



# **Spey Bay Effluent Discharge Outfall Pipeline**

## **Environmental Supporting Document**



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	Name	Title	Signature	Date
<b>Author</b>	Kirsty Macdonald	Senior Environmental Consultant	[REDACTED]	02/12/21
<b>Reviewer</b>	Claire Williams	Senior Environmental Consultant	[REDACTED]	31/05/22
<b>Authoriser</b>	Fiona Henderson	Director	[REDACTED]	16/06/22

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## 1 Introduction

Grissan Renewable Energy (Grissan) are seeking approval to install a pipeline and outfall in order to discharge effluent into the marine environment off the Moray Coast. A marine construction licence is being sought from Marine Scotland under the Marine (Scotland) Act 2010 for elements of the pipeline installation below Mean High Water Springs (MHWS).

Operational discharge of effluent is authorised by a licence (CAR/L/1188609) under the Water Environment (Controlled Activities) (Scotland) Regulations 2011 as amended (CAR), issued by the Scottish Environmental Protection Agency (SEPA). A technical variation of this licence was issued on 20<sup>th</sup> June 2022. Project elements above Mean Low Water Springs (MLWS) are already consented under the Town and Country Planning (Scotland) Act 1997 (planning application reference number 21/01711/APP).

This report describes the planned works and installation methods, as well as the known environmental sensitivities and proposed mitigation, to allow determination of a marine construction licence whilst demonstrating compliance with Scotland's National Marine Plan.

## 2 Project Need and Description

### 2.1 Project Need

The north of Scotland is famous for its distilleries and producing world class whisky. These distilleries produce large volumes of by-products such as Pot Ale<sup>1</sup>, as well as aqueous process wastes (effluent). Common practice for the disposal of effluent by distilleries is to discharge to the marine environment. This practice dates back several hundred years and was not regulated until the 1900's. Environmental legislation now requires distillery trade effluent to be regulated and monitored by SEPA under CAR, which supports the Water Environment and Water Services (Scotland) Act 2003. The discharge of distillery trade effluent to the sea is to be carried through a long sea outfall (LSO), and discharges must meet stringent Environmental Quality Standards (EQS) and aesthetic conditions.

Grissan are a renewable energy company, specialising in the process of anaerobic digestion (AD) of distillery by-products, namely Draff<sup>2</sup> and Pot Ale, to produce a methane rich biogas. The biogas is then either used to produce electricity in a Combined Heat and Power (CHP) engine or upgraded to biomethane and injected directly into the gas network. Grissan currently offset over 100,000t of CO<sub>2</sub> per annum (600,000 trees equivalent<sup>3</sup>) from the Scottish distilling industry using this technique. The biomethane produced can also be used to power gas trucks, subsequently reducing CO<sub>2</sub> emissions by more than 80% compared to diesel and generating no particulate (PM<sub>2.5</sub>) emissions. Grissan aims to further decarbonise the Scottish distilling industry with the uptake of biomethane fuelled trucks.

In December 2020, Grissan received planning approval for construction of a new AD plant at the Portgordon Malting Facility, operated by the Crisp Maltings Group, which will process Pot Ale and Daff by-products from numerous facilities across the northern Scotland distilling industry. Biomethane produced in the AD facility will be injected into the gas grid as renewable

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<sup>1</sup> Pot Ale is the residue left in the bottom of the copper still after the distillation process is complete.

<sup>2</sup> Draff is the spent grain left over in the mash-tun, a vessel used in the mashing process of grains.

<sup>3</sup> Trees for life calculates 6 trees offset 1 tonne of carbon dioxide.

biomethane. Currently, effluent from the Portgordon Malting Facility, is discharged to the Moray Firth via a short outfall to the west of the village of Portgordon in Spey Bay. The aging infrastructure is no longer fit for purpose, and hence a LSO, adjacent to the existing short outfall has been proposed to accommodate discharges from the new AD facility.

Liquid effluent processed through the AD plant will be more than 90% lower in Chemical Oxygen Demand (COD) and Biological Oxygen Demand (BOD) than traditional distillery effluent discharges. The Pot Ale and Daff are classed as by-products; not waste; hence, the AD process is not considered a waste treatment process by SEPA.

Grissan's project involves the installation of a pipeline from the existing AD facility out to sea, however this report only considers the installation of the pipeline from below MHWS, as this is the section subject to Marine Licencing. The works are scheduled to take place between April and July 2023 and are anticipated to last around 4 weeks, weather dependent.

## 2.2 Project Description

### 2.2.1 Pipeline Design

In order to achieve the required appropriate dispersion, it is proposed that an LSO is installed to the west of Portgordon which will extend north into the Moray Firth. The new pipeline has a 10 inch (222.3mm) internal diameter and is made of High-Density Polyethylene (HDPE) with an external diameter of approximately 315mm.

The pipe will extend approximately 1.9km in length (from shore to end point) and discharge through two diffusers. Each diffuser section consists of five 125mm (outer diameter) diffuser ports spaced at 5m. One diffuser section is located midline, the other at the end of the outfall. Anti-scour concrete mattresses are to be installed over the diffuser pipe sections.

The entire length of the pipeline (excluding diffusers) will be buried at least 1m below the existing seabed level. The seabed material removed to create the trench will be utilised in the burial of the pipeline, with no material removed from site.

In recognition that the intertidal area is more energy intensive and hence subject to natural seabed level fluctuation, rock fill will be installed immediately on-top of the pipeline to ensure its longevity. Previously excavated material will be used to fill in the remainder of the trench, such that the beach areas is appropriately reinstated.

### 2.2.2 Location

The marine pipeline and outfall will be installed at Tannachy Sands in Spey Bay, and extend approximately 1.9km into the Moray Firth. Tannachy Sands is situated to the west of the village of Portgordon, along a section of the Spey Bay coastline (Drawing 77\_DRG\_01). The proposed licence area (refer Drawing 77\_DRG\_02, Drawing 77\_DRG\_04 and Appendix A) incorporates the pipeline installation trench, a mooring buoy and 450m perimeter buffer (for storage of floating pipeline sections), and a beach construction area for pipeline assembly (refer section 2.2.3 Installation Methods for further details).

### 2.2.3 Installation Methods

To facilitate the storage of the pipeline prior to installation, a temporary mooring is required. The temporary mooring, including 2 tonne anchor and buoy, will be installed adjacent to the site of pipeline installation off the coast of Tannachy Sands in Spey Bay, from a small vessel.

The method of installation proposed involves trenching. Trenching will be carried out in two sections, the nearshore intertidal section, and the offshore subtidal section. The nearshore intertidal section will be excavated using land-based equipment and the offshore subtidal section will be installed using specialised marine plant. The material removed from the trench will be placed adjacent to the trench ready for backfilling. Slightly deeper and wider excavations will be made using the same trenching marine plant to accommodate the diffusers.



**Figure 2.2.1: Marine Backhoe Dredger Pontoon. Source: NWM, 2022.**

The main HDPE pipe (in 200m sections) and two diffusers (25m HDPE pipe sections with five evenly spaced outlets) will be transported by sea from Norway and be attached to the mooring for storage until required. HDPE pipe sections float without assistance, although watertight blank flange caps fitted at both ends will temporarily seal the pipe sections and diffusers to provide extra buoyancy during transportation and storage.

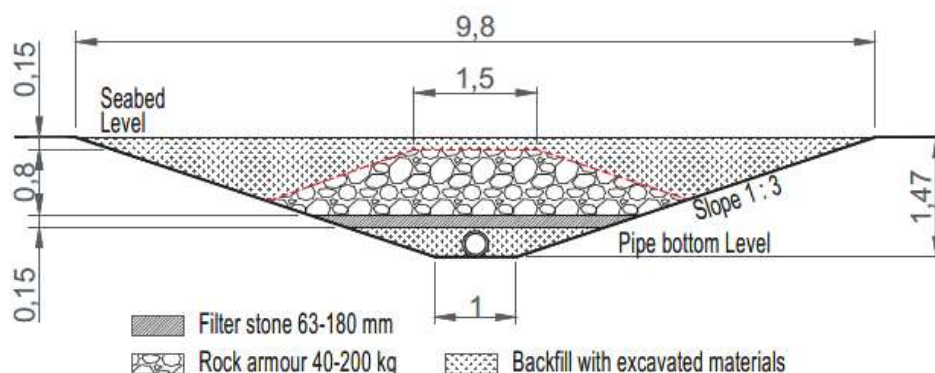
To facilitate installation the pipes are brought to shore to allow ballast chains to be added, and sections to be joined to create 400m long pipes. These are returned to the mooring buoy for storage ready for installation. Installation of pipes will start from the shore end, with subsequent pipe sections will be towed from the mooring and connected into a floating pipeline string. An onshore filling pump will pump seawater into the pipeline string, gradually sinking the line in an 's' bend as shown in Figure 2.2.2. Specialised marine plant will control the position of the pipe being sunk, guiding it into the trench.



**Figure 2.2.2 Sinking the Pipeline String in an 'S' Bend.**

The diffuser sections will be prepared onshore in the pipeline assembly area. Diffuser sections of the pipe will be laid flush with the seabed, not buried ~1m below as with the rest of the pipeline. Diffusers will be retrofitted into the pipeline once sunk, which may require diver assistance. The end diffuser will be placed directly into the trench at the end of the pipeline; the midline diffuser will be attached to a transition T piece in the pipe string. Concrete mattresses will be placed directly on the pipe around the diffuser ports to provide erosion control and add stability to the pipe. Concrete mattress blocks interfering with the diffuser ports will be cut out from the mattress, before installation, to allow the diffuser ports to remain exposed for effluent discharge.

Following installation, the pipeline will be buried by backfilling the trench using previously excavated material. Burial of the pipeline ensures protection from currents, seabed mobility, storms, and wave action. This will also protect the pipeline from damage caused by fishing gear, anchors, and trawling. The trench around the diffusers will be covered by concrete mattresses and will therefore not require backfilling. The foreshore section (below MHWs and above MLWS) of the trench will be partially backfilled using rock fill from a local quarry to protect the pipe (Figure 2.2.3). Excavated material will be overlaid on the rock fill to restore the natural beach substrate.



**Figure 2.2.3 Rock Fill Within Foreshore Section of the Pipeline Trench**

### 3 Statutory Context

This section provides a summary of the statutory requirements for the proposed pipeline and outfall installation.

#### 3.1 Legislation

It is noted that the pipeline is also subject to requirements under the Town and Country Planning (Scotland) Act 1997, and as discussed in Section 2 operational discharge consents under CAR. The focus here however, is Marine Licensing and relevant associated legislation.

##### 3.1.1 Marine Licensing

Under the Marine (Scotland) Act 2010 activities listed in Part 4, Section 21 of the Act require a Marine Licence issued by the Marine Scotland Licensing Operations Team (MS-LOT). This includes:

- any activity where the project intends to deposit or remove substances or objects in the sea, either on or under the seabed; and/or,
- construct, alter and/or improve any works in or over the sea, or on or under the seabed.

The installation of the pipeline and a temporary mooring represent deposits on or under the seabed and hence require authorisation via a marine construction licence from MS-LOT.

##### 3.1.2 Habitat Regulations Appraisal

An Appropriate Assessment (AA) is part of the Habitats Regulations Appraisal (HRA) process, to be undertaken by the competent authority. It is required when a plan or project potentially affects a European Natura site. The Natura sites' network in the UK consists of Special Protection Areas (SPAs) and Special Areas of Conservation (SAC). An AA must demonstrate that there will be no adverse effect on site integrity. Should this requirement not be satisfied, a project would only receive consent if:

- 1) Imperative Reasons of Overriding Public Interest are proved; and
- 2) There are not satisfactory alternatives.

The Proposed Project will intersect the Moray Firth SPA and hence is assumed to require an AA. In addition, there is the potential for the development to cause indirect effects on adjacent Natura sites. The intent of this document is to provide appropriate information to inform any AA's that many need to be undertaken by Marine Scotland as the competent authorities in this case. The Habitat Regulations Appraisal (HRA) Pre-Screening Report is attached as Appendix B.

#### 3.2 Policy Context

As the project is partly below the MHWS and within 12 nautical miles (nm) of the Scottish Coastline it falls within the remit of the Marine (Scotland) Act 2010. The 2015 Scottish National Marine Plan (NMP) covering inshore waters is a requirement of the Act. The NMP lays out the Scottish Minister's policies for the sustainable development of Scotland's seas and provides General Planning Principles (GENs), some of which apply to this development. Many GENs are specific to environmental topics; these are identified in Table 3.2.1, along with the considerations made during design development in order to meet the requirements.

The objectives and marine planning policy requirements for Submarine Cables were also reviewed in recognition that there may be some crossover due to the installation of a linear project in the sea. The objectives, "Protect submarine cables whilst achieving successful seabed user co-existence," and, "Achieve the highest possible quality and safety standards and reduce risks to all seabed users and the marine environment" were highlighted as being relevant to the pipeline installation and Grissan have considered this throughout their project development.

