



SCREENING FOR APPROPRIATE ASSESSMENT REPORT FOR
MARITIME USAGE LICENCE APPLICATION – LIC230033,
APOLLO SUBMARINE CABLE SYSTEM LTD, INSTALLATION OF
FIBRE OPTIC SUBSEA TELECOMS CABLE AND POTENTIAL
FUTURE TELECOMS MAINTENANCE ACTIVITIES IN THE
SOUTHERN EXCLUSIVE ECONOMIC ZONE AND AGREED
CONTINENTAL SHELF.

Application No. LIC230033

23rd February 2024

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Statement of Authority

This Screening for Appropriate Assessment Report has been undertaken by the Assessment, Research and Development Unit within MARA, a specialist unit with the appropriate expertise in environmental assessment.

1. Introduction

1.1 Project Overview

Apollo Submarine Cable System Limited (Apollo Ltd) are seeking a Maritime Usage Licence for a period of up to 25 years to install approximately 394km of fibre optic subsea telecoms cable and to potentially carry out future telecoms maintenance activities in the southern Exclusive Economic Zone and agreed Continental Shelf.

The overall area which is the subject of this application is approximately 3,940m².

The nearest point of the cable to the Irish mainland is approximately 127km.

1.2 Application documents submitted

A Maritime Usage Licence application was received on the 15th of December 2023 and was deemed complete on the 9th of January 2023. The following documents were submitted as part of this application:

- i. Application for a Maritime Usage Licence under the Maritime Area Planning Act 2021, dated 15th December 2023
- ii. Maritime Usage Licence Map, dated 14th December 2023
- iii. Supporting Information for Screening for Appropriate Assessment (SISAA) Report, dated 15th December 2023
- iv. Natura Impact Statement Report, dated 15th December 2023
- v. Risk Assessment for Annex IV Species Report, dated 15th December 2023
- vi. Assessment of Impact of Maritime Usage (AIMU) Report, dated 15th December 2023

As per a request for additional information, the below revised documents were received on the 20th of February 2024:

- vii. Supporting Information for Screening for Appropriate Assessment (SISAA) Report, dated 13th February 2024
- viii. Natura Impact Statement Report, dated 19th February 2024
- ix. Assessment of Impact of Maritime Usage (AIMU) Report, dated 19th February 2024

1.3 Legislative background and AA process

The Marine Area Planning Act 2021 and amendments (MAP Act) requires that a Maritime Usage Licence be obtained from the Maritime Area Regulatory Authority (MARA) for a number of activities, including but not exclusively:

- Navigational and Maintenance Dredging
- Marine Environmental surveys for the purposes of scientific discovery and site investigations
- Installation of navigational markers/ moorings/ aids to navigation not undertaken by the Commissioners of Irish Lights

- Installation of non-permanent platforms or pontoons
- Depositing of any substance or object on or in the sea or seabed
- Removal of any substance or object from the sea or seabed
- Use of explosives
- Maintenance of any cable, pipeline, oil, gas or carbon storage facility / structure not provided for under any other statutory approval, and
- The harvesting of seaweed

Article 6(3) and 6(4) of Directive 92/43/EEC as amended (the Habitats Directive) place strict legal obligations on Member States regulating the conditions under which development that has the potential to impact on European Sites can be implemented and requiring that an Appropriate Assessment be carried out of plans or projects, not directly connected with or necessary to the management of a site as a European Site, but which are likely to have a significant effect thereon, either individually or in combination with other plans or projects . An AA Screening assessment is carried out to determine whether a plan or project is likely to have a significant effect on a European Site.

Article 6.3 states that: *“Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.”*

Article 6.4 states: *“if, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.*

Where the site concerned hosts a priority natural habitat type and/or a priority species, the only considerations which may be raised are those relating to human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest.”

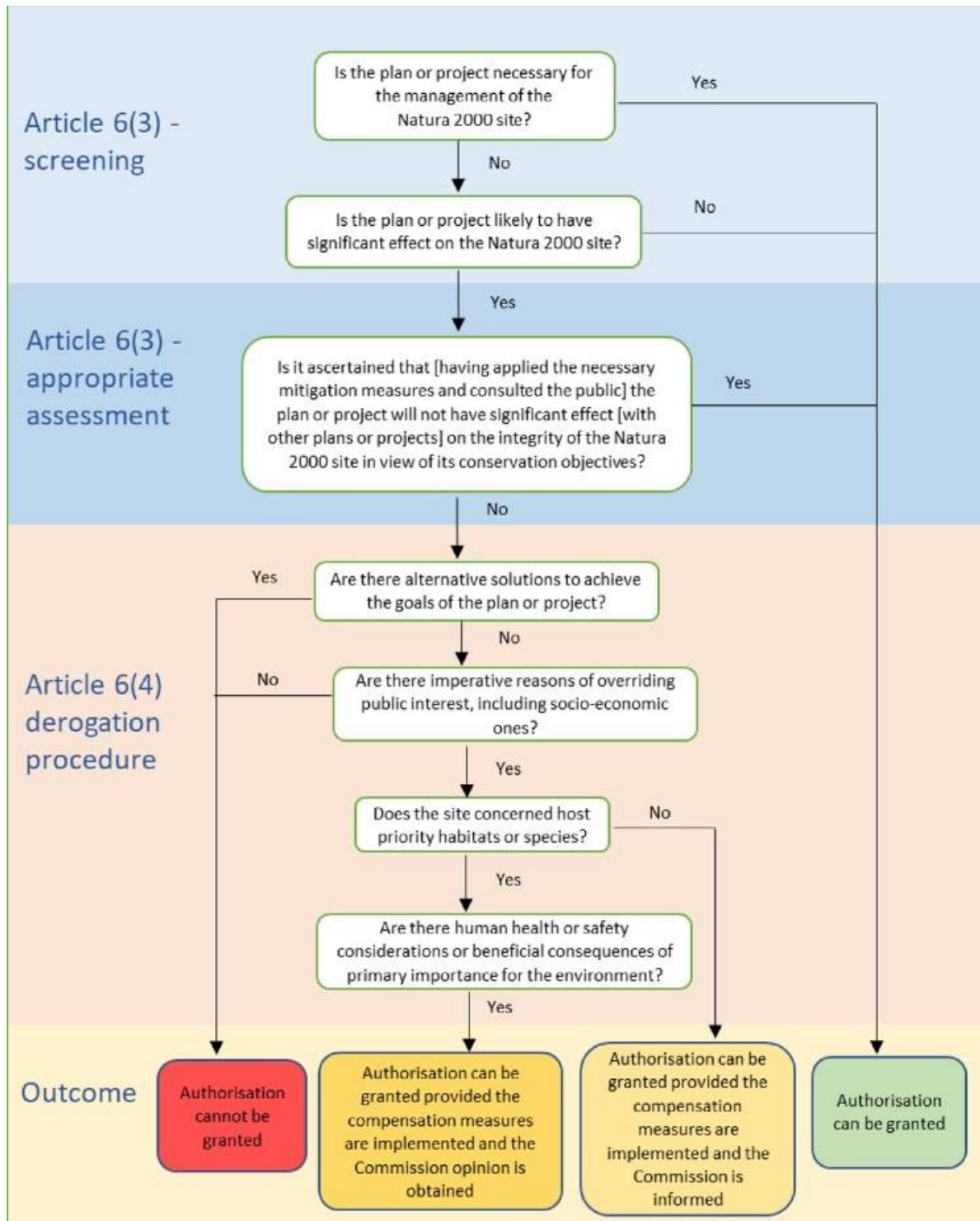


Figure 1 Article 6 Appropriate Assessment Process (from EU 2021/C437/01)

1.4 MARA Assessment Process

The Assessment, Research and Data (ARD) Unit within MARA is responsible for carrying out environmental screening and any environmental assessment determined as being required following screening, in accordance with the requirements set out in Habitats Directive.

The European Communities (Birds and Natural Habitats) Regulations 2011 as amended, give effect to the Habitats Directive as a matter of Irish law and require, inter alia, that a public authority carry out screening for Appropriate Assessment of a plan or project for which an application for consent is received. Where a public authority following screening determines that an Appropriate Assessment is required these Regulations require that the assessment carried out by a public authority include a determination pursuant to Article 6(3) of the Habitats Directive as to whether or not the plan or project would adversely affect the integrity of a European site.

