Project Title	Seagreen Wind Energy Ltd
Document Reference Number	LF000009-CST-OF-PLN-0014

Offshore Construction Environmental Management Plan (CEMP)

Section 36 Consent Condition 14 and OTA Marine Licence Condition 3.2.1.2

For the approval of Scottish Ministers

Rev	Date	Reason for Issue	Originator	ECoW	Checker	Approver
1.0	11/06/19	Approved	[Redacted]			

Document Change Summary

Rev	Date	Detail of Change	Changed by

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Consent Plan Overview

Purpose of the Offshore Construction Environmental Management Plan

This Offshore Construction Environmental Management Plan (CEMP) has been prepared to address the specific requirements of the relevant conditions attached to the Section 36 (S36) consents and Marine Licences (collectively referred to as 'the consents') issued to Seagreen Wind Energy Limited (hereafter referred to as Seagreen) in 2014, for the Seagreen Alpha and Seagreen Bravo Offshore Wind Farms (OWFs) and the associated Offshore Transmission Asset (OTA).

Seagreen Alpha and Seagreen Bravo OWFs and the OTA are collectively referred to as the 'Seagreen Project'). This Offshore CEMP has been prepared to discharge consent conditions for the Seagreen Project simultaneously.

The overall aims and objectives of the Offshore CEMP are to detail to those involved in the construction of the Seagreen Project, the series of measures and requirements to manage environmental aspects based on commitments made by Seagreen and the requirements of the consents conditions.

All Seagreen Contractors (including their Sub-Contractors) involved in the Seagreen Project are required to comply, with this CEMP through conditions of contract.

Scope of the Offshore CEMP

This CEMP covers, in line with the requirements of the consents conditions, and in line with industry standards and good practice, the following:

- environmental management framework for the OWFs including responsibilities and mechanisms for reporting to the Scottish Ministers/Licensing Authority and stakeholders on environmental issues and compliance with this CEMP; and
- management measures to prevent adverse impacts to environmental aspects including pollution prevention measures; marine invasive non-native species (INNS) prevention strategy; and overarching waste management guidance.

Structure of the Offshore CEMP

The CEMP is structured as follows:

Section 1&2	Provides an overview of the Project and the consent requirements that underpin the content of this CEMP. It also sets out the purpose, objectives and scope of this CEMP and sets out the process for making updates and amendments.
Section 3	Specifies Seagreen's overarching Environmental Management Framework, including details on roles and responsibilities in relation to this CEMP. This section also includes Seagreen's approach to reporting, communications, training and awareness, and Ecological Clerk of Works compliance monitoring.
Section 4	Present a series of measures to manage environmental aspects and the requirements of the consents conditions. This section also sets out measures to manage specific issues identified within the consents conditions, including marine pollution, chemical usage, marine INNS, waste, and dropped objects.
Section 5	Lists the references made within this CEMP.
Appendices	Includes detail on how this CEMP links to other consent conditions and consent plans. A list of abbreviations and definitions used in this CEMP is also included in the appendices as are a number of templates, procedures, checklists and registers, intended to support the measures set out in this CEMP and to meet the commitments made by Seagreen within the ES application.

Offshore CEMP Audience

This CEMP will be submitted for approval to the Scottish Ministers/Licensing Authority and other stakeholders in relation to monitoring compliance with the specific requirements of the relevant consent conditions.

Compliance with this CEMP will be monitored by: Seagreen's Ecological Clerk of Works (ECoW); Seagreen's appointed Contractors; and the Marine Scotland Licensing and Operations Team (MS-LOT).

Copies of this CEMP are to be held in the following locations:

- Seagreen head office;
- Seagreen construction office and marine coordination centre; and
- at the premises of any Contractor, including the Seagreen ECoW, acting on behalf of Seagreen
- aboard any vessel engaged in the Wind Farm/OTA.

1. Introduction

1.1 Consents and Licences

Seagreen Wind Energy Limited (hereafter referred to as 'Seagreen') was awarded Section 36 Consents (S36 Consents) under the Electricity Act 1989 by Scottish Ministers in October 2014 for Seagreen Alpha and Seagreen Bravo Offshore Wind Farms (OWFs). Marine Licences for Seagreen Alpha OWF, Seagreen Bravo OWF and the Offshore Transmission Asset (OTA) (together, the 'Marine Licences') were also awarded by Scottish Ministers in October 2014 under the Marine (Scotland) Act 2010 and the Marine and Coastal Access Act 2009. Together the wind farms Seagreen Alpha and Seagreen Bravo and the OTA collectively comprise 'the Seagreen Project'.

In 2018, following application by Seagreen, the existing 2014 consents for the Project Alpha and Project Bravo OWFs were varied by Scottish Ministers, to remove the consented OWF capacity limits, to allow the installation of higher rated wind turbine generators (WTGs). At the same time the commencement of the works within the S36 Consents was extended from five to eight years. This Offshore CEMP is seeking to discharge conditions of the S36 consents and Marine Licences, as varied, for Seagreen Alpha (Ref: 04676/18/0), Seagreen Bravo (Ref: 04677/18/0) and the OTA (Ref: 04678/19/0).

The Onshore Transmission Asset was subject to a separate planning application under the Town and Country Planning (Scotland) Act 1997. This was awarded in principle by Angus Council in 2013 and extended in 2016, following reapplication by Seagreen

1.2 Project Description

The Seagreen Project is located in the North Sea, in the outer Firth of Forth and Firth of Tay region and comprises the OWFs (the WTGs, their foundations and associated array cabling), together with associated infrastructure of the OTA (Offshore Substation Platforms (OSPs), their foundations and the offshore export cable), to facilitate the export of renewable energy to the national electricity transmission grid. The location of the Seagreen Project is shown in Figure 1.0.

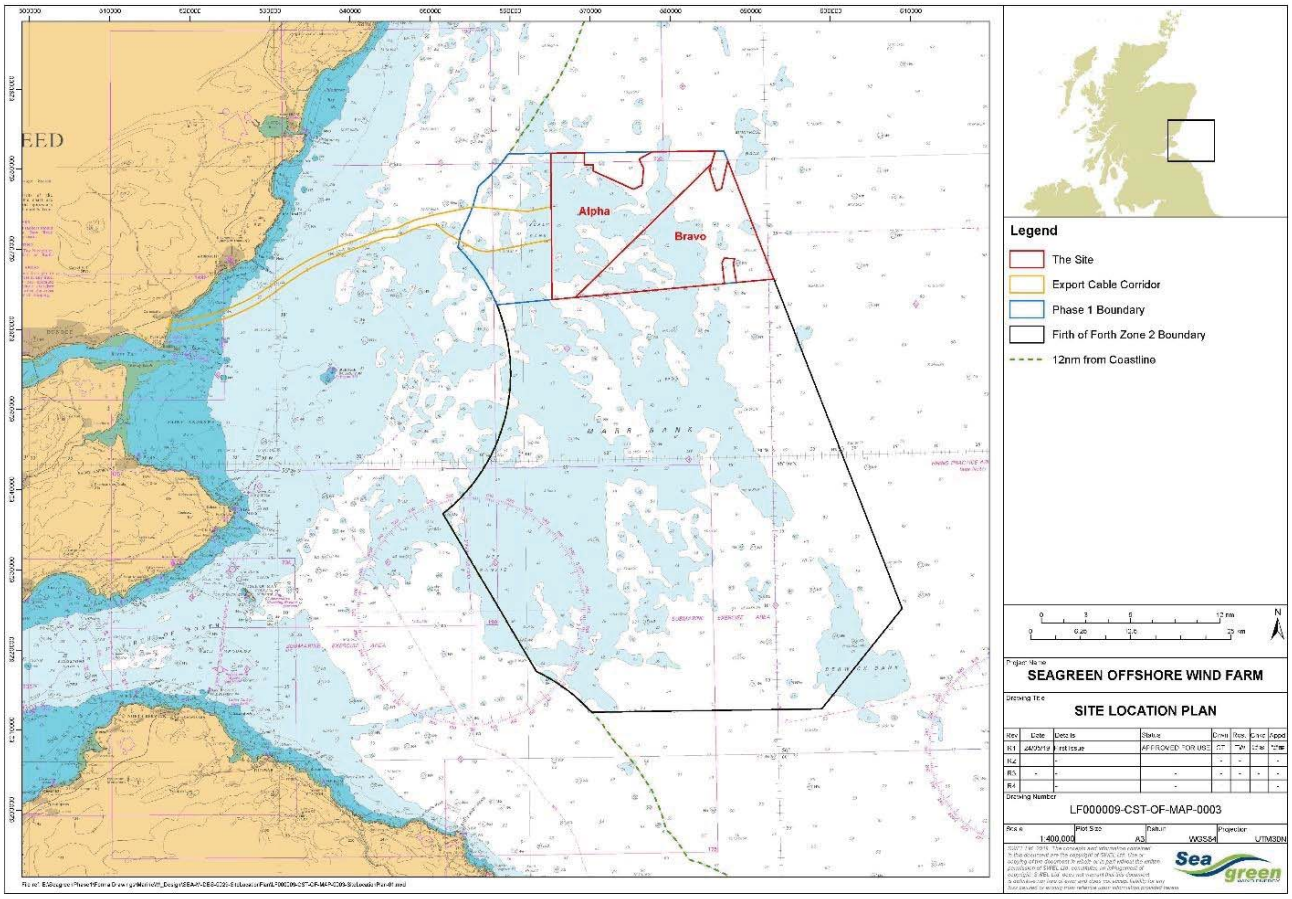


Figure 1.0 - Project Location

1.3 Consent and Licence Requirements

The Seagreen Project benefits from the following consents:

- the S36 Consents;
- the Wind Farm Marine Licences; and
- the OTA Marine Licence.

This Offshore Construction Environmental Management Plan (Offshore CEMP) has been prepared to satisfy the criteria of the S36 condition 14 and OTA Marine Licence condition 3.2.1.2 as set out in Table 1.1. A separate Operation Offshore EMP will be provided closer to Final Commissioning of the Seagreen Project, as required by the consents.

This CEMP has been prepared to discharge consent conditions for Seagreen Alpha and Seagreen Bravo, as well as the discharge of the OWF/OTA Marine Licence conditions, simultaneously.

Table 1.1 - Consent Conditions to be discharged by this Offshore CEMP

Condition Document	Condition Reference	Condition text[1]	Where Addressed in Offshore CEMP
Section 36	Condition 14	The Company must, no later than 6 months prior to the Commencement of the Development, submit an Environmental Management Plan ("EMP"), in writing, to the Scottish Ministers for their written approval. Such approval may only be granted following consultation by the Scottish Ministers with the JNCC, SNH, SEPA, RSPB Scotland, WDC, ASFB and any such other advisors or organisations as may be required at the discretion of the Scottish Ministers.	This document sets out the Offshore CEMP for approval by the Scottish Ministers.
	Condition 14	The Development must, at all times, be constructed and operated in accordance with the approved EMP (as updated and amended from time to time by the Company).	Section 3.3 (Environmental reporting). A separate Operation Offshore EMP will be prepared to cover the operational lifespan of the Seagreen Project.
	Condition 14	Any updates or amendments made to the EMP by the Company must be submitted, in writing, by the Company to Scottish Ministers for their written approval.	Section 1.6 (Updates and amendments). Appendix B (Offshore CEMP change management procedure).
	Condition 14	The EMP must provide the over-arching framework for on-site environmental management during the phases of development as follows: a. all construction as required to be undertaken before the Final Commissioning of the Development; and b. the operational lifespan of the Development from the Final Commissioning of the Development until the cessation of electricity generation (Environmental management during decommissioning is addressed by the Decommissioning Programme provided for by condition 3).	This Offshore CEMP, for approval by the Scottish Ministers, addresses the construction phase. A separate operation Offshore EMP will be prepared to cover the operational lifespan of the Seagreen Project.

[1] Note: Any definitions relating to the consents conditions text have the meaning applied to them within the corresponding consent.

Condition Document	Condition Reference	Condition text[1]	Where Addressed in Offshore CEMP
	Condition 14	The EMP must be in accordance with the ES and SEIS as it relates to environmental management measures.	Section 4.0 (Management of Environmental Aspects). Appendix G (Seagreen ES/ES Addendum commitments register).
	Condition 14	The EMP must set out the roles, responsibilities and chain of command for the Company personnel, any Contractors or sub-Contractors in respect of environmental management for the protection of environmental interests during the construction and operation of the Development.	Section 3.2 (Environmental Roles & Responsibilities). A separate operation Offshore EMP will be prepared to cover the operational lifespan of the Seagreen Project.
	Condition 14	It must address, but not be limited to, the following over-arching requirements for environmental management during construction: a. Mitigation measures to prevent significant adverse impacts to environmental interests, as identified in the ES and pre-consent and pre-construction surveys, and include the relevant parts of the CMS (refer to condition 10);	Section 4.0 (Management of Environmental Aspects). Appendix G (Seagreen ES/ES Addendum commitments registers). **Offshore Wind Farm Construction Method Statement ("CMS") LF000009-CST-OF-MST-0001** and **Offshore Transmission Assets Construction Method Statement ("CMS")LF000009-CST-OF-MST-0002 (CMS),** will prepared by Contractors sufficiently in advance of their works.
	Condition 14	b. Pollution prevention measures and contingency plans;	Section 4.5 (Marine Pollution Prevention and Contingency Planning) and **LF000009-CST-ON-PLN-0012 Marine Contingency Pollution Plan (MPCP).**
	Condition 14	c. Management measures to prevent the introduction of invasive non-native marine species;	Section 4.7 (Invasive Non-native Marine Species).
	Condition 14	d. Measures to minimise, recycle, reuse and dispose of waste streams;	Section 4.8 (Waste Management).

Condition Document	Condition Reference	Condition text[1]	Where Addressed in Offshore CEMP
	Condition 14	e. The reporting mechanisms that will be used to provide the Scottish Ministers and relevant stakeholders (including, but not limited to, the JNCC, SNH, SEPA, RSPB Scotland, MCA and NLB) with regular updates on construction activity, including any environmental issues that have been encountered and how these have been addressed.	Section 3.3 (Environmental Reporting). Appendix D (Seagreen ECoW Monthly Compliance Report template). Appendix F (Seagreen ECoW Non-Compliance Report template).
	Condition 14	The Company must, no later than 3 months prior to the Final Commissioning of the Development, submit an updated EMP, in writing, to cover the operation and maintenance activities for the Development to the Scottish Ministers for their written approval. Such approval may be given only following consultation with the JNCC, SNH, SEPA, RSPB Scotland and any such other advisors or organisations as may be required at the discretion of the Scottish Ministers.	A separate operation Offshore EMP will be prepared to cover the operational lifespan of the Seagreen Project.
	Condition 14	The EMP must be regularly reviewed by the Company and the Forth and Tay Regional Advisory Group ("FTRAG") (referred to in condition 27) over the lifespan of the Development and be kept up to date (in relation to the likes of construction methods and operations of the Development in terms of up to date working practices) by the Company in consultation with the FTRAG.	Section 1.6 (Updates and Amendments). Appendix B (Offshore CEMP Change Management Procedure).
	Condition 14	The EMP must be informed, so far as is reasonably practicable, by the baseline surveys undertaken as part of the Application and the PEMP.	Section 4.0 (Management of Environmental Aspects). A separate **Project Environmental Monitoring Programme (PEMP) (LF000009-CST-OF-PRG-0003)** will be prepared.
OTA Marine Licence	Condition 3.2.1.2	The Licensee must, no later than 6 months prior to the Commencement of the Works, submit an EMP, in writing, to the Licensing Authority for their written approval. Such approval may only be granted following consultation by the Licensing	This document sets out the Offshore CEMP for approval by the Licensing Authority.

Condition Document	Condition Reference	Condition text[1]	Where Addressed in Offshore CEMP
		Authority with the JNCC, SNH, SEPA and any such other advisors or organisations as may be required at the discretion of the Licensing Authority.	
	Condition 3.2.1.2	The Works must, at all times, be constructed and operated in accordance with the approved EMP (as updated and amended from time to time by the Licensee).	Section 3.3 (Environmental Reporting). A separate operation Offshore EMP will be prepared to cover the operational lifespan of the Seagreen Project.
	Condition 3.2.1.2	Any updates or amendments made to the EMP by the Licensee must be submitted, in writing, by the Licensee to the Licensing Authority for their written approval. Such approval may only be granted following consultation by the Licensing Authority with Angus Council.	Section 1.6 (Updates and amendments). Appendix B (Offshore CEMP Change Management Procedure).
	Condition 3.2.1.2	The EMP must provide the over-arching framework for on-site environmental management during the phases of works as follows: a) all construction as required to be undertaken before the Final Commissioning of the Works; and b) the operational lifespan of the Works from the Final Commissioning of the Works until the cessation of electricity transmission (environmental management during decommissioning is addressed by condition 3.2.2.2).	This Offshore CEMP, for approval by the Licensing Authority, addresses the construction phase. A separate operation Offshore EMP will be prepared to cover the operational lifespan of the Seagreen Project.
	Condition 3.2.1.2	The EMP must set out the roles, responsibilities and chain of command of any Licensee personnel, Contractors or sub-Contractors in respect of environmental management for the protection of environmental interests during the construction and operation of the Works.	Section 3.2 (Environmental Responsibilities). A separate operation Offshore EMP will be prepared to cover the operational lifespan of the Seagreen Project.
	Condition 3.2.1.2	It must address, but not be limited to, the following over-arching requirements for environmental management: a) Mitigation measures to prevent significant adverse impacts to environmental interests, as identified in the Application and pre-consent and	Section 4.0 (Management of Environmental Aspects). Appendix G (Seagreen ES/ES Addendum commitments registers).

Condition Document	Condition Reference	Condition text[1]	Where Addressed in Offshore CEMP
		pre-construction surveys, and include the relevant parts of the Construction Method Statement ("CMS");	**Offshore Wind Farm Construction Method Statement ("CMS") LF000009-CST-OF-MST-0001** and **Offshore Transmission Assets Construction Method Statement ("CMS")LF000009-CST-OF-MST-0002 (CMS),** will prepared by Contractors sufficiently in advance of their works and subject to review by the Ecological Clerk of Works and Seagreen for acceptance. Documents prepared will be consistent with this CEMP
	Condition 3.2.1.2	b) A completed Written Scheme of Investigation ("WSI") approved by Historic Scotland;	Section 4.3 (Marine Archaeology) . A separate Marine Archaeological **Written Scheme of Investigation & Protocol for Archaeological Discoveries ("WSI & PAD") (LF000009-CST-OF-PLN-0002),** will be prepared in advance of works.
	Condition 3.2.1.2	c) A Marine Pollution Contingency Plan ("MPCP") to include, but not necessarily limited to, provision in respect to spills and collision incidents occurring during construction and operation of the works, whilst taking into account existing plans for all operations including Offshore installations that may have an influence on the MPCP. Practices used to refuel vessels at sea which must confirm to industry standards and to relevant legislation. The MPCP must also set out how any oil leaks within the structures are to be remedied and that such relevant repairs are required to be undertaken without undue delay;	Section 4.5 (Marine Pollution Prevention and Contingency Planning) and **LF000009-CST-ON-PLN-0012 Marine Contingency Pollution Plan (MPCP).**

Condition Document	Condition Reference	Condition text[1]	Where Addressed in Offshore CEMP
	Condition 3.2.1.2	d) Management measures to prevent the introduction of marine non-native marine species;	Section 4.7 (Invasive non-native marine species).
	Condition 3.2.1.2	e) Measures to minimise, recycle, reuse and dispose of waste streams; and	Section 4.8 (Waste management).
	Condition 3.2.1.2	f) The methods for responding to environmental incidents and the reporting mechanisms that will be used to provide the Licensing Authority and relevant stakeholders (including, but not limited to, the JNCC, SNH, SEPA, Maritime and Coastguard Agency ("MCA") and the Northern Lighthouse Board ("NLB")) with regular updates on construction activity, including any environmental issues that have been encountered and how these have been addressed.	Section 3.3 (Environmental reporting). Appendix D (Seagreen ECoW Monthly Compliance Report template). Appendix F (Seagreen ECoW Non-Compliance Report template).
	Condition 3.2.1.2	The Licensee must, no later than 6 months prior to the Final Commissioning of the Works, submit an updated EMP, in writing, to cover the operation and maintenance activities for the Works to the Licensing Authority for their written approval. Such approval may be given only following consultation with the JNCC, SNH, SEPA and any such other advisors or organisations as may be required at the discretion of the Licensing Authority.	A separate Offshore operational EMP) will be prepared to cover the operational lifespan of the OWFs.
	Condition 3.2.1.2	The EMP must be regularly reviewed by the Licensee and the FTRAG (refer to conditions 3.2.2.18 and 3.2.3.10) over the lifespan of the Works and be kept up to date (in relation to the likes of construction methods and operations of the Works in terms of up to date working practices) by the Licensee in consultation with the FTRAG.	Section 1.6 (Updates and amendments). Appendix C (Offshore CEMP change management procedure).
	Condition 3.2.1.2	The EMP must be informed, so far as is reasonably practicable, by the baseline surveys undertaken as part of the Application and the PEMP .	Section 4.0 (Management of Environmental Aspects).

1.4 Linkages with other Consent Plans and Consent Conditions

The CEMP will necessarily be consistent with a number of other consent plans and consent conditions. Details of the linkages and relevant cross references are set out in **Appendix C – Offshore CEMP Condition and Linkages to Other Consent Conditions and Consent Plans.**

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 are not required for approval of the CEMP but are provided for ease of reference.

1.5 Construction Management

Seagreen's Contractors and their Sub-Contractors, in undertaking the construction of the Seagreen Project will ensure compliance with all relevant environmental and maritime legislation and that all necessary licences and permissions are obtained by the Contractors (and their Sub-Contractors), through conditions of contract.

Seagreen require that design embedded measures and adherence to good working practice is applied by Seagreen's Contractors (and their Sub-Contractors) throughout the construction phase, seeking to minimise the risks to the environment.

The implementation of such measures will be managed by the Contractor Environmental Advisors (CEAs), appointed by each key contractor throughout the duration of the construction period.

The relevant CEA will provide progress reports to the Seagreen Ecological Clerk of Works (ECoW) who will review and approve consent plans and will oversee and monitor compliance with consent conditions. The ECoW will be an independent party and will provide regular reporting on compliance monitoring, good practice and mitigation measures, both to Seagreen's Compliance Manager and to MS-LOT throughout pre-construction and construction phases of the Seagreen Project. The role of the Seagreen Compliance Manager is to oversee compliance monitoring across the project.

Contractors will also be required to complete their own EMPs that are specific to their works, and that are compliant with this Offshore CEMP, provided to Seagreen in advance of construction, for review and acceptance by Seagreen.

Good working practices that will be applied during the construction of the OWFs will be set out in the **Offshore Wind Farm Construction Method Statement ("CMS") LF000009-CST-OF-MST-0001** and **Offshore Transmission Assets Construction Method Statement ("CMS")LF000009-CST-OF-MST-0002 (CMS),** prepared by Contractors sufficiently in advance of their works, to be subject to review by the Ecological Clerk of Works and Seagreen for acceptance.

1.6 Updates and Amendments

Updates to this MPCP might be required, for example, due to changes to the proposed construction methodology (that require additional management or mitigation measures, or changes to measures already proposed), new environmental sensitivities identified by monitoring prior to construction, or following construction, emerging guidance, or new legislative requirements.

The change management process for any updates required to the Offshore CEMP, including resubmission of consent plans for approval, is outlined in **Appendix B.**

2. Scope and Objectives

This Offshore CEMP has been prepared to address the specific requirements of the relevant conditions attached to the Section 36 consents and Marine Licences (collectively referred to as 'the consents') issued to Seagreen Wind Energy Limited (Seagreen), and applies to all construction as required to be undertaken before the Final Commissioning of the Works.

A further Offshore Operation Environmental Management Plan (Operational EMP) will be prepared to cover the operational lifespan of the Works from the Final Commissioning of the Works for the Seagreen Project, until the cessation of electricity transmission (environmental management during decommissioning is addressed by condition 3.2.2.2).

The onshore transmission cable runs from landfall (Mean High Water Springs at Carnoustie), to final connection at the Tealing Substation, and is out with the scope of this document and covered in a separate **Onshore CEMP (LF000009-CST-ON-PLN-0002**).

The overall objective of this Offshore CEMP is to provide the overarching framework for Environmental Management during the construction of the Seagreen Project.

The Offshore CEMP has three primary functions:

i. to ensure environmental consent and licence requirements relevant to the construction of the OWFs and the OTA are implemented and fulfilled;

ii. to ensure overarching compliance with legislative requirements and relevant industry good practice; and

iii. to ensure consistency in approach and performance of environmental management across Seagreen and Seagreen's Contractors during construction of the OWFs and the OTA.

All Seagreen personnel and Seagreen's Contractors (including their Sub-Contractors) involved in the Seagreen Project must comply, as a minimum, with the Offshore CEMP. Contractors will also be required to complete their own EMPs that are specific to their works, and that are compliant with this Offshore CEMP. Contractor EMP's will be provided to Seagreen, in advance of construction for review and acceptance, to ensure these are complaint to the Seagreen Offshore CEMP.

2.1 Compliance with the ES and ES Addendum

The relevant conditions of the S36 Consent and the Marine Licences require that the Seagreen Project be constructed in accordance with the construction methods assessed in the ES and ES Addendum and that construction related mitigation proposed in the ES and ES Addendum are to be delivered. A complete register of the mitigation, management and monitoring commitments made in the ES and ES Addendum, required by consent conditions is set out in the Commitments Register included at **Appendix G**.

2.2 Structure of this Document

The remainder of this document sets out information required to fulfil the criteria of the conditions of the S36 and Marine Licences as set out in Section 1.2. The CEMP has been structured accordingly, as set out in Table 1.3.;

Table 1.3 Structure of the Offshore CEMP

Section	Title	Overview
3	Environmental Management Framework	Specifies Seagreen's overarching Environmental Management Framework including details on roles and responsibilities in relation to this CEMP. This section also includes Seagreen's approach to reporting, communications, training and awareness, and ECoW's compliance monitoring.
4	Management of Environmental Aspects and Compliance Obligations	Present a series of measures to manage environmental aspects based on commitments made by Seagreen with the application and the requirements of the consents conditions. This section also sets out measures to manage specific issues identified within the consents conditions, including marine pollution, chemical usage, marine INNS, waste, and dropped objects.
5	Seagreen Document References	Lists the full document references made within this CEMP.
Appendices	Appendix A – List of Abbreviations and Definitions Appendix B – The Offshore CEMP Change Management Procedure Appendix C – Offshore CEMP Condition Linkages to Other Consent Conditions and Consent Plans Appendix D – Seagreen ECoW Monthly Reporting Compliance Report Template Appendix E – Construction Phase Seagreen Proposed Contractor Deliverables and Check Sheets Appendix F – Seagreen ECoW Non- Compliance Report Template Appendix G – ES/ES Addendum Commitments Register	

3. Environmental Management Framework

This section details to those involved in the construction of the Seagreen Project the Environmental Management framework required, in order to manage environmental commitments made by Seagreen and mitigation requirements as identified in the Environmental Statement (ES), and by the requirements of the conditions of the consents and licences, as detailed in section 1.2 of this document.

