

The Great Grid Upgrade

Eastern Green Link 3 (EGL 3) and
Eastern Green Link 4 (EGL 4)

Preliminary environmental information report (PEIR)

**Volume 2, Part 1, Appendix 1.5.A: Outline Register of Design
Measures**
May 2025

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1.5.A. Outline Register of Design Measures

1.5.A.1 Introduction

- 1.5.A.1.1 As described in **Volume 1, Part 1 Chapter 5: PEIR Approach and Methodology**, environmental measures are split into three categories and include avoidance, best practice and design commitments, which are classified into ‘design measures’, and ‘control and management measures’ (referred to collectively as ‘environmental measures’). The design measures are defined as modifications to the location, design or operation of the Projects made during the pre-application phase that are an inherent part of the Projects.
- 1.5.A.1.2 These measures may have been identified through the preliminary Environmental Impact Assessment (EIA) process to avoid or reduce potential significant effects that may otherwise be experienced during construction and operation of the Projects. For example, anything that has been added to the design purely to mitigate an effect such as landscape planting. The environmental impact assessment will continue to influence the design, whereby environmental measures may be embedded into the design, to help avoid and reduce potential significant effects arising from the Projects.
- 1.5.A.1.3 This appendix sets out the design measures that have been identified for the Projects through the preliminary environmental assessments presented in the Preliminary Environmental Information Report (PEIR) to avoid or reduce potential significant effects. Compliance with these measures will be secured via the Development Consent Order (DCO) will be kept under review (along with the proposed securing mechanism) as the design of the Projects develops and confirmed within the application for development consent.
- 1.5.A.1.4 This appendix should be read alongside the following chapters presented in **Volume 1, Part 1** of this PEIR:
- **Chapter 1: Introduction;**
 - **Chapter 4: Description of the Projects;** and
 - **Chapter 5: PEIR Approach and Methodology.**

1.5.A.2 Mitigation measures

- 1.5.A.2.1 **Table 1.5.A-1, Table 1.5.A-2 and Table 1.5.A-3** present the design measures that have been identified during the assessment of preliminary environmental effects process as being necessary to avoid or reduce potential significant impacts on the environment. These design measures have been identified in the PEIR topic chapters as being required and will be kept under review (along with the proposed securing mechanism) and confirmed within the application for development consent.
- 1.5.A.2.2 Measures listed in **Table 1.5.A-1, Table 1.5.A-2 and Table 1.5.A-3** have been assigned references, for example AS01. These align with the references provided in each aspect chapter included in **Volume 1, Part 2, Chapter 6: Biodiversity to Chapter 16: Health and Wellbeing**. Any references identified with ID MT (for example, MT01) include measures which may also be listed in other aspects considered as part of this PEIR therefore have been identified as measures which apply to multiple but not all aspects. For ease of cross-reference, the general measures that may apply across all aspects considered in the PEIR, has been assigned a reference number, for example (GG01).
- 1.5.A.2.3 The measures listed in **Table 1.5.A-3** align with the references provided in each aspect chapter included in **Volume 1, Part 3, Chapter 17: Designated Sites to Chapter 26: Marine Archaeology**.

Table 1.5.A-1 - Project-wide Mitigation

Ref	Description of design measures
Greenhouse Gases	
GHG01	<p>The Projects would consider a range of design optimisation measures to reflect the carbon reduction hierarchy (detailed below and found in clause 6.1.4 of PAS 2080:2023:</p> <ul style="list-style-type: none"> • Reduce the number of elements required for the Projects; • Reduce the requirement for construction materials by smart design; • Substitute-in and use alternative raw materials and resources with lower embodied carbon; and • Efficient construction processes, such as embracing design for manufacture and assembly.
GHG02	<p>The Projects would maximise the opportunity to use more sustainable materials by specifying, in procurement documentation, that materials and products with reduced embodied carbon emissions, and materials/resources featuring recycled content (where safe and of sufficient integrity for engineering).</p>
GHG03	<p>Designing, specifying and constructing the Projects with a view to maximising the operational lifespan and minimising the need for maintenance and refurbishment (and thus reducing the frequency of releasing associated Greenhouse Gas (GHG) emissions).</p>
GHG04	<p>The Projects ancillary infrastructure and equipment (such as lighting and telecommunications) will comply with the relevant design standard and specifications and will be selected for its durability and energy efficiency credentials.</p>

