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<b>Classification</b>	Public
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# Inch Cape Offshore Wind Farm Construction Method Statement (CMS)



## Inch Cape Acceptance

Originator	Reviewed by	Accepted by	Accepted by
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## Revision History (previous five)

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30/01/2025	2	Issued for Approval	Address of Consultee Comments	SG

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## Consent Plan Overview

### Purpose and Objectives of the Plan

This Construction Method Statement (CMS) has been prepared to address the specific requirements of the relevant conditions attached to the following consent documents (collectively referred to as ‘the Consents’):

- Section 36 Consent (dated 14<sup>th</sup> June 2023),
- Generating Station Marine Licence (MS-00010140 dated 15<sup>th</sup> June 2023);
- Offshore Transmission Infrastructure (OfTI) Marine Licence (MS-00010593 dated 9<sup>th</sup> November 2023) and
- Additional Works Marine Licence (MS-00010672 dated 15<sup>th</sup> January 2024).

The Consents have been issued to Inch Cape Wind Offshore Limited (hereafter referred to as ‘ICOL’), for the construction, operation and decommissioning of the Inch Cape Offshore Wind Farm (OWF) and Offshore Transmission Infrastructure (OfTI), (hereafter referred to as ‘the Development’).

This Offshore CMS has been prepared to discharge consent conditions for both the Generating Station and OfTI simultaneously.

The overall aims and objectives of the CMS are to set out the construction procedures and good working practices for the installation of the Inch Cape OWF infrastructure. All relevant Inch Cape Contractors involved in the Inch Cape Project are required to comply with this CMS through their conditions of contract.

This document is applicable to the construction phase of the project, i.e. all construction and commissioning activities to be undertaken up to the Final Commissioning of the Development.

The CMS is a live document that will be reviewed regularly and updated as required. Information within this document is accurate at the time of submission, but it is recognised that amendments or updates may be required to reflect changes following consultation, changes to best practice, lessons learned, etc, prior to the end of the construction phase of the Development. The process by which this CMS will be reviewed is presented in Section 1.5.



## Scope of the Plan

This document has been produced in line with the requirements of the consent's conditions, industry standards, and best practices. The CMS conveys information on the following:

- Detailed construction procedures in relation to foundations (jackets and monopiles) and substructures, including transition pieces (TPs), wind turbine generators (WTGs), inter-array cables, the Offshore Substation Platform (OSP), and the export cables;
- Good working practices to be employed during construction;
- Details of the roles and responsibilities, chain of command and contact details of company personnel, contractors and sub-contractors.
- Details of how the construction related mitigation steps proposed in the Application are to be delivered.

## Plan Structure

The CMS has been structured as follows:

- Sections 1, 2 and 3 provides an introduction to the project and sets out the scope and objectives of the CMS, linkages with other plans, the process for making updates to this document and demonstrates compliance with the offshore Consents.
- Section 4 details the relevant roles and responsibilities of key personnel working on the project, the responsibilities of each role and the chain of command throughout the construction phase.
- Section 5 sets out the details on the Inch Cape construction management framework, with reference to industry guidance, including in relation to health and safety and environmental management. The section also provides ICOLs expectations for training and experience for those involved in the construction of this OWF Development.
- Section 6 provides the construction methods and procedures for each component of the Inch Cape OWF Project including key construction milestones, and provides a high level overview of subcontractors.
- Sections 7 and 8 detail information on individual component methodology, including; export cable, jacket foundation, OSP, monopiles, jackets, WTGs, inter-array cable installations and high level overview of OWF electrical connection and commissioning.
- Section 9 lists the references used.
- Appendices I and II contain a summary of the mitigations and good practices.



- Appendix III provides examples of the information provided to Contractors to aid their understanding of the consent plan requirements.

## **Plan Audience**

This CMS will be submitted for approval to the Scottish Ministers/Licensing Authority in consultation with other stakeholders. Once approved and the condition discharged, the CMS is intended to be referred to by personnel involved in the construction of the Development. This includes ICOL personnel, contractors and subcontractors. All documentation and method statements produced in relation to the Development must incorporate the requirements and comply with this CMS.

Compliance with the CMS will be monitored by ICOL's Environmental Clerk of Works (ECoW), ICOL's Consent Team, Inch Cape appointed contractors, and Marine Directorate Licencing Operations Team (MD-LOT).

## **Plan Locations**

Copies of this CMS will be available from the following locations:

- ICOL's Project Office, 5<sup>th</sup> Floor, 40 Princes Street, Edinburgh, EH2 2BY;
- ICOL's Marine Coordination Centre (MCC);
- The premises of any main contractors and subcontractors undertaking work on behalf of ICOL;
- ICOL's Environmental Clerk of Works (ECoW); and
- Aboard any vessels carrying out construction activities for the Development.



## Table of Contents

<b>Table of Contents</b>	<b>7</b>
<b>Table of Figures</b>	<b>11</b>
<b>Table of Tables</b>	<b>11</b>
<b>1 Introduction</b>	<b>20</b>
1.1 Background	20
1.2 Plan Objectives	20
1.3 Linkages with other Consent Plans and Consent Conditions	21
1.4 Document Structure	22
1.5 Document Control and Management of Change	24
<b>2 Wind Farm and OfTI Overview</b>	<b>26</b>
2.1 Project Description	26
2.2 Timing of Construction Works	27
<b>3 Consent Conditions &amp; EIAR Compliance</b>	<b>28</b>
<b>4 Roles and Responsibilities</b>	<b>34</b>
4.1 Inch Cape Project Director	35
4.2 Inch Cape HSE Director	35
4.3 Inch Cape Package Directors	35
4.4 Inch Cape Environmental Lead	35
4.5 Inch Cape Transmission Director	36
4.6 Inch Cape Senior Construction Manager	36
4.7 Inch Cape Package Managers	36
4.8 Inch Cape Client Representatives	37
4.9 Inch Cape Marine Operations Lead	37
4.10 Inch Cape Head of Consents	37



<b>4.11</b>	<b>Inch Cape Offshore Consents Manager</b>	<b>38</b>
<b>4.12</b>	<b>Inch Cape supporting Consents Team</b>	<b>38</b>
<b>4.13</b>	<b>Inch Cape Environmental Clerk of Works (ECoW)</b>	<b>39</b>
<b>4.14</b>	<b>Inch Cape Fisheries Liaison Officer (FLO)</b>	<b>39</b>
<b>4.15</b>	<b>Inch Cape Archaeological Consultant</b>	<b>39</b>
<b>4.16</b>	<b>Contractors</b>	<b>39</b>
<b>4.17</b>	<b>Contractor Construction Environmental Advisor (CEA)</b>	<b>40</b>
<b>4.18</b>	<b>Offshore Fisheries Liaison Officer (OFLO)</b>	<b>40</b>
<b>4.19</b>	<b>Contact Details</b>	<b>41</b>
<b>5</b>	<b>Inch Cape Construction Management Framework</b>	<b>42</b>
<b>5.1</b>	<b>Overview</b>	<b>42</b>
<b>5.2</b>	<b>Industry guidance</b>	<b>42</b>
<b>5.3</b>	<b>Good Working Practices</b>	<b>45</b>
<b>5.4</b>	<b>Construction (Design and Management) Regulations 2015 (CDM regulations)</b>	<b>46</b>
<b>5.5</b>	<b>Emergency Response Cooperation Plan (ERCoP)</b>	<b>46</b>
<b>5.6</b>	<b>Environmental Management</b>	<b>46</b>
<b>5.7</b>	<b>Training and Competence</b>	<b>46</b>
<b>5.8</b>	<b>Contractor and Sub-Contractor Obligations</b>	<b>47</b>
<b>5.9</b>	<b>Mitigation</b>	<b>48</b>
<b>6</b>	<b>Construction Overview</b>	<b>49</b>
<b>6.1</b>	<b>Introduction</b>	<b>49</b>
6.1.1	Marine Coordination Centre and Construction Ports	49
6.1.2	Navigational Safety Measures	49
6.1.3	Pre-Construction Works	50
<b>6.2</b>	<b>Construction milestones</b>	<b>50</b>
<b>7</b>	<b>Construction Stages OFTI</b>	<b>52</b>





<b>7.1</b>	<b>Stage 1: Pre-install landfall cable protection system up to MHWS</b>	<b>52</b>
7.1.1	Introduction	52
7.1.2	Key Parameters, Equipment and Methodology	54
7.1.3	Mitigation and Good Working Practices	57
<b>7.2</b>	<b>Stage 2: Seabed Preparation</b>	<b>58</b>
7.2.1	Introduction	58
7.2.2	Equipment and Methodology	58
<b>7.3</b>	<b>Stage 3: OSP jacket foundation substructure assembly and installation</b>	<b>59</b>
7.3.1	Introduction	59
7.3.2	Key Parameters, Equipment and Methodology	59
7.3.3	Mitigation and Good working Practices	61
<b>7.4</b>	<b>Stage 4: OSP Topside Installation</b>	<b>62</b>
7.4.1	Introduction	62
7.4.2	Key Parameters, Equipment and Methodology	62
7.4.3	Mitigation and Good Working Practices	64
<b>7.5</b>	<b>Stage 5: Export cable installation</b>	<b>65</b>
7.5.1	Introduction	65
7.5.2	Key Parameters, Equipment and Methodology	65
7.5.3	Mitigation and Good Working Practices	70
<b>7.6</b>	<b>Stage 6: Commissioning and Testing</b>	<b>71</b>
7.6.1	Introduction	71
7.6.2	Mitigation and Good Working Practices	71
<b>8</b>	<b>Construction Stages: Marine Licence Generation and Section 36 Consent</b>	<b>72</b>
<b>8.1</b>	<b>Stage 1: Seabed Clearance and Preparation</b>	<b>72</b>
8.1.1	Introduction	72
8.1.2	Equipment and Methodology	72



8.1.3	Mitigation and Good Working Practices	73
<b>8.2</b>	<b>Stage 2: Foundation Monopile (and TP) Installation</b>	<b>74</b>
8.2.1	Introduction	74
8.2.2	Key Parameters, Equipment and Methodology	75
8.2.3	Mitigation and Good Working Practices	79
<b>8.3</b>	<b>Stage 3: Jacket Foundation Installation</b>	<b>80</b>
8.3.1	Introduction	80
8.3.2	Key Parameters, Equipment and Methodology – Jacket Foundations	80
8.3.3	Mitigation and Good Working Practices	84
<b>8.4</b>	<b>Stage 4: Inter-Array Cable Installation</b>	<b>85</b>
8.4.1	Introduction	85
8.4.2	Key Parameters, Equipment and Methodology –	85
8.4.1	Mitigation and Good Working Practices	89
<b>8.5</b>	<b>Stage 5: Wind Turbine Generator Installation</b>	<b>90</b>
8.5.1	Introduction	90
8.5.2	Key Parameters, Equipment and Methodology –	90
8.5.3	Mitigation and Good Working Practices	94
<b>8.6</b>	<b>Stage 6: Wind Farm Electrical Connection and Commissioning</b>	<b>95</b>
8.6.1	Mitigation and Good Working Practices	95
<b>9</b>	<b>References</b>	<b>96</b>
	<b>APPENDIX I MITIGATION AND GOOD WORKING PRACTICES</b>	<b>98</b>
	<b>OFTI MARINE LICENCE</b>	<b>98</b>
	<b>APPENDIX II MITIGATION AND GOOD WORKING PRACTICES</b>	<b>114</b>
	<b>SECTION 36 AND GENERATION MARINE LICENCE</b>	<b>114</b>
	<b>APPENDIX III EXAMPLES OF CONTRACTOR COMPLIANCE MATRICES</b>	<b>128</b>

## Table of Figures

<b>Figure 2.1: Project Location</b>	<b>26</b>
<b>Figure 7.1.1 Landfall works location</b>	<b>52</b>
<b>Figure 7.1.2 Detail of the seawall and rock revetment</b>	<b>53</b>
<b>Figure 8.2 Isometric view of monopile and transition piece (TP)</b>	<b>74</b>

## Table of Tables

<b>Table 1.1: CMS Links with Other Consent Plans and Documents</b>	<b>21</b>
<b>Table 1.2: CMS Document Structure</b>	<b>23</b>
<b>Table 3.1: Consent Conditions to be Discharged by this Offshore CMS</b>	<b>29</b>
<b>Table 5.1: Offshore Wind Farm Construction Guidance</b>	<b>42</b>
<b>Table 6.1 Key construction milestones for the installation of the Offshore Transmission Infrastructure elements</b>	<b>50</b>
<b>Table 6.2 Key construction milestones for the installation of the Offshore Wind Farm elements</b>	<b>51</b>
<b>Table 7.1.1 Intertidal export cable installation overview</b>	<b>53</b>
<b>Table 7.1.2a Key parameters – landfall installation to MHWS</b>	<b>54</b>
<b>Table 7.1.2b Installation methodology– landfall installation to MHWS</b>	<b>55</b>
<b>Table 7.2.1 Overview of the subtidal seabed preparation activities</b>	<b>58</b>
<b>Table 7.2.2 Installation methodology– Subtidal Seabed preparation (<i>if required</i>)</b>	<b>58</b>
<b>Table 7.3.1 Overview of OSP jacket installation</b>	<b>59</b>
<b>Table 7.3.2a Key parameters– OSP jacket foundation</b>	<b>59</b>



<b>Table 7.3.2b Installation methodology– OSP jacket installation</b>	<b>60</b>
<b>Table 7.4.1 Overview of OSP topside installation</b>	<b>62</b>
<b>Table 7.4.2a Key parameters– OSP topside</b>	<b>62</b>
<b>Table 7.4.2b Installation methodology– OSP topside installation</b>	<b>63</b>
<b>Table 7.5.1 Overview of Export Cable Installation</b>	<b>65</b>
<b>Table 7.5.2a: Key Parameters – Export Cables</b>	<b>66</b>
<b>Table 7.5.2b: Overview of Export Cables Installation</b>	<b>67</b>
<b>Table 8.1.1 Overview of Seabed preparation (if required)</b>	<b>72</b>
<b>Table 8.1.2 Installation methodology– Seabed preparation</b>	<b>72</b>
<b>Table 8.2.1 Overview of monopile and TP installation</b>	<b>75</b>
<b>Table 8.2.2a Monopile and TP Key parameters</b>	<b>75</b>
<b>Table 8.2.2b Monopile (and TP) installation</b>	<b>76</b>
<b>Table 8.3.1 Overview of jacket installation</b>	<b>80</b>
<b>Table 8.3.2a Key Parameters – Jacket Foundations</b>	<b>80</b>
<b>Table 8.3.2b Installation Methodology Jacket Foundation</b>	<b>81</b>
<b>Table 8.4.1 Overview of inter-array cable installation</b>	<b>85</b>
<b>Table 8.4.2a Key Parameters – Inter-Array Cables</b>	<b>85</b>
<b>Table 8.4.2b Overview of installation methodology</b>	<b>86</b>
<b>Table 8.5.1 Overview of WTG installation</b>	<b>90</b>
<b>Table 8.5.2a Key parameters WTG</b>	<b>90</b>
<b>Table 8.5.2 b WTG installation methodology</b>	<b>92</b>



## Acronyms & Abbreviations

Acronym	Term
AEZ	Archaeological Exclusion Zone
AHT	Anchor Handling Tug
ARDM	Air Defence Radar Mitigation Scheme
ALARP	As Low As Reasonably Practicable
CaP	Cable Plan
CEA	Construction Environmental Advisor
CEMP	Construction Environmental Management Plan
CDM	Construction Design and Management
CLV	Cable Lay Vessel
CMID	Common Marine and Vessel Inspection Document
CMS	Construction Method Statement
CoP	Construction Programme
CPS	Cable Protection System
CSV	Construction Support Vessel
CTVs	Crew Transfer Vessels
CV	Curriculum Vitae
DP	Dynamic Positioning
DP2	A type of dynamically positioned vessels



## Acronyms & Abbreviations

Acronym	Term
DS	Design Statement
DSLDP	Development Specification and Layout Plan
ECoW	Environmental Clerk of Works
EIAR	Environmental Impact Assessment Report
EMP	Environmental Management Plan
ERCoP	Emergency Response Co-operation Plan
ERP	Emergency Response Plan
ES	Environmental Statement
EU	European Union
FLO	Fisheries Liaison Officer
FLOWW	Fishing Liaison with Offshore Wind and Wet Renewables Group
FMMS	Fisheries Management and Mitigation Strategy
HIRA	Hazard Identification and Risk Assessment
HLV	Heavy Lift Vessel
H&S	Health and Safety
HSE	Health Safety and Environment
Hs	Significant Wave height
HV	High Voltage



## Acronyms & Abbreviations

Acronym	Term
Hz	Hertz
IAC	Inter-array cable
ICOL	Inch Cape Offshore Limited
JFLT	Jacket Flange Lifting Tool
JUV	Jack Up Vessel
km	Kilometre
KP	Kilometre Point
kV	Kilovolts
LAT	Lowest Astronomical Tide
LMP	Lighting and Marking Plan
m	Metre
MCA	Maritime and Coastguard Agency
MCC	Marine Co-ordination Centre
MD-LOT	Marine Directorate Licensing Operations Team
MHWS	Mean high water springs
ML	Marine Licence
MMO	Marine Mammal Observer
MPCP	Marine Pollution Contingency Plan



## Acronyms & Abbreviations

Acronym	Term
MW	Megawatt
MWS	Marine Warranty Surveyor
NLB	Northern Lighthouse Board
NtM	Notice to Mariners
OFLO	Offshore Fisheries Liaison Officer
OfTI	Offshore Transmission Infrastructure
OfTO	Offshore Transmission Owner
OfTW	Offshore Transmission Works
O&M	Operation and Maintenance
OSP	Offshore Substation Platform
OWF	Offshore Wind Farm
PAD	Protocol for Archaeological Discoveries
PEMP	Project Environmental Monitoring Programme
PLGR	Pre-Lay Grapnel Run
PPE	Personal Protective Equipment
PPT	Pin-Piling Template
PS	Piling Strategy
RAM	Restricted Ability to Manoeuvrer





## Acronyms & Abbreviations

Acronym	Term
ROV	Remotely Operated Vehicle
RPL	Route Position List
S36	Section 36
SPMT	Self-Propelled Modular Transporter
SPRT	Soil Plug Remover Tool
SSCV	Semi-Submersible Crane Vessel
t	Tonne
T&T	Testing and Termination
TSV	Trenching Support Vessel
TP	Transition Piece
UK	United Kingdom
UXO	Unexploded Ordnance
VHF	Very High Frequency
VMNSP	Vessel Management and Navigational Safety Plan
WROV	Work-Class Remotely Operated Vehicles
WSI	Written Scheme of Investigation
WTG	Wind Turbine Generator
WTW	Walk-to-Work

## Glossary

Defined Term	Meaning
Aft	At, near, or towards the stern (rear) of a vessel
Development	The Inch Cape Offshore Wind Farm (the Wind Farm) and Offshore Transmission Infrastructure (OfTI) being developed by ICOL.
Development Area	The area for the Wind Farm, within which all WTGs, IACs, interconnector cables, OSP and the initial part of the Offshore Export Cable and any other associated works must be sited. As stipulated in the Crown Estate agreement for lease.
2013 Environmental Statement (ES)	Refers to the document in which the Environmental Impact Assessment (EIA) was carried for the Inch Cape 2014 Consent.
2018 Environmental Impact Assessment (EIA) Report (EIAR)	Refers to the document produced in 2018 to accompany the application for Consent of the Development (granted in 2019) following a material change in design.
Inch Cape Offshore Transmission Infrastructure (OfTI)	Components of the Development comprising the offshore export cable and OSP which are permitted by the OfTI Marine Licence (MS-00010593).
Inch Cape Offshore Transmission Works (OfTW)	Offshore Transmission Works (i.e., construction methods) associated with Inch Cape Offshore Wind Farm.
Inch Cape Offshore Wind Farm (OWF)/the Wind Farm	A component of the Development, comprising wind turbines and their foundations and substructures, and IACs.



## Glossary

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Inch Cape Onshore Transmission Works (OnTW)	Onshore transmission works associated with the Inch Cape Offshore Wind Farm comprising the construction, operation and decommissioning of an onshore substation, electricity cables and associated infrastructure required to export electricity from the Inch Cape Offshore Wind Farm to the National Electricity Transmission System.
Offshore Export Cables	The subsea, buried or protected electricity cables running from the offshore wind farm substation to the landfall and transmitting the electricity generated to the onshore cables for transmission onwards to the onshore substation and the electrical grid connection.
Offshore Export Cable Corridor	The area within which the Offshore Export Cables will be laid from the OSP and up to Mean High Water Springs.
(The) Consents	Collective term used to describe the Section 36 consents and Marine Licences issued to ICOL.

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## 1 Introduction

### 1.1 Background

The Inch Cape Offshore Wind Farm (the Wind Farm) and Offshore Transmission Infrastructure (OfTI), hereafter referred to as the Development, is being developed by Inch Cape Offshore Limited (ICOL).

ICOL originally applied for consent for the Development in 2013, and this was updated, and a revised application submitted in 2018. In 2013 an Environmental Statement (ES) was produced to accompany the initial application based on the original design of the Wind Farm. This was also subsequently updated in 2018 with the production of an Environmental Impact Assessment Report (EIAR) to enable the use of progressions in technology following the original consent, through a reduction in turbine numbers (fewer turbines with larger generating capacity), and reduction in associated cabling (inter-array and export cables) in order to maximise efficiencies whilst minimising environmental impacts. The EIAR updated the 2013 ES and where impacts were predicted to be less than those already assessed, a new assessment was not undertaken as the conclusions drawn in the original 2013 ES remained valid.

The Section 36 Consent, Generating Station (GS) Marine Licence, and OfTI Marine Licence for the revised design were granted by Scottish Ministers on 17th June 2019. The Section 36 Consent was subsequently varied on 16th July 2020, 22nd July 2021, and 14th June 2023, the GS Marine Licence was varied on 14th June 2023 (Licence No. MS-00010140); and the OfTI Marine Licence varied on 23rd August and amended on 9th November 2023 (Licence No. MS-00010593).

A separate Marine Licence was granted for additional works at the landfall to facilitate the construction of the export cables through the seawall (Licence No. MS-00010672 issued on 15th January 2024).

### 1.2 Plan Objectives

This CMS has been prepared to address the specific requirements of the relevant conditions in the OfTI Marine Licence (Condition 3.2.2.6), Generation Station Marine Licence (Condition 3.2.2.7), Section 36 consent (Condition 10) and the Additional Landfall Works Marine Licence. These conditions must be discharged through approval of the Scottish Ministers prior to the commencement of offshore construction, which includes the approval of this CMS.

The objectives of the CMS are to set out the construction procedures and good working practices for the construction of the Inch Cape OWF Project.

The relevant conditions setting out the requirement for the CMS approval, and which are to be discharged by the CMS are presented in full in Table 3.1.

### 1.3 Linkages with other Consent Plans and Consent Conditions

The consent conditions require that the development of the CMS will be consistent with a number of other consent plans and consent conditions. Details of the linkages and relevant cross references are set out in Table 1.1.

It should be noted that information is not repeated across consent plans, rather, where pertinent information is available in linked consent plans, the relevant consent plans are referred to. The plans detailed below are not required for approval of this CMS but are provided for ease of reference.