MARA's ARD team is responsible for carrying out a Stage 1 Appropriate Assessment Screening of any application for a Maritime Usage Licence received and any Stage 2 Appropriate Assessment that may be required following screening in accordance with these Regulations. On receipt of an application to MARA for a Maritime Usage Licence the application and any associated documentation is referred to the ARD Unit for the purposes of carrying out its environmental assessments.

On completion of all environmental assessments by the ARD unit and after incorporating any suggested conditions which may be recommended by the ARD Unit, the application is then evaluated by the Licensing Unit in MARA to give consent to the activities applied for.

This report has been prepared with reference to the following guidelines and legislation:

- Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild flora and fauna. Official Journal of the European Communities.
- Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (codified version).
- European Communities (Birds and Natural Habitats) Regulations 2011 as amended SI No. 477 of 2011.
- EU Commission Notice Official Journal of the European Union 2021 C437/1
- The Marine Area Planning Act 2021 and amendments (MAP Act)
- Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC. European Commission 2019. Office for Official Publications of the European Communities, Luxembourg.
- Appropriate Assessment of Plans and Projects in Ireland, Guidance for Planning Authorities. DEHLG, 2009. Revision 2010.
- Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters. Department of Arts, Heritage and the Gaeltacht, 2014
- Appropriate Assessment Screening for Development Management OPR Practice Note PN01 March 2021
- Relevant case law

2 Project Description

Apollo Ltd are seeking consent to install approximately 394km of fibre optic subsea telecoms cable and potentially carry out future telecoms maintenance activities in the southern Exclusive Economic Zone and Continental Shelf; the Applicant has applied for a 25 year Licence to carry out these works. The cable laying will take place in the second quarter 2024 and the total time period proposed to carry out the cable laying is 24 days.

2.1 Location

At its nearest point this Maritime Usage Licence Application area lies approximately 127km off the coast of counties Cork and Kerry. The overall area of this Maritime Usage Licence Application is approximately 3,940m².

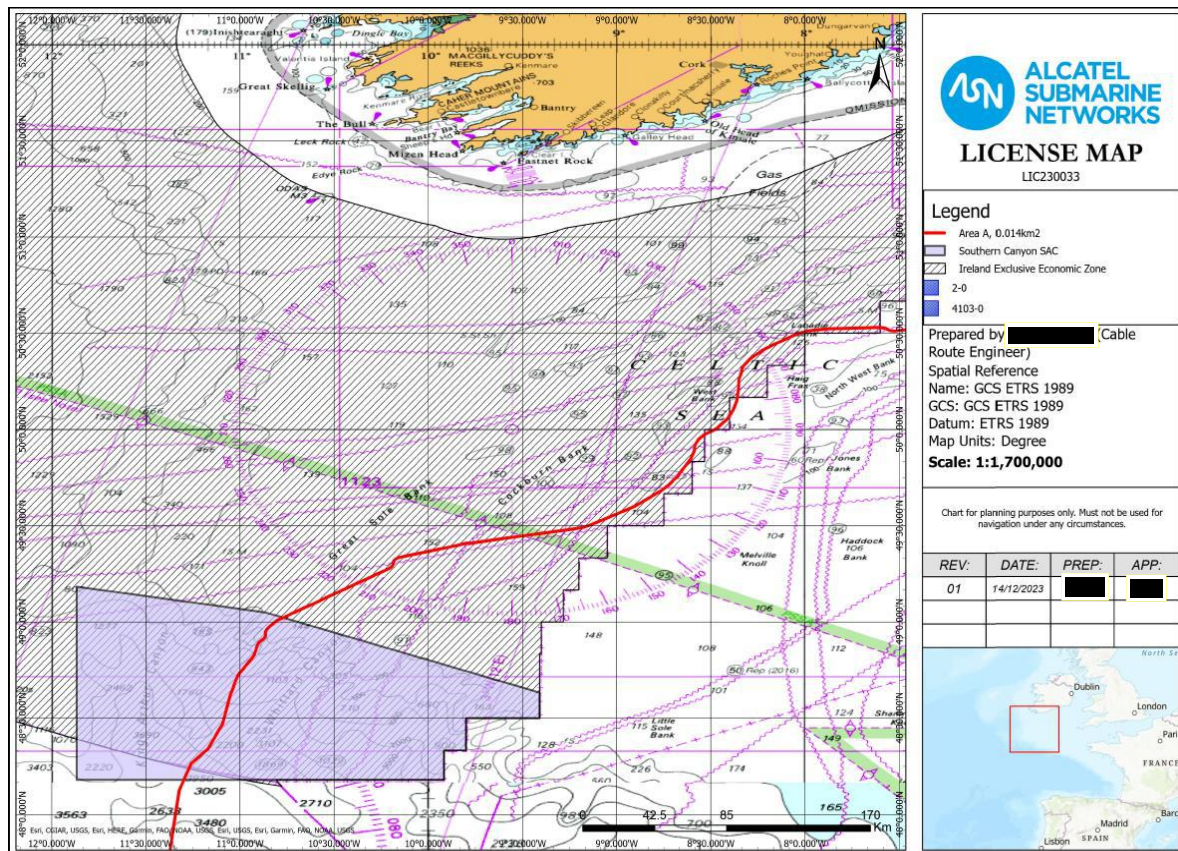


Figure 2 Maritime Usage Licence map

2.2 Description of the receiving environment

The sediment in the area is largely that of sandy mud, muddy sand and biogenic reef (<https://www.emodnet-seabedhabitats.eu/>). Water depths in the survey area range from approximately 150m to over 4,000 m depth at the southern extend of the Irish Continental Shelf.