Ref	Description of design measures
GHG05	All design decisions to be framed by the six principles of circular economy set out in BS8001:2017. Resource Efficiency targets will include diversion of 100% of avoidable waste streams from landfill and a minimum overall recycling rate of at least 80% as well as an average recycled content by value of 30% for applicable construction materials.
GHG06	To meet NGET's environmental commitment to a 50% reduction in SF6 emissions from a 2018/19 baseline by 2030, and environmental ambition to eliminate SF6 equipment by 2050, the procurement of new SF6 equipment is no longer acceptable. Where use of SF6-free technology for a specific application is not technically viable, or is commercially restrictive, a deviation shall be sought as an exceptional case.

Table 1.5.A-2 - Onshore Scheme Mitigation

Ref	Description of design measures
General Commitments	
GG01	The Projects would be designed to comply with design safety standards including National Electricity Transmission System Security and Quality of Supply Standards and the suite of National Grid policies and processes which contains details on design standards required to be met when designing, constructing and operating its project.
Multiple Topic Commitments	
MT01	The Projects design would be compliant with the guidelines and policies relating to electric and magnetic fields which set limits on the permitted emissions, including Technical Specification 1 – Ratings and General requirements for plant, equipment and apparatus for the NGET system. These technical specifications and policies ensure that the proposed design would be compliant with the requirements stated in the National Policy Statement (NPS) for Electricity Networks Infrastructure EN-5.
MT02	Watercourse diversions are proposed to be avoided wherever possible, unless absolutely necessary and agreed with the key stakeholders. Watercourse diversions, where they are unavoidable (namely at the converter station sites), will be designed to mimic natural fluvial form and function and maintain passage/connectivity for aquatic species, where applicable.
MT03	The Projects would be designed to comply with appropriate design specifications. Specifically, at sensitive crossing locations (e.g. main rivers/Water Framework Directive (WFD) watercourses), temporary bridges will be used in preference to culverts for construction access and any permanent crossings would be bridges. Where temporary culverting of sensitive watercourses is required, these will either be arch culverts, leaving the natural bed undisturbed, or they would be box culverts, installed with the invert set below the natural bed level for a semi-natural bed to establish within the culvert, where practicable. Culverts will be orientated to reduce culvert lengths to a practicable minimum. Roughened beds, baffles, and refuge areas (such as masonry with cavities) would be installed to encourage fish movement through long culverts, or over steep gradients.

Ref	Description of design measures
	<p>Where required, culvert design should meet the criteria specified in the IFM Fish Pass Manual. This is to ensure the culvert could, in theory, be passed by fish known to be present. Where practical, culverts should seek to reduce the impacts on aquatic species by using designs that simulate natural channel conditions, for example, by providing roughened beds, baffles, and refuge areas (such as masonry with cavities) through long culverts, or those with steep (>2) gradients.</p> <p>Culvert design on other watercourses would be subject to the watercourse characteristics and would be agreed with the relevant authority.</p>
MT04	<p>Where appropriate, trenchless crossing methods (such as Horizontal Directional Drilling (HDD)) would be used at sensitive locations (for example the landfall and main rivers) to avoid or reduce impacts during construction.</p> <p>Where a main river is crossed by a trenchless crossing, the cables will be laid at least 1 m below the hard bed level of the river and will remain at or below this level for a distance of not less than 3 m from the brink of the riverbank before rising at a slope no greater than 1 vertical in 1.5 horizontal. Marker posts shall also be positioned on each bank of the river to indicate the location of the under-crossing and the nature of the works.</p>
Agriculture and Soils	
AS01	<p>The design will be rationalised to minimise the total quantum of land required as far as practicable.</p>
AS02	<p>An Outline Soil Management Plan (SMP) will provide guidelines to mitigate potential significant effects on Agriculture and Soils by ensuring proper soil handling and reinstatement of pre-construction condition.</p>
Ecology and Biodiversity	
B01	<p>Where practical, sensitive habitats including non-statutory and statutory designated sites, ancient woodland and HPI have been avoided by design (siting and alignment) of the English Onshore Scheme. At discrete locations, should these emerge during the design process, avoidance would also be sought when micro-siting the likely working areas. This measure will be updated with specific details, with micrositing or other actions of avoidance (as required) overseen on site by the Ecological Clerk of Works (ECoW).</p>
B02	<p>Where a haul road intersects a linear habitat feature (including hedgerows, tree lines, woodland strips, watercourses, ditches), the width of the haul road would be reduced to a width sufficient for a single vehicle, with passing places either side of the linear feature. This approach will be adopted as part of the haul road design specification.</p> <p>In addition, where a linear habitat feature is crossed by the English Onshore Scheme, topsoil and subsoil bunds would be placed with the adjacent fields to reduce the length of the linear habitat feature impacted by construction. This design principle will be captured within the Soil and Aftercare Management Plan.</p>
B03	<p>In relation to design associated with operational lighting at permanent infrastructure, a suitable lighting design will be developed with consideration of best practice guidance on lighting with regards to bats, as published by the Institution of Lighting Professionals (ILP) & Bat Conservation Trust (BCT). This would include:</p>

