			
Puffin (*Fratercula arctica*)					
Breeding population abundance: apparently occupied burrow (AOB)	Number	No significant decline	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect birds by the oil sticking to their feathers, leeching into suitable habitat or entering the food chain toxifying food sources Oil spills can contaminate suitable habitat for both bird species and preferred food/prey items and can cause a degradation in habitat suitability which will in turn impact distribution as birds begin to alter foraging/hunting grounds for food impacting upon the population size and productivity rate of the species at the site.	There is potential for adverse effects in relation to the conservation objectives for this species. This would constitute a negative effect on site integrity. While the risk is low, measures are required to reduce this risk further.	Blasket Island SPA 004008 (NPWS 2022) Skelligs SPA 004007 (NPWS 2022) Cliffs of Moher SPA 004005 (NPWS 2022)
Productivity rate	Mean number	No significant decline			
Distribution: breeding colonies	Number; location; area (hectares)	No significant decline			
Prey biomass available	Kilogrammes	No significant decline			
Barriers to connectivity	Number; location; shape; area (hectares)	No significant increase			
Disturbance at the breeding site	Level of impact	No significant increase			
Disturbance at marine areas immediately adjacent to the colony	Level of impact	No significant increase			
Occurrence of mammalian predators	Level of impact	Absent or under control			
Manx Shearwater (*Puffinus puffinus*)					
Breeding population	Number	No significant decline	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect birds by the oil sticking to their feathers, leeching into suitable habitat or entering the food chain toxifying food sources Oil spills can contaminate suitable habitat for both bird species and preferred food/prey items and can cause a degradation in habitat suitability which will in turn impact distribution as birds begin to alter foraging/hunting grounds for food impacting upon the population size and productivity rate of the species at the site.	There is potential for adverse effects in relation to the conservation objectives for this species. This would constitute a negative effect on site integrity. While the risk is low, measures are required to reduce this risk further.	Blasket Island SPA 004008 (NPWS 2022) Skelligs SPA 004007 (NPWS 2022) Puffin Island SPA 004003 Cruagh Island SPA 004170 Deenish Island and Scariff Island SPA 004175
Spatial Distribution	Hectares, time, and intensity of use	Sufficient number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population.			
Forage spatial distribution, extent, abundance and availability	Location and hectares, and forage biomass	Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target			
Disturbance across the site	Intensity, frequency, timing and duration	The intensity, frequency, timing and duration of disturbance occurs at levels that do not significantly impact the achievements of			

		targets for population size and spatial distribution			
Barriers to connectivity	Number; location; shape; area (hectares)	The number, location, shape and area of barriers do not significantly impact the site populatio''s access to the SPA or other ecologically important sites outside the SPA			
Arctic Tern (*Sterna paradisaea*)					
Breeding population size	Number	No significant decline	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect birds by the oil sticking to their feathers, leeching into suitable habitat or entering the food chain toxifying food sources Oil spills can contaminate suitable habitat for both bird species and preferred food/prey items and can cause a degradation in habitat suitability which will in turn impact distribution as birds begin to alter foraging/hunting grounds for food impacting upon the population size and productivity rate of the species at the site.	There is potential for adverse effects in relation to the conservation objectives for this species. This would constitute a negative effect on site integrity. While the risk is low, measures are required to reduce this risk further.	Magheree Islands SPA 004125 (NPWS 2022) Blasket Island SPA 004008 (NPWS 2022) High Island, Inishshark and Davillaun SPA 004152 Inishmore SPA 004152 Slyne Head to Ardmore Point Island SPA 004175 Deenish Island and Scariff Island SPA 004175
Spatial Distribution	Hectares, time, and intensity of use	Sufficient number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population.			
Forage spatial distribution, extent, abundance and availability	Location and hectares, and forage biomass	Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target			
Disturbance across the site	Intensity, frequency, timing and duration	The intensity, frequency, timing and duration of disturbance occurs at levels that do not significantly impact the achievements of targets for population size and spatial distribution			
Barriers to connectivity	Number; location; shape; area (hectares)	The number, location, shape and area of barriers do not significantly impact the site populatio''s access to the SPA or other ecologically important sites outside the SPA			
Little Tern (*Sterna albifrons*)					
Breeding population size	Number	No significant decline	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect birds by the oil sticking to their feathers, leeching into suitable habitat or entering the food chain toxifying food sources Oil spills can contaminate suitable habitat for both bird species and preferred food/prey items and can cause a degradation in habitat suitability which will in turn impact distribution as birds begin to alter foraging/hunting grounds for food impacting upon the population size and productivity rate of the species at the site.	There is potential for adverse effects in relation to the conservation objectives for this species. This would constitute a negative effect on site integrity. While the risk is low, measures are required to reduce this risk further.	Magheree Islands SPA 004125 (NPWS 2022) Inishmore SPA 004152 Slyne Head to Ardmore Point Island SPA 004175
Spatial Distribution	Hectares, time, and intensity of use	Sufficient number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population.			
Forage spatial distribution, extent, abundance and availability	Location and hectares, and forage biomass	Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target			
Disturbance across the site	Intensity, frequency, timing and duration	The intensity, frequency, timing and duration of disturbance occurs at levels that do not significantly impact the achievements of targets for population size and spatial distribution			
Barriers to connectivity	Number; location; shape; area (hectares)	The number, location, shape and area of barriers do not significantly impact the site populatio''s access to the SPA or other ecologically important sites outside the SPA			
Storm Petrel (*Hydrobates pelagicus*)					
Breeding population abundance: apparently occupied sites (AOSs)	Number	No significant decline	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect birds by the oil sticking to their feathers, leeching into suitable habitat or entering the food chain toxifying food sources Oil spills can contaminate suitable habitat for both bird species and preferred food/prey items and can cause a degradation in habitat suitability which will in turn impact distribution as birds begin to alter foraging/hunting grounds for food impacting upon the population size and productivity rate of the species at the site.	There is potential for adverse effects in relation to the conservation objectives for this species. This would constitute a negative effect on site integrity. While the risk is low, measures are required to reduce this risk further.	Magheree Islands SPA 004125 (NPWS 2022) Blasket Island SPA 004008 (NPWS 2022) Skelligs SPA 004007 (NPWS 2022) Puffin Island SPA 004003 The Bull and the Cow Rocks SPA 004066 Deenish Island and Scariff Island SPA 004175
Productivity rate	Mean number	No significant decline			
Distribution: breeding colonies	Number; location; area (hectares)	No significant decline			
Prey biomass available	Kilogrammes	No significant decline			
Barriers to connectivity	Number; location; shape; area (hectares)	No significant increase			
Disturbance at the breeding site	Level of impact	No significant increase			

Disturbance at marine areas immediately adjacent to the colony	Level of impact	No significant increase			
Barnacle Goose (*Branta leucopsis*)					
Population trend	Percentage change	Long term population trend stable or increasing	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect birds by the oil sticking to their feathers, leeching into suitable habitat or entering the food chain toxifying food sources Oil spills can contaminate suitable habitat for both bird species and preferred food/prey items and can cause a degradation in habitat suitability which will in turn impact distribution as birds begin to alter foraging/hunting grounds for food impacting upon the population size and productivity rate of the species at the site.	There is potential for adverse effects in relation to the conservation objectives for this species. This would constitute a negative effect on site integrity. While the risk is low, measures are required to reduce this risk further.	Mid-Clare Coast SPA 004182 (NPWS 2014) Illaunonearaun SPA 004114 (NPWS, 2022) Magheree Islands SPA 004125 (NPWS 2022) High Island, Inishshark and Davillaun SPA 004152 Slyne Head to Ardmore Point Island SPA 004175 Cruagh Island SPA 004170 Mid-Clare Coast SPA 004182
Distribution	Number and range of areas used by waterbirds	No significant decrease in the number or range of areas used by waterbird species, other than that occurring from natural patterns of variation			
Merlin (*Falco columbarius*)					
Population size	Number of occupied territories	Breeding population is increasing	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect birds by the oil sticking to their feathers, leeching into suitable habitat, or entering the food chain toxifying food sources. Oil spills can contaminate suitable habitat for both bird species and preferred food/prey items and can cause a degradation in habitat suitability which will in turn impact distribution as birds begin to alter foraging/hunting grounds for food impacting upon the population size and productivity rate of the species at the site.	There is potential for adverse effects in relation to the conservation objectives for this species. This would constitute a negative effect on site integrity. While the risk is low, measures are required to reduce this risk further.	Connemara Bog Complex SPA 004181
Productivity rate	Number of fledged young per breeding attempt with known outcome	Sufficient to meet the population size target			
Distribution: extent of available nesting options within the SPA	Numbers and spatial distribution	Sufficient availability of suitable nesting sites throughout the SPA to maintain the population			
Extent and condition of suitable open habitats for foraging	Hectares; condition assessment; prey biomass	Sufficient availability of suitable foraging habitat across the SPA to support targets relating to population size, productivity rate and distribution			
Disturbance at breeding sites	Level of impact	Disturbance occurs at levels that do not significantly impact upon breeding merlin			
Purple Sandpiper (*Calidris maritima*)					
Population trend	Percentage change	Long term population trend stable or increasing	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect birds by the oil sticking to their feathers, leeching into suitable habitat, or entering the food chain toxifying food sources. Oil spills can contaminate suitable habitat for both bird species and preferred food/prey items and can cause a degradation in habitat suitability which will in turn impact distribution as birds begin to alter foraging/hunting grounds for food impacting upon the population size and productivity rate of the species at the site.	There is potential for adverse effects in relation to the conservation objectives for this species. This would constitute a negative effect on site integrity. While the risk is low, measures are required to reduce this risk further.	Mid-Clare Coast SPA 004182 (NPWS 2014)
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by purple sandpiper other than that occurring from natural patterns of variation			
Peregrine (*Falco columbarius*)					
Population size	Number of occupied territories	Breeding population is increasing	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect birds by the oil sticking to their feathers, leeching into suitable habitat or entering the food chain toxifying food sources. While oil sticking to feather may not be an initial issue for peregrine, their food source (other birds) will be subject to this which will impact the peregrines by reducing potential prey items or becoming adhered to peregrines preying on oil slicked birds. Oil spills can contaminate suitable habitat for both bird species and preferred food/prey items and can cause a degradation in habitat suitability which will in turn impact distribution as birds begin to alter foraging/hunting grounds for food impacting upon the population size and productivity rate of the species at the site.	There is potential for adverse effects in relation to the conservation objectives for this species. This would constitute a negative effect on site integrity. While the risk is low, measures are required to reduce this risk further.	Dingle Peninsula SPA 004153 (NPWS 2022) Iveragh Peninsula SPA 004154
Productivity rate	Number of fledged young per breeding attempt with known outcome	Sufficient to meet the population size target			
Distribution: extent of available nesting options within the SPA	Numbers and spatial distribution	Sufficient availability of suitable nesting sites throughout the SPA to maintain the population			
Extent and condition of suitable open habitats for foraging	Hectares; condition assessment; prey biomass	Sufficient availability of suitable foraging habitat across the SPA to support targets relating to population size, productivity rate and distribution			
Disturbance at breeding sites	Level of impact	Disturbance occurs at levels that do not significantly impact upon breeding peregrine			
Corncrake (*Crex crex*) * no site-specific conservation objectives were identified for this species, as such the following have been produced based on the conservation status and sensitivity of this species					

Population trend	Percentage change	Long term population trend stable or increasing	There is a low risk of a shipping oil spill occurring during the transit of HFO to the site which could affect birds by the oil sticking to their feathers, leeching into suitable habitat or entering the food chain toxifying food sources. Oil spills can contaminate suitable habitat for both bird species and preferred food/prey items and can cause a degradation in habitat suitability which will in turn impact distribution as birds begin to alter foraging/hunting grounds for food impacting upon the population size and productivity rate of the species at the site.	There is potential for adverse effects in relation to the conservation objectives for this species. This would constitute a negative effect on site integrity. While the risk is low, measures are required to reduce this risk further.	Inishbofin, Omey Island and Turbot Island SPA 004231
Population size	Number of occupied territories	Breeding population is increasing			
Productivity rate	Number of fledged young per breeding attempt with known outcome	Sufficient to meet the population size target			
Distribution	Number and range of areas used by waterbirds	No significant decrease in the number or range of areas used by waterbird species, other than that occurring from natural patterns of variation			
Distribution: extent of available nesting options within the SPA	Numbers and spatial distribution	Sufficient availability of suitable nesting sites throughout the SPA to maintain the population			
Disturbance at breeding sites	Level of impact	Disturbance occurs at levels that do not significantly impact upon breeding corncrake			

6.4 Mitigation Measures

6.4.1 Overview

Mitigation is prescribed in accordance with the EPA guidance on EIAR (EPA, 2022) that requires mitigation by avoidance as a first approach. Where avoidance is not feasible, measures to prevent impacts from giving rise to adverse effects will be adopted (e.g., design of bunded storage for chemicals). Where impacts cannot be avoided, e.g., generation of noise, reduction of the impact is required to limit the exposure of the receptor to an acceptable level (often achieved by interrupting the pathway between the source and receptor).