**Table 1.1: CMS Links with Other Consent Plans and Documents**

<b>Reference</b>	<b>Description and relevance to the CMS</b>	<b>Relevant section of this Offshore CMS affected</b>
<b>Design Statement</b> (S36 Condition 13, MLs Condition 3.2.2.9 and 3.2.2.10)	Provides representative wind farm visualisations from key viewpoints in line the final DSLP.	Section 5.9
<b>Construction Environmental Management Plan</b> (S36 Condition 14, MLs Condition 3.2.2.10 and 3.2.2.11)	This condition will be discharged through the submission of two documents rather than one. The Construction EMP details the mitigation measures that will be put in place to minimise the impact of the construction Works, as far as reasonably practicable, on sensitive environmental receptors within the Development site. Subsequently, the Operations and Maintenance EMP will be submitted prior to Final Commissioning, aiming to satisfy the same criteria but tailored specifically for the O&M phase of the project.	Section 5.6
<b>Vessel Management Plan</b> (S36 Condition 15 MLs Condition 3.2.2.11 and 3.2.2.12)	Combined with the Navigational safety Plan, the VMNSP, provides the management and coordination of vessels to mitigate the impacts on other sea users.	Section 6.1.2

<b>Reference</b>	<b>Description and relevance to the CMS</b>	<b>Relevant section of this Offshore CMS affected</b>
<b>Piling Strategies</b> <b>OSP</b> <b>WTG Foundations</b> (S36 Condition 11, MLs Condition 3.2.2.7 and 3.2.2.8)	Piling methods and programme are detailed and includes the mitigation of the effects on noise sensitive species.	Section 7.3, Section 8.2 and Section 8.3
<b>Cable Plans</b> <b>(Inter Array Cable Plan &amp; Export Cable Plan)</b> (S36 Condition 19, and MLs Condition 3.2.2.15 and 3.2.2.16)	Contains details on environmental sensitivities and design considerations to mitigate, as far as possible, the effects of cable laying and associated cable protection during installation and operation of the Development	Section 8.4 Section 7.5
<b>Lighting and Marking Plan</b> (S36 Condition 20, and MLs Condition 3.2.2.16 and 3.2.2.17)	Details how the Development will be lit and marked in accordance with key guidelines and policies as well as requirements concerning navigational lighting.	Section 5.8
<b>Construction Programme</b> <b>(S36 Condition 9 and MLs Conditions 3.2.2.6 and 3.2.2.5)</b>	Details the key construction dates for the Development	Section 6.2
<b>ERCoP</b>	Bridges emergency response during the construction and operation of the Development with the MCA requirements	Section 5.5

## 1.4 Document Structure

The structure of this CMS is provided in Table 1.2, below.



**Table 1.2: CMS Document Structure**

<b>Section No</b>	<b>Section Title</b>	<b>Summary of Content</b>
1	<b>Introduction</b>	An overview of the Development and its associated Consents requirements
2	<b>Project Overview</b>	Provides an overview of the Project.
3	<b>Consent Conditions &amp; Environmental Impact Assessment Report</b>	Consent Conditions and Environmental Impact Assessment Report – provides an overview of the consent conditions (Marine Licences and Section 36) and commitments made in Environmental Statement (ES) and Environmental Impact Assessment Report (EIAR).
4	<b>Roles, Responsibilities and Communication</b>	Identification of key roles and responsibilities in the implementation of this Construction Method Statement
5	<b>Inch Cape Construction Management Framework</b>	Overview of overarching construction management framework, detailing industry guidance, good working practices, environmental management measures, training and competence, contractor obligation and mitigation.
6	<b>Construction Overview</b>	Provides an overview of pre-construction and construction preparation and measures for the construction of the OWF along with high level details of vessels and contractors.
7	<b>Construction Stages OFTI</b>	Provides an overview of the additional seabed preparation (if required) in advance of construction activities; landfall installation methodology; OSP jacket and topside installation activities; export cable installation and commissioning of the offshore transmission infrastructure



Section No	Section Title	Summary of Content
8	<b>Construction Stages ML and Section 36C</b>	Overview of the foundation installation methods; inter-array cable installation; WTG installation and the commissioning of the OWF.
9	<b>References</b>	Detail on literature referenced within this report

## 1.5 Document Control and Management of Change

This CMS is a 'live document' and will be regularly revised at intervals agreed with Scottish Ministers, to ensure that the information is kept up to date. It is expected that following a review, there may be a requirement to undertake a non-material or material update of the document.

It is anticipated that a material change would be defined as one that fundamentally affects key information being communicated in the CEMP; a change in proposed mitigation or monitoring commitments; or a change that may increase environmental risk. A non-material change would be expected to be one that is communicated for information only; does not fundamentally affect assumptions made based on previous information provided; does not result in deviation from agreed commitments; or does not increase the level of environmental risk.

Where an update is required, MD-LOT will be consulted to determine whether the level of changes signifies a material change to an approved plan that requires formal consultation, or a non-material update to be approved by MD-LOT. MD-LOT may wish to liaise with statutory stakeholders for advice to assist making these determinations.

It is anticipated that the review and update process will be as follows:

- a) Document review undertaken by ICOL (triggered by influencing factor listed above).
- b) Need for an update of document communicated to MD-LOT and ICOL to inform MD-LOT whether it is deemed it as material or non-material.
- c) MD-LOT to notify ICOL whether they are in agreement of the materiality of the change (and therefore whether or not formal consultation will be required).
- d) If change is considered non-material, ICOL will provide an updated CMS for MD-LOT to





review, approve and make available.

Or:

- e) If change is considered material, ICOL updates the CMS, and a formal consultation on the updated CMS is undertaken.

## 2 Wind Farm and OfTI Overview

### 2.1 Project Description

The Inch Cape Offshore Wind Farm will be located approximately 15 to 22 km (eight to 12 nautical miles) off the Angus coastline, to the east of the Firth of Tay. The Development Area is approximately 150 km<sup>2</sup> and will contain 72 (Wind Turbine Generators) WTGs, one Offshore Substation Platform (OSP), 66 kilovolts (kV) inter-array cabling and the initial section of the export cables between the Development Area boundary and OSP.

The Offshore Export Cable Corridor will contain the Offshore Export Cables. The Offshore Export Cable Corridor will consist of two 220 kV export cables approximately 85 km long, between the landfall point at Cockenzie in East Lothian and the boundary of the Development Area, and 1.4 km across at the widest point, reducing to approximately 250 m at the landfall.

The location and extent of the Development Area and Offshore Cable Corridor is shown in Figure 2.1 and the Wind Farm and OfTI boundary coordinates are included in Appendix A.

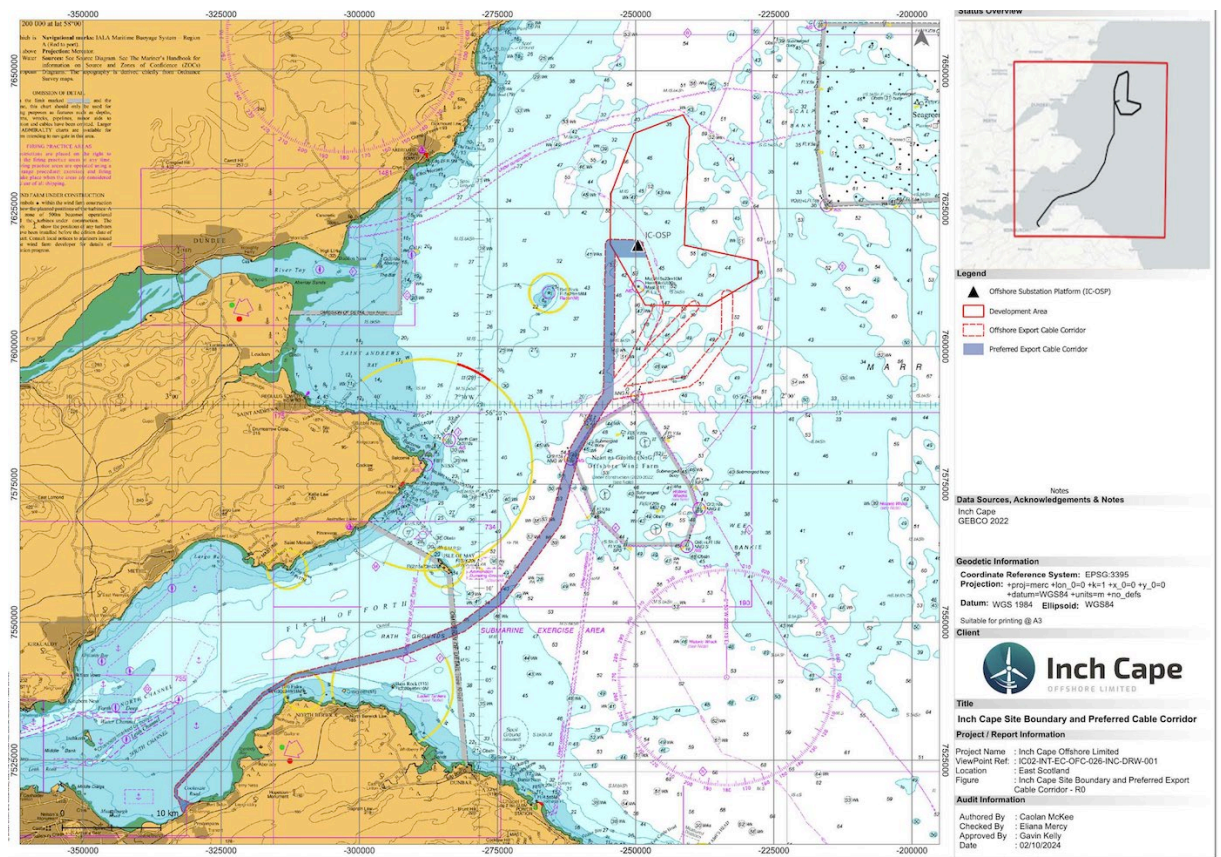


Figure 2.1: Project Location



## **2.2 Timing of Construction Works**

Offshore construction is expected to commence in 2025 and is anticipated to take approximately 2.5 years. Details of the full programme for the construction works are provided in the Construction Programme (IC02-INT-EC-OFC-004-INC-PRG-001) and a high-level summary of key dates and phasing is provided in Section 6.1.



### 3 Consent Conditions & EIAR Compliance

At the time of submission of this CMS, the Inch Cape project benefits from the following Consents:

- The S36 Consent
- The Generation Marine Licence
- The OfTI (Offshore Transmission Infrastructure Marine Licence)
- The Additional Landfall Works Marine Licence

This CMS has been prepared to satisfy the criteria of the S36 condition 10, OfTI Marine Licence condition 3.2.2.6, Generation Marine Licence condition 3.2.2.7 and Additional Landfall Works Marine Licence condition 3.1.1 as set out in Table 3.1.

Table 3.1 provides the relevant consent conditions, along with details of where information to address each part of the condition has been provided.

The requirement to construct and operate the Development in accordance with the measures identified in the Application arise from specific requirements in the consents. The consents require the works be constructed in accordance with the licence, the Application and supporting ES and EIAR and related documents.

This CMS, and the remaining consent plans have been put together considering the commitments made on the ES and EIAR and corresponding consent conditions.

**Table 3.1: Consent Conditions to be Discharged by this Offshore CMS**

<b>Condition Document</b>	<b>Condition Reference</b>	<b>Condition Text</b>	<b>Relevant Section of this CMS</b>
Section 36 Consent	Condition 10	<p>The Company must, no later than six months prior to the Commencement of the Development submit a Construction Method Statement (“CMS”), in writing, to the Scottish Ministers for their written approval. Such approval may only be granted following consultation by the Scottish Ministers with SNH, MCA, NLB and any such other advisors or organisations as may be required at the discretion of the Scottish Ministers. The CMS must include, but not be limited to:</p>	<p>The submission of the CMS document satisfies the condition</p> <p>Consultation will be carried out by MD-LOT as part of the approval process</p>
		<p>a. Details of the commencement dates, duration and phasing for the key elements of construction, the working areas, the construction procedures and good working practices for installing the Development.</p>	<p>Section 2.2</p> <p>Also see the Construction Programme (IC02-INT-EC-OFC-004-INC-PRG-001).</p>
		<p>b. Details of the roles and responsibilities, and chain of command and contact details of company personnel, any contractors or sub-contractors involved during the construction of the Development.</p>	<p>Section 4 Roles and responsibilities</p>
		<p>c. Details of how the construction related mitigation steps proposed in the Application are to be delivered.</p>	<p>Section 5.9</p>



The CMS must adhere to the construction methods assessed in the Application. The CMS also must, so far as is reasonably practicable, be consistent with the Design Statement (“DS”), the Environmental Management Plan (“EMP”), the Vessel Management Plan (“VMP”), the Navigational Safety Plan (“NSP”), the Piling Strategy (“PS”), the Cable Plan (“CaP”) and the Lighting and Marking Plan (“LMP”).

This document provides this information with methods provided in Section 6 to Section 8

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OftI  
Marine  
Licence  
(MS-  
00010593)

3.2.2.6

The Licensee must, no later than six months prior to the Commencement of the Works, submit a CMS, in writing, to the Licensing Authority for its written approval. Commencement of the Works cannot take place until such approval is granted. Such approval may only be granted following consultation by the Licensing Authority with SNH, MCA, NLB, East Lothian Council and any such other advisors or organisations as may be required at the discretion of the Licensing Authority.

The submission of the CMS document satisfies the condition.

Consultation will be carried out by MD-LOT as part of the approval process.

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The CMS must include, but not be limited to:

a. Details of the commencement dates, duration and phasing for the key elements of construction, the working areas, the construction procedures and good working practices for installing the Works.

Section 2.2, 6.2, 7 and 8

Also see the Construction Programme (IC02-INT-EC-OFC-004-INC-PRG-001).



b. Details of the roles and responsibilities, Section 4  
chain of command and contact details of  
company personnel, any contractors or  
sub-contractors involved during the  
construction of the Works.

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c. Details of how the construction related Section 5.9  
mitigation steps proposed in the  
Application are to be delivered.

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The CMS must adhere to the construction methods assessed in the Application. The CMS also must, so far as is reasonably practicable, be consistent with a DS, the EMP, VMP, an NSP, the PS, the CaP and the LMP. This document provides this information with methods provided in Section 5 to Section 8 and table 1.1.

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Generating Station  
Marine Licence  
(MS-00010140) 3.2.2.7

The Licensee must, no later than six months prior to the Commencement of the Works, submit a CMS, in writing, to the Licensing Authority for its written approval. Commencement of the Works cannot take place until such approval is granted. Such approval may only be granted following consultation by the Licensing Authority with SNH, MCA, NLB and any such other advisors or organisations as may be required at the discretion of the Licensing Authority.

The submission of the CMS document satisfies the condition.

Consultation will be carried out by MS-LOT as part of the approval process.

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The CMS must include, but not be limited to: Section 2.2.

a. Details of the commencement dates, duration and phasing for the key elements of construction, the working areas, the construction procedures and good working practices for installing the Works. Also see the Construction Programme.

b. Details of the roles and responsibilities, chain of command and contact details of company personnel, any contractors or sub-contractors involved during the construction of the Works. Section 4 Roles and responsibilities.

c. Details of how the construction related mitigation steps proposed in the Application are to be delivered. Section 5.9

The CMS must adhere to the construction methods assessed in the Application. The CMS also must, so far as is reasonably practicable, be consistent with a DS, the EMP, VMP, an NSP, the PS, the CaP and the LMP. This document provides this information with methods provided in Section 5 to Section 8

In line with the S36 and marine licence conditions, the final CMS must be sent to Aberdeenshire Council, Angus Council, East Lothian Council, Fife Council and Dundee City Council for information only

Additional Landfall Works Marine Licence (MS-00010672) 3.1.1

The Licensee must only construct the Works in accordance with this licence, the application and any plans or programmes approved by the Licensing Authority unless otherwise authorised by the Licensing Authority.

This document provides this information with methods provided in Section 5 and Section 6







## 4 Roles and Responsibilities

This section sets out the roles and responsibilities and chain of command in relation to this Construction Method Statement for the OWF and the Offshore Transmission Infrastructure. It identifies each key role involved in the construction phase of the Inch Cape Offshore Wind Project and lists responsibilities associated with each role in relation to this document. It should be noted that at the time of writing not all the main Contractors have been appointed. The chain of command below will be replicated for each main Contractor.

Key roles in Inch Cape include:

- Inch Cape Project Director;
- Inch Cape Transmission Director
- Inch Cape Senior Construction Manager;
- Inch Cape Package Managers;
- Inch Cape HSE Director;
- Inch Cape Head of Consents
- Offshore Consents Manager;
- Inch Cape Client Representative; and
- Inch Cape Marine Operations Lead.

Supporting roles to this structure, reporting to the Inch Cape Head of Consents, are;

- Inch Cape Environmental Lead;
- Inch Cape Offshore Consents Manager;
- Inch Cape Fisheries Liaison Manager (FLO);
- Inch Cape Environmental Clerk of Works (ECoW);
- Inch Cape Archaeological Consultant; and
- Inch Cape Consents Team.

Other roles include:

- Contractors.



- Contractor Construction Environmental Advisor (CEA);
- Offshore Fisheries Liaison Officer (OFLO); and

Inch Cape Principal Contractors, Contractors (and Subcontractors) carrying out the construction activities are responsible for complying with this CMS.

#### **4.1 Inch Cape Project Director**

**Reports to: ICOL Board**

Project Director is accountable to the ICOL board and has overall responsibility for requiring that the Inch Cape Project is built and operated in accordance with this CMS and associated consent plans. The Inch Cape Project Director has overall responsibility for project delivery and governance.

#### **4.2 Inch Cape HSE Director**

**Reports to: Project Director**

The Inch Cape HSE Director is responsible for advising on HSE aspects of the Inch Cape Project and is responsible for the overall incident reporting process.

#### **4.3 Inch Cape Package Directors**

**Report to: Project Director**

The Package Directors support the project ensuring there are suitable resources and sufficient time to manage the project safely and in compliance with the consents and legal requirements.

#### **4.4 Inch Cape Environmental Lead**

**Reports to: HSE Director & Head of Consents**

The Environmental Lead is part of a team responsible for monitoring compliance with this CMS, the project consents and environmental legislation, on behalf of Inch Cape.

The responsibilities extend across both offshore and onshore activities, to ensure a consistent approach to compliance and environmental management is applied. The Environmental Team also includes the Environmental Clerk of Works (ECoW), the Fisheries Liaison Officer (FLO) and any other technical disciplines as required. Further details on these roles are provided in the Offshore



Construction Environmental Management Plan (Offshore CEMP).

#### **4.5 Inch Cape Transmission Director**

**Reports to: Project Director**

The Transmission director support the transmission elements of the project (export cables and substations) and the IAC scope ensuring there are suitable resources and sufficient time to manage the project safely and in compliance with the consents and legal requirements

#### **4.6 Inch Cape Senior Construction Manager**

**Reports to: Transmission Director**

The Inch Cape Senior Construction Manager has responsibility for overseeing the construction phase of the Inch Cape Project and requiring compliance with all consent conditions and associated consent plans. These are some of the responsibilities in relation to the CMS:

- Require that sufficient resources and processes are in place across the construction packages to deliver/comply with this CMS and to manage health and safety and environmental risks.
- Ensure the appointment of competent and properly resourced Contractors.
- Ensure suitable arrangements are in place for communications and the management and supervision of offshore construction activities.
- Require that the Inch Cape ECoW is integrated into the daily project reporting and notifications received, in order to monitor Contractor compliance with the consents.
- Provide input in incidents and Non-Compliance investigations as required.

#### **4.7 Inch Cape Package Managers**

**Report to: Package Directors**

The role of the Inch Cape Package Managers is to oversee the delivery of discreet construction work packages and establishing contractual obligations for contractors (and their sub-contractors) in relation to this CMS and requiring compliance with these contracts.



## 4.8 Inch Cape Client Representatives

### Report to: Package Managers & Senior Construction Manager

The Client Representatives will be based on site or aboard construction vessels and will be responsible for monitoring the implementation of the agreed construction procedures. These are some of the responsibilities in relation to the CMS:

- Oversee Contractor reporting of incidents, near misses and non-compliances in accordance with the ICOL CEMP and HSE incident reporting procedures.
- Actively participate in health, safety and environmental matters submitting safety observations (SOCs/HOCs) either directly to the Contractor, with regards to a matter on board or raised directly to ICOL Environmental Lead / HSE Lead/ ECoW whatever is deemed suitable.
- Regularly interface with the Environmental Lead and ECoW as necessary for compliance matters and environmental incident reporting.

## 4.9 Inch Cape Marine Operations Lead

### Reports to: Senior Construction Manager

The Inch Cape Marine Operations Lead (and Duty Marine Coordinator) is responsible for the monitoring of people, vessels and offshore structures with regards to the safe preparation and execution of the offshore construction activities.

## 4.10 Inch Cape Head of Consents

### Reports to: Project Director

Manages a team responsible for monitoring and reviewing compliance with the project consents and environmental legislation, on behalf of Inch Cape.

The responsibilities extend across both Offshore and Onshore activities, to ensure a consistent approach to compliance and environmental management is applied. The team includes the Environmental Lead, the Environmental Clerk of Works (ECoW), the Fisheries Liaison Officer (FLO) and any other technical disciplines required (e.g MMO) and a supporting Consents team as required.

Further responsibilities of the Head of Consents are:



- Primary contact for MD-LOT, statutory bodies and stakeholders (excluding the responsibilities undertaken by Inch Cape's ECoW).
- Where necessary, managing the process of obtaining new consents.
- Attendance at ICOL leadership meetings, providing environmental and consents compliance input.

#### **4.11 Inch Cape Offshore Consents Manager**

**Reports to: Head of Consents**

Main responsibilities are:

- Manage the discharge of marine licence conditions.
- Coordinate the preparation and submission of Consent Plans, as required.
- Attendance at Inch Cape internal and external meetings providing compliance input.
- Liaise with the ECoW for the review and approval of consent plans.

#### **4.12 Inch Cape supporting Consents Team**

**Report to: Head of Consents**

The Inch Cape Consents Team has the following responsibilities:

- Request any variations to consents or licences as required.
- Manage the discharge of the Section 36 Consent and Marine Licences conditions.
- Act as primary contact for MD-LOT, statutory bodies and stakeholders (excluding the reporting duties undertaken by the Environmental Lead and ECoW)
- Co-ordinate the preparation and submission of revised Consent Plans, as required.
- Attendance at Inch Cape internal and external meetings, providing compliance input.
- Liaise with the ECoW for the review and approval of Consent Plans.
- Support the Environmental Team with audits and inspections and review of key Contractor documentation.



#### **4.13 Inch Cape Environmental Clerk of Works (ECoW)**

**Reports to: Offshore Consents Manager**

The ECoW is a key role required by the Generation and OfTI Marine Licences. The responsibilities of the ECoW in relation to this document include, but are not limited to:

- Review and quality check of this CMS and thereafter monitor compliance with the same.
- Report on compliance to Inch Cape and to MD-LOT (within the remit of the Offshore ECoW consent conditions).
- Liaise with MMO during the piling activities.
- Provide the Environmental Lead with ad-hoc advice, giving due regard to the independent role and overall remit of the ECoW.
- Review and approve relevant contractor documents from a compliance perspective, develop training materials on compliance with consent plans, the Marine Licences and Section 36 Consent, for use by Inch Cape personnel in inductions and other awareness campaigns.
- Attend internal and Contractor meetings, providing compliance guidance.

The ECoW role will be carried out by a party appointed by the Licensee subject to the written approval of the Licensing Authority.