**Table 3.2.1: Applicable Scottish National Marine Plan GENs**

General Planning Principles	Requirements	Grissan Pipeline Considerations
GEN 2: Economic Benefit	Sustainable development and use which provides economic benefit to Scottish communities is encouraged when consistent with the objectives and policies of this Plan.	The installation of the pipeline will provide employment opportunities directly through installation activities. Once installed the pipeline will ensure the continuation of the distilleries in the region, ensuring their future by providing a reliable and sustainable outlet for their by-products. The whisky industry does not only directly contribute to the Scottish economy but also adds to tourism attractions in the region.
GEN 4: Co-existence	Proposals which enable coexistence with other development sectors and activities within the Scottish marine area are encouraged in planning and decision-making processes, when consistent with policies and objectives of this Plan.	The proposed installation of the pipeline should not affect any other operations in the vicinity of the proposed pipeline route once installed.
GEN 5: Climate Change	Marine planners and decision makers must act in the way best calculated to mitigate, and adapt to, climate change.	Installation of the pipeline supports operation of a new AD facility which will produce methane rich biogas used to produce electricity, or upgraded to biomethane and injected into the gas network or used to power gas trucks. Operation of Grissan's AD facility supports decarbonisation of the Scottish distilling industry in line with climate change objectives.
GEN 6: Historic Environment	Development and use of the marine environment should protect and, where appropriate, enhance heritage assets in a manner proportionate to their significance.	A protocol for archaeological discoveries will be developed prior to the commencement of construction activities in the event of relevant discoveries found during the works (See Section 6.1.1 and 6.2.10).
GEN 7: Landscape/ Seascape	Marine planners and decision makers should ensure that development and use of the marine environment take seascape, landscape, and visual impacts into account.	The proposed pipeline will be buried, and diffusers situated below the water surface on the seabed. Hence the LSO and associated infrastructure will have no landscape or visual impacts once installed.



General Planning Principles	Requirements	Grissan Pipeline Considerations
GEN 8: Coastal Process and Flooding	Developments and activities in the marine environment should be resilient to coastal change and flooding, and not have unacceptable adverse impact on coastal processes or contribute to coastal flooding.	Coastal processes or flooding will not be impacted as the trench will be back-filled to existing seabed levels with previously excavated material. Rock fill has been incorporated in the design for pipeline resilience to coastal processes.
GEN 9: Natural Heritage	Development and use of the marine environment must: <ul style="list-style-type: none"> <li>a. Comply with legal requirements for protected areas and protected species.</li> <li>b. Not result in significant impact on the national status of Priority Marine Features.</li> <li>c. Protect and, where appropriate, enhance the health of the marine area.</li> </ul>	Ecological features of interest have been considered within Section 4.1 Biodiversity. The proposed pipeline will not be installed within an area of protection for benthic ecology and no Priority Marine Features have been identified on the pipeline route.
GEN 10: Invasive Non-native Species	Opportunities to reduce the introduction of invasive non-native species to a minimum or proactively improve the practice of existing activity should be taken when decisions are being made.	All vessels will be compliant with the relevant requirements of the International Maritime Organisation (IMO) including adherence to the Ballast Water Management Convention and the International Convention for the Prevention of Pollution from ships (MARPOL). All equipment and machinery will be clean and free of debris when brought to site and will be cleaned before being taken offsite for use elsewhere.
GEN 11: Marine Litter	Developers, users and those accessing the marine environment must take measures to address marine litter where appropriate. Reduction of litter must be taken into account by decision makers.	The proposed installation of the pipeline should not contribute to marine litter. Marine litter will be managed throughout the project and all waste removed from site at project demobilisation.
GEN 12: Water Quality and Resource	Developments and activities should not result in a deterioration of the quality of waters to which the Water Framework Directive, Marine Strategy Framework Directive or other related Directives apply.	This construction will not have any long-term significant impacts on water quality due to the localised nature of the installation work. The development will improve the water quality of the effluent to be discharged by reducing the BOD and COD. Appropriate dispersion will ensure water quality of the Portgordon to Findochty coastal water body is maintained. Section 4.4 considers water quality.



General Planning Principles	Requirements	Grissan Pipeline Considerations
GEN 13: Noise	Development and use in the marine environment should avoid significant adverse effects of man-made noise and vibration, especially on species sensitive to such effects.	Installation methods will not emit significant noise levels with duration minimised where possible.
GEN 18: Engagement	Early and effective engagement should be undertaken with the general public and all interested stakeholders to facilitate planning and consenting processes.	Formal and informal pre-application consultation of statutory consultees, Portgordon Community Trust representatives and identified local organisations with specific interest has been undertaken. Engagement included letters of notification, in-person and online sessions between stakeholders and the project team, as well as a public online event.

## 4 Known Sensitivities

### 4.1 Biodiversity

#### 4.1.1 Designated Sites

Table 4.1 details the Statutory Nature Conservation Designated Sites; Marine Protected Areas (MPA), Special Scientific Interest (SSSI), SAC and SPA within approximately 20km offshore, and 10km onshore, of the proposed pipeline installation site. Locations of the designated sites identified within the vicinity of the site are shown in Drawing 77.01.01. Sites unlikely to be affected by the development due to their location and/or associated designated features (e.g., terrestrial, immobile features that will not interface with the development) are shown in grey and reasoning is given for their exclusion from further consideration.

**Table 4.1.1: Statutory Nature Designated Sites relevant to the Pipeline Installation**

Site	Designation	Distance Direction	Feature Category/Feature	Requires Consideration? Yes/No
Spey Bay	SSSI	Immediately adjacent, onshore pipeline installation is within the designated site	Coastal geomorphology; dingy skipper butterfly ( <i>Erynnis tages</i> ); hydromorphological mire range; saltmarsh.	Yes - The development will involve construction within the SSSI.
Moray Firth	SPA	Pipeline installation within the designated site	[REDACTED] eider ( <i>Somateria mollissima</i> ); non-breeding; [REDACTED]; long-tailed duck ( <i>Clangula hyemalis</i> ), non-breeding; red-throated diver ( <i>Gavia stellata</i> ), non-breeding; shag ( <i>Phalacrocorax aristotelis</i> ), breeding & non-breeding; Slavonian grebe ( <i>Podiceps auritus</i> ), non-breeding; great northern diver ( <i>Gavia immer</i> ), non-breeding; red-breasted merganser ( <i>Mergus serrator</i> ), non-breeding; scaup ( <i>Aythya marila</i> ), non-breeding; velvet scoter ( <i>Melanitta fusca</i> ), non-breeding.	Yes - The development will involve construction within the SPA.
Tynet Burn	SSSI	~2.3km South	Non-marine Devonian; Silurian – Devonian Chordata.	No - The features protected by the SSSI are immobile and are a considerable distance away from the proposed development.

Site	Designation	Distance Direction	Feature Category/Feature	Requires Consideration? Yes/No
Southern Trench	MPA	~2.9km Northeast	Burrowed mud; minke whale ( <i>Balaenoptera acutorostrata</i> ); fronts; Quaternary of Scotland.	Yes – the site is within travelling distance for minke whales.
River Spey	SAC and SSSI	~3.7km West	Atlantic salmon ( <i>Salmo salar</i> ); freshwater pearl mussel ( <i>Margaritifera margaritifera</i> ); [REDACTED]; sea lamprey ( <i>Petromyzon marinus</i> ).	Yes – Salmon, sea lamprey and [REDACTED] only as they are mobile/migratory species and inhabit both the terrestrial and marine environments. Freshwater pearl mussel are largely immobile, only surviving in freshwater and will be located at a considerable distance away from the proposed development.
Lower River Spey – Spey Bay	SAC and SSSI	~3.7km West	Alder woodland on floodplains; coastal shingle vegetation outside of the reach of waves.	No - The features protected by the SAC are immobile and are a considerable distance away from the proposed development.
Moray and Nairn Coast	SPA	~3.7km West	Bar-tailed godwit ( <i>Limosa lapponica</i> ), non-breeding; dunlin ( <i>Calidris alpina alpina</i> ), non-breeding; greylag goose ( <i>Anser anser</i> ), non-breeding; osprey ( <i>Pandion haliaetus</i> ), breeding; oystercatcher ( <i>Haematopus ostralegus</i> ), non-breeding; pink-footed goose ( <i>Anser brachyrhynchus</i> ), non-breeding; red-breasted merganser ( <i>Mergus serrator</i> ), non-breeding; redshank ( <i>Tringa totanus</i> ), non-breeding; waterfowl assemblage, non-breeding; wigeon ( <i>Anas penelope</i> ), non-breeding.	Yes - Due to the close proximity of the SPA and the mobile nature of the qualifying features.
Moray Firth	SAC	~16.2km Northwest	Bottlenose dolphin ( <i>Tursiops truncatus</i> ); subtidal sandbanks.	Yes – Bottlenose dolphins only, the distance between the construction area and designated site is

Site	Designation	Distance Direction	Feature Category/Feature	Requires Consideration? Yes/No
				within the known range of bottlenose dolphins. Subtidal sandbanks are not expected to move considerable distances.

#### 4.1.2 Benthic Ecology

The proposed pipeline route is located adjacent to the Beatrice Offshore Windfarm cable route. During the Environmental Impact Assessment (EIA) process for the cable route, a benthic survey was undertaken which covers the area of the proposed marine outfall pipeline. The survey was completed by the Centre for Marine and Coastal Studies Ltd (CMACS) in July 2011 and the final report issued in February 2012. While the study is several years old, benthic habitats do not change significantly overtime and therefore the 2011 survey results have been used to inform this report.

The CMACS 2012 report identified four different habitat types present in the immediate vicinity of the proposed pipeline route. These are:

- fine sand with ripples;
- encrusted cobble, pebble, and gravel;
- fine sand with some shell fragments; and,
- burrowed mud.

A geophysical survey of the pipeline route was carried out on the 29<sup>th</sup> July 2021 and the opportunity was taken to also gather benthic survey data by utilising a drop-down camera. Five separate transects were carried out, see Table 4.1.2 and Drawing IBE1949\_002. Note that since the transects have been completed, the pipeline route has been optimised, such that a number of the transects are located further from shore than the pipeline. Hence, PortGordon Video 3 provides the most relevant information for the intertidal section, while the shallower nearshore sections of PortGordon Vid 1 and Coreside 2021 T1 provide an understanding of the seabed likely to be encountered below MLWS on the pipeline route.

One habitat across the pipe route, 'encrusted cobble, pebble, and gravel', was identified throughout the five transects. This is consistent with the CMACS report along the same distance from shore. Within the pipeline route, no Priority Marine Features (PMFs) were noted. Species observed within this habitat included squat lobsters (*Munida rugosa*), hydroid sp., encrusting pink algae (*Lithothamnion* sp), filamentous red algae, brown algae, common starfish (*Asterias rubens*), spiny starfish (*Marthasterias glacialis*), brittlestars (*Ophiocomina nigra*), edible crab (*Cancer pagurus*), red velvet swimming crab (*Necora puber*), edible sea urchin (*Echinus esculentus*), sea squirts (*Clavelina lepadiformis*), encrusting tube worm sp., common feather star (*Antedon bifida*) and coral weed (*Corallina officinalis*).

**Table 4.1.2: Transect habitats**

Transect	Date	Easting	Northing	Habitat	Depth	Comments
Coreside 2021 T1	09/06/21	339238	867158	Encrusted cobble, pebble, and gravel	11.8m	Start of transect
		339473	868291	Encrusted cobble, pebble, and gravel	13.7m	End of transect
Coreside 2021 T2	09/06/21	339979	868154	Encrusted cobble, pebble, and gravel	13.3m	Start of transect
		339000	868375	Encrusted cobble, pebble, and gravel	14.3m	End of transect
Coreside 2021 T3	09/06/21	339800	867698	Encrusted cobble, pebble, and gravel	4.5m	Start of transect
		339010	867832	Encrusted cobble, pebble, and gravel	5.0m	End of transect
Portgordon vid 1	25/04/19	339272	866860	Encrusted cobble, pebble, and gravel	11.9m	Start of transect
		339473	868291	Encrusted cobble, pebble, and gravel	13.7m	End of transect
Portgordon vid 2	26/04/19	339979	868154	Encrusted cobble, pebble, and gravel	13.3m	Start of transect
		338997	868375	Encrusted cobble, pebble, and gravel	14.3m	End of transect
Portgordon vid 3	28/04/19	338697	864465	Some encrusted cobble, pebble, and gravel	-0.7m	Start of transect. Lot of suspended solids, poor visibility
		338757	864729	Very fine sand with large distinct sand ripples, some signs of burrowing organisms, possibly tubeworm	0.5m	Lot of suspended solids as in intertidal area, poor visibility
		338842	865036	Short section of cobbles and pebbles	2.7m	Lot of suspended solids as in intertidal area, poor visibility
		338962	865357	Encrusted cobble, pebble, ad gravel	5.6m	Lot of suspended solids, poor visibility

#### 4.1.3 Fish Ecology

The Moray Firth supports a wide variety of both pelagic and demersal fish species and is an important spawning ground and/or nursery for several fish species (Coull et al., 1998; Marine Scotland, 2020). A search on Marine Scotland's National Marine Plan Interactive (NMPi) database shows the pipeline will be installed within a known spawning area for Raitt's sandeel (*Ammodytes marinus*) and lemon sole (*Microstomus kitt*). Sandeels are known to spawn between November and February, with the peak months being December and January (Aksel Bergstad et al., 2001). Sandeel eggs are laid on the seabed, with the larvae emerging in

February to March before entering the pelagic environment (Sundby et al., 2017). The works, scheduled to take place between April and August, will therefore not risk disturbing eggs within the substrate. Lemon sole spawn between May and October, with the peak occurring in May to August (Geffen et al., 2021). Whilst the works are likely to overlap this period, the species is understood to predominantly spawn at water depths of around 50-100m (Sundby et al., 2017; Geffen et al., 2021). The relatively shallow works depth (~8m) means it is highly unlikely the works will disturb lemon sole spawning.

The area also acts as a nursery ground for Raitt's sandeel, lemon sole, whiting (*Merlangius merlangus*), sprat (*Sprattus sprattus*), herring (*Clupea harengus*) and saithe (*Pollachius virens*). The juveniles utilising these coastal waters are mobile and thus will be capable of avoiding the works should they be present in the area at the time. The localised nature of the works will also minimise the potential for disturbance to these species.

The waters around the proposed pipeline are also listed as a functional unit and suitable habitat in Scottish and adjacent waters for Norway lobster (*Nephrops norvegicus*), however, no habitat for Norway lobster was identified during the benthic video transect survey.