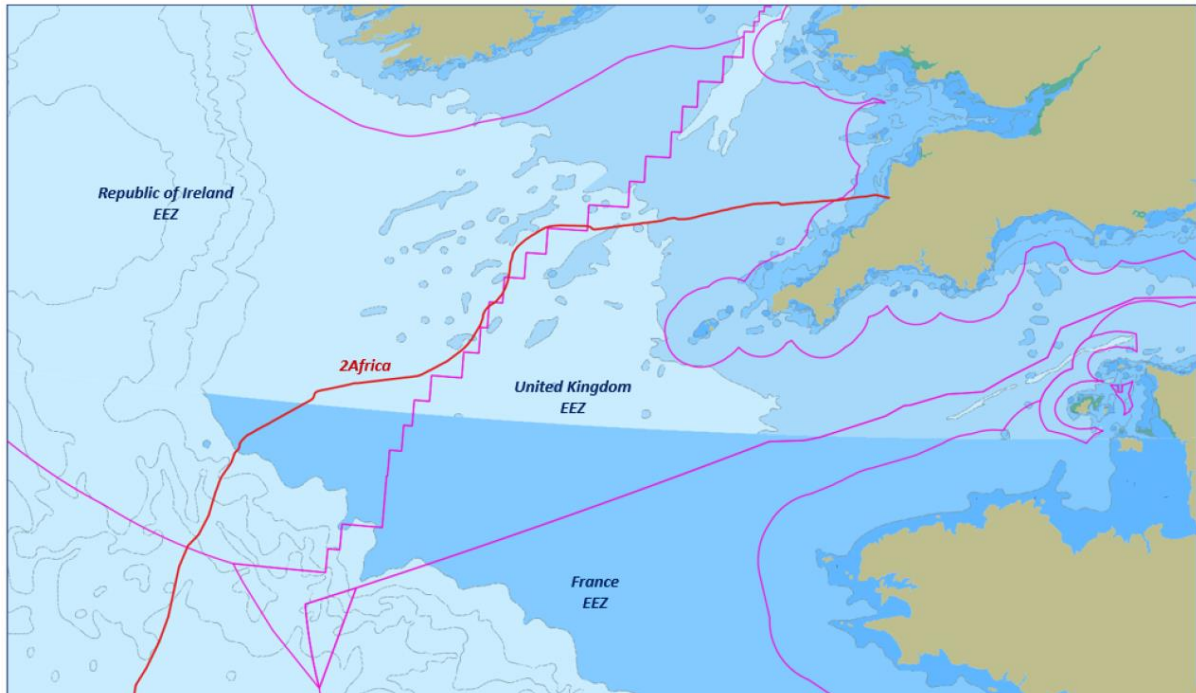


Figure 3 Cable route through Irish EEZ

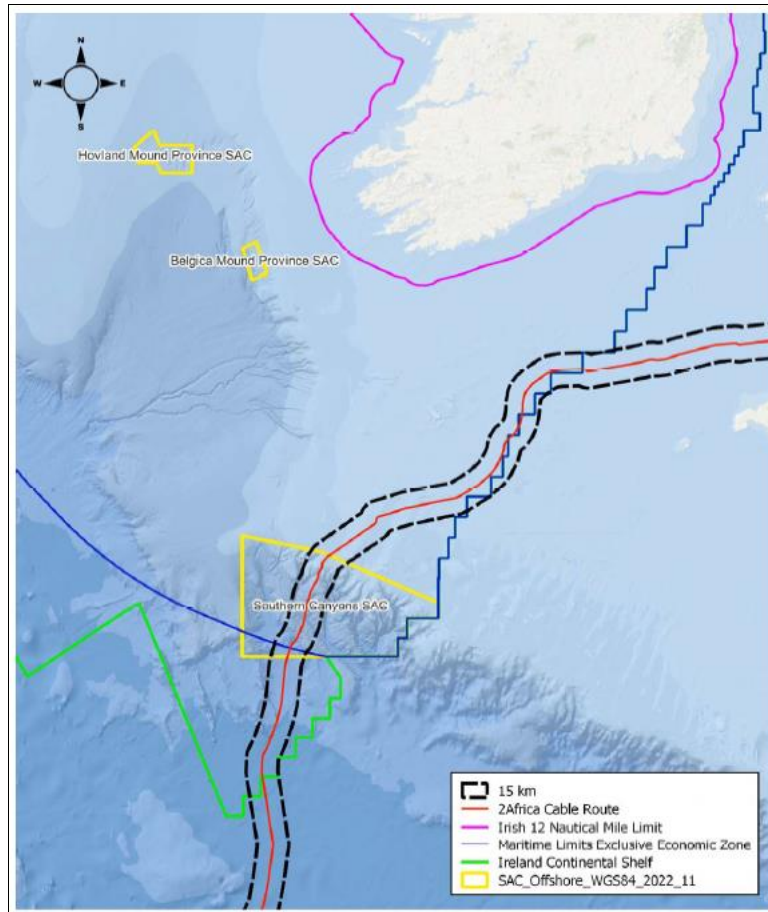


Figure 4 Cable route through Irish EEZ, Continental Shelf and Southern Canyons cSAC

2.3 Description of the proposed survey works

The applicant proposes to install approximately 394km of fibre optic subsea telecoms cable and potentially carry out future telecoms maintenance activities in the southern Irish Exclusive Economic Zone and agreed Continental Shelf.

2.3.1 Cable Route Selection & Cable Engineering

During the planning and engineering stage, desktop studies were completed to assess site-specific conditions and areas to avoid when routing the cable, as well as identifying key stakeholders in the area. Some of the key factors assessed during the desktop study include anthropogenic factors (such as fishing, shipping and anchoring), meteorological conditions, oceanographic conditions, geological conditions, marine protected areas, permitting and marine operations.

2.3.2 Cable Laying Operations through Ireland’s EEZ and Southern Canyons SAC

The proposed cable system will be predominantly buried by cable plough in water depths up to 1,470m, at which point, ploughing operations will cease. The main rationale for plough burial is to protect the cable against external aggression; in this case demersal fishing activities i.e. bottom trawling. Cable protection/burial by plough has proven to be a very effective protection methodology, with a very low seabed surface area affected and is extensively used worldwide.

At crossings with other in-service cables, the plough is recovered and the short unburied section is latterly buried by means of a water jetting Remotely Operated Vehicle (ROV).

In some limited areas within Ireland's EEZ, cable burial cannot be conducted due to unavoidable hard bottom conditions or areas of steep seabed slopes, high relief, or similar.

Prior to the cable installation and burial activities, a Pre-Lay Grapnel Run (PLGR) operation campaign will be conducted only in areas of burial to detect and clear any possible objects or debris along the route so that the trenching tools can operate safely and to maximise burial potential. Any debris recovered during the PLGR operations will be disposed of appropriately onshore. The PLGR operations can be performed by the cable ship or another vessel with specific equipment fitted and the same specification navigation and positioning system as the main lay vessel.

Within Ireland's EEZ and through the Southern Canyons SAC, the 2Africa cable system will be installed using a dedicated cable lay vessel. Where the cable is to be buried, a plough will be used to a target burial depth of 2m (depending on seabed conditions). The cable will be surface laid whilst traversing an area of hard ground with some boulders at the entry point to the SAC. The cable will be surface laid from the edge of the shelf break to deeper water due to steep side slopes and high relief (from approximately 264m to 440m water depth).

At the end of last section of plough burial, the cable will be surface laid thereon to the exit of the Southern Canyons SAC at a water depth of 4,003 metres.

During surface lay operations, the cable slack i.e. the excess cable paid out vs. ground covered is laid slightly positive at c. 3%, such that the cable thus closely follows the seabed contours and remains in contact with it. This laying methodology ensures that the cable remains stable on the seabed without any lateral movement.

The cable lay vessel will use a dual high accuracy Differential Global Positioning System (DGPS) navigation system to lay the cable as per the target route shown in the Route Position List (RPL).

During main lay operations, the average operational speed of the vessel during plough burial is 0.3 knots and up to 4 knots (averaging around 500m/hour) for surface lay in waters shallower than 1500m water depth. The speed may need to be adjusted during installation depending on the topography of the area and weather conditions.

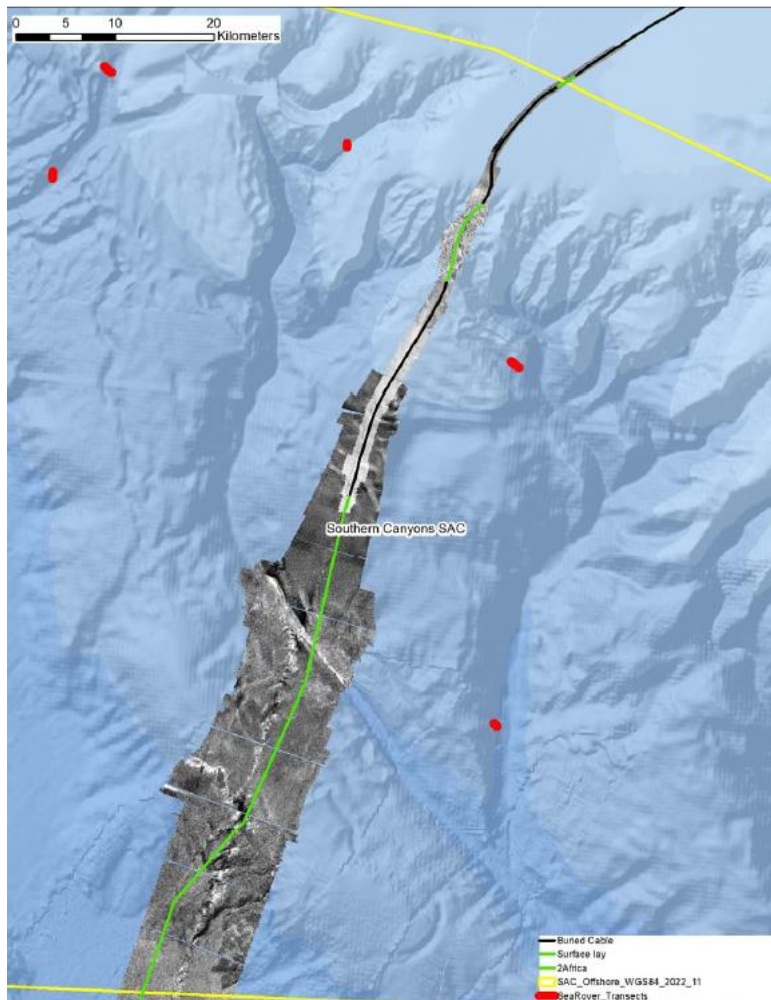


Figure 5 Cable surface lay and buried locations in the Southern Canyons cSAC

A jetting plough will be used for burial, with a target burial depth of between 1.5m and 2m (or to bedrock, whichever is reached first). The plough is in contact with the seabed using its four plough skids and the plough share, which is approximately 0.2m wide. The jets on the plough lubricate the ploughshare to reduce friction between the plough and the seabed during burial operations. The jets naturally fluidise the seabed ahead of the ploughshare and cable burial, making the burial operation smoother and potentially improving the burial depth (although burial depth is dependent on the nature of the seabed). Temporary track marks are left from the plough which will disappear over time leaving the seabed to its natural state due to sediment movement.