Furthermore, this section aims to identify good practice and requires that Seagreen and Seagreen's Contractors comply with the requirements of relevant and current environmental and maritime legislation as standard.

This section sets out the Environmental Management framework for the Project, under the following areas:

- Policies;
- Environmental Roles and Responsibilities;
- Environmental Reporting;
- Environmental Incidents and Non-Compliance Procedures;
- Environment Personnel Competency and Training.

3.1 Seagreen Policies

Seagreen is implementing SSE's policies with regards to health and safety and environmental management. Seagreen committed through SSE's 'Environment and Climate Change Policy' to protecting the environment, preventing pollution and minimising adverse environmental impacts. Furthermore, where possible, Seagreen will seek to bring about positive environmental outcomes.

Seagreen recognises the complex global challenge of climate change and the role an energy company has to play in taking action on climate change and helping the UK and Ireland move towards a less carbon intensive energy system.

SSE's 'Sustainability and Corporate Responsibility Policy' is intended to ensure that in meeting SSE's core purpose, *to provide energy needed today and strive for a better world of energy for tomorrow*, its actions and decisions are responsible and sustainable, both in its direct operations and its value chain.

3.2 Environmental Roles and Responsibilities

This section sets out the roles and responsibilities of key personnel in Seagreen relevant to the delivery, management and compliance to this Offshore CEMP. Those roles have been identified as shown in Figure 3.1 and listed below.

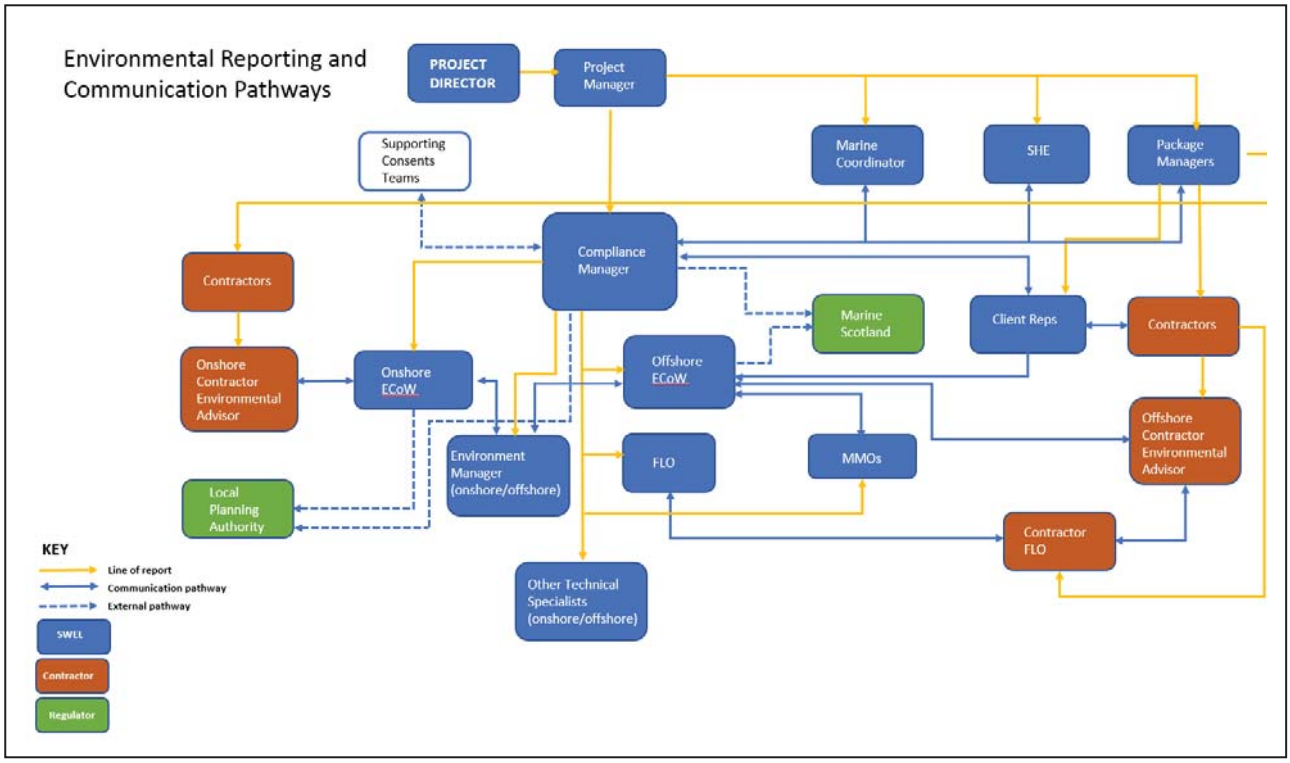


Figure 3.1 Seagreen Organogram

Key roles in Seagreen include:

- Seagreen Project Director
- Seagreen Project Manager
- Seagreen Package Managers;
- Seagreen Client Reps
- Seagreen Marine Coordinator
- Seagreen Compliance Manager
- Seagreen SHE Manager;

Supporting roles to this structure reporting to the Seagreen Compliance Manager are:

- Seagreen Environment Manager
- Seagreen Offshore ECoW;
- Seagreen Fisheries Liaison Officer
- Seagreen Archaeological Consultant;
- Seagreen Supporting Consents Team

Roles external to Seagreen are:

- Contractors (and Sub-Contractors)

- Contractor's Environmental Advisor

Seagreen Contractors carrying out the construction activities are responsible for complying with this Offshore CEMP.

Further details of the roles and responsibilities, including reporting arrangement are provided in the section below.

3.2.1 Seagreen Project Director

Reports to: Seagreen Board

Overall responsibility for ensuring the project is built and operated in accordance to protecting the environment, preventing pollution and minimising adverse environmental impacts.

3.2.2 Seagreen Project Manager

Reports to: Seagreen Project Director

The Seagreen Project Manager has the following responsibilities in relation to the Offshore CEMP:

- ensuring that sufficient resources and processes are in place across Seagreen, to deliver/comply with its obligations under this CEMP and to manage potential environmental risks;
- Ensuring that provision is made for environmental management issues to form part of Seagreen meetings and communications;
- Responsible for managing the Seagreen Package Managers and providing senior direction in relation to incidence of Contractor (and their Sub-Contractor) non-compliance; and
- In collaboration with the Seagreen Package Managers require that any corrective actions arising from environmental incidents and/or non-compliances are implemented.

3.2.3 Seagreen Package Managers

Report to: Seagreen Project Manager

The Package Managers lead and manage the delivery of construction work packages which includes: Marine Installation; Transmission System; and Turbine Supply/Installation/Maintenance. The Package Managers have the following responsibilities in relation to the consents including this Offshore CEMP:

- establishing contractual obligations for Contractors (and their Sub-Contractors) in relation to this Offshore CEMP;
- requiring that sufficient resources and processes are in place across their work package to deliver/comply with the Offshore CEMP and to manage potential environmental risks;
- requiring that the Seagreen Offshore ECoW is integrated into the daily project reporting and notifications received, in order to monitor contractor compliance to Seagreen consents.
- administering the contractual requirements in relation to incidence of Contractor (and their Sub-Contractor) non-compliance; and

- where applicable, requiring that any corrective actions arising from environmental incidents and/or non-compliances are implemented.
- Requiring that Client Representatives provide support to the Seagreen Compliance Manager.

3.2.4 Seagreen Client Representative

Reports to: Seagreen Package Manager

- Report environmental incidents in accordance with Seagreen Marine Pollution Contingency Plan **MPCP (LF000009-CST-OF-PLN-0012)** and Non-Compliance Reporting in **Offshore CEMP (LF000009-CST-OF-PLN-0014)**
- Follow procedure in the event that work takes place on the seabed in an Archaeological Exclusion Zone
- Observe environmental protection measures and raise any concerns with the Contractor/vessel
- Assist with conducting inspections/checks of vessel and assets
- Regularly interface with the Seagreen EM and ECoW as necessary

3.2.5 Seagreen Marine Coordinator

Reports to: Seagreen Project Manager

The Seagreen Marine Coordinator is responsible for the monitoring of people, vessels and offshore structures with regards to the safe preparation and execution of offshore construction activities. Key responsibilities relevant to the Offshore CEMP include the following:

- Act as key responder in environmental incidents, as detailed in the **MPCP (LF000009-CST-OF-PLN-0012)**
- Issue navigational safety notifications, including Notice to Mariners (NtMs) and Notice to Airmen (NOTAMs);
- Provide a key role in Offshore environmental incident and non-compliance procedures, as detailed in the **MPCP (LF000009-CST-OF-PLN-0012)**

3.2.6 Seagreen Compliance Manager

Reports to: Seagreen Project Manager

The Seagreen Compliance Manager (CM) manages a team responsible for monitoring and reviewing compliance with the project consents and environmental legislation, on behalf of Seagreen ('Compliance Team').

The responsibilities extend across both Offshore and Onshore activities, to ensure a consistent approach to compliance and environmental management is applied. The Compliance Team includes the Environment Manager (EM) , the Ecological 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 CM are:

- Primary contact for MS-LOT, FRTRAG, statutory bodies and stakeholders (excluding the responsibilities undertaken by Seagreen's ECoW);
- Where necessary, managing the process of obtaining new consents
- Attendance at Seagreen meetings, providing compliance input;
- Reporting to MS-LOT and FTRAG in respect of the PEMP.

The Contractors are responsible for identifying, implementing and auditing their own environmental mitigation, compliance tools and incident response procedures. Where Seagreen acts as a Contractor, for example when chartering vessels, the Seagreen compliance team will be responsible for identifying, implementing and auditing environmental mitigation, compliance tools and incident response procedures for these activities.

The CM and compliance team supports Package Managers in reviewing Contractors' documentation including risk assessments and method statements and procedures (such as spill response, waste management, handling and storing of chemicals, bunkering etc.).

The CM will attend OWFs meetings and represent consenting and environment matters as required internally and to external stakeholder/regulators.

3.2.7 Seagreen SHE Manager

Report to: Seagreen Project Manager

In regard to the Offshore CEMP, the Seagreen SHE Manager is responsible for the overall Incident Reporting Process and as such is the first point of Seagreen contact for all incidents for Seagreen Personnel. However, for those of an environmental nature (as defined in the Incident Process) the Seagreen EM works alongside the Seagreen SHE Manager, in providing advice on Seagreen Reporting incident classification, as per document **LF000009-HSE-MA-PRO-0008 - Incident Reporting Procedure**.

3.2.8 Seagreen Environment Manager

Reports to: Seagreen Compliance Manager

The Seagreen Environment Manager (EM) is responsible for supporting the Compliance Manager and is a source of expertise in regard to Environmental Management and legislation. They will be suitably qualified and experienced and hold a professional environmental membership, as evidence of competency. The EM will oversee Seagreen environmental inspections and reviews in relation to;

- incident response readiness, including observations of Contractor environmental drills and exercises, including drills to test vessel Shipboard Oil Pollution Emergency Plans (SOPEPs) and Project MPCP Bridging Documents;
- mobilisation vessels inspections in relation to waste, fuel and chemical storage and management, pollution control measures;

- Prior to commencement, review the Contractors risk assessment and method statements in advance of any works, for activities that may pose an environmental impact, for acceptance;
- Prior to commencement, review the Contractor Environmental Management Plans and Systems (to prevent pollution and manage environmental risks, compliance to environmental legislation and industry practices), with regard to compliance to this Offshore CEMP;
- Liaise directly with the Ecological Clerk of Works (Offshore and Onshore).

Where required and on request, the EM will have access to Contractor's Marine and Vessel Inspection documents (CMID) in advance of inspection.

The EM is the key Seagreen environmental contact for environmental incidents and will liaise with the Marine Co-ordinator and SHE Manager, in accordance with the **Marine Pollution Contingency Plan (MPCP) (LF000009-CST-OF-PLN-0012))** and **Incident Reporting Procedure (LF000009-HSE-MA-PRO-0008).**

The EM and ECoW may work together to produce environmental training material in regard to environmental and consents compliance, to be used by Contactors, as part of the Contractor responsibilities to deliver ongoing tool box talks.

3.2.9 Seagreen Offshore Ecological Clerk of Works (Offshore ECoW)

Reports to: Seagreen Compliance Manager

This is a key role defined under S36 Condition 29, and OTA Marine Licence Condition 3.2.2.12, which require that and ECoW be appointed prior to the Commencement of the Works;

The Offshore ECoW must be appropriately qualified and a member of a recognised organisation such as Association for Ecological / Environmental Clerk of Work, Chartered Institute of Ecology and Environmental Management or the Institute of Environmental Management and Assessment.

The ECoW must be appointed in time to review and approve the final draft version of the first plan or programme submitted under this Licence to the Licensing Authority for approval, until the Final Commissioning of the Works.

The responsibilities of the ECoW must include, but not be limited to:

a) Quality assurance of final draft version of all plans and programmes required under this licence;

b) Provide advice to the Licensee on compliance with licence conditions, including the conditions relating to the CMS, the EMP, the PEMP, the PS, the CaP and the VMP;

c) Monitor compliance with the CMS, the EMP, the PEMP, the PS, the CaP and the VMP;

d) Provide reports on point c) above to the Licensing Authority at timescales to be determined by the Licensing Authority; and

e) Inducting site personnel on the Site / the Works environmental policy and procedures.

The ECoW role will be carried out by a party appointed by the Licensee to carry out an equivalent role pursuant to other consents or licences granted in relation to the Works and subject to the written approval of the Licensing Authority.

The Offshore ECoW will therefore be required to:

- review and quality check all consents plans and programmes and thereafter monitor compliance of the Seagreen Project with these, including but not limited to CMS, the CEMP, the PEMP, the PS, the CaP and the VMP;
- be responsible for reporting on compliance to Seagreen and to MS-LOT (within the remit of the Offshore ECoW consents conditions);
- liaise with the Seagreen Fisheries Liaison Officer ('the FLO') during incidence of non-compliance with the Seagreen **Fisheries Mitigation and Management Strategy (LF000009-CST-OF-PLN-0011)** (formerly called the Commercial Fisheries Mitigation Strategy ("CFMS"));
- liaise with the MMOs during any piling activity
- liaise with the Seagreen Archaeological Consultant ('the Archaeological Consultant') following the discovery of a potential find or following an infringement of an Archaeological Exclusion Zone (AEZ);
- liaise with MS-LOT, Forth and Tay Regional Advisory Group (FTRAG), statutory bodies and stakeholders, as required;
- provide Seagreen CM 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, including the Contractor EMPs; and
- develop training materials on compliance with consent plans and the consents, for use to Seagreen personnel in inductions, presentations, production of awareness material etc.

In addition, the ECoW will:

- identify potential modifications, with support from Seagreen, to activities that would lead to non-compliance
- attend Seagreen meetings, providing compliance input.

3.2.10 Seagreen Fisheries Liaison Officer (FLO)

Reports to: Seagreen Compliance Manager

The responsibilities of the Seagreen FLO in relation to the consents including this CEMP are as follows:

- Provide information relating to the safe operation of fishing activity within and in the vicinity of the Site; Participate in the Forth and Tay Offshore Wind Developers Group - Commercial

Fisheries Working Group ("FTOWDG-CFWG"), to facilitate commercial fisheries dialogue on behalf of Seagreen;

- Monitor compliance with good practice guidelines and the Commercial Fisheries Mitigation Strategy ("CFMS") (now called the Fisheries Mitigation and Management Strategy (FMMS));
- Liaise with Seagreen ECoW and OFLO regarding compliance with the **Fisheries Mitigation and Management Strategy (FMMS) (LF000009-CST-OF-PLN-0011)**;
- Develop material on compliance with the FMMS to Seagreen personnel for use in inductions, presentations, production of awareness material, regarding good practice in managing coexistence and good relations between all construction personnel and activities and the commercial fishing vessels; and
- Liaise with the contractor's Offshore Fisheries Liaison Officers.

3.2.11 Seagreen's Archaeological Consultant

Reports to: Seagreen Compliance Manager

Seagreen Archaeological Consultant will be responsible for advising Seagreen on all archaeological matters relating to the OWFs that might impact upon archaeological and cultural heritage resources.

The Archaeological Consultant has the following responsibilities:

- Assume clear role of interface between Seagreen and Historic Environment Scotland in the event of a potential find or an infringement of an AEZ, as detailed in the **Marine Archaeological Written Scheme of Investigation & Protocol for Archaeological Discoveries (LF000009-CST-OF-PLN-0002);**
- Liaise with the ECoW in the event of a potential find or an infringement of an AEZ;
- Liaise with the ECoW regarding compliance with the WSI (**LF000009-CST-OF-PLN-0002**);
- Develop and deliver training on relevant aspects of the WSI to Seagreen personnel including input to inductions, presentations, production of awareness material etc.;

In relation to reporting of finds of archaeological interest, the Archaeological Consultant will;

- brief Seagreen personnel and Key Contractor personnel on the types of archaeological finds and features that may be encountered and appropriate measures for interim conservation and safe storage;
- advise Seagreen on the identification of finds and features and, if reasonably practicable, the character of their seabed locations;
- advise Seagreen on material conservation of any recovered finds and any appropriate actions to be taken; and
- where appropriate, pass on all details and records associated with any discoveries to MS-LOT and Historic Environment Scotland.

3.2.12 Seagreen's Supporting Consents Team

Reports to: Seagreen Compliance Manager

Where necessary, planning conditions required to be discharged during the construction phase and obtaining any new consents, will be managed by a dedicated Consents Team.

3.2.13 Contractors

Report to: Seagreen Package Managers

All Contractors shall ensure that their own procedures comply with the mitigation and management measures and commitments presented in all Seagreen Consents, including Consent Plans and this Offshore CEMP, specific to their contractual obligations. The Contractors will produce their own EMP including Incident Response Procedures, that are compliant to this Offshore CEMP and to Seagreen's **Marine Pollution Contingency Plan (MPCP) (LF000009-CST-OF-PLN-0012**), which forms the framework and the minimum standards, for all construction personnel and Contractors and their Sub-Contractors to comply with.

Adherence to the Seagreen Offshore CEMP is a contractual requirement and Contractors will be required to develop their own task-specific method statements and risk assessment in their EMP.

Contractors therefore have the following responsibilities in relation to the consents, including this Offshore CEMP (this is not an exhaustive list):

- responsible for ensuring that sufficient and suitably qualified resources are in place to manage compliance with Seagreen consents and environmental requirements required by the consents including this Offshore CEMP and compliance with all relevant maritime and environmental legislative requirements pursuant to the Contractor's activity (See Section 3.1.12 Contractor's Construction Environmental Advisor).
- responsible for ensuring that all inductions provided will cover environmental management and environmental incident management procedures;
- responsible for ensuring that all Contractor personnel and sub-contractors are made aware on environmental matters and compliance with the Contractors EMP(s) and applicable Seagreen Consents and Consent Plans; relevant environmental legislation/, relating to the construction of the Seagreen;
- have processes in place to comply with the Seagreen consents including this Offshore CEMP to manage potential environmental risks;
- have task specific method statements and risk assessments in place in advance of works, to ensure consistency and compliance with the Contractor EMP and in so doing the Seagreen Offshore CEMP;
- Ensuring that Sub-Contractors adhere to the requirements of the Contractor EMP(s) (and in so doing, the Seagreen Offshore CEMP); and task specific method statements and risk assessments;

- Monitor compliance with the Contractor EMP(s) and task specific method statements and risk assessments during construction, and in so doing the Seagreen Offshore CEMP. Activities are likely to include (but are not limited to) audits, spot-check and drills etc.
- Reporting any environmental non-compliance directly to the Client Representative and Seagreen's ECoW;
- Producing and maintaining records of environmental related activity on-site and communicating those to the Seagreen's ECoW to enable reporting of compliance to MS-LOT; and
- Liaising with Seagreen ECoW, Seagreen EM, and Seagreen's FLO, where required.

3.2.14 Contractor's Construction Environmental Advisor (CEA)

Reports to: Contractor

Seagreen Contractor(s) are required to appoint a suitably qualified and competent Construction Environmental Advisor (CEA). 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 Seagreen). The Construction Environmental Advisor will be dedicated to delivering the requirements of the Seagreen consent conditions and wider environmental matters, and as such must be provided with adequate resources and authority to enable the requirements to be managed effectively in relation to the Contractor's works.

The Construction Environmental Advisor will, as a minimum provide the following to the contractor:

- lead on all environmental matters connected with the Contract, including compliance with environmental laws, the provision of environmental information to Seagreen, environmental incident prevention and response management;
- act as key interface between the Contractor and Seagreen in relation to compliance with the requirements of Seagreen's Consents, environmental laws and guidance applicable to the works;
- liaising with the Seagreen's Ecological Clerk of Works;
- develop and deliver environmental performance and compliance reporting procedures, the content of which must be approved in writing by Seagreen;
- develop and implement the Contractor's Environmental Management Plan, in compliance with the Seagreen Offshore Construction Environmental Management Plan (**LF000009-CST-OF-PLN-0014**), as required by the Contract;
- develop and provide environmental training and induction on the Permits and Consents and Third Party Agreements and the Contractors' Environmental Management Plan, for all Contractor personnel (including Contractor subcontractor personnel);

- maintain training and induction records for the duration of the Seagreen Project Works and provide to Seagreen copies of the records as they accrue on a monthly basis;
- approve the environmental elements of the Contractor's method statements, through the Contractor's internal approval process prior to submission to Seagreen (where relevant);
- ensure the Contractor's compliance with the Permits and Consents and other legal and contractual requirements;
- undertake audits of the Contractor's and subcontractor(s) including compliance with legal and contractual requirements;
- provide advice and instruction to construction teams to deal rapidly and effectively with Seagreen Consents non-conformities and environmental incidents;
- analyse individual environmental incidents / non-compliance to identify trends, root causes and the corrective and preventive actions needed, and to report these to Seagreen.

3.2.15 Contractor Offshore Fisheries Liaison Officer (OFLO)

Reports to: Contractor

The Contractor shall appoint Offshore Fisheries Liaison officers (OFLOs) who will be present on main installation vessels whilst these are performing the Works at the offshore site. The Contractor OFLOs position is a key personnel position included in contract.

The Contractor OFLOs shall be a Suitably Qualified and Experienced Person. A Suitably Qualified and Experienced Person in relation to Contractor OFLOs for the Seagreen Project 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 and who has experience of working in the outer Forth and Tay region with the local fishing industry in and around the Offshore Site".*

The Contractor OFLOs shall, as a minimum:

- maintain regular contact with the Seagreen FLO and Seagreen personnel, as required, concerning marine traffic and fishing vessel activity in the outer Firth of Forth;
- communicate with the Vessel Master in respect of providing any relevant information to fishing vessels. When the vessel is not engaged in marine operations, the Contractor OFLO should work with the Vessel Master to avoid, where possible, fishing vessels actively engaged in fishing operations;
- liaise with any fishermen who may have static gear deployed in the outer Firth of Forth or along vessel transit routes;
- work with the Vessel Master to ensure adherence with relevant aspects of the Seagreen **Fisheries Mitigation and Management Strategy (LF000009-CST-OF-PLN-0011);**
- develop and provide training for all vessel personnel to include induction and training for staff with specific fisheries liaison responsibilities;

- record the detail of any fishing activity in and around the OWFs and OTA of any events of infringement or movement or damage to static gear;
- provide a daily update report by email to Seagreen's FLO; and
- if required, attend meetings with Seagreen's personnel including the Seagreen's FLO.

3.3 ECoW Compliance Monitoring and Reporting

Seagreen ECoW compliance reporting to MS-LOT, will be provided in the **Seagreen ECoW Monthly Compliance Report (Appendix D).**

MS-LOT may also undertake monitoring of compliance with the consents and approved Consent Plans through periodic site inspections. With appropriate notification, Seagreen will facilitate access to all offshore construction activities for this purpose.

The following sources of data may be utilised (but not limited to) by the Seagreen ECoW in order to monitor compliance to consent plans, as detailed further in Table 3.1:

Table 3.1: Proposed Routine Seagreen Personnel Construction Environmental Reporting

Aspect	Summary of requirement	Responsibility	Frequency
Daily Progress Reports (DPRs)	Log of daily activities covering the previous 24 hours, including records of any environmental incidents/observations	Contractor	Daily
Daily activity logs	Log of daily activities upon Seagreen directly chartered vessels covering the previous 24 hours, including records of any environmental incidents/observations	Where applicable, Seagreen directly chartered vessels	Daily
Daily progress emails	Email from Offshore Seagreen personnel updating Seagreen construction team on progress (including tracking progress; details of incidents/observations; highlight issues/risks etc.)	Seagreen Client Representatives/Offshore Client Representatives	Daily (occasionally one every 6 hours if 24 hour working)
Seagreen Control Room DPRs	Log of daily commissioning/energisation activities being undertaken by Seagreen personnel prior to handover to Seagreen Operations	Seagreen Lead Commissioning Manager / Special Authorised Person (SAP)	Daily
Marine coordination update	Daily call to discuss Safety, Health and Environment (SHE) incidents, activities during the previous 24 hours and a look ahead to activities taking place over the following 24 hours. Interaction with fisheries shall also be covered.	Marine Coordinator	Daily
Marine coordination update minutes	Written record of daily marine coordination updates including progress diagrams and vessel reports	Marine Coordinator	Daily
Seagreen FLO activity summary report	Log of Seagreen FLO activities and spreadsheet monitoring compliance with the FMMS	Seagreen FLO	Monthly

Aspect	Summary of requirement	Responsibility	Frequency
SHE Observation Cards (HOCs)[2] and incident notifications	Reporting dependent on safe system of working used	Seagreen and Seagreen chartered vessels	as and when they occur
Vessel walkdown	Vessel walkdown to be conducted . General aspects to be checked include: • documentation • bunkering • ballast water • wastes • chemicals and oils • deposits and dropped objects • INNS and anti-fouling • vessel personnel awareness Findings and recommendations to be discussed with and actioned by the Contractor. Seagreen will track findings/recommendations until satisfactory close-out.	Seagreen Environment Manager, Seagreen and/or SHE Manager Seagreen (may be delegated to ECoW if required).	prior to vessel mobilisation to the OWF site(s) during works activity, depending on scale and nature of activity.
Marine Pollution Contingency Plan (MPCP Drills)	Monitoring of MPCP drills for relevant vessel and offshore installations depending on spill risk. These MPCP drills should be conducted by the Contractor prior to vessel mobilisation or prior to fuel being bunkered to an offshore installation. Note this is in addition to vessel SOPEP drills required under MARPOL.	Seagreen Environment Manager	Prior to vessel mobilisation to the OWF site(s) Prior to fuel being bunkered to offshore installations. Periodically, to be agreed with Contractors thereafter.