Records of basking shark (*Cetorhinus maximus*) have been identified within the area of Spey Bay (NBN Atlas, 2021). These have been recorded by a local wildlife centre with the centre being used as the location, so it is not clear exactly where they have been spotted. Whilst basking sharks are known to inhabit the Moray Firth over the summer months, it is worth noting that water depths within the area of works are relatively shallow (~8m) and basking sharks are unlikely to be attracted to water depths under 10m.

The River Spey is located 4.4km from the site and is designated in part for Atlantic salmon (*Salmo salar*) with the river supporting one of the largest Atlantic salmon populations in Scotland. It is also designated in part for sea lamprey (*Petromyzon marinus*). Both Atlantic salmon and sea lamprey are migratory species and will leave the river migrating to sea, the development is located a sufficient distance away from the mouth of the river where they will emerge into a large expanse of open water. Records for salmon and sea lamprey are shown within the River Spey (NBN Atlas, 2021).

#### 4.1.4 Marine Mammals

The Moray Firth supports a variety of marine mammals including species of whales, dolphins, porpoise and seals. The Moray Firth Special Area of Conservation (SAC), designated in part for bottlenose dolphins (*Tursiops truncatus*), is located 16.2km west of the development site and the Southern Trench MPA, of which minke whales (*Balaenoptera acutorostrata*), are a designated feature, is located 2.9km to the northeast. The SAC is a Natura site under the Habitats Regulations and therefore an appraisal has been carried out to enable the competent authority to determine if an appropriate assessment will be required, see Appendix B.

Records of minke whales and bottlenose dolphins have been identified within 5km of the proposed development, largely located to the east of the development. These species are afforded protection outwith the designated sites as well as within. Records of harbour porpoise (*Phocoena phocoena*) have also been identified towards Spey Bay. It is worth noting however, that water depths within the area of works are relatively shallow and unlikely to attract minke

whales, although bottlenose dolphin and harbour porpoise are known to feed in shallow areas in the Moray Firth (Bailey & Thompson, 2010).

There are numerous records of both harbour and grey seals (*Phoca vitulina* and *Halichoerus grypus*, respectively) within 5km with numerous records to the east of Portgordon (National Biodiversity Network Atlas, 2021). There is local information detailing a seal haul out at Portgordon, although this is not officially designated. Anecdotal tourist information notes that approximately 30 seals, both harbour and grey, are reported as using the beach to haul out (Live Breathe Scotland, 2021).

Records of bottlenose dolphin, harbour porpoise, grey seal and harbour seal were reported within the Caithness Moray Project Marine Mammal Protection Plan (Natural Power, 2018) as species occurring in the Moray Firth year-round with minke whales occurring in late summer. Other species which were reported to occur occasionally within the Moray Firth included short-beaked common dolphin (*Delphinus delphis*), Risso's dolphin (*Grampus griseus*), white-beaked dolphin (*Lagenorhynchus albirostris*), humpback whale (*Megaptera novaengliae*), killer whale (*Orcinus orca*) and long-finned pilot whale (*Globicephala melas*), however only the short-beaked common dolphin was recorded within 5km of the proposed pipeline.

#### 4.1.5 Terrestrial Ecology

Terrestrial ecology has been further considered in the Crisp Maltings Pipeline Replacement, Portgordon Preliminary Ecological Appraisal (PEA) (Tracks Ecology, 2021). Purely terrestrial species which do not frequent the marine environment will not be considered further in this report.

There are records of [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] the most recent records are largely concentrated on the River Spey to the west of the development where the River Spey SAC is located and designated in part for [REDACTED]. No evidence of [REDACTED] was identified during the survey carried out by Tracks Ecology and no suitable habitat within the survey area was found. The PEA report noted that the sections of coast are likely to be used on a sporadic basis but do not provide optimal habitat for [REDACTED]. The SAC is a Natura site under the Habitats Regulations and therefore appraisal has been carried out to enable to the competent authority to determine if an appropriate assessment will be required, see Appendix B.

There are numerous records of various bird species around the site. Species of seabird include razorbill, little auk, black guillemot, black tern, fulmar and various species of gulls and terns and skua (National Biodiversity Network Atlas, 2021) however, there is little breeding habitat available near the area of the proposed development. The PEA report noted that the coastal environment may provide habitat for species such as oystercatcher (*Haematopus ostralegus*), turnstone (*Arenaria interpres*) and ringed plover (*Charadrius hiaticula*).

The proposed pipeline installation is located within the Spey Bay SSSI, see Table 4.1 for the list of designated features. The site has been highlighted within the PEA report noting that the development passes through the very edge of the Spey Bay SSSI. The PEA report noted that there may be a requirement to gain an operations requiring consent licence from NatureScot for working within the SSSI. However, as works are already consented under the Town and Country Planning (Scotland) Act 1997 by Moray Council, an operations requiring consent licence is not required.



The proposed pipeline and outfall installation is located within the Moray Firth SPA, designated for ornithological features as listed in Table 4.1. The site was selected to provide protection to important wintering grounds used for feeding, moulting, and roosting by waterfowl, many of which migrate to Scotland each year to overwinter or stop off during migration. The SPA is a Natura site under the Habitats Regulations and therefore an appraisal has been carried out to enable to the competent authority to determine if an appropriate assessment will be required, see Appendix B. It should be noted that works are not scheduled to be carried out over the winter season.

## 4.2 Geology and Coastal Processes

A geophysical and geotechnical study has been completed for the project by Geotec (2020). The works included both trial pits and boreholes, samples of which have been analysed for particle size distribution.

The bedrock formations localised at the landfall area of the proposed pipeline route is Fochabers Sandstone Formation which is characterised by red-bed sandstones with sporadic silty calcareous mudstone with fossil fish-bearing limestones/concretions. It is approximately 100m thick and dates back to Mid Devonian Epoch. The second formation is Spey Conglomerate Formation which is characterised by coarse red-bed conglomerate sequence with sporadic thin pebbly sandstone beds. It is approximately 200m in thickness and also dates back to Mid Devonian Epoch.

The marine boreholes which were drilled to between 3m and 4.5m below seabed level didn't encounter bedrock. Of four trial pits completed within the intertidal area, two found bed rock, one at 0.4m below the surface and the other at 2.5m below seabed. There is a potential therefore that rock will be encountered within the intertidal areas of the pipeline trench, however, due to the nature of the rock (Sandstone) it is anticipated that the trenching plant will be able to break through it.

The composition of sediments found in the trial pits were combinations of sand, gravel and cobbles with red sandy silt/clay with gravels and pebbles, being found in trial pit 2. Hence the majority of the material which will be moved during trenching is of a higher particle size and less likely to give rise to increased solid loading in the water column during construction.

In terms of seabed mobility along the proposed pipeline route, the sand body is stable under the action of daily tides, however is susceptible to wave disturbance. The majority of the wave disturbance is marginal. During infrequent energetic storms, sand will be vigorously suspended, particularly in the surf zone. These storm events do not permanently remove the sand deposit from the shelf, suggesting that the sediments are not transported away from the site but re-settle back onto the seabed once the storm has passed (Geotec, 2020). This has been taken account of in determining that a 1m burial depth is appropriate.

The CMACS 2012 report indicated that the sediments within the area surrounding the proposed pipeline route contained low levels of contamination. These were recorded as well below the low threshold levels as determined by the Interim Sediment Quality Guideline (ISQG) levels, the Centre for Environment, Fisheries and Aquaculture Science (CEFAS) action one levels and Marine Scotland action one levels. As such it is highly unlikely that contaminant will not be remobilised during the trenching works.



### 4.3 Marine Archaeology

There have been no reported palaeolithic finds or deposits of archaeological significance in the vicinity of the proposed pipeline route.

According to Canmore, National Record of the Historic Environment, a steamship named Richmond (Canmore ID: 256378O, was blown into the rocks approximately 1 mile from Lossiemouth. The wreck is located approximately 20km west of the proposed pipeline route (Canmore, 2021). There are a number of aircraft recorded by the National Monuments Record for Scotland (NMRS) as having gone down in the Moray Firth, however the exact locations are unknown.

During the archaeological survey undertaken as part of the proposed Beatrice Offshore Windfarm, 19 cultural heritage assets were identified within the immediate vicinity of the proposed pipeline route. One asset was identified with high archaeological potential as it was a previously unrecorded wreck. The remaining 18 assets of medium archaeological potential have been reported as unknown anomalies that could be indicative of unrecorded wreckage or submerged features.

During analysis of the benthic habitat survey data as discussed in Section 4.3.1, signs of marine archaeology were also looked for. No marine archaeological features were noted within these transects.

### 4.4 Water Quality

The proposed pipeline and outfall will be installed within the Portgordon to Findochty coastal water body (200146) within the Scotland River basin district. It covers an area of 32.2km<sup>2</sup> and forms part of the Moray Firth SAC. In 2014 it was categorised as having 'good' overall ecological and chemical status (SEPA, 2021c).

The Burn of Tynet, a coastal catchment (ID 23047) in the Scotland River basin district, is the closest watercourse to the proposed development, with the mouth of the burn located approximately 200m to the west of trenching activities. The Burn of Tynet is approximately 11km in length. In 2018 it was categorised as having 'good' overall ecological and chemical status. Due to the location and nature of the burn flowing out to sea, it is unlikely that the proposed development will have an impact on the watercourse.

There are no designated bathing waters in the vicinity of the proposed pipeline route. The nearest SEPA monitored bathing waters are located 16km west at Lossiemouth (SEPA, 2021a). Due to this distance, it is not anticipated the bathing waters will be affected by the installation activities.

The closest shellfish waters are located approximately 65km west in Cromarty Bay and 60km northwest at Dornoch Firth (SEPA, 2021b). Due to the considerable distance of these sites from the proposed development, it is not anticipated that these will be affected.

### 4.5 Traffic, Transport and Navigation

The proposed location of the pipeline is accessed via Stewart Street, which is a quiet residential road. Stewart Street leads to area of land which is currently undeveloped and located directly adjacent to the location of the proposed pipeline. Subsequently, the installation activities are

unlikely to result in traffic diversions and traffic build up as a result of construction vehicles parking or loading and offloading of trucks.

As discussed in Section 2.2, the pipeline sections will be transported by sea to Buckie Harbour, located approximately 4km west from the proposed pipeline installation site. Buckie Harbour currently serves the operations and maintenance crafts associated with the Beatrice Demonstrator turbines and is home to a successful manufacturing, boat repair, cargo handling and fishing business, as well as a dredger (Moray Council, 2021). The harbour has four large basins which can accommodate vessels up to 86m in length and 3.2m at MLWS. Basin 1 accommodates 2 cargo vessels and is where fishing vessels land. Basins 2 and 3 are used by fishing vessels and associated work boats and, work vessels. Basin 4 accommodates creel boats (Moray Firth Coastal Partnership, 2021).

#### 4.6 Population and Human Health

Spey Bay is located within the regional district of Moray. According to the 2011 census the population of Moray was 93,300 (Highlands and Islands Enterprise (HIE, 2014) with the 2017 Mid-Year Estimate slightly higher at 95,780 (National Registers of Scotland). Moray has 45 primary schools and eight secondary schools with 11,900 pupils in education in 2017.

It is estimated that 85% of Moray's working age population are in employment, higher than the Scottish average of 80%. The top 5 employment sectors in the Moray area are food and drink, manufacturing, construction, utilities, and tourism. Employment in the fishing and aquaculture sector comprises of approximately 4-5% of the Moray population (HIE, 2014).

The Moray area is famous for hunting, shooting, and fishing with mountains, coasts, forestry, market towns and access to the Cairngorms National Park. It offers both indoor and outdoor pursuits, making Moray a popular tourist destination.

The Speyside Way is one of Scotland's four official long-distance walking routes. The trail begins in Aviemore and continues for 66 miles to Buckie, on the Moray Firth and includes a section between Spey Bay and Portgordon. In addition to the Speyside Way, the Moray Coast Trail stretches 50 miles along the coastline from Findhorn to Cullen. This trail uses the same coastal path as the Speyside Way between Spey Bay and Buckie. The stretch of beach between Portgordon and the River Spey is a popular attraction for local residents.

The closest residential area to the proposed development is the town of Portgordon, with the closest residential property located approximately 200m away. A public car park is also located approximately 160m to the east of the proposed development.

#### 4.7 Socio-Economic

Portgordon was established in 1797 as a fishing village with the Portgordon Harbour being used for both import/export and commercial fishing operations. Commercial fishing in the area includes fishing for langoustine, scallops, squid, whitefish, crab and lobster and mackerel. There are a number of artisanal fisheries operating from the harbour. This involves using low levels of technology, smaller boats, and the use of more traditional fishing gear. A number of creel boats also operate from Portgordon Harbour.

The region of Moray is well known for its whisky distilleries and is home to the highest concentration of distilleries in Scotland with over 50 across the area. The Malt Whisky Trail and the Spirit of Speyside Whisky Festival are popular attractions with tourists coming from across

the world to visit 'Scotland's whisky country.' These distilleries not only attract a large number of tourists every year but also provide considerable employment across the region.

## 5 Potential Construction Effects

Table 5.1 provides a description of the environmental aspects arising during the installation of the marine outfall pipeline. It outlines sensitivities as per Section 4, identifies likely significant effects and proposes mitigation measures for negative effects, if required, on the environment.