Acoustic positioning is used to ensure the plough follows the planned route as precisely as possible. The Applied Acoustics EasyTrak Nexus Model EZT-2691 is an example of an ultrashort baseline acoustic positioning system. The system consists of a transceiver unit and a set of transponders. The transceiver unit emits acoustic signals, which are picked up by the transponders. The signals are used to determine the position and orientation of the transponders relative to the transceiver, with high accuracy and precision. The frequency emitted ranges between 18-32kHz and a recorded sound pressure of 192dB re1 μ Pa @1m.

During the surface lay operations within the Southern Canyons SAC and into deeper water, the surface lay precision on the seabed is +/- 1% of water depth from the centreline. The surface lay and touchdown positioning is calculated using a force based 2D model which is used across the industry as a standard calculation method to ensure that the cable naturally conforms to the seabed contours. The cable will have very limited movement on the seabed once installed as it is held in position under its own weight.

Post Lay Inspection and Burial (PLIB) operations may be carried out in some areas along the route. A visual inspection will be dependent on visibility at the time of the inspection, alternatively the inspection will use cable tracking sensors and forward-facing sonar to determine the burial.

Post lay burial operations will be carried out in plough burial areas at several locations:

- At in-service cable crossings (none planned within the Southern Canyons SAC, but there are 6 in-service cable crossings within the Ireland EEZ);
- Initial, intermediate and final splices;
- Unplanned plough skips; and
- Areas where seabed slopes are not suited for ploughing and jetting burial is viable (not planned within the Southern Canyons SAC).

A remotely operated vehicle (ROV) will be deployed to bury the cable (in areas identified in the bullet points above) using a jetting tool.

The total cable laying period is estimated to be 24 days; 4 of which to be within the Southern Canyons SAC.

Noise Source	Frequency	Sound Pressure Level (dB re 1µPa @ 1m)
Ultra Short Baseline (USBL) equipment	18 – 55 kHz	193 - 207 dB

Table 1 Frequencies and SPL from USBL acoustic positioning equipment

3 Screening for Appropriate Assessment

3.1 Management of Natura 2000 sites

Under the Habitats Directive plans or projects that are directly connected with or necessary to the management of a Natura 2000 site do not require Appropriate Assessment. The proposed project is not directly connected with or necessary for the management of a Natura 2000 site so screening for appropriate assessment is required.

3.2 Identification of possible effects from the proposed site investigations

Possible effects from the above described cable installation and potential future maintenance could include the following:

- Physical disturbance from pre-lay grapnel run, plough dredging and cable laying.
- Habitat loss from pre-lay grapnel run, plough dredging and cable laying.
- Disturbance from underwater noise generated from the cable installation vessel and the operation of the Ultrashort Baseline (USBL) acoustic positioning system.
- Accidental events including hydrocarbon spillages.

3.3 Identification of likely significant effects on Natura sites

A European site is only at risk of likely significant effects where the Source-Pathway-Receptor link exists between the proposed development and the European site (OPR 2021). Potential connectivity is considered if there is overlap with the Maritime Usage Licence Application Area and an SAC (direct effects) or if the SAC is within range of the effects of the proposed activity (indirect effect).

3.3.1. Annex I Habitats

The potential environmental impacts on Annex I Habitats as a result of these cable laying activities are physical disturbance and habitat loss. Physical disturbance from equipment can also lead to smothering of soft bottom species and altering of the sediment composition of the habitat.

3.3.2 Annex II Species

Marine mammals:

In Ireland Annex II marine mammal species include the European otter, grey seal, harbour seal, harbour porpoise and bottlenose dolphin. As a result of these cable laying activities marine mammals may be adversely affected by visual disturbance, injury due to collision with survey vessels, above water noise disturbance and from the effects of underwater noise.

Vessel strikes are a known cause of mortality in marine mammals (Laist et al., 2001; Wilson et al., 2020). Injuries as a result of collision may also result in individuals becoming vulnerable to secondary infections. Slower vessels following a consistent trajectory allow animals the opportunity to avoid collisions. The risk of fatality is also reduced if vessels are moving slowly. The introduction of underwater noise has the potential to disturb and/or injure marine mammals if the frequency/frequencies of the sound emitted fall within their hearing range. Marine mammals rely on sound to navigate, to communicate with one another and to sense and interpret their surroundings.

Currently three groups of cetaceans are recognised depending on their known auditory ability and functional frequencies (Table 2). Seals have differing auditory ability depending on if they

are in air or in water. They are therefore, from a functional point of view, divided into two groups, in water and in air.

Cetaceans			Pinnipeds	
Low frequency 7 Hz-35 kHz	Mid-frequency 150 Hz-160 kHz	High frequency 200 Hz-180 kHz	in water 5 Hz-86 kHz	in air 75 Hz-30 kHz
Baleen whales	Most toothed whales, dolphins	Certain toothed whales, porpoise	All species	All species
Species- Ireland Humpback whale	Species- Ireland Sperm whale	Species- Ireland Pygmy sperm whale	Species- Ireland Grey seal	Species- Ireland Grey seal
Blue whale	Killer whale	*Harbour porpoise	Harbour seal	Harbour seal
Fin whale	Long-finned pilot whale			
Sei whale	Beaked whale species			
Minke whale	*Dolphin species			

Table 2 Known auditory ability and functional frequencies cetacean species and seals (from Southall *et al.*, 2007). *Southall *et al.*, 2019 updated the marine mammal hearing groups, adding a Very High-frequency cetacean group which includes Harbour porpoise and now including Bottlenose dolphin in the High frequency group.

Southall *et al.* (2007) identified thresholds of peak sound pressure (SPL) and sound exposure (SEL) from discrete sound events (single or multiple, within a 24-hr period) that would be expected to elicit Temporary Threshold Shift (TTS) and/or Permanent Threshold Shift (PTS) in receiving marine mammals. These thresholds were revised and the recognition of a very high frequency hearing group having a lower threshold than previously thought (Southall *et al.*, 2019) (Table 3).

Marine Mammal hearing group	TTS onset: SEL weighted	TTS onset: Peak SPL unweighted	PTS onset: SEL weighted	PTS onset: Peak SPL unweighted
Low frequency Cetaceans	168	213	183	219
High frequency Cetaceans	170	224	185	230
Very High frequency Cetaceans	140	196	155	202
Seals in water	188	226	203	218
Seals on land	146	161	161	144

Table 3 TTS- and PTS- onset thresholds for marine mammals exposed to impulsive noise SEL thresholds in dB re1µPa²s under water and dB re20µPa²s in air (for seals only) from Southall *et al.*, 2019.

Migratory fish:

Many fish which possess swim bladders do not have anatomical connections with the ear and therefore do not have a high degree of hearing sensitivity compared to those with such connections. Atlantic Salmon have poor hearing sensitivity and are only capable of detecting low frequency tones (below 380Hz) and particle motion rather than sound pressure (NOAA, 2016). Shipping noise may be audible to salmon, however they are not sensitive to sound pressure levels.

3.3.3. Birds

The distance or stimulus for disturbance can depend on several factors (Cabot & Nisbet, 2013). Gulls display varied behaviour to disturbance depending on the stimuli but often gulls can tolerate a degree of disturbance and re-settle easily depending on the duration (Morrison & Allcorn, 2006)

Foraging common terns are considered to be of low sensitivity to disturbance from vessel traffic and associated activities (Garthe & Hüppop, 2004; Bradbury et al., 2014). Birds which forage underwater are vulnerable to underwater noise effects in addition to above water noise and visual effects.

Waders and wildfowl show different responses to disturbance depending on the species, the type of disturbance, the duration and context of their surrounding habitat, and activity they are undertaking (Cutts et al. 2013, Goss-Custard et al., 2019). Species like wigeon may be highly sensitive to some disturbance (Mathers et al., 2000) whilst exhibit low sensitivity to audio and visual disturbances (Cutts loc. cit., 2013). Redshank exhibit high disturbance responses to noise but low or tolerated responses to visual disturbance while lapwing are moderately sensitive to both visual and noise disturbance (Cutts loc. cit., 2013). Red-breasted mergansers in particular are notably sensitive to the disturbance associated with shipping traffic (Fleissbach et al., 2019).

