Project Title	Beatrice Offshore Wind Farm
Project number	LF000005
Date:	September 2016

Beatrice Offshore Wind Farm

Ecological Clerk of Works

Execution Phase

Rev	Prepared By	Sign Off	Checked By	Sign Off	Approved By	Sign Off	Date of Issue
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1 Introduction

The Beatrice Offshore Wind Farm, in the outer Moray Firth, received consent under Section 36 of the Electricity Act 1989 from Scottish Ministers on 19 March 2014 (the S36 Consent) and was granted two Marine Licences from the Scottish Ministers, for the Offshore Wind Farm (OWF) and associated Offshore Transmission Works (OfTW), on 2nd September 2014 and as revised by the issue of licences (reference: [04461/16/0]/[04462/16/0]) on 27 April 2016 (the Marine Licences). Beatrice Offshore Windfarm Ltd (BOWL) secured an Investment Contract for the project under the CfD regime in September 2014 and the project achieved Financial Close in May 2016. Offshore construction is due to commence in March 2017.

The OWF site and the OfTW cable corridor are shown in Figure 1 below. The OWF site is approximately 13.5km from the Caithness coastline, at its nearest point. The wind farm will consist of 84, 7MW wind turbines on piled jacket foundations, with inter array cables and two Offshore Transformer Modules (OTMs), also on piled jacket foundations. The OfTW cable corridor makes landfall in Spey Bay, west of Portgordon, in Moray. Two export cables will be installed.

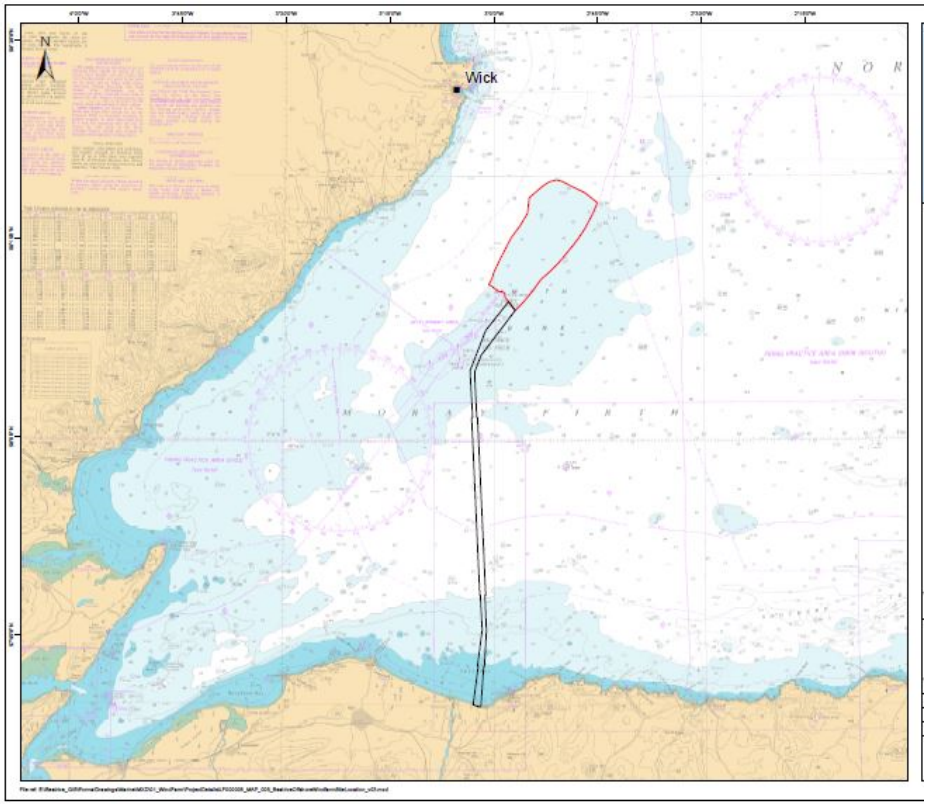

Figure 1. Beatrice offshore wind farm site and OfTW cable corridor.

BOWL is seeking to contract an Ecological Clerk of Works (ECoW) to support the project in managing compliance work streams, including ongoing monitoring of compliance against BOWL's Section 36 and Marine Licence consent conditions, and reporting on compliance to Marine Scotland and their advisors.