**Table 5.1: Marine Construction Effects and Sensitivities**

Topic		Source	Sensitivities	Potential Effect
Ecology	Marine Ecology	Excavation/trenching	Biodiversity – benthic ecology, fish	Temporary disturbance and damage to seabed. Physical harm/mortality of benthic organisms. Temporary habitat loss.  It should be noted that once the trench is backfilled, the habitat will have the ability to recover and benthic organisms to recolonise.
	Ornithology	Works within designated site	Moray Firth SPA - designated to protect 10 species of inshore wintering waterfowl, European shags, and supporting habitats	Disturbance to birds limited due to techniques utilised and installation through the summer months.
Residues and Emissions	In-Air Noise	Increased activity close to shore	Portgordon community, tourists	Noise disturbance to users of the surrounding areas during works close to shore, reducing recreational value of the area. This would be a short term reversible effect.
	Underwater Noise	Trenching/vessel movement	Biodiversity - Marine mammals, Moray Firth SAC	No significant noise source, vessel movements and trenching will add to overall soundscape for a short period of time.
	Water Quality	Loss of containment of oil/fuel/chemicals during refuelling or due to collision or containment failure	Water quality, biodiversity - marine mammals, fish, benthic ecology, Moray Firth SAC	Unlikely to have a spill of a magnitude that would noticeably reduce water quality or effect biodiversity.
	Water and Seabed Quality	Increased sediment in the water column associated with trenching activities	Biodiversity - marine mammals, fish, and benthic ecology	Very localised effect. The majority of the route is made up of encrusted cobble, pebble, and boulder and

Topic	Source	Sensitivities	Potential Effect
			materials will therefore be expected to drop out quickly.
	Marine Non-Native Species	Vessel associated with transport of the pipeline sections. Vessel pumping/ballast water	Biodiversity – Benthic ecology
Archaeology	Archaeological assets	Excavation/trenching	Unidentified archaeological features
Navigation	Navigation	Vessel movements during construction	Berth users in Buckie Harbour (fishing vessels and visiting vessels), vessels on the sea Marine Mammals
Employment	Job Creation	Employment opportunities	People – Economy
Stakeholder Management	Commercial Fishing	All construction related activities	Commercial Fishing - Economy
	Recreational Beach Access	Excavation/trenching and pipeline assembly	Portgordon community, tourists

## 6 Mitigation

### 6.1 Pre-Construction Mitigation

A number of mitigation measures have been identified which should be implemented prior to construction works commencing to address the potential effects identified in Table 5.1, these are detailed within this section.

#### 6.1.1 In-Air Noise

Local residents will be informed of the proposed working schedule, where appropriate, including the times and duration of any abnormally noisy activity that may cause temporary disturbance. It is noted however that the nearest residential property is 200m from the construction site, hence in-air noise effects are unlikely.

#### 6.1.2 Recreational Beach Access

As part of community communication for in-air noise, local residents will also be informed of the proposed working schedule, where appropriate, and the route of a temporary pedestrian diversion to enable safe beach access around the project area. Refer to section 6.2.10 for further details.

#### 6.1.3 Archaeology

A Protocol for Archaeological Discoveries (PAD) will be developed and implemented should any archaeological finds be made during construction.

#### 6.1.4 Navigation

Notices to Mariners will be issued prior to mooring installation, trenching and pipeline installation works. Appropriate temporary marker buoys will be installed to show the location of the construction area for the project duration.

#### 6.1.5 Commercial Fishing

A Fisheries Liaison Officer (FLO) has been employed to undertake early communications with the local fishing sector, and identify fishers that have pots in the area. Discussions by the FLO are aiming to identify if creels are normally placed within the vicinity of the pipeline route below MLWS, as installation of the pipeline will require the exclusion of fishing activities (if any) in the immediate vicinity of the works. Furthermore, it is important to understand where pots may be located between Buckie Harbour and the pipeline, so that the construction vessels routes can be planned to avoid creels while transiting to and from the construction site. The FLO is responsible for maintaining communication between the project and local fishers during the installation period to minimise disturbance to fishing and navigational risks.

### 6.2 Construction Mitigation

Mitigation identified to avoid and minimise negative effects associated with construction as discussed identified in Table 5.1 to be implemented during construction are detailed below.

#### 6.2.1 Marine Ecology

Trenching will be carried out using appropriate geo-positioning technology to ensure that only the required area is excavated, and that habitat removal is kept to a minimum.

Works will be carried out between April and October and outwith the spawning season for sandeels and depths for spawning of lemon sole.

All vessels operating onsite will also be required to follow the Scottish Marine Wildlife Watching Wildlife Code (SMWWC) and construction operatives will be required to check the construction area for marine mammals prior to trenching/pipe laying.

### **6.2.2 Ornithology**

Works being carried out between April and October will avoid the overwintering bird season.

### **6.2.3 In-Air Noise**

A protocol will be developed for handling any noise complaints made by residents and will be used during construction. As mentioned previously, in-air noise effects are unlikely given the 200m distance to the nearest residential property.

### **6.2.4 Underwater Noise**

Vessels will be appropriately maintained, and the duration of works will be minimised where practicable to minimise additional noise to the underwater soundscape.

### **6.2.5 Water and Seabed Quality**

Works will be conducted in line with standard best practice and existing guidelines with regards to storage and handling and pollution prevention. A pollution prevention and spill management plan will be in place during construction. Vessel refuelling will be carried out in a designated area in harbour in accordance with local procedures. Refuelling of land based plant will be carried out in a designated area away from the water. All plant and machinery will be appropriately maintained.

Trenching will be carried out using appropriate geo-positioning technology to ensure that disturbance to the seabed is minimised.

### **6.2.6 Marine Non-Native Species**

All vessels will be compliant with the relevant requirements of the International Maritime Organisation including adherence to the Ballast Water Management Convention. All equipment and machinery will be clean and free of debris when brought to site and will be cleaned before being taken offsite for use elsewhere.

### **6.2.7 Navigation**

Navigation and berthing at Buckie Harbour will be under the control of the Harbour Master. Berthing arrangements will be agreed with the Harbour Master who will ensure appropriate provision is retained for local and visiting vessels. All vessels utilised during the project will be required to meet all relevant safety regulations. Appropriate temporary marker buoys will be utilised as mentioned above.

Upon completion of the pipeline installation, the temporary mooring used to store the pipe sections at sea will be removed, eliminating this navigational/ fishing obstruction. As built plans showing the locations of the diffusers will be made available to all interested parties. The need for permanent marker buoys for the diffusers will be discussed and agreed with the National Lighthouse Board (NLB).



### 6.2.8 Commercial Fishing

The duration of works and disruption to commercial fishing will be minimised wherever possible. The FLO will manage communications between the project and local fishers throughout the installation period, ensuring the construction vessel masters are aware of where pots are located near their transiting routes. The FLO is also responsible for communication to the local fishing sector in regard to marine exclusion areas and construction dates and duration, to minimise disturbance to fishing and navigational risks.

### 6.2.9 Archaeology

In event of a potential archaeology find the PAD developed during pre-construction will be implemented.

### 6.2.10 Recreational Beach Access

To enable continued beach access around the project area, a pedestrian diversion will be installed to safely re-direct foot traffic from Portgordon along Speyside Way, one of Scotland's Great Trails (Drawing 77\_DRG\_03). During the pipeline assembly, trenching and installation phases, parts of Tannachy Sands will be designated as a construction site and off-limits to the public. Consequently, pedestrians will be diverted via informative signage to Speyside Way and a track along the River Spey, in order to access the beach to the west of the construction area. Utilising Speyside Way for this purpose was authorised by the Moray Council during planning consent for the terrestrial pipeline installation (planning application reference number 21/01711/APP). The duration of restricted beach access, and subsequent need for the pedestrian diversion, will be minimised where possible.

### 6.2.11 Additional Mitigation

In addition to the specific mitigation identified to manage effects that have been identified in Table 5, the project intend to develop and share a communication tool (i.e. pamphlet) to inform the public about the project prior to and during the construction phase. Applicable construction guidance will be followed to minimise other potential negative effects of the project and ensure appropriate guidance is followed Including:

- Guidance for Pollution Prevention 5 (GPP5) – Works and maintenance in or near water (NRW, NIEA & SEPA, 2018);
- Pollution Prevention Guidance 7 (PPG7) – The safe operation of refuelling facilities (Environmental Agency et al., 2011);
- Guidance for Pollution Prevention 8 (GPP8) – Safe Storage and Disposal of Used Oils (NRW, NIEA & SEPA, 2017); and
- Coastal and Marine Environmental Site Guide: C584 (Budd et al., 2003);

## 7 Summary

Consents are being sought under the Marine (Scotland) Act 2010 for the proposed installation of a pipeline and outfall to discharge effluent into the marine environment. Once installed, the pipeline will allow for the discharge of treated distillery trade effluent to the sea. It has been recognised that construction will have some potential impacts on the environment and mitigation has been identified to minimise effects. With mitigation in place, the environmental impacts should be minimal.



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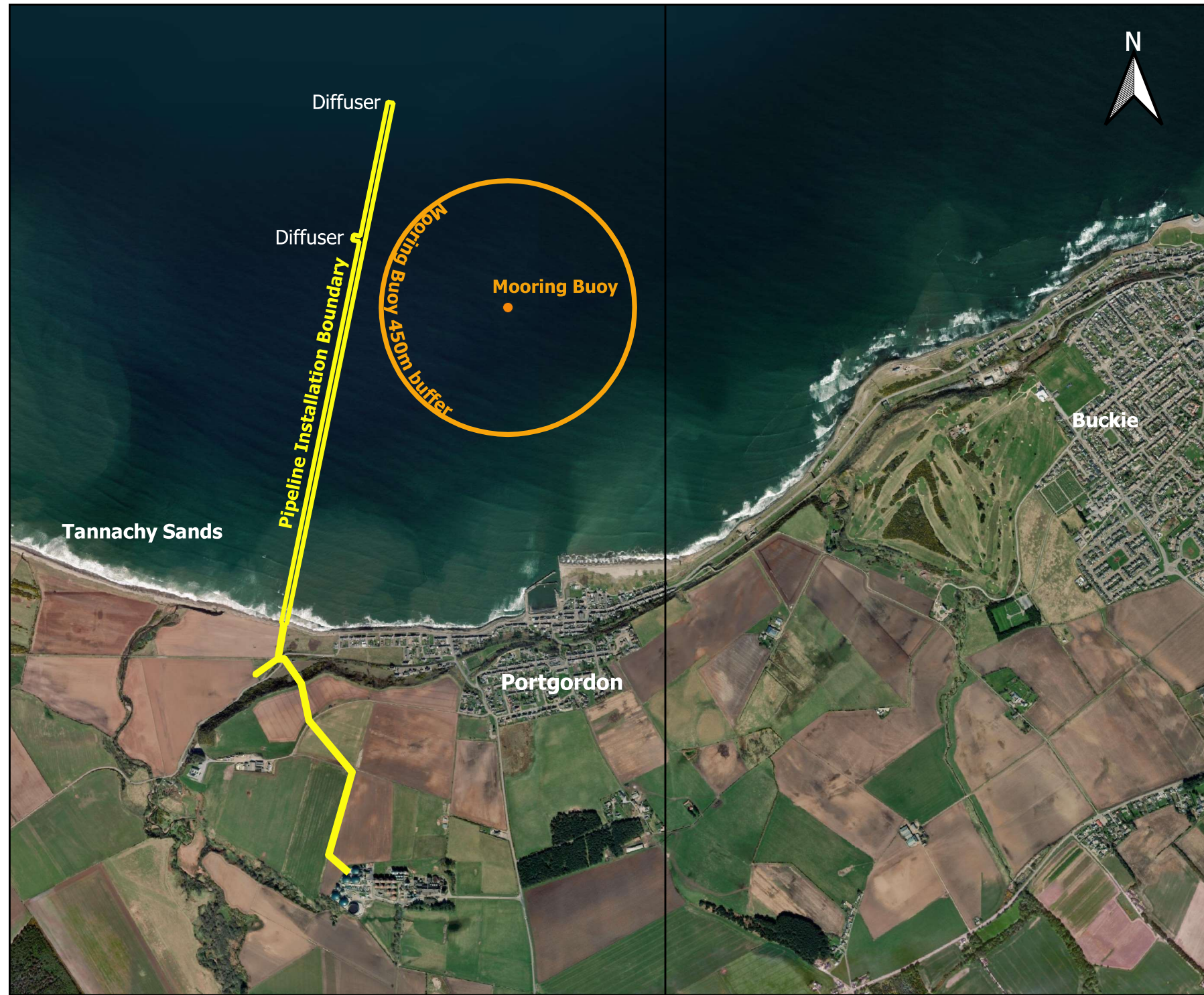
## 9 Glossary

Acronym	Definition
AA	Appropriate Assessment
AD	Anaerobic Digestion
BOD	Biological Oxygen Demand
CAR	Water Environment (Controlled Activities) (Scotland) Regulations 2011
CEFAS	Centre for Environment, Fisheries and Aquaculture Science
CHP	Combined Heat and Power
CMACS	Centre for Marine and Coastal Studies Ltd
COD	Chemical Oxygen Demand
CO <sub>2</sub>	Carbon Dioxide
EIA	Environmental Impact Assessment
EQS	Environmental Quality Standards
FLO	Fisheries Liaison Officer
GEN	General Planning Principles
GPP	Guidance for Pollution Prevention
HDPE	High-Density Polyethylene
HRA	Habitats Regulations Appraisal
ISQG	Interim Sediment Quality Guideline
km	Kilometre(s)
LSO	Long Sea Outfalls
m	Metre(s)
mm	Millimetre(s)
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs
MPA	Marine Protected Area
MS-LOT	Marine Scotland Licensing Operations Team
NBN	National Biodiversity Network
NIEA	Northern Ireland Environmental Agency
nm	Nautical Miles
NMP	National Marine Plan
NMPi	National Marine Plan Interactive
NMRS	National Monuments Record for Scotland
NRW	Natural Resources Wales
NWM	North West Marine
PAD	Protocol for Archaeological Discoveries
PEA	Preliminary Ecological Appraisal
PMF	Priority Marine Features
PPG	Pollution Prevention Guidance
SAC	Special Area of Conservation
SEPA	Scottish Environmental Protection Agency
SPA	Special Protection Areas
SSSI	Site of Special Scientific Interest