Underwater noise is likely to cause disturbance to some species of diving seabird. It may affect prey acquisition, cause displacement from habitat or evoking an escape flight response (Black 2014, Dierschke loc.cit). Seabirds whose predominant method of foraging is shallow diving, dip diving or surface feeding are unlikely to be impacted by underwater noise due to the brevity of exposure time and sensitivity to disturbance (Furness 2012, Fleissbach 2019.).

Disturbance and displacement of species may have consequences at individual and population levels (Joint SNCB note 2017). The cable laying activities may also have effects on the prey species of these birds, reducing their availability which may then adversely affect survival and productivity.

3.4 Identification of the relevant European site/s

Special Area of Conservations (SAC) were screened on the potential for connectivity between the proposed project and their qualifying interests. Potential connectivity was considered if there was overlap with the Maritime Usage Licence Application Area and an SAC (direct effects) or if the SAC was within range of the effects of the proposed activity (indirect effects). All SACs within 15km of the proposed site investigation works are considered to be within the Zone of Influence of the project. Given the open nature of the marine environment SACs beyond this range are considered if there is a Source-Pathway-Receptor (OPR 2021) between the proposed activity and the qualifying interests of SACs.

3.4.1 Annex I habitats

Effects on Annex I habitats may be direct where the proposed project overlaps with habitats or SACs and indirect where the effects of the proposed project has effects on habitats which are at a distance from it. Therefore in the screening process those SAC's which overlap with the proposed project and those SACs within the range of effects of the proposed project are assessed. As these works are being undertaken in the marine environment, using the Source-Pathway-Receptor model, only the marine and coastal Annex I habitats were considered in this screening process.

The Maritime Usage Licence Application Area overlaps with the Southern Canyons candidate SAC.

3.4.2 Annex II species

Marine mammals

After breeding most grey seals disperse away from their haul-out sites, therefore their usage of a particular SAC is very time and location specific. On this basis and considering newly available data on grey seal movements (Carter et al, 2022) there is potential for interactions between grey seals and projects 448 km distant from the SAC for which they are designated. This is considered the Zone of Influence for this species.

In Ireland the foraging range for harbour seal can be as far as 273 km (Carter et al, 2022) using the precautionary principle that latter value was considered in the screening process and is taken as the Zone of Influence for this species.

In Ireland there are a number of SACs designated for the cetaceans, harbour porpoise and common bottlenose dolphin. As these species are highly mobile species specific Management Units (MU) are used to assess to the effect of an activity on them. The Zone of Influence of a project which has the potential to impact on a species is considered to be the MU for that species which overlaps with the project.

With respect to the proposed project the overlapping MU for harbour porpoise is the Celtic and Irish Seas; for the bottlenose dolphin it is offshore waters (Atlantic) (IAMMWG, 2023).

Using the above criteria eight Irish sites, seven British and twenty-five French sites were identified to be within the Zone of Influence of the proposed project.

These are:

Roaringwater Bay and Islands SAC
Glengarriff Harbour and Woodland SAC
Blasket Islands SAC
Saltee Islands SAC
Kenmare River SAC
Rockabill to Dalkey SAC
Lower River Shannon SAC
West Connacht Coast SAC
Pembrokeshire Marine/ Sir Benfro Forol SAC
Llyn Peninsula and the Sarnau / Pen Llyn a`r Sar
Cardigan Bay
North Anglesey Marine / Gogledd Môn Forol
West Wales Marine / Gorllewin Cymru Forol

North Channel
Bristol Channel Approaches / Dynesfeydd Môr Hafren
Mers Celtiques – Talus du golfe de Gascogne
Récifs du talus du golfe de Gascogne
Nord Bretagne DH
Ouessant-Molène
Abers - Côte des legends
Chaussée de Sein
Baie de Morlaix
Côte de Granit rose-Sept-Iles
Côtes de Crozon
Trégor – Goëlo
Rivière Leguer, forêts de Beffou, Coat an Noz et Coat an Hay
Récifs et landes de la Hague
Anse de Vauville
Baie de Saint-Brieuc
Cap d'Erquy-Cap Fréhel
Banc et récifs de Surtainville
Baie de Lancieux, Baie de l'Arguenon, Archipel de Saint Malo et Dinard
Récifs et marais arrière-littoraux du Cap Lévi à la Pointe de Saire
Côte de Cancale à Parmè
Estuaire de la Rance
Baie du Mont Saint-Michel
Baie de Seine occidentale
Baie de Seine orientale
Littoral Cauchois
Falaises du Cran aux Oeufs et du Cap Gris-Nez, Dunes du Chatelet, Marais de Tardinghen et Dunes de Wissant

Migratory fish

Once they leave freshwater salmon migrate to their feeding grounds in the northern Atlantic. Recent studies have found that salmon populations migrate towards oceanographic fronts for feeding (Rikardsen *et al.*, 2021). Salmon from northwest Spain and southeast Ireland appear to move out to the shelf edge before crossing the Atlantic towards Greenland. Barry *et al.* (2020) found that individuals from Irish rivers in the northeast migrate out of the Irish Sea through the North Channel into deeper offshore waters further north.

The Freshwater Pearl Mussel utilises Atlantic salmon at a certain stage in its life cycle, Sea lamprey is a predator of salmon (OSPAR 2009). Therefore it is considered that if the salmon is significantly impacted by an activity there is a possibility that these species may also be negatively affected. This logic was also applied to sea lamprey which is a predator of salmon (OSPAR 2009). The Zone of Influence for these species was considered the same as that for Atlantic salmon.

Recent information on Twaité Shad recorded movement of up to 950km from the River Severn with one individual detected in the Blackwater Estuary (Davies *et al.* 2020).

However given the spatial and temporal nature of the proposed works more distant SAC designated for shad species are considered to not have connectivity with the Application Area; more distant sites are considered too far for any significant interaction to occur.

Similarly distant SACs designated for River lamprey were considered too far for any significant interaction to occur.

Using this criteria no migratory fish SAC's were identified as being within the Zone of Influence of the proposed project.

3.4.3 Birds

A Special Protection Area (SPA) is considered in the screening process if there is potential for connectivity between their Special Conservation Interest (SCI), their wetlands and the proposed project. Possible connectivity is considered if the SPA either overlaps with the Maritime Usage Licence Application area or is within foraging range of the area. It is acknowledged that seabirds generally have large foraging ranges (Woodward *et al.* 2019) and may occasionally occur in the Maritime Usage Licence Application Area from more distant SPAs. If the cable laying area represents the outer extent of the foraging range of species, such as Manx Shearwater which have very large ranges, then the connectivity between it and SPAs for which the species is an SCI is considered to be insignificant. Using this criteria no SPAs were considered to be within the Zone of Influence of the proposed project.

Table 4 Special Area of Conservation (SAC) and their qualifying interests to be considered further in the screening process. **The QIs in red are screened in for Stage 2 Appropriate Assessment.**

Site and Code	Distance from Survey Area	Qualifying Interests	Screened In/Out	Potential source of impact
Southern Canyons cSAC	Overlaps	Reefs [1170]	In	Physical disturbance and habitat loss
Roaringwater Bay and Islands SAC [Site code IE000101]	142km/Within MU for Harbour Porpoise	Large shallow inlets and bays [1160] Reefs [1170] Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] European dry heaths [4030] Submerged or partially submerged sea caves [8330] Lutra lutra (Otter) [1355] Halichoerus grypus (Grey Seal) [1364]	Out In	No Source-Pathway-Receptor link to species or habitats Disturbance from underwater noise

			Phocoena phocoena (Harbour Porpoise) [1351]		
Glengarriff Harbour and Woodland SAC [Site code IE00090]	172km	Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0] Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0] Geomalacus maculosus (Kerry Slug) [1024] Rhinolophus hipposideros (Lesser Horseshoe Bat) [1303] Lutra lutra (Otter) [1355]	Out	No Source-Pathway-Receptor link to species or habitats	
		Phoca vitulina (Harbour Seal) [1365]	In	Disturbance from underwater noise	
Blasket Islands SAC [Site code IE002172]	Within MU for Harbour Porpoise	Reefs [1170] Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] European dry heaths [4030] Submerged or partially submerged sea caves [8330] Halichoerus grypus (Grey Seal) [1364]	Out	No Source-Pathway-Receptor link to species or habitats	
		Phocoena phocoena (Harbour Porpoise) [1351]	In	Disturbance from underwater noise	
Saltee Islands SAC [Site code IE0007071]	174 km	Mudflats and sandflats not covered by seawater at low tide [1140] Large shallow inlets and bays [1160] Reefs [1170] Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]	Out	No Source-Pathway-Receptor link to habitats	