Mitigation is prescribed hereunder to address the impacts such that adverse effects on site integrity of the European sites does not occur.

Mitigation measures are set out in accordance with the European Commission guidance on the 'Assessment of plans and projects significantly affecting Natura 2000 Sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC' (2021).

Mitigation is described with respect to:

- how the measures will avoid/prevent/reduce the adverse impacts on the site to an acceptable level;
- the degree of confidence in their likely success;
- the timescale, relative to the project, when they will be implemented;
- how and when the measures will be monitored.

All mitigation prescribed in this NIS must be implemented by the appointed Contractor for the works, in consultation with the Developer's Ecologist. The Contractor will incorporate the mitigation measures outlined below into a Construction Environmental Management Plan (CEMP) for the Proposed Development and agree the CEMP with the Developer and the local authority in advance of mobilisation.

6.4.2 Pre-Construction Confirmatory Surveys

Given the dynamic distribution of species and habitats over time (e.g., due to other land clearance works), significant changes can arise between baseline surveys informing this NIS (2023), and construction. For example, otters may establish new holts or occupy previously inactive holes excavated by other animals; invasive species distribution, or dispersal by humans, animals, or water may have taken place etc.

In advance of any enabling works, the Environmental Clerk of Works (EnCoW) will commission pre-construction, confirmatory surveys of identified significant ecological receptors, to update the findings of the surveys outlined in Section 10.4, EIAR Chapter 10. Such surveys will specifically confirm and update presence, distribution etc. of such receptors. These will then be used to inform any revisions to proposed mitigation plans. The exact nature and number of pre-construction confirmatory surveys will depend on the time that has elapsed between when the original surveys were undertaken and works on the proposed Development start. As a minimum, the following will be needed ahead of any works:

- Otter holts and couches within 150m;

Should a longer period (+> 12 months) elapse between last survey and the start of works, other pre-construction surveys might also be needed, such as:

- Breeding birds within 253m;
- Wintering Birds within 253m;

Survey reporting and mapping will also be provided to the Employer's Representative team.

6.4.3 Disturbance Mitigation Measures

Construction Lighting

All temporary lighting associated with the construction works will be placed strategically by the appointed EnCoW, such that illumination beyond the works area is controlled. Lighting will be cowled and directional to reduce significant light splay.

Operational Lighting

Lighting will be cowled and directional to reduce significant light splay. Lighting at night will be via automatic sensors and will only activate when needed, focussing on buildings, away from natural areas, including the Shannon estuary and shoreline habitats.

Noise

- Noise will be sustained over a temporary period, particularly from piling works (if needed) and dismantling of the coal yard, and this has the potential to impact species using the shoreline. A noise barrier will, therefore, need to be erected around piling works and/or between the development site and the shoreline for the duration of piling works or other particularly noisy operations.
- It is noted that the development of the project design and construction methodology may result in a changes in the mitigation requirements for noise in order to comply with the relevant criteria. The assessment of noise impacts on the KER will be updated during the detailed design stage and the corresponding mitigation requirements will be confirmed based on latest and best available information.
- During operations, and based on noise modelling that has been conducted, noise levels will be below 55dB and will, therefore, have negligible effects on species. No additional mitigation is proposed during the operational phase.

6.4.4 Pollution Control Mitigation Measures

All pollution control measures will be designed, installed, and maintained in accordance with CIRIA guidance for '*Environmental Good Practice on Site'* (C741) and '*Control of water pollution from construction projects. Technical guidance*' (C648).

Delineation of Works Areas

Prior to the works commencing, the works area will be demarcated with construction fencing. No construction works will occur outside of the delineated areas.

Stockpiling Material

- All excavated material will be stored a minimum of 50m from the Shannon estuary and any drainage ditches hydrologically connected to the watercourse.
- Silt fences, or gravel drains, will be positioned around stockpiles to capture surface water runoff. The silt fences and gravel drains will be regularly inspected and maintained.
- The base of temporary stockpiles (including excavated and imported material) will be protected by silt fencing. Visual monitoring of the silt fence will be undertaken regularly and after significant rain. Silt fences will be repaired, replaced or reinforced as necessary to prevent migration of silt.
- Stockpiled material, comprising soil, earth, stone etc., will be covered in order to prevent surface water runoff.
- Sediment control in the construction stage is important to ensure that only high quality, treated runoff leaves the site. Erosion control measures to prevent runoff flowing across

exposed or excavated ground and becoming polluted with sediments will be provided for on-site if required during the construction stage. Erosion control measures include:

- Minimising the area of exposed ground and ensuring excavation will not proceed faster than the rate of construction.
- Monitoring of the weather forecast prior to planning excavation works.
- Other drainage runoff controls such as settlement tanks, silt fences and silt traps will be temporarily provided adjacent to excavations and installed before starting site clearance and earthworks if deemed necessary by the supervising Engineer.

Concrete

The pouring of concrete will be required for foundation works associated with the new fuel tanks and auxiliary boilers.

To prevent the runoff of concrete, the following measures will be implemented:

- If onsite concrete batching is required, this will need to take place in controlled, bunded area. Dust suppression will be required, and all materials needed for concrete production stored undercover from rain and/or within the bunded area to prevent runoff. Noise suppression techniques will be utilised at the batching plant and/or the plant will be placed within the required noise barrier.
- Quick setting concrete mixes will be used, where possible, to reduce the risk of contaminated runoff to nearby watercourses or the Shannon estuary.
- Wash down and washout of concrete transporting vehicles will not be permitted at the location of construction. Such wash down and washout activities will take place at a designated, contained, location on site or preferably at an appropriate facility offsite. Any concrete wash water will be retained temporarily on site, and prevented from entering the drainage network. The temporary storage will be in place until the management of the wash water (either treatment or disposal) is agreed with the appropriate agency and in accordance with the best practice and the CEMP.
- It will be ensured that covers are available for freshly poured concrete and these will be used to avoid wash off in the event of rain.
- As it will not be possible to cover the whole HFO bund floor while the concrete is drying, work will have to be undertaken only in a suitable weather window. It should also be noted that the HFO bund is a basin and as long as the shut off valve is closed, ther''s no possibility of any runoff. Attention will be paid to ensure that the shut off valve is closed during concreting operations. Existing IE Licence Emission Limit Values (ELVs) for all drainage from the site, including for pH on that line (SW2) will be complied with throughout the construction and operational phases.
- Waste concrete slurry will be allowed to dry and taken to a licensed waste depot for disposal.
- Concrete works will be scheduled during dry weather conditions whenever possible to reduce the elevated risk of runoff.

Operational discharge of process water

Process water, discharged during the operational phase and from the proposed auxiliary boiler house, will connect to the existing system which discharges to the Shannon Estuary at IEL emission point SW2. This process water discharge will be limited such that the overall discharge will not exceed the existing IEL flow limits of 25m^3/hour or 400m^3/day. In addition to this, the current monitoring requirements and emission limit values (ELVs) associated with discharge at SW2 will continue to be complied with (pH, mineral oil, suspended solids, and ammonia (as N)).

Hydrocarbons

- Where mobile equipment is required, e.g. generators, these will be housed in a suitably sized bund/'plant nappy' such that any leaks/spills are intercepted. All mobile equipment used at the proposed stormwater outfall will be stored within a plant nappy.
- Any chemicals and/or hydrocarbons required on site during the construction phase will be stored in designated, impermeable areas and be bunded or double skinned.
- Fuelling and lubrication of plant and equipment will be carried out on impermeable surfaces or using mobile drip trays, and will be restricted to the construction site compound only. No refuelling will be permitted to occur within 50m of the estuary or drainage ditches.
- All waste fuels, oils, and other hazardous wastes will be disposed of in accordance with the requirements of the Waste Management Acts 1996, as amended.
- Spill-kits and hydrocarbon absorbent packs will be stored in the cabin of each vehicle and operators will be fully trained in the use of this equipment and in when it should be deployed.
- Welfare/hygiene facilities will be located within the construction compound and contractor village, a minimum of 50m from any watercourse/drainage ditch.
- All water from wheel washes will be captured and removed from site and disposed of in line with Waste Legislation. No water will be discharged into any watercourses or drainage ditches.

Measures to prevent oil spills

Section 4 of this report outlines the measures and procedures that are already followed by oil tankers in transit, as well as during unloading of HFO at the pier. The section also sets out measures to be instigated in the event of an accidental oil spill during operations. These measures and procedures will continue to be implemented during the operational phase of the proposed development.

Additionally, ESB are also in the process of reviewing the following in consultation with Shannon Estuary Anti-Pollution Team SEA-PT:

- HFO delivery / unloading procedures;
- Stockpile of spill / emergency response equipment, including oil booms;
- Emergency / spill response procedures and agreements.

ESB are committed to providing the necessary equipment to satisfy SEA-PT and update procedures as required in advance of the filling of the proposed new HFO tanks.

6.4.5 Measures to prevent invasive species

Section 4 of this report outlines measures to be implemented to prevent the introduction of invasive non-native species during shipping. These measures are currently in place and will continue to be implemented during the operational phase of the proposed development.

6.4.6 Degree of Confidence in the Likely Success of the Mitigation Measure

All protection measures have been designed in line with Best Practice including CIRIA Guidance and following scientific literature and field baseline verification. As such there is a very high degree of confidence in their likely success.

6.4.7 How any Mitigation Failure will be Addressed

The mitigation measures prepared specifically for this development have been designed in line with Best Practice such as CIRIA guidance and follow scientific literature and Best Practice. The Mitigation Measures are considered to be robust and proven measures that will avoid adverse effects to European Sites.

Contingency measures will be in place for unforeseen events such as oil/fuel spillages, water pollution or any inadvertent release of sediment. This will ensure any unforeseen potentially adverse effects are identified in a timely manner and appropriate remedial action taken immediately. The EnCoW / Site Environmental Manager will have a 'stop-works' authority to temporarily stop works over part of the site to avoid an infringement of the Environmental Commitments or an unforeseen environmental event. Works will not be allowed to re-commence until the issue is resolved.

Control Measures listed in Section 4 of the associated Construction Environmental Management Plan (CEMP) are also relevant here.

6.5 Conclusion

The mitigation measures detailed in this NIS have been carefully considered to ensure there will be no adverse effects on the integrity of the European Sites specified and have been done so in light of these sites' conservation objectives and status.

Based on the assessment of the project alone, and in combination with other projects and plans, and including the implementation of mitigation measures, it can be concluded that no adverse effects on the sites' integrity, and in view of the sites' conservation objectives, will arise.

This NIS has been submitted on behalf of the developer of the project to enable the competent authority to conduct both a Stage 1 Screening for Appropriate Assessment in relation to the European sites outlined above and as appropriate, a Stage 2 Appropriate Assessment (AA).

This NIS assesses the potential for the project to adversely affect the integrity of relevant European sites. It has been prepared taking into account the precautionary principle and is based on the best scientific knowledge in the field.

For the reasons set out in detail in this NIS, in the light of the best scientific knowledge in the field, all aspects of the project which, by itself, or in combination with other plans or projects, which may affect the relevant European Sites have been considered.

The NIS contains information which the competent authority, may consider in making its own complete, precise and definitive findings and conclusions and upon which it is capable of determining that all reasonable scientific doubt has been removed as to the effects of the Project on the integrity of the relevant European sites.

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Appendices

A. Consultation Letter

Dear Aastha

Re: Strategic Infrastructure Development (SID) - Proposed transition and conversion of the existing c. 900 MW electricity generating station at Moneypoint, Co. Clare, from coal to heavy fuel oil and associated ancillary development.

Further to the above, your letter of the 08th September, and our subsequent meeting on the 20th September please see below the response from the Planning Authority of Clare County Council with regard to the stakeholder pre-application consultation phase of the upcoming Strategic Infrastructure Development application to An Bord Pleanála. In the preparation of this response the Planning Authority acknowledges the need for the proposed development as a temporary interim measure to cease coal fired production at Moneypoint and to facilitate the transition of the station to a strategic hub for the offshore wind industry (subject to a separate SID application) in line with the ESB's *"Net Zero by 2040"* strategy. The Planning Department also acknowledges the national strategic importance of Moneypoint to energy security and supply. This consultation response sets out the main policies, objectives, site specific information and planning considerations that the Planning Authority considers should be considered and addressed in the SID application.