Monitoring of any environmental effects of the Seagreen Project is set out in the **Project Environmental Monitoring Programme (PEMP) (LF000009-CST-OF-PRG-0003),** as required by the Section 36 and Marine Licence consent conditions, and covers the preconstruction, construction and operational phases. The primary focus of the preconstruction monitoring is on seabirds and marine mammals.

3.3.1 Routine Reporting, Notifications and Communications to Stakeholders

This section covers Seagreen routine reporting, notification and communications to Scottish Ministers and relevant stakeholders (including, but not limited to, the JNCC, SNH, SEPA, RSPB Scotland, MCA and NLB), as required as part of this Offshore CEMP and as set out in the consent conditions.

[2] Note: used to describe the means by which observations are captured and reported.

Table 3.2 outlines proposed routine reporting requirements, with **Appendix E: Construction phase Seagreen Proposed Contractor deliverables and check sheets** identifying Contractor routine reporting requirements.

Table 3.2: Proposed Routine Seagreen Reporting, Notifications and Communications to Stakeholders

Activity	Summary of requirement	Responsibility	Frequency	Report to
ECoW Monthly Compliance Report	As shown in Appendix D, the report will detail construction progress and issues.	Seagreen ECoW	Monthly	Marine Scotland
Seagreen Progress Update	Seagreen determined by construction/compliance activity levels	Seagreen CM and Seagreen ECoW	Teleconference monthly and meetings quarterly	Marine Scotland
Piling Strategy (PS) compliance report (if required)	Spreadsheet recording parameters that are used to monitor for compliance (see Seagreen Piling Strategy **(LF000009-CST-OF-PLN-0003)**	MMO	Weekly (during piling)	Seagreen ECoW
Weekly Notice of Operations (WNoO)	Publicly available update notice of marine operations targeted at other users of the sea	Marine Coordinator	Weekly	Sea Users
Marine coordination notifications	i.e. Notice to Mariners (NtM) and Notice to Airmen (NOTAM)	Marine Coordinator	As and when required depending on construction activity	Sea Users

3.4 Environmental Incidents and Non-Compliance Procedure

The Contractor is responsible for identifying and documenting all risks to the environment associated with their activities during the Seagreen project works and ensuring all suitable controls and processes to prevent spillage, environmental incident and non-compliance with Seagreen consents, as far as is reasonably practicable, should be implemented in advance of works. The Contractor is further responsible to have suitable response and reporting processes in place in advance of the works, if the above prevention measures fail, to be employed in the event of any spillage, environmental incident or including a non-conformance with Seagreen's consents.

The Contractor will produce a Contractor Marine Pollution Contingency Plan that is compliant to Seagreen's **Marine Pollution Contingency Plan (MPCP) (LF000009-CST-OF-PLN-0012)** and **LF000009-HSE-MA-PRO-0008 - Incident Reporting Procedure.**

The Contractor will report all environmental incidents (e.g. fuel / oil spill, protected habitat or species interaction etc) in accordance to their **MPCP** ensuring early notification to the Seagreen EM and SHE Manager as soon as reasonably practicable.

The Seagreen EM or SHE Manager will make contact with Marine Scotland, in relation to marine pollution events. The Seagreen ECoW will make contact with Marine Scotland in relation to non-compliances with Seagreen's consents.

Reporting of non-compliances to MS-LOT will be done using the template provided in **Appendix F - Seagreen ECoW Non-Compliance Report Template.**

In the unlikely event that a wildlife incident occurs, such as injury to a marine mammal, or an observed fish or bird mortality, the contractor or responsible member of staff will notify Seagreen as soon as reasonably practicable. This should be to the Seagreen Environment Manager or Seagreen ECoW in the first instance. Seagreen will then report to MS-LOT no later than 72 hours of the incident.

Definitions of Environmental Incident or Non-Compliance Event is presented in Table 3.3;

Table 3.3: Environmental Incident and Non-Compliance Definitions

Class	Definition	Actions
Major environmental incident/non-compliance event	An event that is likely either by emission or breach of regulatory authorities consents, to cause significant environmental harm. The remediation of the environmental damage is outside of the capability of Contractor. May require assistance from government agencies and / or other external resources. Many widespread or long-term complaints. Short term national or long-term local media interest. Ecosystem damage lasting over a year.	• Immediate stoppage of works by Contractor. • Contractor to immediately implement incident response procedures. • Incident requires immediate notification to Seagreen per the **LF000009-HSE-MA-PRO-0008 - Incident Reporting Procedure**. • Incident requires immediate notification of the regulatory authorities by Seagreen. • Following the incident, Contractor to complete incident reporting and issue to Seagreen Environment Manager, SHE Manager and ECoW. • Seagreen and Contractor to hold incident meeting. • Following the incident meeting, Seagreen ECoW Major Environmental Incident/Non-Compliance Report to be completed with input from the Contractor and Seagreen and issued to the regulatory authorities. Meeting to be held between Seagreen and the regulatory authorities to discuss the content of the Report. • Incident likely to require management practices in addition to the implementation of the appropriate environmental management plan (either Seagreen's or the Contractors). Where this is the case management practices must be agreed with Seagreen and regulatory authorities where appropriate prior to implementation. • Seagreen ECoW to log event and detail on ECoW Monthly Compliance Report.
Serious environmental incident/non-compliance event	An event that is likely either by emission or breach of regulatory authorities consents, to cause environmental harm, but which remediation of the environmental damage is within the capability of the Contractor. Several complaints from individuals and short-term local media interest. No long-term ecosystem damage.	• Contractor to immediately implement incident response procedures. • Incident requires immediate notification to Seagreen per the **LF000009-HSE-MA-PRO-0008 - Incident Reporting Procedure**. • Incident to be reported to the relevant regulatory authorities as per specific incident procedures (see Appendix E for details). • Following the incident, Contractor to complete incident reporting and issue to Seagreen ECoW.

Class	Definition	Actions
		• Seagreen ECoW to log event, detail on ECoW Monthly Compliance Report and discuss with relevant regulatory authorities at regular progress meetings. • Incident may require management practices in addition to the implementation of the appropriate environmental management plan (either Seagreen's or the Contractors). Where this is the case management practices must be agreed with Seagreen and regulatory authorities where appropriate prior to implementation.
Minor environmental incident/non-compliance event	A localised environmental event such as release, spillage or discharge that does not typically require outside notification and can be corrected by available personnel and/or materials. Single breach of the regulatory authorities consent conditions.	• Contractor to implement incident response procedures. • Incident will be reported by the Contractor as detailed in Appendix D. • Seagreen ECoW to log event and detail on ECoW Monthly Compliance Report. • Incident can be appropriately managed through implementation of appropriate Contractor environmental management plan. • Incident does not require Seagreen regulatory authorities to be involved, but is reported to Seagreen Environment Manager for logging onto Seagreen SEARs database system **LF000009-HSE-MA-PRO-0008 - Incident Reporting Procedure**.

3.5 Environmental Personnel Competency and Training

Contractors will provide appropriate training to all Contractor personnel (including Sub-Contractor personnel) covering the content of their Contractor's Environmental Management Plan(s) that are compliment to this Offshore CEMP and all of Seagreen Consents.

The Contractors will maintain training records and provide copies of the records to Seagreen, as required.

In addition, each Contractor will ensure all personnel are made aware of the Contractors compliance monitoring registers, to ensure evidence is provided of compliance to all Seagreen Consents and licences.

4. Management of Environmental Aspects and Compliance Obligations

4.1 Overview

This section splits out the key environmental aspects that relate to the construction phase and then details the overarching approach to management of related environmental impacts, as identified in the Seagreen Environmental Statement (ES) and ES Addendum). See Appendix G: Seagreen ES and ES Addendum commitments registers.

In addition, each Contractor is required to produce a project environmental aspects and impact register to demonstrate that the Contractor has complied with the Seagreen consents and licences and Consent Plans.

Similarly, each Contractor is required to produce a project environmental compliance obligations register, to demonstrate relevant legal and other requirements have been identified and are being managed effectively as part of their work scope.

4.2 Marine Species

The environmental surveys completed for the ES identified environmental sensitivities and the appropriate management and mitigation commitments to be followed as part of the consent applications and reflected in the consents conditions.

Monitoring plans are detailed in the **Project Environmental Monitoring Programme (PEMP) (LF000009-CST-OF-PRG-0003),** which presents measures to monitor any environmental effects of the Seagreen Project, including pre-construction, during construction and post-construction surveys. The PEMP is a live document and will be amended as the project progresses and further monitoring data becomes available. The results of those surveys will be considered in terms of the environmental sensitivities identified and where necessary consideration will be given to the need for additional environmental mitigation to be developed in discussion with MS-LOT and FTRAG.

In the unlikely event that a wildlife incident occurs, such as injury to a marine mammal, or an observed fish or bird mortality, the Contractor or responsible member of staff will notify Seagreen Environmental Manager or ECoW as soon as practicable, with details of the activity taking place, photographs, and weather conditions present as a minimum.

The requirement to manage vessel operations to take account of potential disturbance to marine mammals and birds is set out in the **Offshore Piling Strategy (PS) (LF000009-CST-OF-PLN-0003)** and **Vessel Management Plan (VMP) (LF000009-CST-OF-PRG-0003**). If required Seagreen will apply for an EPS Licence European Protected Species (EPS).

4.3 Marine Archaeology

The procedures to be followed on discovering any marine archaeology during the construction, operation, maintenance and monitoring of the Seagreen Project, is set out in the **Marine Archaeological Written Scheme of Investigation & Protocol for Archaeological Discoveries ("WSI & PAD") (LF000009-CST-OF-PLN-0002).**

4.4 Other Marine Users

Seagreen's approaches to manage and mitigate potential impacts on other marine users are provided in the following Consent Plans;

- **Navigational Safety Plan (NSP) (LF000009-CST-OF-PLN-0007)**
- **Lighting and Marking Plan (LMP) (LF000009-CST-OF-PLN-0010)**
- **Construction Method Statements (CMS) for the OWFs** and **OTA (LF000009-CST-OF-MST-0001, LF000009-CST-OF-MST-0002)**
- **Fisheries Mitigation and Management Strategy (FMMS) (LF000009-CST-OF-PLN-0011)**
- **Vessel Management Plan (VMP) (LF000009-CST-OF-PRG-0003**).

Specifically measures covered by these plans include:

- The adoption of safety zones;
- Appropriate notification of construction activities to other marine users;
- Appropriate charting of the OWFs;
- A clear process of marine coordination of all vessels and vessel activity;
- Appropriate marking and lighting of vessels;
- Appropriate marking and lighting of the Wind Farm and OTA; and
- Vessel transit planning, commercial fisheries relations and management of commercial fisheries interactions.

4.5 Marine Pollution Prevention and Contingency Planning

In the event of a pollution incident, construction personnel should refer immediately to PART 2 of the **Marine Pollution and Contingency Plan ("MPCP") (LF000009-CST-OF-PLN-0012**) for details on appropriate response procedures.

The requirement to set out the environmental management framework for the pollution prevention and contingency planning arises from the S36 consent condition 14b and OTA Marine Licence Condition 3.2.1.2 c related to this Offshore CEMP, with the relevant condition set out in Table 1.1.

Detailed plans for the prevention of pollution incidents on-site, and management of any incidents that may occur are presented in the Seagreen Marine Pollution Contingency Plan (MPCP) (LF000009-CST-OF-PLN-0012). Chemicals and Fuel Oil Usage

The requirement to set out the environmental management framework for the use of chemicals during the construction of the OWFs arises from specific requirements in the Marine Licences, specifically:

> *Wind Farm/OTA Marine Licence Condition 3.1.7: "The Licensee must ensure that all chemicals which are to be utilised in the Works have been approved in writing by the Licensing Authority prior to use. All chemicals utilised in the Works must be selected from the List of Notified*

Chemicals assessed for use by the Offshore oil and gas industry under the Offshore Chemicals Regulations 2002, unless approved in writing by the Licensing Authority".

Wind Farm/OTA Marine Licence Condition 3.1.8: "…The Licensee must ensure that all substances and objects deposited during the execution of the Works are inert (or appropriately coated or protected so as to be rendered inert) and do not contain toxic elements which may be harmful to the marine environment, the living resources which it supports or human health…" [for full condition refer to Marine Licences]

Wind Farm/OTA Marine Licence Condition 3.2.1.6: "The Licensee must ensure suitable bunding and storage facilities are Offshore employed to prevent the release of fuel oils, lubricating fluids associated with the plant and equipment into the marine environment".

4.5.1 Environmental Management Associated with Chemical Usage

The List of Notified Chemicals is a product of the Offshore Chemical Notification Scheme (OCNS) which manages chemical use and discharge by the UK and Netherlands Offshore petroleum industries. The scheme is regulated in the UK by the Department of Business, Energy and Industrial Strategy (BEIS) using scientific and environmental advice from Centre for Environment, Fisheries and Aquaculture Science (Cefas) and Marine Scotland.

During Construction and commissioning phases each Contractor must submit a list of all chemicals which through their mode of use, are expected in some proportion to be discharged to sea and those chemicals that will be included within closed systems in equipment operated in and/or over the marine environment. No other chemicals are required to be listed.

This chemical list is to be provided to Seagreen prior to each Contractor offshore works and is expected to be periodically updated. General rules for chemical usage, for chemicals that fall under the above requirements, is that they cannot be used until the Contractor has submitted to Seagreen on their chemical list and Seagreen has approved them following approval from MS-LOT.

Those chemicals expected in some proportion to be discharged to sea during the works are required to be on the OCNS list, and where not, they cannot be used unless approved by MS-LOT.

For chemicals that will be included within closed systems in equipment operated in and/or over the marine environment and not discharged to sea these need to be notified to Seagreen in the Contractor chemical list prior to use. They do not require to be a chemical listed on the OCNS list or require prior approved by Seagreen or MS-LOT (for environmental reasons) but Seagreen and MS-LOT do require prior notification before use.

In addition, Seagreen require that all Contractors (and their Sub-Contractors) have in place appropriate procedures for the use, transport and storage of **all** chemicals during the construction phase of the OWFs (as appropriate) to prevent spillages. These measures must also be compliant with other chemical regulation including Control of Substances Hazardous to Health (COSHH). Where spillage does take place, Contractors are required to follow specific spill prevention and response measures as detailed within the **Marine Pollution Contingency Plan (MPCP) (LF000009-CST-OF-PLN-0012)** and Contractors are also required to produce their own MPCP that are complaint to **LF000009-CST-OF-PLN-0012,** in advance of any works.

4.5.2 Environmental Management Associated with Fuel Oil and Lubricating Fluids

Fuel oil is not considered 'a chemical' requiring to be noted on each Contractor's list of chemicals as this is under separate regulation.

Fuel oil is to be transferred at port only, whilst engaged in the Seagreen Project. Offshore fuel bunkering **will not be permitted** unless otherwise agreed in advance by Seagreen personnel including the Seagreen Environment Manager, ECoW and Marine Co-ordination Manager. Offshore fuel bunkering if approved will be considered a contingency measure only.

Where offshore fuel bunkering has been agreed in advance with Seagreen, Ship to Ship Transfer regulations exemption is required by each Contractor (or their Sub-Contractors) with MCA. This is typically a request for exemption to MCA via letter.

Information required by MCA from each Contractor (or their Subcontractors) to consider the exemption will include a bunker plan and procedure arrangements. It will also include additional precautions required by MCA such as fuel bunker hose certification and regular inspections, bunker station emergency stop, trained SOPEP team, offshore response contractors providing support during bunkering and details of the fuel oil provider(s) to be used and a summary of their precautions, bunkering procedures and experience/certifications. Exact arrangements must be confirmed by each Contractor with MCA and approval is required by MCA sufficiently in advance of offshore fuel bunkering taking place. This approval **must be confirmed to Seagreen prior to offshore fuel bunkering taking place.** On-going notification to MCA is required prior to each offshore fuel bunkering taking place and the Seagreen Environment Manager, Seagreen ECoW and Marine Co-ordination Manager must be copied into communications with MCA.

Fuel oil management measures required by each Contractor (and/or their subcontractors) must be in compliance with MARPOL Annex I (including fuel oil management, machinery space discharges and record keeping) Seagreen MPCP response measures and MARPOL Annex VI (including fuel efficiency and air pollution control measures) and also with corresponding UK merchant shipping regulations. The percentage fuel sulphur content to be used on vessels by Contractor (and/or their subcontractors) must be compliant with up-to-date North Sea location specific percentage sulphur requirements required by law.

A lubricating fluid may be appropriate depending on its use i.e. a lubricant used in the construction works would be considered a chemical required to be added on the above list of chemicals. Lubricating fluids exempt from the list of chemicals would be those used for maintenance for vessel equipment not used over or in the water.

In addition, Seagreen require that all Contractors (and their Sub-Contractors) have in place appropriate procedures for the use, transport and storage of fuel oil and lubricating fluids during the construction phase of the OWFs (as appropriate) to prevent spillages. These measures must also be compliant with other fuel oil and lubricating oil handling regulations. Where spillage does take place, Contractors are required to follow specific spill prevention and response measures detailed within the **Marine Pollution Contingency Plan (MPCP) (LF000009-CST-OF-PLN-0012)** and Contractors are also required to produce their own MPCP that are complaint to **LF000009-CST-OF-PLN-0012,** in advance of any works.

4.6 Marine Invasive Non-Native Species

In adopting management measures to prevent the introduction of invasive non-native species (INNS), Seagreen will:

- Require through conditions of contract that all Contractors (and their Sub-Contractors) adopt the relevant and most current legislative requirements ad guidelines at the time of carrying out their works;
- Require through conditions of contract that the Contractors (and their Sub-Contractors) produce EMPs setting out in detail procedures to prevent the introduction of INNS.

The most current legislation and guidelines relevant to the control of INNS, are shown in Table 4.1.

Table 4.1– Legislation or guidelines relating to management measures to prevent the introduction of INNS

Legislation / Guidelines	Summary	Relevant requirement
International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM) – adopted 2004	Objective to prevent, minimise and ultimately eliminate the transfer of harmful aquatic organisms and pathogens though control and management of ships' ballast water and sediments. Under this Convention, all ships of 400 gross tonnes (gt) and above will be required to have on board an approved Ballast Water Management Plan and a Ballast Water Record Book, and to be surveyed and issued with an International Ballast Water Management Certificate.	Ballast Water and Sediments Management Plan Ballast Water Record Book International Ballast Water Certificate
The Merchant Shipping (Anti-Fouling Systems) Regulations 2009	Prohibits the use of harmful organotin compounds in anti-fouling paints used on ships and will establish a mechanism to prevent the potential future use of other harmful substances in anti-fouling systems and provides the UK legal framework for enforcement of Regulation (EC) 782/2003 on the prohibition of organotin compounds on ships. Requires an **International Anti-fouling System Certificate** issued by the MCA to be held by ships of 400 gross tonnage or above and every ship which is certified to carry 15 or more persons.	International Anti-fouling System Certificate
Resolution Mepc.207(62) 2011 Guidelines For The Control And Management Of Ships Biofouling To Minimise The Transfer Of Invasive Aquatic Species	The Guidelines are intended to provide useful recommendations on general measures to minimize the risks associated with biofouling for all types of ships.	General guidance on minimising biofouling risks

Specific measures that Seagreen will require are adopted by all Contractors (and their Sub-Contractors) will include, but not be limited to:

- A requirement for all vessels of 400 gross tonnage (gt) and above to be in possession of a current international Anti-fouling System (AFS) certificate;
- A requirement for all vessels of 24m or more in length (but less than 400gt) to carry a declaration on AFS signed by the owner or authorised agent accompanied by appropriate documentation;

- A requirement for the details of all ship hull inspections and biofouling management measures be documented by the Contractors (and their Sub-Contractors) and, where applicable, recorded in the Planned Maintenance System.
- A requirement for all submersible / immiscible equipment e.g., ROVs (if required) to be subject to pre-use and post-use checks including checks for the presence of marine growth. All equipment will be required to be free of marine growth prior to mobilisation.
- A requirement for all vessels to be compliant (where applicable) with the International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM Convention, developed and adopted by the International Maritime Organisation (IMO, and which came into force on the 8th September 2017)):
- A requirement, where relevant, for the management of ballast water in accordance with an approved Ballast Water and Sediments Management Plan and records of such management in a Ballast Water Record Book in accordance with the provisions of the Convention.
- A requirement that, where appropriate, ballast water management meets the ballast water performance standards as detailed in the BWM Convention;
- A requirement to meet MCA timescales for BWM compliant ballast water treatment systems to be installed on relevant vessels (in line with vessel types and their International Oil Pollution Prevention re-certification dates).
- A requirement, in the interim prior to ballast water treatment systems requiring to be installed per MCA timescales, where reasonably practicable, and if required, for Ballast Water Exchange to take place at least 50 nm from the nearest land and in 200 m water depth.
- A requirement, where intra-country North Sea Ballast Water Exchange is required, that because of lack of suitable water depths that exchange is conducted in agreed locations with MCA and Seagreen Environment Manager and ECoW.
- Seagreen's preference is for vessels to have ballast water treatment systems installed which are compliant with BWM Convention requirements. Where the Contractor (and their Sub-Contractors) cannot meet this standard, their proposed alternative ballast water management strategy must be agreed and provided to MCA (who will also consult with SNH and SEPA). Contractors must provide evidence of MCA approval to Seagreen Environmental Manager where applicable.

In addition, Contractors (and their Sub-Contractors) are required to consider the recommendations of Resolution MEPC.207(62) 2011 guidelines for the control and management of ship's biofouling to minimise the transfer of invasive aquatic species including, for example, the implementation of a Biofouling Management Plan outlining the biofouling management measures to be undertaken on vessels.

4.7 Waste Management

Seagreen require through conditions of contract that all Contractors (and their Sub-Contractors) for the construction of the Seagreen Project shall produce a **Waste Management Plan,** that detail all waste management procedures for their activities, details of expected waste arisings and proposed procedures for waste management.

In addition, the following will be included in the Waste Management Plan, as the Contractors' responsivities;

- Meet all relevant legislative requirements and obtain whatever additional permits and licences are necessary in relation to waste management;
- Handle waste materials and refuse so that it causes the least practicable damage and disturbance;
- Place all waste in suitably labelled secure containers;
- Reduce waste to landfill through waste elimination, reduction and recycling measures where feasible;
- Contain, recover and bring all relevant waste back to shore and dispose of such waste in accordance with the legal waste management framework; and
- Transfer the waste or refuse only conducted by licensed waste carriers and waste treatment and waste disposal is conducted by licensed and permitted waste management companies, in compliance with applicable waste legislation.
- Be compliant with and use the current version of Transfrontier Shipment of Waste Regulations where Seagreen waste is being exported by Contractors (or their subcontractors). Export of waste will also be in line with the principles of the Basel Convention of 1989, which was agreed internationally to avoid hazardous waste being unfairly exported to developing countries.
- All qualifying vessels must demonstrate compliance with MARPOL Annex V (and equivalent current UK merchant shipping regulations) for waste management generally and MARPOL Annex IV (and equivalent current UK merchant shipping regulations) for sewage waste specifically.
- Waste incineration offshore is not permitted on the Seagreen project unless clear demonstration on compliance with MARPOL North Sea waste incinerations exemptions can be provided and are approved by Seagreen in advance of any waste incineration being conducted.
- Waste incineration at port is not permitted.

The Contractor will provide the Waste Management Plan to Seagreen for acceptance prior to the commencement of works.

4.8 Dropped Objects

The requirement to record, notify and potentially recover objects lost or accidentally deposited on the seabed during construction and operation works arises from specific requirements in the consents; the relevant consents conditions are set out in Table 4.2 below (the specific elements of the consents conditions addressed by the procedures described in this section are highlighted in bold).

Table 4.2 – Consents conditions relevant to notification of dropped objects

Consent Condition	Requirement
Wind Farm/OTA Marine Licence Condition 3.1.3	**Should the Licensee or any of their agents, contractors or sub-contractors, by any reason of force majeure deposit anywhere in the marine environment any substance or object, then the Licensee must notify MS-LOT of the full details of the circumstances of the deposit within 48 hours of the incident occurring (failing which as soon as reasonably practicable after that period of 48 hours has elapsed).** Force majeure may be deemed to apply when, due to stress of weather or any other cause, the master of a vessel or vehicle operator determines that it is necessary to deposit the substance or object other than at the Site because the safety of human life or, as the case may be, the vessel, vehicle or marine structure is threatened. Under Annex II, Article 7 of the Convention for the Protection of the Marine Environment of the North-east Atlantic, MS-LOT is obliged to immediately report force majeure incidents to the Convention Commission.
Wind Farm Marine Licence Condition 3.2.2.1 OTA Marine Licence Condition 3.2.3.3	The Licensee must create, complete and submit to MS-LOT on the first working day of the month, a detailed transportation audit sheet for each month during the period when construction of the Works is undertaken, for all aspects of the construction of the Works. The transportation audit sheet must include information on the loading facility, vessels, equipment, shipment routes, schedules and all materials to be deposited (as described in Part 2 of this licence) in that month. Where, following the submission of a transportation audit sheet to MS-LOT, any alteration is made to the component parts of the transportation audit sheet, the Licensee must notify MS-LOT of the alteration in the following month's transportation audit sheet. **If the Licensee becomes aware of any substances or objects on the transportation audit sheet that are missing, or an accidental deposit occurs, the Licensee must contact MS-LOT as soon as practicable after becoming aware, for advice on the appropriate remedial action.** Should the Licencing Authority deem it necessary, the Licensee must undertake a side scan sonar survey in grid lines (within operational and safety constraints) across the area of the Works, to include cable routes and vessel access routes from local service port(s) to the Site to locate the substances or objects. If MS-LOT is of the view that any accidental deposits associated with the construction of the Works are present, then the deposits must be removed by the Licensee as soon as is practicable and at the Licensee's expense.

Notification of dropped objects during the construction or operational phase will be completed using template reporting form agreed with MS-LOT.

The process to be followed in the event of any construction staff becoming aware that any object has been accidentally (or by need of Force Majeure) dropped or otherwise deposited is set out below in Table 4.3.