Ref	Description of design measures
	<ul style="list-style-type: none"> • Avoidance of direct lighting of bat roosts (or features that may potentially support a bat roost); • Positioning of lighting columns away from habitats of value to foraging and commuting bats (hedgerows, trees) to ensure there is minimal light spill onto such areas; • Minimisation of light spill using directional and/or baffled lighting; • Reducing the height of lighting columns to reduce light spill onto adjacent habitats, where possible; and/or • Avoid use of blue-white short wavelength lights and high ultra-violet content.
B04	<p>Where watercourses are to be crossed by construction traffic, measures to be applied include the use of temporary culverts or temporary spanned bridges. The design (type and size) of any temporary culvert or bridge would be informed by baseline and/or future pre-construction surveys to maintain connectivity for water vole. Where water vole are confirmed as present, a clear span bridge/box-shaped culvert (or similar) would be implemented. The temporary culvert design would be discussed and agreed in advance with the ECoW.</p> <p>The haul road design specification will be informed by baseline water vole surveys. It will outline the design principles for the haul road pertaining to water vole presence, which can also be applied reactively in response to the results of pre-construction or construction monitoring surveys.</p>
B05	<p>Repair and maintenance work will be subject to appropriate ecological assessment to safeguard biodiversity. This will involve, as a minimum, engagement with a suitable experienced ecologist in advance to discuss the proposed works and determine the potential need for ecological survey, engagement with third parties (for example where works may be in proximity to a designated site), mitigation and species licensing. The suitably experienced ecologist will then advise the Applicant on the appropriate course(s) of action to follow. Where required, the proposed works will be undertaken under the supervision of an ECoW, employing similar mitigation measures (where relevant and appropriate) to those identified for the construction phase.</p>
Geology and Hydrogeology	
GH01	<p>The approach to the thermal (analytical) assessment of heat effects from buried cables will be agreed with the Environment Agency. Agreed measures will be incorporated into the design, as required.</p>
GH02	<p>Intrusive ground investigations and assessment will be undertaken prior to construction which will inform appropriate geotechnical design in relation to the site/structure specific ground conditions including ground instability/adverse ground conditions & remediation strategy as needed.</p>
GH03	<p>The GI scope will be defined by the desk based assessment (CSM) and where investigation is needed to support design. The results will be assessed and recommendations presented, where required. The results will be discussed with the Environment Agency and/or relevant planning authority, as appropriate. Made ground and/or materials known or strongly suspected of being contaminated will be segregated from natural and uncontaminated materials and will be sampled and</p>