## Appendix A: Proposed Licence Boundary Co-ordinates

Point Number	Grid Reference	Latitude / Longitude
P1	NJ 38657 64218	57' 39.818 N 3' 1.789 W
P2	NJ 38037 64372	57' 39.895 N 3' 2.415 W
P3	NJ 37723 64495	57' 39.959 N 3' 2.732 W
P4	NJ 37746 64587	57' 40.009 N 3' 2.711 W
P5	NJ 38642 64341	57' 39.885 N 3' 1.784 W
P6	NJ 38904 65591	57' 40.559 N 3' 1.561 W
P7	NJ 38880 65597	57' 40.562 N 3' 1.586 W
P8	NJ 38888 65629	57' 40.580 N 3' 1.578 W
P9	NJ 38913 65626	57' 40.580 N 3' 1.553 W
P10	NJ 39009 66103	57' 40.836 N 3' 1.464 W
P11	NJ 39049 66096	57' 40.833 N 3' 1.423 W
P12	NJ 39844 65671	57' 40.607 N 3' 0.551 W
P13	NJ 39941 65333	57' 40.429 N 3' 0.514 W
P14	NJ 39723 64845	57' 40.164 N 3' 0.726 W
P15	NJ 38812 64971	57' 40.225 N 3' 1.644 W





Registered Office:  
Lochview Office, Loch Duntelchaig  
Farr, Inverness, IV2 6AW

Telephone: 01808 521 498  
Email: [info@affriclimited.co.uk](mailto:info@affriclimited.co.uk)  
[www.affriclimited.co.uk](http://www.affriclimited.co.uk)




77\_DRG\_01\_1 Project Location

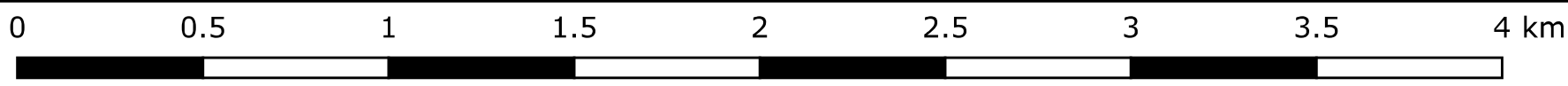
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Sources: Esri, DigitalGlobe, GeoEye,  
i-cubed, USDA FSA, USGS, AEX,  
Getmapping, Aerogrid, IGN, IGP,  
swisstopo, and the GIS User  
Community

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**Grissan Pipeline**

-  Mooring Buoy
-  Mooring Buoy 450m buffer
-  Pipeline Installation Boundary





# Spey Bay



Registered Office:  
Lochview Office, Loch Duntelchaig  
Farr, Inverness, IV2 6AW

Telephone: 01808 521 498  
Email: [info@affriclimited.co.uk](mailto:info@affriclimited.co.uk)  
[www.affriclimited.co.uk](http://www.affriclimited.co.uk)

77\_DRG\_02\_1 Proposed Licence  
Boundary & Project Areas

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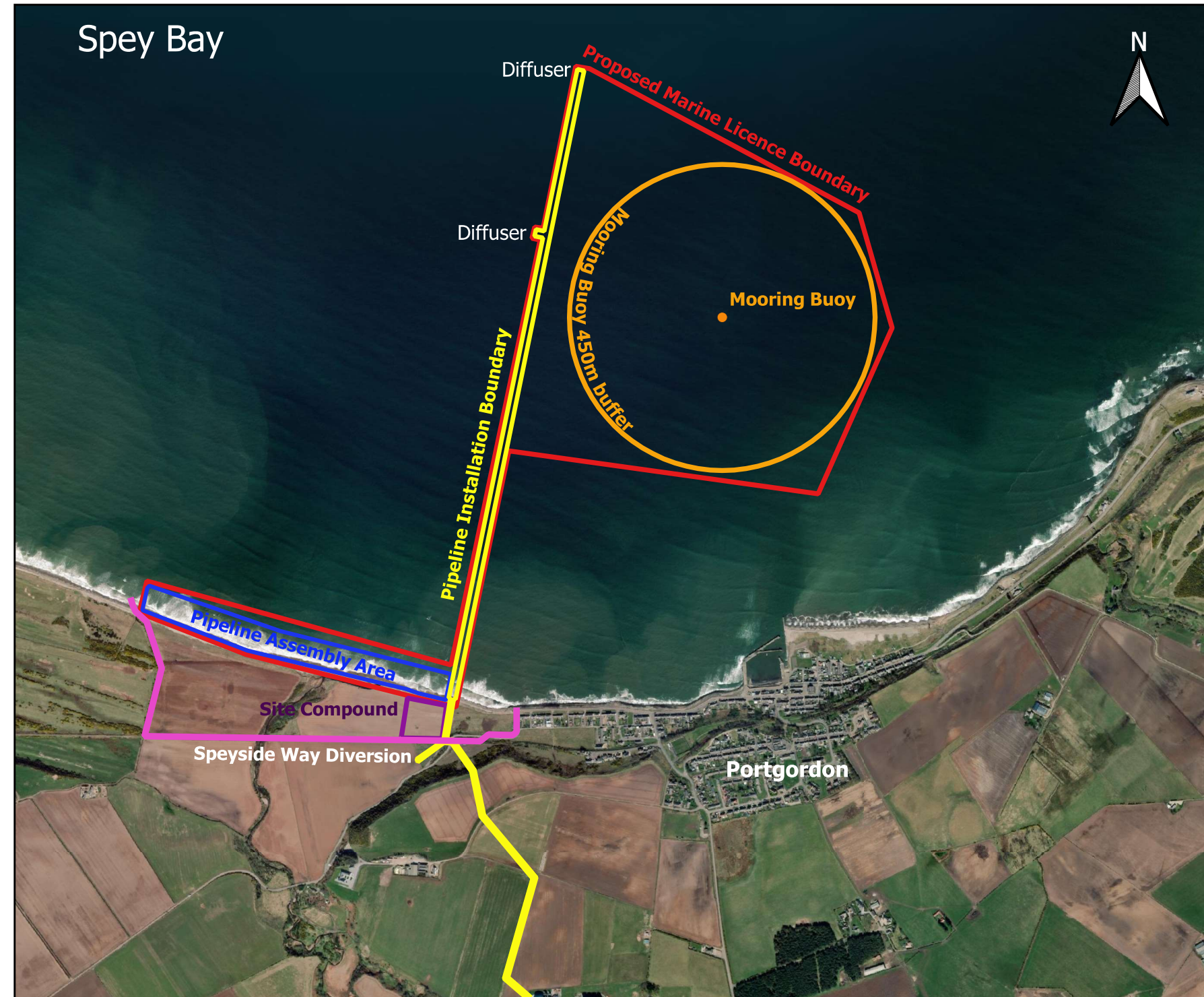
Page 1

Rev No: 1

Drawing Date:  
20/06/2022

## Grissan Pipeline

- Mooring Buoy
- Mooring Buoy 450m buffer
- Pipeline Assembly Area
- Pipeline Installation Boundary
- Proposed Marine Licence Bound
- Site\_Compound
- Speyside Way Diversion



0 0.5 1 1.5 2 2.5 3 km



Registered Office:  
Lochview Office, Loch Duntelchaig  
Farr, Inverness, IV2 6AW

Telephone: 01808 521 498  
Email: [info@affriclimited.co.uk](mailto:info@affriclimited.co.uk)  
[www.affriclimited.co.uk](http://www.affriclimited.co.uk)

77\_DRG\_04\_1 Proposed Marine  
Licence Boundary

Projection: OSGB 1936/British National  
Grid EPSG: 27700

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Drawing Date:  
04/07/2022

### Grissan Pipeline

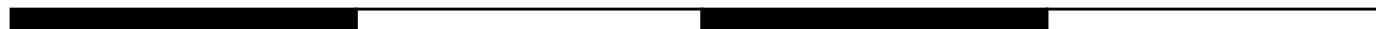
- Marine Licence Points
- Proposed Marine Licence Bound



Proposed Marine Licence Boundary

Portgordon

0 0.5 1 1.5 2 km







Registered Office:  
Lochview Office, Loch Duntelchaig  
Farr, Inverness, IV2 6AW

Telephone: 01808 521 498  
Email: [info@affriclimited.co.uk](mailto:info@affriclimited.co.uk)  
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77.01.01 Designated Sites with 20km  
& 10km

Projection: OSGB 1936/British National  
Grid EPSG: 27700

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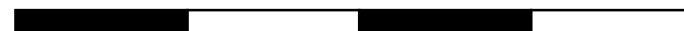
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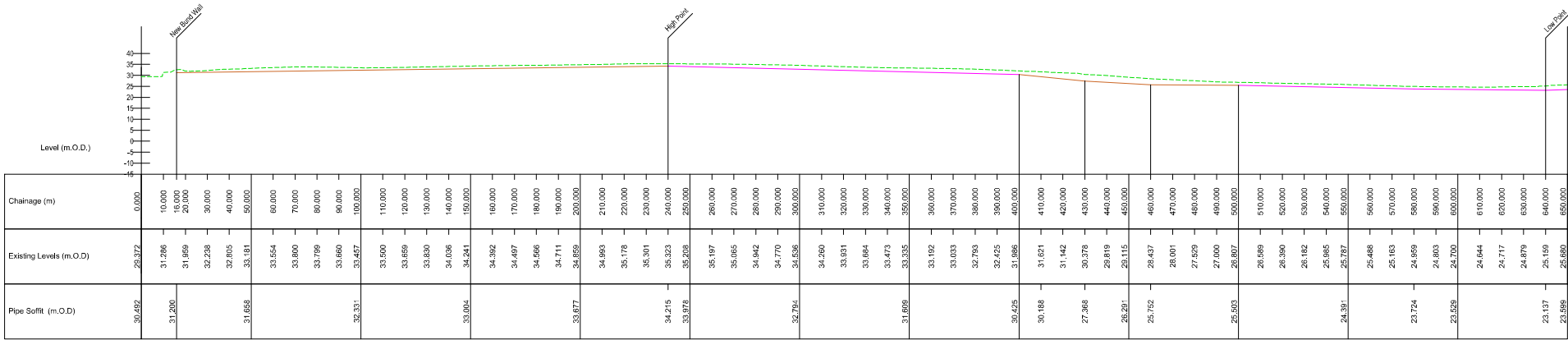
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-  10km Buffer
-  20km Buffer
-  MPA\_SCOTLAND
-  SAC
-  SPA
-  SSSI
-  Foreshore
-  Road
-  Surface Water
-  Tidal Water
-  Woodland

0 5 10 15 20 km

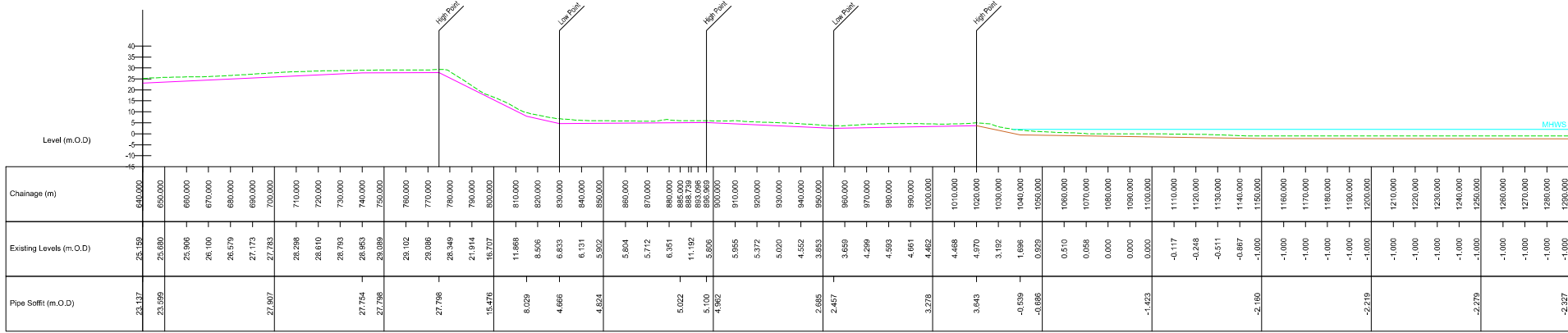




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SCALE: H 1:1000,V 1:1000. DATUM: -15.000



ALIGNMENT LONG SECTION PT2 - LONGSECTION  
SCALE: H 1:1000,V 1:1000. DATUM: -15.000



- NOTES
1. Verifying Dimensions.  
The contractor shall verify dimensions against such other drawings or site conditions as pertain to this part of the work.
  2. Existing Services.  
Any information concerning the location of existing services indicated on this drawing is intended for general guidance only. It shall be the responsibility of the contractor to determine and verify the exact horizontal and vertical alignment of all cables, pipes, etc. (both underground and overhead) before work commences.
  3. Issue of Drawings.  
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  4. Datum.