Regional Spatial and Economic Strategy for the Southern Region

- *Promoting the conversion of Moneypoint electricity station by 2025 from burning fossil fuels. The RSES recognises the importance of Moneypoint as producer of 25% of national energy and its potential as a deep water port;*
- *There is significant opportunities to grow the Blue Economy through offshore wave and wind renewable energy in the Shannon Estuary and the west coast of County Clare, reflecting the key natural assets of wave and wind energy, together with the presence of grid connections*

Regional Policy Objective 79 (a)

The RSES recognises the national and international importance of the Shannon Estuary, its potential to attract multinational development and the significant work that has been undertaken to progress its promotion and development. It is an objective to support and promote the delivery of the Strategic Development Locations as set out in the SIFP for the Shannon Estuary subject to the implementation of mitigation measures outlined in the SEA and AA undertaken on SIFP and zoned in the Local Authority Development Plans.

Clare County Development Plan 2023-2029

The Clare County Development Plan 2023-2029, which was prepared in accordance with the requirements of the Planning and Development Act, 2000 (as amended), the Planning and Development (Strategic Environmental Assessment) Regulations 2004 (as amended 2011) and Article 6(3) of the Habitats Directive, sets out an overall strategy for the proper planning and sustainable development of the functional area of Clare County Council.

The Plan takes into account the National Planning Framework (NPF) and the Regional Spatial and Economic Strategy for the Southern Region (RSES), planning guidelines, strategies and policy documents. In the preparation of the application for the proposed development you are advised to have regard to the content of the Plan to ensure compliance with same. Specifically, you are advised to have regard to Volume 9 – Strategic Integrated Framework Plan (SIFP) for the Shannon Estuary and the Development Plan objectives listed below. The list of objectives sets out some of the main considerations from the Plan which are of relevance to the current proposal.

- CDP2.14 Transition to a Low Carbon Economy and Society
- CDP6.10 Shannon Estuary
- CDP6.17 Energy Supply
- CDP6.18 Green Technology
- CDP8.8 Natural Resources
- CDP8.12 Renewable Energy Development
- CDP11.41 Air Quality
- CDP11.43 SEVESO III Directive
- CDP11.44 Energy Security
- CDP11.45 Electricity Networks
- CDP11.47 Renewable Energy
- CDP11.48 Renewable Energy Strategy
- CDP11.49 Renewable Offshore Energy
- CDP11.50 Power Stations and Renewable Energy
- CDP11.51 Energy Storage
- CDP12.1 Strategic Integrated Framework Plan (SIFP) for the Shannon Estuary
- CDP12.2 Integrated Development of the Shannon Estuary
- CDP12.3 Marine-Related Industry/Large-Scale Industry on the Estuary
- CDP12.4 Strategic Development Locations
- CDP12.6 Strategic Development Location B – Moneypoint
- CDP12.8 Harnessing the Energy Resources of the Shannon Estuary
- CDP12.15 Building on the Shannon Estuary as an Environmental Asset
- CDP13.5 Offshore Renewable Energy (ORE) Development
- CDP15.3 European Sites
- CDP15.5 Natural Heritage Areas and proposed Natural Heritage Areas
- CDP15.9 Natural Heritage and Infrastructure Schemes
- CDP15.10 Environmental Impact Assessment
- CDP15.11 Brownfield Site Regeneration and Contaminated Land
- CDP16.8 Sites, Features and Objects of Archaeological Interest

Due to the site-specific nature of Development Plan Objective CDP12.6 the content of same is set out below.

It is an objective of Clare County Council:

a) *To safeguard the role and function of Strategic Development Location B – Moneypoint as a key strategic driver of economic growth in the country, facilitating its sustainable growth, operational expansion and diversification, in accordance with national and regional energy objectives.*
b) *To support the redevelopment of the Moneypoint power generation station site as a green energy hub and the development of the Shannon Estuary as a focal point for the offshore wind industry in Europe.*
c) *To support and facilitate the development of marine related industry on lands adjacent to Moneypoint which is compatible with the primary use of the SDL as a Strategic Energy Location.*
d) *To ensure that all proposed developments shall be in accordance with the Birds and Habitats Directive, Water Framework Directive and all other relevant EC Directives.*
e) *To ensure that all proposed development at Strategic Development Location B shall incorporate the Mitigation Measures as contained in the Strategic Integrated Framework Plan (SIFP) for the Shannon Estuary for ensuring the integrity of the Natura 2000 Network.*

The lands at Moneypoint zoned for *"Marine-Related Industry".* Lands zoned for such purposes "*provide for marine-related industry and large-scale uses that create a synergy with the marine use. Marine-related industry shall be taken to include the use of land for industry that, by its nature, requires a location adjacent to estuarine/deep water including a dependency on marine transport, transhipment, bulk cargo or where the industrial processes benefit from a location adjacent to the marine area".*

Strategic Integrated Framework Plan (SIFP) for the Shannon Estuary

The Clare County Development Plan 2023-2029 contains specific economic development objectives for the Marine Related Industry site at Moneypoint which seeks to harness the economic potential of the Estuary at this location and to capitalise on its natural deepwater characteristics for enhanced maritime activity as already outlined in this response. In addition, Volume 9 contains the Strategic Integrated Framework Plan for the Shannon Estuary which is accompanied by a separate Natura Impact Report and Strategic Environmental Assessment. The SIFP provides a strategic level of assessment in terms of future potential development. In particular, it highlights the key plan level surveys, investigations, data and mitigation measures which would be required for any such development in the estuary. Following the publication of the SIFP a significant implementation phase commenced which included the collation of key pieces of baseline information. Some of this baseline information is available through the local authority if deemed necessary to the project assessment. This baseline information serves to reduce the lead in time required in terms of capturing some of this baseline information for example in relation to Bird Usage and should be explored in terms of its applicability to your investigations. Clare County Council would advise careful consultation with Volume I and associated volume of mitigation measures (Volume II) of the SIFP.

Mitigation measures should be reviewed in terms of relevance and applicability to the proposed development. In particular, requirements of MMO and Ecological Clerk of Works on site and throughout project should they be deemed necessary. The project should also be framed in the context of the SIFP and its associated objectives for the Moneypoint site demonstrating compliance or compatibility with those pertaining to Energy and Marine Related Industry in particular.

Recent Planning History

Moneypoint Site

91-744 – Granted - Electricity Supply Board - Permission to erect a chain link fence at E.S.B. Moneypoint Generating Station.

91-1102 – Granted - Electricity Supply Board - Permission to construct single storey security building and stores.

92-777 – Granted - Electricity Supply Board - Permission to construct single storey extension to existing administration building.

93-659 – Granted - Electricity Supply Board - Permission for the construction of a Conveyor Housing and Vehicle Building.

93-860 – Granted - Electricity Supply Board - Permission for an administration block extension (above existing single storey building) at Moneypoint Generating System.

99-797 – Granted - Electricity Supply Board - to construct an Ash Benefication Process Plant, ash storage silos, compressor building, access roadway.

99-1390 – Granted - ESB Power Generation - for the erection of a 40m anemometer mast.

01-1538 – Granted - Electricity Supply Board - Wind Energy Project. - 9 wind turbines, each having a rated electrical output of up to 2,500 kilo watts. Each wind turbine will comprise a tower about 68 metres high, with a diameter of about 4 metres at the base and 3 metres at the top.

03-625 – Granted - Electricity Supply Board - for an Environmental Retrofit Project , the project will abate emissions of Sulphur dioxide (SO2) and oxides of nitrogen (NOx) to comply with the conditions of the station's Integrated Pollution Control (IPC) Licence, it will involve installation of Dry Flue Gas Desulphurisation (FGD) technology to reduce emission of SOx from the chimneys, installation of NOx reduction equipment and construction of purposely engineered landfill areas, within the confines for the station site, for storage and disposal of conditioned FGD by-product, the proposed development is subject to the conditions of Integrated Pollution Control Licence No.605 from the Environmental Protection Agency, an Environmental Impact Statement submitted with application.

06-935 – Granted - Electricity Supply Board - for the construction of a new canteen building at Moneypoint Generating Station, Carrowdotia South, Kilrush, Co. Clare.

06-1286 – Incomplete application.

06-2595 – Incomplete application.

07-2701 – Granted - Electricity Supply Board - to construct a Mechanical and Electrical Workshop Building on the Moneypoint Generating Station property. The building will be 10 meters wide by 25 meters long and 6.4 meters tall. The building will have a structural steel frame with solid block and profiled metal cladding facade to match existing buildings.

08-1849 – Granted - ESB Telecoms - to erect a 30-metre high, free standing lattice type communication structure, carrying antennae and communication dishes to provide for future third party co-location, including 3 no. 3.9m high omni antennae for Tetra Ireland's communication infrastructure with associated ground mounted equipment cabinets, shared with third party operators, within a 2.4-metre-high palisade compound at ESB's Moneypoint disused Switching Station.

11-457 – Granted - EirGrid Plc - for the development of electrical transmission infrastructure and associated works at and adjacent to the site of an existing 400kV substation site at Moneypoint Power Station complex. The proposed development comprises the following elements: A new indoor Gas Insulated Switchgear (GIS) 400kV substation; A new indoor Gas Insulated Switchgear (GIS) 220kV substation; A new indoor Gas Insulated Switchgear (GIS) 110kV substation; Two new 400/220kV transformers with associated switchgear and connections to new indoor 400kV and 220kV substations; A new 220/110kV transformer with associated switchgear and connections to new indoor 220kV and 110kV substations; Transfer of existing 400kV, 220kV and 110kV connections from the existing substation to the new 400kV, 220kV and 110kV substations, De-commissioning of existing 220kV and 110kV switchgear and 400kV/220kV Transformer; and Relocation of the existing waste segregation area to an area South West of the proposed development within the Moneypoint complex.

12-17 – Incomplete application.

12-74 – Granted (at appeal) - ESB Wind Development - for a 10-year Planning Permission for a Wind Farm Project at Moneypoint Generating Station. The development will consist of five wind turbines each having a rated electricity output of approximately 3,000 kilowatts, modification of the existing high voltage Electrical Transformer Station to house additional electrical equipment and an additional single-storey Control Building, two anemometer masts and all associated site works, above and below ground. Each wind turbine will have an overall maximum dimension of 152 meters, comprising a tower 95 - 100 meters high, with a diameter of about 4 meters at the base, to which 3 blades of 52 - 55 meters length will be attached. An Environmental Impact Statement will be submitted to the Planning Authority with the Application.

13-492 – Incomplete application.

13-573 – Granted - ESB Telecom Ltd - for the continued use of the existing 30 metre high, free standing lattice type communication structure, carrying antennae and communication dishes to provide for future third party co-location, including 3 No 3.9m high omni antennae for Tetra Ireland's communication infrastructure with associated ground mounted equipment, shared with third party operators, within a 2.4-metre-high palisade compound at ESB's Moneypoint Disused Switching Station.

14-190 – Granted - EirGrid PLC - for development at the existing 400 kV substation site, which consists of: A new indoor Gas Insulated Switchgear (GIS) 400 kV substation building (3463m2), 17m high, Two new 400/220 kV transformers with associated Switchgear, Three new 30-meter-high lightning masts, and associated drainage and site works. The application relates to previous grant of planning permission reg. ref. P11-457.

14-373 – Granted - ESB Power Generation & Wholesale Markets Division - for development which will consist of works to the existing 32 HA ash repository site located within the Moneypoint generating station complex. A 20-year planning permission is requested. The development will take place within the footprint of the existing repository and comprises an increase in the height of same from the existing maximum level above ordnance datum which is currently 19.5m OD to a proposed maximum level above ordnance datum of 28.4m OD. This will accommodate 1.8 million cubic meters of additional material deposition. Also, modifications to the existing embankments and drainage systems. A licence under part IV of the EPA Act 1992 has been issued and full details will be notified to the EPA. An Environmental Impact Statement and a Natura Impact Statement accompany this application. The European Communities (Control of Major Accidents Hazards involving Dangerous Substances) Regs 2006 applies.

15-81 – Granted - ESB Wind Development Ltd - for a 10-year planning permission for development at Moneypoint Generating Station. The development will comprise an electrical transformer station consisting of two single-storey buildings with associated outdoor electrical equipment, including transformers, lightning protection masts, effluent holding tank, internal roads, boundary fencing around the perimeter of the compound and all associated site development works above and below ground. The proposed development is an amendment to the previously approved electrical transformer station at Moneypoint Wind Farm (CCC Ref: 12-74 APB Ref: PL03.241624).

16-616 – Granted - EirGrid PLC - to Extend the Appropriate Period of Planning Permission P11-457 for the development of electrical transmission infrastructure and associated works.
17-809 – Granted - ESB Power Generation and Wholesale Market - for development which will consist of two water storage tanks above ground level and an underground pump chamber located within the Moneypoint generating station complex. The proposed development will take place within the existing footprint of the site and consists of an underground pump chamber (V=60m3), that will collect the rainwater from two existing runoff lines and pump it to two water storage tanks 1,000m3 and 2,000m3 to facilitate the retainment of surface water from the site prior to discharge from licensed facility discharge point already on the site. This application relates to a site for which a licence under Part IV of the Environmental Protection Agency Act 1992 (as amended for the Protection of the Environment Act, 2003) has been issued (EPA Reg. Ref. P0605-03).