Ref	Description of design measures
	tested to determine the presence and level of any contamination. Material deemed unsuitable for reuse within the Projects would be removed from site to an appropriate waste management facility.
GH04	The Contractor would ensure the implementation of appropriate gas protection measures or upgrading to radon (basic or full) protection measures and/or vapour resistance membrane as informed by the risk assessment, where required.
Cultural Heritage	
H01	<p>Designs have kept effects to a minimum.</p> <p>Selection of indicative cable route and detailed consideration of the English Onshore Scheme placement has been undertaken to avoid, as far as possible, direct impacts on designated heritage assets and to minimise change to setting.</p> <p>Planting (once established) to visually screen elements of the English Onshore Scheme, for example the Walpole converter stations, to reduce adverse effects on the setting of heritage assets.</p>
H02	<p>Selection of the indicative cable route has been undertaken to avoid, as far as possible, identified areas of greater archaeological potential.</p> <p>Limiting land take within the draft Order Limits to only that required to construct, operate and maintain the English Onshore Scheme – to minimise disturbance to buried archaeology.</p>
H03	Selection of indicative cable route and detailed consideration of the placement of the English Onshore Scheme has been undertaken to avoid, as far as possible, and to minimise change to sensitive historic landscape features.
Health and Wellbeing	
HW01	The English Onshore Scheme have been designed, as much as practicable, to reduce impacts resulting from environmental change through design, e.g. selecting locations which do not impact on historic features, are not prominent within the landscape, and designed to reduce noise and vibration effects through the selection of equipment. Where required, environmental measures as detailed within the respective topic chapters will further reduce potential changes and effects.
Landscape and Visual	
LV01	<p>The design of the converter stations, in terms of the building form and the external materials will be developed alongside consultation and stakeholder feedback. A Design Code for these buildings will be provided with the application for development consent, which will provide guidance regarding the design intent and design principles that will be adopted and embedded into the detailed proposals of this structure.</p> <p>These include:</p> <ul style="list-style-type: none"> • Consideration of the siting, orientation and massing of both converter stations in order to reduce impacts upon the wider landscape; • Designing and arranging the built form of the converter stations to be sympathetic to the landscape setting. Buildings clad in appropriate materials and colour tones designed to appear recessive within the landscape and to help integrate the buildings overall; and

Ref	Description of design measures
	<ul style="list-style-type: none"> To maximise the opportunity for landscape integration, in order that existing landscape features can be retained and enhanced (woodland, hedgerow planting) and additional planting and screening incorporated as appropriate to improve the landscape fit and to reduce visual impact.
LV02	<p>An outline landscape strategy will be prepared for the converter stations encompassing a collaborative approach to delivering landscape and biodiversity mitigation as well as Biodiversity Net Gain (BNG). It will be developed in recognition of the local landscape policies and landscape character, considering the opportunities for local landscape and biodiversity enhancement, and continue to be developed as part of the iterative process of design and assessment. The principles of the outline landscape strategy, which will inform the future design development for Development Consent Order (DCO) submission, will seek to:</p> <ul style="list-style-type: none"> Respond to both the immediate landscape pattern of the site and the wider character; Strengthen the existing landscape framework of the siting areas, extending and enhancing connections with native woodland planting to provide structured form of screening to the converter stations; Introduce native hedgerow and tree planting for surrounding settlement where appropriate. Where practical and advantageous, secure advanced planting to establish areas of mitigation planting; and Set out monitoring and maintenance of new planting / seeding to ensure successful establishment.
LV03	<p>A five-year aftercare period will be established for all reinstatement and mitigation planting.</p>
Noise and Vibration	
NV01	<p>The cables are located underground, thus fully controlling noise emissions into the environment through burial as a means of noise mitigation. All High Voltage Alternating Current (HVAC) and High Voltage Direct Current (HVDC) cables associated with the English Onshore Scheme shall be located underground, buried in accordance with appropriate design strategy and method statement prepared as part of the DCO for undergrounding to ensure compliance with relevant permitting requirements.</p>
NV02	<p>Proposed above ground infrastructure and underground infrastructure will be designed such that noise and vibration from their normal operation is mitigated to a minimum in line with the aims of the Noise Policy Statement for England (NPSE), NPS EN-1 and in the context of sustainable development.</p> <p>Sourcing equipment and defining mitigation requirements (such as noise enclosures etc.) within the proposed converter stations to NGET technical specifications which include requirements regarding audible noise including confirmation by type testing and sample testing.</p> <p>Equipment specifications and mitigation necessary for the Walpole B Substation will be defined and designed by the Grimsby to Walpole Project team, in consultation with the English Onshore Scheme Team.</p>