2 Programme and Key Dates

The key dates for the BOWL project execution are included in Table 1 below.

Table 1 BOWL OWF and OfTW installation programme

Milestone and activity	Current Installation Plan (May 2016)
Offshore construction start	March 2017 (HDD Works) April 2017 (Piling Works)
Installation of foundation piles	April 2017 – January 2018
Installation of Jacket substructures (WTGs and OTMs)	July – December 2017 April – August 2018
Installation of wind turbines (excl. commissioning)	July 2018 – March 2019 (continuous installation)
Installation of OTM topsides (excl. OTM commissioning)	November – December 2017
Installation of inter-array cabling (including route clearance, cable installation, protection)	October 2017 – April 2018 (campaign 1) February – April 2018 (campaign 2) June – September 2018 (campaign 3)
Installation of Export Cable (including route clearance, cable installation, protection)	April – November 2017 (Export cable 1 & interlink) March – June 2018 (Export Cable 2)
Generation	1st generation: July 2018; and Full generation: March 2019
Final commissioning	October 2019

3 Project Structure

The BOWL project structure during the construction phase is shown in Figure 2 below. A description of these roles and their regular interface with the project ECoW are described in Table 2.

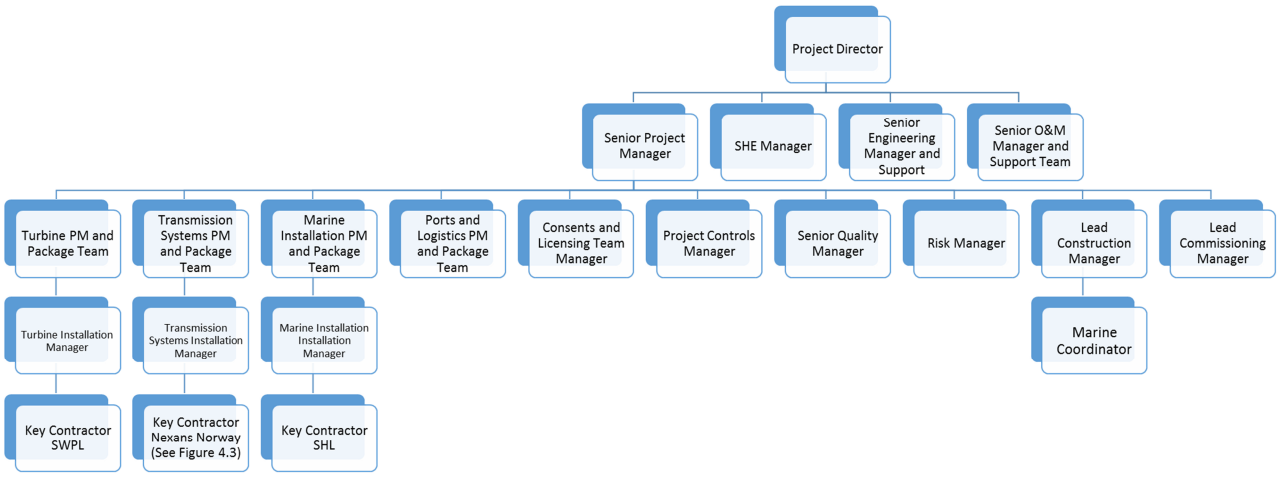

Figure 2. BOWL Project Organisational Chart

Table 2 – Key BOWL roles and responsibilities, and their regular interfaces with the ECoW

Role	Responsibility	Regular interface with the ECoW
Project Director	Primarily based in Glasgow, the Project Director is accountable to the BOWL Board for the overall project delivery strategy and the effective governance of the project.	No
Senior Project Manager	Based in Glasgow, the Senior PM oversees the effective delivery of the construction phase of the whole project.	No
SHE Manager	Based on site (Wick) and in Glasgow, the Project SHE Manager is a member of the project management team responsible for providing support, advice and guidance on all aspects of Safety Health & Environmental management on the project.	Yes