18-520 – Granted - The Electricity Supply Board - for development on lands in the townland of Carrowdotia South, Killimer, Co. Clare; located inside the Moneypoint Generating Station (Eircode V15R963) which is licensed by the Environmental Protection Agency under an Industrial Emissions (IE) Licence (Ref. P0605-03) and an Upper Tier COMAH site and therefore falls under the requirements of the Control of Major Accident Hazard Regulations (COMAH) Regulations, 2015. The development will consist of a c.7.5 MW capacity battery storage facility within a secured compound, on a 0.42 Ha site, and will subject to detailed design, commercial and technical considerations, include: (a) up to 3 No. battery storage units (each typically comprising a containerised battery (c.12.2m x 2.5m x 3.2m), HVAC (c2.7m x 2.7m), inverter (c. 3m x3m) and transformer (c3.3m x3.3m); (b) a 28 sq. m single storey substation control building; (c) a 28 sq. m single-storey switchgear building; (d) ancillary electrical plant including a transformer and var support unit; (e) a c. 15.6m high lightning mast and c. 18m high SCADA communications mast; (f) a 2.6m high chain-link fence and vehicular access gates via the existing station road to the south of the site; (g) ancillary site works including site clearance and the installation of site services.

19-746 – Granted - The Electricity Supply Board - for development on a c. 1.8 ha site located within Moneypoint Generating Station, Carrowdotia North and Carrowdotia South, Killimer, County Clare (Eircode V15 R963) which is licenced by the Environmental Protection Agency (EPA) under an Industrial Emissions (IE) Licence (Ref.P0605-04) and Upper Tier COMAH site and therefore falls under the requirements of the Control of Major Accident Hazard Regulations (COMAH) Regulations, 2015. The development, which will be located within a fenced compound c. 0.94 ha. will consist of a 300 to 400 MVA (electrical rating) synchronous condenser, including the following elements: a) a Generator and Flywheel building (c. 962 sq.m., c. 15m high) to house equipment including the generator, flywheel, lube oil skid, air compressor and pumps; b) supporting items of plant located within the compound including *cooling equipment (c. 690 sq.m., c. 3m high); *c. 7m high modular containers to house electrical and control equipment (total area of c. 384sq.m); *a generator step-up transformer (c.150 sq.m c. 8m high), auxiliary transformer (c. 48 sq.m., 7m high) and electrical plant including an external circuit breaker (c 66 sq.m., c. 9m high); *fire fighting water tank (c. 7m dia., c. 8m high, pump house (c. 21 sq.m., c. 3m high); and * an above-ground oil separator and collection pit (c. 72sq.m.) connections to existing site services networks including electrical, water and wastewater and an underground surface water attenuation tank connecting to existing surface water drains; c) all other ancillary and miscellaneous site works including site clearance; site access, internal roads and development of areas of hard standing including a maintenance lay-down area; and d) the development will be bounded by a c. 3m high chain link fence. Site access will be by means of a new c. 2.7 m high palisade gate accessed from existing roads within the station site. Planning Permission is being sought for a duration of 10 years.

20-318 – Granted - The Electricity Supply Board - for development on a c. 2.7 ha site located within Moneypoint Generating Station, Carrowdotia North and Carrowdotia South, Killimer, County Clare (Eircode V15 R963) which is licenced by the Environmental Protection Agency (EPA) under an Industrial Emissions (IE) Licence (Ref. P0605-04) and an Upper Tier COMAH site and therefore falls under the requirements of the Control of Major Accident Hazard Regulations(COMAH) Regulations, 2015. The development, which will be located within a

fenced compound c. 0.4 ha, will consist of a up to 400 MVA (electrical rating) synchronous condenser which shares the existing 400 KV/17 kV transformer and 400kV underground cable belonging to the existing coal fired unit 2. The following plant will be included within the compound: (a) main building (c. 420sq.m., c. 15m high) to house equipment including the synchronous condenser, flywheel, lube oil skid, air compressor and pumps. (b) supporting items of plant including; cooling equipment (c. 690sq.m., c. 3m high); c. 7m high modular containers to house electrical and control equipment (total area of c. 384sq.m.); auxiliary transformer (c. 48sq.m., 7m high) and electrical plant including an external circuit breaker (c. 66sq.m., c. 9m high); connections to existing site services networks including electrical, water and wastewater and an underground surface water attenuation tank connecting to existing surface water drains. (c) all other ancillary and miscellaneous site works including site clearance, site access, internal roads, and development of areas of hard standing including a maintenance laydown area. (d) the development will be bounded by a c. 3m high chain link fence. Site access will be by means of a new c. 2.7 m high palisade gate accessed from a new internal road within the station site. PERMISSION is also sought to continue the use of the existing underground cable grid connection, including the 400kV/17kV transformer and 400 kV underground cable belonging to the existing coal fired Unit 2 for use by the synchronous condenser into the future. Planning PERMISSION is being sought for a duration of 10 years. This application represents a relocation within Moneypoint of a similar application permitted by Clare County Council under Reg. Ref. P19/746. A Natura Impact Statement (NIS) has been prepared and accompanies this planning application.

23-32 – Granted - The Electricity Supply Board (ESB) - For development within the Moneypoint Generating Station, Carrowdotia North and Carrowdotia South, Killimer, County Clare (Eircode V15 R963) which is licenced by the Environmental Protection Agency (EPA) under an Industrial Emissions (IE) Licence (Ref P0605-04) and an Upper tier COMAH site and therefore falls under the requirements of the Control of Major Accident Hazard Regulations (COMAH) Regulations, 2015. The development, which will be located at various locations within the station complex, will consist of land-based site Investigation (SI) works comprising of boreholes and trial pits across the site.

Environs

02-374 – Granted - Sean Browne - to construct a slatted shed with all ancillary services.

05-1320 – Granted - Fr. Patrick O'Neill - to erect dwelling house, garage, septic tank and foul sewer treatment plant.
06-1005 – Withdrawn - Sean McGowan - to demolish and replace existing dwellinghouse and to upgrade existing sanitary services.

06-1745 – Granted - Joseph Kelly - for a livestock slatted unit and livestock slatted unit with calving pens.

07-2365 – Granted - Kevin Burke - for the construction of a sun lounge to existing dwellinghouse.

16-337 – Granted - Michael Downes - to construct dwelling house garage, foul sewer treatment system and percolation area plus all ancillary site works.

16-1011 – Granted - EirGrid PLC - with the consent and approval of the Electricity Supply Board, for works associated with the refurbishment of the existing Moneypoint - Oldstreet 400 kV overhead line within the various townlands as set out in the newspaper and site notices that form part of this application. (Please refer to these notices for a full detailed description of the proposed development.)Please also note that a Natura Impact Statement (NIS) accompanies this application.

20-668 – Granted - M. Gilligan - to erect extension to dwelling house include first floor living area.

21-1399 – Granted - Gerard & Assumpta Moloney - for a single storey extension to a single storey house and a priority wastewater treatment and ancillary site works.

Natural Heritage

The Moneypoint Site includes a marine area within the estuary to the south of the power station This area is located within the Lower River Shannon Special Area of Conservation (SAC) and the River Shannon and River Fergus Estuaries Special Protection Area (SPA). It is noted that an Appropriate Assessment Screening Report and a Natura Impact Statement (NIS) will be prepared in respect of the proposed development, so as to enable the competent authorities to carry out an Appropriate Assessment.

Environmental Impact Assessment

The Planning Authority notes that an Environmental Impact Assessment Report (EIAR) will accompany the SID application. The content of the EIAR will be assessed by the Planning Authority at application stage. The areas outlined in your letter for which detailed assessments will be carried out are generally agreeable. Given the requirement for tankers arriving at Moneypoint will significantly decrease as a result of this transition the EIAR should clearly demonstrate the positive impact this will have on emissions and air quality within the surrounding area together with the removal of overspill to the Lower River Shannon SAC at the jetty. These positive impacts of the project are key elements in demonstrating the need to transition to a low carbon or carbon neutral economy and the benefits to not just our European sites and their associated Conservation Objectives but to Biodiversity on whole.

Archaeological and Architectural Heritage

The following recorded monuments are located within the site and its environs.

- CL067-035 – Earthwork.
- CL067-041 – Ringfort Rath.
- CL067-042 – Ringfort Rath.
- CL067-043 – Ringfort Rath.
- CL067-050 – Ringfort Rath.
- CL067-051 – Ringfort Rath.
- CL067-033 – Ringfort Rath.
- Cl067-034 – Ringfort Rath.
- Cl067-040 – Ringfort Rath.
- Cl067-045 – Ringfort Rath.

The Planning Authority notes that the EIAR is to include an assessment of the potential impacts on Cultural Heritage and the content of same will be assessed at application stage.

Adjacent Amenities

The immediate environs of the Moneypoint site comprise a mix of agricultural farmland, rural dwellings, a section of the national road network, and the estuary. The Planning Authority notes that the proposed content of the EIAR will provide an assessment of the issues related to the transition of the electricity generating station from coal to heavy fuel oil and this will be assessed during the SID application process.

Visual Amenities

Issues pertaining to impacts on the visual amenities of the area are to be addressed under the *"Landscape"* section of the EIAR. Based on the available information, the Planning Authority has no objection to the proposed development on visual amenity grounds (i.e. partial decommissioning of the existing coal handling plant/buildings and the proposed construction and landfilling arrangements).

Conclusion

The information and comments as set out in this consultation response are intended to assist the Electricity Supply Board in the consideration of the relevant issues during the preparation of the Strategic Infrastructure Development application. As outlined in the response, full consideration of these issues, and any other planning issues which may arise during the application, will be full assessed by the Planning Authority during the SID process, and further comment will be provided to An Bord Pleanála at the appropriate time. In the interim, please note that the Planning Authority is available to provide any additional feedback and information to The Electricity Supply Board on request, and please do not hesitate to make contact in this regard.

Garreth Ruane
Senior Executive Planner
17th October 2023

An Roinn Tithíochta,
Rialtais Áitiúil agus Oidhreachta
Department of Housing,
Local Government and Heritage

Your Ref: 229101323
Our Ref: G Pre00216/2023
(Please quote in all related correspondence)

6 October 2023

Mott MacDonald
South Block
Rockfield
Dundrum
Dublin 16
D16 R6V0

Via email to: aastha.sethi@mottmac.com

Proposed Pre Planning Development: Strategic Infrastructure Development (SID), in line with the provisions of S.37 of the Planning and Development Act 2000 (as amended) – for the proposed transition and conversion of the existing c. 900 MW electricity generating station at Moneypoint, Co Clare, from coal to heavy fuel oil and associated ancillary development

Dear Sir or Madam,

I refer to correspondence received in connection with the above.

Outlined below are heritage-related observations/recommendations of the Department co-ordinated by the Development Applications Unit under the stated headings.

Nature Conservation

The Department welcomes the pre-application consultation from Mott MacDonald on behalf of the Electricity Supply Board (ESB), who is seeking planning consent from An Bord Pleanála for the proposed transition and conversion of the existing c. 900 MW electricity generating station at Moneypoint, Co Clare, from coal to heavy fuel oil and associated ancillary development. These observations are intended to assist you in relation to identifying potential impacts on European sites, other nature conservation sites, and biodiversity and environmental protection in general, in the context of the current proposal. The observations are not exhaustive, and are made without prejudice to any recommendation that may be

made by this Department in the future. Data collected and surveys carried out in connection with this proposed development may raise other issues that have not been considered here.

The proposed development is located partially within and adjacent to the overlapping European sites, Lower River Shannon Special Area of Conservation (SAC) (Site Code: 002165) and River Shannon and River Fergus Estuaries Special Protection Area (SPA) (Site Code: 004077). Mott MacDonald have stated an Environmental Impact Assessment Report (EIAR), Appropriate Assessment Screening Report and a Natura Impact Statement (NIS) will be prepared in respect of the proposed development. Available guidance should be followed in preparing the NIS, noting any relevant changes brought about by case law of the Court of Justice of the European Union. Site specific conservation objectives are available for the two sites, along with accompanied backing documents and GIS datasets for habitats and species. In addition, ecological information is available through various assessments produced for the site for different proposals over time. Other plans and projects of potential relevance to in combination effects include: the existing Moneypoint Generating Station and other proposals at the site; other developments in the area, relevant plans including the Shannon Estuary 'Strategic Implementation Framework Plan' (SIFP), Regional Planning Guidelines, the County Development Plan and Local Area Plan.