Note that separate provisions apply for the accidental loss of pollutants; these procedures are set out in the **MPCP (LF000009-CST-OF-PLN-0012**)

Table 4.3 – Dropped objects notification and remediation process

Dropped Objects
This Dropped Objects Procedure identifies the measures to be put in place to manage dropped objects during the construction phase of the Seagreen Offshore Wind Farm OWFs, including recovery

where reasonably practicable, and the recording of losses. This also includes procedures for communicating deposits made under circumstances of Force Majeure. Dropped objects can present a significant hazard to other sea users and the marine environment. Notification of dropped objects enables MS-LOT, in consultation with other relevant stakeholders, to decide what action should be taken and to allow notification of other sea users of any navigational hazards.
Prevention
Consideration should be given to minimising wherever reasonably practicable the potential for objects to be dropped or otherwise accidentally deposited. Each Contractor (and their Sub-Contractors) should have its own process for ensuring equipment and materials are adequately stored and controlled and staff are adequately trained and briefed on avoiding dropped objects or accidental deposits, and in the event that they do occur on this notification procedure. Each Contractor should complete the required vessel manifest and offshore installation manifest to record all materials, equipment and components being loaded and transported and deposited under the licensable activities permitted by the Marine Licences. The Contractor will be responsible for ensuring that the relevant Sub-Contractor details also compile their own manifests and contribute information to Contractor manifests where relevant.
Identification
If any Contractor or their Sub-Contractors become aware of any substance or objects on the manifests that are missing, or an accidental deposit occurs (for example by personnel observing or reporting that an object has been lost) the responsible Contractor (or their Sub-Contractor) will log the loss as soon as becoming aware of the incident and notify the Seagreen Marine Coordinator of the incident. Note that every reasonable measure should be taken to immediately retrieve dropped objects where this is considered reasonably practicable (a Marine Licence is not required for such recovery under The Marine Licensing (Exempted Activities) (Scottish Inshore and Offshore Regions) Amendment Order 2012).
Notification
If the object is not retrieved the Contractor (or their Sub-Contractors) will complete the agreed Dropped Object form and submit it to the Seagreen Environment and Compliance Manager to notify MS-LOT within 48 hours. The completed form will, at the same time, be provided to other relevant contacts stipulated by MS-LOT on current Dropped Objects Pro-forma. MS-LOT must also be notified of any activities to recover dropped objects that have been conducted but not been successful (or are considered unlikely to be successful) or that are planned (but may take some time) at the time of notification
Recovery

MS-LOT will provide advice to Seagreen/Contractor on appropriate remedial action in relation to each incident reported.

MS-LOT may deem it necessary to carry out a side scan survey to locate the substances or objects and may require the deposits to be removed by Seagreen (as set out under Wind Farm Marine Licence Condition 3.2.2.1 and OTA Marine Licence Condition 3.2.3.3).

The results of any such surveys must be analysed as soon as reasonably practicable and the proposed remedial action and proposals for recovery of the Dropped Object if appropriate must be provided to MS-LOT

4.9 Other

Where Contractors (and or/their subcontractors) have Radioactive Sources e.g. for measurement or for other reasons to be used offshore or at port, this must be declared to Seagreen in advance of use. The compliant Scottish Environment Protection Agency (SEPA) registration or licence (depending on type) will be required to be provided by each Contractor to Seagreen for each source and details of control measures will be reviewed by Seagreen prior to approval.

Unexploded Ordinances (UXO) could have a significant environment impact if triggered during offshore works, but as the applicable regulations are focussed on safety predominantly UXO controls will be covered by Contractors in their SHE Plan and Construction Phase Health & Safety Plans and fall out with the scope of this document.

A separate application will be made to Marine Scotland for a dredging licence if required following more detailed studies. Further, reuse of arisings from ground preparation as ballast will be investigated.

5. Seagreen Document References

Table 5.1 sets out those documents for the Seagreen project in relation to either Consent Plans or other reference documents.

Table 5.1 Seagreen Document References

Seagreen Document Number	Title
LF000009-CST-OF-PLN-0002	Marine Archaeological Written Scheme of Investigation & Protocol for Archaeological Discoveries
LF000009-CST-OF-PLN-0012	Marine Pollution Contingency Plan
LF000009-CST-OF-PRG-0002	Offshore Construction Programme
LF000009-CST-OF-PLN-0010	Offshore Lighting and Marking Plan
LF000009-CST-OF-PLN-0007	Offshore Navigational Safety Plan
LF000009-CST-OF-PLN-0001	Offshore Operational Environmental Management Plan
LF000009-CST-OF-PLN-0003	Offshore Piling Strategy
LF000009-CST-OF-PRG-0003	Offshore OWFs Environmental Monitoring Programme
LF000009-CST-OF-PLN-0009	Offshore Transmission Assets Cable Plan
LF000009-CST-OF-MST-0002	Offshore Transmission Assets Construction Method Statement
LF000009-CST-OF-PRG-0004	Offshore Transmission Assets Operation and Maintenance Programme
LF000009-CST-OF-PLN-0008	Offshore Wind Farm Cable Plan
LF000009-CST-OF-MST-0001	Offshore Wind Farm Construction Method Statement
LF000009-CST-OF-PRG-0001	Offshore Wind Farm Operations and Maintenance Programme
LF000009-CST-OF-PLN-0006	Offshore Vessel Management Plan
LF000009-HSE-MA-STD-0001	Employer SHE Requirements
LF000009-HSE-MA-PRO-0007	Vessel Inspection
LF000009-HSE-MA-PRO-0008	Incident Reporting

Appendix A – List of Abbreviations and Definitions

Term	Description
ARDM	Air Defence Radar Mitigation Scheme, as required under Alpha and Bravo Section 36 Conditions 21 and 22
Alpha Marine Licence	Marine licence granted by the Scottish Ministers under the Marine (Scotland) Act 2010 and the Marine and Coastal Access Act 2009 in respect of Seagreen Alpha Wind Farm on 10 October 2014 as amended by the revised marine licence granted by the Scottish Ministers on 28 August 2018 (reference 04676/18/0)
ATC	Air Traffic Control Radar Mitigation Scheme, as required under Alpha and Bravo Section 36 Condition 20
Audit	Inspection to confirm compliance and identify and correct non-compliances
BEIS	Department of Business, Environment and Industrial Strategy
Bravo Marine Licence	Marine licence granted by the Scottish Ministers under the Marine (Scotland) Act 2010 and the Marine and Coastal Access Act 2009 in respect of Seagreen Bravo Wind Farm on 10 October 2014 as amended by the revised marine licence granted by the Scottish Ministers on 28 August 2018 (reference 04677/18/0)
CaP	Cable Plan, as required under Alpha and Bravo Condition 18 of the Section 36 consent and the Offshore Transmission Asset Marine Licence Condition 3.2.2.10
CFMS	Commercial Fisheries Mitigation Strategy (now called the Fisheries Management and Mitigation Strategy (FMMS)), required under Alpha and Bravo Section 36 Condition 31 and the Offshore Transmission Asset Marine Licence Condition 3.2.1.4
CM	Seagreen Compliance Manager
CMS	Construction Method Statement as required under Alpha and Bravo Section 36 Condition 10 and the Offshore Transmission Asset Marine Licence Condition 3.2.2.4
commitments register	A register that sets out all commitments to manage and mitigate potential environmental impacts made by Seagreen
(the) consents	Collective term used to describe the Section 36 consents and Marine Licences issued to SAWEL, SBWEL and Seagreen
Construction Environmental Advisor	Seagreen's Contractor appointed Construction Environmental Advisor.
Construction HSPs	Construction Health and Safety Plans
Contractor	Means the CONTRACTOR as defined in the CONDITIONS OF CONTRACT.
Contractor Construction	Seagreen's Contractor produced CEMP (in compliance to the Seagreen Offshore CEMP) detailing how the Contractor will, as a minimum, implement and deliver the

Term	Description
Environmental Management Plan	commitments set-out in this. The Contractor Offshore CEMP will detail measures specific to the Contractor's deliverables.
Contractor Marine Pollution Contingency Plan (MPCP)	Seagreen's Contractor produced MPCP detailing how the Contractor will, as a minimum, i. bridge the Seagreen MPCP requirements with shipboard oil pollution emergency plan (SOPEP) of any vessel engaged in the works (either chartered to the Contractor or chartered to a Contractor's subContractor); and ii. consider prevention and incident planning/response measures in the event of a spill for any assets under the control of the Contractor.
CoP	Construction Programme as required under Alpha and Bravo Section 36 Condition 10 and the Offshore Transmission Asset Marine Licence Condition 3.2.2.3
Decommissioning Programme	Decommissioning Programme as required under Alpha and Bravo Section 36 Condition 3 and the Offshore Transmission Asset Marine Licence Condition 3.2.2.2
Design Statement	Design Statement as required under Alpha and Bravo Section 36 Condition 13 and the Offshore Transmission Asset Marine Licence Condition 3.2.2.7
DPR	the Contractor's submitted daily report on his progress on the offshore Works
DSLP	Development Specification and Layout Plan as required under Alpha and Bravo Section 36 Condition 12 and the Offshore Transmission Asset Marine Licence Condition 3.2.2.6
ECoW	Ecological Clerk of Works as required under Alpha and Bravo Section 36 Condition 29 and the Offshore Transmission Asset Marine Licence Condition 3.2.2.12.
EM	Seagreen Environment Manager
EPS	European Protected Species
ERP	Emergency Response Plan
ERCOP	Emergency Response Co-operation Plan
ES	Environmental Statement submitted by Seagreen on behalf of SAWEL and SBWEL on 15 October 2012 as part of the application for the consents
ES Addendum	The ES Addendum submitted to the Scottish Ministers by the Company on 18 October 2013 as part of the application for the consents
FLO	Fisheries Liaison Officer (Seagreen) as required under Alpha and Bravo Section 36 Condition 32 and the Offshore Transmission Asset Marine Licence Condition 3.2.2.13
FMMS	The term used to describe the deliverable required under Alpha and Bravo Section 36 Condition 31 and the Offshore Transmission Assets Marine Licence Condition 3.2.1.4. Note that the conditions state the requirement for a CFMS which is superseded by the Fisheries Management and Mitigation Strategy
FTOWDG-CFWG	Forth and Tay Offshore Wind Developers Group - Commercial Fisheries Working Group to facilitate commercial fisheries dialogue on behalf of Seagreen;

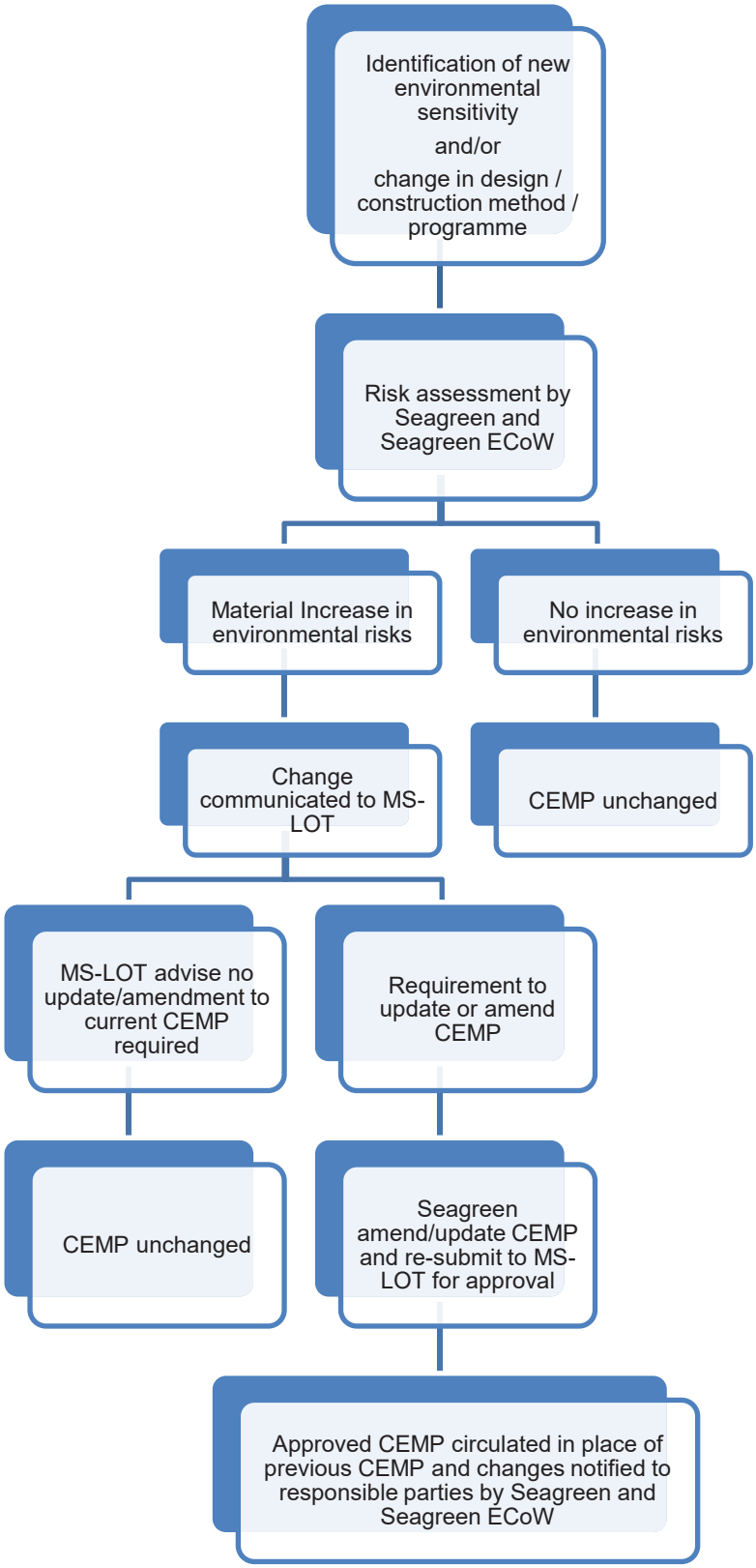
Term	Description
FTRAG	Forth and Tay Regional Advisory Group, required under Condition 27 of the S36 consent and Condition 3.2.3.10 of the Marine Licence
HDD	Horizontal Directional Drilling
HOC	Hazard Observation Card (term can vary depending on the type of safe system of working being utilised i.e. KRIMA, Synergi etc)
HRA	Habitats Regulations Appraisal
IMO	International Maritime Organisation
INNS	(marine) invasive non-native species
JNCC	Joint Nature Conservation Committee
Landfall site	The point above MHWS where the OTA export cables connects to the OnTW
Licensing Authority	Marine Scotland acting on behalf of the Scottish Ministers
Licensee	Seagreen Wind Energy Ltd (Seagreen), and having its registered office at Inveralmond House, 200 Dunkeld Road, Perth, PH1 3AQ, on behalf of SAWEL and SBWEL
LMP	Lighting and Marking Plan, required under Alpha and Bravo Section 36 Condition 19 and the Offshore Transmission Asset Marine Licence Condition 3.2.2.14
Marine Coordination	The management and surveillance of people, vessels and Offshore structures with regard to the safe preparation and execution of Offshore activities, in order to minimise the probability of an incident, and to provide effective response if an incident does occur
Marine Licence	The written Consents granted by the Scottish Ministers under Section 20(1) of the Marine (Scotland) Act 2010, which were issued on 10 October 2014
MCA	Maritime and Coastguard Agency
MHWS	Mean High Water Springs
MMO	Marine Mammal Observer
MOD Comms	Communications with Ministry of Defence
MPCP	Marine Pollution Contingency Plan, as required under Environmental Management Plan, Alpha and Bravo Section 36 Condition 14b and and the Offshore Transmission Asset Marine Licence Condition 3.2.1.2c
MS-LOT	Marine Scotland Licensing and Operations Team
non-compliance	refers to a non-compliance of ‘the consents’ of ‘the Seagreen Project’
NSP	Navigational Safety Plan as required under Alpha and Bravo Section 36 Condition 17 and the Offshore Transmission Asset Marine Licence Condition 3.2.2.9.
NtM	Notice to Mariners

Term	Description
O&M	Operation and Maintenance
OCNS	Offshore Chemical Notification Scheme
Operational EMP	Operation Environmental Management Plan (also referred to as OEMP)
Offshore CEMP	Construction Environmental Management Plan as required under Alpha and Bravo Section 36 Condition 14 and the Offshore Transmission Asset Marine Licence Condition 3.2.1.2 (also referred to as CEMP)
Offshore FLO	Seagreen's Contractor is required to will appoint Offshore Fisheries Liaison Officers who will be present on main installation vessels for the duration of the Contractors works
Offshore Site	as referred to in the CONDITIONS OF CONTRACT
OnTW	Onshore Transmission Works, from landfall consisting of onshore buried export cables and new transmission substation
OSP	Offshore Substation Platform means an alternating current Offshore substation platform which is a standalone modular unit that utilises the same substructure and foundation design as a wind turbine generator
OTA	Offshore Transmission Assets, connecting the Wind Farm to the OnTW. This covers the OSPs and the cable route from the OSPs to the Mean High Water Springs at Landfall at Carnoustie
OTA Marine Licence	Marine licence granted by the Scottish Ministers under the Marine (Scotland) Act 2010 and the Marine and Coastal Access Act 2009 in respect of the Seagreen Offshore Transmission Asset on 10 October 2014 as amended by the revised marine licence granted by the Scottish Ministers on 6 March 2019 (reference 04678/19/0)
OWF	the Offshore array development as assessed in the ES including wind turbine generators, their substructures and foundations, and associated inter-array cabling
PA	Project Alpha
PB	Project Bravo
PEMP	OWFs Environmental Monitoring Programme as required under Alpha and Bravo S36 Condition 26 and the Offshore Transmission Assets Marine Licence Condition 3.2.1.1
POLREP	Pollution Report for an Incident
PON	Petroleum Operations Notice
PRMS	Primary Radar Mitigation Scheme, as required for approval under Condition 23 of the S36 consent
PS	Piling Strategy, as required for approval under Condition 11 of the S36 consent and Condition 3.2.2.5 of the Marine Licence
RAF	Royal Air Force

Term	Description
S36 Consents	Consent under section 36 of the Electricity Act 1989 granted by the Scottish Ministers on 10 October 2014 in respect of the Seagreen Alpha and Seagreen Bravo offshore wind farms, both as varied by the Scottish Ministers by decision letter issued pursuant to an application under section 36C of the Electricity Act 1989 on 28 August 2018
SAC	Special Area of Conservation
SAP	Special Authorised Person
SAWEL	Seagreen Alpha Wind Energy Ltd (SAWEL) (company number 07185533) and having its registered office at No.1 Forbury Place, 43 Forbury Road, Reading, United Kingdom, RG1 3JH
SBWEL	Seagreen Bravo Wind Energy Ltd (SBWEL) (company number 07818554 and having its registered office at No.1 Forbury Place, 43 Forbury Road, Reading, United Kingdom, RG1 3JH
Seagreen Project	A collective term used to describe the OWFs and OTA
SEAR	Safety and Environmental Awareness Report
SEPA	Scottish Environment Protection Agency
SHE	Safety, Health, Environment
Site	The area outlined in red in Figure 1 attached to the S36 consent Annex 1 and the area outlined in red and the area outlined in black in the figure contained in Part 4 of the Marine Licence
SNH	Scottish Natural Heritage
SOC	Safety Observation Card (term can vary depending on the type of safe system of working being utilised i.e. KRIMA, Synergi etc)
SOPEP	Shipboard Oil Pollution Emergency Plan
Seagreen	Seagreen Wind Energy Limited, the parent company of Seagreen Alpha Wind Energy Ltd (SAWEL) and Seagreen Bravo Wind Energy Ltd (SBWEL), (company number 06873902)and having its registered office at No.1 Forbury Place, 43 Forbury Road, Reading, United Kingdom, RG1 3JH.
Toolbox talk	A short presentation given to team members on an aspect of environmental management
TTP	Traffic and Transportation Plan required under Section 36 Condition 25 and the Offshore Transmission Asset Marine Licence Condition 3.2.2.11
UKHO	United Kingdom Hydrographic Office
VIP	Vessel Information Pack
VMP	Vessel Management Plan, required under Condition 15 of the Section 36 Condition 15 and the Offshore Transmission Asset Marine Licence Condition 3.2.2.8

Term	Description
Wind Farm Marine Licences	the Alpha Marine Licence and the Bravo Marine Licence
WNoO	Weekly Notice of Operations
Works	Means WORKS as referred to in the CONDITIONS OF CONTRACT
WSI & PAD	Marine Archaeological Written Scheme of Investigation and Protocol for Archaeological Discoveries required under Alpha and Bravo Section 36 Condition 33 the Offshore Transmission Asset Marine Licence Condition 3.2.1.2b
WTG	Wind turbine generator

Appendix B – The Offshore CEMP Change Management Procedure



Appendix C – Offshore CEMP Condition Linkages to Other Consent Conditions and Consent Plans

Reference	Linkage with the Offshore CEMP	Cross-reference in this Offshore CEMP
OWFs Environmental Monitoring Programme (PEMP) (required by S36 Condition 26 and OTA Marine Licence Condition 3.2.1.1)	Sets out measures by which Seagreen will monitor the environmental impacts of the OWFs. Seagreen environmental management, mitigation and monitoring commitments have taken account of the results and any recommendations of pre-construction monitoring and will continue to be refined depending on the results of the ongoing programme of construction and monitoring described in the **PEMP (LF000009-CST-OF-PRG-0003)**	Section 4.0 (Management of Environmental Aspects)
ECoW (required by S36 Condition 29 and OTA Marine Licence Condition 3.2.2.12)	Sets out the identity, roles and responsibilities of the Offshore ECoW.	Section 3.2 (Environmental Roles and Responsibilities) Section 3.3 (Environmental Reporting) Appendix D (Seagreen ECoW Monthly Compliance Report template) Appendix F (Seagreen Environmental Incident and Non-Compliance Procedure)
Seagreen Environmental Statement (ES) and ES Addendum(required by S36 Condition 7)	The EMP must be in accordance with the ES and ES Addendum as it relates to environmental management measures.	Section 4.0 (Management of Environmental Aspects) Appendix G (Seagreen ES and ES Addendum commitments registers).
The Marine Pollution Contingency Plan (MPCP) (required under Condition 3.2.1.2c EMP - OTA Marine Licences)	Sets out the procedures to be followed in the event of a marine pollution incident. It also deals with chemical usage.	Section 4.0 (Management of Environmental Aspects)

Reference	Linkage with the Offshore CEMP	Cross-reference in this Offshore CEMP
The Licensee must ensure suitable bunding and storage facilities are Offshore employed to prevent the release of fuel oils, lubricating fluids associated with the plant and equipment into the marine environment. (required by Wind Farm Marine Licence 3.2.2.7 and OTA Marine Licence Condition 3.2.1.6)	The Seagreen Marine Contingency Pollution Plan identifies risk activities associated to release of fuel oils, lubricating fluids and their controls, which the Contractor requires to be compliant to either by use of the Seagreen MPCP, or their equivalent MPCP. **Marine Pollution Contingency Plan (MPCP) (LF000009-CST-OF-PLN-0012).**	Section 3.4 (Environmental Incidents)
The Wind Farm Construction Method Statement (CMS) (required by S36 consent Condition 10) and the OTA CMS (required by OTA Marine Licence Condition 3.2.2.4.)	Details the OWFs construction methods, setting out good practice construction measures and how mitigation measures proposed in the ES and SEIS (as captured within this Offshore CEMP) are being implemented during construction.	Section 4.0 (Management of Environmental Aspects)
Operations and Maintenance Programme (OMP) (Required under S36 Condition 16 and OTA Marine Licence Condition 3.2.3.2)	Sets out the procedures and good working practices for the O&M phase of the OWFs, considering environmental sensitivities.	The Operation phase Offshore EMP will be produced prior to final commissioning of the OWFs
Commercial Fisheries Mitigation Strategy (now called FMMS) (required under Condition 31 of the S36 consent and Condition 3.2.1.4 of the OTA Marine Licence)	Sets out the mitigation strategy relating to the commercial fishing industry in order to minimise or avoid effects on fishing vessels and activities. The FMMS will be completed in line with the **Offshore Construction Programme (LF000009-CST-OF-PRG-0002)**	Section 3.2.10 Seagreen FLO responsibilities. Section 3.2.15 Contractor OFLO responsibilities
Fisheries Liaison Officer (FLO) (required under Condition 32 of the S36 consent and Condition 3.2.2.13 of the OTA Marine Licence)	Sets out the identity, roles and responsibilities of the FLO.	Section 3.2 (Environmental Roles and Responsibilities).

Reference	Linkage with the Offshore CEMP	Cross-reference in this Offshore CEMP
Archaeological reporting protocol (required under Condition 33 of the S36 consent and Condition 3.2.2.16 of the OTA Marine Licence)	Sets out the reporting protocol in the event of marine archaeological discoveries being made prior to, during or following construction of the OWFs.	Section 4.0 (Management of Environmental Aspects)
S36 Consent Condition 8	As far as reasonably practicable, the Company must, on being given reasonable notice by the Scottish Ministers (of at least 72 hours), provide transportation to and from the Site for any persons authorised by the Scottish Ministers to inspect the Site.	Section 3.3 (Environmental Reporting)
Wind Farm/OTA Marine Licence Condition 3.1.3	Should the Licensee or any of their agents, Key Contractors or Sub-Contractors, by any reason of force majeure deposit anywhere in the marine environment any substance or object, then the Licensee must notify the Licensing Authority of the full details of the circumstances of the deposit within 48 hours of the incident occurring (failing that, as soon as reasonably practicable after that period of 48 hours has elapsed	Section 4.9 (Dropped Objects)
Wind Farm/OTA Marine Licence Condition 3.1.8 (Partial)	All reasonable, appropriate and practicable steps must be taken to minimise damage to the Scottish marine area and the UK marine licensing area.	This Offshore CEMP, for approval by the Licensing Authority, incorporating the requirements of the Appendix G ES/SEIS Commitments register and consents
	Any debris or waste material placed below MHWS during construction and operation must be removed for disposal above MHWS as approved by SEPA.	Section 4.8 (Waste Management)
	All substances and objects deposited during the execution of the Wind Farm/OTA must be inert (or appropriately coated or protected so as to be rendered inert) and must not contain toxic elements.	Section 4.5 (Marine Pollution and Contingency Planning)

Reference	Linkage with the Offshore CEMP	Cross-reference in this Offshore CEMP
	The risk of transferring marine non-native species to and from the Site must be kept to a minimum by ensuring appropriate bio-fouling management practices are implemented.	Section 4.7 (INNS)
S36 consent Condition 30 OTA Marine Licence Condition 3.2.2.12	The responsibilities of the ECoW must include: quality assurance of all plans and programmes; provision of advice on compliance with consent conditions; monitoring compliance; providing compliance reports to the Scottish Ministers; and inducting site personnel on environmental policy and procedures.	Section 3.2.9 (Roles and Responsibilities)
Wind Farm/OTA Marine Licence Condition 3.1.9	The Licensee must ensure that copies of this licence are available for inspection by any authorised marine enforcement officer at: a) the premises of the Licensee; b) the premises of any agent, Contractor or sub-Contractor acting on behalf of the Licensee; c) any onshore premises directly associated with the Wind Farm/OTA; and d) aboard any vessel engaged in the Wind Farm/OTA.	Section 2
Wind Farm/OTA Marine Licence Condition 3.1.10	Any persons authorised by the Licensing Authority must be permitted to inspect the Wind Farm/OTA at any reasonable time. Seagreen must provide transportation to and from the Site on reasonable notice of at least 72 hours.	Section 3.3 (Environmental Reporting)
Wind Farm Marine Licence Condition 3.2.2.1 OTA Marine Licence Condition3.2.3.3	The Licensee must create, complete and submit to the Licensing Authority on the first working day of the month, a detailed transportation audit sheet for each month during the period when	Section 4.9 (Dropped objects) See also Section 3.3 (Environmental Reporting)

Reference	Linkage with the Offshore CEMP	Cross-reference in this Offshore CEMP
	construction of the Wind Farm/OTA is undertaken, for all aspects of the construction of the Wind Farm/OTA. The transportation audit sheet must include information on the loading facility, vessels, equipment, shipment routes, schedules and all materials to be deposited (as described in Part 2 of this licence) in that month.	