Role	**Responsibility**	**Regular interface with the ECoW**
Senior Engineering Manager and support team	Based in Glasgow, the Senior Engineering Manager is responsible for overall technical integrity of the wind farm design and the associated construction and installation engineering.	No
Senior O&M Manager and support team	Based in Glasgow, the Operations and Maintenance Manger works as an integrated member of the project team to ensure that both the final wind farm design and its as-built condition meet all requirements and specifications defined by BOWL.	No
Package Manager and Package Teams	Based in Glasgow, the Package Managers have similar responsibilities as the Senior Project Manager but for their individual sub-packages of the project.	Yes
Consents and Licensing Team Manager	Based in Glasgow. the Consents and Licensing Team (CLT) Manager is responsible for the effective management of all consent, planning permission and land related activities through the Execution phase of the project. Manages the ECoW role.	Yes
Project Controls Manager	Based in Glasgow, the Project Controls Manager is responsible for the leadership and management of the project controls team and ensuring all project controls functions are effectively integrated at all levels of project management and delivery.	No
Senior Quality Manager	Primarily based in Glasgow, the Senior Quality Manager is responsible for ensuring that the Project Quality Plan is developed and implemented, and Quality risks to the project are identified, assessed, managed, reviewed and reported effectively and efficiently.	No
Risk Manager	Based in Glasgow, the Risk Manager supports the Senior Project Manager, the Project Controls Manager and the Package Managers to ensure that the risks to the project are identified, assessed, managed, reviewed and reported effectively and efficiently.	Yes
Lead Construction Manager	Based on site (Wick), the Lead Construction Manager is responsible for developing and implementing the construction plan in conjunction with Package Managers and Key Contractors. Manages and monitors	Yes

Role	Responsibility	Regular interface with the ECoW
	construction interfaces and monitors all construction and installation activities.	
Lead Commissioning Manager	Primarily based in Glasgow, the Lead Commissioning Manager is responsible for the development and implementation of the commissioning and handover plan for the Development, in conjunction with the Package Managers and Key Contractors. Manages all testing, inspection and commissioning activities.	No
Installation Managers	Based on site (Wick) and occasionally on installation vessels, the installation managers are responsible for the successful delivery of their individual sub-packages by the Key Contractor, ensuring design, delivery, commissioning and reporting meets with the contractual requirements and programme.	Yes
Marine Coordinator	Based at the Marine Coordination centre in Wick, the Marine Coordinator will coordinate all activities on site including all vessel and personnel movements and site surveillance.	Yes
Siemens Wind Power Ltd (SWPL)	SWPL is responsible for installing the wind turbines, managing the turbine cable connections and commissioning works and managing the marshalling port at Nigg in Highland Council.	No
Joint venture between Siemens Transmission and Distribution Limited (STDL) and Nexans	STDL/ Nexans are responsible for installing the export cables from the OTMs offshore to the onshore substation at Blackhillock, the interconnector cable between the OTMs and for OTM topside supply and commissioning.	No
Seaway Heavy Lifting Offshore Contractors B.V. (SHL)	SHL is responsible for installing the wind turbine and OTM jacket foundations and substructures, OTM topside lift and inter-array cable installation. SHL will use sub-contractors for additional services such as anchor handling, Guard vessels etc.	No

In addition to the above there will be client representatives on the main installation vessels who will also interface with the ECoW.

4 BOWL Requirements - BOWL Project Execution Phase Ecological Clerk of Works

The Scope of Work being requested by BOWL for an ECoW is set out below.

4.1 Background to the ECoW Role and Requirements

The requirement for an ECoW is described in BOWL's Section 36 consent and OfTW Marine Licence. The consent conditions setting out the requirement for an ECoW are provided in Appendix A. In addition to this Marine Scotland and Scottish Natural Heritage have released guidance on the role of the ECoW for Scottish offshore wind farm projects. These documents are provided in Appendix B.

BOWL require the ECoW to be a fully integrated member of the wider BOWL project team with specific responsibilities within the BOWL Consents and Licensing team (CLT). The ECoW will be contracted full time to BOWL, working a 37 hour week. The ECoW will be based at the BOWL project headquarters in Glasgow, however regular visits to the Marine Coordination Centre in Wick, and possibly to the main installation vessels will be required. The scope of the ECoW's responsibilities extends to the offshore element of the project only (and not to onshore construction works).

The ECoW should have a good understanding of environmental legislation relevant to constructing offshore wind farm projects, and experience working on offshore projects.