The Departments recommends the following for consideration:

- The proposed coal to heavy fuel oil conversion at Moneypoint will increase the traffic of delivery oil tankers in the outer estuary. While it is understood that the storage capacity will only be doubled, the extent of increase in tanker traffic is not yet known. There are three potential conservation issues arising from this increased traffic:

  – Cumulative increase in underwater noise

  – Increase in risk of oil spill in the outer estuary

  – Increase in risk of introduction of invasive marine organisms

  The risk of these impacts need to be fully assessed in the EIAR and NIS. Conservation objectives for the SPA's and SAC mentioned below are available at https://www.npws.ie/protected-sites.

- The Department notes the proposal for two new large HFO oil tanks on site (50,000 tonnes). Potential impacts from accidental oil discharge during loading or transport, catastrophic explosion and oil release should be considered in detail.

  – As heavy fuel oil is relatively viscous, oil spills present a particular risk to seabirds and estuarine habitats, and are also relatively difficult to clean-up. While oil spills are reducing in frequency, and many physical measures (such as double hulled vessels) are now obligatory, nevertheless, the grounding of the cargo ship Princess Vanya on the Tail of Beal Bar sand/cobble bank (west of Dooneen Point in Co. Kerry), in the outer Shannon estuary in 2001[1], was a reminder that human error remains a source of incidents, although there was no oil spill on that occasion. During winter, while the flow tide has its strongest current in the middle of the estuary off Beal Point, the ebb flow tide becomes stronger nearer to Beal Point[2], and this, combined with a north-westerly wind, could carry surface oil which entered the narrow part of the estuary back onto the coast, from a spill originating in the Beal Bank area.

  – The Beal Strand area, within the River Shannon and River Fergus Estuaries SPA (Site Code: 004077), provides an important feeding and/or roosting site for the following species: white-bellied brent goose, wigeon, cormorant, ringed plover, golden plover, grey plover, lapwing, bar-tailed godwit, greenshank, redshank and black-headed gull. Twelve roost sites have been recorded along this stretch of coast. Further east, on the Kerry coast in this SPA, Ballylongford Bay contains roosting and feeding areas for the above species (except cormorant), as well as for shelduck, teal, curlew and dunlin. Depending on the time of year, divers, gannets, shearwaters, guillemots, razorbills and terns can also occur in the open sea near the shipping lane. Oil spills can affect seabirds originating from distant protected sites, and also at considerable distances from a large spill[3], so it is recommended that both offshore and onshore SPA's in the region are included in the NIS and risk assessment for oil spills, and particularly the following: Magharee Islands SPA (Site Code: 004125), Blasket Islands SPA (Site Code: 004008), Skelligs SPA (Site Code: 004007), Loop Head SPA (Site Code: 004119), Mid-Clare Coast SPA (Site Code: 004182), Cliffs of Moher SPA (Site Code: 004005), Tralee Bay complex SPA (Site Code: 004188).

[1] Marine Casualty Investigations Board [2006] Report into the grounding of the "Princess Vanya" in the Shannon Estuary on 1 December 2001. https://www.mcib.ie/_fileupload/Documents/reports/Princess_Vanya.pdf
[2] Fig. 6 in Fouz, D.M. et al. (2022) Tidal stream energy potential in the Shannon Estuary. Renewable Energy 185: 61-74.
[3] E.g. Castege, I. et al. (2007) Estimating actual seabirds mortality at sea and relationship with oil spills: Lesson from the "Prestige" oil spill in Aquitane (France). Ardeola 54: 289-307.

- In addition to the potential impact on birds, coastal habitats listed for conservation in the Lower River Shannon SAC (Site Code: 002165) also occur on the shore of the outer estuary. As oil can be more persistent in soft-sediment ecosystems[4], the EIAR and NIS should separately assess these habitats and how they might be protected in the event of an oil spill in the outer estuary. These habitats include: Subtidal sandbanks (1110), Benthic habitats of estuaries (1130) and large shallow inlet and bays (1160), Intertidal sandflats and mudflats (114), Atlantic salt meadows (1330) and Mediterranean salt meadows (1410).

- The assessment should also address the question of the availability of sufficient oil booms to be rapidly deployed on the Clare and Kerry coasts in the case of an oil spill. The Shannon Estuary Anti-Pollution Team (SEA-PT) have prepared a Wildlife Response Procedure, and an updated (2020) Shannon Estuary Oil Spill Contingency Plan[5]. Studies of previous oil spills have indicated the value of contingency planning in reducing long-term ecological impacts[6]. However, the EIAR and NIS should also focus on measures to reduce the risk of an oil spill occurring, in relation to international best practice for tankers entering protected areas.

- The Department notes the final decommissioning of site is to be the subject of a separate planning application, but any impacts (such as contaminated soil) may need to be assessed within this application if being rebuilt upon.

- A description of shoreline habitats near the jetty will be required and details of any new infrastructure required for jetty should be described in full.

- Construction noise disturbance should be considered in detail.

- Air dispersal modelling should be considered as part of the Environmental Impact Assessment.

- The Department notes a lesser horseshoe bat roost on site.

The above observations/recommendations are based on the papers submitted to this Department on a pre-planning basis and are made without prejudice to any observations that

[4] Culbertson, J.B., et al. (2008) Long-term consequences of residual petroleum on salt marsh grass. Journal of Applied Ecology 45: 1284-1292.
[5] http://www.seapt.ie/wp-content/uploads/2013/03/Wildlife-Response-Procedure-V1-3.pdf; http://www.seapt.ie/wp-content/uploads/2021/02/Shannon-Estuary-OSCP_Final-Approved_CoreDoc.pdf
[6] Barron, M.G. et al. (2020) Long-term ecological impacts from oil spills: comparison of Exxon Valdez, Hebei Spirit and Deepwater Horizon. Environmental Science and Technology 54: 6456-6467.

the Minister may make in the context of any consultation arising on foot of any development application referred to the Minister, by the planning authority/ies, in her/his role as statutory consultee under the Planning and Development Act, 2000, as amended.

You are requested to send any further communications to this Department's Development Applications Unit (DAU) at: manager.dau@npws.gov.ie

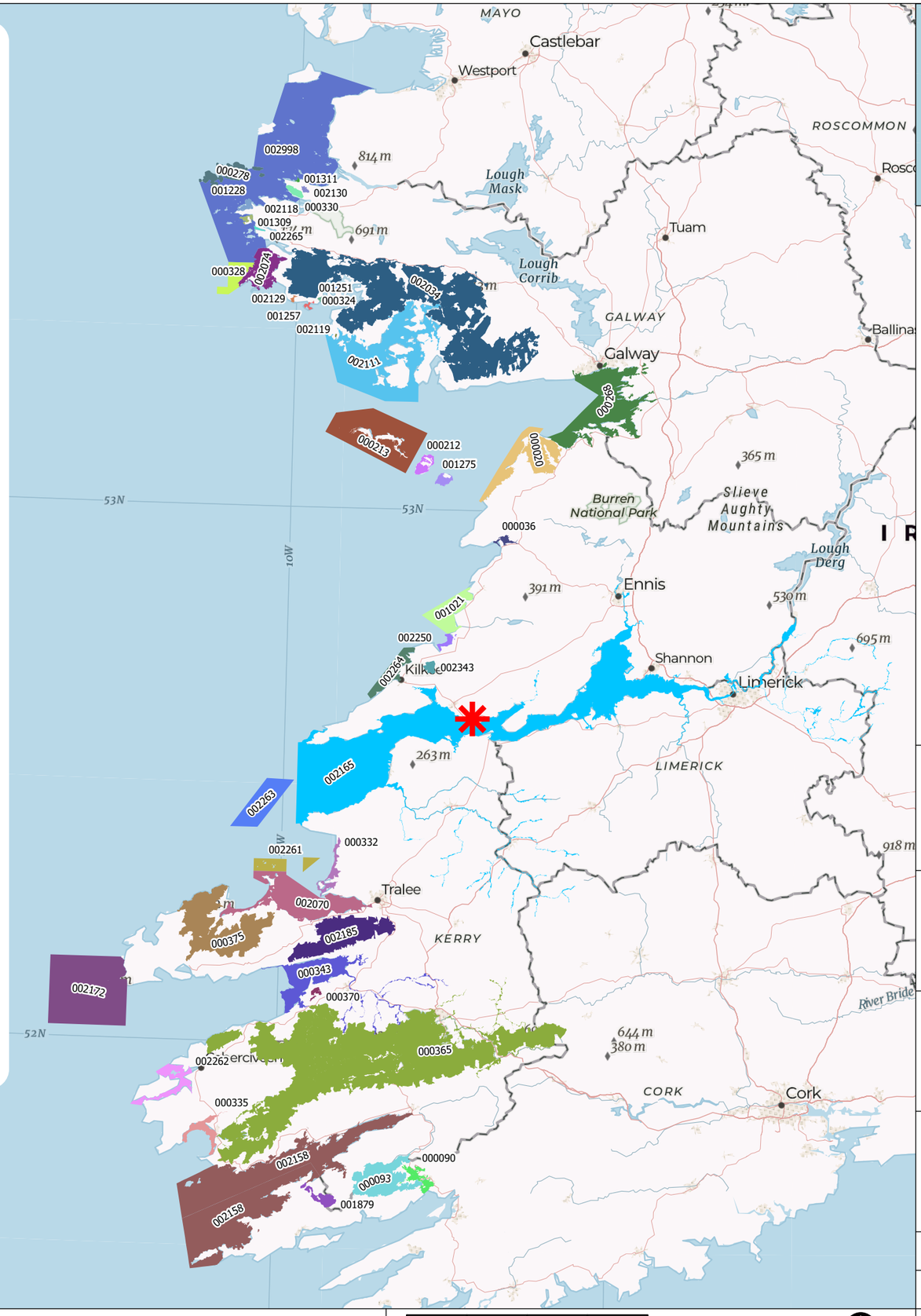
Yours faithfully,

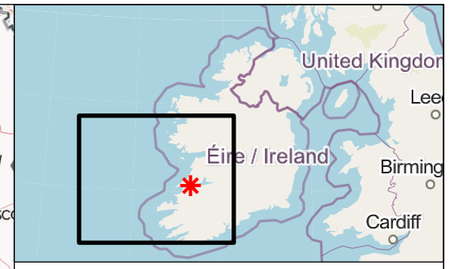
Brian Bone
Development Applications Unit
Administration

B. SAC and SPA Figures

SAC Name List

- 000020 Black Head-Poulsallagh Complex SAC
- 000036 Inagh River Estuary SAC
- 000090 Glengarriff Harbour and Woodland SAC
- 000093 Caha Mountains SAC
- 000212 Inishmaan Island SAC
- 000213 Inishmore Island SAC
- 000268 Galway Bay Complex SAC
- 000278 Inishbofin and Inishshark SAC
- 000324 Rosroe Bog SAC
- 000328 Slyne Head Islands SAC
- 000330 Tully Mountain SAC
- 000332 Akeragh, Banna and Barrow Harbour SAC
- 000335 Ballinskelligs Bay and Inny Estuary SAC
- 000343 Castlemaine Harbour SAC
- 000365 Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC
- 000370 Lough Yganavan and Lough Nambrackdarrig SAC
- 000375 Mount Brandon SAC
- 001021 Carrowmore Point to Spanish Point and Islands SAC
- 001228 Aughrusbeg Machair and Lake SAC
- 001251 Cregduff Lough SAC
- 001257 Dog's Bay SAC
- 001275 Inisheer Island SAC
- 001309 Omey Island Machair SAC
- 001311 Rusheenduff Lough SAC
- 001879 Glanmore Bog SAC
- 002034 Connemara Bog Complex SAC
- 002070 Tralee Bay and Magharees Peninsula, West to Cloghane SAC
- 002074 Slyne Head Peninsula SAC
- 002111 Kilkieran Bay And Islands SAC
- 002118 Barnahallia Lough SAC
- 002119 Lough Nageeron SAC
- 002129 Murvey Machair SAC
- 002130 Tully Lough SAC
- 002158 Kenmare River SAC
- 002165 Lower River Shannon SAC
- 002172 Blasket Islands SAC
- 002185 Slieve Mish Mountains SAC
- 002250 Carrowmore Dunes SAC
- 002261 Magharee Islands SAC
- 002262 Valencia Harbour/Portmagee Channel SAC
- 002263 Kerry Head Shoal SAC
- 002264 Kilkee Reefs SAC
- 002265 Kingstown Bay SAC
- 002343 Tullaher Lough and Bog SAC
- 002998 West Connacht Coast SAC





✱ Proposed Site Location

Projection: Transverse Mercator; Datum: IRENET95

Data sources: Map data © OpenStreetMap contributors, Microsoft, Facebook, Inc. and its affiliates, Esri Community Maps contributors, Map layer by Esri, Esri, TomTom, Garmin, Foursquare, FAO, METI/ NASA, USGS