#### **4.14 Inch Cape Fisheries Liaison Officer (FLO)**

**Report to: Offshore Consents Manager**

The FLO will provide liaison with the local fishing industry and notification of planned works and vessel.

#### **4.15 Inch Cape Archaeological Consultant**

**Reports to: Offshore Consents Manager**

The Archaeological Consultant will be responsible for advising Inch Cape on all archaeological matters relating to the Project that might impact upon archaeological and cultural heritage resources.

#### **4.16 Contractors**

**Report to: Inch Cape Package Managers and Senior Construction Manager (as appropriate).**

All Contractors (Principal Contractors, Contractors and Subcontractors), notwithstanding their specific



duties under the CDM Regulations shall ensure that their project documents and installation procedures align with the Inch Cape Consents, and associated Consent Plans (including this CMS).

Compliance with this CMS is a contractual requirement.

Contractor responsibilities include but are not limited to:

- Plan, manage and monitor all work carried out by themselves and their workers, considering the risks to anyone who might be affected by it.
- Ensuring that sufficient and suitably qualified resources are in place to manage compliance with this plan and all relevant Inch Cape Consents and Licenses, as well as the environmental requirements of the EIA Report (EIAR), and all relevant maritime and environmental legislative requirements pursuant to the Contractor's activity.
- Ensuring that inductions are provided and that they provide an overview of the Inch Cape consents and licences requirements, cover project environmental management matters, and the reporting of environmental incidents and non-compliances.
- Ensuring all most current Consent Plans are available onboard (either as hard copies or electronically) the relevant Contractor vessels engaged on the Project.
- Liaising with the Inch Cape ECoW, Environmental Lead, and FLO, where required.
- Facilitate inspections of Contractor vessels / sites, etc. pre-mobilisation and during construction.

#### **4.17 Contractor Construction Environmental Advisor (CEA)**

##### **Report to: Principal Contractor**

Principal Contractors are required to appoint a Construction Environmental Advisor (CEA) suitably qualified, competent and with proven experienced in offshore construction projects. The Construction Environmental Advisor will be a full-time resource for the duration of the Contractor's construction works and, if required, during the design period (unless otherwise agreed with Inch Cape).

The Construction Environmental Advisor will be dedicated to delivering the requirements of the Inch Cape consents conditions and wider environmental matters. Further information with regards this role can be found in the Offshore CEMP.

#### **4.18 Offshore Fisheries Liaison Officer (OFLO)**





#### **Report to: Principal Contractor**

The Principal Contractor shall appoint Offshore Fisheries Liaison Officers (OFLOs) who will be present on main installation vessels (to be agreed with ICOL) whilst these are performing construction works in the Project Area. The Principal Contractor OFLOs position is a key personnel position included in contract.

The OFLOs shall be a suitably qualified and experienced person. A 'suitably qualified and experienced person' in relation to Contractor OFLOs means *"a person who has sufficient experience in performing the duties of a fisheries liaison officer, whose judgement can be used to comment on or to resolve a technical problem with finality"*.

#### **4.19 Contact Details**

Contact details for key Inch Cape personnel, contractors and sub-contractors will be provided to MD-LOT, in line with the relevant consent conditions, when available and prior to engagement in the works.



## 5 Inch Cape Construction Management Framework

### 5.1 Overview

This section provides an overview of the overarching Inch Cape construction management framework within which the Inch Cape Project will be delivered. It details the industry guidance available to inform the Inch Cape construction management framework, highlights wider obligations under the Construction (Design and Management) Regulations 2015 (CDM regulations) and the Inch Cape Offshore CEMP, provides details of training and competence requirements before summarising contractor and sub-contractor obligations.

The Inch Cape construction management framework will ensure the safe, compliant installation of the Inch Cape Project components, as described in this CMS.

### 5.2 Industry guidance

Industry guidance documents have been produced to guide good working practices in relation to construction management for offshore wind farms are provided (Table 5.1). These guidance documents have been used to inform this CMS and Inch Cape Health & Safety procedures where relevant.

**Table 5.1: Offshore Wind Farm Construction Guidance**

Author	Title and Publication Year	Scope
The G+ published through the Energy Institute	Working at height in the offshore wind industry (2 <sup>nd</sup> Ed.) (2018)	This document is designed to reduce the need to work at height (WAH), covering the design, all phases of work (construction, commissioning, operation and maintenance and decommissioning). The document provides topic guidance on common requirements for WAH including; training, fitness requirements, common hazards (including recommendations on how to reduce risk), personal protective equipment (PPE), training and competence, and the responsibilities of those procuring, supervising and undertaking work; with supporting information, such as regulatory requirements in selected EU countries and technical standards.



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Author	Title and Publication Year	Scope
	The safe management of small service vessels used in the offshore wind industry (3 <sup>rd</sup> Ed.) (2023)	Addresses small service vessels of less than 500 GT, such as crew transfer vessels (CTVs), guard vessels, survey vessels and construction support vessels. Applicable globally, to all offshore wind farms; consistent with national requirements. The document covers responsibilities for parties involved in the management of service vessels, operating procedures for marine operations and vessel activities, management of vessel traffic, training and competence of crew and passengers, and vessel safety equipment.
The Crown Estate	Construction vessel guideline for the offshore renewables industry (2014)	The document provides guidance for developers and the supply chain for the construction of a UK offshore wind farm project. The document follows on from 'Vessel Safety Guide – Guidance for offshore renewable energy developers (Vessel Safety Guide)' published by RenewableUK in 2012.
	Sharing lessons learned and good practice in offshore transmission (2014)	This document presents the findings from a study commissioned to understand experience and lessons learned in the development, construction and operation of offshore transmission infrastructure.
RenewableUK	Offshore Wind and Marine Energy H&S Guidelines (2014)	The guidelines consider health and safety risks in relation to offshore wind and marine energy projects. The document covers project definition and design, construction, commissioning, operations, maintenance and decommissioning phases, including supporting activities to these phases (e.g. survey and geophysical). It provides detail on the most significant hazards and activities relevant to offshore wind and marine projects.

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Author	Title and Publication Year	Scope
RenewableUK	G+ Integrated Offshore Emergency Response (G+ IOER) – Good practice guidelines for offshore renewable energy developments (2 <sup>nd</sup> Ed.) (2023)	Sets out a recommended approach for managing and responding to emergencies taking account of existing and emerging industry good practice within the framework of UK health and safety legislation.
RenewableUK	Safety Circular: Notices to Mariners. Guidance for Offshore Wind & Marine Projects (2013)	The document provides guidance on the accepted scope and format for issuing Notice to Mariners (NtM) for offshore wind and marine projects.
RenewableUK	Guidelines for Selection and Operation of Jack-ups in Marine Renewable Energy Industry (2013)	Provides guidelines for ‘good industry practice’ to be followed for selection and operation of jack-ups, relevant to jack-up owners and operators technical staff and crew responsible for the operation of jack-ups. The document also provides guidance for project managers in the renewables industry.
RenewableUK	First Aid Needs Assessment – Guidelines for renewable energy projects (2013)	Provides guidance on how duty holders can assess the provision of adequate and appropriate elements, personnel and facilities to ensure employees receive the correct attention, should they fall ill or are injured at work. The document also sets out the key issues to take into account when conducting first aid needs assessment.

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Author	Title and Publication Year	Scope
RenewableUK	Vessel Safety Guidance for Offshore Renewable Energy Developers (2015)	The document provides guidance in the process of selection and management of vessels and interface of equipment to ensure all are Fit for Purpose and operated within a robust Health and Safety management system.
Fishing Liaison with Offshore Wind and Wet Renewables Group (FLOWW) / The Crown Estate.	FLOWW Best Practice Guidance for Offshore Renewables Developments: Recommendations for Fisheries Liaison (2014)	Provides information to permit offshore renewable developers and members of the fishing industry / community to liaise on potential impacts and / or interactions throughout the lifecycle (planning, construction and operation) offshore renewable developments.
G+/DROPS, published through the Energy Institute	Reliable securing booklet for offshore wind (2019)	This document provides information to help eliminate the risk of dropped objects in the marine environment. It explains the requirements for worksite hazard management and illustrates best practice recommendations. The information is applicable to all personnel, equipment, tools and structures associated with the design, supply, transportation, installation, maintenance, operation and dismantlement activities across the industry.

### 5.3 Good Working Practices

For the purpose of this document, good working practice is assumed as the following:

- A process or methodology that has been consistently shown to work well and to achieve reliable results;
- Managing the construction process in order to reduce the potential for harm to construction personnel and third-party contractors; and
- Reducing potential effects on the environment along with other users of the marine environment and ensuring these are minimised as far as is reasonably practicable in line with the



commitments made in the ES and EIAR.

#### **5.4 Construction (Design and Management) Regulations 2015 (CDM regulations)**

The Inch Cape OWF Project is a notifiable project for the purposes of the Construction (Design and Management) Regulations 2015 (CDM regulations). The aim of the CDM regulations is to improve health and safety for all personnel and roles in the construction sector.

Inch Cape will require compliance with the CDM regulations in the design and construction of the Inch Cape Project and will require that all personnel involved in the construction process follow the company HSE standards and risk management procedures. All contractors and sub-contractors shall comply with Inch Cape Employer HSE Requirements (IC02-INT-HS-PPP-006-INC-STR-001), ICOL Incident Reporting and Investigation Procedure (IC02-INT-HS-PPP-005-INC-PRO-001) and Client Emergency Response Plan (Client ERP) (IC02-INT-HS-PPP-004-INC-PLA-002).

The environmental management procedures which will be followed during the construction of the Inch Cape Project are set out in full in a number of associated consent plans, in particular the Offshore CEMP (IC02-INT-EC-OFC-007-INC-PLA-001).

#### **5.5 Emergency Response Cooperation Plan (ERCoP)**

The Inch Cape ERCoP (IC02-INT-EC-OFC-011-INC-PLA-001) will be developed prior to the commencement of the Works. The ERCoP is a live document and will be reviewed and updated in consultation with MCA through the project lifetime.

#### **5.6 Environmental Management**

The environmental management procedures which will be followed during the construction of the Inch Cape Project are set out in full in a number of associated consent plans, in particular the Offshore CEMP (IC02-INT-EC-OFC-007-INC-PLA-001).

Environmental management for Onshore works is described in the ICOL Onshore Transmission Works Construction Environmental Management Plan (Onshore CEMP) (IC02-INT-EC-ONC-004-INC-PLA-001). Both CEMPs interface at the landfall works and export cable installation at the nearshore.

#### **5.7 Training and Competence**

ICOL will require that all personnel engaged in the construction of the Inch Cape Project have adequate relevant experience and training in order to safely carry out the duties required of them within their role. ICOL will require that all employed personnel are adequately supported at all levels.

Where there is the requirement for training and / or certification to undertake the role, ICOL will require



that relevant training records alongside certification are made available for inspection where necessary.

Contractors will provide appropriate training and certification of training and will also require all sub-contractors to adhere to the Inch Cape specific requirements, relating to training and competence through conditions of their contract.

ICOL personnel, contractors and sub-contractors will undergo site inductions prior to commencing any work on site and will be required to attend regular Toolbox Talks on relevant topics where an update is required, or a particular or particular sensitivity has been identified.

## **5.8 Contractor and Sub-Contractor Obligations**

ICOL requires all contractors and sub-contractors involved in the Inch Cape Project to comply with relevant marine and environmental legislation and that all necessary licences (and consent plans), permits and permissions are obtained, through conditions of contract. It is therefore required that embedded design measures and good working practices are applied for the duration of the construction phase

The Contractor's Construction Environmental Advisors (CEAs) appointed for each principal contractor will ensure implementation of construction management framework measures throughout the duration of construction. All contractors and sub-contractors will ensure compliance with the ICOL Employer HSE Requirements (IC02-INT-HS-PPP-006-INC-STR-001), ICOL Incident Reporting and Investigation Procedure (IC02-INT-HS-PPP-005-INC-PRO-001), Client Emergency Response Plan (Client ERP) (IC02-INT-HS-PPP-004-INC-PLA-002), the ICOL Offshore CEMP and all other relevant consent plans.

Upon Contract signature, Contractors will be provided with a copy of the relevant approved consent plans that apply to their scope of work. Also, they will be issued a "compliance matrix":

- to guide them on how to ensure those requirements and key elements of the consent plans are to be embedded within their specific project documentation (installation manuals, management procedures, HIRAs, etc.) and;
- to support compliance with Inch Cape consent during their participation on the project.

See Appendix III, this has examples of the compliance matrices. Please note that the matrices are currently live and will not be completed until all the consent plans are approved by the Regulator and all contracts signed with the different Contractors.



## **5.9 Mitigation**

The mitigation measures set out in the Offshore CEMP and other consent plans, along with good working practices committed to in the ES and EIAR and within the application, are embedded in the construction methods and management practices, and will be applied to all relevant stages of the Inch Cape Project construction (see Appendix I and II for further details).





## 6 Construction Overview

### 6.1 Introduction

This section provides a high-level overview on the construction times and construction stages for each component of the Inch Cape Project. The construction of the OWF and the OFTI is described in detail in Sections 6 to Section 8.

#### 6.1.1 Marine Coordination Centre and Construction Ports

This section presents the proposed arrangements for the construction ports and Marine Coordination Centre (MCC) which will support the Inch Cape OWF Project construction and operational phase activities.

A number of ports are proposed for the construction of the Inch Cape OWF:

- **Dundee** - main installation harbour for WTG components. It is expected that the WTGs will be transported from the pre-installation port at Dundee Port to the Inch Cape site and installed using a Jack-Up Vessel (JUV).
- **Dundee** - the EC cable will be transported from Orient's cable manufacturing facility in China to onshore storage, close to site e.g. Montrose / Dundee, in advance of being loaded out onto the Cable Lay Vessel (CLV).
- **Leith** – is the marshalling yard for foundations (jacket, pin-piles and monopiles) providing loading activities and will include pre-assembly and laydown of components prior to loadout from Prince Charles Wharf.
- **Leith** - monopiles and jacket pin piles will transit to the UK via the Suez Canal, estimated to take 45 days. The pile installation template (PIT) will also be stored in Leith.
- **Blyth** – The IAC will be transported from China to Blyth where cables will be stored onshore. At Blyth, the cables shall be loaded from onshore storage to the IAC Cable Lay Vessel.

A number of other ports may also be utilised but at this stage, the locations cannot be confirmed. The MCC will be based at a location still to be determined and will be used during both the construction and operational phases of the Inch Cape OWF Project.

#### 6.1.2 Navigational Safety Measures

Full details on all navigational and safety measures together with the vessels that will participate on the works can be found in the Project Vessel Management Plan and Navigational Safety Plan (VMPNSP) (ICO2-INT-EC-OFC-008-INC-PLA-001).



### 6.1.3 Pre-Construction Works

Pre-construction surveys (geophysical), boulder clearance and unexploded ordnance (UXO) identification and disposal are not subject to the main Consents, therefore these surveys and clearance activities will be undertaken under the auspices of additional marine licences prior to the main construction works starting.

## 6.2 Construction milestones

The two tables below contain the broad stages of construction for both the OFTI elements and the OWF. Details of the construction programme for the works described in this CMS are provided in the Construction Programme (CoP) (IC02-INT-EC-OFC-004-INC-PRG-001). It is currently anticipated that the offshore construction works will be carried out year-round and around the clock (i.e. 24 hours working, 7 days a week).

**Table 6.1 Key construction milestones for the installation of the Offshore Transmission Infrastructure elements**

Anticipated Commencement Date	Milestone OFTI
Q2 2025	Commencement of Offshore Construction under the OFTI Licence and the Additional Landfall Works Marine Licence
Q2 2025	Stage 1: Pre-install landfall cable protection system up to MHWS
Q2/Q3 2025	Stage 2: Subtidal seabed clearance and preparation
Q3 2025	Stage 3: OSP Jacket foundation installation
Q3 2025	Stage 4: OSP Topside installation
Q3/Q4 2025 and Q2/Q3 2026	Stage 5: Subtidal Export cable installation
Q1/Q2 2026	Stage 6: Commissioning and Testing



**Table 6.2 Key construction milestones for the installation of the Offshore Wind Farm elements**

Anticipated Commencement Date	Milestone OWF
Q3 2025	Commencement of Construction under S36 Consent
Q1/Q2 2026	Stage 1: Seabed clearance and preparation
Q1/Q2/Q3/Q4 2026	Stage 2: Foundation Monopile installation and TP assembly
Q2/Q3 2026	Stage 3: Jacket Foundation installation
Q2/Q3/Q4 2026	Stage 4: Inter array Cable installation
Q3 2026 to Q3 2027	Stage 5: WTG installation
Q4 2026 to Q3 2027	Stage 6: Commissioning and Testing



## 7 Construction Stages OFTI

### 7.1 Stage 1: Pre-install landfall cable protection system up to MHWS

Export cable installation activities at the landfall will be undertaken using open cut trenching techniques under the Additional Landfall Works Marine Licence and the Offshore Transmission Infrastructure Marine Licence (OFTI).

#### 7.1.1 Introduction

Pre- export cable installation activities at landfall will be undertaken using the open cut method where open cut trenching through the rock revetment and seawall will be conducted to allow the installation and pulling of the export cables into the offshore substation at Cockenzie.

The green rectangle on the photo below shows the approx. area where this works will take place.



Figure 7.1.1 Landfall works location



**Figure 7.1.2 Detail of the seawall and rock revetment**

An overview of the intertidal export cable installation process and indicative durations is provided in Table 7.1.1

**Table 7.1.1 Intertidal export cable installation overview**

<b>ACTIVITY</b>	<b>INDICATIVE DURATION</b>
STEP 1: Seawall and rock revetment removal	12 weeks
STEP 2: Excavation of intertidal cable trenches and CPS installation	4.5 weeks
STEP 3: Reinstatement of cable trenches	4 weeks
STEP 4: Replacement and reinstatement of rock armour and seawall	5 weeks
STEP 5: Cable pull - in	2 days
STEP 6: Post installation surveys	4 days



### 7.1.2 Key Parameters, Equipment and Methodology

The key equipment and methodology for cable installation at landfall up to MHWS utilising open cut trenching are presented on the tables below. Up to two trenches will be excavated from below MLWS to MHWS (seawall approx.) to accommodate the two export cables.

Equipment and materials are likely to be transported by sea (e.g. by barge) directly to the landfall installation site, as access to the intertidal and rock revetment area is limited due to tidal conditions, although using onshore transport arrangements and the construction of an access road to the intertidal zone is also being considered. The total duration of activities including the pre-installation of the cable protection system from the onshore joint pits through the seawall and rock revetment, inter tidal and subtidal zones of landfall would take up to 6 months (excluding weather downtime).

**Table 7.1.2a Key parameters – landfall installation to MHWS**

Parameter	Indicative Value
<b>Seawall and rock revetment</b>	
Number of trenches	1 seawall cut (30 m length) / 2 cable trenches (20 m separation)
Trench width x depth	2 m x (0.9m - 1.5 m)
<b>Intertidal and Subtidal</b>	
Number of trenches	2
Trench width x length x depth	3 m x 1.5 m
Burial depth	from 0.35 m to 3.78 m

**Table 7.1.2b Installation methodology– landfall installation to MHWS**

**Equipment / Vessels**

**Methodology**

**Step 1: Seawall and rock revetment temporary removal**

Rock grapple



- Installation of an onshore secant piled defence wall prior to cutting through the seawall and removing a section of it.
- Installation of temporary access road onto the intertidal zone.
- Removal of rock in layers to ensure effective reinstatement.
- Stockpiling material suitable for re-use. Transportation of remaining material to a licenced onshore disposal site using a licensed waste carrier.

**Step 2: Excavation of intertidal cable trenches and cable protection system installation**



- Excavation of trenches by barge/jack up mounted excavator
- Removal of sediment in layers to ensure effective reinstatement
- Pre-installation of the cable protection system in the trench supported on concrete foundations.
- Concrete mattresses or other temporary anchoring equipment or rock bags / rock net may be used to secure the cable protection system until installation is complete.

**Step 3: Reinstatement of cable trench**



- Backfilling of excavated material
- Site reinstated to original status



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**Equipment / Vessels**

**Methodology**

**Step 4: Replacement and reinstatement of rock armour and seawall**

Onshore cranes, excavators, rock grapnel, barge

- Replacement and reinstatement of rock armour and seawall section.
- Removal of the temporary access road materials.

**Step 5: Cable pull in**



- Cable lay vessel to set up. Positioning in anchors may be required in the sections where water depth is not sufficient for DP operations.
- A dive team will be mobilised to prepare the cable protection system end at landfall and set up for cable pulling.
- A small boat will bring the winch wire from the CPS end to the CLV, and then will connect it to the cable end.
- Divers will be used to clean the cable protection system exit point, install the bellmouth and facilitate the cable entering the CPS that is already pre-installed on the trenches.
- The cable will be winched through the cable protection system.





**Equipment / Vessels**

**Methodology**

Cable trenching and burial



- Once cable pull in is completed, the CPS will be grouted with the support of divers.
- Protection and burial of the cable and cable protection system from the seawall will follow on the intertidal and subtidal zones of landfall as the cable lay progress.
- A jack up barge with a backhoe excavator may be used at the intertidal zone to support the trenching / burial of the cable protection system and the cable.
- Concrete mattresses will be installed on some areas to provide additional protection if required.

Step 6: Post installation surveys

Small survey boats and shore based equipment



- Survey of the cable protection system within seawall, rock revetment, intertidal and subtidal zones.
- Topographical survey within seawall, rock revetment, intertidal and subtidal zones.

**7.1.3 Mitigation and Good Working Practices**

Following completion of the works, the seawall, the rock revetment/beach and foreshore will be returned to the original profile, or as close as reasonably practicable. All temporary construction materials, the access road into the intertidal zone and any ancillary equipment used must also be removed at this time. See Appendix I for a summary of mitigation and good working practices for this stage.

## 7.2 Stage 2: Seabed Preparation

### 7.2.1 Introduction

Seabed preparation activities are required in advance of OSP foundation installation activities (300 m radius around the asset) and subtidal cable installation activities (+/- 50 m on cable RPL) to identify and remove any boulders from the cable corridor and OSP location and identify and manage any unexploded ordnance (UXO) identified during the dedicated surveys. These activities are covered under additional licences (Boulder clearance and UXO identification; and UXO clearance marine licences) and will be conducted in advance of main offshore construction works.

The tables below describe the activities to be conducted if required due to boulders still being present on the cable route and OSP location at the time of installation.

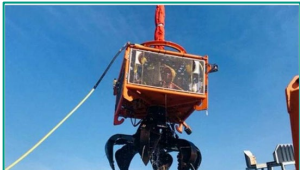
**Table 7.2.1 Overview of the subtidal seabed preparation activities**

ACTIVITY	INDICATIVE DURATION
STEP 1: Seabed ROV survey	< 3 weeks
STEP 2: Removal of remaining boulders with Orange Peel Grab	< 2 weeks

### 7.2.2 Equipment and Methodology

The key equipment and methodology for seabed preparation activities is presented on the table below. Delivery of the equipment will be directly to the Construction Support Vessels (CSV) conducting these works.