4.2 Core Responsibilities

The BOWL CLT is responsible for supporting the Project in ensuring the Project complies with all consent and licence conditions and commitments. As a key member of the BOWL project team, and third party contact with the Marine Scotland Licensing and Operation Team (MS-LOT), the ECoW will be responsible for monitoring compliance with the project Environmental Statement (ES), Supplementary Environmental Impact Statement (SEIS), Section 36 consent, Marine Licenses and Consent Plans. Further to this the ECoW will be responsible for reporting on compliance with the above consents and documents to MS-LOT and relevant persons in BOWL including the CLT, the Construction Manager and the Safety, Health and Environment (SHE) Manager.

The ECoW will be responsible for the day to day management and interaction with the project Environmental Manager based at the Marine Coordination Centre in Wick, and the Acoustic Deterrent Device (ADD) Operators and Marine Mammal Observers (MMOs) located on the pile installation vessel. BOWL's lead Compliance Advisors and a team of technical specialists (e.g. marine mammal, benthic ecology and archaeology advisors) supporting the BOWL CLT will also be available to support the ECoW if required.

The ECoW will have authority over the content of routine reports to MS-LOT and will act independently in determining instances of non-compliance with the consents and licenses or any breaches of environmental legislation.

4.3 Compliance Management and Reporting

4.3.1 Consent Plans

The BOWL CLT is responsible for issuing Consent Plans and gaining approval of the Plans from MS-LOT. The ECoW will be responsible for reviewing and quality checking all Consent Plans, and being fully familiar with the content of these Plans. The key consent plans include, but not limited to, the Construction Method Statements (CMS), the Environmental Management Plan (EMP), the Project Environmental Monitoring Programme (PEMP), the Piling Strategy (PS) the Cable Plans (CaPs) and the Vessel Management Plan (VMP)[1].

4.3.2 Compliance Reporting

The ECoW will be responsible for compiling and issuing monthly compliance reports to MS-LOT. The report template is available in Annex 4 of the project EMP (Ref. LF000005-PLN-144), which has been approved by MS-LOT. The ECoW will be responsible for ensuring the required level of information is provided from the wider project team to inform the compliance reports. This will include setting up and agreeing procedures for how and when the information will be provided from the construction team, BOWL's Fisheries Liaison Officers, the Marine Coordinator, specialist technical advisors and BOWL package managers.

The ECoW will also be responsible for compiling and issuing fortnightly compliance reports on the Piling Strategy. The PS compliance reporting template is currently being agreed with MS-LOT. The ECoW will ensure the correct level of information is provided from the ADD Operators and MMOs on the pile installation vessel, and from the pile installation contractor (SHL) to inform the PS compliance reports.

The ECoW shall be responsible for managing any follow up work should MS-LOT or their advisors have any questions regarding the compliance reports.

The compliance reports will be signed off by the BOWL CLT prior to being issued to MS-LOT and other stakeholders. The ECoW shall distribute the compliance reports to the relevant persons in the BOWL team once the reports have been signed off and issued to MS-LOT.

4.3.3 Compliance Management and Monitoring

The ECoW will support the BOWL CLT in monitoring contractor compliance with the project consents, licenses and Consent Plans. This will be by established compliance tools developed by BOWL. There may be a requirement for the ECoW to produce their own compliance and reporting tools that compliment existing tools.

There may be a requirement to support the BOWL CLT in integrating the compliance tools into a broader construction management database or developing a purpose built compliance database.

[1] These Consent Plans and other BOWL documents approved by Marine Scotland are available on their website here: http://www.gov.scot/Topics/marine/Licensing/marine/scoping/Beatrice

4.3.4 Contractor and BOWL Project Documentation

BOWL's Lead Compliance Advisors support the BOWL CLT in reviewing key documents from the EPCIs and the wider BOWL Project team to ensure they fully comply with the project Environmental Statement (ES), Supplementary Environmental Impact Statement (SEIS), Section 36 consent, Marine Licenses, Consent Plans, commitments and environmental legislation. However, the ECoW will be responsible for reviewing key documents, such as contractor's Environmental Management Plans to ensure they comply with BOWL's requirements. Any non-compliances shall be reported by the ECoW to the BOWL CLT as soon as possible.