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ESB Energy for generations

Moneypoint Security of Supply

SAC Mapping

Drawn	GIS Checked	Checked	Approved
X Wan	E Tiri	E Tiri	E Taylor
Scale at A3	Status	Revision	Security
1:1,000,000	INF	01	STD

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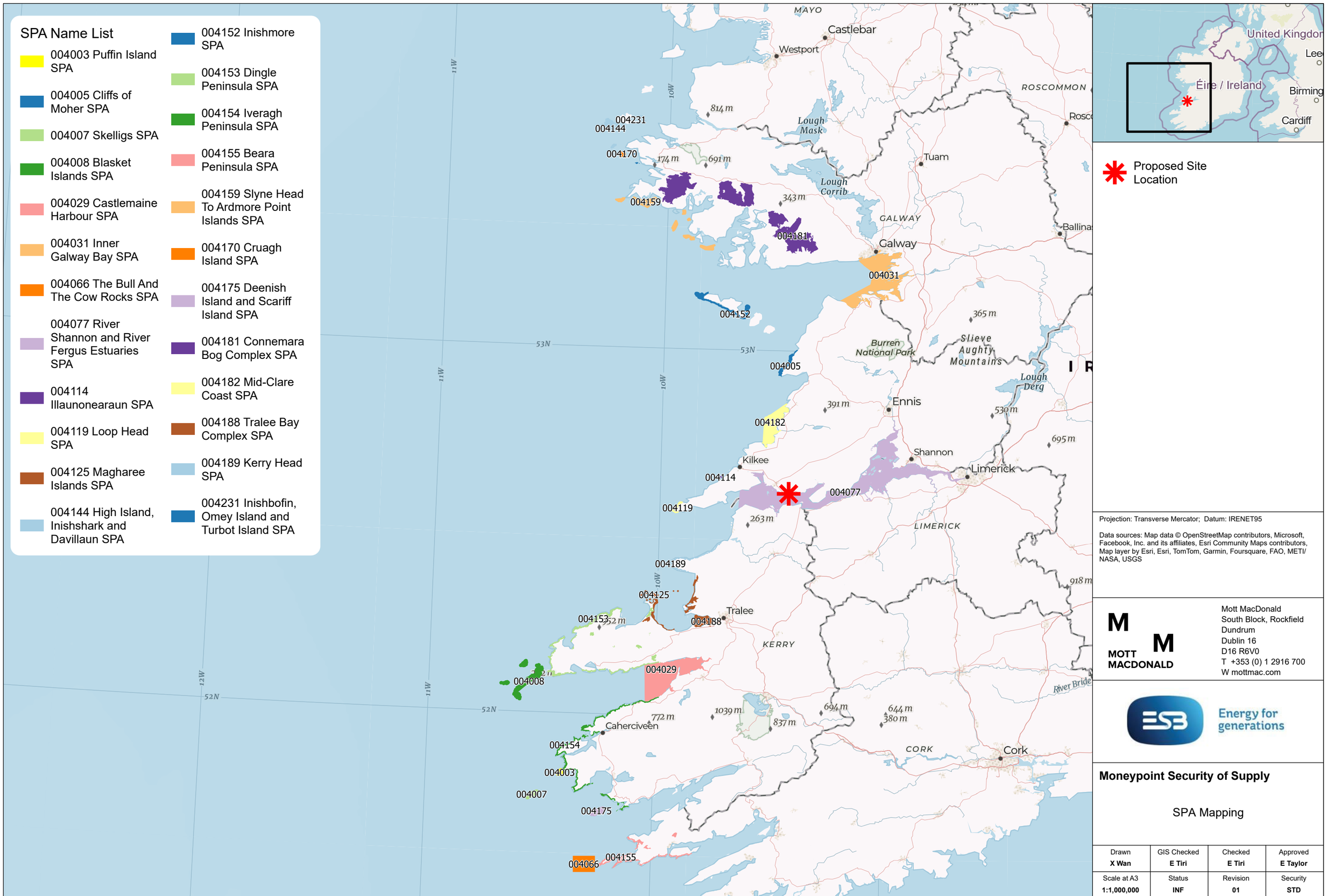

Proposed Site Location

Projection: Transverse Mercator; Datum: IRENET95

Data sources: Map data © OpenStreetMap contributors, Microsoft, Facebook, Inc. and its affiliates, Esri Community Maps contributors, Map layer by Esri, Esri, TomTom, Garmin, Foursquare, FAO, METI/ NASA, USGS

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ESB Energy for generations

Moneypoint Security of Supply

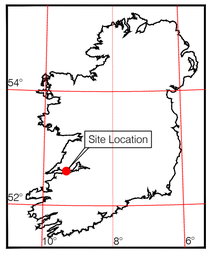
SPA Mapping

Drawn	GIS Checked	Checked	Approved
X Wan	E Tiri	E Tiri	E Taylor
Scale at A3	Status	Revision	Security
1:1,000,000	INF	01	STD

229100682-MMD-GIS-DR-0006

C. Drawings

- Strategic Site Location Map (Drawing Ref: QP-000017-65-D451-001-001-000)
- Site Location (Aerial) (Drawing Ref: QP-000017-65-D451-003-001-000 to 003-003-000)
- Proposed Site Layout Overview (Drawing Ref: QP-000017-65-D451-005-001-000 to 005-003-000)
- Lighting Details (Drawing Ref: QP-000017-65-D451-018-001-000)



LEGEND:

- PLANNING APPLICATION BOUNDARY
- OWNERSHIP BOUNDARY
- AREA OUTSIDE PLANNING APPLICATION BOUNDARY

SCALE 1:20000

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THIS DRAWING UTILISES ORDNANCE SURVEY MAP SHEET NUMBERS; OS0814_D & OS1014_D

TAILTE ÉIREANN LICENCE NO. EN 0023719-24
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REV	DATE	REVISION DESCRIPTION	DRN	PROD	VER	APP
000	12.2023	ISSUED FOR PLANNING	AB	HG	ED	JH

PURPOSE OF ISSUE - PRELIMINARY UNLESS INDICATED

CLIENT APPROVAL ☐ PLANNING ☒ TENDER ☐ CONSTRUCTION ☐ AS-BUILT ☐

CLIENT: ESB GENERATION & TRADING

PROJECT: MONEYPOINT SECURITY OF SUPPLY PROJECT

CONTRACT:

DRAWING TITLE: STRATEGIC SITE LOCATION MAP

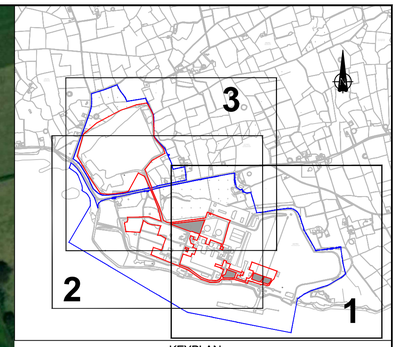
PRODUCTION UNIT: CIVIL, ENVIRONMENTAL & RENEWABLE ENGINEERING

Energy for generations

Engineering and Major Projects,
One Dublin Airport Central, Dublin Airport,
Clogharn, Co. Dublin, K67 XF72, Ireland.
Tel: +353 (0)1 703 8000 Web: www.esb.ie
Engineering and Major Projects is a division of ESB.

DRAWN	PRODUCED	VERIFIED	APPROVED	APPROVAL DATE
A. Butur	H.Griffin	E. Dunphy	J. Haverty	Dec 2023
CLIENT REF		NO. OF SHTS: 1	SIZE: A1	SCALE: 1:20000

DRAWING NUMBER: QP-000017-65-D451-001-001-000 SHEET REV



KEYPLAN
SCALE N.T.S.

LEGEND:

- PLANNING APPLICATION BOUNDARY
- OWNERSHIP BOUNDARY
- AREA OUTSIDE PLANNING APPLICATION BOUNDARY

NOTES:

1. CO-ORDINATES TO ITM GRID.
2. LEVELS TO MALIN HEAD DATUM.
3. ALL DIMENSIONS ARE IN METERS. NO DIMENSIONS SHALL BE SCALED FROM THE DRAWINGS.

SCALE 1:2500

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BASEMAP IMAGERY SOURCE: MAXAR, MICROSOFT

O.S.I. 1:5000 VECTORS TILE NUMBERS 4789 & 4790 ARE SHOWN ON THIS DRAWING

REV	DATE	REVISION DESCRIPTION	DRN	PROD	VER	APP
000	12.2023	ISSUED FOR PLANNING	AB	HG	ED	JH

PURPOSE OF ISSUE - PRELIMINARY UNLESS INDICATED

CLIENT APPROVAL ☐ PLANNING ☒ TENDER ☐ CONSTRUCTION ☐ AS-BUILT ☐

CLIENT: ESB GENERATION & TRADING

PROJECT: MONEYPOINT SECURITY OF SUPPLY PROJECT

CONTRACT:

DRAWING TITLE: SITE LOCATION (AERIAL)
SHEET 1 OF 3

PRODUCTION UNIT: CIVIL, ENVIRONMENTAL & RENEWABLE ENGINEERING

Energy for generations

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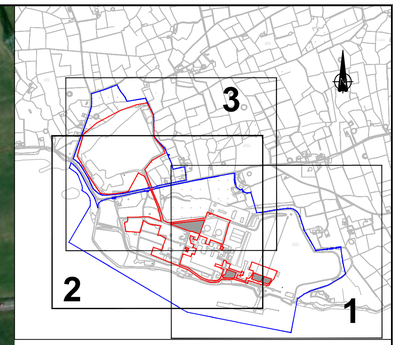
Engineering and Major Projects is a division of ESB.

DRAWN	PRODUCED	VERIFIED	APPROVED	APPROVAL DATE
A. Butur	H.Griffin	E. Dunphy	J. Haverty	Dec 2023

CLIENT REF	NO. OF SHTS	SIZE	SCALE
	3	A1	1:2500

DRAWING NUMBER: QP-000017-65-D451-003-001-000 | SHEET | REV



KEYPLAN
SCALE N.T.S.

LEGEND:

- PLANNING APPLICATION BOUNDARY
- OWNERSHIP BOUNDARY
- AREA OUTSIDE PLANNING APPLICATION BOUNDARY

NOTES:

1. CO-ORDINATES TO ITM GRID.
2. LEVELS TO MALIN HEAD DATUM.
3. ALL DIMENSIONS ARE IN METERS. NO DIMENSIONS SHALL BE SCALED FROM THE DRAWINGS.

SCALE 1:2500

0 25 50 100 200 300

BASEMAP IMAGERY SOURCE: MAXAR, MICROSOFT

O.S.I. 1:5000 VECTORS TILE NUMBERS 4789 & 4790 ARE SHOWN ON THIS DRAWING

REV	DATE	REVISION DESCRIPTION	DRN	PROD	VER	APP
000	12.2023	ISSUED FOR PLANNING	AB	HG	ED	JH

PURPOSE OF ISSUE - PRELIMINARY UNLESS INDICATED

CLIENT APPROVAL ☐ PLANNING ☒ TENDER ☐ CONSTRUCTION ☐ AS-BUILT ☐

CLIENT: ESB GENERATION & TRADING

PROJECT: MONEYPOINT SECURITY OF SUPPLY PROJECT

CONTRACT:

DRAWING TITLE: SITE LOCATION (AERIAL)
SHEET 2 OF 3

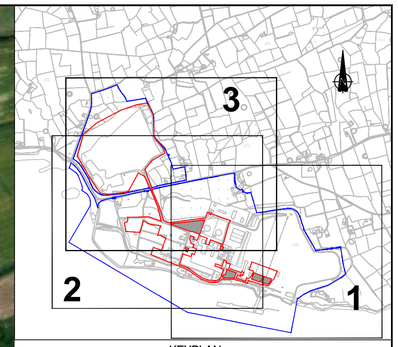
PRODUCTION UNIT: CIVIL, ENVIRONMENTAL & RENEWABLE ENGINEERING

Energy for generations

Engineering and Major Projects,
One Dublin Airport Central, Dublin Airport,
Cloghran, Co. Dublin, K67 XF72, Ireland.
Tel: +353 (0)1 703 8000 **Web:** www.esb.ie
Engineering and Major Projects is a division of ESB

DRAWN	PRODUCED	VERIFIED	APPROVED	APPROVAL DATE
A. Butur	H.Griffin	E. Dunphy	J. Haverty	Dec 2023
CLIENT REF		NO. OF SHTS	SIZE	SCALE
		3	A1	1:2500

DRAWING NUMBER: QP-000017-65-D451-003-002-000 | SHEET | REV



KEYPLAN
SCALE N.T.S.