Ref	Description of design measures
NV03	<p>The converter stations designs would be subject to the requirements of the Noise and Vibration Management plan relating to the specification and control of vibration generation and transmission control/abatement.</p> <p>All operational plant within the above ground installations with the potential to generate vibration would be designed and specified such that the vibration from plant and apparatus within these facilities would not transmit into the environment. This could include the use of vibration isolation solutions or the specification of low vibration plant and equipment options where necessary.</p>
Traffic and Transport	
TT01	All changes to the highway are to be designed in accordance with appropriate design guidance ensuring they are to standard.
TT02	Where appropriate, trenchless crossing methods would be used at sensitive locations such as rail crossings to avoid or reduce impacts during construction.
Water Environment	
W01	Surface water drainage from permanent above ground infrastructure would be managed using sustainable drainage systems (SuDS) in accordance with policy and guidance requirements of the relevant Lead Local Flood Authorities. The drainage systems will be designed to accommodate runoff from the 1 in 100 year storm, inclusive of the recommended 40% allowance for climate change.
W02	In discussion with the Environment Agency, where placement of above ground Projects infrastructure cannot avoid floodplains, measures to suitably mitigate flood risk effects would be provided.
W03	Where watercourses are crossed, the cable burial depth will be minimised as far as is practicable to reduce the impact on soils during construction whilst preventing potential future exposure due to hydromorphological change.
W04	<p>Suitable flood resilience and surface water drainage provisions would be embedded within the design for any Above Ground infrastructure (AGI) in line with national and local policy.</p> <p>Where new, permanent areas of impermeable land cover are created, the drainage design will be in accordance with the requirements of the relevant Internal Drainage Board, in addition to Norfolk County Council Drainage design standards and the Lincolnshire County Council . Guidance for developers: CMP and SuDS method statement and will include allowances for climate change in accordance with current Environment Agency requirements. The drainage infrastructure will provide the storage necessary to achieve discharges at greenfield rates and will not significantly alter groundwater recharge patterns by transferring a significant recharge quantity from one catchment to another. A specialised drainage contractor will review the designs and will provide advice to NGET and its contractor during relevant construction and reinstatement activities.</p>

Table 1.5.A-3 - Offshore Scheme Mitigation

Ref	Description of design measures
Multiple Topic Commitments	
OMT01	Intertidal zone would be crossed by horizontal directional drill to avoid disturbance to surface sediments and habitats.
OMT02	Drilling fluids required for trenchless operations would be carefully managed to minimise the risk of breakouts into the marine environment. Specific avoidance measures would include: <ul style="list-style-type: none">• the use of biodegradable drilling fluids (pose little or no risk (PLONOR) substances) where practicable,• drilling fluids would be tested for contamination to determine possible reuse or disposal; and• If disposal is required, drilling fluids would be transported by a licensed courier to a licensed waste disposal site.• Chemicals would be chosen from the list of chemicals approved under the Offshore Chemical Notification Scheme. https://www.cefas.co.uk/data-and-publications/ocns/ and a chemical risk assessment would be provided as part of the CEMP.
OMT03	The intention is to bury the cables in the seabed, except in areas where trenching is not possible e.g. where ground conditions do not allow burial or at infrastructure crossings.
OMT04	Cable protection would only be installed where considered necessary for the safe operation of the English Offshore Scheme. This includes the repair of cables due to accidental damage, where depth of lowering is not achieved and at infrastructure crossings.
OMT05	Where possible, cable protection materials would be selected to match the environment (e.g. when cables are installed in areas of cobbles or other natural rock features, rock of similar diameter and material as the receiving environment should be used as an alternative to the current normal approach of using terrestrially sourced granite)
OMT06	High voltage direct current (HVDC) poles would be bundled to minimise the effects of EMF for electrosensitive receptors.
OMT07	As-built locations of cable and external protection would be supplied to UKHO (Admiralty), The Crown Estate and Kingfisher (KIS-ORCA)
OMT08	An offshore Construction Environmental Management Plan (CEMP) including an Emergency Spill Response Plan and Waste Management Plan, Marine Pollution Contingency Plan (MPCP), Shipboard Oil Pollution Emergency Plan (SOPEP) and a dropped objects procedure would be produced prior to installation
OMT09	All project vessels must comply with the International Regulations for Preventing Collisions at Sea (1972), regulations relating to International Convention for the Prevention of Pollution from Ships (the MARPOL Convention 73/78) with the aim of preventing and minimising pollution from ships and the International Convention for the Safety of Life at Sea.