4.4 Compliance Audits and Communications

The ECoW will be responsible for the day to day liaison of the project Environmental Manager who will be located at the Marine Coordination Centre in Wick. The ECoW and Environmental Manager will develop appropriate procedures and programmes for the following non exhaustive list of items;

- Environmental Audits, primarily against BOWL's EMP and the contractor EMPs and Environmental Management Systems, the Marine pollution Contingency Plan, and the vessel~~s~~ specific pollution response plans. A programme of planned and spot check audits shall be developed and approved by BOWL.
- A programme of toolbox talks shall be developed and approved by BOWL. Toolbox talks covering relevant topics during construction, considering the location of these toolbox talks and who delivers them (i.e. it could be the ADD Operators on the pile installation vessel).
- The ECoW and Environmental Manager shall support the BOWL CLT in producing site induction material tailored to the different activities carried out on site, and ensuring this material is appropriately incorporated into the overall project induction material. This will require attendance to project meetings, and production of material relevant to BOWL's consents, licenses, Consent Plans and Environmental Legislation.

The tool box talks and site inductions shall include information on the role of the ECoW in the event of an incident. The ECoW shall ensure this information is included in the relevant induction and toolbox talk material.

Once the above programmes and plans have been agreed, the Environmental Manager will be responsible for managing these plans and conducting the necessary audits, toolbox talks etc. The ECoW shall check progress, and the Environmental Manager will be reporting on progress against the programmes, plans and status of completed audits, toolbox talks etc to the ECoW on a daily basis.

Following each audit the Environmental Manager shall produce an audit report that shall be submitted to the ECoW and BOWL CLT for approval. The ECoW will be required to report on audits and toolbox talks delivered in the monthly compliance report issued to MS-LOT.

Occasionally the ECoW will be required to deliver toolbox talks and produce site induction material depending on the topic being considered.

4.5 Construction Readiness

The ECoW shall support BOWL in ensuring all necessary procedures and agreements are in place between key BOWL team members, the ECoW, contractors and compliance roles (i.e. ADD Operators) prior to construction commencing to enable BOWL to comply with the project consents during construction. This will for example include;

- Piling readiness planning to ensure the ADD Operators, MMOs, the pile installation contactor (Seaway Heavy Lifting (SHL)), and BOWL have identified and agreed lines of communication, information requirements etc. prior to piling operations commencing.
- Dry runs of incident procedures set out in the Marine Pollution Contingency Plan and Environmental Management Plan; and
- Dry runs of the non-compliance procedures.

The ECoW shall produce an overview of the construction readiness activities that will be required prior to construction commencing, and to set out a programme for these activities that has been agreed by the key parties involved in these activities. This programme shall be approved by BOWL, and implemented by BOWL CLT and the ECoW.

4.6 Project Communications

The ECoW will attend key regular and one-off project meetings, including weekly BOWL CLT meetings, key construction team and package meetings and daily construction progress meetings. The ECoW will support the BOWL CLT in ensuring that a 'compliance/ environmental sensitives update' item is included on the agenda for key meetings. The ECoW and BOWL CLT will provide a brief update on issues and current environmental sensitivities at these meetings.

4.7 Stakeholder Engagement

The BOWL CLT will be the main point of contact for MS-LOT and the statutory advisors with the exception of regular compliance reporting.

The ECoW shall attend all main Moray Firth Regional Advisory Group (MFRAG) meetings and subgroup meetings, as well as key meetings with MS-LOT and their statutory advisors.

4.8 Emergency Responses and Non Compliance Events

4.8.1 Emergency Responses

During construction there will be occasions when the ECoW will be required to rapidly respond to unplanned events such as any wildlife incidents, marine pollution incidents, the discovery of an archaeological feature etc. The ECoW will have a very specific role within the emergency response teams responding to these incidents. The ECoW's role in responding to incidents is set out in BOWL's Consent Plans.

The ECoW will also be expected to support the BOWL CLT in resolving any other unplanned events that are not classified as emergency responses or incidents.

4.8.2 Non-Compliance Events

The ECoW shall produce a procedure setting out the sequence of actions to be completed and the lines of communication required to resolve and appropriately report on a non-compliance event, should one occur. This procedure shall be approved by BOWL and by Marine Scotland prior to construction commencing.

4.8.3 Reporting and Follow up

After the ECoW has responded to an incident or non-compliance event the ECoW shall produce a report to BOWL CLT for approval before it is issued to MS-LOT. The report shall set out the following information as a minimum;

- Precise details of the event and those involved;
- Assessment of impact and severity (method for assessment to be developed by ECoW);
- Mitigation introduction;
- Subsequent revision of risk assessments and construction method statements and/or construction programme; and
- Lessons learnt.