LEGEND:

- PLANNING APPLICATION BOUNDARY
- OWNERSHIP BOUNDARY
- AREA OUTSIDE PLANNING APPLICATION BOUNDARY

NOTES:

1. CO-ORDINATES TO ITM GRID.
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SCALE 1:2500

0 25 50 100 200 300

BASEMAP IMAGERY SOURCE: MAXAR, MICROSOFT

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000	12.2023	ISSUED FOR PLANNING	AB	HG	ED	JH

PURPOSE OF ISSUE - PRELIMINARY UNLESS INDICATED

CLIENT APPROVAL ☐ PLANNING ☒ TENDER ☐ CONSTRUCTION ☐ AS-BUILT ☐

CLIENT: ESB GENERATION & TRADING

PROJECT: MONEYPOINT SECURITY OF SUPPLY PROJECT

CONTRACT:

DRAWING TITLE: SITE LOCATION (AERIAL)
SHEET 3 OF 3

PRODUCTION UNIT: CIVIL, ENVIRONMENTAL & RENEWABLE ENGINEERING

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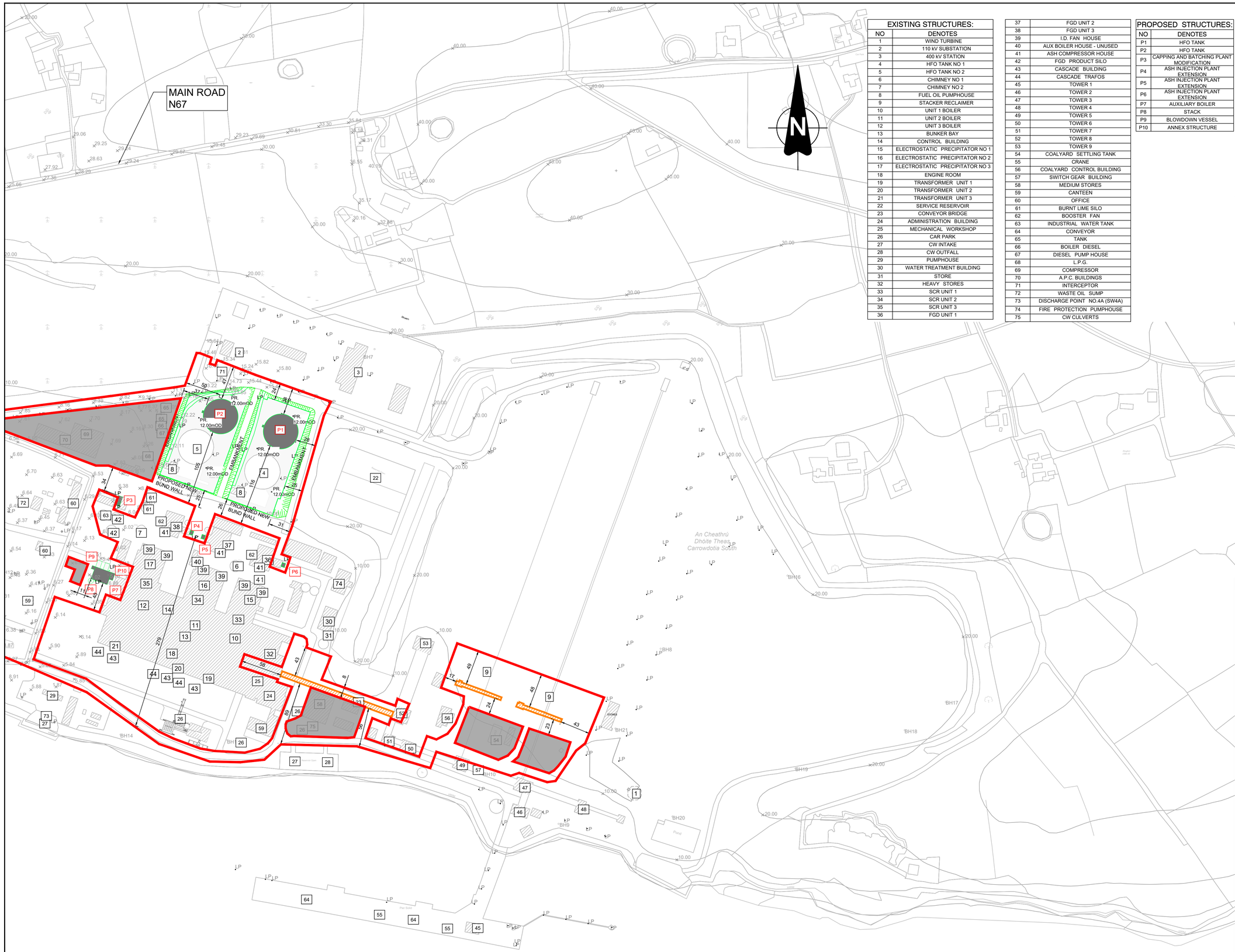
A. Butur	H.Griffin	E. Dunphy	J. Haverty	Dec 2023
CLIENT REF		NO. OF SHTS	SIZE	SCALE
		3	A1	1:2500

DRAWING NUMBER: QP-000017-65-D451-003-003-000 SHEET REV



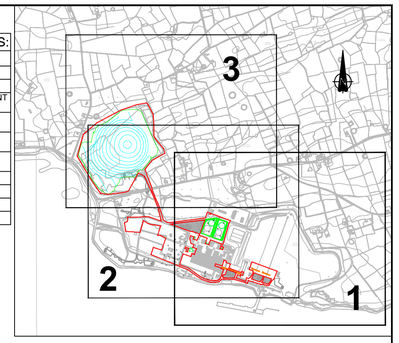
EXISTING STRUCTURES:

NO	DENOTES
1	WIND TURBINE
2	110 kV SUBSTATION
3	400 kV STATION
4	HFO TANK NO 1
5	HFO TANK NO 2
6	CHIMNEY NO 1
7	CHIMNEY NO 2
8	FUEL OIL PUMPHOUSE
9	STACKER RECLAIMER
10	UNIT 1 BOILER
11	UNIT 2 BOILER
12	UNIT 3 BOILER
13	BUNKER BAY
14	CONTROL BUILDING
15	ELECTROSTATIC PRECIPITATOR NO 1
16	ELECTROSTATIC PRECIPITATOR NO 2
17	ELECTROSTATIC PRECIPITATOR NO 3
18	ENGINE ROOM
19	TRANSFORMER UNIT 1
20	TRANSFORMER UNIT 2
21	TRANSFORMER UNIT 3
22	SERVICE RESERVOIR
23	CONVEYOR BRIDGE
24	ADMINISTRATION BUILDING
25	MECHANICAL WORKSHOP
26	CAR PARK
27	CW INTAKE
28	CW OUTFALL
29	PUMPHOUSE
30	WATER TREATMENT BUILDING
31	STORE
32	HEAVY STORES
33	SCR UNIT 1
34	SCR UNIT 2
35	SCR UNIT 3
36	FGD UNIT 1

37	FGD UNIT 2
38	FGD UNIT 3
39	I.D. FAN HOUSE
40	AUX BOILER HOUSE - UNUSED
41	ASH COMPRESSOR HOUSE
42	FGD PRODUCT SILO
43	CASCADE BUILDING
44	CASCADE TRAFOS
45	TOWER 1
46	TOWER 2
47	TOWER 3
48	TOWER 4
49	TOWER 5
50	TOWER 6
51	TOWER 7
52	TOWER 8
53	TOWER 9
54	COALYARD SETTLING TANK
55	CRANE
56	COALYARD CONTROL BUILDING
57	SWITCH GEAR BUILDING
58	MEDIUM STORES
59	CANTEEN
60	OFFICE
61	BURNT LIME SILO
62	BOOSTER FAN
63	INDUSTRIAL WATER TANK
64	CONVEYOR
65	TANK
66	BOILER DIESEL
67	DIESEL PUMP HOUSE
68	L.P.G.
69	COMPRESSOR
70	A.P.C. BUILDINGS
71	INTERCEPTOR
72	WASTE OIL SUMP
73	DISCHARGE POINT NO.4A (SW4A)
74	FIRE PROTECTION PUMPHOUSE
75	CW CULVERTS

PROPOSED STRUCTURES:

NO	DENOTES
P1	HFO TANK
P2	HFO TANK
P3	CAPPING AND BATCHING PLANT MODIFICATION
P4	ASH INJECTION PLANT EXTENSION
P5	ASH INJECTION PLANT EXTENSION
P6	ASH INJECTION PLANT EXTENSION
P7	AUXILIARY BOILER
P8	STACK
P9	BLOWDOWN VESSEL
P10	ANNEX STRUCTURE



KEYPLAN
SCALE N.T.S.

LEGEND:

- PLANNING APPLICATION BOUNDARY
- AREA OUTSIDE PLANNING APPLICATION BOUNDARY
- WIND TURBINE
- WIND TURBINE HARDSTAND
- EXISTING WOODLAND
- EXISTING BUILDINGS
- EXISTING ROADS
- EXISTING TANKS
- LP EXISTING LIGHTING
- PROPOSED STRUCTURES/ DEVELOPMENT
- PROPOSED ROADS/ HARDSTANDING
- STRUCTURES PROPOSED FOR DISMANTLING
- LP PROPOSED LIGHTING
- BH28 BOREHOLE LOCATIONS (HISTORICAL)
- ×12.00 EXISTING LEVEL
- ×PR. 12.00 PROPOSED LEVEL
- PROPOSED ASH STORAGE AREA CONTOURS
- EMBANKMENT PROPOSED TO BE MODIFIED

NOTES:

1. CO-ORDINATES TO ITM GRID.
2. LEVELS TO MALIN HEAD DATUM.
3. ALL DIMENSIONS ARE IN METERS. NO DIMENSIONS SHALL BE SCALED FROM THE DRAWINGS.
4. NO KNOWN SEPTIC TANKS OR PERCOLATION AREAS HAVE BEEN IDENTIFIED ON SITE

SCALE 1:2500

0 25 50 100 200 300

O.S.I. 1:5000 VECTORS TILE NUMBERS 4789 & 4790 ARE SHOWN ON THIS DRAWING

REV	DATE	REVISION DESCRIPTION	DRN	PROD	VER	APP
000	12.2023	ISSUED FOR PLANNING	AB	HG	ED	JH

PURPOSE OF ISSUE - PRELIMINARY UNLESS INDICATED

CLIENT APPROVAL ☐ PLANNING ☒ TENDER ☐ CONSTRUCTION ☐ AS-BUILT ☐

CLIENT: ESB GENERATION & TRADING

PROJECT: MONEYPOINT SECURITY OF SUPPLY PROJECT

CONTRACT:

DRAWING TITLE: PROPOSED SITE LAYOUT
SHEET 1 OF 3

PRODUCTION UNIT: CIVIL, ENVIRONMENTAL & RENEWABLE ENGINEERING

Energy for generations

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DRAWN	PRODUCED	VERIFIED	APPROVED	APPROVAL DATE
A. Butur	H.Griffin	E. Dunphy	J. Haverty	Dec 2023
CLIENT REF		NO. OF SHTS	SIZE	SCALE
		3	A1	1:2500

DRAWING NUMBER: QP-000017-65-D451-005-001-000 SHEET REV

ASH STORAGE AREA

MAIN ROAD N67

MAIN SITE ENTRANCE

SECONDARY SITE ENTRANCE

STOCKPILE AREA

CONTRACTOR COMPOUND/ LAYDOWN AREA

PROPOSED NEW BUND WALL

PROPOSED NEW BUND WALL

PROPOSED NEW BUND WALL

P1 P2 P3 P4 P5 P6 P7 P8 P9 P10

PR. 12.00mOD

N

EXISTING STRUCTURES:	
NO	DENOTES
1	WIND TURBINE
2	110 kV SUBSTATION
3	400 kV STATION
4	HFO TANK NO 1
5	HFO TANK NO 2
6	CHIMNEY NO 1
7	CHIMNEY NO 2
8	FUEL OIL PUMPHOUSE
9	STACKER RECLAIMER
10	UNIT 1 BOILER
11	UNIT 2 BOILER
12	UNIT 3 BOILER
13	BUNKER BAY
14	CONTROL BUILDING
15	ELECTROSTATIC PRECIPITATOR NO 1
16	ELECTROSTATIC PRECIPITATOR NO 2
17	ELECTROSTATIC PRECIPITATOR NO 3
18	ENGINE ROOM
19	TRANSFORMER UNIT 1
20	TRANSFORMER UNIT 2
21	TRANSFORMER UNIT 3
22	SERVICE RESERVOIR
23	CONVEYOR BRIDGE
24	ADMINISTRATION BUILDING
25	MECHANICAL WORKSHOP
26	CAR PARK
27	CW INTAKE
28	CW OUTFALL
29	PUMPHOUSE
30	WATER TREATMENT BUILDING
31	STORE
32	HEAVY STORES
33	SCR UNIT 1
34	SCR UNIT 2
35	SCR UNIT 3
36	FGD UNIT 1

