Project Activities																		
Project Activities			Physical Environment Receptors			Bio	ologica	ıl Enviro	Socio-economic Receptors									
Project Activity	<b>Sub-Activity</b>	Potential Impacts/Issues	Geomorphology and Seabed Sediments	Oceanography and physical processes	Water Quality Air Quality, Greenhouse	IntertidalEcology	Rect tied Ecology	Plankton	Fish and Shellfish	Marine Mammals	Seabirds	Marine Archaeology	Shipping and Navigation	Commercial Fisheries Recreation and Leisure	Other Sea Users	Waste Management	Human Health Employment	Mitigations Inherent to Project Design Scoping Report notes reference for further information
Vessel Activities (all stages)				, I														
Cable Lay Vessel	Use of specialist cable ship in marine waters  The shallowest depth in which the cable ship can operate will depend on the vessel used, however at this stage it has been assumed that Larger vessels such as a CLV would not be expected inshore of 10 -15m depth contour.	Underwater sound profile generated by slow moving vessel during pre-install and install phases.							х	х								Most marine mammals sensitive to low-frequency sounds are likely avoid the areas of increased vessel activity. Noise from engines would be similar to that of other vessels in the area
		Underwater sound profile generated by the Use of Dynamic Positioning to hold position during cable installation			x				х	x								
		Physical presence of vessel in transit, stationary/ holding																Assumed safety zone of 500m around Project vessels. Guard vessels will be employed during installation.  Notice(s) to Mariners will be issued prior to commencement of activities  Avoidance of the main navigational features in the area such as charted and gears). Moreover, marine biota are expected to move away from the
		position, or slow moving vessels during operation with limited manoeuverability, including potential for temporary safety zone(s) around activities, leading to deviation of shipping from established routes and increased risk of								х	х		x	х	x		x?	known anchorages, maintained channel depths and prohibited regions low-frequency sound emitted by the vessel.  All vessels will adhere to the International Regulations for Preventing Collisions Cable lay vessel is a specialist vessel with specific crew. Cable will be
		collision																at Sea, 1972 (COLREGs); loaded onto vessel directly from cable production locations. The specific installation vessel to be used has not yet been identified, therefore its home port is still unknown. However, local port facilities are not expected to be required for the cable lay vessel.
Guard Vessel and other support vessel: (e.g. Anchor handling tug)	s Use of guard vessel(s) in areas of high density other uses/shipping	Underwater sound profile  Physical presence of vessel in transit, stationary/ holding							х	х								Potential for employment of local boats from local harbours/ports to
		position, or of slow moving vessels during operation with limited manoeuverablility.								х	х		х	х х	x		x?	provide guard vessel services, but they will have to meet certain standards and final decision will be made by the installation contractor
Rock Placement Vessel	Use of specialist rock placement vessel in specific identified locations along the route, where target burial depth can't be achieved	Underwater sound profile from vessel and rock placement activities							х	х								
		Physical presence of vessel in transit, stationary/ holding position, or of slow moving vessels during operation with limited manoeuverability leading to deviation of shippping from established routes and increased risk of collision.								x	x		x	x x	x			Avoidance of the main navigational features in the area such as charted and known anchorages, maintained channel depths and prohibited regions  All vessels will adhere to the International Regulations for Preventing Collisions at Sea, 1972 (COLREGS);
Cable Lay Barge	Use of shallow draft barge on approach to landfall (if required). Likely a four to six point anchor mooring system covering an area of between 500m and 1000m radius from the vessel to allow barge to hold station.	Physical presence of barge including the use of anchor spread affecting seabed and overlying sea area, and visual disturbance	х	х	x		x			х	х	x	х	x x	x			Written Scheme of Investigation and Protocol for Archaeological Discoveries
All vessels	routine vessel discharges	discharges to sea and air			x x													within the International Convention for the prevention of pollution from ships (MARPOL), specifically Annex I covering Prevention of pollution by oil & oily water, Annex IV covering prevention of pollution by sewage, Annex V which sets out Regulations for the Prevention of pollution by garbage, and Annex VI with Regulations for the Prevention of Air Pollution from Ships. Non-local vessels will operate in accordance with the IMO regulations for ballast water.
	Accidental leaks and spills	discharges to sea			х	х	х	х	х	x	х		x	x x			х	The vessel will comply with MARPOL Annex I - Prevention of Pollution by Oil, and will have a contingency plan for marine oil pollution in the form of Shipboard Oil Pollution Emergency Plan (SOPEP).  All vessels will have chemical handling procedures for oils and fuels in place and Health Safety and Environmental monitoring procedures with weather and personnel limits to be implemented during cable installation
Pre-Installation Works																		
Pre-installation Engineering Surveys	MBES/SSS ROV visual inspection to reconfirm existing geotechnical and geophysical information about seabed conditions, bathymetry and other seabed features	Underwater sound profile generated by survey.	х				х		Х	х			х	Х				A further survey licence will be sought for these activities, once details of the survey including time of year, methods, equipment etc. are identified
Cable Route Clearance	Pre-clearance shallow route ploughing to remove installation obstructions (rocks, boulders etc) and/or Pre-installation grapnel run along parts of the route where particular types of obstructions e.g. out of service cables, abandoned fishing gear etc. may exist	Seabed disturbance, including effects on Suspended Sediment Concentrations	х		х		x	x	х	х		x		x	x	х		Written Scheme of Investigation and Protocol for Archaeological Discoveries
		Temporary removal or relocation of other seabed features which may cause obstruction, e.g. active use static gear fishing pots. Mooring buoys etc.												x x				
	Pre-sweeping in areas of identified sandwaves	Seabed disturbance, including sediment entrainment.	х	х	х		х	х	х	х		x		х	х			Written Scheme of Investigation and Protocol for Archaeological Discoveries
Route Preparation	Cable crossing infrastructure installation	Physical presence and/or seabed sediment disturbance	х	х	x		х					х	х	х	х		х	Written Scheme of Investigation and Protocol for Archaeological Discoveries
	Pre-installation preparation of trenches through areas of harder seabed?	Seabed disturbance, including sediment entrainment.	х	х	х		x	х	х	х		x		х	х			Written Scheme of Investigation and Protocol for Archaeological Discoveries
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UXO clearance activities ??	Removal / relocation / detonation	Underwater Sound Profile generated by detonation activities Seabed disturbance and sediment mobilisation.	х	x	x	x		x	x	:	x x	x	x			Principles of a Marine Mammal Mitigation Plan (MMMP) will be included, details of which would be developed as part of a consent condition only should UXO detonation be required. Only if a detailed post-consent MMMP is required, will it be supported by underwater sound profile modelling specific to the proposed detonation.	