**Table 7.2.2 Installation methodology– Subtidal Seabed preparation (if required)**

Equipment / Vessel	Methodology
Step 1: Seabed ROV survey	
ROV	The ROV will survey the clear footprint of the export cable and jacket foundation area to identify any remaining boulders or debris.
Step 2: Removal of remaining boulders with Orange Peel Grab	
	<ul style="list-style-type: none"> <li>• May be deployed from CSV or similar vessel</li> <li>• Deployment to relocate boulders if necessary</li> </ul>

## 7.3 Stage 3: OSP jacket foundation substructure assembly and installation

### 7.3.1 Introduction

An OSP jacket substructure will be fixed to the seabed by piled foundations, the jacket will have 8 post installed piles (see ICO2-INT-EC-OFC-005-INC-STR-001 OfTI Piling Strategy). Delivery of the main components (jacket and piles) will be directly to the OSP installation site by sea transport (heavy lift vessel and towed barge) from the site of fabrication.

The sequence of events and indicative durations for the OSP jacket installation is illustrated on the table below.

**Table 7.3.1 Overview of OSP jacket installation**

ACTIVITY	INDICATIVE DURATION
STEP 1: Set up of vessel	1 week
STEP 2: Jacket lift and installation	1 week
STEP 3: Pile installation and driving	9 days
STEP 4: Grouting	2 days
STEP 5: Completion and move out of vessel	1 day



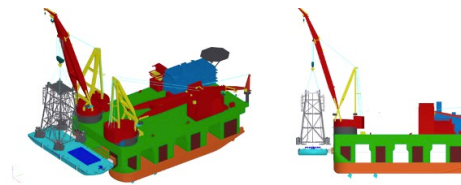
### 7.3.2 Key Parameters, Equipment and Methodology

The key parameters and the installation methodology are on the table below and on table 7.3.2b on the next page.

**Table 7.3.2a Key parameters– OSP jacket foundation**

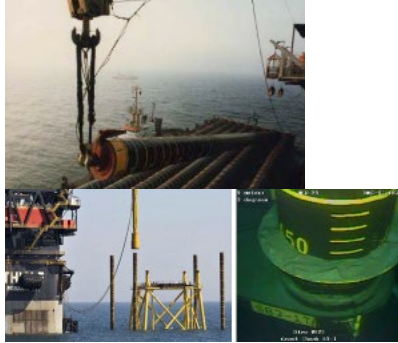
Parameter	Indicative Value
Jacket Foundation	
No of OSP jacket foundations	1
Piles OSP jacket	8

**Table 7.3.2b Installation methodology– OSP jacket installation**

Equipment / Vessel	Methodology
Step 1: Set up of vessel	
Barge with jacket and topside	
	<ul style="list-style-type: none"> <li>• Jacket delivered to site by towed barge.</li> <li>• Pin piles will be in the HLV</li> </ul>
Heavy Lift Vessel	
	<ul style="list-style-type: none"> <li>• Heavy Lift Vessel will arrive at the proposed foundation installation location and will position ready for operations.</li> </ul>
Step 2: Jacket lift and installation	
HLV (Semisubmersible Crane Vessel)	
	<ul style="list-style-type: none"> <li>• The lifting equipment will be connected to the jacket on the barge.</li> <li>• The temporary seafastenings will be released, and the jacket will be lifted on the vertical position.</li> <li>• The transport barge will cast away.</li> <li>• The jacket will be positioned and lowered to the seabed in preparation for pile installation and driving.</li> </ul>



### Step 3 Pile installation and driving



- The first 4 skirt piles will be lifted off, upended and stabbed. The remaining 4 will follow.
- The piles will be driven into the seabed to the desired depth using a hydraulic hammer.
- A soft start process (together with any additional mitigation required) will be undertaken before ramping up to the required hammer energy.
- Pile driving will be undertaken until pile refusal or the target penetration is reached.

### Step 4: Grouting



- Grout will be mixed using fresh water on board the installation vessel and stored in grout silos ready for use.
- Grout will be pumped into the joint between the jacket and the pile.
- The grout will cure and harden.
- Temporary support will be provided via pile grippers during the grout curing duration.

### Step 5: Completion and move out of vessel

The HLV will move out of location and will get ready for the installation of the topside.

The foundation will be surveyed to ensure integrity of the infrastructure.

#### **7.3.3 Mitigation and Good working Practices**

The mitigation and good working practices specific to the OSP jacket foundation installation will be embedded in the installation procedures. Specific measures related to the mitigation of underwater noise are identified and described in the ICO2-INT-EC-OFC-005-INC-STR-001 O&TI Piling Strategy. See Appendix I for a summary of mitigation and good working practices for this stage.



## 7.4 Stage 4: OSP Topside Installation

### 7.4.1 Introduction

The topside will be transported to site at the same time and on the same barge as the jacket. The table below shows the approximate duration of the installation activities

**Table 7.4.1 Overview of OSP topside installation**

<b>ACTIVITY</b>	<b>INDICATIVE DURATION</b>
STEP 1: Set up of vessel	1 day
STEP 2: Topside lift and installation	5 days
STEP 3: Post installation surveys	2 days
STEP 4: Completion and demob from site	1 day
STEP 5: OSP Commissioning	90 days

### 7.4.2 Key Parameters, Equipment and Methodology

The key parameters of the OSP and installation methodology are provided on the tables below.

**Table 7.4.2a Key parameters– OSP topside**

<b>Parameter</b>	<b>Indicative Value</b>
OSP topside	1
Length x width	46.50 m x 38.12 m
Maximum height including antenna on metemast (m above LAT)	43.155 m



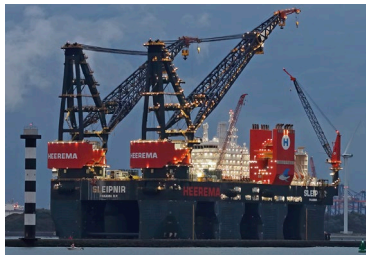
**Table 7.4.2b Installation methodology– OSP topside installation**

**Equipment / Vessel**

**Methodology**

**Step 1: Set up of vessel**

**Heavy Lift Vessel**



- Topside delivered to site by towed barge.
- Heavy Lift Vessel will arrive at jacket foundation location and will position ready for operations.

**Step 2: Topside lift and installation**

**HLV**



- OSP topside will be assembled prior to transporting to the installation location by barge.
- Temporary sea fastenings will be released and the HLV will lift the OSP topside onto pre-installed jacket foundation structure (see Stage 3).
- The welding of the topside legs to the jacket foundation substructure will then commence.

**Step 3: Post installation surveys**

The base of the jacket structure will be surveyed to ensure integrity of the infrastructure.



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**Equipment / Vessel**

**Methodology**

**Step 4: Completion and demob from site**

The HLV will leave the site tidy and will depart from site.

**Step 5: OSP Commissioning**

- The set up of several systems will be conducted at this stage: communications, fire-fighting, lighting, etc.).
- Commissioning of the OSP electrical systems.

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**7.4.3 Mitigation and Good Working Practices**

The mitigation and good working practices specific to the OSP jacket foundation installation are embedded in the specific consents plans and programmes and in the contractor's installation procedures. See Appendix I for a summary of mitigation and good working practices for this stage.



## 7.5 Stage 5: Export cable installation

### 7.5.1 Introduction

Prior to subtidal export cable installation, a pre-lay grapnel run (PLGR) will clear the seabed surface of obstacles within the first half metre depth of the seabed along each cable alignment. The PLGR will commence as close to MLWS as possible.

Each one of the two subsea export cables will be installed in three sections: Section 1 extending from the landfall up to approximately Kilometre Point (KP) 28; Section 2 extending from KP 28 up to KP 56; and Section 3 extending from KP 56 to the OSP. The KPs are indicative estimates, as these are subject to the final micro sitting, and the exact location of the joints between the sections will be known after installation.

Following cable lay, the export cables will be trenched or buried into the seabed to target depth varying from 0.35 m to 3.78 m, in line with the Cable Burial Risk Assessment.

The activities to be undertaken for installation each one of the export cables are described below.

**Table 7.5.1 Overview of Export Cable Installation**

<b>ACTIVITY</b>	<b>INDICATIVE DURATION</b>
STEP 1: Pre-lay grapnel run	6 weeks
STEP 2: Cable installation	8 weeks per circuit
STEP 3: Cable jointing	2 days
STEP 4: Cable burial and protection	12 weeks per circuit
STEP 5: Post installation surveys	2 weeks per circuit

### 7.5.2 Key Parameters, Equipment and Methodology


The key parameters for the export cables are provided in the table below. The Export Cable Plan (IC02-INT-EC-OFC-012-INC-PLA-002) provides full details on the location and installation techniques for the export cables, technical specification of the cables, details of the burial risk assessment and methodologies for monitoring the cables during the operational phase of the transmission infrastructure.



**Table 7.5.2a: Key Parameters – Export Cables**

<b>Parameter</b>	<b>Indicative Value</b>
<b>Export Cables</b>	
Length and weight	EC1: 85 km EC2: 85 Km in air approximately 137 kg/m in water approximately 88.0 kg/m
Outer diameter	283.2 mm
Burial depth	Target depth of lowering varies from 0.35 m to 3.78 m subject to further engineering
Width of trench	Jetting fluidised the seabed locally and does not produce a defined trench. 0.7 m in areas where a trench is required (pre-lay trenching) due to harder soil conditions
Width of seabed disturbance	20 m (+/- 10 m from RPL)
Cable voltage	220 kv
<b>Cable protection</b>	
Material (type)	Cable protection system, rock, rock bags / rock nets and concrete mattresses
EC crossings	Gas pipeline (KP 17) and 220 KV cable (KP 60)

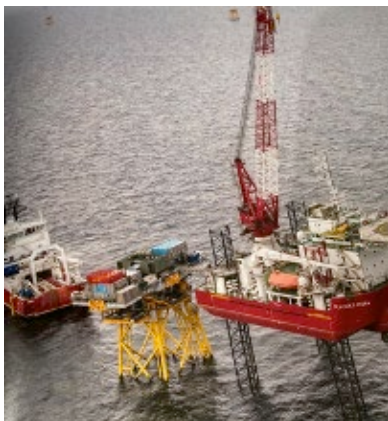
**Table 7.5.2b: Overview of Export Cables Installation**

Equipment / Vessel	Methodology
Step 1: Pre-lay grapnel run	
	<ul style="list-style-type: none"> <li>• The PLGR will commence as close to MLWS as possible.</li> <li>• The PLGR will clear the seabed surface of obstacles within the first half metre depth of the seabed.</li> <li>• The grapnel will be lowered over the vessel aft to the seabed. The vessel will move slowly over the export cable route.</li> <li>• The majority of debris encountered will be left to the side of the cable route. Larger debris (i.e. rock outcrops) will be left <i>insitu</i> and the cable route diverted around it.</li> <li>• Any debris to be recovered will be disposed of onshore in a licenced facility.</li> </ul>
Step 2: Cable installation (steps to be repeated for each export cable)	
<p>Each export cable consists of three sections. At the end of each section, the cable end will be temporarily left on the seabed, to allow the CLV to return to port to load the subsequent section, or to accommodate operational and programme constrains.</p> <p>The cable ends will be stabilised on the seabed with anchoring equipment or equivalent (anchors, clump weights, chain, rock bags / rock nets, or similar).</p> <p>Guard vessels will be used on the cable route during the installation period until the cable is buried and protected as required.</p>	

**Equipment / Vessel**

**Methodology**

**Connection of subtidal export cable to cable protection system containment at landfall**



- CLV will be loaded with cable at the manufacturing facility / storage port and will sail to site. (see step 5 of Stage 1 – landfall)
- Cable lay vessel to set up. Positioning in anchors may be required in the sections where water depth is not sufficient for DP operations.
- A dive team will be mobilised to prepare the cable protection system end at landfall and set up for cable pulling.
- A small boat will bring the winch wire from the CPS end to the CLV, and then the winch wire will be connected to the cable end.
- Divers will be used to clean the cable protection system exit point, install the bellmouth and facilitate the cable entering the CPS that is already pre-installed on the trenches.
- The cable will be winched through the cable protection system.

**Cable lay**

- A pre-lay survey will be conducted prior to cable lay.
- The cable will be surface laid between the cable protection system exit and the OSP. Alternatively, simultaneous laying and burial methods may also be used.
- See next section for cable jointing

**Cable Pull – in at the OSP**

- The cable protection system will be fitted to the OSP end cable onboard (it is also an option that the CPS may be pre-installed onto the j-tube).
- An ROV will recover the pre-installed messenger wire within the J-tube. The wire will be winched to deck and connected to the sealed cable end (if second option is followed then winch wire will be connected subsea and the cable will not be recovered to deck).
- The cable will be winched (pulled) into the OSP.
- Turn point anchors or similar equipment may be used at the OSP approach to pull in the cables.

Cable testing will be performed at various stages during the cable lay operations.

**Equipment / Vessel**

**Methodology**

**Step 3: Cable jointing**

Both export cables will require two joints each:

- The first cable end will be retrieved from the seabed by the installation vessel.
- Cable jointing will take place on board.
- The jointed cable will be then lowered to the seabed
- The 3 steps above will be repeated for the last joint.

**Step 4: Cable burial and cable protection**

**Concrete mattresses frame**



**Rock nets / bags**



**Fall pipe vessel**



- The export cable will be trenched into the seabed to target depth. Jet trenching is the primary method, however a cable plough for certain areas, mechanical cutting trenching and pre-lay trenching in other may be required in unfavourable seabed conditions.
- A jetting tool will inject water at high pressure onto the sediment surrounding the cable to temporarily fluidise it allowing the cable to sink and bury to the required depth.
- If target depth has not been reached a different tool (trench tool) and or a second pass will be completed.
- Where the cable has not reached the required burial depth rock may be deposited if deemed necessary after review of the specific risks to the cable.
- Pre – lay trenching, using mechanical trenching methods may be required at specific sections of the nearshore and close to the OSP, where harder ground conditions are expected.
- Concrete mattresses will be installed at the identified export cable crossings (2 off), cable joints and other locations, for cable protection system stabilisation, and where the cable could potentially be damaged or exposed by the environmental elements. Rock bags / rock nets may also be used in addition or instead of concrete mattresses. This will ensure additional protection.
- Stabilisation anchors, clump weighs, rock bags / rock nets (or similar) may be needed as temporary stabilisation materials during the cable installation process until the engineered cable protection is in place.
- Rock protection (by fall pipe vessel) vessel) will further protect any areas where the cable is deemed to be at risk and doesn't reach the required burial depth or has not been otherwise protected.



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**Equipment / Vessel**

**Methodology**

**Step 5: Post installation surveys**

- Immediately following installation, post installation surveys will be conducted to confirm target burial depths have been achieved or where cable protection measures will be required (as outlined above). During the period between the identification of the need for additional cable protection and completion of additional cable protection activities, guard vessels will be on site to inform other marine users of activities within the area.
- A further survey will be undertaken approximately 1-year post- installation to confirm the cables remain as installed. The frequency and scope of both this initial survey and further monitoring will be determined via a risk-based assessment which will provide a proportional indication of the risk of future cable exposure along the export cables corridor.

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**7.5.3 Mitigation and Good Working Practices**

The mitigation and good working practices specific to the export cable installation are embedded in the specific consents plans and programmes and in the contractor's installation procedures. See Appendix I for a summary of mitigation and good working practices for this stage.

## **7.6 Stage 6: Commissioning and Testing**

### **7.6.1 Introduction**

Following the construction of the OfTI elements, they will undergo commissioning and testing. These steps complete the commissioning phase of the Inch Cape project which is the handover of the project from the construction phase to the operational phase.

### **7.6.2 Mitigation and Good Working Practices**

All commissioning activities will be subject to an approved safe system of work.

The commissioning of the OWF and the Transmission Asset will be in accordance with approved commissioning procedures. This will be managed by the principal contractor(s) for construction of each project to the requirements of Inch Cape and the OFTO, where applicable. Commissioning activities will include the WTGs performance and reliability testing and compliance with the Grid code standard.

See Appendix I for a summary of mitigation and good working practices for this stage.



## 8 Construction Stages: Marine Licence Generation and Section 36 Consent

### 8.1 Stage 1: Seabed Clearance and Preparation

#### 8.1.1 Introduction

Seabed preparation activities are required in advance of foundation installation activities and inter array cable installation to identify and remove any boulders from the cable corridors ( +/- 50 m IAC ) and WTG foundations locations (200 m radius around the asset) and to identify and manage any unexploded ordnance (UXO) identified during the dedicated surveys. These activities are covered under additional licences (Boulder clearance and UXO identification; and UXO clearance marine licences) and will be conducted in advance of main offshore construction works on the windfarm area.

The tables below describe the activities to be conducted if required due to boulders still being present on the inter array cable routes and foundation locations at the time of installation.

**Table 8.1.1 Overview of Seabed preparation (if required)**

ACTIVITY	INDICATIVE DURATION
STEP 1: Seabed ROV survey	< 12 hours
STEP 2: Removal of boulders	< 12 hours

#### 8.1.2 Equipment and Methodology

The equipment and installation methodology are described on the table below. Please note these activities will be conducted in advance of the works, however they are also included in here just in case there is a need to remove further boulders at the time of installation.

**Table 8.1.2 Installation methodology– Seabed preparation**

Equipment / Vessel	Methodology
Step 1: Seabed ROV survey	
ROV	The ROV will survey the clear footprint of the foundation area and the IAC route to identify any remaining boulders or debris that could affect installation activities.





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**Equipment / Vessel**

**Methodology**

**Step 2: Removal of remaining boulders with Orange Peel Grab**

Orange Peel Grab



- May be deployed from CSV or similar vessel
- Deployment to relocate boulders if necessary

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**8.1.3 Mitigation and Good Working Practices**

The mitigation and good working practices specific to the Seabed Clearance and Preparation will be embedded in the seabed clearance procedures. See Appendix II for a summary of mitigation and good working practices for this stage.

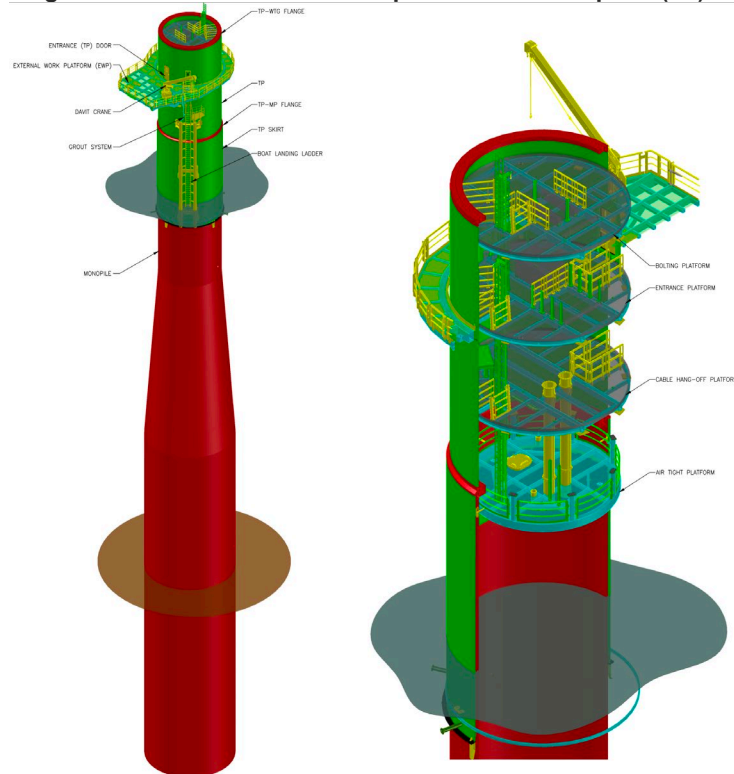


## 8.2 Stage 2: Foundation Monopile (and TP) Installation

### 8.2.1 Introduction

The Inch Cape project includes 54 monopiles WTG foundations. The monopiles and the transition pieces will be transported offshore to the windfarm area by the installation vessels. Specific measures related to the mitigation of underwater noise are identified and described in ICO2-INT-EC-OFC-005-INC-STR-002 Inch Cape GS Piling Strategy. Full details on the installation vessels are included in the Vessel Management and Navigation Safety Plan (VMNSP).

**Figure 8.2 Isometric view of monopile and transition piece (TP)**



Where scour protection is required, this will be achieved by rock placement around the foundation after installation. Rock placement will infill any scour pit which may have developed post-installation and will create a rock berm above seabed level. This will be designed to remain stable for the lifetime of the structure under all forms of predicted environmental loading. The rock placement will be achieved using a fall pipe vessel. Another option that is being considered is the use of *Fronid mats* (synthetic material) instead of rock, however the use of this material needs to be consented, and it is not at the time of submission of this document.

The table below shows an overview of the installation process.

**Table 8.2.1 Overview of monopile and TP installation**

<b>ACTIVITY</b>	<b>INDICATIVE DURATION</b>
STEP 1: Set up of vessel	< 12 hours
STEP 2: Monopile lift and upending	< 12 hours
STEP 3: Monopile lowering onto the seabed	< 4 hours
STEP 4: Monopile drive and installation	< 36 hours
STEP 5: Preparation for Transition Piece (TP) installation	< 18 hours
STEP 6: TP Installation	< 48 hours
STEP 7: Scour Protection Installation	< 12 hours
STEP 8: Survey	<12 hours

MP/ TP installation will not be carried out as one consecutive operation but will be carried out by two different contractors and thus there will be a break between MP and TP installation. The same applies to scour installation, which will be completed post MP installation.


### 8.2.2 Key Parameters, Equipment and Methodology

The table below show the key parameters and methodology of installation.

**Table 8.2.2a Monopile and TP Key parameters**

<b>Parameter</b>	<b>Indicative Value</b>
Number of monopile foundations	54
Average water depth at site	-50 m
Maximum water depth at site	-58.5 m
Maximum monopile diameter	< 12 m
Maximum monopile length	103 m
Maximum monopile Bottom Diameter	11.0/11.5 m
TP height	27.5 m
TP weight	700 t

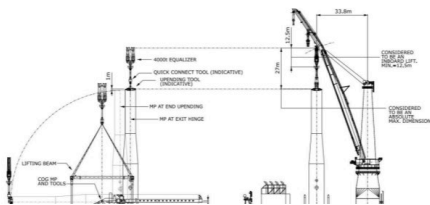
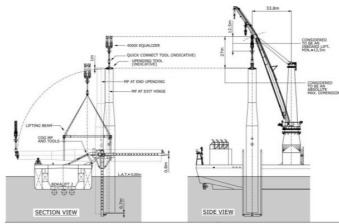
**Table 8.2.2b Monopile (and TP) installation**

Equipment / Vessel	Methodology
Step 1: Vessel set up	
Heavy Lift Vessel	<ul style="list-style-type: none"> <li>• Monopiles will be already onboard the installation vessel (5 off).</li> <li>• Heavy Lift Vessel will be at foundation location and will position ready for operations.</li> </ul>
Step 2: Monopile lift and upending	
	<ul style="list-style-type: none"> <li>• Monopiles will be transferred from the storage grillage to the upend lane using a spreader bar.</li> <li>• The flange lifting tool will be attached to the monopile.</li> <li>• The monopile will be lifted using the flange lifting tool (FLT). The tool connects to the monopile top flange.</li> <li>• The monopile – flange lifting tool will be lifted in the vertical upending configuration by the HLV main crane.</li> <li>• The monopile will be rotated from a horizontal position on deck to a vertical position using the pile upending hinge.</li> <li>• The pile griper will keep the pile stationary in the horizontal plane, compensating for vessel motions and environmental forces.</li> </ul>

**Equipment / Vessel**

**Methodology**

**Step 3: Monopile lowering onto the seabed**



- At the designated location the HLV main crane will upend the monopile.
- The monopile will be lowered by the crane to self-weight penetration depth.
- The installation tolerance relating to stabbing of the monopile will be checked
- The flange lifting tool will be removed

**Step 4: Monopile Drive and installation**



- The hammer will be rigged to the monopile and the pile will be driven into the seabed to the desired depth.
- Pile driving will be undertaken until pile refusal or the target penetration is reached.
- A soft start process (together with any additional mitigation required) will be undertaken before ramping up to the required hammer energy.
- After installation, the monopile will be fitted with a temporary frame with a construction light mounted.
- After monopile completions the HLV will move to the next location.