37	FGD UNIT 2
38	FGD UNIT 3
39	I.D. FAN HOUSE
40	AUX BOILER HOUSE - UNUSED
41	ASH COMPRESSOR HOUSE
42	FGD PRODUCT SILO
43	CASCADE BUILDING
44	CASCADE TRAFOS
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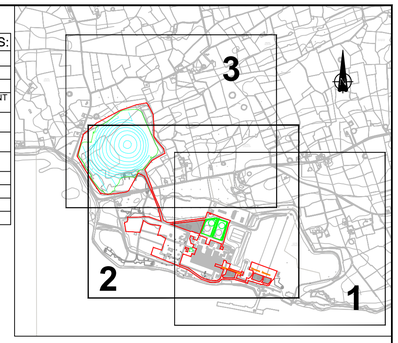
48	TOWER 4
49	TOWER 5
50	TOWER 6
51	TOWER 7
52	TOWER 8
53	TOWER 9
54	COALYARD SETTLING TANK
55	CRANE
56	COALYARD CONTROL BUILDING
57	SWITCH GEAR BUILDING
58	MEDIUM STORES
59	CANTEEN
60	OFFICE
61	BURNT LIME SILO
62	BOOSTER FAN
63	INDUSTRIAL WATER TANK
64	CONVEYOR
65	TANK
66	BOILER DIESEL
67	DIESEL PUMP HOUSE
68	L.P.G.
69	COMPRESSOR
70	A.P.C. BUILDINGS
71	INTERCEPTOR
72	WASTE OIL SUMP
73	DISCHARGE POINT NO.4A (SW4A)
74	FIRE PROTECTION PUMPHOUSE
75	CW CULVERTS

PROPOSED STRUCTURES:	
NO	DENOTES
P1	HFO TANK
P2	HFO TANK
P3	CAPPING AND BATCHING PLANT MODIFICATION
P4	ASH INJECTION PLANT EXTENSION
P5	ASH INJECTION PLANT EXTENSION
P6	ASH INJECTION PLANT EXTENSION
P7	AUXILIARY BOILER
P8	STACK
P9	BLOWDOWN VESSEL
P10	ANNEX STRUCTURE



KEYPLAN
SCALE N.T.S.

LEGEND:

- PLANNING APPLICATION BOUNDARY
- AREA OUTSIDE PLANNING APPLICATION BOUNDARY
- WIND TURBINE
- WIND TURBINE HARDSTAND
- EXISTING WOODLAND
- EXISTING BUILDINGS
- EXISTING ROADS
- EXISTING TANKS
- LP EXISTING LIGHTING
- PROPOSED STRUCTURES/ DEVELOPMENT
- PROPOSED ROADS/ HARDSTANDING
- STRUCTURES PROPOSED FOR DISMANTLING
- LP PROPOSED LIGHTING
- BH28 BOREHOLE LOCATIONS (HISTORICAL)
- 12.00 EXISTING LEVEL
- PR. 12.00 PROPOSED LEVEL
- PROPOSED ASH STORAGE AREA CONTOURS
- EMBANKMENT PROPOSED TO BE MODIFIED

NOTES:

1. CO-ORDINATES TO ITM GRID.
2. LEVELS TO MALIN HEAD DATUM.
3. ALL DIMENSIONS ARE IN METERS. NO DIMENSIONS SHALL BE SCALED FROM THE DRAWINGS.
4. NO KNOWN SEPTIC TANKS OR PERCOLATION AREAS HAVE BEEN IDENTIFIED ON SITE

SCALE 1:2500

0 25 50 100 200 300

O.S.I. 1:5000 VECTORS TILE NUMBERS 4789 & 4790 ARE SHOWN ON THIS DRAWING

REV	DATE	REVISION DESCRIPTION	DRN	PROD	VER	APP
000	12.2023	ISSUED FOR PLANNING	AB	HG	ED	JH

PURPOSE OF ISSUE - PRELIMINARY UNLESS INDICATED

CLIENT APPROVAL ☐ PLANNING ☒ TENDER ☐ CONSTRUCTION ☐ AS-BUILT ☐

CLIENT: ESB GENERATION & TRADING

PROJECT: MONEYPOINT SECURITY OF SUPPLY PROJECT

CONTRACT:

DRAWING TITLE: PROPOSED SITE LAYOUT
SHEET 2 OF 3

PRODUCTION UNIT: CIVIL, ENVIRONMENTAL & RENEWABLE ENGINEERING

Energy for generations

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DRAWN	PRODUCED	VERIFIED	APPROVED	APPROVAL DATE
A. Butur	H.Griffin	E. Dunphy	J. Haverty	Dec 2023
CLIENT REF		NO. OF SHTS: 3	SIZE: A1	SCALE: 1:2500

DRAWING NUMBER: QP-000017-65-D451-005-002-000 SHEET REV

EXISTING STRUCTURES:	
NO	DENOTES
1	WIND TURBINE
2	110 kV SUBSTATION
3	400 kV STATION
4	HFO TANK NO 1
5	HFO TANK NO 2
6	CHIMNEY NO 1
7	CHIMNEY NO 2
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9	STACKER RECLAIMER
10	UNIT 1 BOILER
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65	TANK
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68	L.P.G.
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72	WASTE OIL SUMP
73	DISCHARGE POINT NO.4A (SW4A)
74	FIRE PROTECTION PUMPHOUSE
75	CW CULVERTS

PROPOSED STRUCTURES:	
NO	DENOTES
P1	HFO TANK
P2	HFO TANK
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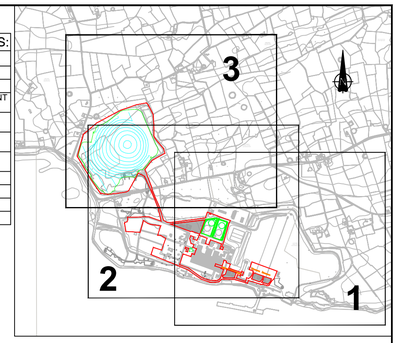
P4	ASH INJECTION PLANT EXTENSION
P5	ASH INJECTION PLANT EXTENSION
P6	ASH INJECTION PLANT EXTENSION
P7	AUXILIARY BOILER
P8	STACK
P9	BLOWDOWN VESSEL
P10	ANNEX STRUCTURE



KEYPLAN
SCALE N.T.S.

LEGEND:

- PLANNING APPLICATION BOUNDARY
- AREA OUTSIDE PLANNING APPLICATION BOUNDARY
- WIND TURBINE
- WIND TURBINE HARDSTAND
- EXISTING WOODLAND
- EXISTING BUILDINGS
- EXISTING ROADS
- EXISTING TANKS
- LP EXISTING LIGHTING
- PROPOSED STRUCTURES/ DEVELOPMENT
- PROPOSED ROADS/ HARDSTANDING
- STRUCTURES PROPOSED FOR DISMANTLING
- LP PROPOSED LIGHTING
- BH28 BOREHOLE LOCATIONS (HISTORICAL)
- ×12.00 EXISTING LEVEL
- ×PR. 12.00 PROPOSED LEVEL
- PROPOSED ASH STORAGE AREA CONTOURS
- EMBANKMENT PROPOSED TO BE MODIFIED

NOTES:

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2. LEVELS TO MALIN HEAD DATUM.
3. ALL DIMENSIONS ARE IN METERS. NO DIMENSIONS SHALL BE SCALED FROM THE DRAWINGS.
4. NO KNOWN SEPTIC TANKS OR PERCOLATION AREAS HAVE BEEN IDENTIFIED ON SITE

SCALE 1:2500

0 25 50 100 200 300

O.S.I. 1:5000 VECTORS TILE NUMBERS 4789 & 4790 ARE SHOWN ON THIS DRAWING

REV	DATE	REVISION DESCRIPTION	DRN	PROD	VER	APP
000	12.2023	ISSUED FOR PLANNING	AB	HG	ED	JH

PURPOSE OF ISSUE - PRELIMINARY UNLESS INDICATED

CLIENT APPROVAL ☐ PLANNING ☒ TENDER ☐ CONSTRUCTION ☐ AS-BUILT ☐

CLIENT: ESB GENERATION & TRADING

PROJECT: MONEYPOINT SECURITY OF SUPPLY PROJECT

CONTRACT:

DRAWING TITLE: PROPOSED SITE LAYOUT
SHEET 3 OF 3

PRODUCTION UNIT: CIVIL, ENVIRONMENTAL & RENEWABLE ENGINEERING

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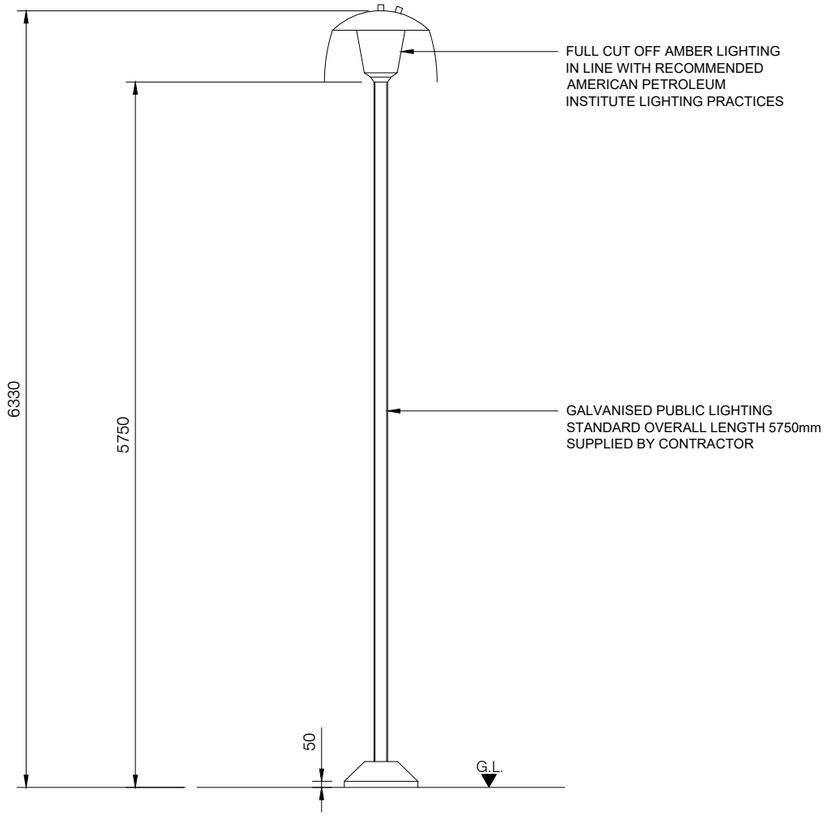
DRAWN	PRODUCED	VERIFIED	APPROVED	APPROVAL DATE
A. Butur	H.Griffin	E. Dunphy	J. Haverty	Dec 2023

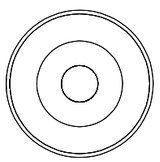
CLIENT REF	NO. OF SHTS	SIZE	SCALE
	3	A1	1:2500

DRAWING NUMBER: QP-000017-65-D451-005-003-000 SHEET REV

ASH STORAGE AREA
MAIN ROAD N67
MAIN SITE ENTRANCE
SECONDARY SITE ENTRANCE
An Cheathrú Thóite Thuaidh
Carrowdotia North



ELEVATION
SCALE 1:50



PLAN
SCALE 1:25

NOTES:

1. ALL DIMENSIONS ARE IN mm. NO DIMENSIONS SHALL BE SCALED FROM THE DRAWINGS.

Rev	Date	Revision description	Drn.	Prod.	Ver.	App.
000	12.2023	ISSUED FOR PLANNING	AB	HG	ED	JH

Purpose of issue - Preliminary unless indicated

Client Approval ☐ Planning ☒ Tender ☐ Construction ☐ As-Built ☐

INTERNATIONAL

One Dublin Airport Central,
Dublin Airport, Cloghran, Co. Dublin

Tel: 353 1 703 8000 **Email:** marketing@esbi.ie
Web: www.esbinternational.ie

ESB International is a trading name of
ESBI Engineering & Facility Management Ltd.

Registered Office: as above
Registered in Ireland No. 155249

Client
GENERATION & TRADING

Project
MONEYPOINT
SECURITY OF SUPPLY PROJECT

Contract

Drawing title
PROPOSED LIGHTING DETAIL

Production unit
Civil, Environmental & Renewable Engineering

Drawn	Produced	Verified	Approved	Approval date
A. Butur	H. Griffin	E. Dunphy	J. Haverty	Dec 2023

Client ref.	No. of sheets	Size	Scale
	1	A3	SHOWN

Drawing number QP-000017-65-D451-018-001-000 | SHEET | REV