02	Revision updated to Tender	MB	17/12/21
01	Pipe profile amended	MB	07/12/21
rev	amendments	check	date

Client

Project  
Coreside LSO

Title  
Long Section Part 1 & 2

Project Number  
IBE1949

Sheet Size  
A1

Drawing Scale  
1:1000

Drawing Number  
IBE1949\_002

Drawn By  
NM

Status  
Tender

Revision  
02

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MB

Approved By  
MB

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Registered Office:  
Lochview Office, Loch Duntelchaig  
Farr, Inverness, IV2 6AW






Telephone: 01808 521 498  
Email: [info@affriclimited.co.uk](mailto:info@affriclimited.co.uk)  
[www.affriclimited.co.uk](http://www.affriclimited.co.uk)

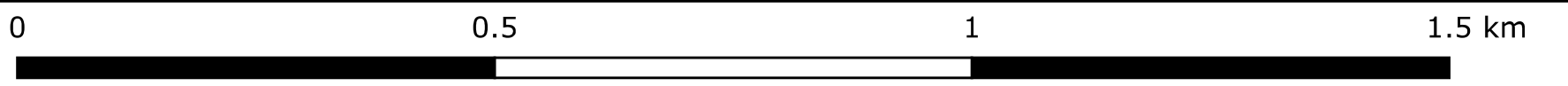
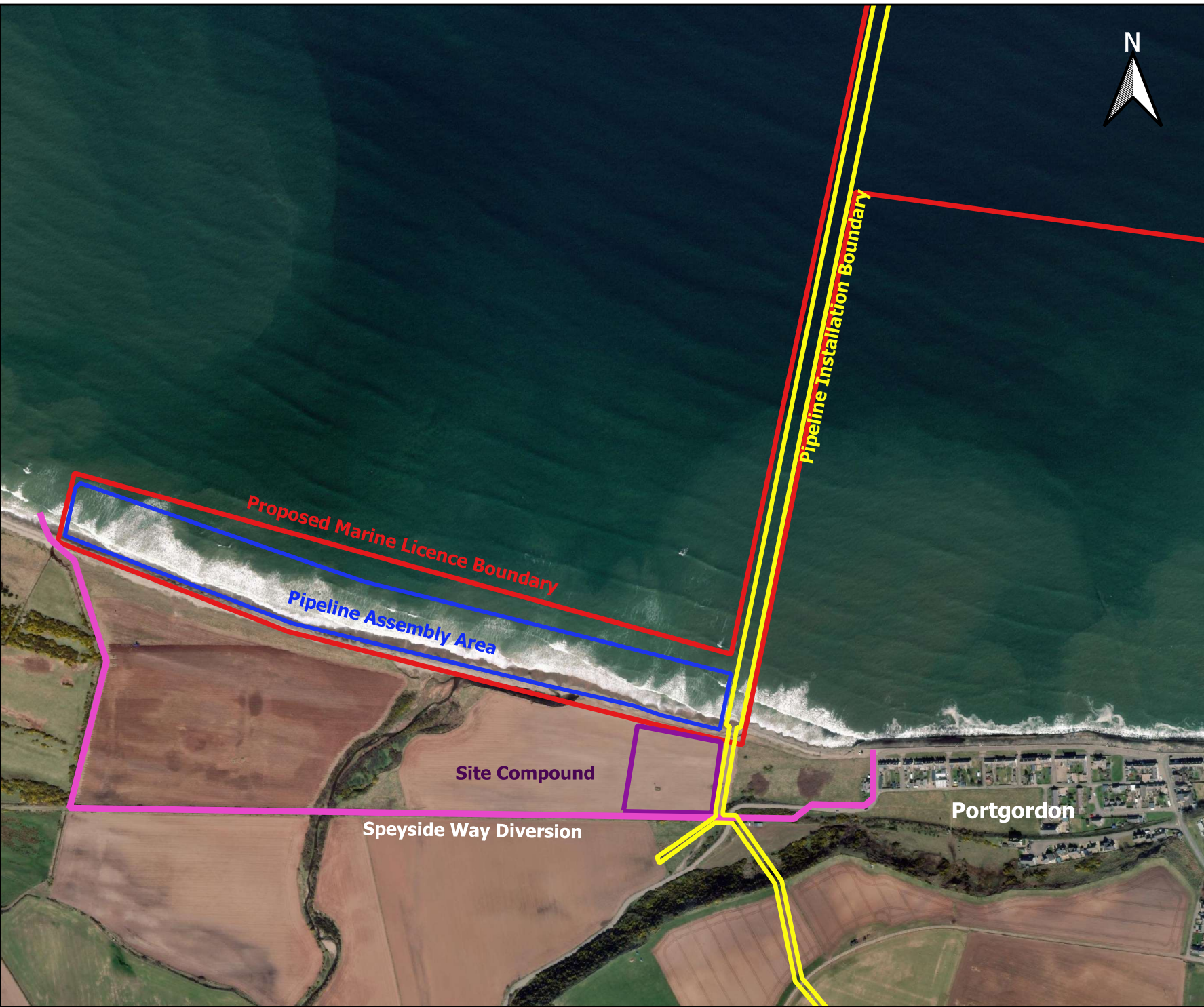
77\_DRG\_03\_1 Proposed Diversion for  
Beach Access

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swisstopo, and the GIS User  
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- Grissan Pipeline**
-  Pipeline Assembly Area
  -  Pipeline Installation Boundary
  -  Proposed Marine Licence Bound
  -  Site\_Compound
  -  Speyside Way Diversion



## Appendix B: Habitat Regulations Appraisal Pre-Screening Report



# **Spey Bay Effluent Discharge Pipeline**

## **Habitat Regulations Appraisal Pre- Screening Report**



**Document Number: 77\_REP\_04**

**Date: 16/06/2022**



## Document Control

	Name	Title	Signature	Date
<b>Author</b>	Jack Clarkson/ Williams	Senior Environmental Consultant	<i>J Clarkson</i>	03/06/2022
<b>Reviewer</b>	Fiona Henderson	Director	<i>F Henderson</i>	16/06/2022
<b>Authoriser</b>	Fiona Henderson	Director	<i>F Henderson</i>	16/06/2022

<b>Effective Date:</b>	<b>16/06/2022</b>
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Revision No:	Signature	Comments	Date
1A	<i>J Clarkson</i>	For internal review	19/04/2022
1B	<i>J Clarkson</i>	For client review/discussion	20/04/2022
1C	<i>D Olwell</i>	Updated by client	05/05/2022
2A	<i>C Williams</i>	For internal review	03/06/2022
2B	F Henderson	For client review	16/06/2022



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# 1 Introduction

In support of the Marine Licence application process for the proposed Spey Bay Effluent Discharge Pipeline Project, this Habitats Regulations Appraisal (HRA) Pre-Screening Report provides information required for the competent authority to carry out a HRA, and where required, an Appropriate Assessment (AA). The project involves the installation of a pipeline from an anaerobic digester facility out to sea, however this HRA report only considers the installation of a pipeline from below Mean High Water Springs (MHWS) as those works are subject to Marine Licencing. Project elements above Mean Low Water Springs (MLWS) are already consented under the Town and Country Planning (Scotland) Act 1997 (planning application reference number 21/01711/APP).

This HRA report is designed to be read in conjunction with the Spey Bay Effluent Discharge Outfall Pipeline Environmental Supporting Document (Affric Limited, 2022), and directs the reader to sections of the Environmental Supporting Document relevant to the designated site or qualifying features being discussed in this HRA.

## 1.1 Legislative Basis

A HRA is required for this development due to its proximity to multiple Natura 2000 sites. These include Special Areas of Conservation (SAC) and Special Protection Areas (SPA). The legislative context for this requirement is based on Article 6(3) of the Habitats Directive (92/43/EEC), Article 4(4) of the Birds Directive (2009/147/EC) and is implemented in Scotland through The Conservation (Natural Habitats, &c Regulations 1994 (the Habitats Regulations).

In Scotland, the Scottish Planning Policy document ensures that Ramsar sites, which are normally included in an HRA assessment, overlap with Natura sites, and are therefore protected under the same legislation. Therefore, Ramsar sites do not need considered separately as part of this HRA Screening report.

If a likely significant effect (LSE) is predicted on a Natura Site at the first stage of the HRA, then an AA must then be carried out. The AA must demonstrate that the proposal will not adversely affect the integrity of the site (NatureScot, 2021a).

It is the responsibility of the competent authority to carry out the HRA based on robust, scientific information provided by the project developer about the proposed project. It is not the role of the developer to make an assessment on whether the proposal will have an adverse effect on any associated Natura sites.

## 1.2 Terminology

The terminology employed as part of the HRA process relates to 'Likely Significant Effects' (LSEs). It is important when reading the HRA, to be aware that the term 'significant/significance' terminology used this HRA Pre-Screening report, relates to potential ecological connectivity.

Assessment of LSEs take a precautionary approach and ask whether a project may have an effect, or have the possibility of having an effect, on a Natura site (NatureScot, 2021b). A project component is said to have an LSE on a designated site if, there is ecological connectivity with the site's qualifying interests or there is the potential for the conservation objectives of the designated site to be undermined. Where an LSE "*cannot be excluded, on the basis of objective information*" (European Court of Justice C-127/02, 2004) an AA is required. The

conservation objectives of the site provide the framework for considering the potential for LSEs.

### 1.3 Objectives

The objectives of this HRA Pre-Screening report are to summarise:

- Details of the proposed development;
- Natura 2000 sites considered, with reference to the Grissan Spey Bay pipeline development; and
- Qualifying interests and conservation objectives for each of the scoped-in Natura sites.

Information presented in this HRA Pre-Screening Report, including references to relevant information within the Environmental Supporting Document, will aid the competent authority in carrying out an HRA. As such, the HRA should be read in conjunction with the Environmental Supporting Document and not as a stand-alone document. An indication of whether LSEs are expected is given for each designated site, but it is ultimately up to the competent authority carrying out the HRA to ascertain whether LSEs are present, and therefore whether an AA is needed for each designated site.

## 2 Project Summary

Grissan have proposed that a new Long Sea Outfall (LSO) discharge pipeline and diffusers be installed off the shore of Tannachy Sands, Spey Bay, extending approximately 1.9 km into the Moray Firth. The pipeline will be buried to at least 1m below existing seabed level.

Excavation of the pipeline trench in the intertidal area will be performed using land-based equipment (i.e. an inter-tidal excavator) and specialised marine plant in areas below Mean Low Water Springs (MLWS). Material removed from the trench will be placed adjacent to the trench ready for backfilling.

HDPE pipe will be transported by sea from Norway to a temporary offshore storage anchor/mooring buoy off the coast of Tannachy Sands. Pipe sections will be ballasted (weighted) and assembled into a pipeline string. An onshore filling pump will pump seawater into the pipeline string, gradually sinking the line in an 's' bend. Two diffusers will be installed flush with the seabed for effluent dispersal. Concrete mattresses will be laid on the diffuser sections for erosion control and pipe stability.

Following installation, excavated material from initial trench excavation will be used as backfill. The foreshore section (below MHWS and above MLWS) of the trench will be partially backfilled with rock fill sourced from a local quarry for additional protection of the pipeline.

Construction works are scheduled to take place between April and July 2023 and are anticipated to last around 4 weeks, weather dependent. Refer to Section 2.2 Project Description of the Environmental Supporting Document for further details on project design, location and installation methodology.

## 3 Designated Sites

The designated sites which have designated features relevant to the Grissan Spey Bay Pipeline Project are outlined in Table 3.1. The sites, or species within the sites, are scoped in or out



depending on the level of ecological connectivity to the proposed works. A reduced list of designated sites and features is then taken forward for further assessment. Explanations for why certain sites or qualifying features are excluded are provided in Section 3.1.

Only Special Areas of Conservation (SACs) and Special Protections Areas (SPAs) are considered in Table 3.1, as together, they make up the Natura 2000 Network.

**Table 3.1: Designated Sites Relevant to the Grissan Bay Pipeline development.**

Site	Distance and Direction	Qualifying Feature(s)	Included in Further Assessment?
Moray Firth SPA	Pipeline installation within the designated site	Common scoter ( <i>Melanitta nigra</i> ), non-breeding; Eider ( <i>Somateria mollissima</i> ), non-breeding; Goldeneye ( <i>Bucephala clangula</i> ), non-breeding; Long-tailed duck ( <i>Clangula hyemalis</i> ), non-breeding; Red-throated diver ( <i>Gavia stellata</i> ), non-breeding; Shag ( <i>Phalacrocorax aristotelis</i> ), breeding & non-breeding; Slavonian grebe ( <i>Podiceps auritus</i> ), non-breeding; Great northern diver ( <i>Gavia immer</i> ), non-breeding; Red-breasted merganser ( <i>Mergus serrator</i> ), non-breeding; Scaup ( <i>Aythya marila</i> ), non-breeding; Velvet scoter ( <i>Melanitta fusca</i> ), non-breeding	IN – There is the potential for construction activities to impact on the qualifying features of the SPA due to the proximity between the development area and SPA.
Moray and Nairn Coast SPA	3.7km W	Bar-tailed godwit ( <i>Limosa lapponica</i> ), non-breeding; Dunlin ( <i>Calidris alpina alpina</i> ), non-breeding; Greylag goose ( <i>Anser anser</i> ), non-breeding; Osprey ( <i>Pandion haliaetus</i> ), breeding; Oystercatcher ( <i>Haematopus ostralegus</i> ), non-breeding; Pink-footed goose ( <i>Anser brachyrhynchus</i> ), non-breeding; Red-breasted merganser ( <i>Mergus serrator</i> ), non-breeding; Redshank ( <i>Tringa totanus</i> ), non-breeding; Waterfowl assemblage, non-breeding; Wigeon ( <i>Anas penelope</i> ), non-breeding	IN – There is the potential for construction activities to impact on the qualifying features of the SPA as the features are mobile and could be present close to the proposed development, outwith the SPA boundary.
Lower River Spey – Spey Bay SAC	3.7km W	Alder woodland on floodplains; Coastal shingle vegetation outside the reach of waves	OUT – Works will only be conducted in the marine environment.
River Spey SAC	3.7km W	Atlantic salmon ( <i>Salmo salar</i> ); Freshwater pearl mussel ( <i>Margaritifera margaritifera</i> ); Otter ( <i>Lutra lutra</i> ); Sea lamprey ( <i>Petromyzon marinus</i> )	IN –There is the potential for construction activities to impact on the qualifying features of the SAC as they

Site	Distance and Direction	Qualifying Feature(s)	Included in Further Assessment?
			persist in both marine and freshwater landscapes.
Loch Spynie SPA	14.4km W	Greylag goose ( <i>Anser anser</i> ), non-breeding;	IN – Greylag goose are already taken forward for assessment as part of the Moray and Nairn Coast SPA, which is within a closer proximity to the development. The summary of the assessment for greylag geese can be transferable to this SPA. This SPA however, will not be assessed as a standalone site in Section 3.2.
Moray Firth SAC	16.2km NW	Bottlenose dolphin ( <i>Tursiops truncatus</i> ); Subtidal sandbanks	IN – For bottlenose dolphins only. The distance between the construction area and designated site is within the known range of bottlenose dolphins.
Troup, Pennan and Lion's Heads SPA	~ 38.5 km E	Fulmar ( <i>Fulmarus glacialis</i> ), breeding; Guillemot ( <i>Uria aalge</i> ), breeding; Herring gull ( <i>Larus argentatus</i> ), breeding; Kittiwake ( <i>Rissa tridactyla</i> ), breeding; Razorbill ( <i>Alca torda</i> ), breeding; Seabird assemblage, breeding	OUT – The designated site and its qualifying features are too far from the proposed development to be affected.