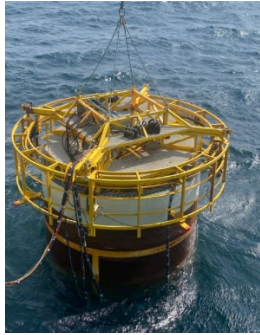


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**Equipment / Vessel**

**Methodology**

**Step 5: Preparation for Transition Piece (TP) installation**



- HLV at monopile position.
- The navigational structure will be removed.
- Monopile cleaning: marine growth will be removed using a high-water pressure multipurpose tool.

**Step 6: TP Installation**



- The TP will be lifted and installed onto the monopile using the vessel main crane.
- Access to the TP to conduct the bolting works will be done via compensated gangway.
- Grouting of the TP skirt to the monopile will be conducted. The grouting material will be mixed onboard the HLV.
- Once works completed the HLV will move to the next location.



**Equipment / Vessel**

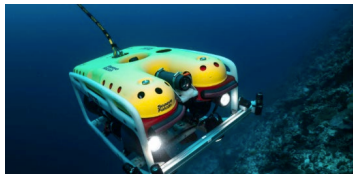
**Methodology**

**Step 7: Scour Protection Installation**



- Scour protection will be either in the form of rock using a fall pipe vessel, or
- Using frond mats installed from a construction support vessel (this is still TBC).
- Rock bags/ rock nets may be needed on certain locations prior to the frond mat installation.

**Step 8: Survey**



- Following installation, the foundation area and the base of the structure will be resurveyed to confirm the required coverage and rock profile / frond matts has been achieved.

**8.2.3 Mitigation and Good Working Practices**

The mitigation and good working practices specific to the monopile foundation installation will be embedded in the installation procedures. Specific measures related to the mitigation of underwater noise are identified and described in the ICO2-INT-EC-OFC-005-INC-STR-002 Inch Cape GS Piling Strategy. See Appendix II for a summary of mitigation and good working practices for this stage.



### 8.3 Stage 3: Jacket Foundation Installation

#### 8.3.1 Introduction

An overview of the jacket foundation installation process is provided within this section. The Jackets and piles will be delivered to the Port of Leith for storage. The HLV will load-out the Jackets and piles at the Port of Leith and transport and install these offshore. The jackets will transit to field one by one on the HLV.

**Table 8.3.1 Overview of jacket installation**

<b>ACTIVITY</b>	<b>INDICATIVE DURATION</b>
STEP 1: Set up of vessel and PPT deployment	< 24 hours
STEP 2: Pin pile installation	< 24 hours
STEP 3: Jacket Installation preparatory work	< 12 hours
STEP 4: Jacket lift and installation	7 days
STEP 5: Grouting	< 12 hours per pile
STEP 6: Completion and move out of HLV to the next location	< 12 hours

#### 8.3.2 Key Parameters, Equipment and Methodology – Jacket Foundations

The key parameters for the jacket foundations, equipment to be used and installation methodology are captured on the tables below

**Table 8.3.2a Key Parameters – Jacket Foundations**

<b>Parameter</b>	<b>Indicative Value</b>
<b>Jacket</b>	
Total number of jacket foundations	18
Maximum height	91 m
Footprint leg centre to centre	32 m
Weight	2,320 t
<b>Pin-pile dimensions</b>	
Length	45 m
Diameter	3.5 m



Parameter	Indicative Value
Unit weight	230 t max
Number of piles per jacket	3 (Totalling 54)
<b>TP Cover</b>	
Height	2 m
Diameter	8 m
Weight	2 t

Please note that the stages listed below are not concurrent

**Table 8.3.2b Installation Methodology Jacket Foundation**

Equipment / Vessel	Methodology
Step 1: Set up of vessel and Pre-piling template deployment	



- The HLV will arrive to the installation location with the pin piles loaded onboard and will position itself ready for operations.
- A pre-piling template (PPT) will be used to install the pin piles.
- The PPT will be deployed on the seabed at the installation location.



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**Equipment / Vessel**

**Methodology**

**Step 2: Pin pile installation**



- The pin piles will be lifted by the main crane using the internal lifting tool.
- Each pin pile (3 off) will be stabbed in the template to allow for self-weight penetration into the seabed.
- The hammer will be lifted onto each pile to commence piling operations.
- A soft start process (together with any additional mitigation required) will be undertaken before ramping up to the required hammer energy.

**Step 3: Jacket Installation preparatory work**



Soil plug remover tool (SPRT)

- A Construction support vessel will conduct soil plug removal activities on each pre-installed pile.
- The piles will be cleaned of marine growth using a high-pressure water jetting or brush type tool.

**Equipment / Vessel**

**Methodology**

**Step 4: Jacket lift and installation**



Jacket flange lifting tool (JFLT)

- Upon arrival at the location the HLV with the jacket onboard will position itself ready for installation.
- The jacket will be lifted and slewed overboard the vessel, where it will be lowered towards the pre-installed pin-piles

**Step 5: Grouting**



- The annulus between the piles and the jacket legs will be grouted.
- The grout will be mixed in the grout plant aboard the CSV, from where it will be pumped into the jacket. Pumping will continue until grout is overflowing from the top of the pile. (Observation from ROV).



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**Equipment / Vessel**

**Methodology**

Step 6: Completion and move out of HLV to the next location

All secondary works will be completed prior departure of the grouting CSV: removal of installation guides, jacket leg clamps, removal of waste, etc.

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**8.3.3 Mitigation and Good Working Practices**

The mitigation and good working practices specific to the monopile foundation installation will be embedded in the installation procedures. Specific measures related to the mitigation of underwater noise are identified and described in the ICO2-INT-EC-OFC-005-INC-STR-002 Inch Cape GS Piling Strategy. See Appendix II for a summary of mitigation and good working practices for this stage.



## 8.4 Stage 4: Inter-Array Cable Installation

### 8.4.1 Introduction

Inter-array cables connect the WTGs in a series of arrays or ‘strings’ and also provide the connection from the WTGs to the OSP. Inter-array cables will be trenched and buried in the seabed, to a target depth of at least 0.6 m to provide protection to the cables. This will be carried out by either a subsea jet trenching tool or an engineered rock placement solution where trenching to required depth has not been possible. An overview of the cable installation process and indicative durations is provided in Table 8.4.1.

**Table 8.4.1 Overview of inter-array cable installation**

ACTIVITY	INDICATIVE DURATION
STEP 1: Prey-lay grapnel run (PLGR)	< 2 weeks
STEP 2: Pre-lay survey	< 2 weeks
STEP 3: Cable installation (between WTG and WTG and OSP foundation)	24 hours
STEP 4: Cable burial / jet trenching and cable protection	24 hours
STEP 5: Post-lay survey	< 2 weeks

### 8.4.2 Key Parameters, Equipment and Methodology –


The key parameters for the inter-array cables, equipment and installation methodology are summarised on the tables below.

**Table 8.4.2a Key Parameters – Inter-Array Cables**

Parameter	Indicative Value
<b>Inter-Array Cables</b>	
Length and weight	153.4 km 5787 t
Burial depth	0.6 m
Width of trench	520 mm wide trench or 720 mm wide trench for various product sizes
Width of seabed disturbance	20 m (10 m each side of proposed route to allow for

Parameter	Indicative Value
	installation tolerances (+/- 5 m))
Cable voltage	66 kv
<b>Cable protection</b>	
Material (type)	Cable protection system, rock, rock bags / rock nets, and concrete mattresses
<b>Indicative cable protection volume</b>	2,000,000 m <sup>3</sup> (size range 15 – 200 millimetres)

Table 8.4.2b Overview of installation methodology

Equipment / Vessel	Methodology
Step 1: Pre-lay grapnel run (PLGR)	
	<ul style="list-style-type: none"> <li>The cable route will be cleared of any remaining obstructions by undertaking a pre-lay grapnel run (PLGR).</li> <li>The PLGR vessel will tow the grapnel rig along the centerline of the cable route with a tolerance of +/- 5 m. Any debris encountered will be recovered to the deck of the vessel for appropriate licensed</li> </ul>
Step 2: Pre-lay survey	

- An ROV deployed from the Cable Lay Vessel (CLV) will perform a pre-lay survey immediately prior to the cable installation operation.



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**Equipment / Vessel**

**Methodology**

**Step 3 (1): Cable installation (between WTG foundation – WTG foundation)**



- The CLV is pre-loaded with the inter-array subsea cable.
- Cables are surface laid between the WTGs.

**First end pull in (to foundation – all types):**

- The Cable Protection System (CPS) is fitted to the cable end on board the CLV.
- An ROV will recover a pre-installed messenger wire from the foundation. The wire will be winched to deck and connected to the CPS.
- The CLV will then pay out the cable, which is winched into the foundation.
- On completion of the route length, the end of the cable is then cut, sealed and prepared for second end installation operations.

The CPS may need to be stabilised. Permanent stabilisation is most likely to be by rock placement from fall pipe vessel but may be by rock bags. Any temporary stabilisation will most likely be by rock bags / rock nets.

Inter array cables may be temporarily wet stored on the cable corridor to allow operational and installation constraints.



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**Equipment / Vessel**

**Methodology**

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Cable quadrant

**Second end pull in (to foundation all types)**

- The CPS is fitted to the cut and sealed cable end on board the CLV.
- An ROV will recover a pre-installed messenger wire within the second foundation. The wire will be winched to deck and connected to the CPS. The cable and subsea quadrant are lowered overboard.
- The cable is fed through the into the foundation. The subsea quadrant is lowered as the cable is pulled into the foundation. Finally, the quadrant is tilted in order that the cable is laid to the seabed. The quadrant is retrieved, and final bight of cable is pulled into the foundation.
- Cable testing will be performed at various stages during the cable lay operations.
- The process is then repeated for the remaining inter-array cable lengths, connecting WTGs together in 'strings' and those strings of WTGs to the OSP.

The CPS may need to be stabilised. Permanent stabilisation is most likely to be by rock placement from fall pipe vessel but may be by rock bags. Any temporary stabilisation will most likely be by rock bags.

Inter array cables second end may be temporarily wet stored to allow operational and installation constraints.





### Equipment / Vessel

### Methodology

#### Step 3 (2): Cable installation between WTG foundation and OSP, where different to WTG to WTG

- Cables pull-in without the WTG in place is the preferred option, however, the cables pull-in to the WTG foundation may also be conducted when the WTG is in place
- All OSP pull-ins will be performed as “first end” as the OSP location is a congested area due to multiple cable approaches.

#### Step 4: Cable burial / jet trenching and cable protection



Water jetting seabed trencher (above)

Jet trenching and chain cutting hybrid tool (below)



- The inter-array cables are trenched into the seabed to the target depth (0.6 m) by a dedicated seabed trenching tool. It is anticipated that cable burial will be primarily achieved by the use of a water jetting, seabed trenching vehicle.
- Where jet-trenching is not possible due to the presence of stiff sediments, a hybrid tool capable of both chain cutting and jet trenching will be used.
- If target depth has not been reached, a second trenching pass will be completed to ensure the cable is adequately buried.
- An engineered cable protection solution will further protect any areas of cable not trenched to the required depth (armoring, concrete mattresses, or rock placement).

### 8.4.1 Mitigation and Good Working Practices

The mitigation and good working practices specific to the inter-array cable installation will be embedded in the installation procedures.

See Appendix II for a summary of mitigation and good working practices for this stage.



## 8.5 Stage 5: Wind Turbine Generator Installation

### 8.5.1 Introduction

This section covers the loading, transport and installation of components which form the WTGs. Major components include the tower, which is installed on top of the foundation, the nacelle, which supports the rotor, and the three individual blades which form the rotor. All components will be loaded onto the installation vessel and transported by sea to the Inch Cape OWF Project site. It is envisaged a maximum of four WTGs (and associated tools) can be transported at any one time however there is a possibility this may increase. An overview of the installation process and durations is provided in Table 8.5.1 below.

**Table 8.5.1 Overview of WTG installation**

<b>ACTIVITY</b>	<b>INDICATIVE DURATION</b>
STEP 1: Quayside delivery of main components	24 hours
STEP 2: Loading of installation vessels	52 hours per 4 WTGs
STEP 3: Transport to OWF site and jack up of installation vessel	11 hours
STEP 4: Installation of tower onto transition piece	
STEP 5: Installation of nacelle onto tower	26 hours
STEP 6: Installation of blades on to nacelle hub	
STEP 7: Completion of erection	
STEP 8: Secure crane, jack down, relocation & jack up, release of crane	9 hours

### 8.5.2 Key Parameters, Equipment and Methodology –

The key parameters equipment and methodology to install the WTGs is described on the tables below.

**Table 8.5.2a Key parameters WTG**

<b>Parameter</b>	<b>Indicative Value</b>
<b>General</b>	
Rated power	15 MW
Grid frequency	50 Hz
Tip speed	104 m/s



<b>Parameter</b>	<b>Indicative Value</b>
Minimum spacing between WTGs	Internal grid 1236 m Dense border 1025 m
<b>Blades</b>	
Number of blades	216 (3 per WTG times 72 WTGs)
Blade Length	115.5 m
Minimum Blade Tip Clearance (above LAT)	37.6 m
<b>Rotor</b>	
Rotor diameter	236 m
<b>Nacelle</b>	
Overall dimensions for nacelle/hub/helihoist platform, cooler top and yaw interface section (H x W x L) With folded wind sensors the width is 12 m	10.7m x 14m x 27.5m
<b>Towers</b>	
Number of towers	72 (one per turbine)
Standard bottom diameter (outside)	8 m
Hub height:	MP/TP: 155.6 m Jacket: 159.9m
Total tower height	MP/TP: 127.4 m Jacket: 123.6 m

**Table 8.5.2 b WTG installation methodology**

Equipment / Vessel	Methodology
Step 1: Quayside delivery of main components	



- The towers, blades and nacelles will be transported from the assembly area to the installation vessel on the quayside by a self-propelled modular transporter (SPMT).

Step 2: Loading of installation vessels	
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- Components, equipment and tools will be loaded on to the installation vessel and fasted to ensure secure transit to site.
- Each tower loadout is split in two lifts and final the final assembly is conducted onboard.
- Blades will be stacked in a blade rack system.
- The nacelles (with hub) will be supported by a transport frame.
- The installation vessel will transport 4 sets of WTG components and associated equipment per round trip.



## Equipment / Vessel

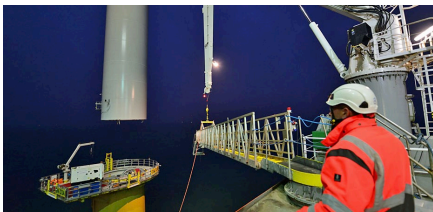
## Methodology

### Step 3: Transport to OWF site and jack up of installation vessel



- The installation vessel will jack-up at the WTG foundation location and gangway will be installed from the vessel to the foundation transition piece.
- The TP cover will be removed (MP/TP)

### Step 4: Installation of tower onto transition piece



- The tower will be lifted on to the transition piece and secured

### Step 5: Installation of nacelle onto tower



- The nacelle is lifted and positioned on to the tower, bolted and secured.
- At some locations a passive tower damper will be removed prior to installing the nacelle.



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**Equipment / Vessel**

**Methodology**

**Step 6: Installation of blades on to nacelle hub**



- Each blade will be fitted and installed individually.
- The nacelle hub will be rotated and positioned so that each blade can be installed at a horizontal angle.
- Blades will be lifted from the installation vessel to the WTG.
- Once the blade is positioned adjacent to the blade bearing, it will be secured, and the blade yoke released and detached.

**Step 7: Completion of erection**

- The installation process will be completed.

**Step 8: Secure crane, jack down, relocation & jack up, release of crane**

- Once the WTG has been installed, the installation vessel will jack-down and move to the next foundation location, where the same installation process will be followed
- When all WTGs on board the vessel have been installed, the installation vessel will return to reload with other WTGs and the installation process will be repeated.

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**8.5.3 Mitigation and Good Working Practices**

The mitigation and good working practices specific to the WTG installation will be embedded in the Contractor's installation procedures. See Appendix II for a summary of mitigation and good working practices for this stage.



## **8.6 Stage 6: Wind Farm Electrical Connection and Commissioning**

Following construction of the Inch Cape OWF, the project will undergo energisation, reliability testing and take-over certification. Commissioning will be complete following:

- Mechanical commissioning;
- High voltage (HV) terminations;
- Electrical commissioning; and
- Commissioning completion.

These steps will complete the commissioning of the Inch Cape OWF which signifies the transition to the operational phase.

### **8.6.1 Mitigation and Good Working Practices**

All commissioning activities will be subject to an approved safe system of work, including the WTG performance and reliability testing and compliance with the Grid code standard (source: ES 5.198); and the commissioning of the Wind Farm and the Transmission Asset will be in accordance with approved commissioning procedures. This will be managed by the principal contractor(s) for construction of each project to the requirements of Inch Cape and the OFTO, where applicable.

Commissioning activities will include the WTGs performance and reliability testing and compliance with the Grid code standard.

See Appendix II for a summary of mitigation and good working practices for this stage.



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## **APPENDIX I MITIGATION AND GOOD WORKING PRACTICES OFTI MARINE LICENCE**

Construction Phase / Activity	Aspects assessed / included in Application EIA	Summary of mitigations / good practice	Source	ICOL Documentation
<b>Stage 1 - Pre-install landfall cable protections system up to MHWS</b>	Other Marine users	Vessel transit planning - Transit routes selected and agreed with local fishing industry and other local marine users to minimise disturbance Weekly notice of operations and notices to mariners issued by Marine Coordination Centre (MCC) Appropriate marking and lighting of construction areas, vessels and assets Commercial fisheries relations management, and management of fisheries interactions Fisheries Liaison Officer (FLO) to manage local communication with fishers ICOL participate in Commercial Fisheries Working Group (CFWG)	EIAR 2018 Chapter 14 EIAR 2018 Chapter 15 EIAR 2018 Chapter 12	VM&NSP FMMS LMP
	Marine Archaeology	ICOL PAD will be onboard vessel and followed by all Contractors Pre-construction geophysical surveys have been and will continue to be carried out Micrositing will be carried out to avoid archaeology AEZs established to ensure vessels / assets do not damage known -archaeological constraints Vessels will have Archaeological Exclusion Zones (AEZs) within navigation systems Archaeological Clerk of Works (ACoW) will be in place to advise should any unknown archaeological items be found	EIAR 2018 Chapter 13	PAD
	Marine species	Scottish Marine Wildlife Watching Code (SMWWC) to be followed by all vessel personnel Topic will be included in Contractor inductions / Tool Box Talks (TBT) European Protected Species (EPS) licence will be in place	EIAR 2018 Chapter 10 EIAR 2018 Chapter 11	CEMP
	UXO	If UXO found, all relevant works will be ceased Engage with UXO specialist company for safe handling and disposal	EIAR 2018 Chapter 10 General good practice / statutory requirements MARPOL	CEMP/ERP
	Marine Pollution Prevention and Contingency Planning	Vessel Contractors will adhere to ICOL CEMP and MPCP Spill and communication drills will be conducted on each vessel Oil spill response procedures will be in place Spills to sea will be prevented by use of containment, bunding, proper storage and refuelling procedures No bunkering of vessel fuel at sea Reporting of environmental incidents to ICOL and Regulators will be as per agreed / standard protocols	EIAR 2018 Chapter 7	CEMP & MPCP
	Emergency Response	ICOL Emergency Response Plan will be adhered to by all Contractors Emergency response and safety and environmental management bridging documents will be in place for each vessel and approved by ICOL ICOL ERCoP will be adhered to by all Contractors	EIAR 2018 Chapter 15	ERCoP

Construction Phase / Activity	Aspects assessed / included in Application EIAR	Summary of mitigations / good practice	Source	ICOL Documentation
	Chemical use	Chemicals used in the undertaking of the works will be notified / approved by MD-LOT prior to use where required Control of Substances Hazardous to Health (COSHH) assessments will be in place for all chemicals used and suitable chemical handling and storage arrangements will be put in place accordingly Chemical use will be monitored by the Contractors Deliberate discharge of surplus / waste chemicals to sea will not be allowed All chemicals will be returned to a licensed facility onshore for disposal Spills will be reported as per agreed / standard protocols	General good practice / statutory requirements	CEMP & MPCP
	Fuel oil and vessel lubrication fluids	Vessel bunkering conducted at port only Fuel oil management measures on all vessels will comply with MARPOL Annex I and Annex VI	General good practice / statutory requirements MARPOL	CEMP & MPCP
	Bundling and storage	All contractors to ensure suitable bunding and storage facilities are in place to prevent the release of fuel oils and lubricant fluids associated with the works, plant and equipment into the marine environment Fuel oil spill procedures will be in place Reporting of environmental incidents to ICOL and Regulators will be as per agreed / standard protocols	General good practice / statutory requirements MARPOL	CEMP & MPCP
	Marine Invasive non-native species	Vessel anti-fouling system declarations will be in place Vessel will have a bio-fouling management plan and bio-fouling record book	Merchant Shipping (anti-fouling systems) Regulations 2009 Resolution MEPC. 207(62) 2011 Guidelines for the Control and Management of Ships Bio-Fouling to Minimise the Transfer of Invasive Aquatic Species  EIAR 2018 Chapter 15	CEMP
	Waste Management	All Contractors to comply with ICOL Waste Management Plan All vessels will comply with MARPOL Annex IV & V and UK Merchant Shipping Regulations No incineration of waste will be permitted All waste will be disposed of onshore at a licensed facility	General good practice / statutory requirements MARPOL Merchant Shipping Regulations Waste Management Licensing (Scotland) Regulations as amended 2011	CEMP

Construction Phase / Activity	Aspects assessed / included in Application EIAR	Summary of mitigations / good practice	Source	ICOL Documentation
	Commercial Fisheries	FLO will be in place and on vessels when required All Contractors will comply with the ICOL FMMS Vessel transit planning - Transit routes selected and agreed with local fishing industry and other local marine users to minimise disturbance. All incidents involving fishing vessels and gear will be reported as environmental incidents and resolved as per ICOL FMMS and CEMP All disruption to fishing activities will be managed as per ICOL FMMS	EIAR Chapter 14	CEMP FMMS
	Dropped Objects	Dropped object prevention and awareness campaigns will be conducted Dropped objects will be reported as per agreed protocols Dropped objects will be retrieved (if possible) under the relevant marine licensing exemption	EIAR 2018 Chapter 15	CEMP
	Seabed Deposits	Contractors will log all items deposited on the seabed as part of the works, both permanent and temporary deposits	EIAR 2018 Chapter 7	CEMP
	Cable trenching / burial	Cable burial depths will be as detailed in ICOL (Export Cable) EC Plan Cable protection systems will be as described in ICOL EC Plan As built information will be supplied to the UKHO to update Admiralty Charts Agreements in place with MCA / NLB around any lowering of water depth >5%	EIAR 2018 Chapter 7 EIAR 2018 Chapter 14 EIAR 2018 Chapter 15	CEMP EC Cable Plan FMMS
<b>Stage 2 - Seabed Preparation</b>	Other Marine users	Vessel transit planning - Transit routes selected and agreed with fishing industry and other marine users to minimise disturbance All contractor / subcontractor vessels to adhere to agreed transit routes Any necessary deviation from transit routes will be agreed with MCC and FLO Adoption of safety zones Works will be marked and lit in accordance to approved LMP ICOL MCC in operation Weekly notice of operations and notices to mariners issued by MCC Appropriate marking and lighting of construction areas, vessels and assets Commercial fisheries relations management, and management of fisheries interactions FLO on board vessels as required ICOL participate in CFWG	EIAR 2018 Chapter 14 EIAR 2018 Chapter 15 EIAR 2018 Chapter 12	VM&NSP FMMS LMP
	Marine Archaeology	ICOL PAD will be onboard vessel and followed by all Contractors Pre-construction geophysical surveys have been and will continue to be carried out Micrositing will be carried out to avoid archaeology AEZs established to ensure vessels / assets do not damage known -archaeological constraints Vessels will have AEZs within navigation systems Archaeological Clerk of Works (ACoW) will be in place to advise should any unknown archaeological items be found	EIAR 2018 Chapter 13	PAD