		Submerged or partially submerged sea caves [8330]		
		Halichoerus grypus (Grey Seal) [1364]	In	Disturbance from underwater noise
		Large shallow inlets and bays [1160] Reefs [1170] Perennial vegetation of stony banks [1220] Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] Atlantic salt meadows (Glauco-Puccinellietalia maritima) [1330] Mediterranean salt meadows (Juncetalia maritimi) [1410] Shifting dunes along the shoreline with Ammophila arenaria (white dunes) [2120] Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] European dry heaths [4030] Juniperus communis formations on heaths or calcareous grasslands [5130] Calaminarian grasslands of the Violetalia calaminariae [6130] Submerged or partially submerged sea caves [8330] Vertigo angustior (Narrow-mouthed Whorl Snail) [1014] Rhinolophus hipposideros (Lesser Horseshoe Bat) [1303] Lutra lutra (Otter) [1355]	Out	No Source-Pathway-Receptor link to habitats
Kenmare River SAC [Site code IE0007071]	187km			

		<i>Phoca vitulina</i> (Harbour Seal) [1365]	In	Disturbance from underwater noise
Rockabill to Dalkey SAC [Site code IE003000]	Within MU for Harbour Porpoise	Reefs [1170] <i>Phocoena phocoena</i> (Harbour Porpoise) [1351]	Out In	No Source-Pathway-Receptor link to habitats Disturbance from underwater noise
Lower River Shannon SAC [Site code IE002165]	Within MU for Bottlenose Dolphin	Sandbanks which are slightly covered by sea water all the time [1110] Estuaries [1130] Mudflats and sandflats not covered by seawater at low tide [1140] Coastal lagoons [1150] Large shallow inlets and bays [1160] Reefs [1170] Perennial vegetation of stony banks [1220] Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] Salicornia and other annuals colonising mud and sand [1310] Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330] Mediterranean salt meadows (Juncetalia maritimi) [1410] Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation [3260] Molinia meadows on calcareous, peaty or clayey-silt-laden soils	Out	No Source-Pathway-Receptor link to habitats or species

		(Molinion caeruleae) [6410] Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0] Margaritifera margaritifera (Freshwater Pearl Mussel) [1029] Petromyzon marinus (Sea Lamprey) [1095] Lampetra planeri (Brook Lamprey) [1096] Lampetra fluviatilis (River Lamprey) [1099] Salmo salar (Salmon) [1106] Lutra lutra (Otter) [1355]		
		Tursiops truncatus (Common Bottlenose Dolphin) [1349]	In	Disturbance from underwater noise.
West Connacht Coast SAC [Site code IE002998]	Within MU for Bottlenose Dolphin	Tursiops truncatus (Common Bottlenose Dolphin) [1349]	In	Disturbance from underwater noise.
Pembrokeshire Marine/ Sir Benfro Forol SAC [UK0013116]	186 km	Sandbanks which are slightly covered by sea water all the time [1110] Mudflats and sandflats not covered by seawater at low tide [1140] Coastal lagoons [1150]*Priority feature Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330] Submerged or partially submerged sea caves [8330] Petromyzon marinus (Sea lamprey) [1095]	Out	No Source- Pathway- Receptor link to habitats

		<p>Lampetra fluviatilis (River lamprey) [1099] Alosa alosa (Allis shad) [1102] Alosa fallax (Twaite shad) [1103] Lutra lutra (Otter) [1355] Rumex rupestris (Shore dock) [1441]</p> <p>Halichoerus grypus (Grey Seal) [1364]</p>	In	Disturbance from underwater noise
Llyn Peninsula and the Sarnau / Pen Llyn a'r Sar [Site code UK0013117]	Within MU for Bottlenose Dolphin	<p>Mudflats and sandflats not covered by seawater at low tide [1140] Salicornia and other annuals colonizing mud and sand [1310] Atlantic salt meadows (Glauco-Puccinellietalia maritima) [1330] Submerged or partially submerged sea caves [8330] Lutra lutra Otter [1355]</p> <p>Tursiops truncatus (Common Bottlenose Dolphin) [1349] Halichoerus grypus (Grey Seal) [1364]</p>	Out	No Source-Pathway-Receptor link to species or habitats
Cardigan Bay [UK0012712]	Within MU for Bottlenose dolphin	Tursiops truncatus (Common Bottlenose Dolphin) [1349]	In	Disturbance from underwater noise
North Anglesey Marine / Gogledd Môn Forol [UK 0030398]	Within MU for Harbour Porpoise	Phocoena phocoena (Harbour Porpoise) [1351]	In	Disturbance from underwater noise.
West Wales Marine / Gorllewin Cymru Forol [UK 0030397]	Within MU for Harbour Porpoise	Phocoena phocoena (Harbour Porpoise) [1351]	In	Disturbance from underwater noise.

North Channel [UK 0030399]	Within MU for Harbour Porpoise	<i>Phocoena phocoena</i> (Harbour Porpoise) [1351]	In	Disturbance from underwater noise.
Bristol Channel Approaches / Dynesfeydd Môr Hafren [UK0030396]	Within MU for Harbour Porpoise	<i>Phocoena phocoena</i> (Harbour Porpoise) [1351]	In	Disturbance from underwater noise.
Mers Celtiques – Talus du golfe de Gascogne [FR5302015]	Within MU for Bottlenose Dolphin & Harbour Porpoise	<i>Tursiops truncatus</i> (Common Bottlenose Dolphin) [1349] <i>Phocoena phocoena</i> (Harbour Porpoise) [1351]	In	Disturbance from underwater noise.
Récifs du talus du golfe de Gascogne [FR5302016]	Within MU for Bottlenose Dolphin & Harbour Porpoise	<i>Tursiops truncatus</i> (Common Bottlenose Dolphin) [1349] <i>Phocoena phocoena</i> (Harbour Porpoise) [1351]	In	Disturbance from underwater noise.
Nord Bretagne DH [FR2502022]	Within MU for Bottlenose Dolphin & Harbour Porpoise	<i>Tursiops truncatus</i> (Common Bottlenose Dolphin) [1349] <i>Phocoena phocoena</i> (Harbour Porpoise) [1351]	In	Disturbance from underwater noise.
Ouessant-Molène [FR5300018]	Within MU for Bottlenose Dolphin & Harbour Porpoise	<i>Tursiops truncatus</i> (Common Bottlenose Dolphin) [1349] <i>Phocoena phocoena</i> (Harbour Porpoise) [1351]	In	Disturbance from underwater noise.
Abers - Côte des legends [FR5300017]	Within MU for Bottlenose Dolphin & Harbour Porpoise	<i>Tursiops truncatus</i> (Common Bottlenose Dolphin) [1349] <i>Phocoena phocoena</i> (Harbour Porpoise) [1351]	In	Disturbance from underwater noise.
Chaussée de Sein [FR5300016]	Within MU for Bottlenose Dolphin & Harbour Porpoise	<i>Tursiops truncatus</i> (Common Bottlenose Dolphin) [1349] <i>Phocoena phocoena</i> (Harbour Porpoise) [1351]	In	Disturbance from underwater noise.

Baie de Morlaix [FR5300015]	Within MU for Harbour Porpoise	Phocoena phocoena (Harbour Porpoise) [1351]	In	Disturbance from underwater noise.
Côte de Granit rose- Sept-Iles	Within MU for Bottlenose Dolphin & Harbour Porpoise	Tursiops truncatus (Common Bottlenose Dolphin) [1349] Phocoena phocoena (Harbour Porpoise) [1351]	In	Disturbance from underwater noise.
Côtes de Crozon [FR5302006]	Within MU for Harbour Porpoise	Phocoena phocoena (Harbour Porpoise) [1351]	In	Disturbance from underwater noise.
Trégor – Goëlo [FR5300010]	Within MU for Bottlenose Dolphin & Harbour Porpoise	Tursiops truncatus (Common Bottlenose Dolphin) [1349] Phocoena phocoena (Harbour Porpoise) [1351]	In	Disturbance from underwater noise.
Rivière Leguer, forêts de Beffou, Coat an Noz et Coat an Hay [FR5300008]	Within MU for Harbour Porpoise	Phocoena phocoena (Harbour Porpoise) [1351]	In	Disturbance from underwater noise.
Récifs et landes de la Hague [FR2500084]	Within MU for Bottlenose Dolphin & Harbour Porpoise	Tursiops truncatus (Common Bottlenose Dolphin) [1349] Phocoena phocoena (Harbour Porpoise) [1351]	In	Disturbance from underwater noise.
Anse de Vauville [FR2502019]	Within MU for Bottlenose Dolphin & Harbour Porpoise	Tursiops truncatus (Common Bottlenose Dolphin) [1349] Phocoena phocoena (Harbour Porpoise) [1351]	In	Disturbance from underwater noise.
Baie de Saint-Brieuc – Est [FR5300066]	Within MU for Bottlenose Dolphin & Harbour Porpoise	Tursiops truncatus (Common Bottlenose Dolphin) [1349] Phocoena phocoena (Harbour Porpoise) [1351]	In	Disturbance from underwater noise.