Ref	Description of design measures
OMT10	An installation machine failure contingency plan would be produced prior to installation
OMT11	All oil, fuel and chemical spills would be reported to the Marine Management Organisation (MMO) Marine Pollution response team
OMT12	Designated (and as minimal as possible) anchoring areas and protocols shall be employed during marine operations to minimise physical disturbance of the seabed
Coastal and Marine Physical Processes	
MPP01	The Applicant would liaise with the Environment Agency to communicate and agree timings of works at landfall.
MPP02	Micro-routeing within the draft Order Limits to avoid environmental constraints and sensitive seabed features where possible.
MPP03	The profile of rock berms used for cable protection would be designed to minimise the potential for scour to occur as much as possible (including alignment with flow and profiling).
MPP04	Sediment displaced for exit pits and cable installation (sandwave clearance and trenching) would be side cast/locally placed.
Intertidal and Subtidal Benthic Ecology	
BE01	Any material introduced into the marine environment, such as rock protection material, would be from a suitable source or cleaned to ensure no marine invasive non-native species (MINNS) can be introduced.
Intertidal and Offshore Ornithology	
OO01	Existing shipping lanes would be utilised for vessel transiting routes to avoid additional disturbance, where practicable.
OO02	Vessel operators would be made aware of the importance and sensitivity of the species to disturbance. Vessels would avoid rafting birds and areas with high densities of birds, where practicable.
OO03	Artificial lighting on vessels would be directional and only used when necessary, noting that health and safety requirements would need to be met for safe working practices.
Marine Mammals	
MM01	Sub-bottom profiling shall comply with the Joint Nature Conservation Committee (JNCC) guidelines for minimising the risk of injury and disturbance to marine mammals.
MM02	All vessels (exceeding 20 m) shall not exceed 14 knots during construction operations within the English Offshore Scheme to protect marine mammals from ship strikes.
Commercial Fisheries	

Ref	Description of design measures
CF01	A Fisheries Liaison Officer (FLO) and fisheries working group(s) would be maintained throughout installation to ensure project information is effectively disseminated, dialogue is maintained with the commercial fishing industry and access to home ports is maintained during the main fishing season. Details of the FLO would be included in the Construction Fisheries Liaison and Coexistence Plan
CF02	Timings of any temporary areas of exclusion from fishing grounds would be clearly communicated via a notice to mariners.
CF03	Cable protection would be designed to prevent the risk of fishing gear snagging.
CF04	A procedure for the claim of loss of/or damage to fishing gear would be developed and details included in the Construction Fisheries Liaison and Coexistence Plan
CF05	During the course of cable route clearance, specific activities would be completed to remove items from the seabed. Out of Service cables would be removed as per industry guidelines, larger debris including lost fishing gear would be removed prior to cable installation and a pre-lay grapnel run would be completed to ensure smaller debris is removed. In the event that abandoned, lost or discarded fishing gear ('ALDFG') is encountered, it may be necessary in certain circumstances to bring ALDFG onto the vessel deck. In these instances, marked ALDFG would be returned to the MMO/local Inshore Fisheries and Conservation Authority (IFCA) for onward retrieval by the owner of the marked gear, in line with existing best practice. Not all gear (particularly 'active' gear) is marked; if necessary to bring onto the vessel deck, unmarked gear would be disposed of via conventional onshore waste channels.
CF06	Cut cable end locations and associated weights shall be accurately noted and charted and positions given to the FLO at the earliest opportunity for onward communication to the fishing industry
CF07	In the event that cable exposures are identified during routine surveys, the location of these would be shared with fisheries stakeholders and where necessary, additional temporary measures put in place (e.g., marker buoys, use of guard vessels, etc), until a repair or remediation can be implemented.
Other Marine Users (including Shipping & Navigation)	
OSU01	Procedures would be in place to minimise disruption near high density shipping areas. e.g. avoidance of anchoring near busy areas, passage planning of installation vessels, emergency response plan etc.
OSU02	Channels of communication would be established and maintained between the English Offshore Scheme, commercial fishing interests and relevant Port Authorities.
OSU03	7 day look-ahead to be provided for Associated British Port (ABP) Humber to inform the port of planned project vessel movements.
OSU04	Communication with VTS in port areas to keep updated and update other marine users on vessel movements. Communication strategy to be developed with ABP Humber.
OSU05	Coordination of Simultaneous Operations (SIMOPs) with other developers and marine activities to be undertaken prior to commencement of operations.