4.9 Ad-Hoc Advice and Support

The ECoW will be providing the BOWL project team, including BOWL CLT, construction team and package managers, with advice on environmental issues and compliance with consent conditions, commitments etc. where required. This includes managing certain activities that may be required in discharging consent conditions.

The ECoW shall inform the BOWL CLT of any information gathered from the Project team that could increase the risk of a non-compliance and/ or require a new license, consent or approval.

APPENDIX A

BOWL Section 36 Consent Condition Number 30:

Prior to the Commencement of the Development, the Company must at its own expense, and with the approval of the Scottish Ministers in consultation with the JNCC and SNH, appoint an Ecological Clerk of Works ("ECoW"). The term of appointment for the ECoW shall be from no later than 9 months post consent until the Final Commissioning of the Development.

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 consent;

b) Provide advice to the Company on compliance with consent conditions, including the conditions relating to the CMS, the EMP, the PEMP, the PS (if required), the CaP and the VMP;

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

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

e) Inducting site personnel on site / works environmental policy and procedures.

Reason: To ensure that appropriate and effective monitoring of the impacts of the Development is undertaken.

Offshore Transmission Works Marine License Condition 3.2.2.12:

The condition sets out the above requirement as well as the following; The ECoW role may be carried out by a party appointed by the Licensee or a third party 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.

APPENDIX B

- 'ECoWs & ENVCoWs – Scope of Works Guidance' (MS-LOT, 1st June 2015)
- SNH Discussion paper: Good Environmental Practice During Offshore Wind Construction (SNH, 3rd February 2015);

ECoWs & ENVCoWs – Scope of Works Guidance

The consent conditions require the appointment of an Ecological Clerk of Works (ECoW) during the construction and post-construction phases of the development. This document provides further guidance and advice regarding the scope of the role and should form the basis of detailed scopes of work, to be prepared by the developer.

Terms of Reference

For the purposes of the consent condition, 'Ecological Clerk of Works' is synonymous with 'Environmental Clerk of Works'. The wide-ranging environmental sensitivities of the development require that the ECoW, or team of ECoWs, will require strong understanding of various environmental disciplines, of which ecology will be just one.

Person Specification

The named ECoW, or team of ECoWs, should as a minimum:

- Be a *qualified* and *experienced* ECoW;
- Have a technical skill set relevant to the site's environmental sensitivities (this may require a team approach);
- Have a strong understanding of the construction and contracting process;
- Be subject to a professional code of conduct.

The developer's scope of works should provide details of all proposed ECoWs, demonstrating compliance with the above.

Roles and Responsibilities

MS-LOT recognises that there are various types of ECoW and that defining roles and responsibilities in a scope of works is essential. The developer's scope of works should set out very clearly whether the ECoW will fulfil an *auditory* or *advisory* role, whilst recognising that the roles need not be mutually exclusive.

Auditory ECoWs are responsible for monitoring compliance with the various environmental protection plans associated with the construction and post-construction processes, where technically competent to do so. An Auditory ECoW does not provide on-site advice or recommendations to support the developer in delivering compliance. The Auditory ECoW will report directly to MS-LOT.

Advisory ECoWs fulfil a more supportive role for the developer and whilst monitoring compliance in the same way as an Auditory ECoW, they may also provide on-site advice and support to aid the developer in achieving compliance. Although the Advisory ECoW may provide advice and support, they are not responsible for ensuring compliance; this responsibility lies with the developers and their appointed contractors.

In consultation with MS-LOT, the developer is required to fully define the scope of works for the ECoW prior to works commencing. The table below provides some examples of ECoW responsibilities and the appropriate type of ECoW.