Appendix D – Example Seagreen ECoW Monthly Compliance Report Template

Seagreen Offshore Wind Farm	
Monthly ECoW Compliance Report	
Reporting period: [date]	
Report prepared by:	
Date of report:	
Other contributors:	
Seagreen Lead Marine Coordinator:	
Seagreen Client Representatives:	
Seagreen FLO:	
Seagreen Archaeological Consultant:	
[Others]	

Section 1 – Summary of construction activities in *[date]*	
Component	**Description of activities**
5.1.1 **Preparatory works**	
5.1.2 **Foundations and substructures (including OSP foundations)**	**Foundation installation**
	Substructure installation
Cables	**Inter-array cable installation**
	Export cable installation
WTG installation	

Section 1 – Summary of construction activities in *[date]*	
Component	**Description of activities**
OSP installation	

Section 2 – Summary of environmental management issues (exc. environmental and pollution incidents covered by Section 3) arising in *[date]*			
Date	**Construction activity**	**Description of environmental management issue**	**Corrective action taken**
Any other relevant comments in relation to environmental management measures in the reporting period			

Section 3 – Summary of environmental and pollution incidents arising in *[date]*			
Date	**Construction activity**	**Description of incident**	**Corrective action taken and status**
Any other relevant comments in relation to incident management in the reporting period			

Section 4 – Summary of construction activities planned for *[date]*	
Component	**Description of activities**
5.1.3 **Preparatory works**	
5.1.4 **Foundations and substructures (including OSP foundations)**	**Foundation installation**
	Substructure installation
Cables	**Inter-array cable installation**
	Export cable installation
WTG installation	
OSP installation	

Section 5 – Seagreen Construction Programme updates

Section 6 - Additional information related to environmental management measures in *[date]*		
ECoW environmental management and training activities statistics*		
Type	**Completed this month**	**Completed to date**
Attendance at hazard identification workshops / mobilisation meetings / environmental drills etc.		
Environmental walkdowns/ construction activity observations undertaken		
Training sessions provided (Inc. inductions, environmental awareness training, toolbox talks)		
Environmental hazard observation cards received and reviewed		

Any other relevant comments in the reporting period	
* Statistics do not take into account Contractor statistics – to be agreed	

Acronyms and terms

Appendix E – Construction Phase Seagreen Proposed Contractor Reporting Deliverables and Check Sheets

Table E1: Construction phase Seagreen Proposed Contractor deliverables in relation with this Offshore CEMP (not exhaustive and excluding incident procedures)

Aspect	Summary of requirement	Originator	Frequency	Reported to	End user	Comment	Template ref.
Daily Progress Reports (DPRs)	Including details on environmental incidents	Contractor	Daily	Seagreen (all package personnel including Seagreen ECoW).	Seagreen	-	Contractor template.
Weekly environment reports.	Including details on: • Environmental incidents – number, brief details of incident, actions taken. • HOCs - Summary of environmental related observations and actions taken. • Interactions with fisheries – including interactions with fishermen noting date, time, details of interaction; details of any gear encountered when transiting etc. • Pollution prevention and dropped objects drills/exercises – brief scenario and lessons learned. • Formal audits/inspections – purpose and key findings. • Movements of special wastes (if	Contractor	Weekly	Seagreen (all package personnel including Seagreen ECoW).	Seagreen	Can be combined with health and safety reporting.	Contractor template.

Aspect	Summary of requirement	Originator	Frequency	Reported to	End user	Comment	Template ref.
	applicable). • Waste quantities generated and transferred. • Environmental Aspects and Compliance register updates						
Bi-monthly progress calls.	Call to run through: • Actions of meeting tracker. • Highlights from weekly environment reports • Environmental related incidents/observations Environmental related drills/toolbox/awareness campaigns. • Up and coming consents deliverables (i.e. TAR, list of chemicals, as-built information).	Contractor	Bi-monthly	Seagreen (all package personnel including Seagreen ECoW).	Seagreen	-	Contractor action tracker.
Vessels, agents, Contractors and Sub-Contractors.	Provide the name and function of any vessel, agent, Contractor or sub-Contractor appointed to engage in the works. Where applicable the notification must include the master's name, vessel type, vessel IMO Number, registration, vessel owner or operating company and Operator Type(s)	Contractor	No later than 3 weeks prior to mobilisation and then weekly throughout construction.	Seagreen Lead Marine Coordinator and Seagreen ECoW and Seagreen EM.	Marine Scotland (via Seagreen website).	Submission via Seagreen document control procedure.	See Seagreen website ('The Persons Acting on Behalf of the Licensee Report' and 'Vessel Report').

Aspect	Summary of requirement	Originator	Frequency	Reported to	End user	Comment	Template ref.
Notice to Mariners and Kingfisher Fortnightly Bulletin	Information required for Seagreen to produce and issue the Notice to Mariners / and information to Kingfisher Fortnightly Bulletin.	Contractor	No later than 3 weeks prior to the specified marine activity.	Seagreen Lead Marine Coordinator.	Multiple users	-	Email
Transportation Audit Report.	Reports must be produced stating the nature and quantity of all substances and objects deposited below MHWS. Where appropriate, nil returns must be provided. Ship Manifest to assist	Contractor	issued to Seagreen by the 7th working day every 6 months.	Seagreen Lead Marine Coordinator, Seagreen Package Manager and Seagreen ECoW .	Marine Scotland.	Submission via Seagreen document control procedure. Seagreen ECoW subsequently issue next revision of TAR to be applied having collated all Contractors data	To be agreed
Dropped objects.	All dropped objects shall be notified to the Seagreen Marine Coordination Centre as soon as possible and followed up with a dropped objects pro-forma within 24 hours. Contractor shall submit the dropped	Contractor / Vessel Master	As soon as reasonably practicable to the SGRE Duty Marine Coordinator.	Seagreen Duty Marine Coordinator, Seagreen Client Representative, Seagreen Package Manager, Seagreen	Marine Scotland - depending on whether retrieval possible within 24 hrs of object being dropped.	-	Current version of MS Renewables Dropped Objects Form.

Aspect	Summary of requirement	Originator	Frequency	Reported to	End user	Comment	Template ref.
	objects pro-forma to those listed on the pro-forma within 24 hours of the incident occurring.		Within 24 hours using proforma if object not recovered.	ECoW, and [listed on Proforma].			
Chemical usage	Submit list of all chemicals which through their mode of use, are expected in some proportion to be discharged and/or chemicals that will be included within closed systems in equipment operated in and/or over the marine environment, whether they appear on the List of Notified Chemicals or are excluded (requiring additional approval from the Licensing Authority).	Contractor	6 weeks prior to chemical use	Seagreen Consents Team and Seagreen ECoW.	Marine Scotland	Approval in writing from Marine Scotland, where required.	Contractor List
Archaeology discoveries	Report any discoveries in line with Seagreen WSI and PAD	Contractor / Vessel Master	As soon as reasonably practicable.	Seagreen Duty Marine Coordinator, Seagreen Client Representative, Seagreen Package Manager, Seagreen Consents Team, and Seagreen ECoW.	Seagreen Archaeologist, Historic Scotland, and Receiver of Wreck	All discoveries not just ones of archaeological potential	Email
Infringements on AEZs	Report any AEZ infringements in line with Seagreen WSI and PAD	Contractor / Vessel Master	As soon as reasonably practicable.	Seagreen Duty Marine Coordinator, Seagreen Client Representative,	Seagreen Archaeologist and Historic Scotland.	-	Email

Aspect	Summary of requirement	Originator	Frequency	Reported to	End user	Comment	Template ref.
				Seagreen Package Manager, Seagreen Consents Team, and Seagreen ECoW.			
Interaction with commercial fishing activity	Engage with the Seagreen FLO on matters where Contractor will or have impacted on commercial fishing activities so as to mitigate the effects on commercial fishing activity in the area. Notify any interactions with commercial fishing activity on a weekly basis. Where interactions involve any conflict, this shall be reported without delay.	Contractor / Vessel Master / Offshore FLO	Weekly and, where applicable, without delay	Seagreen Duty Marine Coordinator and Seagreen FLO.	Seagreen	-	Email (can also be noted on daily progress reports and weekly environment reports.
Force majeure	Full details of the circumstances of the deposit of any substance or object into the marine environment by reason of force majeure within 12 hours of the incident occurring.	Contractor	Immediately in the event of an incident (30 minutes as per SHE reporting guidelines) and in any event within 12 hours of the incident occurring.	Seagreen Duty Marine Coordinator, Seagreen Client Representative, Seagreen Package Manager, Seagreen ECoW, and [listed on Proforma].	Marine Scotland - depending on whether retrieval possible within 24 hrs of object being dropped.	-	Current version of MS Renewables Dropped Objects Form.

Aspect	Summary of requirement	Originator	Frequency	Reported to	End user	Comment	Template ref.
Lighting failures	If lighting failure occurs that will take > 36 hrs to diagnose/ repair, Notice to Airmen (NOTAM) to be issued. Upon completion of the remedial works, the Aeronautical Information Service (AIS) will be notified as soon as possible to enable a cancellation to be issued. The party that originally requested the NOTAM will then issue such notification so that a NOTAM cancelation notice can be issued. Such notification will include the name of the wind farm and the reference of the original NOTAM. If an outage is expected to last longer than 14 days, then the CAA will also be notified (at Windfarms@caa.co.uk) by Seagreen directly to discuss any issues that may arise and longer-term strategies.	Contractor / Vessel Master	If failure will take >36hrs to repair / diagnose	Seagreen Duty Marine Coordinator, and NOTAM section of the AIS.	NOTAM section of the AIS. CAA	-	-
Final Commissioning of the Development/ Works	Provide take-over certificates and "as-built" records of the works, for aviation and nautical charting purposes and ensure that local mariners, fishermen's organisations and HM Coastguard are made fully aware.	Contractor	within 1 week following transfer of assets.	Seagreen Lead Marine Coordinator, Seagreen Package Manager, Seagreen Consents Team, and Seagreen ECoW.	Marine Scotland, UKHO, and CAA	-	-

Aspect	Summary of requirement	Originator	Frequency	Reported to	End user	Comment	Template ref.
Construction Completion Handover Report	Produce an 'Environmental As Built Report' that details statistics such as fuel use, waste, incidents and non-compliances, training conducted, and any other information including lessons learned.	Contractor	14 calendar days following date of completion of the works.	Seagreen CM, Seagreen EM, Seagreen ECoW	Seagreen		Contractor report
Final Completion Date	Provide confirmation of Final Completion Date in writing	Contractor	14 calendar days following date of completion of the works.	Seagreen Package Manager, and Seagreen Consents Team.	Marine Scotland, Angus Council, the JNCC and SNH		Letter

Table E2: Seagreen Proposed Contractor Pre-Commencement and Post-Completion Checksheet

The information listed in the table below is to be provided by the Contractor to Seagreen as proposed. The information listed in the table below only relates to requirements of this Offshore CEMP. As part of the Contract, other information provisions will be required from the Contractor and this list is not exhaustive.

Pre-commencement of works:	**Yes/No**
Name and CV of nominated and appropriately qualified person(s) for **Construction Environmental Advisor** for Seagreen approval.	
Contractor in receipt of Seagreen approval of nominated Construction Environmental Advisor.	
Name and CV of nominated and appropriately qualified person(s) for **Offshore Fisheries Liaison Officers (FLOs)** for Seagreen approval.	
Contractor in receipt of Seagreen approval of nominated Offshore FLOs.	
Contractor has submitted to Seagreen, no later than 4 weeks prior to Contract Date, Contractor Offshore CEMP detailing how the Contractor will, as a minimum, implement and deliver the commitments set out in this Offshore CEMP.	
Contractor in receipt of Seagreen acceptance of Contractor Offshore CEMP.	
Contractor has submitted to Seagreen, no later than 4 weeks prior to Contract Date, Contractor MPCP detailing how the Contractor will, as a minimum: i. bridge Seagreen's MPCP requirements with shipboard oil pollution emergency plan (SOPEP) of any vessel engaged in the works (either chartered to the Contractor or chartered to a Contractor's Sub-Contractor); and ii. Consider prevention and incident planning/response measures in the event of a spill for any asset under the control on the Contractor.	
Contractor in receipt of Seagreen acceptance of Contractor MPCP.	
Contractor has submitted to Seagreen, no later than 3 weeks prior to mobilisation, the name and function of any vessel, agent, Contractor or sub-Contractor appointed to engage in the works. Where applicable the notification must include the master's name, vessel type, vessel IMO Number, registration, vessel owner or operating company and Operator Type(s).	
Contractor has submitted to Seagreen, no later than 3 weeks prior to the specified marine activity, the information required for Seagreen to produce and issue the Notice to Mariners / and information to Kingfisher Fortnightly Bulletin.	
Contractor provided information to Seagreen associated with application for statutory sanction to alter/exhibit, no later than 4 weeks after Contract Date.	
Contractor provided required information to Seagreen of maximum heights of construction equipment over 150m above LAT, no later than 3 weeks prior to commencement of the works.	
Contractor provided required information to Seagreen to allow Seagreen to complete Noise Registry Form, at timeline to be agreed with Seagreen.	
Contractor engaged guard vessels to fulfil fisheries liaison functions.	

Pre-commencement of works:	Yes/No
Using the Seagreen template, Contractor has submitted list of all chemicals to Seagreen; chemicals which through their mode of use, are expected in some proportion to be discharged and/or chemicals that will be included within closed systems in equipment operated in and/or over the marine environment, no less than 6 weeks prior to their use.	
Contractor in receipt of approval from Marine Scotland for any chemicals not included on the Offshore Chemical Notification Scheme (OCNS) list of chemicals.	
Contactor issued written confirmation to Seagreen that: i. masters of vessels or vehicles operators, agents, Contractors or Sub-Contractors are aware, having read and understood, of the extent of the works for which the marine licenses has been granted; the activity which is licensed; and the terms of the conditions attached to the marine licenses; ii. Copies of the marine licenses have been made available to any vessels, vehicle operators, agents, Contractors or sub-Contractors permitted to engage in the works; and iii. Copies of the marine licenses are held at the Contractor's premises and any site premises in relation to the works.	
During / Post- completion of works:	**Yes/No**
Records of site inductions and tool box talks (Section 3.4)	
Records of all environmental checks/inspections (Section 3.3)	
Contractor has confirmed to Seagreen, in writing, Final Completion Date no later than 14 calendar days following completion.	
Contractor provided required information to Seagreen to allow Seagreen to complete Noise Registry Form, at timeline to be agreed with Seagreen.	
Contractor has provided 'as-built' records, in format specified by the United Kingdom Hydrographic Office (UKHO), to Seagreen.	
Contractor provides topographic profile data to Seagreen, in writing, to show that the beach and foreshore has returned to the original profile, or as close as reasonably practicable, following completion of the works.	
Contractor has provided Seagreen ECoW with required information to allow ECoW to complete end of construction phase report.	
Contractor to produce a 'project environmental compliance obligations register' specific to their works to demonstrate that the Contractor has complied with the Seagreen consents and licences and Consent Plans.	
Contractor to provide Seagreen with a 'project environmental aspects and impact register' specific to their works to demonstrate that the Contractor has complied with the Seagreen consents and licences and Consent Plans.	

Appendix F – Seagreen ECoW Non-Compliance Report Template

Seagreen ECoW Non-Compliance Report

Date		Report No.	
Originator		Report Rev.	

1. Nature of Compliance Issue

2. Actions taken by Seagreen ECOW

3. Actions taken by Seagreen Client Representative

4. Agreed corrective measures and recommendations

Approved by Seagreen ECoW	
Checked by Seagreen Client Representative	
Signed-off by Seagreen Compliance Manager	

Appendix G – Seagreen Environmental Statement (ES) / ES Addendum Commitments Registers (Tables G1, G2, G3, G4 and G5)

Table G1: General covering all assets (ES Chapters – Introduction, Legislation, Project Description)

Activity	Environmental management, mitigation and monitoring measures ES/ES Addendum reference	Mechanism for implementation CEMP ref.	 Other document/plan ref.
Works that could disturb European Protected Species	Commitment to obtaining an EPS Licence if required. Ref. 4.63 (ES September 2012)	4.2	N/A
OFTO appointment	OFTO will be appointed through tender, post construction of the Transmission Asset Project Ref. 5.9 (ES September 2012)	N/A	OTA CAP
Construction	Construction Health and Safety Plans (CHSPs) and Construction Environmental Management Plans (CEMPs) will be produced prior to construction Ref. 5.104 (ES September 2012)	Whole of this document	Construction HSPs
Pre-installation	Prior to installation of foundations and substructures a pre-installation seabed survey will be required to confirm that no obstructions such as UXO, debris or large boulders are presents. Obstructions will be cleared and prepared for the intended installation or the foundation may be micro-sited to avoid obstructions. In addition there may be a need to microsite the foundations to avoid identified sensitive ecological or archaeological features. Ref. 5.126 (ES September 2012)	4.10	NSP, Construction HSPs
Dredging	A separate application will be made to Marine Scotland for a dredging licence if required following more detailed studies. Further, reuse of arisings from ground preparation as ballast will be investigated. Ref. 5.149 (ES September 2012)	4.10	N/A
Spill response	A safe system of work governed by a full risk assessment and method statement process will be used to support staff and vessel crew trained and equipped to use spill kits, in the event of a break in containment occurring. Ref. 5.241 (ES September 2012)	3.2.13	MPCP
Spill response	A spill response contract will be in place to control, manage, recover and dispose of any contaminants and dropped objects. Ref. 5.241 (ES September 2012)	4.5 and 4.9	MPCP
Waste management	A waste management procedure will be administered and managed to ensure it is strictly adhered to by site staff, contractors and visitors to the OWF sites and onshore O&M Control Centre(s). Ref. 5.242 (ES September 2012)	4.8	
Waste management	All other waste is contained and recovered and disposed of onshore. Ref. 5.245 (ES September 2012)	4.8	

Table G2: Wind turbines (including foundations and substructures) (ES Chapters - Physical Environment, Water and Sediment Quality, Ornithology, Benthic/Intertidal Ecology, Fish and Shellfish Resource, Marine Mammals, Commercial Fisheries, Shipping and Navigation, Seascape/Landscape and Visual Amenity, Archaeology and Cultural Heritage, Military and Civil Aviation, Other Marine Users and Activities, Mitigation and Monitoring; ES Addendum Habitats Regulations Appraisal – Marine Mammals, Fish and Shellfish)

Activity	Potential impact	Environmental management, mitigation and monitoring measures	Mechanism for implementation	
		ES/ES Addendum reference	CEMP ref.	Other document/plan ref.
Physical environment				
Substructure/foundation installation	Sediments and sedimentary structures	Up to only two substructures/foundations will be installed simultaneously over any three-day period across **all projects** during the minimum 6 months annual construction period and therefore the release of this material during construction activities will be phased over time. Ref. 7.165, 7.192, 7.204 (ES September 2012)	N/A	OWF CMS
Substructure/foundation and export cable installation	Suspended sediment concentrations and suspended sediment transport	Substructures/foundations will be installed over a minimum 6 month annual construction period, with no more than two substructures/foundations being installed simultaneously at any one time. Ref. 7.171, 7.174, 7.215 (ES September 2012)	N/A	OWF CMS
Scour protection surveys	Suspended sediment concentrations and suspended sediment transport	Where scour protection is adopted, as is highly likely for all GBS types to ensure structural stability, visual ROV, drop video or dive surveys or bathymetric surveys will be undertaken at selected locations Ref. 7.248, 7.259 (ES September 2012)	N/A	OWF CMS
Water Quality and Sediment Quality				
Seabed preparation for foundations	Deterioration in water quality due to re-suspension of sediments	Site specific assessments will be made at each foundation location to determine the preferred foundation type and seabed preparation requirements and methods. Ref. 8.142 (ES September 2012)	N/A	OWF CMS
Seabed preparation for foundations	Deterioration in water quality due to re-suspension of sediments	If the need for seabed preparation at any location is determined, a licence will be applied for under the Marine (Scotland) Act 2010 for Dredging and Deposit of Solid Waste in the Territorial Sea and UK Controlled Waters Adjacent to Scotland. Ref. 8.142 (ES September 2012)	N/A	OWF CMS, OWF CaP
Construction vessel presence	Introduction of marine non-native / alien species	A risk assessment process will be applied to mitigate any invasive and/or non-native species potentially brought to the location by construction vessels - taking into account previous vessel locations, activities and planned routes, leading to recommendation for management measures (includes OWF projects and OTA) Ref. 8.158, 8.171, 8.191 (ES September 2012)	4.7	N/A
Construction spillage	Deterioration in water and / or sediment quality due to accidental spillage of construction materials	Seagreen will ensure all contractors put in place appropriate Construction Environmental Management Plans (CEMP) and Pollution Control and Spillage Response Plans that will be agreed with the regulatory authorities prior to offshore construction activities commencing (includes OWF projects and OTA) Ref. 8.154, 8.168, 8.189 (ES September 2012)	This whole document	MPCP
Operational activity	Deterioration in water quality due to accidental spillages and waste water	Contractors will be required by Seagreen to put in place appropriate Site Environmental Management Plans (SEMP) and Pollution Control and Spillage Response Plans that would have been agreed with the Regulatory Authorities prior to offshore activities commencing. These plans will act to reduce the potential for accidental pollution and in the unlikely event of a pollution incident, would ensure a rapid and appropriate response. Ref. 8.231 (ES September 2012)	N/A	MPCP
Ornithology				
Pre-construction monitoring	Mortality through collision with turbine blades/	An ornithology monitoring programme of OWF projects should be developed in consultation with JNCC and SNH.	N/A	PEMP

