

Technical Appendix 8.3

Clune Wind Farm

Shadow Habitats Regulation Appraisal

RES Group



October 2024



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Version	Date	Reason
1.1	18/09/2024	Initial draft for internal review
1.2	24/10/2024	For client issue

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1 Introduction and Background

This Technical Appendix has been produced to support **Chapter 7: Ecology** and **Chapter 8: Ornithology** of the Environmental Impact Assessment Report (EIAR) for Clune Wind Farm (the Proposed Development) and immediate surrounding area (the Site). It undertakes a shadow Habitats Regulations Appraisal for the Proposed Development. It addresses the presence of four Special Areas of Conservation (SAC) and two Special Protection Areas (SPA) within the vicinity of the Proposed Development, summarising the information with respect to the SAC / SPAs and the respective qualifying features of the SAC / SPAs.

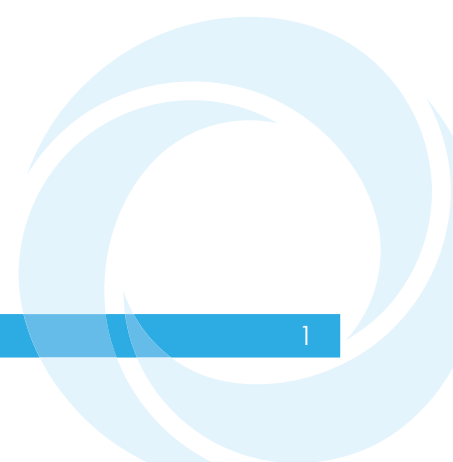
In Article 6(3) of the EC Council Directive (92/43/EEC), on the conservation of natural habitats and of wild fauna and flora – The Habitats Directive, any project or plan which is not directly connected with or necessary to the management of a European site but would be likely to have a significant effect either alone or in combination with other plans or projects shall be subject to an Appropriate Assessment of its implications for the European site in view of that site's conservation objectives. In light of the findings and subject to the provisions of Article 6(4) of the Habitats Directive, the Competent Authority shall agree to the plan or project only after ensuring that it will not affect the integrity of the European site. Whilst mitigation may be considered at the Appropriate Assessment stage, it is not to be considered when initially screening the project in order to determine whether or not an Appropriate Assessment is needed.

Article 6(4) makes provision that if a negative assessment is made of the implications of the project on the European site, and in the absence of other alternative solutions, the plan or project can go ahead for imperative reasons of overriding interest (IROPI) but that compensatory measures must be taken to ensure that the overall coherence of the European site is protected / maintained. A distinction is to be drawn between mitigation and compensation.

Since this is a project, as defined by the Habitats Directive, and transposed into Scottish law by the Conservation (Natural Habitats, &c.) Regulations 1994, which is not directly connected with or necessary to the management of any nearby European sites, then a Habitats Regulations Appraisal (HRA) will be required. This will be carried out by the Competent Authority, advised by the Statutory Nature Conservation Body. The recent departure of the UK from the European Union has not altered this requirement; it is still a requirement under Scottish law.

The purpose of this report, which has been commissioned by RES Group to support the planning application, is to carry out a shadow HRA, for discussion with the Competent Authority and Statutory Nature Conservation Body. To do this, three stages of assessment will be carried out:

- Screening – is there a likely significant effect on the SAC/SPAs as a result of the project?
- Appropriate Assessment
- Finalisation of shadow HRA



1.1 Background

1.1.1 Site Location and Description

The Site (Figure 8.3.1, Appendix A refers) is located approximately 27km south-east of Inverness, and approximately 5.5km south of the village of Tomatin. The Site is predominately managed upland grouse moorland with agricultural fields and mixed woodland in lower altitude areas. Clune Burn and Allt Lathach traverse the Site along with other smaller tributaries running into the River Findhorn that lies to the north-west, outwith the Site boundary.

The land to the south is bounded by Carn Coire na Caorach (636m) and Carn Dubh (c. 450m) along its southern edge, and Càrn Phris Mhòir (618m) and Carn an Ailean (547m) along its northern edge. The Allt an t-Sionnaich and Caothan na Cuileige flow to the east and merge to form the Allt Coire Chaillich. This in turn merges with the Allt Coire Phris Mhòir to form the An Leth-allt which flows east, merging with smaller tributaries to form the Allt an Aonaich, which eventually discharges into the River Dulnain.

1.1.2 European Sites

A review of European designated sites (SACs and SPAs) was carried out within 2km of the Proposed Development, extending to 10km for sites designated for avian or aquatic migratory species, and 20km for sites with geese as a qualifying interest as a result of NatureScot guidance on connectivity (NatureScot, 2016) (Figure 8.3.2, Appendix A refers).

The results of this review are shown in Table 1 below.