### 3.1 Reason for Designated Site Exclusion

#### 3.1.1 Lower River Spey – Spey Bay SAC

The Lower River Spey – Spey Bay SAC contains significant areas of both bare and naturally vegetated parallel shingle ridges, although some of these have been planted with trees. The most significant feature of the site is the complex of wet and dry vegetation types. Species-rich dry heath and grassland occurs on the ridges, while in the wetter hollows there is species-rich wet heath (JNCC, 2021a). The Lower River Spey itself consists of alluvial forests on floodplains, comprised of Alder sp. (*Alnus glutinosa*) and Ash sp. (*Fraxinus excelsior*: sub-spp. *Alno-Padion*, *Alnion incanae*, *Salicion albae*) (JNCC, 2021a). This SAC is approximately 4.4 km west of the proposed development. Because construction activities associated with the development will take place in the marine environment, it is unlikely that the qualifying features of this site will be impacted. As such, it has not been taken forward for assessment.

#### 3.1.2 Troup, Pennan and Lion's Heads SPA

The Troup, Pennan and Lion's Head SPA is a coastal cliff top reserve about 4km in length. Twenty-nine hectares of cliff-face rise to more than 90m and support more than 38,000 seabirds, in particular kittiwakes, guillemot, fulmar and herring gull (JNCC, 2021b). As this seabird assemblage prefer to inhabit coastal cliff faces and the area of the proposed

development predominantly consists of low-level coastline, no connectivity is anticipated between the qualifying features of this site and the development. Despite the species being mobile, it has thus not been taken forward for assessment.

## 3.2 Designated Site Information and Reason for Inclusion

The Conservation Objectives of each of the designated sites taken forward is provided under each designated site section. An assessment for the qualifying features or species for each site is then provided within each section.

### 3.2.1 Moray Firth SPA

The Moray Firth SPA comprises a total area of 1,762.36 km<sup>2</sup> made up of shallow waters over a predominantly sandy substrate stretching seaward from the Helmsdale coast to Portsoy and includes the outer Dornoch and Cromarty Firths, Beaully and Inverness Firths, and part of the Moray Firth (SNH, 2016).

Notable qualifying species are the great northern diver (6% of UK population), red-throated diver (2% of UK population) and Slavonian grebe (4% of UK population) which are all Annex 1 species. In addition, the velvet scoter has a population size of 1,490 within the SPA, which represents 60% of the total UK population. The site also contains large populations of long-tailed duck, greater scaup and European shag, which represent 46%, 18% and 16% of the UK population respectively (SNH, 2016).

The site only contains one breeding bird species, the European shag, with an estimated population of 5,490, representing approximately 10% of the whole breeding European shag population in the UK (SNH, 2016). Breeding seasons for shag are usually between March – October and preferred breeding habitats predominantly consist of rocky areas under steep coastal cliffs away from the area of the proposed development.

The conservation objectives for the Moray Firth SPA are shown in Table 3.2.

With mitigation in place (Section 6 of the Environmental Supporting Document), no effects are anticipated to undermine the conservation objectives of the designated site. It will be ensured that the qualifying interests of the designated sites are not present in the immediate vicinity of works at the time of construction.

A summary of the LSE considerations without mitigation, however, are provided in Table 3.3.

LSE are not expected for the qualifying species in the absence of mitigation and therefore it is unlikely that an AA will need to take place.

**Table 3.2: Moray Firth SPA Conservation Objectives**

Conservation Objective of the Designated Site	Section of the Environmental Supporting Document to inform the Assessment
<b>Overarching Conservation Objective:</b> To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, subject to natural change, thus ensuring that the integrity of the site is maintained in the long-term and it continues to make an appropriate contribution to achieving the aims of the Birds Directive for each of the qualifying species.	Section 4.1.1: Designated Sites & 5.1.2: Ornithology

<b>Further Conservation Objective:</b> <ul style="list-style-type: none"> <li>a) Avoid significant mortality, injury and disturbance of the qualifying features, so that the distribution of the species and ability to use the site are maintained in the long-term;</li> <li>b) To maintain the habitats and food resources of the qualifying features in favourable condition.</li> </ul>	Section 5: Potential Construction Effects & Section 6: Mitigation
--	---

**Table 3.3: Moray Firth SPA Qualifying Feature**

Qualifying Feature	Summary of Assessment
All features designated under the SPA	<p>The Moray Firth is an important spawning ground and nursery area for a number of fish species, which together with abundant bivalve molluscs, are important prey species for the qualifying bird species designated under the Moray Firth SPA. The qualifying features at this designation require sufficient food resource to be available and eat a variety of pelagic and benthic prey. Where such disturbance is brought about by human activities which affect the qualifying species' distribution and use of the site, such that their ability to survive and/or breed is compromised in the long-term, it is considered significant. In the absence of mitigation procedures, there is potential to cause minor disturbance to the foraging pathways of ornithological features designated under each SPA during trenching and pipeline installation activities.</p> <p>Although increased sediment suspension in the water column may increase slightly during trenching and the excavation of material, which could inhibit foraging success of the qualifying features and cause them to avoid affected areas (Todd <i>et al.</i>, 2015; Lunt &amp; Smeed, 2015), bivalve prey items are filter-feeders and effectively remove natural suspended matter, and are therefore likely to remain unaffected (Gallardi, 2014). As such, LSE are not anticipated to occur on the habitats and food resources of the qualifying features.</p> <p>As marine and terrestrial equipment (plant) will be utilised during pipeline installation, pollutants released into the water as a result of the release of hydraulic oils or fluids from vessels and the spillage of onboard fluids and/or chemicals could have negative, direct or indirect, implications on the ornithology designated under the SPA. In the unlikely event of a pollution event however, the scale of the event is likely to be too small to affect large areas of the designated site, the wider supporting habitat and/or the prey items important to the designated sites qualifying features.</p> <p>It is possible however, that the ornithological qualifying features of the designated site will enter the construction site during periods when construction works are not ongoing. In this event, ornithological features may seek shelter in items of plant or equipment. This will result in an increased risk of injury or accidental mortality if equipment or materials are moved while ornithological features are still in-situ, although this is unlikely.</p> <p>In addition, increased plant movements, including vessels, travelling to and from the construction area during trenching and pipeline installation may lead to increased disturbance of ornithological features. Vessel movements</p>

Qualifying Feature	Summary of Assessment
	<p>will not increase significantly however, and as such, displacement of ornithological species designated under the SPA are unlikely.</p> <p>LSE are unlikely when taking into consideration the likelihood of exposure to new pollution indices. Moreover, increased levels of plant and vessel movements within the construction area will not be at a level which is anticipated to increase the risk of ornithological features becoming injured through a direct interaction with site equipment while construction works are ongoing. Minor disturbance to foraging pathways may occur but are unlikely to arise at a level in which LSE are likely.</p>

### 3.2.2 Moray and Nairn Coast SPA & Loch Spynie SPA

The qualifying interests of the SPA site include foraging grounds for nationally important numbers of breeding osprey, over 20,000 wintering waterfowl and internationally important wintering populations of Icelandic/Greenland pink footed geese, Icelandic greylag geese and redshank. The sites are split between Findhorn Bay/Culbin Sands and Spey Bay and although the features can be found in both areas Findhorn Bay/Culbin Sands is probably more important for the wintering bird interests because it is a greater extent of habitat relatively undisturbed by human activity. Spey Bay is very important for its wet woodland and shingle habitats and is also important for foraging osprey. In the summer breeding season, the area is thought to regularly support ~7% of the UK's osprey population, although no count period is provided for which this information was collated (JNCC, 2020).

Loch Spynie is a wetland area situated approximately 15km west of the development. Although the site itself has no connectivity with the proposed development, the qualifying features of greylag geese, which utilise the site, may be within close proximity to the development given that they are mobile species. For instance, individuals which utilise Loch Spynie may also utilise the Moray and Nairn Coast SPA, also designated for greylag goose. Should greylag goose be affected/impacted upon within proposed development, it would be difficult to delineate whether the affected individuals had flown from the Loch Spynie SAC or the Moray and Nairn Coast SPA without access to tagging/tracking records. It has been suggested in other construction projects that there may be a requirement for survey work to identify the possible impacts on greylag geese if developments are within 1km of SPA's designated for greylag geese or if they are within known foraging areas (Moray Council, 2018), which appear to be ~2km for resident greylag geese (Kleinhenz & Konig, 2018). Given that the Moray and Nairn Coast SPA and Loch Spynie SPA are 3.7km and 15km away from the proposed development respectively, this site will not require survey work.

The conservation objectives for the Moray Firth and Nairn Coast SPA & Loch Spynie SPA are shown in Table 3.4.

With mitigation in place (Section 6 of the Environmental Supporting Document), no effects are anticipated to undermine the conservation objectives of the designated site. It will be ensured that the qualifying interests of the designated sites are not present in the vicinity of works at the time of construction.



A summary of the LSE considerations without mitigation, however, are provided in Table 3.5 below. It should be noted that impacts on greylag goose for the Loch Spynie SPA are synonymous with those for all designated features under the Moray and Nairn Coast SPA.

LSE are not expected for the qualifying species in the absence of mitigation and therefore it is unlikely that an AA will need to take place.

**Table 3.4: Moray Firth and Nairn Coast & Loch Spynie SPAs Conservation Objectives**

Conservation Objective of the Designated Site	Section of the Environmental Supporting Document to inform the Assessment
<b>Overarching Conservation Objective:</b> To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained.	Section 4.1.1: Designated Sites & 4.1.5: Terrestrial Ecology
<b>Further Conservation Objective:</b> To ensure for the qualifying species that the following are maintained in the long term: <ul style="list-style-type: none"> <li>a) Population of the species as a viable component of the site;</li> <li>b) Distribution of the species within site;</li> <li>c) Distribution and extent of habitats supporting the species;</li> <li>d) Structure, function and supporting processes of habitats supporting the species; and</li> <li>e) No significant disturbance of the species.</li> </ul>	Section 5: Potential Construction Effects & Section 6: Mitigation

**Table 3.5: Moray Firth and Nairn Coast & Loch Spynie SPAs Qualifying Feature**

Qualifying Feature	Summary of Assessment
All features designated under the SPA	<p>The Moray Firth is an important spawning ground and nursery area for a number of fish species, which together with abundant bivalve molluscs, are important prey species for the qualifying bird species designated under the Moray Firth and Nairn Coast SPA. The qualifying features at this designation require sufficient food resource to be available and eat a variety of pelagic and benthic prey. Where such disturbance is brought about by human activities which affect the qualifying species' distribution and use of the site, such that their ability to survive and/or breed is compromised in the long-term, it is considered significant. In the absence of mitigation procedures, there is potential to cause minor disturbance to the foraging pathways of ornithological features designated under each SPA during trenching and pipeline installation.</p> <p>Although increased sediment suspension in the water column is possible during trenching and cable installation, which could inhibit foraging success of the qualifying features and cause them to avoid affected areas (Todd <i>et al.</i>, 2015; Lunt &amp; Smee, 2015), bivalve prey items are filter-feeders and effectively remove natural suspended matter, and are therefore likely to remain unaffected (Gallardi, 2014). As such, LSE are not anticipated to occur on the habitats and food resources of the qualifying features.</p> <p>As plant will be utilised during pipeline installation, pollutants released into the water as a result of the release of hydraulic oils or fluids from vessels and</p>

Qualifying Feature	Summary of Assessment
	<p>the spillage of onboard fluids and/or chemicals could have negative, direct or indirect, implications on the ornithological designated under the SPA. In the unlikely event of a pollution event however, the scale of the event is likely to be too small to affect large areas of the designated site, the wider supporting habitat and the prey items important to the designated sites qualifying features.</p> <p>It is possible however that the ornithological qualifying features of the designated site will enter the construction site during periods when construction works are not ongoing. In this event, ornithological features may seek shelter in items of plant or equipment. This will result in an increased risk of injury or accidental mortality if equipment or materials are moved while ornithological features are still in-situ, although this remains unlikely.</p> <p>In addition, increased plant movements, including vessels, travelling to and from the construction area during trenching, the excavation of material and pipeline installation may lead to increased disturbance of ornithological features. Plant movements will not increase significantly however, and as such, displacement of ornithological species designated under the SPA are unlikely.</p> <p>LSE are unlikely when taking into consideration the likelihood of exposure to new pollution indices. Moreover, increased levels of plant and vessel movements within the construction area will not be at a level which is anticipated to increase the risk of ornithological features becoming injured through a direct interaction with site equipment while construction works are ongoing. Minor disturbance to foraging pathways may occur but are unlikely to arise at a level in which LSE are likely.</p>

### 3.2.3 River Spey SAC

The River Spey represents the sea lamprey *Petromyzon marinus* in the northern part of its range in the UK. It is absent from rivers north of the Great Glen, and the River Spey is virtually at the northern limit for this species. Recent surveys show that sea lamprey larvae are widely distributed throughout the middle and lower reaches of the river, where the particularly fast-flowing waters of the River Spey provide ideal spawning conditions for this species. In addition, as an unpolluted and relatively little modified system. The River Spey matches the other key habitat requirements of the sea lamprey in terms of good water quality, clean gravels and marginal silts and an unhindered migration route to the sea (JNCC, 2021c).