		Ref.10.510, 10.515 (ES September 2012)		
Benthic ecology and Intertidal Ecology				
Pre-construction survey	Direct impact on benthos due to the loss of habitat	As part of the pre-construction survey (which will be agreed with Marine Scotland) data will be analysed to ascertain the presences of any rare or important habitats, such as biogenic Sabellaria or Modiolus reef Ref. 11.130, 11.150, 11.166, 11.175 (ES September 2012)	N/A	PEMP
Pre-construction	Direct impact on benthos due to the loss of habitat	The site selection process will aim to situate GBS foundations (if used) in areas that will require the least amount of ground preparation therefore reducing the potential release of sediments. Ref. 11.150, 11.154, 11.180, 11.184 (ES September 2012)	N/A	OWF CMS, OWF DSLP
Fish and shellfish resource				
Piling	Noise - disturbance or injury to fish or shellfish	Soft start piling (in which the energy used to drive the piles into the sediment is slowly ramped up) has been incorporated in to the noise assessments. Ref. 12.234, 12.252, 12.279, 12.290, 12.404, 12.431 (ES September 2012)	N/A	Piling Strategy
Scour protection installation	Increased suspended sediments and mobilisation of contaminants	Placement of scour protection should reduce the amount of re-suspended material during operation. Ref. 12-78, 12.354, 12.367 (ES September 2012)	N/A	OWF CMS
Seabed preparation	Deterioration in water quality due to re-suspension of sediments with impact on marine species	Seabed preparation activities will require a licence under the Marine (Scotland) Act 2010 for Dredging and Deposit of Solid Waste in the Territorial Sea and UK Controlled Waters Adjacent to Scotland Ref. 4.120 (Addendum October 2013, Habitats Regulations Appraisal)	N/A	OWF CMS
Piling	Noise - disturbance or injury to marine species	The soft start procedure for mitigation of piling impacts on marine species will be employed, such that impact piling will be increased in power over a period of 25 minutes. Ref. 4.147 (Addendum October 2013, Habitats Regulations Appraisal)	N/A	Piling Strategy
Pre-construction (piling)	Underwater noise from piling impacts on marine species	Marine Mammal Monitoring Protocol to allow for exclusion/mitigation/monitoring zone of 500m around each pile location Ref. 4.264 (Addendum October 2013, Habitats Regulations Appraisal)	N/A	Piling Strategy, PEMP
Marine mammals				
Construction vessel activity	Corkscrew injuries in harbour and grey seals	There is research currently underway at a UK and International level to assess the nature and significance of the impact of the use of ducted propellers on seal species. Seagreen is committed to following progress on this subject and will develop mitigation based on guidance as and when it becomes available. The Applicants will continue to follow research in this area to establish whether there is a direct link between the use of ducted propellers and corkscrew injuries in harbour and grey seal. Ref. 13.50 (ES September 2012)	N/A	PEMP
Piling	Underwater noise from piling impacts on marine mammals	It is therefore considered, that the worst case single piling impacts will result from the scenario with the greater piling duration; where installation of a 2m pile (up to 27m long) taking 55 minutes of continuous piling is worse than the installation of a 3m pile (up to 22m), taking only approximately 30 minutes of continuous piling. This temporal difference is a result of the 2m pile requiring greater penetration to support the loads applied by the WTGs. The worst case is based on a fully driven operation in which the pile will be installed in a single operation without any breaks. Ref. 13.162 (ES September 2012)	N/A	Piling Strategy
Piling	Underwater noise from piling impacts	It can be seen therefore that in the WORST CASE scenario defined above while there is 55 minutes of continuous	N/A	Piling Strategy

	on marine mammals	piling, only 30 minutes represents piling at the maximum blow force of 1,450 kJ. Similarly in the most likely scenario where there is 32 minutes of pile driving, the time period when the maximum blow force of 920 kJ is required is limited to 5 minutes. Ref. 13.164 (ES September 2012)		
Piling	Underwater noise from piling impacts on marine mammals	Construction is assumed to take place over the full year cycle. The duration of the piling programme for both Project Alpha and Project Bravo will be a maximum of two years, with one piling vessel operating in each Project. Pile driving will not be continuous during this time. Ref. 13.166 (ES September 2012)	N/A	OWF CMS, Piling Strategy
Piling	Underwater noise from piling impacts on marine mammals	As already mentioned the continuous piling duration required to install a single pile for worst case is 55 minutes. However, after allowing for equipment set up time prior to and post piling, each fully driven pile (worst case) will take up to a maximum of 15 hours to install (pile 1 of the foundation) giving a total installation time of 50 hours for a single jacket (4 piles and an average of 12.5 hours per pile). Ref. 13.168 (ES September 2012)	N/A	Piling Strategy
Piling	Underwater noise from piling impacts on marine mammals	For all PA, PB and OTA worst case scenario for piling for each below: Pile diameter: 2m Total penetration: up to 32m Hammer capacity: 1800KJ Max blow force: 1450KJ Soft start (ramp up) 25mins Total piling duration 55 mins Ramp up details: 6 mins at 15% capacity 4 mins at 35% capacity 5 mins at 55% capacity 10 mins at 75% capacity 30 mins at 95% capacity Strike rate: 45 per minute. Total number of piles: 75 WTG x 4 piles for each PA and PB and 72 piles for OTA OSPs Ref. Tables 13.11 and 13.12 (ES September 2012)	N/A	Piling Strategy
Piling	Underwater noise from piling impacts on marine mammals	A Marine Mammal Monitoring Protocol for the Seagreen Project will be developed in conjunction with the relevant Stakeholders. The provision of a Marine Mammal Observer (MMO) and/ or Passive Acoustic Monitoring (PAM) following JNCC guidelines is likely to be part of the licensing requirement. This should allow for an exclusion zone	N/A	Piling Strategy, PEMP

		around the source of pile driving of up to 500m. The use of Acoustic Deterrent Devices (ADDs), if deemed appropriate at the time of design and implementation of the mitigation plan, will be considered as a likely alternative or addition to the provision of MMOs. Ref. 13.198, 13.244, 13.344, 13.365, 13.399, 13.460, 13.467, 13.492, 13.508, 13.527, 13.541, 13.552 (ES September 2012)		
Vessel activity	Potential Impact of Collision Risk	The construction phase will use mostly large (>100 m) vessels which are likely travel at slow speeds of around 10 knots or less and only small workboats and crew transfer vessels (~25 m) may operate at greater speed. Ref. 13.329, 13.457, 13.476 (ES September 2012)	N/A	VMP
All construction activities	Potential Impact of Changes to Water Quality	Development and adherence to SEMP to prevent and control spillage of contaminants is already factored into this assessment. Ref. 13.340, 13.464, 13.495, 13.510, 13.530 (ES September 2012)	4.5	MPCP
Monitoring	All marine mammal impacts	The monitoring programme will be developed in consultation with key regulators, advisors, academics and experts and will focus on undertaking data gathering which over time can provide a statistically robust data set, which builds on on-going research. Ref. 13.654, 13.661, 13.662 (ES September 2012)	N/A	PEMP
Piling	Underwater noise from piling impacts on marine mammals	In relation to piling during soft start marine mammal observers will be on active watch for 30 minutes prior to the start of piling activity (the 'pre-piling search'). If during this period marine mammals are detected within mitigation zone (500m radius around piling location), piling will not be commenced until a 20 minute period without further sightings has elapsed. Ref. 3.74 (Addendum October 2013, Habitats Regulations Appraisal)	N/A	Piling Strategy, PEMP
Commercial fisheries				
Safety zones (operational)	Safety Issues for Fishing Vessels	It is likely that safety zones of 50m may be applied around infrastructure such as WTGs (maximum of 75), meteorological masts (maximum of three) and OSPs (maximum of three) per project. Ref.14.163, 14.243 (ES September 2012)	N/A	NSP
Construction	Safety Issues for Fishing Vessels	Contractors will be obliged and monitored to ensure compliance with standard offshore policies prohibiting the discarding of objects or waste at sea. The reporting and recovery of any accidentally dropped objects is also required. Ref. 14.174, 14.211, 14.245, 14.270, 14.353 (ES September 2012)	4.9	
Construction	Safety Issues for Fishing Vessels	A Fisheries Working Group will be established to enable dialogue and facilitate agreement on measures to reduce interference with fishing activities. Ref. 14-43, 14.186, 14.195, 14.219, 14.254, 14.260, 14.274, 14.276, 14.321, 14.370 (ES September 2012)	N/A	FMMS
Shipping and navigation				
Design and installation of WTG	Impact of OWF on Recreational Vessels	The air clearance between WTG rotors and sea level conditions at Mean High Water Springs (MHWS) will not be less than 22m, as per MCA guidance. This minimises the risk of interaction between rotor blades and yacht masts. Ref. 15.182 (ES September 2012)	N/A	OWF DSLP, Design Statement
Design and installation of WTG	Impact of OWF on Recreational Vessels	The Project Alpha site is in intersected by two 'medium -use' cruising routes and the Project Bravo site is intersected by one 'medium -use cruising route' which run in a north-south direction. However, vessels should be able to pass between turbines in suitable conditions (i.e. during good visibility and calm sea conditions), as well as being able to route around the Project Alpha and Project Bravo sites. Ref. 15.183 (ES September 2012)	N/A	OWF DSLP, NSP

All phases	Impacts of all project phases upon shipping and recreation vessels	The following section presents mitigation measures which can be implemented for the OWF development to reduce the level of impact: - promulgation of information and warnings through Notices to Mariners, Kingfisher publications, fisheries liaison, local recreation clubs and marinas and further appropriate media on construction activities, cable installation works and other OWF matters; the use of guard vessels where appropriate to aid emergency situations and warn vessels; application for and use of safety zones to protect the construction/ decommissioning of the sites; - use of appropriate means to notify and provide evidence of the infringement of construction safety zones; - use of vessels that are 'fit for purpose' for the construction activities including marked in accordance with International Regulations for the Prevention of Collisions at Sea (COLREGS) and fitted with an AIS transponder to prevent them becoming a risk factor; - Aids to Navigation in line with International Association of Lighthouse Authorities (IALA) O-139 (IALA, 2008) and MCA/ NLB Requirements (which will include a system of routine inspection and maintenance of lights and markings); additional buoyage if required to assist safe navigation (this would be based on guidance from NLB); - creation of an Emergency Response Co-operation Plan (ERCoP) with the relevant Maritime Rescue Co-ordination Centre (MRCC) from construction phase onwards, including MCA standards and procedures for WTG shut -down in the event of a search and rescue, counter pollution or salvage incident in or around a OWF; monitoring by radar, AIS and Closed Circuit Television (CCTV) or other agreed means; -fenders/ bumper bollards installed on structures; -clear notification of works (especially pre charting of cables); - subsea cables will be buried or trenched where possible to provide protection from dragged and dropped anchors and dropped objects; - where burial/ trenching is not possible, cables will be protected by other means such as rock dumping and concrete mattresses; - burial of array and export cables and post-installation surveys on array and export cables to confirm 'over-trawlability' of seabed -cable details will also be provided to the United Kingdom Hydrographic Office (UKHO) for inclusion on Admiralty Charts; - any cables installed within the cable corridor will be notified to Kingfisher Information Services and Cable Awareness (KISCA) for inclusion in cable awareness charts and plotters for the fishing industry; - consultation with fisheries stakeholders through the proposed regional Fisheries Working Group (see Chapter 14: Commercial Fisheries) to ensure that the cable protection method does not inhibit fishing activities; and - cable burial and bundling to reduce the effect of electromagnetic interference. Ref. 15.277 (ES September 2012)	N/A	OWF CMS, NSP, ERCoP, FMMS
All Project Phases	Impacts of all project phases upon shipping and recreation vessels	Monitoring will take place through the Seagreen Project's Safety Management System (SMS). The SMS will include an incident/ accident reporting system which will ensure that incidents and near misses are recorded and reviewed to monitor the effectiveness of the risk control measures in place at the site. In addition, any information gained from near misses/ accidents at other OWF sites is likely to be considered with respect to the control measures applied at Project Alpha and Project Bravo. Ref. 15.281 (ES September 2012)	N/A	NSP, ERP
All construction	Shipping and navigational safety	CCTV will be installed to enable coverage of the OWF areas from key locations either on the WTGs or the substations. The CCTV will be adjustable for day/ night conditions and allow operators in a central control room to identify vessel names from a distance to facilitate radio communications.	N/A	OWF CMS, NSP

		Ref. 15.283 (ES September 2012)		
All Project Phases	Shipping and navigational safety	A Marine Control Centre (MCC) monitoring AIS will be used to monitor and record the movements of vessels around the Seagreen Project as well as company vessels working at the site. Ref. 15.284 (ES September 2012)	N/A	NSP
All Project Phases	Shipping and navigational safety	Any vessel observed to stray into a safety zone will be identified and contacted by a designated member of the crew of the OWF, guard vessel or from the MCC via multi - channel Very High Frequency (VHF) radio, including Digital Selective Calling (DSC), and warned that they have encroached a safety zone. Ref. 15.285 (ES September 2012)	N/A	NSP
Seascape, landscape and visual amenity				
Pre-construction design	Impacts on landscape, seascape and visual amenity	At its closest point, Project Alpha is located approximately 27km east of the coastline. Ref. 16.70 (ES September 2012)	N/A	OWF DSLP, Design Statement
Pre-construction design	Impacts on landscape, seascape and visual amenity	At its closest point, Project Bravo is located approximately 38km east of the coastline. Ref. 16.143 (ES September 2012)	N/A	OWF DSLP, Design Statement
Marine archaeology and cultural heritage				
Construction	Direct secondary and indirect impacts on archaeology and cultural heritage assets	In order to mitigate the risk of damage to any unrecorded archaeological remains, a Written Scheme of Investigation (WSI) and Protocol for Archaeological Discoveries (PAD) will be prepared for the approval of Historic Scotland and Aberdeenshire Council Archaeological Service to mitigate construction effects in the event of any unexpected archaeological discoveries during installation Ref. 17.56, 17.64, 17.71, 17.79, 17.90, 17.98, 17.104, 17.109, 17.115, 17.121 (ES September 2012)	4.3	WSI & PAD
Construction	Direct secondary and indirect impacts on archaeology and cultural heritage assets	Where cultural heritage assets may potentially be subject to direct effects, infrastructure will be micro-sited and temporary exclusion zones will be implemented to prevent invasive activities, such as WTG and array cable installation, and anchoring or deployment of jack -up legs. PA exclusion zones of at least 50m will be established around those of medium sensitivity HA14, HA25, HA43, HA47, HA64, HA77, HA106, HA112, HA132, HA225, HA230, HA248, HA268 and HA365. Ref. 17.56 (ES September 2012)	N/A	OWF CMS, Piling Strategy, OWF DSLP, OWF CaP, WSI & PAD
Construction	Direct, secondary and indirect impacts on archaeology and cultural heritage assets	Where cultural heritage assets may potentially be subject to direct effects, infrastructure will be micro-sited and temporary exclusion zones will be implemented to prevent invasive activities, such as WTG and cable installation, and anchoring or deployment of jack-up legs. PB exclusion zones of at least 100m will be established around HA1001, HA1004 and HA1008. PB exclusion zones of at least 50m will be established around those of medium sensitivity HA81, HA88, HA101, HA118, HA133, HA175, HA176, HA177 and HA409. Ref. 17.71 (ES September 2012)	N/A	OWF CMS, Piling Strategy OWF DSLP, OWF CaP, WSI & PAD
Military and civil aviation				
WTG design/installation	Impacts of radar and aviation	The range in WTG blade tip heights are the same in both Project Alpha and Project Bravo. Minimum WTG blade tip height is 148mLAT to a maximum of 210m LAT. Ref. 18.29 (ES September 2012)	N/A	OWF DSLP, Design Statement
Project design/installation	Impacts of radar and aviation	The sites areas for the projects are fixed. The total area within the Project Alpha site boundary is 197km2. The total area within the Project Bravo site boundary is 194km^2. Ref. 18.30 (ES September 2012)	N/A	OWF DSLP, Design Statement
Construction Cranes and WTG	Temporary hazard of construction to aviation	The physical presence of cranes and WTGs on low flying activity can be mitigated by ensuring that information on construction activity is passed to the NATS Aeronautical Information Service (AIS) in time to ensure that it can be	N/A	NSP

		promulgated to all affected airspace users. This is a mandated and recognised method of disseminating information concerning the presence of temporary hazards to aviation and will highlight the potential impact of the construction phase. It will detail the vertical heights of obstacles, initially those of a temporary nature such as cranes used to erect the WTGs and, progressively, the permanent wind farm. This communication with the NATS AIS will be undertaken as a matter of due course in line with best practice guidelines for safeguarding aviation infrastructure. Ref. 18.32, 18.33 (ES September 2012)		
Construction/operation of Project	Impacts on military radar (if reinstated)	It has been assumed that RAF Leuchars closed and that the radar was removed. This will require verification with MOD. (Update: According to RAF website 'Leuchars Station passed from the RAF to the British Army in 2015 and is home to the Royal Scots Dragoon Guards, the Royal Engineers, Military police units, and also ESUAS and 612 (R) Squadron'). If radar was not removed then a technical radar solution will be implemented. Ref. 18.46, 18.73 (ES September 2012)	N/A	PRMS, MOD Comms
Construction/operation of Project	Impacts on long range en route radar and radio navigation facilities	Seagreen will seek a formal technical and operational impact assessment with NERL. Following that, consideration of the available technical mitigation solutions and their acceptability to both Seagreen and NERL for use within the existing Multi -Radar Tracking System, will be undertaken to identify acceptable mitigation solutions for Project Alpha and Project Bravo. Ref. 18.52, 18.86 (ES September 2012)	N/A	ATC – Buchan, ATC – Brizlee, PRMS
Construction/operation of Project	Impact to MOD Air Defence Radar	Further consultation required with the MOD concerning UKADGE (air defence radar). Should the MOD determine the overlapping coverage from within their current radar system is not sufficient to fulfil the operational requirement, it will be necessary to consider technical mitigation. Ref. 18.61, 18.89 (ES September 2012)	N/A	ARDM, MOD Comms
Pre-construction of Project	MOD Low Flying and Danger Area Operations	When developed the Project Alpha and Project Bravo sites will be clearly defined on all aviation charts in accordance with MOD and CAA requirements. Both Project Alpha and Project Bravo are over 40 km clear of the existing Helicopter Main Routes. Ref. 18.68, 18.71, 18.93 (ES September 2012)	N/A	NSP, MOD Comms
Construction WTG lighting	CAA	WTGs to be fitted with medium intensity (minimum 2,000 candela) steady red lighting on the top of the nacelle such that the light or lights are visible from all directions and that such lighting is displayed at night. Per Article 220 of the UK Air Navigation Order per CAA and MOD requirements. With the permission of the CAA only those WTGs on the perimeter of a wind farm will be fitted with such lighting. Ref. 18.73, 18.98 (ES September 2012)	N/A	LMP
Construction/operations	Cumulative impacts on radar	Initial assessment indicates that cumulative impact may be an issue only on the Brizlee Wood Air Defence radar and on the RAF Leuchars ATC radar. The full impact on the latter can only be determined when the RAF radar requirements in the area are determined. The MOD will need to assess the cumulative impact on the Brizlee Wood radar and Project Bravo will accentuate any cumulative impact experienced as a result of Project Alpha. It is highly unlikely that the RAF will accept the developments without mitigation. To this end mitigation will be an on-going process of negotiation and communication. Ref. 18.113 (ES September 2012)	N/A	ARDM, ATC – Brizlee, MOD Comms
Other marine users and activities				
UXO	Potential health and safety impacts	Potential health and safety impacts will be fully assessed as part of a UXO specific risk assessment which will be informed by the geophysical survey data. UXO risk and response will be factored into the detailed	4.10	Construction HSPs

		design process and in the development of method statements and their associated health and safety risk assessments. Ref. 20.31(ES September 2012)		
All project phases	Effects on other sea users	Consultation with the relevant wind farm project managers/ developers and operators, MOD and licensing authority to ensure logistics management is appropriate and to allow discussion of concerns and facilitate resolution of any potential issues. To this end Seagreen will continue to participate in on-going communication between the parties involved. The situation will also be monitored with regard any future development to assess potential impacts in the future. Ref. 20.43, 20.50, 20.55, 20.62, 20.68, 20.72, 20.73, 20.74, 20.75, 20.77 (ES September 2012)	N/A	TTP,
Mitigation and monitoring				
Monitoring	Various	Ensure development of an appropriate monitoring programme, in order to review the effectiveness of proposed measures by way of mitigation, and to identify effects that differ significantly to those predicted and so enable an appropriate response to be considered. Ref. 22.7 (ES September 2012)	4.2	PEMP, FMMS
Monitoring	Various	The approach to monitoring for 'an appropriate monitoring programme' will be developed in consultation with the regulatory authorities, consultees and stakeholders, as appropriate - with any monitoring arrangements/actions being compliant with relevant legislation, license requirements, and agreed with relevant statutory consultees and regulatory authorities (and/or other stakeholders) Ref. 22.8 (ES September 2012)	4.2	PEMP
Monitoring	Direct impacts to the bedform	Predicted direct impacts to the bedform will be primarily mitigated through use of the smaller diameter GBS foundations ($54m^2$ rather than $72m^2$) for the major infrastructure where possible and subject to detailed design criteria and on a case by case basis. The need for scour protection will be considered on a case by case basis. Ref. 22.10 (ES September 2012)	N/A	OWF CMS, Piling Strategy, Design Statement
Construction vessels	Non-native/Invasive species	Any concerns that arise from the non-native or invasive species construction vessels risk assessment will be subject to further consultation with Scottish Natural Heritage and SEPA. Ref. 22.14 (ES September 2012)	4.7	N/A
Construction vessels	Boat traffic displacement to birds	Ornithology - Guidance, regarding the displacement to birds as a result of boat traffic, will be provided as part of a code of conduct to vessel operators on avoiding 'rafts' of birds and feeding aggregates by vessels accessing / servicing Project Alpha and Project Bravo. Ref. 22.15 (ES September 2012)	N/A	VMP
Piling	Underwater noise from piling impacts on marine mammals and ornithology prey species	Best practice in piling will be adopted (i.e. soft start, ramp up) Ref. 22.16, 22.24 (ES September 2012)	N/A	Piling Strategy, PEMP
WTG siting/installation (FEED)	Various	Following detailed design, consideration will be given to micro-siting WTGs within each OWF site. Ref. 22.17 (ES September 2012)	N/A	OWF CMS, Design Statement
Preconstruction surveys	Potential loss of habitat to rare and important species	Preconstruction surveys (the scope and extent of which will be agreed with Marine Scotland) will be undertaken to identify presence of rare or important habitats. Ref. 22.18 (ES September 2012)	N/A	PEMP

Pre-decommissioning surveys	Potential loss of habitat to rare and important species	Surveying for Annex I habitat will be undertaken prior to decommissioning Ref. 22.19 (ES September 2012)	N/A	PEMP
Pre-construction (piling)	Underwater noise from piling impacts on marine mammals	A Marine Mammal Mitigation Plan (MMMP) will be developed in consultation with Marine Scotland and SNH, once the final design process has been completed Ref. 22.23 (ES September 2012)	N/A	Piling Strategy, PEMP
Piling	Underwater noise from piling impacts on marine mammals	Implementation of a mitigation plan and application of Acoustic Deterrent Devices (ADDs), if deemed appropriate at the time of design. Ref. 22.24 (ES September 2012)	N/A	Piling Strategy, PEMP
Piling	Underwater noise from piling impacts on marine mammals	Nearer to the time of construction, the application of mitigation methods addressing noise caused by piling of jacket structures/ foundations in deep water will be considered, as well as alternative non-piled substructure/foundation solutions. Ref. 22.26 (ES September 2012)	N/A	OWF CMS, Piling Strategy
Operational	Safety to fishing vessels	Dialogue between the fishing community and the Applicants will be ongoing throughout the operational phase. Ref. 22.29 (ES September 2012)		FMMS
Construction/installation	Safety to shipping and navigation	Shipping and navigation mitigation measures will be required (see shipping and navigation commitments for full details) Ref. 22.31 (ES September 2012)	N/A	NSP
Construction/installation	Direct impacts on archaeology and cultural heritage assets	Mitigation leading to preservation in situ will be preferred where possible. Where cultural heritage assets may potentially be subject to direct effects, infrastructure may be micro-sited and temporary exclusion zones implemented to prevent invasive activities (such as WTG and array cable installation or anchoring of vessels or deployment of jack-up legs) from damaging those assets. Exclusion zones of at least 100m will be implemented around cultural heritage assets defined in the assessment as of high sensitivity and 50m around assets defined as of medium sensitivity Ref. 22.34 (ES September 2012)	N/A	OWF CMS, WSI & PAD
Pre-construction	Potential impacts on archaeology and cultural heritage assets	Preparation of a Written Scheme of Investigation (WSI) and Protocol for Archaeological Discoveries (PAD), to be approved by Historic Scotland and Aberdeenshire Council Archaeological Service, in their capacity as advisors to Angus Council. Ref. 22.35 (ES September 2012)	N/A	WSI & PAD
Pre-construction	Potential impacts on archaeology and cultural heritage assets	Archaeology and Cultural Heritage mitigation measures will form part of the CEMP Ref. 22-7, 22.36 (ES September 2012)	4.3	WSI & PAD
Pre-construction	Various impacts on military and civil aviation	Ongoing dialogue will be maintained with stakeholders to agree mitigations Ref. 22.37 (ES September 2012)	N/A	ARDM, ATC- Buchan, ATC – Brizlee, MOD Comms
Pre-construction	Various impacts on military and civil aviation	Military and Civil Aviation mitigation publication of the construction and site details through the mandated and accepted NATS AIS procedures should ensure complete dissemination of all necessary information to all air users Ref. 22.38 (ES September 2012)	N/A	ARDM, ATC- Buchan, ATC – Brizlee, PRMS, MOD Comms
Pre-construction	Various potential impacts on military and civil aviation	Military and Civil Aviation mitigation - the Seagreen Project will be clearly defined on all aviation charts in accordance with MOD and CAA requirements Ref. 22.38 (ES September 2012)	N/A	NSP

Design/construction	Various potential impacts on military and civil aviation	Military and Civil Aviation mitigation - Article 220 of the UK Air Navigation Order 2009, which requires that each WTG is fitted with medium intensity (minimum 2,000 candelas) steady red lighting on the top of the nacelle such that the light or lights are visible from all directions and that such lighting is displayed at night. Ref. 22.38 (ES September 2012)	N/A	Design Statement, LMP
Pre-construction	Impacts on military radar (if reinstated)	A technical radar mitigation solution will be agreed with the MOD if RAF Leuchars radar still in place. Ref. 22.38 (ES September 2012)	N/A	ATC – Buchan, ATC – Brizlee, MOD Comms

Table G3: Inter-array cables (ES Chapters - Physical Environment, Water and Sediment Quality, Benthic/Intertidal Ecology, Fish and Shellfish Resource, Marine Mammals, Commercial Fisheries, Shipping and Navigation, Archaeology and Cultural Heritage, Other Marine Users and Activities, Mitigation and Monitoring; ES Addendum Habitats Regulations Appraisal –Fish and Shellfish)

Activity	Potential impact	Environmental management, mitigation and monitoring measures	Mechanism for implementation	
		ES/ES Addendum Reference	CEMP ref.	Other document/plan ref.
Physical Environment				
Array cable installation	Suspended sediment concentrations and suspended sediment transport	The total volume of seabed sediments that might be mobilised - associated with array cable installation- will be released in a phased approach dependent upon the rate of excavation and across a minimum 6 months annual construction period for 3 years. Ref. 7.182, 7.192, 7.287 (ES September 2012)	N/A	OWF CMS
Cable burial	Effects on hydrodynamic regime	Efforts will be made to optimize the length of cable that will achieve target burial depth and therefore the amount of cable protection required will be minimised. Ref. 7.273 (ES September 2012)	N/A	OWF CMS, OWF CAP
Water Quality and Sediment Quality				
Seabed preparation for foundations	Deterioration in water quality due to re-suspension of sediments	If the need for seabed preparation at any location is determined, a licence will be applied for under the Marine (Scotland) Act 2010 for Dredging and Deposit of Solid Waste in the Territorial Sea and UK Controlled Waters Adjacent to Scotland. Ref. 8.142 (ES September 2012)	N/A	OWF CaP
Construction spillage	Deterioration in water and / or sediment quality due to accidental spillage of construction materials	Seagreen will ensure all contractors put in place appropriate Construction Environmental Management Plans (CEMP) and Pollution Control and Spillage Response Plans that will be agreed with the regulatory authorities prior to offshore construction activities commencing (includes OWF projects and OTA) Ref. 8.154, 8.168, 8.189 (ES September 2012)	This whole document	MPCP
Installation vessel presence	Introduction of marine non-native / alien species	A risk assessment process will be applied to mitigate any invasive and/or non-native species potentially brought to the location by construction vessels - taking into account previous vessel locations, activities and planned routes, leading to recommendation for management measures (includes OWF projects and OTA) Ref. 8.158, 8.171, 8.191 (ES September 2012)	4.7	N/A
Operational activity	Deterioration in water quality due to accidental spillages and waste water	Contractors will be required by Seagreen to put in place appropriate Site Environmental Management Plans (SEMP) and Pollution Control and Spillage Response Plans that would have been agreed with the Regulatory Authorities prior to offshore activities commencing. These plans will act to reduce the potential for accidental pollution and in the unlikely event of a pollution incident, would ensure a rapid and appropriate response. Ref. 8.231 (ES September 2012)	N/A	MPCP
Benthic ecology and intertidal ecology				
Pre-construction survey	Direct impact on benthos due to the loss of habitat	As part of the pre-construction survey (which will be agreed with Marine Scotland) data will be analysed to ascertain the presences of any rare or important habitats, such as biogenic Sabellaria or Modiolus reef Ref. 11.130, 11.150, 11.166, 11.175 (ES September 2012)	N/A	PEMP
Fish and shellfish resource				
Cable installation	Electromagnetic fields (EMF) (Operation)	Burial depths of 0.5m to 2.1m are estimated and the arrangement of the array cable layout will be considered with respect to mitigating the impacts of EMF. Ref. 12.339, 12.357, 12.417, 12.441 (ES September 2012)	N/A	OWF CaP
Seabed preparation	Deterioration in water quality due to re-suspension of sediments with impact on marine species	Seabed preparation activities will require a licence under the Marine (Scotland) Act 2010 for Dredging and Deposit of Solid Waste in the Territorial Sea and UK Controlled Waters Adjacent to Scotland	N/A	OWF CMS