Table 1: European Sites

Site Name	Designation	Distance and Direction from Proposed Development	Qualifying Features
Slochd	SAC	c. 0.17km to the north-east	Habitats: <ul style="list-style-type: none"> European dry heaths
Kinveachy Forest	SAC	c. 0.65km to the south-east	Habitats: <ul style="list-style-type: none"> Bog woodland Caledonian forest
Kinveachy Forest	SPA	c. 0.65km to the south-east	<ul style="list-style-type: none"> Scottish crossbill <i>Loxia scotica</i> – 200 individuals, representing about 13% of the British breeding population. Capercaillie <i>Tetrao urogallus</i> – 30-70 individual birds representing 3% of the British population.
River Spey	SAC	c. 1.66km to the south-east	Species: <ul style="list-style-type: none"> Otter <i>Lutra lutra</i> Freshwater pearl mussel <i>Margaritifera margaritifera</i> Sea lamprey <i>Petromyzon marinus</i> Atlantic salmon <i>Salmo salar</i>

Site Name	Designation	Distance and Direction from Proposed Development	Qualifying Features
Carn nan Tri-tighearnan	SAC	c. 7.15km to the north-north-east	Habitats: <ul style="list-style-type: none"> Blanket bog
Loch Vaa	SPA	c. 8.88km to the south-east	<ul style="list-style-type: none"> Slavonian grebe <i>Podiceps auritus</i> – up to 7 pairs representing 10% of the GB population

Conservation Objectives

For each site, conservation objectives have been set. It is the maintenance of these conservation objectives which ensures the integrity of the European site and as such, consideration of whether these conservation objectives will continue to be met if the Proposed development proceeds is a key assessment to be made. Typically, conservation objectives are set for either habitats or species and are similar across all sites.

Conservation objectives for the SPAs as listed in Table 1 are:

- To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained, and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and
- To ensure for the qualifying species that the following are maintained in the long term:
 - Population of the species is a viable component of the site;
 - Distribution of the species within the site;
 - Distribution and extent of habitats supporting the species;
 - Structure, function and supporting processes of habitats supporting the species; and
 - No significant disturbance of the species.

For the SACs, the specific conservation objectives for each qualifying feature are set out below:

- Slochd SAC – Table 2;
- Kinveachy Forest SAC – Table 3;
- River Spey SAC – Table 4; and
- Carn nan Tri-tighearnan SAC – Table 5.

Table 2: Slochd SAC Conservation Objectives

Qualifying Feature	CO 1	CO 2a	CO 2b	CO 2c
European dry heaths	To ensure that the qualifying feature of the Slochd SAC is in favourable condition and makes an appropriate contribution to	Maintain the extent and distribution of the "European dry heaths" habitat within the site.	Restore the structure, function and supporting processes of the "European dry heaths" habitat.	Maintain the distribution and viability of typical species of the habitat.

Qualifying Feature	CO 1	CO 2a	CO 2b	CO 2c
	achieving favourable conservation status.			

Table 3: Kinveachy Forest SAC Conservation Objectives

Qualifying Feature	CO 1	CO 2a	CO 2b	CO 2c
Bog woodland	To ensure that the qualifying features of Kinveachy Forest are in favourable condition and make an appropriate contribution to achieving favourable conservation status.	Maintain the extent and distribution of bog woodland within the site.	Restore the structure, function and supporting processes of bog woodland.	Maintain the distribution and viability of typical species of bog woodland.
Caledonian forest	To ensure that the qualifying features of Kinveachy Forest are in favourable condition and make an appropriate contribution to achieving favourable conservation status.	Maintain the extent and distribution of the Caledonian forest within the site.	Restore the structure, function and supporting processes of Caledonian forest.	Maintain the distribution and viability of typical species of Caledonian forest.

Table 4: River Spey SAC Conservation Objectives

Qualifying Feature	CO 1	CO 2a	CO 2b	CO 2c	CO 2d
Otter	To ensure that the qualifying features of the River Spey SAC are in favourable condition and make an appropriate contribution to achieving favourable conservation status.	Maintain the population of otter as a viable component of the site.	Maintain the distribution of otter throughout the site.	Maintain the habitats supporting otter within the site and availability of food.	
Freshwater Pearl Mussel	To ensure that the qualifying features of the River Spey SAC are in favourable condition and	Restore the population of freshwater pearl mussel as a viable component of the site.	Restore the distribution of freshwater pearl mussel throughout the site.	Restore the habitats supporting freshwater pearl mussel within the site and availability	Restore the distribution and viability of freshwater pearl mussel host species and their

Qualifying Feature	CO 1	CO 2a	CO 2b	CO 2c	CO 2d
	make an appropriate contribution to achieving favourable conservation status.			of food.	supporting habitats.
Sea Lamprey	To ensure that the qualifying features of the River Spey SAC are in favourable condition and make an appropriate contribution to achieving favourable conservation status.	Maintain the population of sea lamprey as a viable component of the site.	Maintain the distribution of sea lamprey throughout the site.	Maintain the habitats supporting sea lamprey within the site and availability of food.	
Atlantic Salmon	To ensure that the qualifying features of the River Spey SAC are in favourable condition and make an appropriate contribution to achieving favourable conservation status.	Restore the population of Atlantic salmon, including range of genetic types, as a viable component of the site.	Restore the distribution of Atlantic salmon throughout the site.	Restore the habitats supporting Atlantic salmon within the site and availability of food.	