Cable Installation													_			proposed detoriation.	
Cable laying, Burial and Jointing. May be simultaneous cable lay and burial or may be cable lay followed at a later stage by post-lay burial.	Cable Burial using cable plough (either displacement or non-displacement)	seabed sediment disturbance, temporary restrictions to access to seabed, e.g. restrictions to recreational diving activities etc.	х	х	х	х		х	х	:	x	x	х	Τ		Written Scheme of Investigation and Protocol for Archaeological Discoveries	increased turbidity within the water column and smothering during cable burial.
	Cable Burial using jet trencher		х	x	x	х		х	х	:	x	х	х				Potential interaction with plankton communities were considered at
	Cable burial using mechanical trenchers		х	х	x	х		х	х	:	x	х	х				scoping stage, however given the extensive nature of the planktonic communities and the localised and temporary effects of any increases in SSC, particularly when considered within the context of the geographic area covered by the planktonic communities, no feasible
	mass flow excavation (e.g. for burial of cable joints)		x	х	х	х		х	х	:	х	х	х				
	Pause in cable lay activities as a result of weather/technical limitations/unanticiated events. Vessel can stay on cable typically upto c. Force 8 /9 winds. However in severe weather cable may need to be cut and capped then jointed once installation can recommence	Cable joints occupying additional seabed	х			x						х					g-g-p
Cable Crossings	placement of rock/mattresses etc in an appropriate configuration to ensure EL infrastructure maintains appropriate vertical/horizontal separation for other linear infrastructure which may require to be crossed	Seabed sediment disturbance	x	x	x	x				:	x	х	:	х		Written Scheme of Investigation and Protocol for Archaeological Discoveries	
		Reduction in under keel clearance									x	х					
Intertidal/Landfall (HDD) (see separate ENVID Matrix																	
Additional Cable Protection Measures																	
Rock Placement	placement of berm(s) of grade rock in certain locations	Seabed sediment disturbance resulting in permanent changes in seabed profile, sediment characteristics and habitat type	x	x	x	x				:	x x	x			,	Written Scheme of Investigation and Protocol for Archaeological Discoveries	
		. Changes to hydrodynamics result in local scour effects	x	х		x		x		:	×	x				Written Scheme of Investigation and Protocol for Archaeological Discoveries	
		Reduction in under keel clearance									х	x					
Cable Operation and Maintanence																	
Operating Emissions	Electro-magnetic Fields (EMF)	EMFs at seabed				х		х				х					Based on the static and relatively localised nature of EMF effects, combined with the continual and wide-ranging movement of plankton within the water column, including the larvae of some fish species which are known to be sensitive, there is considered to be no realistic pathway for impact to
		EMFs in water column and at sea surface including interference with marine navigational equipment.					х	х	х		х	х					Interference with magnetic compasses used for navigation?
	Operationally generated Heat Profile	Elevated heat profile in seabed sediments	х			х		?								Cable burial and/or additional cable protection rock placement etc. will provide containment mitigation for any operational heat generated by the cables.	
Physical Presence of cable infrastructure on seabed	Changes to surface seabed morphology, particularly as a result of crossing infrastructure, rock placement or other protection measures	Physical presence/ occupancy of the seabed. (e.g. leading to interaction with vessel anchors and anchoring activity as well as fishing gear).	х	х		х					x x	х		x		Written Scheme of Investigation and Protocol for Archaeological Discoveries	Snagging resulting from obstructions on the seabed Reduction in water depth? Local scour/changes to current movements? Permanent change to/loss of commercial fish habitat
		Localised scour affecting seabed sediments and movement	х	х	х	х											
Cable repair (if required)	Removal and replacement of damage section	Seabed disturbance with re-suspension of sediment (similar to those experienced during installation)	х	х	х	x	х	х	х	:	х	х				Written Scheme of Investigation and Protocol for Archaeological Discoveries	
Cable Decommissioning																	
Cable removal	Cable removal	Impacts expected to be similar or of smaller magnitude to those experienced during cable installation	х	х	х	x	х	х	х		х	х		х			
Abandonment - Occupancy on the seabed	Long-term occupancy of the seabed	Similar to those experienced during operation	х	х		х					х	х		х			