Construction Phase / Activity	Aspects assessed / included in Application EIAR	Summary of mitigations / good practice	Source	ICOL Documentation
	Marine Species	SMWWC to be followed by all vessel personnel Topic will be included in Contractor inductions / TBTs Marine mammal sightings reported in vessel DPRs EPS licence will be in place	EIAR 2018 Chapter 10 EIAR 2018 Chapter 11	CEMP
	UXO	If UXO found, all relevant works will be ceased Engage with UXO specialist company for safe handling and disposal	EIAR 2018 Chapter 10 General good practice / statutory requirements MARPOL	CEMP/ERP
	Marine Pollution Prevention and Contingency Planning	Vessel Contractors will adhere to ICOL CEMP and MPCP Spill and communication drills will be conducted on each vessel Oil spill response procedures will be in place ICOL to engage a retained tier 2 spill contractor Spills to sea will be prevented by use of containment, bunding, proper storage and refuelling procedures No bunkering of vessel fuel at sea Reporting of environmental incidents to ICOL and Regulators will be as per agreed / standard protocols	EIAR 2018 Chapter 7	CEMP & MPCP
	Emergency Response	ICOL Emergency Response Plan will be adhered to by all Contractors Emergency response and safety and environmental management bridging documents will be in place for each vessel and approved by ICOL ICOL ERCoP will be adhered to by all Contractors	EIAR 2018 Chapter 15	ERCoP
	Chemical use	Chemicals used in the undertaking of the works will be notified / approved by MD-LOT prior to use where required COSHH assessments will be in place for all chemicals used and suitable chemical handling and storage arrangements will be put in place accordingly Chemical use will be monitored by the Contractors Deliberate discharge of surplus / waste chemicals to sea will not be allowed. All chemicals will be returned to a licensed facility onshore for disposal. Spills will be reported as per agreed / standard protocols	General good practice / statutory requirements	CEMP & MPCP
	Fuel oil and vessel lubrication fluids	Vessel bunkering conducted at port only. Fuel oil management measures on all vessels will comply with MARPOL Annex I and Annex VI	General good practice / statutory requirements MARPOL	CEMP & MPCP
	Bunding and storage	All contractors to ensure suitable bunding and storage facilities are in place to prevent the release of fuel oils and lubricant fluids associated with the works, plant and equipment into the marine environment Fuel oil spill procedures will be in place Reporting of environmental incidents to ICOL and Regulators will be as per agreed / standard protocols	General good practice / statutory requirements MARPOL	CEMP & MPCP

Construction Phase / Activity	Aspects assessed / included in Application EIAR	Summary of mitigations / good practice	Source	ICOL Documentation
	Marine Invasive non-native species	Vessel anti-fouling system declarations will be in place Vessel will have a bio-fouling management plan and bio-fouling record book	Merchant Shipping (anti-fouling systems) Regulations 2009 Resolution MEPC. 207(62) 2011 Guidelines for the Control and Management of Ships Bio-Fouling to Minimise the Transfer of Invasive Aquatic Species EIAR 2028 Chapter 15	CEMP
	Waste Management	All Contractors to comply with ICOL Waste Management Plan All vessels will comply with MARPOL Annex IV & V and UK Merchant Shipping Regulations No incineration of waste will be permitted All waste will be disposed of onshore at a licensed facility	General good practice / statutory requirements MARPOL Merchant Shipping Regulations Waste Management Licensing (Scotland) Regulations as amended 2011	CEMP
	Commercial Fisheries	FLO / OFLO will be in place and on vessels when required All Contractors will comply with the ICOL FMMS All Contractors to comply with transit planning requirements as per FMMS and VM&NSP All incidents involving fishing vessels and gear will be reported as environmental incidents and resolved as per ICOL FMMS and CEMP All disruption to fishing activities will be managed as per ICOL FMMS	EIAR Chapter 14	CEMP FMMS VM&NSP
	Dropped Objects	Dropped object prevention and awareness campaigns will be conducted Dropped objects will be reported as per agreed protocols Dropped objects will be retrieved (if possible) under the relevant marine licensing exemption	EIAR 2018 Chapter 15	CEMP

Construction Phase / Activity	Aspects assessed / included in Application EIA	Summary of mitigations / good practice	Source	ICOL Documentation
<b>Stage 3 - OSP Jacket Foundation Installation</b>	Other Marine users	Vessel transit planning - Transit routes selected and agreed with fishing industry and other marine users to minimise disturbance. All contractor / subcontractor vessels to adhere to agreed transit routes. Any necessary deviation from transit routes will be agreed with MCC and FLO. Adoption of safety zones. Works will be marked and lit in accordance to approved LMP ICOL MCC in operation. Weekly notice of operations and notices to mariners issued by MCC. Appropriate marking and lighting of construction areas, vessels and assets. Commercial fisheries relations management, and management of fisheries interactions FLO on board vessels as required ICOL participate in CFWG As built information will be supplied to the UKHO to update Admiralty Charts	EIA 2018 Chapter 14 EIA 2018 Chapter 15 EIA 2018 Chapter 12	VM&NSP FMMS LMP
	Marine Archaeology	ICOL PAD will be onboard vessel and followed by all Contractors Pre-construction geophysical surveys have been and will continue to be carried out Micrositing will be carried out to avoid archaeology AEZs established to ensure vessels / assets do not damage known -archaeological constraints Vessels will have AEZs within navigation systems Archaeological Clerk of Works (ACoW) will be in place to advise should any unknown archaeological items be found	EIA 2018 Chapter 13	PAD
	Marine Species	ICOL OfTI Piling strategy will be on board vessel and followed by the Piling Contractor ADD will be deployed ahead of piling activities in line with Piling Strategy requirements Piling commences using soft start procedure as detailed in Piling Strategy SMWWC to be followed by all vessel personnel EPS licence will be in place	EIA 2018 Chapter 10 EIA 2018 Chapter 9 EIA 2018 Chapter 11	OfTI Piling Strategy CEMP
	Marine Pollution Prevention and Contingency Planning	Vessel Contractors will adhere to ICOL CEMP and MPCP Spill and communication drills will be conducted on each vessel Oil spill response procedures will be in place ICOL to engage a retained tier 2 spill contractor Spills to sea will be prevented by use of containment, bunding, proper storage and refuelling procedures No bunkering of vessel fuel at sea Reporting of environmental incidents to ICOL and Regulators will be as per agreed / standard protocols	EIA 2018 Chapter 7	CEMP & MPCP
	Emergency Response	ICOL Emergency Response Plan will be adhered to by all Contractors Emergency response and safety and environmental management bridging documents will be in place for each vessel and approved by ICOL ICOL ERCoP will be adhered to by all Contractors	EIA 2018 Chapter 15	ERCoP



Construction Phase / Activity	Aspects assessed / included in Application EIA	Summary of mitigations / good practice	Source	ICOL Documentation
	Chemical use	Chemicals used in the undertaking of the works will be notified / approved by MD-LOT prior to use where required Control of Substances Hazardous to Health (COSHH) assessments will be in place for all chemicals used and suitable chemical handling and storage arrangements will be put in place accordingly Chemical use will be monitored by the Contractors Deliberate discharge of surplus / waste chemicals to sea will not be allowed. All chemicals will be returned to a licensed facility onshore for disposal. Spills will be reported as per agreed / standard protocols	General good practice / statutory requirements	CEMP & MPCP
	Fuel oil and vessel lubrication fluids	Vessel bunkering conducted at port only. Fuel oil management measures on all vessels will comply with MARPOL Annex I and Annex VI	General good practice / statutory requirements MARPOL	CEMP & MPCP
	Bunding and storage	All contractors to ensure suitable bunding and storage facilities are in place to prevent the release of fuel oils and lubricant fluids associated with the works, plant and equipment into the marine environment Fuel oil spill procedures will be in place Reporting of environmental incidents to ICOL and Regulators will be as per agreed / standard protocols	General good practice / statutory requirements MARPOL	CEMP & MPCP
	Marine Invasive non-native species	Vessel anti-fouling system declarations will be in place Vessel will have a bio-fouling management plan and bio-fouling record book Where applicable, vessels will have an approved Ballast Water and Sediments Management Plan and a Ballast Water Record Book Where applicable, vessels will have compliant ballast water treatment systems	Merchant Shipping (anti-fouling systems) Regulations 2009 Resolution MEPC. 207(62) 2011 Guidelines for the Control and Management of Ships Bio-Fouling to Minimise the Transfer of Invasive Aquatic Species EIA 2028 Chapter 15 International Convention for the Control and Management of Ships Ballast Water and Sediments (BWM) 2004	CEMP
	Waste Management	All Contractors to comply with ICOL Waste Management Plan All vessels will comply with MARPOL Annex IV & V and UK Merchant Shipping Regulations No incineration of waste will be permitted All waste will be disposed of onshore at a licensed facility	General good practice / statutory requirements MARPOL Merchant Shipping Regulations Waste Management Licensing (Scotland) Regulations as amended 2011	CEMP

Construction Phase / Activity	Aspects assessed / included in Application EIAR	Summary of mitigations / good practice	Source	ICOL Documentation
	Commercial Fisheries	FLO / OFLO will be in place and on vessels when required All Contractors will comply with the ICOL FMMS All Contractors to comply with transit planning requirements as per FMMS and VM&NSP All incidents involving fishing vessels and gear will be reported as environmental incidents and resolved as per ICOL FMMS and CEMP All disruption to fishing activities will be managed as per ICOL FMMS	EIAR Chapter 14	CEMP FMMS VM&NSP
	Seabed Deposits	Contractors will log all items deposited on the seabed as part of the works, both permanent and temporary deposits	EIAR 2018 Chapter 7	CEMP EC Cable Plan
	Dropped Objects	Dropped object prevention and awareness campaigns will be conducted Dropped objects will be reported as per agreed protocols Dropped objects will be retrieved (if possible) under the relevant marine licensing exemption	EIAR 2018 Chapter 15	CEMP ERP
	Fluorinated Greenhouse Gases	F-Gas Regulations will be adhered to by Contractor vessels Any incidents involving F-Gases will be reported to ICOL and the Regulator as per agreed procedures / protocols	EIAR 2018 Chapter 7 Regulation number 517/2014 of the European Parliament and of the Council of 16 April 2014 on Fluorinated Greenhouse Gases (F-Gas Regulations)	CEMP
<b>Stage 4 - OSP Topside Installation</b>	Other Marine users	Vessel transit planning - Transit routes selected and agreed with fishing industry and other marine users to minimise disturbance. All contractor / subcontractor vessels to adhere to agreed transit routes. Any necessary deviation from transit routes will be agreed with MCC and FLO. Adoption of safety zones. Works will be marked and lit in accordance to approved LMP ICOL MCC in operation. Weekly notice of operations and notices to mariners issued by MCC. Appropriate marking and lighting of construction areas, vessels and assets. Commercial fisheries relations management, and management of fisheries interactions FLO on board vessels as required ICOL participate in CFWG	EIAR 2018 Chapter 14 EIAR 2018 Chapter 15 EIAR 2018 Chapter 12	VM&NSP FMMS LMP
	Marine Species	SMWWC to be followed by all vessel personnel Topic will be included in Contractor inductions / TBTs Marine mammal sightings reported in vessel DPRs EPS licence will be in place	EIAR 2018 Chapter 10 EIAR 2018 Chapter 11	OSP Piling Strategy CEMP

Construction Phase / Activity	Aspects assessed / included in Application EIAR	Summary of mitigations / good practice	Source	ICOL Documentation
	Marine Pollution Prevention and Contingency Planning	Vessel Contractors will adhere to ICOL CEMP and MPCP Spill and communication drills will be conducted on each vessel Oil spill response procedures will be in place ICOL to engage a retained tier 2 spill contractor Spills to sea will be prevented by use of containment, bunding, proper storage and refuelling procedures No bunkering of vessel fuel at sea Reporting of environmental incidents to ICOL and Regulators will be as per agreed / standard protocols	EIAR 2018 Chapter 7	CEMP & MPCP
	Emergency Response	ICOL Emergency Response Plan will be adhered to by all Contractors Emergency response and safety and environmental management bridging documents will be in place for each vessel and approved by ICOL ICOL ERCoP will be adhered to by all Contractors	EIAR 2018 Chapter 15	ERCoP
	Chemical use	Chemicals used in the undertaking of the works will be notified / approved by MD-LOT prior to use where required Control of Substances Hazardous to Health (COSHH) assessments will be in place for all chemicals used and suitable chemical handling and storage arrangements will be put in place accordingly Chemical use will be monitored by the Contractors Deliberate discharge of surplus / waste chemicals to sea will not be allowed. All chemicals will be returned to a licensed facility onshore for disposal. Spills will be reported as per agreed / standard protocols	General good practice / statutory requirements	CEMP & MPCP
	Fuel oil and vessel lubrication fluids	Vessel bunkering conducted at port only Fuel oil management measures on all vessels will comply with MARPOL Annex I and Annex VI	General good practice / statutory requirements MARPOL	CEMP & MPCP
	Bunding and storage	All contractors to ensure suitable bunding and storage facilities are in place to prevent the release of fuel oils and lubricant fluids associated with the works, plant and equipment into the marine environment Fuel oil spill procedures will be in place Reporting of environmental incidents to ICOL and Regulators will be as per agreed / standard protocols	General good practice / statutory requirements MARPOL	CEMP & MPCP

Construction Phase / Activity	Aspects assessed / included in Application EIAR	Summary of mitigations / good practice	Source	ICOL Documentation
	Marine Invasive non-native species	Vessel anti-fouling system declarations will be in place Vessel will have a bio-fouling management plan and bio-fouling record book Where applicable, vessels will have an approved Ballast Water and Sediments Management Plan and a Ballast Water Record Book Where applicable, vessels will have compliant ballast water treatment systems	Merchant Shipping (anti-fouling systems) Regulations 2009 Resolution MEPC. 207(62) 2011 Guidelines for the Control and Management of Ships Bio-Fouling to Minimise the Transfer of Invasive Aquatic Species EIAR 2028 Chapter 15 International Convention for the Control and Management of Ships Ballast Water and Sediments (BWM) 2004	CEMP
	Waste Management	All Contractors to comply with ICOL Waste Management Plan All vessels will comply with MARPOL Annex IV & V and UK Merchant Shipping Regulations No incineration of waste will be permitted All waste will be disposed of onshore at a licensed facility	General good practice / statutory requirements MARPOL Merchant Shipping Regulations Waste Management Licensing (Scotland) Regulations as amended 2011	CEMP
	Commercial Fisheries	FLO / OFLO will be in place and on vessels when required All Contractors will comply with the ICOL FMMS All Contractors to comply with transit planning requirements as per FMMS and VM&NSP All incidents involving fishing vessels and gear will be reported as environmental incidents and resolved as per ICOL FMMS and CEMP All disruption to fishing activities will be managed as per ICOL FMMS	EIAR Chapter 14	CEMP FMMS VM&NSP
	Dropped Objects	Dropped object prevention and awareness campaigns will be conducted Dropped objects will be reported as per agreed protocols Dropped objects will be retrieved (if possible) under the relevant marine licensing exemption	EIAR 2018 Chapter 15	CEMP ERP
	Seabed Deposits	Contractors will log all items deposited on the seabed as part of the works, both permanent and temporary deposits	EIAR 2018 Chapter 7	CEMP

Construction Phase / Activity	Aspects assessed / included in Application EIAR	Summary of mitigations / good practice	Source	ICOL Documentation
<b>Stage 5 - Export Cable Installation</b>	Other Marine users	Vessel transit planning - Transit routes selected and agreed with fishing industry and other marine users to minimise disturbance. All contractor / subcontractor vessels to adhere to agreed transit routes. Any necessary deviation from transit routes will be agreed with MCC an FLO. Adoption of safety zones. Works will be marked and light in accordance to approved LMP ICOL MCC in operation. Weekly notice of operations and notices to mariners issued by MCC. Appropriate marking and lighting of construction areas, vessels and assets. Commercial fisheries relations management, and management of fisheries interactions FLO on board vessels as required ICOL participate in CFWG	EIAR 2018 Chapter 14 EIAR 2018 Chapter 15 EIAR 2018 Chapter 12	VM&NSP FMMS LMP
	Marine Species	SMWWC to be followed by all vessel personnel Topic will be included in Contractor inductions / TBTs Marine mammal sightings reported in vessel DPRs EPS licence will be in place	EIAR 2018 Chapter 10 EIAR 2018 Chapter 11	CEMP
	Marine Archaeology	ICOL PAD will be onboard vessel and followed by all Contractors Pre-construction geophysical surveys have been and will continue to be carried out Micrositing will be carried out to avoid archaeology AEZs established to ensure vessels / assets do not damage known -archaeological constraints Vessels will have AEZs within navigation systems Archaeological Clerk of Works (ACoW) will be in place to advise should any unknown archaeological items be found	EIAR 2018 Chapter 13	PAD
	Marine Pollution Prevention and Contingency Planning	Vessel Contractors will adhere to ICOL CEMP and MPCP Spill and communication drills will be conducted on each vessel Oil spill response procedures will be in place ICOL to engage a retained tier 2 spill contractor Spills to sea will be prevented by use of containment, bunding, proper storage and refuelling procedures No bunkering of vessel fuel at sea Reporting of environmental incidents to ICOL and Regulators will be as per agreed / standard protocols	EIAR 2018 Chapter 7	CEMP & MPCP
	Emergency Response	ICOL Emergency Response Plan will be adhered to be all Contractors Emergency response and safety and environmental management bridging documents will be in place for each vessel and approved by ICOL ICOL ERCoP will be adhered to by all Contractors	EIAR 2018 Chapter 15	ERCoP

Construction Phase / Activity	Aspects assessed / included in Application EIA	Summary of mitigations / good practice	Source	ICOL Documentation
	Chemical use	Chemicals used in the undertaking of the works will be notified / approved by MD-LOT prior to use where required Control of Substances Hazardous to Health (COSHH) assessments will be in place for all chemicals used and suitable chemical handling and storage arrangements will be put in place accordingly Chemical use will be monitored by the Contractors Deliberate discharge of surplus / waste chemicals to sea will not be allowed. All chemicals will be returned to a licensed facility onshore for disposal. Spills will be reported as per agreed / standard protocols	General good practice / statutory requirements	CEMP & MPCP
	Fuel oil and vessel lubrication fluids	Vessel bunkering conducted at port only. Fuel oil management measures on all vessels will comply with MARPOL Annex I and Annex VI	General good practice / statutory requirements MARPOL	CEMP & MPCP
	Bunding and storage	All contractors to ensure suitable bunding and storage facilities are in place to prevent the release of fuel oils and lubricant fluids associated with the works, plant and equipment into the marine environment Fuel oil spill procedures will be in place Reporting of environmental incidents to ICOL and Regulators will be as per agreed / standard protocols	General good practice / statutory requirements MARPOL	CEMP & MPCP
	Marine Invasive non-native species	Vessel anti-fouling system declarations will be in place Vessel will have a bio-fouling management plan and bio-fouling record book Where applicable, vessels will have an approved Ballast Water and Sediments Management Plan and a Ballast Water Record Book Where applicable, vessels will have compliant ballast water treatment systems	Merchant Shipping (anti-fouling systems) Regulations 2009 Resolution MEPC. 207(62) 2011 Guidelines for the Control and Management of Ships Bio-Fouling to Minimise the Transfer of Invasive Aquatic Species EIA 2028 Chapter 15 International Convention for the Control and Management of Ships Ballast Water and Sediments (BWM) 2004	CEMP

Construction Phase / Activity	Aspects assessed / included in Application EIAR	Summary of mitigations / good practice	Source	ICOL Documentation
	Waste Management	All Contractors to comply with ICOL Waste Management Plan All vessels will comply with MARPOL Annexe IV & V and UK Merchant Shipping Regulations No incineration of waste will be permitted All waste will be disposed of onshore at a licensed facility	General good practice / statutory requirements MARPOL Merchant Shipping Regulations Waste Management Licensing (Scotland) Regulations as amended 2011	CEMP
	Commercial Fisheries	FLO / OFLO will be in place and on vessels when required All Contractors will comply with the ICOL FMMS All Contractors to comply with transit planning requirements as per FMMS and VM&NSP All incidents involving fishing vessels and gear will be reported as environmental incidents and resolved as per ICOL FMMS and CEMP All disruption to fishing activities will be managed as per ICOL FMMS	EIAR Chapter 14	CEMP FMMS VM&NSP
	Dropped Objects	Dropped object prevention and awareness campaigns will be conducted Dropped objects will be reported as per agreed protocols Dropped objects will be retrieved (if possible) under the relevant marine licensing exemption	EIAR 2018 Chapter 15	CEMP ERP
	Cable trenching / burial	Cable burial depths will be as detailed in ICOL EC Plan Cable protection systems will be as described in ICOL EC Plan As built information will be supplied to the UKHO to update Admiralty Charts Agreements in place with MCA / NLB around any lowering of water depth >5%	EIAR 2018 Chapter 7 EIAR 2018 Chapter 14 EIAR 2018 Chapter 15	CEMP EC Plan FMMS
<b>Stage 6 - Commissioning and Testing</b>	Other Marine users	Vessel transit planning - Transit routes selected and agreed with fishing industry and other marine users to minimise disturbance. All contractor / subcontractor vessels to adhere to agreed transit routes. Any necessary deviation from transit routes will be agreed with MCC and FLO. Adoption of safety zones. Works will be marked and lit in accordance to approved LMP ICOL MCC in operation. Weekly notice of operations and notices to mariners issued by MCC. Appropriate marking and lighting of construction areas, vessels and assets. Commercial fisheries relations and management of fisheries interactions FLO on board vessels as required ICOL participate in CFWG	EIAR 2018 Chapter 14 EIAR 2018 Chapter 15 EIAR 2018 Chapter 12	VM&NSP FMMS LMP