Table 5: Carn nan Tri-tighearnan SAC Conservation Objectives

Qualifying Feature	CO 1	CO 2a	CO 2b	CO 2c
Blanket bog	To ensure that the qualifying feature of Carn nan Tri-tighearnan SAC is in favourable condition and makes an appropriate contribution to achieving favourable conservation status.	Maintain the extent and distribution of blanket bog within the site.	Maintain the structure, function and supporting processes of the "blanket bog" habitat.	Maintain the distribution and viability of typical species of the habitat.

2 Screening of Likely Significant Effects

This section describes in turn the presence or absence of qualifying species or habitats within the vicinity of the Proposed Development and assesses whether there are any likely significant effects upon those features.

2.1 Slochd SAC

2.1.1 Habitats

A full description of the habitats present within the Proposed Development is provided in Technical Appendix 7.1: Extended Phase 1 Habitat and NVC Surveys, and shown in Figures 7.1.3 and 7.1.4.

A review of the Phase 1 habitats recorded in the Survey Area, the footprint of the Proposed Development and a 250m buffer; including a 250m buffer from borrow pits or structures requiring foundations, and 100m out from all infrastructure, i.e. areas which are considered to be potentially impacted upon by the Proposed Development footprint was carried out. Those listed below were found within the survey area and which would be considered qualifying features of the SAC: habitats underlined are listed as qualifying features of the Slochd SAC:

- **Acid Dry Dwarf Shrub Heath (D1.1);**
- **Lichen / Bryophyte Heath (D3); and**
- **Dry Heath / Acid Grassland Mosaic (D5).**

The following NVC vegetation communities which are qualifying features if within the SAC were recorded in the Study Area, the footprint of the Proposed Development and a 250m buffer; habitats in bold are present within the footprint of the Proposed Development including a 250m buffer from borrow pits or structures requiring foundations, and 100m out from all infrastructure, i.e. areas which are considered to be potentially impacted upon by the Proposed Development footprint:

- **H10 *Calluna vulgaris* – *Erica cinerea* heath;**
- **H10 *Calluna vulgaris* – *Erica cinerea* / U5 *Nardus stricta* – *Galium saxatile* grassland mosaic; and**
- **H13 *Calluna vulgaris* – *Cladonia arbuscula* heath.**

The Slochd SAC lies approximately 0.17km to the north-east of the Site at its closest point.

The A9 trunk road separates the SAC and the Site meaning that there will be no impact on the qualifying habitats because the A9 acts as an ecological barrier, breaking any habitat connectivity between the Proposed Development and the SAC. No construction is proposed within the SAC. There is no hydrological connectivity between the SAC and the Site. As a result, there would be no pathway for likely significant effects to occur as a result of the Proposed Development.

2.1.2 Conclusion

No likely significant effects have been identified on the qualifying features of the Slochd SAC and no Appropriate Assessment is required. As a result, the shadow HRA can be

concluded for this site having found that the Proposed Development can proceed without adverse effect on the site integrity of the SAC.

2.2 Kinveachy Forest SAC

2.2.1 Habitats

A full description of the habitats present within the Proposed Development is provided in Technical Appendix 7.1: Extended Phase 1 Habitat and NVC Surveys, and shown in Figures 7.1.3 and 7.1.4.

A review of the Phase 1 habitats showed that the following habitats which are qualifying features of the SAC were recorded in the Survey Area, the footprint of the Site and a 250m buffer; including a 250m buffer from borrow pits or structures requiring foundations, and 100m out from all infrastructure, i.e. areas which are considered to be potentially impacted upon by the Proposed Development footprint:

- **Semi-Natural Broad-Leaved Woodland (A1.1.2);**
- **Plantation Broad-Leaved Woodland (A1.1.2);**
- **Coniferous Plantation Woodland (A1.2.2);**
- **Mixed Plantation Woodland (A1.3.2); and**
- **Coniferous Parkland / Scattered Trees (A3.2).**

The following NVC vegetation communities which are qualifying features if within the SAC were recorded in the Study Area, the footprint of the Proposed Development and a 250m buffer; habitats in bold are present within the footprint of the Proposed Development including a 250m buffer from borrow pits or structures requiring foundations, and 100m out from all infrastructure, i.e. areas which are considered to be potentially impacted upon by the Proposed Development footprint:

- **W4 *Betula pubescens* – *Molinia caerulea* woodland; and**
- **W19 *Juniperus communis* ssp. *communis* – *Oxalis acetosella* woodland.**

The Kinveachy Forest SAC lies approximately 0.65km to the south-east of the Site at its closest point.