Ref	Description of design measures
OSU06	Project vessels would comply with the International Regulations for Preventing Collisions at Sea, 1972 (COLREGs) as amended, particularly with respect to the display of lights, shapes and signals. The masters of other vessels are expected to be familiar with and comply with the COLREGS.
OSU07	Pilotage within Port Authority Limits as required by the Port Authority.
OSU08	Pollution events as the result of a collision would be managed through the Project Emergency Response Plan, Marine Pollution Contingency Plan and specifically the Shipboard Oil Pollution Emergency Plan (SOPEP).
OSU09	Cable jointing operations to be planned away from high shipping activity where possible.
OSU10	Cable Burial Risk Assessment (CBRA) to be undertaken to identify appropriate target depth of burial based on geology, water depths and AIS data. This would reduce the chance of interaction with other marine users, and as per the CBRA recommendations deeper burial or cover would be implemented in areas of high shipping activity to further reduce this risk.
OSU11	Cables would be marked on Admiralty Charts and fisherman's awareness charts (paper and electronic format).
OSU12	Crossing and/or proximity agreements would be agreed with aggregate extraction, cable and pipeline owners. The crossing agreement describes the rights and responsibilities of the parties and also the design of the crossing. Crossing design would be in line with industry standards, using procedures and techniques agreed with the cable and pipeline owners.
OSU13	Timely and efficient communication would be given to sea users in the area via Notices to Mariners (NtM), Kingfisher Bulletins, Radio Navigation Warnings Navigational Telex (NAVTEX and Navigational Areas (NAVAREA) warnings and /or broadcast warnings.
OSU14	All Project vessels would display appropriate marks and lights and would always broadcast their status on AIS if appropriate.
OSU15	If required, temporary aids to navigation would be used to guide vessels around areas of installation activity
OSU16	Guard vessel(s), using RADAR with Automatic RADAR Plotting Aid (ARPA) to monitor vessel activity and predict possible interactions, would be employed to work alongside the installation vessel(s) during cable installation works and to protect any temporary cable exposures during installation.
OSU17	For safety purposes, all vessels would be requested to maintain a minimum distance from construction vessels to prevent interactions.
OSU18	Client Representation onboard Project vessels ensuring compliance with crossing design and communications with Asset Owners.
OSU19	Unexploded ordnance (UXO) survey and removal and /or charting of confirmed UXO targets highlighting known risks to other marine users.

Ref	Description of design measures
Marine Archaeology	
MA01	Implementation of a protocol for recording finds of archaeological interest, following the guidance for the Protocol for Archaeological Discoveries.
MA02	Written Scheme of Investigation: implementation of a protocol for avoiding, mitigating and managing finds of archaeological interest, following the guidance for the Protocol for Archaeological Discoveries.
MA03	Operational awareness of the location of geophysical/magnetic anomalies identified as having a low archaeological potential. Reporting through the PAD would be undertaken should material of potential archaeological interest be encountered.
MA04	Archaeologists to be consulted in the preparation of site preparation activities or other pre-construction operations and, if appropriate, to carry out archaeological monitoring of such work.
MA05	Obtaining geotechnical cores for archaeological review. Implementation of a staged process of geoarchaeological works, as necessary.
MA06	Implementation of Archaeological Exclusion Zones (AEZs) or Temporary Archaeological Exclusion Zones (TAEZs) around identified known or potential Marine Archaeology receptors.
MA07	Archaeological input into specifications for and archaeological analysis of any further pre-construction surveys, including (but not limited to) UXO, Remotely Operated Vehicle (ROV), diver, geophysical and geotechnical surveys.
MA08	Mitigation of unavoidable direct impacts on known sites of archaeological significance. Options include i) preservation by record; ii) stabilisation; and iii) detailed analysis and safeguarding of otherwise comparable sites elsewhere.

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