Activity	Potential impact	Environmental management, mitigation and monitoring measures	Mechanism for implementation	
		ES/ES Addendum Reference	CEMP ref.	Other document/plan ref.
		Ref. 4.120 (Addendum October 2013, Habitats Regulations Appraisal)		
Marine mammals				
Construction vessel activity	Corkscrew injuries in harbour and grey seals	There is research currently underway at a UK and International level to assess the nature and significance of the impact of the use of ducted propellers on seal species. Seagreen is committed to following progress on this subject and will develop mitigation based on guidance as and when it becomes available. The Applicants will continue to follow research in this area to establish whether there is a direct link between the use of ducted propellers and corkscrew injuries in harbour and grey seal. Ref. 13.50 (ES September 2012)	N/A	PEMP
Vessel activity	Potential Impact of Collision Risk	The construction phase will use mostly large (>100 m) vessels which are likely travel at slow speeds of around 10 knots or less and only small workboats and crew transfer vessels (~25 m) may operate at greater speed. Ref. 13.329, 13.457, 13.476 (ES September 2012)	N/A	VMP
All construction activities	Potential Impact of Changes to Water Quality	Development and adherence to SEMP to prevent and control spillage of contaminants is already factored into this assessment. Ref. 13.340, 13.464, 13.495, 13.510, 13.530 (ES September 2012)	4.5	MPCP
Cable installation	Potential Impacts of Electromagnetic Fields	The array cables will be shielded to meet industry standards and will be buried to a depth of between of 0.5m and 2.1m. Ref. 13.499 (ES September 2012)	N/A	OWF CMS, OWF CaP
Commercial fisheries				
Cable installation/protection	Safety Issues for Fishing Vessels	For the majority of this length cables will be buried, with approximately 10% being protected by other means (i.e. rock placement or concrete mattresses). Ref. 14.164, 14.246 (ES September 2012)	N/A	OWF CMS, OWF CaP, FMMS
Construction	Safety Issues for Fishing Vessels	Contractors will be obliged and monitored to ensure compliance with standard offshore policies prohibiting the discarding of objects or waste at sea. The reporting and recovery of any accidentally dropped objects is also required. Ref. 14.174, 14.211, 14.245, 14.270, 14.353 (ES September 2012)	4.8 and 4.9	
Construction	Safety Issues for Fishing Vessels	A Fisheries Working Group will be established to enable dialogue and facilitate agreement on measures to reduce interference with fishing activities. Ref. 14-43, 14.186, 14.195, 14.219, 14.254, 14.260, 14.274, 14.276, 14.321, 14.370 (ES September 2012)	N/A	FMMS
Shipping and navigation				
Cable burial/protection	Impact of cable Installation on Fishing Vessels	The majority of array cables will be buried, with approximately 10% being protected by other means (i.e. rock placement or concrete mattresses) Ref. 15.125 (ES September 2012)	N/A	OWF CMS, OWF CaP
All project phases	Impacts of all project phases upon shipping and recreation vessels	The following section presents mitigation measures which can be implemented for the OWF development to reduce the level of impact: - promulgation of information and warnings through Notices to Mariners, Kingfisher publications, fisheries liaison, local recreation clubs and marinas and further appropriate media on construction activities, cable installation works and other OWF matters; the use of guard vessels where appropriate to aid emergency situations and warn vessels;	N/A	OWF CMS, NSP, ERCoP, FMMS

Activity	Potential impact	Environmental management, mitigation and monitoring measures	Mechanism for implementation	
		ES/ES Addendum Reference	CEMP ref.	Other document/plan ref.
		application for and use of safety zones to protect the construction/ decommissioning of the sites; - use of appropriate means to notify and provide evidence of the infringement of construction safety zones; - use of vessels that are 'fit for purpose' for the construction activities including marked in accordance with International Regulations for the Prevention of Collisions at Sea (COLREGS) and fitted with an AIS transponder to prevent them becoming a risk factor; - Aids to Navigation in line with International Association of Lighthouse Authorities (IALA) O-139 (IALA, 2008) and MCA/ NLB Requirements (which will include a system of routine inspection and maintenance of lights and markings); additional buoyage if required to assist safe navigation (this would be based on guidance from NLB); - creation of an Emergency Response Co-operation Plan (ERCoP) with the relevant Maritime Rescue Co-ordination Centre (MRCC) from construction phase onwards, including MCA standards and procedures for WTG shut -down in the event of a search and rescue, counter pollution or salvage incident in or around a OWF; monitoring by radar, AIS and Closed Circuit Television (CCTV) or other agreed means; -fenders/ bumper bollards installed on structures; -clear notification of works (especially pre charting of cables); - subsea cables will be buried or trenched where possible to provide protection from dragged and dropped anchors and dropped objects; - where burial/ trenching is not possible, cables will be protected by other means such as rock dumping and concrete mattresses; - burial of array and export cables and post-installation surveys on array and export cables to confirm 'over-trawlability' of seabed -cable details will also be provided to the United Kingdom Hydrographic Office (UKHO) for inclusion on Admiralty Charts; - any cables installed within the cable corridor will be notified to Kingfisher Information Services and Cable Awareness (KISCA) for inclusion in cable awareness charts and plotters for the fishing industry; - consultation with fisheries stakeholders through the proposed regional Fisheries Working Group (see Chapter 14: Commercial Fisheries) to ensure that the cable protection method does not inhibit fishing activities; and - cable burial and bundling to reduce the effect of electromagnetic interference. Ref. 15.277 (ES September 2012)		
All project phases	Impacts of all project phases upon shipping and recreation vessels	Monitoring will take place through the Seagreen Project's Safety Management System (SMS). The SMS will include an incident/ accident reporting system which will ensure that incidents and near misses are recorded and reviewed to monitor the effectiveness of the risk control measures in place at the site. In addition, any information gained from near misses/ accidents at other OWF sites is likely to be considered with respect to the control measures applied at Project Alpha and Project Bravo. Ref. 15.281 (ES September 2012)	N/A	NSP, ERP
All project phases	Shipping and navigational safety	A Marine Control Centre (MCC) monitoring AIS will be used to monitor and record the movements of vessels around the Seagreen Project as well as company vessels working at the site. Ref. 15.284 (ES September 2012)	N/A	NSP
All Project Phases	Shipping and navigational safety	Any vessel observed to stray into a safety zone will be identified and contacted by a designated member of the crew of the OWF, guard vessel or from the MCC via multi - channel Very High Frequency (VHF) radio, including Digital Selective Calling (DSC), and warned that they have encroached a safety zone.	N/A	NSP

Activity	Potential impact	Environmental management, mitigation and monitoring measures	Mechanism for implementation	
		ES/ES Addendum Reference	CEMP ref.	Other document/plan ref.
		Ref. 15.285 (ES September 2012)		
Marine archaeology and cultural heritage				
Construction	Direct secondary and indirect impacts on archaeology and cultural heritage assets	In order to mitigate the risk of damage to any unrecorded archaeological remains, a Written Scheme of Investigation (WSI) and Protocol for Archaeological Discoveries (PAD) will be prepared for the approval of Historic Scotland and Aberdeenshire Council Archaeological Service to mitigate construction effects in the event of any unexpected archaeological discoveries during installation Ref. 17.56, 17.64, 17.71, 17.79, 17.90, 17.98, 17.104, 17.109, 17.115, 17.121 (ES September 2012)	4.3	WSI & PAD
Construction	Direct secondary and indirect impacts on archaeology and cultural heritage assets	Where cultural heritage assets may potentially be subject to direct effects, infrastructure will be micro-sited and temporary exclusion zones will be implemented to prevent invasive activities, such as WTG and array cable installation, and anchoring or deployment of jack -up legs. PA exclusion zones of at least 50m will be established around those of medium sensitivity HA14, HA25, HA43, HA47, HA64, HA77, HA106, HA112, HA132, HA225, HA230, HA248, HA268 and HA365. Ref. 17.56 (ES September 2012)	N/A	OWF CMS, Piling Strategy, OWF DSLP, OWF CaP, WSI & PAD
Construction	Direct, secondary and indirect impacts on archaeology and cultural heritage assets	Where cultural heritage assets may potentially be subject to direct effects, infrastructure will be micro-sited and temporary exclusion zones will be implemented to prevent invasive activities, such as WTG and cable installation, and anchoring or deployment of jack-up legs. PB exclusion zones of at least 100m will be established around HA1001, HA1004 and HA1008. PB exclusion zones of at least 50m will be established around those of medium sensitivity HA81, HA88, HA101, HA118, HA133, HA175, HA176, HA177 and HA409. Ref. 17.71 (ES September 2012)	N/A	OWF CMS, Piling Strategy OWF DSLP, OWF CaP, WSI & PAD
Other marine users and activities				
UXO	Potential health and safety impacts	Potential health and safety impacts will be fully assessed as part of a UXO specific risk assessment which will be informed by the geophysical survey data. UXO risk and response will be factored into the detailed design process and in the development of method statements and their associated health and safety risk assessments. Ref. 20.31(ES September 2012)	4.10	Construction HSPs
All project phases	Effects on other sea users	Consultation with the relevant wind farm project managers/ developers and operators, MOD and licensing authority to ensure logistics management is appropriate and to allow discussion of concerns and facilitate resolution of any potential issues. To this end Seagreen will continue to participate in on-going communication between the parties involved. The situation will also be monitored with regard any future development to assess potential impacts in the future. Ref. 20.43, 20.50, 20.55, 20.62, 20.68, 20.72, 20.73, 20.74, 20.75, 20.77 (ES September 2012)	N/A	TTP
Mitigation and monitoring				
Monitoring	Various	Ensure development of an appropriate monitoring programme, in order to review the effectiveness of proposed measures by way of mitigation, and to identify effects that differ significantly to those predicted and so enable an appropriate response to be considered. Ref. 22.7 (ES September 2012)	4.2	PEMP, FMMS
Monitoring	Various	The approach to monitoring for 'an appropriate monitoring programme' will be developed in consultation with the regulatory authorities, consultees and stakeholders, as appropriate - with any monitoring arrangements/actions being compliant with relevant legislation, license requirements, and agreed with relevant statutory consultees and regulatory authorities (and/or other stakeholders) Ref. 22.8 (ES September 2012)	4.2	PEMP
Construction vessels	Non-native/Invasive species	Any concerns that arise from the non-native or invasive species construction vessels risk assessment will be subject to further consultation with Scottish Natural Heritage and SEPA. Ref. 22.14 (ES September 2012)	4.7	N/A
Installation vessels	Boat traffic displacement to birds	Ornithology - Guidance, regarding the displacement to birds as a result of boat traffic, will be provided as part of a code of conduct to vessel operators on avoiding 'rafts' of birds and feeding aggregates by vessels accessing / servicing Project Alpha and Project Bravo.	N/A	VMP

Activity	Potential impact	Environmental management, mitigation and monitoring measures	Mechanism for implementation	
		ES/ES Addendum Reference	CEMP ref.	Other document/plan ref.
		Ref. 22.15 (ES September 2012)		
Preconstruction surveys	Potential loss of habitat to rare and important species	Preconstruction surveys (the scope and extent of which will be agreed with Marine Scotland) will be undertaken to identify presence of rare or important habitats. Ref. 22.18 (ES September 2012)	N/A	PEMP
Pre-decommissioning surveys	Potential loss of habitat to rare and important species	Surveying for Annex I habitat will be undertaken prior to decommissioning Ref. 22.19 (ES September 2012)	N/A	PEMP
Operational	Safety to fishing vessels	Dialogue between the fishing community and the Applicants will be ongoing throughout the operational phase. Ref. 22.29 (ES September 2012)	N/A	FMMS
Construction/installation	Safety to shipping and navigation	Shipping and navigation mitigation measures will be required (see shipping and navigation commitments for full details) Ref. 22.31 (ES September 2012)	N/A	NSP
Construction/installation	Direct impacts on archaeology and cultural heritage assets	Mitigation leading to preservation in situ will be preferred where possible. Where cultural heritage assets may potentially be subject to direct effects, infrastructure may be micro-sited and temporary exclusion zones implemented to prevent invasive activities (such as WTG and array cable installation or anchoring of vessels or deployment of jack-up legs) from damaging those assets. Exclusion zones of at least 100m will be implemented around cultural heritage assets defined in the assessment as of high sensitivity and 50m around assets defined as of medium sensitivity Ref. 22.34 (ES September 2012)	N/A	OWF CMS, WSI & PAD
Pre-construction	Potential impacts on archaeology and cultural heritage assets	Preparation of a Written Scheme of Investigation (WSI) and Protocol for Archaeological Discoveries (PAD), to be approved by Historic Scotland and Aberdeenshire Council Archaeological Service, in their capacity as advisors to Angus Council. Ref. 22.35 (ES September 2012)	N/A	WSI & PAD
Pre-construction	Potential impacts on archaeology and cultural heritage assets	Archaeology and Cultural Heritage mitigation measures will form part of the CEMP Ref. 22-7, 22.36 (ES September 2012)	4.3	WSI & PAD

Table G4: Offshore Substation Platforms (including foundations and substructure) (ES Chapters - Physical Environment, Water and Sediment Quality, Benthic/Intertidal Ecology, Fish and Shellfish Resource, Marine Mammals, Commercial Fisheries, Shipping and Navigation, Archaeology and Cultural Heritage, Other Marine Users and Activities, Mitigation and Monitoring; ES Addendum Habitats Regulations Appraisal – Marine Mammals, Fish and Shellfish)

Activity	Potential impact	Environmental management, mitigation and monitoring measures	Mechanism for implementation	
		ES/ES Addendum reference	CEMP ref.	Other document/plan ref.
Physical environment				
Substructure/foundation installation	Sediments and sedimentary structures	Up to only two substructures/foundations will be installed simultaneously over any three-day period across **all projects** during the minimum 6 months annual construction period and therefore the release of this material during construction activities will be phased over time. Ref. 7.165, 7.192, 7.204 (ES September 2012)	N/A	OTA CMS
Substructure/foundation and export cable installation	Suspended sediment concentrations and suspended sediment transport	Substructures/foundations will be installed over a minimum 6 month annual construction period, with no more than two substructures/foundations being installed simultaneously at any one time. Ref. 7.171, 7.174, 7.215 (ES September 2012)	N/A	OTA CMS
Scour protection surveys	Suspended sediment concentrations and suspended sediment transport	Where scour protection is adopted, as is highly likely for all GBS types to ensure structural stability, visual ROV, drop video or dive surveys or bathymetric surveys will be undertaken at selected locations Ref. 7.248, 7.259 (ES September 2012)	N/A	OTA CMS
Water and Sediment Quality				
Construction spillage	Deterioration in water and / or sediment quality due to accidental spillage of construction materials	Seagreen will ensure all contractors put in place appropriate Construction Environmental Management Plans (CEMP) and Pollution Control and Spillage Response Plans that will be agreed with the regulatory authorities prior to offshore construction activities commencing (includes OWF projects and OTA) Ref. 8.154, 8.168, 8.189 (ES September 2012)	This whole document	MPCP
Construction vessel presence	Introduction of marine non-native / alien species	A risk assessment process will be applied to mitigate any invasive and/or non-native species potentially brought to the location by construction vessels - taking into account previous vessel locations, activities and planned routes, leading to recommendation for management measures (includes OWF projects and OTA) Ref. 8.158, 8.171, 8.191 (ES September 2012)	4.7	N/A
Operational activities	Deterioration in water quality due to accidental spillages and waste water	Best practice for pollution prevention will be considered during the operational phases to mitigate the risk from accidental spillages. Ref. 8.206, 8.218 (ES September 2012)	N/A	OEMP
Operational activity	Deterioration in water quality due to accidental spillages and waste water	Contractors will be required by Seagreen to put in place appropriate Site Environmental Management Plans (SEMP) and Pollution Control and Spillage Response Plans that would have been agreed with the Regulatory Authorities prior to offshore activities commencing. These plans will act to reduce the potential for accidental pollution and in the unlikely event of a pollution incident, would ensure a rapid and appropriate response. Ref. 8.231 (ES September 2012)	N/A	MPCP
Benthic ecology and intertidal ecology				
na				
Fish and shellfish resource				
Piling	Noise - disturbance or injury	Soft start piling (in which the energy used to drive the piles into the sediment is slowly ramped up) has been incorporated in to the noise assessments.	N/A	Piling Strategy

Activity	Potential impact	Environmental management, mitigation and monitoring measures	Mechanism for implementation	
		ES/ES Addendum reference	CEMP ref.	Other document/plan ref.
		Ref. 12.234, 12.252, 12.279, 12.290, 12.404, 12.431 (ES September 2012)		
Scour protection installation	Increased suspended sediments and mobilisation of contaminants	Placement of scour protection should reduce the amount of re-suspended material during operation. Ref. 12.354, 12.367 (ES September 2012)	N/A	OTA CMS
Seabed preparation	Deterioration in water quality due to re-suspension of sediments with impact on marine species	Seabed preparation activities will require a licence under the Marine (Scotland) Act 2010 for Dredging and Deposit of Solid Waste in the Territorial Sea and UK Controlled Waters Adjacent to Scotland Ref. 4.120 (Addendum October 2013, Habitats Regulations Appraisal)	N/A	OTA CMS
Piling	Noise - disturbance or injury to marine species	The soft start procedure for mitigation of piling impacts on marine species will be employed, such that impact piling will be increased in power over a period of 25 minutes. Ref. 4.147 (Addendum October 2013, Habitats Regulations Appraisal)	N/A	Piling Strategy
Pre-construction (piling)	Underwater noise from piling impacts on marine species	Marine Mammal Monitoring Protocol to allow for exclusion/mitigation/monitoring zone of 500m around each pile location Ref. 4.264 (Addendum October 2013, Habitats Regulations Appraisal)	N/A	Piling Strategy, PEMP
Marine mammals				
Construction vessel activity	Corkscrew injuries in harbour and grey seals	There is research currently underway at a UK and International level to assess the nature and significance of the impact of the use of ducted propellers on seal species. Seagreen is committed to following progress on this subject and will develop mitigation based on guidance as and when it becomes available. The Applicants will continue to follow research in this area to establish whether there is a direct link between the use of ducted propellers and corkscrew injuries in harbour and grey seal. Ref. 13.50 (ES September 2012)	N/A	PEMP
Piling	Underwater noise from piling impacts on marine mammals	For all PA, PB and OTA worst case scenario for piling for each below: Pile diameter: 2m Total penetration: up to 32m Hammer capacity: 1800KJ Max blow force: 1450KJ Soft start (ramp up) 25mins Total piling duration 55 mins Ramp up details: 6 mins at 15% capacity 4 mins at 35% capacity 5 mins at 55% capacity 10 mins at 75% capacity	N/A	Piling Strategy

Activity	Potential impact	Environmental management, mitigation and monitoring measures	Mechanism for implementation	
		ES/ES Addendum reference	CEMP ref.	Other document/plan ref.
		30 mins at 95% capacity Strike rate: 45 per minute. Total number of piles: 75 WTG x 4 piles for each PA and PB and 72 piles for OTA OSPs Ref. Tables 13.11 and 13.12 (ES September 2012)		
Piling	Underwater noise from piling impacts on marine mammals	A Marine Mammal Monitoring Protocol for the Seagreen Project will be developed in conjunction with the relevant Stakeholders. The provision of a Marine Mammal Observer (MMO) and/ or Passive Acoustic Monitoring (PAM) following JNCC guidelines is likely to be part of the licensing requirement. This should allow for an exclusion zone around the source of pile driving of up to 500m. The use of Acoustic Deterrent Devices (ADDs), if deemed appropriate at the time of design and implementation of the mitigation plan, will be considered as a likely alternative or addition to the provision of MMOs. Ref. 13.198, 13.244, 13.344, 13.365, 13.399, 13.460, 13.467, 13.492, 13.508, 13.527, 13.541, 13.552 (ES September 2012)	N/A	Piling Strategy, PEMP
Construction Vessel activity	Potential Impact of Collision Risk	The construction phase will use mostly large (>100 m) vessels which are likely travel at slow speeds of around 10 knots or less and only small workboats and crew transfer vessels (~25 m) may operate at greater speed. Ref. 13.329, 13.457, 13.476 (ES September 2012)	N/A	VMP
All construction activities	Potential Impact of Changes to Water Quality	Development and adherence to SEMP to prevent and control spillage of contaminants is already factored into this assessment. Ref. 13.340, 13.464, 13.495, 13.510, 13.530 (ES September 2012)	4.5	MPCP
Monitoring	All marine mammal impacts	The monitoring programme will be developed in consultation with key regulators, advisors, academics and experts and will focus on undertaking data gathering which over time can provide a statistically robust data set, which builds on on-going research. Ref. 13.654, 13.661, 13.662 (ES September 2012)	4.2	PEMP
Piling	Underwater noise from piling impacts on marine mammals	In relation to piling during soft start marine mammal observers will be on active watch for 30 minutes prior to the start of piling activity (the 'pre-piling search'). If during this period marine mammals are detected within mitigation zone (500m radius around piling location), piling will not be commenced until a 20 minute period without further sightings has elapsed. Ref. 3.74 (Addendum October 2013, Habitats Regulations Appraisal)	N/A	Piling Strategy, PEMP
Commercial fisheries				
Safety zones (operational)	Safety Issues for Fishing Vessels	It is likely that safety zones of 50m may be applied around infrastructure such as WTGs (maximum of 75), meteorological masts (maximum of three) and OSPs (maximum of three) per project. Ref. 14.163, 14.243 (ES September 2012)	N/A	NSP
Construction	Safety Issues for Fishing Vessels	Contractors will be obliged and monitored to ensure compliance with standard offshore policies prohibiting the discarding of objects or waste at sea. The reporting and recovery of any accidentally dropped objects is also required. Ref. 14.174, 14.211, 14.245, 14.270, 14.353 (ES September 2012)	4.8 and 4.9	
Construction	Safety Issues for Fishing Vessels	A Fisheries Working Group will be established to enable dialogue and facilitate agreement on measures to reduce interference with fishing activities. Ref. 14.186, 14.195, 14.219, 14.254, 14.260, 14.274, 14.276, 14.321, 14.370 (ES September 2012)	N/A	FMMS
Shipping and navigation				

Activity	Potential impact	Environmental management, mitigation and monitoring measures	Mechanism for implementation	
		ES/ES Addendum reference	CEMP ref.	Other document/plan ref.
All project phases	Impacts of all project phases upon shipping and recreation vessels	The following section presents mitigation measures which can be implemented for the OWF development to reduce the level of impact: - promulgation of information and warnings through Notices to Mariners, Kingfisher publications, fisheries liaison, local recreation clubs and marinas and further appropriate media on construction activities, cable installation works and other OWF matters; the use of guard vessels where appropriate to aid emergency situations and warn vessels; application for and use of safety zones to protect the construction/ decommissioning of the sites; - use of appropriate means to notify and provide evidence of the infringement of construction safety zones; - use of vessels that are 'fit for purpose' for the construction activities including marked in accordance with International Regulations for the Prevention of Collisions at Sea (COLREGS) and fitted with an AIS transponder to prevent them becoming a risk factor; - Aids to Navigation in line with International Association of Lighthouse Authorities (IALA) O-139 (IALA, 2008) and MCA/ NLB Requirements (which will include a system of routine inspection and maintenance of lights and markings); additional buoyage if required to assist safe navigation (this would be based on guidance from NLB); - creation of an Emergency Response Co-operation Plan (ERCoP) with the relevant Maritime Rescue Co-ordination Centre (MRCC) from construction phase onwards, including MCA standards and procedures for WTG shut -down in the event of a search and rescue, counter pollution or salvage incident in or around a OWF; monitoring by radar, AIS and Closed Circuit Television (CCTV) or other agreed means; -fenders/ bumper bollards installed on structures; -clear notification of works (especially pre charting of cables); - subsea cables will be buried or trenched where possible to provide protection from dragged and dropped anchors and dropped objects; - where burial/ trenching is not possible, cables will be protected by other means such as rock dumping and concrete mattresses; - burial of array and export cables and post-installation surveys on array and export cables to confirm 'over-trawlability' of seabed -cable details will also be provided to the United Kingdom Hydrographic Office (UKHO) for inclusion on Admiralty Charts; - any cables installed within the cable corridor will be notified to Kingfisher Information Services and Cable Awareness (KISCA) for inclusion in cable awareness charts and plotters for the fishing industry; - consultation with fisheries stakeholders through the proposed regional Fisheries Working Group (see Chapter 14: Commercial Fisheries) to ensure that the cable protection method does not inhibit fishing activities; and - cable burial and bundling to reduce the effect of electromagnetic interference. Ref. 15.277 (ES September 2012)	N/A	OTA CMS, NSP, ERCoP, FMMS
All project phases	Impacts of all project phases upon shipping and recreation vessels	Monitoring will take place through the Seagreen Project's Safety Management System (SMS). The SMS will include an incident/ accident reporting system which will ensure that incidents and near misses are recorded and reviewed to monitor the effectiveness of the risk control measures in place at the site. In addition, any information gained from near misses/ accidents at other OWF sites is likely to be considered with respect to the control measures applied at Project Alpha and Project Bravo. Ref. 15.281 (ES September 2012)	N/A	NSP, ERP