Cap d'Erquy-Cap Fréhel [FR5310095]	Within MU for Bottlenose Dolphin & Harbour Porpoise	Tursiops truncatus (Common Bottlenose Dolphin) [1349] Phocoena phocoena (Harbour Porpoise) [1351]	In	Disturbance from underwater noise.
Banc et récifs de Surtainville [FR2502018]	Within MU for Bottlenose Dolphin & Harbour Porpoise	Tursiops truncatus (Common Bottlenose Dolphin) [1349] Phocoena phocoena (Harbour Porpoise) [1351]	In	Disturbance from underwater noise.
Baie de Lancieux, Baie de l'Arguenon, Archipel de Saint Malo et Dinard [FR5310012]	Within MU for Bottlenose Dolphin & Harbour Porpoise	Tursiops truncatus (Common Bottlenose Dolphin) [1349] Phocoena phocoena (Harbour Porpoise) [1351]	In	Disturbance from underwater noise.
Récifs et marais arrière-littoraux du Cap Lévi à la Pointe de Saire [FR2500085]	Within MU for Bottlenose dolphin	Tursiops truncatus (Common Bottlenose Dolphin) [1349]	In	Disturbance from underwater noise
Côte de Cancale à Parmè [FR5300052]	Within MU for Bottlenose dolphin	Tursiops truncatus (Common Bottlenose Dolphin) [1349]	In	Disturbance from underwater noise
Estuaire de la Rance [FR5300061]	Within MU for Harbour Porpoise	Phocoena phocoena (Harbour Porpoise) [1351]	In	Disturbance from underwater noise.
Baie du Mont Saint-Michel [FR5300077]	Within MU for Bottlenose Dolphin & Harbour Porpoise	Tursiops truncatus (Common Bottlenose Dolphin) [1349] Phocoena phocoena (Harbour Porpoise) [1351]	In	Disturbance from underwater noise.
Baie de Seine occidentale [FR2502021]	Within MU for Bottlenose dolphin	Tursiops truncatus (Common Bottlenose Dolphin) [1349]	In	Disturbance from underwater noise
Baie de Seine orientale [FR2502021]	Within MU for Bottlenose dolphin	Tursiops truncatus (Common Bottlenose Dolphin) [1349]	In	Disturbance from underwater noise

Littoral Cauchois [FR2300139]	Within MU for Bottlenose dolphin	<i>Tursiops truncatus</i> (Common Bottlenose Dolphin) [1349]	In	Disturbance from underwater noise
Falaises du Cran aux Oeufs et du Cap Gris- Nez, Dunes du Chatelet, Marais de Tardingen et Dunes de Wissant [FR3100478]	Within MU for Bottlenose dolphin	<i>Tursiops truncatus</i> (Common Bottlenose Dolphin) [1349]	In	Disturbance from underwater noise

3.5 Assessment of Likely Significant Effects

3.5.1 Annex I Habitats

The Emodnet habitat data shows the Maritime Usage Licence Application Area to be largely that of muddy sand, sandy mud and biogenic reef (<https://www.emodnet-seabedhabitats.eu/>).

The Southern Canyons SAC site synopsis describes the SAC's habitat to be that of areas of hard rocky substrate and areas of muddy or sandy sediment.

An extensive offshore survey of this site was completed in 2019 using the RV Celtic Explorer and a Holland I ROV. This survey was completed by a team of internationally recognised deep sea ecologists. A total of 50 dives were completed during this leg of the survey. The canyon systems cutting into the continental shelf were formed by sediment erosion events that scoured deep canyons with flanking escarpments. The natural profile of these canyons exit thousands of meters deep into abyssal plains below making it a unique habitat, which is exceptional in a European context.

Given that the cable laying works in the Southern Canyon SAC will involve both plough burial and surface lay techniques there is the potential for significant effects on reef habitats

Therefore, the possibility of likely significant effects as a result of physical disturbance and habitat loss from the proposed project on Annex I habitats **cannot be excluded**

3.5.2 Annex II species

In relation to Annex II migratory fish species no SAC is considered to be within the Zone of Influence of the proposed project. Therefore the possibility of likely significant effects from the proposed project on Annex II migratory fish species **can be excluded**.

The noise emitted from the proposed USBL is above the TTS- and PTS-onset threshold injury levels indicated by Southall et al. (2019) and while the low frequencies emitted from this equipment (18-55 kHz) are below the auditory range of the high and very frequency cetaceans they are within the hearing range of low frequency cetaceans (including Humpback whale, Blue whale, Fin whale, Sei whale and Minke whale). While these species are not Annex II species they are afforded protection under Annex IV of the Habitats Directive and using the precautionary principal the possibility of likely significant effects as a result of underwater noise from the proposed project on Annex II marine mammals **cannot be excluded**.

3.5.3 Birds

As the nearest SPA is approximately 150 km distance from the nearest cable laying location; therefore the possibility of likely significant effects as a result of the proposed project on bird species within the Zone of Influence of the proposed project **can be excluded**.

3.6 In-combination effects

Article 6(3) of the Habitats Directive requires that an Appropriate Assessment be carried out in respect of any plan or project which is likely to have a significant effect on one or more European sites, either individually or in combination with other plans or projects. Therefore, regardless of whether or not the likely or possible effects of a plan or project are significant when considered in isolation, the potential for the plan or project to significantly affect European sites in combination with other past, present or foreseeable future plans or projects must also be assessed.

In-combination screening for cumulative effects has been undertaken following the approach outlined in the European Commission Notice Assessment of plans and projects in relation to Natura 2000 sites – Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive (EC, 2021), has had regard to European and National guidance documents and is based on professional and scientific judgment.

Under Article 6(3) the ‘in combination’ provision applies both to Stage 1 Screening and Stage 2 Appropriate Assessment.

Some projects are unlikely to have significant effects on their own. However, the effects in-combination with other plans or projects could be significant. The cumulative effects assessment concentrates on projects/plans that could act in-combination with the project under application/consideration to affect the conservation objectives of the relevant Natura 2000 sites.

Relevant Plans/Projects

The cumulative effects provision applies to the following plan/project types:

- Projects that are completed,
- Projects approved but uncompleted,
- Proposed projects, (projects applied for and under consideration but not approved by the relevant consenting authority or projects known to MARA),
- Plans that are completed,
- Plans approved but uncompleted,
- Proposed plans,
- Proposals in adopted plans,
- Proposals in finalised draft plans formally published or submitted for consultation or adoption

As per European guidance it is recommended that plans and projects that are not yet proposed do not generally have to be taken into account in the assessment of in-combination effects, even if they are part of an overarching masterplan. The exception is where the project is considered to be functionally interdependent with the development before the competent authority. An example of this is a site investigation for a proposed offshore windfarm which has received a MAC. The consideration of in-combination effects is not restricted to similar project/plan types covering the same sector of activity (e.g. a series of offshore wind farms).

All types of plans or projects that could, in-combination with the project under consideration, have a significant effect, should be taken into account.

Although already completed plans and projects are themselves excluded from the assessment requirements of Article 6(3), it is still important to take them into consideration when assessing the effects of the current plan or project in order to determine whether there are any potential cumulative effects arising from the current project in combination with other completed plans and projects.