Role of ECoW	Responsibility
Auditory	• Management of routine monitoring activities with subsequent compliance reporting to MS-LOT on an agreed schedule. • Report to MS-LOT the commencement and completion dates of each stage of the works. • Acting on the advice of MS-LOT, the ECoW will be authorised to stop certain activities or works where there is likely to be an irreversible breach of condition or environmental protection method until an alternative approach is proposed by the developer. • In discussion with MS-LOT, the ECoW will authorise the recommencement of works, following an instance of the above. • Review reports of incidents/near misses and report to MS-LOT any changes in procedures as a result. • Oversee managing surveys / monitoring (e.g. protected species) and reporting the outcomes to the developer and regional advisory groups as appropriate.
Advisory	• Liaise between developer, and MS-LOT. • Deliver environmental inductions and toolbox talks to on-site construction, keeping a record of these for audit purposes. • Provide on-going advice and guidance to the developer and their contractors regarding achieving compliance with conditions, construction plans and environmental legislation. • Support the developer and other on-site teams in addressing MS-LOT concerns. • Community liaison on environmental issues (where necessary). • Advise the developer in relation to environmental licensing and permitting process, including EPS licences. The ECoW should not act as the licence holder in any circumstances. • Provide MS-LOT with an update report if any unexpected delays are encountered, in reporting to us also advise the developer on the implications to timelines associated with protocol agreements.

Reporting on appropriate timescales as determined by the construction programme

Detailed reporting timescales will be determined by the construction programme, however MS-LOT expects regular reports from the ECoW. The developer will propose a schedule and format for reporting, including clear lines of communication. Regular reports should include:

- A review of site activities during the reporting period;
- Results and interpretation of ongoing monitoring and ecological surveys;
- Clear identification of environmental issues and their means of rectification. This should include details of non-compliance (including those discussed with MS-LOT at the time of occurrence). Instances of environmental issues and non-compliance should include:
    - Precise details of what happened and those responsible;

- Assessment of impact and severity (method for assessment to be developed by ECoW);
- Mitigation introduction;
- Subsequent revision of method statements and/or construction programme;
- Lessons learnt.

The ECoW will have authority over the content of routine reports to MS-LOT and will act independently in determining instances of non-compliance.

The ECoW, and any other individual present on-site, has a duty of care to report any wildlife crime or breach of environmental legislation to the relevant authorities, including Police Scotland. As a courtesy, the ECoW will inform both the developer and MS-LOT immediately where such intervention is required.

Opportunity to further develop the ECoW role

MS-LOT expects regular liaison meetings/forum or case study reviews to be created to encourage best practice with other ECoWs in the same area, or widen out to all ECoW's in offshore renewable energy field and AEECoW. The ECoW may be required as part of their routine duties to present case studies to forums engaged in developing the ECoW role.

3 February 2015

SNH DISCUSSION PAPER

GOOD ENVIRONMENTAL PRACTICE DURING OFFSHORE WIND CONSTRUCTION

To help inform discussion with MS-LOT and JNCC on the discharge of offshore wind farm consent conditions, we have reviewed a range of available information on good practice during construction, including environmental management plans (onshore and offshore examples), construction method statements and current practice in respect of Environmental Clerks of Work (ECoWs).

We have provided some of the most useful examples to MS-LOT and JNCC for information, however, we note that we have not been able to access very much information in relation to Rounds 1 and 2 offshore wind farms (excepting Robin Rigg).

We are happy for this note to be forwarded to developers to let them know our initial thinking in this regard. We would welcome further (early) discussion with developer project teams (including ECoWs) as project plans are being drafted.

Environmental Management Plan

Example plans – Robin Rigg, Stroupster (onshore wind), MORL (draft plan in ES), BOWL draft.

Possible structure (including queries and suggestions to consider)

1. Introduction – set out the scope of the plan. Confirm whether it relates to both the wind farm and offshore transmission works (or whether there are to be separate plans for each). Clarify what phase(s) of development are being considered in the plan – just construction or also O&M? Repowering and decommissioning to be addressed in subsequent plans?

2. Project Overview – include confirmed project description, dates and duration of construction work, staffing levels. It would be helpful to present a diagram giving an overview of the construction programme – possibly as an Appendix, or in section 6 (see below).

3. Roles & Responsibilities – include the company commitments on environmental practice. Provide an overview of the structure of the construction team (including developer / contracter arrangements?) – a diagram could be helpful here. Present summaries of the responsibilities of key personnel including project manager, principal constractor site manager, ECoW (environmental responsibilities) and who has H&S responsibilities. Provide more detail on the ECoW role and responsibilities (including a scope of works?) in an Appendix.

4. Management & Communications – training (tool box talks, site induction, environmental, H&S), integration / inter-relationship of the environmental management plan with other documents, communication (provide a summary here and set out more detail in section 8?)