Activity	Potential impact	Environmental management, mitigation and monitoring measures	Mechanism for implementation	
		ES/ES Addendum reference	CEMP ref.	Other document/plan ref.
All construction	Shipping and navigational safety	CCTV will be installed to enable coverage of the OWF areas from key locations either on the WTGs or the substations. The CCTV will be adjustable for day/ night conditions and allow operators in a central control room to identify vessel names from a distance to facilitate radio communications. Ref. 15.283 (ES September 2012)	N/A	OTA CMS, NSP
All project phases	Shipping and navigational safety	A Marine Control Centre (MCC) monitoring AIS will be used to monitor and record the movements of vessels around the Seagreen Project as well as company vessels working at the site. Ref. 15.284 (ES September 2012)	N/A	NSP
All Project Phases	Shipping and navigational safety	Any vessel observed to stray into a safety zone will be identified and contacted by a designated member of the crew of the OWF, guard vessel or from the MCC via multi - channel Very High Frequency (VHF) radio, including Digital Selective Calling (DSC), and warned that they have encroached a safety zone. Ref. 15.285 (ES September 2012)	N/A	NSP
Marine archaeology and cultural heritage				
Construction	Direct secondary and indirect impacts on archaeology and cultural heritage assets	In order to mitigate the risk of damage to any unrecorded archaeological remains, a Written Scheme of Investigation (WSI) and Protocol for Archaeological Discoveries (PAD) will be prepared for the approval of Historic Scotland and Aberdeenshire Council Archaeological Service to mitigate construction effects in the event of any unexpected archaeological discoveries during installation Ref. 17.56, 17.64, 17.71, 17.79, 17.90, 17.98, 17.104, 17.109, 17.115, 17.121 (ES September 2012)	4.3	WSI & PAD
Construction	Direct impacts on archaeology and cultural heritage assets	Where cultural heritage assets may potentially be subject to direct effects, infrastructure will be micro-sited/ re-routed and temporary exclusion zones will be implemented to prevent invasive activities, such as OSP and cable installation, and anchoring or deployment of jack -up legs. OTA exclusion zones of at least 100m will be established around those of high sensitivity HA10, HA12, HA18, HA19, HA28, HA35, HA47, HA60 and HA62. OTA exclusion zones of at least 50m will be established around those of medium sensitivity HA6, HA9, HA26, HA29, HA30, HA31, HA32, HA34, HA36-HA38, HA56, HA57, HA61, HA65, HA306, HA340 and HA345. Ref. 17.90 (ES September 2012)	N/A	OTA CMS, OTA DSLP, OTA CaP, WSI & PAD
Other marine users and activities				
UXO	Potential health and safety impacts	Potential health and safety impacts will be fully assessed as part of a UXO specific risk assessment which will be informed by the geophysical survey data. UXO risk and response will be factored into the detailed design process and in the development of method statements and their associated health and safety risk assessments. Ref. 20.31(ES September 2012)	4.10	Construction HSPs
All project phases	Effects on other sea users	Consultation with the relevant wind farm project managers/ developers and operators, MOD and licensing authority to ensure logistics management is appropriate and to allow discussion of concerns and facilitate resolution of any potential issues. To this end Seagreen will continue to participate in on-going communication between the parties involved. The situation will also be monitored with regard any future development to assess potential impacts in the future. Ref. 20.43, 20.50, 20.55, 20.62, 20.68, 20.72, 20.73, 20.74, 20.75, 20.77 (ES September 2012)	N/A	TTP,
Mitigation and monitoring				
Monitoring	Various	Ensure development of an appropriate monitoring programme, in order to review the effectiveness of proposed measures by way of mitigation, and to identify effects that differ significantly to those predicted and so enable an appropriate response to be considered. Ref. 22.7 (ES September 2012)	4.2	PEMP, FMMS
Monitoring	Various	The approach to monitoring for 'an appropriate monitoring programme' will be developed in consultation with the regulatory authorities, consultees and stakeholders, as appropriate - with any monitoring arrangements/actions being compliant with relevant	4.2	PEMP

Activity	Potential impact	Environmental management, mitigation and monitoring measures	Mechanism for implementation	
		ES/ES Addendum reference	CEMP ref.	Other document/plan ref.
		legislation, license requirements, and agreed with relevant statutory consultees and regulatory authorities (and/or other stakeholders) Ref. 22.8 (ES September 2012)		
Monitoring	Direct impacts to the bedform	Predicted direct impacts to the bedform will be primarily mitigated through use of the smaller diameter GBS foundations (54m^2 rather than 72m^2) for the major infrastructure where possible and subject to detailed design criteria and on a case by case basis. The need for scour protection will be considered on a case by case basis. Ref. 22.10 (ES September 2012)	N/A	OTA CMS, Piling Strategy, Design Statement
Construction vessels	Non-native/Invasive species	Any concerns that arise from the non-native or invasive species construction vessels risk assessment will be subject to further consultation with Scottish Natural Heritage and SEPA. Ref. 22.14 (ES September 2012)	4.7	N/A
Construction vessels	Boat traffic displacement to birds	Ornithology - Guidance, regarding the displacement to birds as a result of boat traffic, will be provided as part of a code of conduct to vessel operators on avoiding 'rafts' of birds and feeding aggregates by vessels accessing / servicing Project Alpha and Project Bravo. Ref. 22.15 (ES September 2012)	N/A	VMP
Piling	Underwater noise from piling impacts on marine mammals and ornithology prey species	Best practice in piling will be adopted (i.e. soft start, ramp up) Ref. 22.16, 22.24 (ES September 2012)	N/A	Piling Strategy, PEMP
Preconstruction surveys	Potential loss of habitat to rare and important species	Preconstruction surveys (the scope and extent of which will be agreed with Marine Scotland) will be undertaken to identify presence of rare or important habitats. Ref. 22.18 (ES September 2012)	N/A	PEMP
Pre-decommissioning surveys	Potential loss of habitat to rare and important species	Surveying for Annex I habitat will be undertaken prior to decommissioning Ref. 22.19 (ES September 2012)	N/A	PEMP
Pre-construction (piling)	Underwater noise from piling impacts on marine mammals	A Marine Mammal Mitigation Plan (MMMP) will be developed in consultation with Marine Scotland and SNH, once the final design process has been completed Ref. 22.23 (ES September 2012)	N/A	Piling Strategy, PEMP
Piling	Underwater noise from piling impacts on marine mammals	Implementation of a mitigation plan and application of Acoustic Deterrent Devices (ADDs), if deemed appropriate at the time of design. Ref. 22.24 (ES September 2012)	N/A	Piling Strategy, PEMP
Piling	Underwater noise from piling impacts on marine mammals	Nearer to the time of construction, the application of mitigation methods addressing noise caused by piling of jacket structures/ foundations in deep water will be considered, as well as alternative non-piled substructure/foundation solutions. Ref. 22.26 (ES September 2012)	N/A	OTA CMS, Piling Strategy
Operational	Safety to fishing vessels	Dialogue between the fishing community and the Applicants will be ongoing throughout the operational phase. Ref. 22.29 (ES September 2012)	N/A	FMMS
Construction/installation	Safety to shipping and navigation	Shipping and navigation mitigation measures will be required (see shipping and navigation commitments for full details) Ref. 22.31 (ES September 2012)	N/A	NSP
Construction/installation	Direct impacts on archaeology and cultural heritage assets	Mitigation leading to preservation in situ will be preferred where possible. Where cultural heritage assets may potentially be subject to direct effects, infrastructure may be micro-sited and temporary exclusion zones implemented to prevent invasive activities (such as WTG and array cable installation or anchoring of vessels or deployment of jack-up legs) from damaging those assets. Exclusion zones of at least 100m will be implemented around cultural heritage assets defined in the assessment as of high sensitivity and 50m around assets defined as of medium sensitivity	N/A	OTA CMS, WSI & PAD

Activity	Potential impact	Environmental management, mitigation and monitoring measures	Mechanism for implementation	
		ES/ES Addendum reference	CEMP ref.	Other document/plan ref.
		Ref. 22.34 (ES September 2012)		
Pre-construction	Potential impacts on archaeology and cultural heritage assets	Preparation of a Written Scheme of Investigation (WSI) and Protocol for Archaeological Discoveries (PAD), to be approved by Historic Scotland and Aberdeenshire Council Archaeological Service, in their capacity as advisors to Angus Council. Ref. 22.35 (ES September 2012)	N/A	WSI & PAD
Pre-construction	Potential impacts on archaeology and cultural heritage assets	Archaeology and Cultural Heritage mitigation measures will form part of the CEMP Ref. 22-7, 22.36 (ES September 2012)	4.3	WSI & PAD

Table G5: Export cables (ES Chapters - Physical Environment, Water and Sediment Quality, Benthic/Intertidal Ecology, Fish and Shellfish Resource, Marine Mammals, Commercial Fisheries, Shipping and Navigation, Seascape/Landscape and Visual Amenity, Archaeology and Cultural Heritage, Socio Economics/Tourism and Recreation, Other Marine Users and Activities, Mitigation and Monitoring; ES Addendum Habitats Regulations Appraisal – Fish and Shellfish)

Activity	Potential impact	Environmental management, mitigation and monitoring measures	Mechanism for implementation	
		ES/ES Addendum Reference	CEMP ref.	Other document/plan ref.
Physical processes				
Substructure/foundation and export cable installation	Suspended sediment concentrations and suspended sediment transport	Substructures/foundations will be installed over a minimum 6 month annual construction period, with no more than two substructures/foundations being installed simultaneously at any one time. Ref. 7.171, 7.174, 7.215 (ES September 2012)	N/A	OWF CMS, OTA CMS
Cable burial	Effects on hydrodynamic regime	Efforts will be made to optimize the length of cable that will achieve target burial depth and therefore the amount of cable protection required will be minimised. Ref. 7.273 (ES September 2012)	N/A	OTA CMS, OTA CaP
Nearshore cable installation	Effects on sediments and sedimentary structures	Rock dumping and concrete mattresses will not be used to protect the cables in the nearshore (depths less than 7m and intertidal zone). Ref. 7.281 (ES September 2012)	N/A	OTA CMS, OTA CaP
Water Quality and Sediment Quality				
Construction spillage	Deterioration in water and / or sediment quality due to accidental spillage of construction materials	Seagreen will ensure all contractors put in place appropriate Construction Environmental Management Plans (CEMP) and Pollution Control and Spillage Response Plans that will be agreed with the regulatory authorities prior to offshore construction activities commencing (includes OWF projects and OTA) Ref. 8.154 & 8-38, 8.168, 8.189 (ES September 2012)	This whole document	CMPCP
Installation vessel presence	Introduction of marine non-native / alien species	A risk assessment process will be applied to mitigate any invasive and/or non-native species potentially brought to the location by construction vessels - taking into account previous vessel locations, activities and planned routes, leading to recommendation for management measures (includes OWF projects and OTA) Ref. 8.158, 8.171, 8.191 (ES September 2012)	4.7	N/A
HDD activities	Deterioration in water and / or sediment quality due to accidental spillage of construction materials	• a Competent Person will be present on site during HDD activities. The HDD Contractor shall contain, handle, and dispose of drilling fluids in accordance with the following requirements: • a method statement showing how drilling mud releases to the environment will be minimised shall be submitted and agreed with Marine Scotland: • excess drilling fluid shall be confined in a containment pit/vessel at the entry and exit locations until recycled or removed from the site; • precautions shall be taken to ensure that drilling fluid does not enter roadways, streams, storm or sewer pipes, and/or any other drainage system or body of water; • unintended surfacing of drilling fluid shall be contained at the point of discharge and recycled or removed from the site; • drilling fluids that are not recycled and reused shall be removed from the site and disposed at an approved disposal site; and • drilling fluids shall be completely removed from the construction site prior to back filling or restoring the site. Ref. 8.189 (ES September 2012)	N/A	OTA CMS, OTA CaP
Benthic ecology and intertidal ecology				
Cable protection installation	Direct impact on benthos due to the loss of habitat	The amount of rock, grout bags or mattresses used to protect the cable will be kept to the minimum amount (which may be less than the worst case estimate of 10%) necessary to ensure protection. Ref. 11-47, 11.200 (ES September 2012)	N/A	OTA CaP
Intertidal cable installation	Direct impact on intertidal ecology due to physical disturbance	Best practice measures will be employed by Seagreen, based on lessons learnt from equivalent cable installations across sandy shores, to ensure that the significance of potential impacts remain as negligible, these include: – Limiting the number of vehicle operations across the intertidal area. – Ensuring that any vehicle operations keep to designated areas of minimal practicable size	N/A	OTA CMS, OTA CaP

Activity	Potential impact	Environmental management, mitigation and monitoring measures	Mechanism for implementation	
		ES/ES Addendum Reference	CEMP ref.	Other document/plan ref.
		– Lay down of tracking if appropriate in areas of softer sand. Ref. 11.214 (ES September 2012)		
Fish and shellfish resource				
Cable installation	Electromagnetic fields (EMF) (Operation)	However, burial depths of up to 3m and cable sheaths may mitigate some of the impacts of EMF for the export cable. Ref. 12.376 (ES September 2012)	N/A	OTA CMS
Seabed preparation	Deterioration in water quality due to re-suspension of sediments with impact on marine species	Seabed preparation activities will require a licence under the Marine (Scotland) Act 2010 for Dredging and Deposit of Solid Waste in the Territorial Sea and UK Controlled Waters Adjacent to Scotland Ref. 4.120 (Addendum October 2013, Habitats Regulations Appraisal)	N/A	OTA CMS
Marine mammals				
Construction vessel activity	Corkscrew injuries in harbour and grey seals	There is research currently underway at a UK and International level to assess the nature and significance of the impact of the use of ducted propellers on seal species. Seagreen is committed to following progress on this subject and will develop mitigation based on guidance as and when it becomes available. The Applicants will continue to follow research in this area to establish whether there is a direct link between the use of ducted propellers and corkscrew injuries in harbour and grey seal. Ref. 13.50 (ES September 2012)	N/A	PEMP
Vessel activity	Potential Impact of Collision Risk	The construction phase will use mostly large (>100 m) vessels which are likely travel at slow speeds of around 10 knots or less and only small workboats and crew transfer vessels (~25 m) may operate at greater speed. Ref. 13.329, 13.457, 13.476 (ES September 2012)	N/A	VMP
All construction activities	Potential Impact of Changes to Water Quality	Development and adherence to SEMP to prevent and control spillage of contaminants is already factored into this assessment. Ref. 13.340, 13.464, 13.495, 13.510, 13.530 (ES September 2012)	4.5	MPCP
Cable installation	Potential Impacts of Electromagnetic Fields	The export cables will be shielded to meet industry standards and will be buried to a minimum of 0.5m. Ref. 13.516 (ES September 2012)	N/A	OTA CMS, OTA CaP
Commercial fisheries				
Construction	Safety Issues for Fishing Vessels	Contractors will be obliged and monitored to ensure compliance with standard offshore policies prohibiting the discarding of objects or waste at sea. The reporting and recovery of any accidentally dropped objects is also required. Ref. 14.174, 14.211, 14.245, 14.270, 14.353 (ES September 2012)	4.8 and 4.9	
Construction	Safety Issues for Fishing Vessels	A Fisheries Working Group will be established to enable dialogue and facilitate agreement on measures to reduce interference with fishing activities. Ref. 14.186, 14.195, 14.219, 14.254, 14.260, 14.274, 14.276, 14.321, 14.370 (ES September 2012)	N/A	FMMS
Cable burial/protection	Safety issues for fishing vessels	Export cables will be buried to a target depth of between 0.5 and 3m, where it is technically practicable to do so, which will reduce the risk to fishing vessels from snagging. In instances where adequate burial cannot be achieved an appropriate cable protection will be used. Ref. 14.222 (ES September 2012)	N/A	OTA CMS, OTA CaP, FMMS
Cable burial/protection	Safety issues for fishing vessels	The majority of export cables will be buried, although approximately 5% of each which may be protected by other means (i.e. rock placement or concrete mattresses). Ref. 14.203, 14.267 (ES September 2012)	N/A	OTA CMS

Activity	Potential impact	Environmental management, mitigation and monitoring measures ES/ES Addendum Reference	Mechanism for implementation CEMP ref.	 Other document/plan ref.
Shipping and navigation				
Cable burial/protection	Impact of Export Cable Installation on Fishing Vessels	The majority of export cables will be buried, although approximately 5% of the export cables may be protected by other means (i.e. rock placement or concrete mattresses). Ref. 15.113, 15.145 (ES September 2012)	N/A	OTA CMS, OTA CaP
All project phases	Impacts of all project phases upon shipping and recreation vessels	The following section presents mitigation measures which can be implemented for the OWF development to reduce the level of impact: - promulgation of information and warnings through Notices to Mariners, Kingfisher publications, fisheries liaison, local recreation clubs and marinas and further appropriate media on construction activities, cable installation works and other OWF matters; the use of guard vessels where appropriate to aid emergency situations and warn vessels; application for and use of safety zones to protect the construction/ decommissioning of the sites; - use of appropriate means to notify and provide evidence of the infringement of construction safety zones; - use of vessels that are 'fit for purpose' for the construction activities including marked in accordance with International Regulations for the Prevention of Collisions at Sea (COLREGS) and fitted with an AIS transponder to prevent them becoming a risk factor; - Aids to Navigation in line with International Association of Lighthouse Authorities (IALA) O-139 (IALA, 2008) and MCA/ NLB Requirements (which will include a system of routine inspection and maintenance of lights and markings); additional buoyage if required to assist safe navigation (this would be based on guidance from NLB); - creation of an Emergency Response Co-operation Plan (ERCoP) with the relevant Maritime Rescue Co-ordination Centre (MRCC) from construction phase onwards, including MCA standards and procedures for WTG shut -down in the event of a search and rescue, counter pollution or salvage incident in or around a OWF; monitoring by radar, AIS and Closed Circuit Television (CCTV) or other agreed means; -fenders/ bumper bollards installed on structures; -clear notification of works (especially pre charting of cables); - subsea cables will be buried or trenched where possible to provide protection from dragged and dropped anchors and dropped objects; - where burial/ trenching is not possible, cables will be protected by other means such as rock dumping and concrete mattresses; - burial of array and export cables and post-installation surveys on array and export cables to confirm 'over-trawlability' of seabed -cable details will also be provided to the United Kingdom Hydrographic Office (UKHO) for inclusion on Admiralty Charts; - any cables installed within the cable corridor will be notified to Kingfisher Information Services and Cable Awareness (KISCA) for inclusion in cable awareness charts and plotters for the fishing industry; - consultation with fisheries stakeholders through the proposed regional Fisheries Working Group (see Chapter 14: Commercial Fisheries) to ensure that the cable protection method does not inhibit fishing activities; and - cable burial and bundling to reduce the effect of electromagnetic interference. Ref. 15.277 (ES September 2012)	N/A	OTA CMS, NSP, ERCoP, FMMS
All project phases	Impacts of all project phases upon shipping and recreation vessels	Monitoring will take place through the Seagreen Project's Safety Management System (SMS). The SMS will include an incident/ accident reporting system which will ensure that incidents and near misses are recorded and reviewed to monitor the	N/A	NSP, ERP

Activity	Potential impact	Environmental management, mitigation and monitoring measures	Mechanism for implementation	
		ES/ES Addendum Reference	CEMP ref.	Other document/plan ref.
		effectiveness of the risk control measures in place at the site. In addition, any information gained from near misses/ accidents at other OWF sites is likely to be considered with respect to the control measures applied at Project Alpha and Project Bravo. Ref. 15.281 (ES September 2012)		
All project phases	Shipping and navigational safety	A Marine Control Centre (MCC) monitoring AIS will be used to monitor and record the movements of vessels around the Seagreen Project as well as company vessels working at the site. Ref. 15.284 (ES September 2012)	N/A	NSP
All Project Phases	Shipping and navigational safety	Any vessel observed to stray into a safety zone will be identified and contacted by a designated member of the crew of the OWF, guard vessel or from the MCC via multi - channel Very High Frequency (VHF) radio, including Digital Selective Calling (DSC), and warned that they have encroached a safety zone. Ref. 15.285 (ES September 2012)	N/A	NSP
Seascape, landscape and visual amenity				
Construction	Impacts on landscape, seascape and visual amenity	Within the export cable corridor the construction activities close to residential receptors would be restricted to daylight or normal working hours. If there is night-time lighting less than approximately 2km to the shore, best practice measures would be applied to ensure the lighting is not directed towards the shore (e.g. using boats between the works and shore only). Ref. 16.216 (ES September 2012)	N/A	OTA CMS, VMP, OTA CaP, LMP
Marine archaeology and cultural heritage				
Construction	Direct secondary and indirect impacts on archaeology and cultural heritage assets	In order to mitigate the risk of damage to any unrecorded archaeological remains, a Written Scheme of Investigation (WSI) and Protocol for Archaeological Discoveries (PAD) will be prepared for the approval of Historic Scotland and Aberdeenshire Council Archaeological Service to mitigate construction effects in the event of any unexpected archaeological discoveries during installation Ref. 17.56, 17.64, 17.71, 17.79, 17.90, 17.98, 17.104, 17.109, 17.115, 17.121 (ES September 2012)	4.3	WSI & PAD
Installation	Direct impacts on archaeology and cultural heritage assets	Where cultural heritage assets may potentially be subject to direct effects, infrastructure will be micro-sited/ re-routed and temporary exclusion zones will be implemented to prevent invasive activities, such as OSP and cable installation, and anchoring or deployment of jack -up legs. OTA exclusion zones of at least 100m will be established around those of high sensitivity HA10, HA12, HA18, HA19, HA28, HA35, HA47, HA60 and HA62. OTA exclusion zones of at least 50m will be established around those of medium sensitivity HA6, HA9, HA26, HA29, HA30, HA31, HA32, HA34, HA36-HA38, HA56, HA57, HA61, HA65, HA306, HA340 and HA345. Ref. 17.90 (ES September 2012)	N/A	OTA CMS, OTA DSLP, OTA CaP, WSI & PAD
Socio Economics, tourism & recreation				
Beach installation of export cable	Direct impacts to tourism and recreation receptors	Disruption caused by construction on the beach of the export cable will be for a maximum of 3 months. Access would be prevented for safety reasons for a temporary period of 3 months. Ref. 19.143 (ES September 2012)	N/A	OTA CMS, OTA CaP
Beach installation of export cable	Impacts to tourism and recreation receptors	The export cables will be laid below the surface and hence will not result in any permanent change to the utilisation of the receptors as tourism or recreations resource. Ref. 19.143 (ES September 2012)	N/A	OTA CMS, OTA CaP
Other marine users and activities				
UXO	Potential health and safety impacts	Potential health and safety impacts will be fully assessed as part of a UXO specific risk assessment which will be informed by the geophysical survey data. UXO risk and response will be factored into the detailed design process and in the development of method statements and their associated health and safety risk assessments. Ref. 20.31(ES September 2012)	4.10	Construction HSPs
All project phases	Effects on other sea users	Consultation with the relevant wind farm project managers/ developers and operators, MOD and licensing authority to ensure logistics management is appropriate and to allow discussion of concerns and facilitate resolution of any potential issues.	N/A	TTP,

Activity	Potential impact	Environmental management, mitigation and monitoring measures	Mechanism for implementation	
		ES/ES Addendum Reference	CEMP ref.	Other document/plan ref.
		To this end Seagreen will continue to participate in on-going communication between the parties involved. The situation will also be monitored with regard any future development to assess potential impacts in the future. Ref. 20.43, 20.50, 20.55, 20.62, 20.68, 20.72, 20.73, 20.74, 20.75, 20.77 (ES September 2012)		
Mitigation and monitoring				
Monitoring	Various	Ensure development of an appropriate monitoring programme, in order to review the effectiveness of proposed measures by way of mitigation, and to identify effects that differ significantly to those predicted and so enable an appropriate response to be considered. Ref. 22.7 (ES September 2012)	4.2	PEMP, FMMS
Monitoring	Various	The approach to monitoring for 'an appropriate monitoring programme' will be developed in consultation with the regulatory authorities, consultees and stakeholders, as appropriate - with any monitoring arrangements/actions being compliant with relevant legislation, license requirements, and agreed with relevant statutory consultees and regulatory authorities (and/or other stakeholders) Ref. 22.8 (ES September 2012)	4.2	PEMP
Coastal installation and rock dumping/surface protection	Potential damage to coastal environmental features by disruption of sediment transport	Best practice guidance will be followed to ensure that potential damage to coastal environmental features by disruption of sediment transport is minimised throughout the proposed construction works. No rock dumping or surface protection of cables in shallow inshore water is necessary as cables will be buried. Ref. 22.12 (ES September 2012)	N/A	OTA CaP
Construction vessels	Non-native/Invasive species	Any concerns that arise from the non-native or invasive species construction vessels risk assessment will be subject to further consultation with Scottish Natural Heritage and SEPA. Ref. 22.14 (ES September 2012)	4.7	N/A
Installation vessels	Boat traffic displacement to birds	Ornithology - Guidance, regarding the displacement to birds as a result of boat traffic, will be provided as part of a code of conduct to vessel operators on avoiding 'rafts' of birds and feeding aggregates by vessels accessing / servicing Project Alpha and Project Bravo. Ref. 22.15 (ES September 2012)	N/A	VMP
Preconstruction surveys	Potential loss of habitat to rare and important species	Preconstruction surveys (the scope and extent of which will be agreed with Marine Scotland) will be undertaken to identify presence of rare or important habitats. Ref. 22.18 (ES September 2012)	N/A	PEMP
Pre-decommissioning surveys	Potential loss of habitat to rare and important species	Surveying for Annex I habitat will be undertaken prior to decommissioning Ref. 22.19 (ES September 2012)	N/A	PEMP
Operational	Safety to fishing vessels	Dialogue between the fishing community and the Applicants will be ongoing throughout the operational phase. Ref. 22.29 (ES September 2012)	N/A	FMMS
Construction/installation	Safety to shipping and navigation	Shipping and navigation mitigation measures will be required (see shipping and navigation commitments for full details) Ref. 22.31 (ES September 2012)	N/A	NSP
Inshore installation	Visual intrusion at residential locations (due to installation lighting)	Consideration will be given to limiting light spill (by directional lighting, directed downwards) from construction vessels involved in cable laying and related activities at night within 2km of the shore, to avoid visual intrusion at residential locations. Ref. 22.32 (ES September 2012)	N/A	OTA CMS, VMP, OTA CaP, LMP
Construction/installation	Direct impacts on archaeology and cultural heritage assets	Mitigation leading to preservation in situ will be preferred where possible. Where cultural heritage assets may potentially be subject to direct effects, infrastructure may be micro-sited and temporary exclusion zones implemented to prevent invasive activities (such as WTG and array cable installation or anchoring of vessels or deployment of jack-up legs) from damaging those	N/A	OTA CMS, WSI & PAD

Activity	Potential impact	Environmental management, mitigation and monitoring measures	Mechanism for implementation	
		ES/ES Addendum Reference	CEMP ref.	Other document/plan ref.
		assets. Exclusion zones of at least 100m will be implemented around cultural heritage assets defined in the assessment as of high sensitivity and 50m around assets defined as of medium sensitivity Ref. 22.34 (ES September 2012)		
Pre-construction	Potential impacts on archaeology and cultural heritage assets	Preparation of a Written Scheme of Investigation (WSI) and Protocol for Archaeological Discoveries (PAD), to be approved by Historic Scotland and Aberdeenshire Council Archaeological Service, in their capacity as advisors to Angus Council. Ref. 22.35 (ES September 2012)	N/A	WSI & PAD
Pre-construction	Potential impacts on archaeology and cultural heritage assets	Archaeology and Cultural Heritage mitigation measures will form part of the CEMP Ref. 22-7, 22.36 (ES September 2012)	4.3	WSI & PAD