Construction Phase / Activity	Aspects assessed / included in Application EIAR	Summary of mitigations / good practice	Source	ICOL Documentation
	Marine Species	SMWWC to be followed by all vessel personnel	EIAR 2018 Chapter 10 EIAR 2018 Chapter 11	CEMP
	Marine Pollution Prevention and Contingency Planning	Vessel Contractors will adhere to ICOL CEMP and MPCP Spill and communication drills will be conducted on each vessel Oil spill response procedures will be in place ICOL to engage a retained tier 2 spill contractor Spills to sea will be prevented by use of containment, bunding, proper storage and refuelling procedures No bunkering at sea Reporting of environmental incidents to ICOL and Regulators will be as per agreed / standard protocols	EIAR 2018 Chapter 7	CEMP & MPCP
	Emergency Response	ICOL Emergency Response Plan will be adhered to by all Contractors Emergency response and safety and environmental management bridging documents will be in place for each vessel and approved by ICOL ICOL ERCoP will be adhered to by all Contractors	EIAR 2018 Chapter 15	ERCoP
	Chemical use	Chemicals used in the undertaking of the works will be notified / approved by MD-LOT prior to use where required Control of Substances Hazardous to Health (COSHH) assessments will be in place for all chemicals used and suitable chemical handling and storage arrangements will be put in place accordingly Chemical use will be monitored by the Contractors Deliberate discharge of surplus / waste chemicals to sea will not be allowed. All chemicals will be returned to a licensed facility onshore for disposal. Spills will be reported as per agreed / standard protocols	General good practice / statutory requirements	CEMP & MPCP
	Fuel oil and vessel lubrication fluids	Vessel bunkering conducted at port only. Fuel oil management measures on all vessels will comply with MARPOL Annex I and Annex VI	General good practice / statutory requirements MARPOL	CEMP & MPCP
	Bunding and storage	All contractors to ensure suitable bunding and storage facilities are in place to prevent the release of fuel oils and lubricant fluids associated with the works, plant and equipment into the marine environment Fuel oil spill procedures will be in place Reporting of environmental incidents to ICOL and Regulators will be as per agreed / standard protocols	General good practice / statutory requirements MARPOL	CEMP & MPCP
	Marine Invasive non-native species	Vessel anti-fouling system declarations will be in place Vessel will have a bio-fouling management plan and bio-fouling record book	Merchant Shipping (anti-fouling systems) Regulations 2009 Resolution MEPC. 207(62) 2011 Guidelines for the Control and Management of Ships Bio-Fouling to Minimise	CEMP



Construction Phase / Activity	Aspects assessed / included in Application EIAR	Summary of mitigations / good practice	Source	ICOL Documentation
			the Transfer of Invasive Aquatic Species EIAR 2028 Chapter 15	
	Waste Management	All Contractors to comply with ICOL Waste Management Plan All vessels will comply with MARPOL Annex IV & V and UK Merchant Shipping Regulations No incineration of waste will be permitted All waste will be disposed of onshore at a licensed facility	General good practice / statutory requirements MARPOL Merchant Shipping Regulations Waste Management Licensing (Scotland) Regulations as amended 2011	CEMP
	Commercial Fisheries	FLO / OFLO will be in place and on vessels when required All Contractors will comply with the ICOL FMMS All Contractors to comply with transit planning requirements as per FMMS and VM&NSP All incidents involving fishing vessels and gear will be reported as environmental incidents and resolved as per ICOL FMMS and CEMP All disruption to fishing activities will be managed as per ICOL FMMS	EIAR Chapter 14	CEMP FMMS VM&NSP
	Dropped Objects	Dropped object prevention and awareness campaigns will be conducted Dropped objects will be reported as per agreed protocols Dropped objects will be retrieved (if possible) under the relevant marine licensing exemption	EIAR 2018 Chapter 15	CEMP ERP
	Fluorinated Greenhouse Gases	Any incidents involving F-Gases will be reported to ICOL and the Regulator as per agreed procedures / protocols	EIAR 2018 Chapter 7 Regulation number 517/2014 of the European Parliament and of the Council of 16 April 2014 on Fluorinated Greenhouse Gases (F-Gas Regulations)	CEMP



**APPENDIX II MITIGATION AND GOOD WORKING PRACTICES**  
**SECTION 36 AND GENERATION MARINE LICENCE**

Construction Phase / Activity	Aspects assessed / included in Application EIAR	Summary of mitigations / good practice	Source	ICOL Documentation
<b>Stage 1 - Seabed clearance and Preparation</b>	Other Marine users	Vessel transit planning - Transit routes selected and agreed with fishing industry and other marine users to minimise disturbance. All contractor / subcontractor vessels to adhere to agreed transit routes. Any necessary deviation from transit routes will be agreed with MCC and FLO. Adoption of safety zones. Works will be marked and lit in accordance to approved LMP ICOL MCC in operation. Weekly notice of operations and notices to mariners issued by MCC. Appropriate marking and lighting of construction areas, vessels and assets. Commercial fisheries relations management, and management of fisheries interactions FLO on board vessels as required ICOL participate in CFWG	EIAR 2018 Chapter 14 EIAR 2018 Chapter 15 EIAR 2018 Chapter 12	VM&NSP FMMS LMP
	Marine Archaeology	ICOL PAD will be onboard vessel and followed by all Contractors Pre-construction geophysical surveys have been and will continue to be carried out Micrositing will be carried out to avoid archaeology AEZs established to ensure vessels / assets do not damage known -archaeological constraints Vessels will have AEZs within navigation systems Archaeological Clerk of Works (ACoW) will be in place to advise should any unknown archaeological items be found	EIAR 2018 Chapter 13	PAD
	Marine Species	SMWWC to be followed by all vessel personnel Topic will be included in Contractor inductions / TBTs Marine mammal sightings reported in vessel DPRs EPS licence will be in place	EIAR 2018 Chapter 10 EIAR 2018 Chapter 11	CEMP
	UXO	If UXO found, all relevant works will be ceased Engage with UXO specialist company for safe handling and disposal	EIAR 2018 Chapter 10 General good practice / statutory requirements MARPOL	EMP/ERP
	Marine Pollution Prevention and Contingency Planning	Vessel Contractors will adhere to ICOL CEMP and MPCP Spill and communication drills will be conducted on each vessel Oil spill response procedures will be in place ICOL to engage a retained tier 2 spill contractor Spills to sea will be prevented by use of containment, bunding, proper storage and refuelling procedures No bunkering of vessel fuel at sea Reporting of environmental incidents to ICOL and Regulators will be as per agreed / standard protocols	EIAR 2018 Chapter 7	CEMP & MPCP

Construction Phase / Activity	Aspects assessed / included in Application EIA	Summary of mitigations / good practice	Source	ICOL Documentation
	Emergency Response	ICOL Emergency Response Plan will be adhered to by all Contractors Emergency response and safety and environmental management bridging documents will be in place for each vessel and approved by ICOL ICOL ERCoP will be adhered to by all Contractors	EIA 2018 Chapter 15	ERCoP
	Chemical use	Chemicals used in the undertaking of the works will be notified / approved by MD-LOT prior to use where required Control of Substances Hazardous to Health (COSHH) assessments will be in place for all chemicals used and suitable chemical handling and storage arrangements will be put in place accordingly Chemical use will be monitored by the Contractors Deliberate discharge of surplus / waste chemicals to sea will not be allowed. All chemicals will be returned to a licensed facility onshore for disposal. Spills will be reported as per agreed / standard protocols	General good practice / statutory requirements	CEMP & MPCP
	Fuel oil and vessel lubrication fluids	Vessel bunkering conducted at port only. Fuel oil management measures on all vessels will comply with MARPOL Annex I and Annex VI	General good practice / statutory requirements MARPOL	CEMP & MPCP
	Bunding and storage	All contractors to ensure suitable bunding and storage facilities are in place to prevent the release of fuel oils and lubricant fluids associated with the works, plant and equipment into the marine environment Fuel oil spill procedures will be in place Reporting of environmental incidents to ICOL and Regulators will be as per agreed / standard protocols	General good practice / statutory requirements MARPOL	CEMP & MPCP
	Marine Invasive non-native species	Vessel anti-fouling system declarations will be in place Vessel will have a bio-fouling management plan and bio-fouling record book	Merchant Shipping (anti-fouling systems) Regulations 2009 Resolution MEPC. 207(62) 2011 Guidelines for the Control and Management of Ships Bio-Fouling to Minimise the Transfer of Invasive Aquatic Species EIA 2018 Chapter 15	CEMP
	Waste Management	All Contractors to comply with ICOL Waste Management Plan All vessels will comply with MARPOL Annex IV & V and UK Merchant Shipping Regulations No incineration of waste will be permitted All waste will be disposed of onshore at a licensed facility	General good practice / statutory requirements MARPOL Merchant Shipping Regulations Waste Management Licensing (Scotland) Regulations as amended 2011	CEMP

Construction Phase / Activity	Aspects assessed / included in Application EIAIAR	Summary of mitigations / good practice	Source	ICOL Documentation
	Commercial Fisheries	FLO / OFLO will be in place and on vessels when required All Contractors will comply with the ICOL FMMS All Contractors to comply with transit planning requirements as per FMMS and VM&NSP All incidents involving fishing vessels and gear will be reported as environmental incidents and resolved as per ICOL FMMS and CEMP All disruption to fishing activities will be managed as per ICOL FMMS	EIAIAR Chapter 14	CEMP FMMS VM&NSP
	Dropped Objects	Dropped object prevention and awareness campaigns will be conducted Dropped objects will be reported as per agreed protocols Dropped objects will be retrieved (if possible) under the relevant marine licensing exemption	EIAIAR 2018 Chapter 15	CEMP
Stage 2 - Monopile Foundation Installation Stage 3 - Jacket Foundation Installation	Other Marine users	Vessel transit planning - Transit routes selected and agreed with fishing industry and other marine users to minimise disturbance. All contractor / subcontractor vessels to adhere to agreed transit routes. Any necessary deviation from transit routes will be agreed with MCC and FLO. Adoption of safety zones. Works will be marked and lit in accordance to approved LMP ICOL MCC in operation. Weekly notice of operations and notices to mariners issued by MCC. Appropriate marking and lighting of construction areas, vessels and assets. Commercial fisheries relations management, and management of fisheries interactions FLO on board vessels as required ICOL participate in CFWG	EIAIAR 2018 Chapter 14 EIAIAR 2018 Chapter 15 EIAIAR 2018 Chapter 12	VM&NSP FMMS LMP
	Marine Archaeology	ICOL PAD will be onboard vessel and followed by all Contractors Pre-construction geophysical surveys have been and will continue to be carried out Micrositing will be carried out to avoid archaeology AEZs established to ensure vessels / assets do not damage known -archaeological constraints Vessels will have AEZs within navigation systems Archaeological Clerk of Works (ACoW) will be in place to advise should any unknown archaeological items be found	EIAIAR 2018 Chapter 13	PAD
	Marine Species	ICOL WTG Piling strategy will be on board vessel and followed by all Piling Contractors ADD will be deployed ahead of piling activities in line with ICOL WTG Piling Strategy requirements Piling commences using soft start procedure as detailed in ICOL WTG Piling Strategy MMO present Noise monitoring (TBC in WTG Piling Strategy) SMWWC to be followed by all vessel personnel EPS licence will be in place	EIAIAR 2018 Chapter 10 EIAIAR 2018 Chapter 9 EIAIAR 2018 Chapter 11	WTG Piling Strategy CEMP

Construction Phase / Activity	Aspects assessed / included in Application EIA	Summary of mitigations / good practice	Source	ICOL Documentation
	UXO	If UXO found, all relevant works will be ceased Engage with UXO specialist company for safe handling and disposal	EIAR 2018 Chapter 10	CEMP/ERP
	Marine Pollution Prevention and Contingency Planning	Vessel Contractors will adhere to ICOL CEMP and MPCP Spill and communication drills will be conducted on each vessel Oil spill response procedures will be in place ICOL to engage a retained tier 2 spill contractor Spills to sea will be prevented by use of containment, bunding, proper storage and refuelling procedures No bunkering of vessel fuel at sea Reporting of environmental incidents to ICOL and Regulators will be as per agreed / standard protocols	EIAR 2018 Chapter 7	CEMP & MPCP
	Emergency Response	ICOL Emergency Response Plan will be adhered to by all Contractors Emergency response and safety and environmental management bridging documents will be in place for each vessel and approved by ICOL ICOL ERCoP will be adhered to by all Contractors	EIAR 2018 Chapter 15	ERCoP
	Chemical use	Chemicals used in the undertaking of the works will be notified / approved by MD-LOT prior to use where required Control of Substances Hazardous to Health (COSHH) assessments will be in place for all chemicals used and suitable chemical handling and storage arrangements will be put in place accordingly Chemical use will be monitored by the Contractors Deliberate discharge of surplus / waste chemicals to sea will not be allowed. All chemicals will be returned to a licensed facility onshore for disposal. Spills will be reported as per agreed / standard protocols	General good practice / statutory requirements	CEMP & MPCP
	Fuel oil and vessel lubrication fluids	Vessel bunkering conducted at port only. Fuel oil management measures on all vessels will comply with MARPOL Annex I and Annex VI	General good practice / statutory requirements MARPOL	CEMP & MPCP
	Bunding and storage	All contractors to ensure suitable bunding and storage facilities are in place to prevent the release of fuel oils and lubricant fluids associated with the works, plant and equipment into the marine environment Fuel oil spill procedures will be in place Reporting of environmental incidents to ICOL and Regulators will be as per agreed / standard protocols	General good practice / statutory requirements MARPOL	CEMP & MPCP
	Marine Invasive non-native species	Vessel anti-fouling system declarations will be in place Vessel will have a bio-fouling management plan and bio-fouling record book Where applicable, vessels will have an approved Ballast Water and Sediments Management Plan and a Ballast Water Record Book Where applicable, vessels will have compliant ballast water treatment systems	Merchant Shipping (anti-fouling systems) Regulations 2009 Resolution MEPC. 207(62) 2011 Guidelines for the Control and Management of Ships Bio-Fouling to Minimise the Transfer of Invasive Aquatic Species EIAR 2018 Chapter 15 International Convention for the Control and Management of	CEMP

Construction Phase / Activity	Aspects assessed / included in Application EIA	Summary of mitigations / good practice	Source	ICOL Documentation
			Ships Ballast Water and Sediments (BWM) 2004	
	Waste Management	All Contractors to comply with ICOL Waste Management Plan All vessels will comply with MARPOL Annex IV & V and UK Merchant Shipping Regulations No incineration of waste will be permitted All waste will be disposed of onshore at a licensed facility	General good practice / statutory requirements MARPOL Merchant Shipping Regulations Waste Management Licensing (Scotland) Regulations as amended 2011	CEMP/ICOL Waste Management Plan
	Commercial Fisheries	FLO / OFLO will be in place and on vessels when required All Contractors will comply with the ICOL FMMS All Contractors to comply with transit planning requirements as per FMMS and VM&NSP All incidents involving fishing vessels and gear will be reported as environmental incidents and resolved as per ICOL FMMS and CEMP All disruption to fishing activities will be managed as per ICOL FMMS	EIA Chapter 14	CEMP FMMS VM&NSP
	Seabed Deposits	Contractors will log all items deposited on the seabed as part of the works	EIA 2018 Chapter 7	CEMP
	Dropped Objects	Dropped object prevention and awareness campaigns will be conducted Dropped objects will be reported as per agreed protocols Dropped objects will be retrieved (if possible) under the relevant marine licensing exemption	EIA 2018 Chapter 15	CEMP ERP
	Fluorinated Greenhouse Gases	F-Gas Regulations will be adhered to by Contractor vessels Any incidents involving F-Gases will be reported to ICOL and the Regulator as per agreed procedures / protocols	EIA 2018 Chapter 7 Regulation number 517/2014 of the European Parliament and of the Council of 16 April 2014 on Fluorinated Greenhouse Gases (F-Gas Regulations)	CEMP

Construction Phase / Activity	Aspects assessed / included in Application EIAIAR	Summary of mitigations / good practice	Source	ICOL Documentation
<b>Stage 4 - Inter-Array Cable Installation</b>	Other Marine users	Vessel transit planning - Transit routes selected and agreed with fishing industry and other marine users to minimise disturbance. All contractor / subcontractor vessels to adhere to agreed transit routes. Any necessary deviation from transit routes will be agreed with MCC and FLO. Adoption of safety zones. Works will be marked and lit in accordance to approved LMP ICOL MCC in operation. Weekly notice of operations and notices to mariners issued by MCC. Appropriate marking and lighting of construction areas, vessels and assets. Commercial fisheries relations management, and management of fisheries interactions FLO on board vessels as required ICOL participate in CFWG As built information will be supplied to the UKHO to update Admiralty Charts	EIAIAR 2018 Chapter 14 EIAIAR 2018 Chapter 15 EIAIAR 2018 Chapter 12	VM&NSP FMMS LMP
	Marine Archaeology	ICOL PAD will be onboard vessel and followed by all Contractors Pre-construction geophysical surveys have been and will continue to be carried out Micrositing will be carried out to avoid archaeology AEZs established to ensure vessels / assets do not damage known -archaeological constraints Vessels will have AEZs within nav systems Archaeological Clerk of Works (ACoW) will be in place to advise should any unknown archaeological items be found	EIAIAR 2018 Chapter 13	PAD
	Marine Species	SMWWC to be followed by all vessel personnel Topic will be included in Contractor inductions / TBTs Marine mammal sightings reported in vessel DPRs EPS licence will be in place	EIAIAR 2018 Chapter 10 EIAIAR 2018 Chapter 11	CEMP
	UXO	If UXO found, all relevant works will be ceased Engage with UXO specialist company for safe handling and disposal	EIAIAR 2018 Chapter 10	CEMP / ERP
	Marine Pollution Prevention and Contingency Planning	Vessel Contractors will adhere to ICOL CEMP and MPCP Spill and communication drills will be conducted on each vessel Oil spill response procedures will be in place ICOL to engage a retained tier 2 spill contractor Spills to sea will be prevented by use of containment, bunding, proper storage and refuelling procedures No bunkering of vessel fuel at sea Reporting of environmental incidents to ICOL and Regulators will be as per agreed / standard protocols	EIAIAR 2018 Chapter 7	CEMP & MPCP



Construction Phase / Activity	Aspects assessed / included in Application EIA	Summary of mitigations / good practice	Source	ICOL Documentation
	Emergency Response	ICOL Emergency Response Plan will be adhered to by all Contractors Emergency response and safety and environmental management bridging documents will be in place for each vessel and approved by ICOL ICOL ERCoP will be adhered to by all Contractors	EIA 2018 Chapter 15	ERCoP
	Chemical use	Chemicals used in the undertaking of the works will be notified / approved by MD-LOT prior to use where required Control of Substances Hazardous to Health (COSHH) assessments will be in place for all chemicals used and suitable chemical handling and storage arrangements will be put in place accordingly Chemical use will be monitored by the Contractors Deliberate discharge of surplus / waste chemicals to sea will not be allowed. All chemicals will be returned to a licensed facility onshore for disposal. Spills will be reported as per agreed / standard protocols	General good practice / statutory requirements	CEMP & MPCP
	Fuel oil and vessel lubrication fluids	Vessel bunkering conducted at port only. Fuel oil management measures on all vessels will comply with MARPOL Annex I and Annex VI	General good practice / statutory requirements MARPOL	CEMP & MPCP
	Bunding and storage	All contractors to ensure suitable bunding and storage facilities are in place to prevent the release of fuel oils and lubricant fluids associated with the works, plant and equipment into the marine environment Fuel oil spill procedures will be in place Reporting of environmental incidents to ICOL and Regulators will be as per agreed / standard protocols	General good practice / statutory requirements MARPOL	CEMP & MPCP
	Marine Invasive non-native species	Vessel anti-fouling system declarations will be in place Vessel will have a bio-fouling management plan and bio-fouling record book Where applicable, vessels will have an approved Ballast Water and Sediments Management Plan and a Ballast Water Record Book Where applicable, vessels will have compliant ballast water treatment systems	Merchant Shipping (anti-fouling systems) Regulations 2009 Resolution MEPC. 207(62) 2011 Guidelines for the Control and Management of Ships Bio-Fouling to Minimise the Transfer of Invasive Aquatic Species EIA 2018 Chapter 15 International Convention for the Control and Management of Ships Ballast Water and Sediments (BWM) 2004	CEMP
	Waste Management	All Contractors to comply with ICOL Waste Management Plan All vessels will comply with MARPOL Annex IV & V and UK Merchant Shipping Regulations No incineration of waste will be permitted All waste will be disposed of onshore at a licensed facility	General good practice / statutory requirements MARPOL Merchant Shipping Regulations Waste Management Licensing (Scotland) Regulations as amended 2011	CEMP

Construction Phase / Activity	Aspects assessed / included in Application EIA	Summary of mitigations / good practice	Source	ICOL Documentation
	Commercial Fisheries	FLO / OFLO will be in place and on vessels when required All Contractors will comply with the ICOL FMMS All Contractors to comply with transit planning requirements as per FMMS and VM&NSP All incidents involving fishing vessels and gear will be reported as environmental incidents and resolved as per ICOL FMMS and CEMP All disruption to fishing activities will be managed as per ICOL FMMS	EIA Chapter 14	CEMP FMMS VM&NSP
	Seabed Deposits	Contractors will log all items deposited on the seabed as part of the works, both permanent and temporary deposits	EIA 2018 Chapter 7	CEMP IAC Cable Plan
	Dropped Objects	Dropped object prevention and awareness campaigns will be conducted Dropped objects will be reported as per agreed protocols Dropped objects will be retrieved (if possible) under the relevant marine licensing exemption	EIA 2018 Chapter 15	CEMP ERP
	Cable / laying burial	Cable burial depths will be as detailed in ICOL IAC Cable Plan Cable protection systems will be as described in IAC Cable Plan Over trawl survey will be carried out after completion of works to assess snagging risks to fishers As built information will be supplied to the UKHO to update Admiralty Charts	EIA 2018 Chapter 7 EIA 2018 Chapter 14 EIA 2018 Chapter 15	CEMP IAC Cable Plan FMMS
<b>Stage 5 - Wind Turbine Generator Installation</b>	Other Marine users	Vessel transit planning - Transit routes selected and agreed with fishing industry and other marine users to minimise disturbance. All contractor / subcontractor vessels to adhere to agreed transit routes. Any necessary deviation from transit routes will be agreed with MCC and FLO. Adoption of safety zones. Works will be marked and lit in accordance to approved LMP ICOL MCC in operation. Weekly notice of operations and notices to mariners issued by MCC. Appropriate marking and lighting of construction areas, vessels and assets. Commercial fisheries relations management, and management of fisheries interactions FLO on board vessels as required ICOL participate in CFWG	EIA 2018 Chapter 14 EIA 2018 Chapter 15 EIA 2018 Chapter 12	VM&NSP FMMS LMP
	Marine Archaeology	ICOL PAD will be onboard vessel and followed by all Contractors Pre-construction geophysical surveys have been and will continue to be carried out Micrositing will be carried out to avoid archaeology AEZs established to ensure vessels / assets do not damage known -archaeological constraints Vessels will have AEZs within nav systems Archaeological Clerk of Works (ACoW) will be in place to advise should any unknown archaeological items be found	EIA 2018 Chapter 13	PAD