Using professional and scientific judgement, the key steps for assessing cumulative effects are as follows:

1. Defining the Cumulative Effects Spatial Scope (CESS)
2. Defining the Cumulative Effects Temporal Scope (CETS)
3. Impact identification
4. Pathway identification
5. Prediction
6. Identification of Plans or Projects that could act in combination
7. Screening Stage Cumulative Effects Assessment conclusion
8. Managing cumulative impacts - to be carried out as part of Stage 2 AA process

1. Defining the Cumulative Effects Spatial Scope (CESS)

The impacts of noise associated with the use of acoustic equipment are considered to have the widest spatial reach, with Harbour porpoise the designated Natura 2000 site feature which is most sensitive to noise disturbance. The JNCC Guidance on Assessing the Significance of Noise Disturbance against Harbour Porpoise SACs Conservation Objectives (JNCC, 2020) has therefore been used to determine the boundary for examination of cumulative effects. The guidance uses published ranges for effects of noise from different noise producing activities to determine Effective Deterrence Ranges (EDRs).

Table 5 USBL noise source and associated Effective Deterrence Ranges (EDR).

Noise source	Operating frequency (kHz)	Sound Pressure Level (dB re 1µPa @ 1m)	EDR (JNCC 2020)
USBL	4.5 – 12.5 kHz	190 dB	5km using EDR range for geophysical activity.

The EDR has been chosen as 5km along the extent of the cable laying works, with projects within this range judged to be within the CESS.

2. Defining the Cumulative Effects Temporal Scope (CETS)

The temporal scope for examination of cumulative effects has been defined considering the period over which the licence activities would take place. A licence period of up to 25 years is being sought for this project. The Cumulative Effects Temporal Scope (CETS) is therefore 25 years.

3. Impact identification.

The impacts identified are:

- Physical disturbance and habitat loss and
- Disturbance from underwater noise

4. Pathway Identification:

Table 6 Pathway Identification

Impact	Potential Cumulative Pathway
Physical disturbance and habitat loss	Pathway requires direct spatial overlap. Potential pathway for physical disturbance and habitat loss impact where there is spatial and temporal overlap.
Disturbance from underwater noise	Pathway possible via sound travelling through water with impacts possible within CESS where there is temporal

Impact**Potential Cumulative Pathway**

overlap with other underwater noise producing projects.

5. Prediction

The magnitude and extent of identified likely cumulative effects have been predicted below following EC 202h1 guidance.

Physical disturbance and habitat loss

There is a direct overlap between the proposed Maritime Usage Licence area and the Southern Canyons SAC. There is a possible direct impact from the proposed works on Annex I Habitat Reefs. There is the potential for increased physical disturbance and habitat loss if other similar acoustic projects were to take place at the same time. Therefore, significant likely cumulative effects will be considered further.

Disturbance from underwater noise

There is the potential for increased underwater noise disturbance effects if the cable laying works and other similar acoustic projects were to take place at the same time. Therefore, significant likely cumulative effects will be considered further.

6. Identification of Plans or Projects that could act in combination

Following the approach outlined by (EC, 2021), which suggests that information regarding “characteristics of other plans or projects (implemented, approved or proposed) that may cause in-combination or cumulative effects with the project being assessed on Natura 2000 sites” should be sourced from databases (e.g. on SEA, EIA, appropriate assessments of plans/projects, regional or municipal plans, local authority planning applications) available from Competent Authorities, all plans and projects within the CESS and CETS have been identified.

All consented activities/developments and applications for activities or development within the CESS and CETS have been considered for their potential to cause cumulative effects in combination with the site investigation activities proposed under this Maritime Usage Licence Application, on the qualifying interests of Special Areas of Conservation and Special Protection Areas.

Searches were conducted of the following:

- Applications and lease/licence database of the Department of Housing, Local Government and Heritage
- General internet search (for master plans etc)
- The Maritime Area Regulatory Authority’s databases

- EPA Website

7. Screening Stage Cumulative Effects Assessment conclusion

Based on a review of Foreshore Applications, MARA Licence Applications and the EIA portal, there are no projects located within 10km of the proposed 2Africa cable route within the Irish EEZ that are either completed or are currently going through planning stages.

The closest identified project within the Irish EEZ is the EirGrid Celtic Interconnector Electricity Cable (Foreshore licence number FS006916) which passes by this proposed cable approximately 30km at its nearest point.

No plans or projects have been identified in the CESS.

Likely significant in-combination effects on the conservation objectives of Natura 2000 sites considered in this report **can be excluded** at this stage.

4. Conclusion

4.1 Screening for Appropriate Assessment Conclusion

The qualifying interests of European sites which may experience likely significant effects as a result of the proposed project were identified using the Source-Pathway-Receptor approach.

Physical disturbance and habitat loss causing likely significant effects could not be discounted for the following Special Area of Conservation:

- Southern Canyons cSAC

Disturbance from underwater noise causing likely significant effects could not be discounted for the following Special Areas of Conservation and Special Protection Areas:

- Roaringwater Bay and Islands SAC
- Glengarriff Harbour and Woodland SAC
- Blasket Islands SAC
- Saltee Islands SAC
- Kenmare River SAC
- Rockabill to Dalkey SAC
- Lower River Shannon SAC
- West Connacht Coast SAC
- Pembrokeshire Marine/ Sir Benfro Forol SAC
- Llyn Peninsula and the Sarnau / Pen Llyn a`r Sar
- Cardigan Bay
- North Anglesey Marine / Gogledd Môn Forol
- West Wales Marine / Gorllewin Cymru Forol
- North Channel
- Bristol Channel Approaches / Dynesfeydd Môr Hafren
- Mers Celtiques – Talus du golfe de Gascogne
- Récifs du talus du golfe de Gascogne

- Nord Bretagne DH
- Ouessant-Molène
- Abers - Côte des legends
- Chaussée de Sein
- Baie de Morlaix
- Côte de Granit rose-Sept-Iles
- Côtes de Crozon
- Trégor – Goëlo
- Rivière Leguer, forêts de Beffou, Coat an Noz et Coat an Hay
- Récifs et landes de la Hague
- Anse de Vauville
- Baie de Saint-Brieuc
- Cap d’Erquy-Cap Fréhel
- Banc et récifs de Surtainville
- Baie de Lancieux, Baie de l’Arguenon, Archipel de Saint Malo et Dinard
- Récifs et marais arrière-littoraux du Cap Lévi à la Pointe de Saire
- Côte de Cancale á Parmè
- Estuaire de la Rance
- Baie du Mont Saint-Michel
- Baie de Seine occidentale
- Baie de Seine orientale
- Littoral Cauchois
- Falaises du Cran aux Oeufs et du Cap Gris-Nez, Dunes du Chatelet, Marais de Tardinghen et Dunes de Wissant

It is concluded that likely significant effects as a result of this projects, alone or in-combination with other plans and projects, on the conservation objectives of European sites cannot be excluded and therefore an Appropriate Assessment is required.

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6. Site Specific Conservation Objectives

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Southern Canyons cSAC IE002278

https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002278.pdf

Roaringwater Bay and Islands SAC

https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000101.pdf

Blasket Islands SAC

https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002172.pdf

Saltee Islands SAC 000707

https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000707.pdf

Glengarriff Harbour and Woodland SAC

https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000090.pdf

Kenmare River SAC

https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002158.pdf

Rockabill to Dalkey SAC IE003000

https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO003000.pdf

Lower River Shannon SAC IE002165

https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002165.pdf

West Connacht Coast SAC IE002998

https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002998.pdf

North Anglesey Marine / Gogledd Môn Forol

<https://data.jncc.gov.uk/data/f4c19257-2341-46b3-8e29-49665cd8f3d2/NorthAnglesey-ConservationAdvice.pdf>

West Wales Marine / Gorllewin Cymru Forol

<https://data.jncc.gov.uk/data/029e40f3-5f67-4168-b10d-8730f2c40e0a/WWM-conservation-advice.pdf>

Lleyn Peninsula and the Sarnau / Pen Llyn a'r Sar SAC

<https://sac.jncc.gov.uk/site/UK0013117>

North Channel

<https://data.jncc.gov.uk/data/be0492aa-f1d6-4197-be22-e9a695227bdb/NorthChannel-conservationadvice.pdf>

Bristol Channel Approaches / Dynesfeydd Môr Hafren

<https://cdn.cyfoethnaturiol.cymru/media/679449/bristolchannelapproachesconservationobjectivesandadviceonactivities.pdf?mode=pad&rnd=131625760740000000>

Cardigan Bay SAC

<https://sac.jncc.gov.uk/site/UK0012712>

Pembrokeshire Marine/ Sir Benfro Forol SAC

<https://sac.jncc.gov.uk/site/UK001311>