5. Legal & Regulatory Requirements – keep this concise! (The Stroupster plan is a good example in this regard.) If more detail is needed, include this in an Appendix. Address licensing requirements, relevant legislation and guidance. This over-arching information may be appropriate for the environmental management plan, but does not then need to be repeated in construction method statements.

6. Construction Activities – this is an overview of the key elements of construction on-site: the detail of installation methods will be given in the construction method statements. Need to give an overview of vessel movements (though detail will be in the vessel management plan) and the ports to be used. Include timing / overview of the construction programme (either here or as an Appendix).

7. Environmental Management – this is a key area for agreement between MS-LOT, SNCBs and developers. Set out environmental risk assessment and the management / mitigation measures to reduce risks. Key areas for discussion include the following:

for construction

- Pollution control – vessels.
- Pollution control – sediment.
- Waste management, disposal of dredged material.
- Invasive non-native species.
- Vessel movements (link to vessel management plan).
- Piling / underwater noise (link to piling strategy).
- EPS licensing requirements?
- Benthic habitat sensitivities – PMFs incl. sandeels, Annex 1 (link to cable plan?).

for operations & maintenance

- Pollution control – vessels.
- Invasive non-native species.
- Vessel movements (link to vessel management plan).

8. Environmental Reporting – what are the (compliance) monitoring requirements, if any, in relation to the environmental issues listed above (in section 7)? This section should clarify the role of the ECoW in relation to these monitoring requirements (with links to section 2, as well as to the Appendix on the ECoW role and responsibilities). It will need to address routine reporting as well as the arrangements for emergencies / accidents.

Ecological Clerks of Work

See the examples provided for Lochelbank, Langhope Rig and Stroupster onshore wind farms. The ECoW role is also discussed in part 4 of the SRF / SNH / SEPA / FCS / HS publication '*Good Practice during Wind Farm Construction*', available here:

http://www.snh.gov.uk/planning-and-development/renewable-energy/onshore-wind/good-practice-during-windfarm-const/

We need to discuss the following aspects in relation to the ECoW role for offshore wind development in Scotland:

- Communications – the ECoW will be the key point of contact for liaison between the developer and MS-LOT / SNCBs. The ECoW is likely to be one of the developer's representatives on the (environmental) regional advisory groups and SSMEG.
- Pre-construction – key role in drafting environmental plans and monitoring proposals, and QA-ing relevant site plans in respect of environmental concerns. Assessment of proposed environmental management and mitigation measures – are they sufficient to address identified risks?
- Pre-construction – co-ordinate (or QA) the risk assessment and application for EPS licences.
- Pre-construction – co-ordinating role for pre-construction survey work, review and QA of survey reports.
- Pre-construction – provision of advice about environmental constraints on-site to help inform final project design and layout.
- Construction – tool box talks / site induction.
- Construction – is there any (monitoring) role for the ECoW in respect of the environmental issues listed in section 7 above?

- Construction – the ECoW could have a key co-ordinating role in respect of the proposed marine mammal impact studies taking place during piling events (monitoring the underwater noise emitted during piling and marine mammal behavioural reactions). There will need to be good liaison between the construction team undertaking the piling work and the science team undertaking the impact studies.
- Operation & Maintenance – the ECoW could draft, or QA, any further environmental plans required for wind farm operation & maintenance.
- Operation & Maintenance – the ECoW could manage / co-ordinate the longer term monitoring requirements during wind farm operation, including QA and submission of monitoring reports.
- Operation & Maintenance – could continue to provide any further site induction.

We are also looking to discuss the ECoW role in relation to the Fisheries Liaison Officer (FLO) role. Does the FLO (rather than the ECOW) have responsibility for monitoring requirements in relation to herring, cod and sandeels? Can we be provided with the FLO 'scope of works' and some more information about this post – is the FLO employed during pre-construction and construction only, or will this post continue into the longer term? What will be the communication / working arrangements between the ECoW and FLO?

Construction Method Statements

See the example for Robin Rigg foundation installation, and there are some aspects to consider in respect of the over-arching statement for Stroupster. Construction method statements are practical, technical, detailed descriptions of work on-site: the key audience being contractors and construction workers. See part 5 of '*Good Practice during Wind Farm Construction*' for useful background and points to consider (link above).