Construction Phase / Activity	Aspects assessed / included in Application EIA	Summary of mitigations / good practice	Source	ICOL Documentation
	Marine Species	SMWWC to be followed by all vessel personnel Topic will be included in Contractor inductions / TBTs Marine mammal sightings reported in vessel DPRs EPS licence will be in place	EIA 2018 Chapter 10 EIA 2018 Chapter 11	WTG Piling Strategy CEMP
	Marine Pollution Prevention and Contingency Planning	Vessel Contractors will adhere to ICOL CEMP and MPCP Spill and communication drills will be conducted on each vessel Oil spill response procedures will be in place ICOL to engage a retained tier 2 spill contractor Spills to sea will be prevented by use of containment, bunding, proper storage and refuelling procedures No bunkering of vessel fuel at sea Reporting of environmental incidents to ICOL and Regulators will be as per agreed / standard protocols	EIA 2018 Chapter 7	CEMP & MPCP
	Emergency Response	ICOL Emergency Response Plan will be adhered to by all Contractors Emergency response and safety and environmental management bridging documents will be in place for each vessel and approved by ICOL ICOL ERCoP will be adhered to by all Contractors	EIA 2018 Chapter 15	ERCoP
	Chemical use	Chemicals used in the undertaking of the works will be notified / approved by MD-LOT prior to use where required Control of Substances Hazardous to Health (COSHH) assessments will be in place for all chemicals used and suitable chemical handling and storage arrangements will be put in place accordingly Chemical use will be monitored by the Contractors Deliberate discharge of surplus / waste chemicals to sea will not be allowed. All chemicals will be returned to a licensed facility onshore for disposal. Spills will be reported as per agreed / standard protocols	General good practice / statutory requirements	CEMP & MPCP
	Fuel oil and vessel lubrication fluids	Vessel bunkering conducted at port only. Fuel oil management measures on all vessels will comply with MARPOL Annex I and Annex VI.	General good practice / statutory requirements MARPOL	CEMP & MPCP
	Bunding and storage	All contractors to ensure suitable bunding and storage facilities are in place to prevent the release of fuel oils and lubricant fluids associated with the works, plant and equipment into the marine environment Fuel oil spill procedures will be in place Reporting of environmental incidents to ICOL and Regulators will be as per agreed / standard protocols	General good practice / statutory requirements MARPOL	CEMP & MPCP

Construction Phase / Activity	Aspects assessed / included in Application EIAIAR	Summary of mitigations / good practice	Source	ICOL Documentation
	Marine Invasive non-native species	Vessel anti-fouling system declarations will be in place Vessel will have a bio-fouling management plan and bio-fouling record book Where applicable, vessels will have an approved Ballast Water and Sediments Management Plan and a Ballast Water Record Book Where applicable, vessels will have compliant ballast water treatment systems	Merchant Shipping (anti-fouling systems) Regulations 2009 Resolution MEPC. 207(62) 2011 Guidelines for the Control and Management of Ships Bio-Fouling to Minimise the Transfer of Invasive Aquatic Species EIAIAR 2028 Chapter 15 International Convention for the Control and Management of Ships Ballast Water and Sediments (BWM) 2004	CEMP
	Waste Management	All Contractors to comply with ICOL Waste Management Plan All vessels will comply with MARPOL Annex IV & V and UK Merchant Shipping Regulations No incineration of waste will be permitted All waste will be disposed of onshore at a licensed facility	General good practice / statutory requirements MARPOL Merchant Shipping Regulations Waste Management Licensing (Scotland) Regulations as amended 2011	CEMP
	Commercial Fisheries	FLO / OFLO will be in place and on vessels when required All Contractors will comply with the ICOL FMMS All Contractors to comply with transit planning requirements as per FMMS and VM&NSP All incidents involving fishing vessels and gear will be reported as environmental incidents and resolved as per ICOL FMMS and CEMP All disruption to fishing activities will be managed as per ICOL FMMS	EIAIAR Chapter 14	CEMP FMMS VM&NSP
	Dropped Objects	Dropped object prevention and awareness campaigns will be conducted Dropped objects will be reported as per agreed protocols Dropped objects will be retrieved (if possible) under the relevant marine licensing exemption	EIAIAR 2018 Chapter 15	CEMP ERP
	Fluorinated Greenhouse Gases	F-Gas Regulations will be adhered to by Contractor vessels Any incidents involving F-Gases will be reported to ICOL and the Regulator as per agreed procedures / protocols	EIAIAR 2018 Chapter 7 Regulation number 517/2014 of the European Parliament and of the Council of 16 April 2014 on Fluorinated Greenhouse Gases (F-Gas Regulations)	CEMP

Construction Phase / Activity	Aspects assessed / included in Application EIAIAR	Summary of mitigations / good practice	Source	ICOL Documentation
<b>Stage 6 - Wind Turbine Generator Electrical Commissioning</b>	Other Marine users	Vessel transit planning - Transit routes selected and agreed with fishing industry and other marine users to minimise disturbance. All contractor / subcontractor vessels to adhere to agreed transit routes. Any necessary deviation from transit routes will be agreed with MCC and FLO. Adoption of safety zones. Works will be marked and lit in accordance to approved LMP ICOL MCC in operation. Weekly notice of operations and notices to mariners issued by MCC. Appropriate marking and lighting of construction areas, vessels and assets. Commercial fisheries relations management, and management of fisheries interactions FLO on board vessels as required ICOL participate in CFWG	EIAIAR 2018 Chapter 14 EIAIAR 2018 Chapter 15 EIAIAR 2018 Chapter 12	VM&NSP FMMS LMP
	Marine Species	SMWWC to be followed by all vessel personnel	EIAIAR 2018 Chapter 10 EIAIAR 2018 Chapter 11	CEMP
	Marine Pollution Prevention and Contingency Planning	Vessel Contractors will adhere to ICOL CEMP and MPCP Spill and communication drills will be conducted on each vessel Oil spill response procedures will be in place ICOL to engage a retained tier 2 spill contractor Spills to sea will be prevented by use of containment, bunding, proper storage and refuelling procedures No bunkering of vessel fuel at sea Reporting of environmental incidents to ICOL and Regulators will be as per agreed / standard protocols	EIAIAR 2018 Chapter 7	CEMP & MPCP
	Emergency Response	ICOL Emergency Response Plan will be adhered to be all Contractors Emergency response and safety and environmental management bridging documents will be in place for each vessel and approved by ICOL ICOL ERCoP will be adhered to by all Contractors	EIAIAR 2018 Chapter 15	ERCoP

Construction Phase / Activity	Aspects assessed / included in Application EIAR	Summary of mitigations / good practice	Source	ICOL Documentation
	Chemical use	Chemicals used in the undertaking of the works will be notified / approved by MD-LOT prior to use where required Control of Substances Hazardous to Health (COSHH) assessments will be in place for all chemicals used and suitable chemical handling and storage arrangements will be put in place accordingly Chemical use will be monitored by the Contractors Deliberate discharge of surplus / waste chemicals to sea will not be allowed. All chemicals will be returned to a licensed facility onshore for disposal. Spills will be reported as per agreed / standard protocols	General good practice / statutory requirements	CEMP & MPCP
	Fuel oil and vessel lubrication fluids	Vessel bunkering conducted at port only. Fuel oil management measures on all vessels will comply with MARPOL Annex I and Annex VI	General good practice / statutory requirements MARPOL	CEMP & MPCP
	Bunding and storage	All contractors to ensure suitable bunding and storage facilities are in place to prevent the release of fuel oils and lubricant fluids associated with the works, plant and equipment into the marine environment Fuel oil spill procedures will be in place Reporting of environmental incidents to ICOL and Regulators will be as per agreed / standard protocols	General good practice / statutory requirements MARPOL	CEMP & MPCP
	Marine Invasive non-native species	Vessel anti-fouling system declarations will be in place Vessel will have a bio-fouling management plan and bio-fouling record book	Merchant Shipping (anti-fouling systems) Regulations 2009 Resolution MEPC. 207(62) 2011 Guidelines for the Control and Management of Ships Bio-Fouling to Minimise the Transfer of Invasive Aquatic Species EIAR 2028 Chapter 15	CEMP
	Waste Management	All Contractors to comply with ICOL Waste Management Plan All vessels will comply with MARPOL Annex IV & V and UK Merchant Shipping Regulations No incineration of waste will be permitted All waste will be disposed of onshore at a licensed facility	General good practice / statutory requirements MARPOL Merchant Shipping Regulations Waste Management Licensing (Scotland) Regulations as amended 2011	CEMP

Construction Phase / Activity	Aspects assessed / included in Application EIAIAR	Summary of mitigations / good practice	Source	ICOL Documentation
	Commercial Fisheries	FLO / OFLO will be in place and on vessels when required All Contractors will comply with the ICOL FMMS All Contractors to comply with transit planning requirements as per FMMS and VM&NSP All incidents involving fishing vessels and gear will be reported as environmental incidents and resolved as per ICOL FMMS and CEMP All disruption to fishing activities will be managed as per ICOL FMMS	EIAIAR Chapter 14	CEMP FMMS VM&NSP
	Dropped Objects	Dropped object prevention and awareness campaigns will be conducted Dropped objects will be reported as per agreed protocols Dropped objects will be retrieved (if possible) under the relevant marine licensing exemption	EIAIAR 2018 Chapter 15	CEMP ERP



## **APPENDIX III EXAMPLES OF CONTRACTOR COMPLIANCE MATRICES**



**EXPORT CABLE INSTALLATION CONTRACT**

CONSENT PLAN		Export Cable (ENSHORE)
IC02-INT-EC-OFC-014-INC-RPT-001	Air Traffic Control Radar Mitigation Scheme	
IC02-INT-EC-OFC-015-INC-PLA-001	Air Defence Radar Mitigation Scheme	
IC02-INT-EC-OFC-012-INC-PLA-001	Cable Plan - IAC	N
IC02-INT-EC-OFC-012-INC-PLA-002	Cable Plan- EC	Y
IC02-INT-EC-OFC-004-INC-PLA-001	Construction Method Statement	Y
IC02-INT-EC-OFC-004-INC-PRG-001	Construction Programme	Y
IC02-INT-EC-OFC-023-INC-PLA-001	Design Statement	
IC02-INT-EC-OFC-011-INC-PLA-001	Emergency Response Co-operation Plan	Y
IC02-INT-EC-OFC-007-INC-PLA-001	Construction Environmental Management Plan	Y
IC02-INT-EC-OFC-018-INC-STR-002	Fisheries Management and Mitigation Strategy	Y
IC02-INT-EC-OFC-013-INC-PLA-001	Lighting and Marking Plan	N
IC02-INT-EC-OFC-005-INC-STR-001	Pilling Strategy - OfTI	N
IC02-INT-EC-OFC-005-INC-STR-002	Pilling Strategy - GS	N
IC02-INT-EC-OFC-017-INC-PLA-001	Project Environmental Monitoring Plan - OfTI	
IC02-INT-EC-OFC-017-INC-PLA-002	Project Environmental Monitoring Plan - GS	
IC02-INT-EC-OFC-008-INC-PLA-001	Vessel Management Plan and Navigational Safety Plan	Y
IC02-INT-EC-OFC-021-INC-PLA-001	Protocol for Archaeological Discoveries	Y
IC02-INT-EC-OFC-006-INC-PLA-001	Development Specification and Layout Plan	

Y= YES

N= NO

A= AWARENESS

C- COMPLIANCE

	Export Cable (ENSHORE)
Cable Plan- EC	C
Construction Method Statement	C
Construction Programme	A
Emergency Response Co-operation Plan	C
Construction Environmental Management Plan	C
Fisheries Management and Mitigation Strategy	C
Vessel Management Plan and Navigational Safety Plan	C
Protocol for Archaeological Discoveries	C

<b>Consent Plans</b> (need to be signposted on Contractor documentation)	<b>Key Requirements</b> (to be embedded in Contractor documentation)	<b>Comments</b>
Cable Plan - Export	COMPLIANCE with sections: 4.4 Offshore Export Cable Installation methods 4.5 Cable Burial and Protection 5.1 Reporting Measures (support required for as-built information)	The installation methodology in the cable plan is high level. Contractor needs to ensure methodologies align, if not Contractor needs to advise ICOL asap so consent plan can be updated. Same applies to cable burial and protection.
Construction Method Statement (CMS)	COMPLIANCE with Sections: 4.16 Contractors 5.3 Good Working Practices 5.4 CDM Regulations 5.7 Training and Competency 5.8 Contractor and Subcontractor Obligations 7.2 Seabed Preparation 7.5 Export Cable Installation	If sections 7.2 and 7.5 do not align with Contractor methods/equipment Contractor needs to advise ICOL asap so this consent plan can be updated (linked with the row above)
Construction Programme (CoP)	AWARENESS of timing of the works / window for completion	
Emergency Response Co-operation Plan (ERCoP)	General AWARENESS and compliance with Sections: 2.1 Roles and Responsibilities of ICOL in an Emergency 2.2 Liaison Procedures between ICOL and HM Coastguard 2.3 Liaison Arrangements between ICOL and Police Scotland 3.4 Medical Advice/assistance 3.5 Drills 3.6 UXO and wreck materials located on or near OREIs 3.7 Counter Pollution 4 Support Arrangements 6.3.7 Safety Zones 6.7 Locating Aids used by Personnel of Vessels Working at the Site	This is a bridging document between ICOL and MCA. There are specific requirements that contractors need to comply with.  These requirements shall be included in the Contractor Emergency Response Plan and specific vessel bridging documents.

Construction Environmental Management Plan (CEMP)

COMPLIANCE with Sections:  
 2.2 Construction Management  
 2.3.14 Contractors Roles and Responsibilities  
 2.4.1 Contractor reporting  
 2.5 Env. Incidents and non-compliance reporting process  
 2.6 Environmental Risk Assessment  
 2.7 Environmental Competency Training and Awareness  
 2.8 Lessons learned  
 3.2 Marine Species (compliance with SMWWC)  
 3.3 Marine Archaeology  
 3.4 UXO  
 3.6 Marine Pollution Prevention and Contingency Planning  
 3.8 Chemical usage  
 3.9 Fuel Oil and Vessel Lubricating Fuels  
 3.10 Bunding and Storage  
 3.11 Marine Invasive Non-Native Species  
 3.13 Environmental Protection  
 3.14 Waste Management  
 3.15 Commercial Fisheries (OFLO provided by ICOL)  
 3. 16 Seabed Deposits  
 3.17 Fluorinated Greenhouse Gases  
 3.18 Other  
 4.3 Audits and Inspections  
 Appendix A Contractor deliverables (Contractor to provide info to PC for each item)  
 Appendix B Incident reporting (Contractor to include the flowcharts in Contractor vessel bridging documents)  
 Appendix E Marine Pollution Contingency Plan :  
 4 Pollution Incident Response Procedure  
 6 Environmental and Commercial Sensitivities  
 7.1 Selecting and Emergency Response Strategy  
 9 Training and Exercise Programme.

The Contractor shall write an Environmental Management Plan to detail the specific arrangements in place for the Contractor vessels/scope and provide records and other information as required to demonstrate compliance with each section.

The specific vessel bridging documents shall include the key requirements applicable to the vessel scope (including reporting templates and corresponding flow charts).

Fisheries Management and Mitigation Strategy (FMMS)

COMPLIANCE with Sections:  
 5 Fisheries overview (Contractor to have awareness)  
 6.2 Liaison Roles and Responsibilities  
 7.3.1 Code of Good Practice of Contracted Vessels  
 7.3.2 Transit Plan  
 Appendix 4 Onboard Fisheries Liaison

These requirements can be included with the Contractor Env. Management Plan and specific vessel bridging documents.

<p>Vessel Management Plan and Navigational Safety Plan (VM&amp;NSP)</p>	<p>"COMPLIANCE with Sections:          4.2 Radio and Radar Beacons          4.3 Guard Vessels          4.4 Construction Safety Zones          4.6 Navigable Depths          4.7 Cable Laying and other RAM Operations          5.7 RAM Operations          6.1 LNtM (Input required from Contractor)          6.3 UK Hydrographic Charts (Input required from Contractor)          6.6 UK Marine Reporting Requirements          8 Management and Coordination of Vessels          9 Types and specification of vessel (info provided to ICOL 5 working days in advance of vessel mobilisation)          11 Transit Route Corridors (also called Transit Plan on the FMMS)          12 Anchoring Areas</p>	<p>These requirements can be included with the Contractor Env. Management Plan and specific vessel bridging documents as applicable.</p>
<p>Protocol for Archaeological Discoveries (PAD)</p>	<p>COMPLIANCE with Sections:          4.6 Contractors and Subcontractors          6 Protocol for archaeological discoveries: Contractors to use/include the flow charts of Appendix B3 of the CEMP rather than the flowcharts of this Consent Plan)          Appendix A: AEZs</p>	<p>These requirements can be included with the Contractor Env. Management Plan and specific vessel bridging documents as applicable.</p>

**OSP JACKET & TOPSIDE INSTALLATION CONTRACT**

Consent Plan Title	Acronym	Hereema Marine Contractors (HMC)
Air Traffic Control Radar Mitigation Scheme	ATC	
Air Defence Radar Mitigation Scheme	ADR	
Cable Plan - IAC	CaP - IAC	N
Cable Plan- EC	CaP - EC	N
Construction Method Statement	CMS	Y
Construction Programme	CoP	Y
Design Statement	DS	
Emergency Response Co-operation Plan	ERCoP	Y
Construction Environmental Management Plan	CEMP	Y
Fisheries Management and Mitigation Strategy	FMMS	Y
Lighting and Marking Plan	LMP	Y
Pilling Strategy - OfTI	PS-OfTI	Y
Pilling Strategy - GS	PS-GS	N
Project Environmental Monitoring Plan - OfTI	PEMP-OfTI	
Project Environmental Monitoring Plan - GS	PEMP-GS	
Vessel Management Plan and Navigational Safety Plan	VMP & NSP	Y
Protocol for Archaeological Discoveries	PAD	Y
Development Specification and Layout Plan	DSLPL	

	HMC
Construction Method Statement	C
Construction Programme	A
Emergency Response Co-operation Plan	C
Construction Environmental Management Plan	C
Fisheries Management and Mitigation Strategy	C
Lighting and Marking Plan	C
Pilling Strategy - OfTI	C
Vessel Management Plan and Navigational Safety Plan	C
Protocol for Archaeological Discoveries	C

<b>Consent Plans</b> <b>(need to be signposted on Contractor documentation)</b>	<b>Key Requirements</b> <b>(to be embedded in Contractor documentation)</b>	<b>Comments</b>
Construction Method Statement (CMS)	COMPLIANCE with Sections: 4.16 Contractors 5.3 Good Working Practices 5.4 CDM Regulations 5.7 Training and Competency 5.8 Contractor and Subcontractor Obligations 7.3 OSP Jacket foundation substructure 7.4 OSP Topside installation	If sections 7.3 and 7.4 do not align with Contractor methods/equipment Contractor needs to advise ICOL asap so this consent plan can be updated
Construction Programme (CoP)	AWARENESS of timing of the works / window for completion	
Emergency Response Co-operation Plan (ERCoP)	General AWARENESS and compliance with Sections: 2.1 Roles and Responsibilities of ICOL in an Emergency 2.2 Liaison Procedures between ICOL and HM Coastguard 2.3 Liaison Arrangements between ICOL and Police Scotland 3.4 Medical Advice/assistance 3.5 Drills 3.6 UXO and wreck materials located on or near OREIs 3.7 Counter Pollution 4 Support Arrangements 6.3.7 Safety Zones 6.7 Locating Aids used by Personnel of Vessels Working at the Site	This is a bridging document between ICOL and MCA. There are specific requirements that contractors need to comply with.  These requirements shall be included in the Contractor Emergency Response Plan and specific vessel bridging documents.
Construction Environmental Management Plan (CEMP)	COMPLIANCE with Sections: 2.2 Construction Management 2.3.14 Contractors Roles and Responsibilities 2.4.1 Contractor reporting 2.5 Env. Incidents and non-compliance reporting process 2.6 Environmental Risk Assessment 2.7 Environmental Competency Training and Awareness 2.8 Lessons learned 3.2 Marine Species 3.3 Marine Archaeology 3.4 UXO 3.6 Marine Pollution Prevention and Contingency Planning	The Contractor shall write an Environmental Management Plan to detail the specific arrangements in place for the Contractor vessels/scope and provide records and other information as required to demonstrate compliance with each section.  The specific vessel bridging documents shall include the key requirements applicable to the vessel scope (including reporting templates and corresponding flow charts).

	<p>3.8 Chemical usage  3.9 Fuel Oil and Vessel Lubricating Fuels  3.10 Bunding and Storage  3.11 Marine Invasive Non-Native Species  3.13 Environmental Protection  3.14 Waste Management  3.15 Commercial Fisheries  3.16 Seabed Deposits  3.17 Fluorinated Greenhouse Gases  3.18 Other  4.3 Audits and Inspections  Appendix A Contractor deliverables (Contractor to provide info to PC for each item)  Appendix B Incident reporting (Contractor to include the flowcharts in Contractor vessel bridging documents)  Appendix E Marine Pollution Contingency Plan :  4 Pollution Incident Response Procedure  6 Environmental and Commercial Sensitivities  7.1 Selecting and Emergency Response Strategy  9 Training and Exercise Programme</p>	
<p>Fisheries Management and Mitigation Strategy (FMMS)</p>	<p>COMPLIANCE with Sections:  5 Fisheries overview (Contractor to have awareness)  6.2 Liaison Roles and Responsibilities  7.3.1 Code of Good Practice of Contracted Vessels  7.3.2 Transit Plan  Appendix 4 Onboard Fisheries Liaison</p>	<p>These requirements can be included with the Contractor Env. Management Plan and specific vessel bridging documents.</p>
<p>Lighting and Marking Plan</p>	<p>COMPLIANCE with Sections:  5 Construction Phase  Table 5. 1 Construction Phase Lighting and Marking  Table 6.2 Operational Phase OSP's Marine Lighting and Marking  6.4 Aviation  Table 6.4 Operational Phase OSP's Aviation Lighting and Marking</p>	<p>Contractor to ensure that equipment installed meets the specifications described in those sections. (Iemans to check with Siemens, i.e. this is not for HMC to know)</p>

<p>Piling Strategy - OfTI</p>	<p>COMPLIANCE with Sections:            4.4 Vessel and Equipment Requirements            4.5 OSP Jacket Installation            4.6 Pile Driving            4.7 OSP Topside Installation            9.1 Marine Mammal Mitigation :            9.1.1 Soft Start and Ramp-up Procedure            9.1.2 ADD Use            9.1.3 Breaks in piling activity            10.1 Reporting Piling Operations (Input required from Contractor)            11.1.1 Conclusion - Mitigation</p>	<p>These requirements can be included with the Contractor Env. Management Plan. Pile driving requirements and marine mammal mitigations should be included in the Contractors pile driving, monitoring or ADD procedures as required.</p>
<p>Vessel Management Plan and Navigational Safety Plan (VM&amp;NSP)</p>	<p>COMPLIANCE with Sections:            4.2 Radio and Radar Beacons            4.3 Guard Vessels            4.4 Construction Safety Zones            4.6 Navigable Depths            4.7 Cable Laying and other RAM Operations            5.4 RAM Operations            6.1 LNTM (Input required from Contractor)            6.3 UK Hydrographic Charts (Input required from Contractor)            6.6 UK Marine Reporting Requirements            8 Management and Coordination of Vessels            9 Types and specification of vessel (info provided to ICOL 5 working days in advance of vessel mobilisation)            11 Transit Route Corridors (also called Transit Plan on the FMMS)            12 Anchoring Areas</p>	<p>These requirements can be included with the Contractor Env. Management Plan and specific vessel bridging documents as applicable.</p>
<p>Protocol for Archaeological Discoveries (PAD)</p>	<p>COMPLIANCE with Sections (jacket installation):            4.6 Contractors and Subcontractors            6 Protocol for archaeological discoveries Contractors to use/include the flow charts of Appendix B3 of the CEMP rather than the flowcharts of this Consent Plan            Appendix A: AEZs</p>	<p>The location will have been surveyed and cleared of obstructions by the time this Contractor comes to the installation site, however contractor needs to follow archaeology discovery protocols for any findings whilst offshore.</p>