The River Spey supports one of the largest Atlantic salmon (*Salmo salar*) populations in Scotland, with little evidence of modification by non-native stocks. Adults spawn throughout virtually the whole length of the river, and good quality nursery habitat is found in abundance in the main river and numerous tributaries. Salmon in the Spey system are little affected by artificial barriers to migration, and the waters in the catchment are largely unpolluted (the river is oligotrophic throughout its length). For a system of its size, the Spey is also relatively free from flow modifications such as abstractions, diversions and impoundments. The salmon population includes fish of all ages, including migrating smolts and returning adults, possibly reflecting genetic differences within the Spey stock (JNCC, 2021c).

It is acknowledged that the larval phase of freshwater pearl mussels is reliant on the integrity of the salmon population, however, impacts on this phase of the pearl mussel life cycle are directly correlated to impacts on Atlantic salmon, so there is no need to consider this aspect separately.

The River Spey represents an important otter site in Scotland, with good quality freshwater habitat. Surveys have identified high levels of otter presence throughout the Spey catchment. Riverine habitat features which are known to be important to otters are present, such as reedbeds and islands, and populations of important prey species are relatively healthy. The persistence of a strong population of otter on this river indicates that habitat conditions are particularly favourable for the survival of the species (JNCC, 2021c). In the area of the proposed development, no evidence of otter was identified during a survey carried out by Tracks Ecology and no suitable habitat within the survey area was found.

The conservation objectives for the River Spey SAC are shown in Table 3.6.

With mitigation in place (Section 6 of the Environmental Supporting Document), no effects are anticipated to undermine the conservation objectives of the designated site. A Fisheries Liaison Officer (FLO) will be employed to undertake early communications with the fisherman.

A summary of the LSE considerations without mitigation, however, are provided in Table 3.7 below.

LSE are not expected for the qualifying species in the absence of mitigation and therefore it is unlikely that an AA will need to take place.

**Table 3.6: River Spey SAC Conservation Objectives**

Conservation Objective of the Designated Site	Section of the Environmental Supporting Document to inform the Assessment
<b>Overarching Conservation Objective:</b> To avoid deterioration of the habitats of the qualifying species, thus ensuring that the integrity of the site is maintained, and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features.	Section 4.1.1: Designated Sites, 4.1.5 Terrestrial Ecology & 5.1.2: Fish Ecology
<b>Further Conservation Objective:</b> To ensure for the qualifying species that the following are maintained in the long term: <ul style="list-style-type: none"> <li>a) Population of the avoid deterioration of the habitats of the qualifying species or significant disturbance to species, including range of genetic types for salmon, as a viable component of the site;</li> <li>b) Distribution of the species within site – Distribution and extent of habitats supporting the species – Structure, function and supporting processes of habitats supporting the species;</li> <li>c) No significant disturbance of the species; and</li> <li>d) Structure, function and supporting process of habitats supporting freshwater pearl mussel host species.</li> </ul>	Section 5: Potential Construction Effects & Section 6: Mitigation

**Table 3.7: River Spey SAC Qualifying Feature**



Qualifying Feature	Summary of Assessment
<p>Atlantic salmon (<i>Salmo salar</i>); Freshwater pearl mussel (<i>Margaritifera margaritifera</i>)</p>	<p>In the absence of mitigation procedures, there is potential to cause minor disturbance and possible injury to Atlantic salmon designated under the SAC. As aforementioned, it is acknowledged that the larval phase of freshwater pearl mussels is reliant on the integrity of the salmon population, however, impacts on this phase of the pearl mussel life cycle are directly correlated to impacts on Atlantic salmon, so there is no need to consider this aspect separately.</p> <p>Pollutants released into the water as a result of the release of hydraulic oils or fluids from all plant and the spillage of onboard fluids and/or chemicals could have negative, direct or indirect, implications on Atlantic salmon, including fatality. In the unlikely event of a pollution event however, the scale of the event is likely to be too small to affect the qualifying feature of the designated site.</p> <p>Increased sediment suspension in the water column could occur during trenching and pipeline installation. Short-term increases in siltation levels have been shown to decrease foraging, territorial and predator avoidance behaviours in juvenile Atlantic salmon (Robertson <i>et al.</i>, 2007), whilst erratic swimming behaviours associated with avoidance response (i.e. attempts to avoid increased siltation in the water column) increased (Waters, 1995; Robertson <i>et al.</i>, 2007). However, the route in which the pipeline will be installed is characterised by zones of pebbles, cobbles or sand which are greater in particle size in silts. As such, it is anticipated that particles will drop out quickly, and the behavioural responses of Atlantic salmon associated with increased suspended sediments will be minor.</p> <p>In the unlikely event of a pollution event, the scale of the event is will be too small and outwith the area to affect the designated site. In addition, particle size distribution of the material to be trenched and excavated is not thought to be of a size in which sediment suspension will persist long enough to incur significant behavioural response in Atlantic salmon. As such, LSE are considered unlikely for both Atlantic salmon and freshwater pearl mussel.</p>
<p>Otter (<i>Lutra lutra</i>);</p>	<p>In the absence of mitigation procedures, there is potential to cause minor disturbance and possible injury to otter designated under the SAC.</p> <p>As both terrestrial and marine plant will be utilised, pollutants released into the water as a result of the release of hydraulic oils or fluids from all plant and the spillage of onboard fluids and/or chemicals could have negative, direct or indirect, implications on otter, including fatality. In the unlikely event of a pollution event however, the scale of the event is likely to be too small to affect the qualifying feature of the designated site.</p> <p>It is possible however that otters in the area will enter the construction site during periods when construction works are not ongoing. In this event, otters may seek shelter in items of plant or equipment. This will result in an increased risk of injury or accidental mortality, if equipment or materials are moved while an otter is still in-situ, although remain unlikely.</p> <p>Increased plant movements, including vessels, travelling to and from the construction area during trenching, the excavation of material and pipeline</p>

Qualifying Feature	Summary of Assessment
	<p>installation may lead to increased disturbance of otter. Plant movements will not increase significantly however, and as such, displacement of otter species designated under the SAC are unlikely.</p> <p>LSE are unlikely when taking into consideration the likelihood of exposure to new pollution indices. Moreover, increased levels of plant movement will not be at a level which is anticipated to increase the risk of otter becoming injured through a direct interaction with site equipment while construction works are ongoing. In addition, no evidence of otter was identified during a survey carried out by Tracks Ecology and no suitable habitat within the survey area was found.</p>
Sea lamprey ( <i>Petromyzon marinus</i> )	<p>In the absence of mitigation procedures, there is potential to cause minor disturbance and possible injury to sea lamprey designated under the SAC.</p> <p>Pollutants released into the water as a result of the release of hydraulic oils or fluids from plant and the spillage of onboard fluids and/or chemicals could have negative, direct or indirect, implications on sea lamprey, including fatality. In the unlikely event of a pollution event however, the scale of the event is likely to be too small to affect the qualifying feature of the designated site.</p> <p>Physical barriers, such as those associated with increased siltation, can pose particular risks to sea lamprey that migrate up rivers to spawn. Other freshwater-resident forms can be negatively affected by new, in-stream structures. However, the route in which the pipeline will be installed is characterised by zones of pebbles, cobbles or sand which are greater in particle size in silts. As such, it is anticipated that particles will drop out quickly, and the physical barriers associated with increased suspended sediments will not prevent sea lamprey from migrating. As such, LSE will be minor.</p> <p>In the unlikely event of a pollution event, the scale of the event is will be too small and outwith the area to affect the designated site. In addition, particle size distribution of the material to be trenched and excavated is not thought to be of a size in which sediment suspension will persist long enough to incur significant physical barriers preventing sea lamprey migration. As such, LSE are considered unlikely.</p>

### 3.2.4 Moray Firth SAC

The Moray Firth SAC is located in the north-east of Scotland, covering an area of 15,1274 ha. The SAC is designated for subtidal sandbanks and bottlenose dolphin. The area is of key importance to the UK east coast bottlenose dolphin population, and is regularly utilised by over 100 individuals annually, which equates >50% of the population (Cheney et al., 2018). It has been shown that the percentage of the population utilising the SAC has declined, this is likely due to the fact that the population size is increasing, and hence the population is utilising a larger habitat area (Cheney et al., 2018).

The conservation objectives for the Moray Firth SAC are shown in Table 3.8.

With mitigation in place (Section 6 of the Environmental Supporting Document), no effects are anticipated to undermine the conservation objectives of the designated site. It will be ensured that the qualifying interests of the designated sites are not present in the vicinity of works at the time of construction.

A summary of the LSE considerations without mitigation, however, are provided in Table 3.9.

LSE are not expected for the qualifying species in the absence of mitigation and therefore it is unlikely that an AA will need to take place.

**Table 3.8 Moray Firth SAC Conservation Objectives**

Conservation Objective of the Designated Site	Section of the Environmental Supporting Document to inform the Assessment
<b>Overarching Conservation Objective:</b> To avoid deterioration of the habitats of the qualifying species (listed below) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained, and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features.	Section 4.1.1: Designated Sites, 4.1.4 Marine Mammals
<b>Further Conservation Objective:</b> To ensure for the qualifying species that the following are maintained in the long term: <ul style="list-style-type: none"> <li>a) Population of the species as a viable component of the site;</li> <li>b) Distribution of the species within site;</li> <li>c) Distribution and extent of habitats supporting the species;</li> <li>d) Structure, function and supporting processes of habitats supporting the species; and</li> <li>e) No significant disturbance of the species.</li> </ul>	Section 5: Potential Construction Effects & Section 6: Mitigation

**Table 3.9 Moray Firth SAC Qualifying Feature**

Qualifying Feature	Summary of Assessment
Bottlenose dolphin ( <i>Tursiops truncatus</i> )	<p>In the absence of mitigation procedures, there is potential to cause minor disturbance and possible injury to bottlenose dolphin designated under the SAC.</p> <p>Although the proposed works are located 16.2 km away from the SAC designated for bottlenose dolphins, individuals from the Moray Firth SAC could still be present within the intertidal areas of the construction works. Increased sediment suspension could arise within the construction area during trenching and pipeline installation. Bottlenose dolphins, however, use echolocation to find, track and intercept individual prey items (Nowacek, 2005; Hastie et al., 2006) and it is therefore unlikely that the small increased sedimentation that could occur will impair their foraging abilities.</p> <p>Some of the pipe installation works are likely to occur from floating marine plant. However, due to the scale of the works, it is unlikely that there will be significantly increased vessel numbers beyond those already operable within Spey Bay. In addition, construction vessels are likely to be slow moving and operating in straight lines on designated routes. As such, it is unlikely that</p>

there would be any significant increase in ambient underwater noise levels or increased risk of ship strikes due to increased vessel traffic densities experienced in the area.

As floating plant in the marine environment will be utilised, pollutants released into the water as a result of the release of hydraulic oils or fluids from dredge vessels and the spillage of onboard fluids and/or chemicals could have negative, direct or indirect, implications on bottlenose dolphins, including fatality. In the unlikely event of a pollution event however, the scale of the event is likely to be too small to affect large areas of the designated site and indeed its qualifying features.

LSEs are unlikely when taking into consideration the likelihood of exposure to new pollution indices and/or vessel collision. In addition, LSEs associated with sediment suspension are unlikely. In the absence of mitigation procedures, there is the potential to cause minor disturbance and possible injury to bottlenose dolphins designated under the SAC.

## 4 Cumulative & In-Combination Effects

Cumulative and in-combination effects of the proposed marine pipeline and outfall at in the Spey Bay were assessed as part of the HRA process and were assessed for the following designated sites and their qualifying features:

- Moray Firth SPA (*all ornithological features*);
- Moray and Nairn Coast SPA (*all ornithological features*);
- River Spey SAC (*Atlantic salmon, sea lamprey, otter*); and
- Moray Firth SAC (*Bottlenose dolphins*).

It has been identified that there is no requirement for assessment of in-combination effects for any of the receptors identified as no existing, current, or future projects in the area were identified at the time of writing this HRA.

## 5 Conclusion

Assessment described in the Environmental Supporting Document does not predict any impacts on the qualifying features of the designated sites assessed as part of this HRA Pre-Screening Report with applied mitigation. No cumulative or in-combination effects are anticipated. Information in this report, in conjunction with the relevant sections of the Environmental Supporting Document, is provided to support the competent authority to carry out a HRA and any necessary AAs. It will be up to the competent authority to ascertain whether the proposal will adversely affect the integrity of the designated sites to be considered.

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## 7 Glossary

Acronym	Definition
AA	Appropriate Assessment
EIAR	Environmental Impact Assessment Report
HRA	Habitats Regulation Assessment
JNCC	Joint Nature Conservation Committee
LSE	Likely Significant Effects
LSO	Long Sea Outfall
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs
SAC	Special Areas of Conservation
SPA	Special Protection Areas