The SAC is located to the south-east and downslope of the Proposed Development with recognised hydrological connectivity via the An Leth-allt and associated tributaries.

2.2.2 Conclusion

Due to the hydrological pathway between the Proposed Development Site and the SAC, there is the potential for a pollution event to occur during construction related to the Proposed Development which could cause water quality to deteriorate, potentially impacting the SAC qualifying feature bog woodland. As a result, appropriate assessment is required.

2.3 Kinveachy Forest SPA

There was no evidence of the species for which the SPA was designated within or around the Proposed Development. There is an absence of suitable habitat for these species within the section of the Proposed Development closest to the SPA, and data

from the RSPB (Technical Appendix 8.2 Confidential Annex) shows the distribution of Capercaillie records within the SPA which shows the closest records as being 2 km from the nearest infrastructure.

Both Scottish crossbill and capercaillie also tend to be relatively sedentary such that they would not be expected to occur on or closer to the Proposed Development in habitat which is unsuitable for them. As a result, given the distance between the infrastructure and the habitat used by these species, there would be no disturbance or displacement of the species as the work will be carried out outwith the area where disturbance or displacement could occur. There would also be no habitat loss as the Site does not contain suitable or supporting habitat for these species.

There is thus no likely significant effects and no appropriate assessment is required.

As a result, the shadow HRA can be concluded for this site having found that the Proposed Development can proceed without adverse effect on the site integrity of the SPA.

2.4 River Spey SAC

Given the qualifying interests of the SAC, the results of the protected species surveys for otter (Technical Appendix 7.3: Protected Species Survey Report, Figure 7.3.3 refers), and the results of the fish habitat survey are relevant (Technical Appendix 7.4: Fish Habitat Survey, Figure 7.4.1 refers).

2.4.1 Otter

The 1.66km distance between the Proposed Development and the SAC means there will be no direct impact on the otter habitat in the SAC. Indirect impacts caused by (but not limited to) surface water run-off have the potential to occur due to the hydrological pathway between the Proposed Development (via the An Leth-allt and associated tributaries) and the SAC.

Old otter spraint was identified at three locations on the Allt Lathach during the fish habitat survey.

Given that the species may occur in and around the Site, and that any individuals will likely be from the SAC population, there remains the potential for a likely significant effect on the SAC otter habitat to occur, impacting the SAC population, as a result of construction work related to the Proposed Development which could cause water quality to deteriorate. There is also the potential for disturbance to individuals to occur during construction works. As a result, appropriate assessment is required.

2.4.2 Freshwater Pearl Mussel

The 1.66km distance between the Proposed Development and the SAC means there will be no direct impact on the freshwater pearl mussel habitat in the SAC. Indirect impacts caused by (but not limited to) surface water run-off have the potential to occur due to the hydrological pathway between the Proposed Development (via the An Leth-allt and associated tributaries) and the SAC.

While no evidence of freshwater pearl mussel was recorded on or around the Site, there remains the potential for a likely significant effect on the SAC freshwater pearl mussel habitat to occur, impacting the SAC population, as a result of construction work related

to the Proposed Development which could cause water quality to deteriorate. As a result appropriate assessment is required.

2.4.3 Sea Lamprey

The 1.66km distance between the Proposed Development and the SAC means there will be no direct impact on the sea lamprey habitat in the SAC. Indirect impacts caused by (but not limited to) surface water run-off have the potential to occur due to the hydrological pathway between the Proposed Development (via the An Leth-allt and associated tributaries) and the SAC.

While no evidence of sea lamprey was recorded on or around the Site, there remains the potential for a significant effect on the SAC sea lamprey habitat to occur, impacting the SAC population, as a result of construction work related to the Proposed Development which could cause water quality to deteriorate. As a result appropriate assessment is required.

2.4.4 Atlantic Salmon

The 1.66km distance between the Proposed Development and the SAC means there will be no direct impact on the Atlantic salmon habitat in the SAC. Indirect impacts caused by (but not limited to) surface water run-off have the potential to occur due to the hydrological pathway between the Proposed Development (via the An Leth-allt and associated tributaries) and the SAC.

While no evidence of Atlantic salmon was recorded on or around the Proposed Development Site, there remains the potential for a significant effect on the SAC Atlantic salmon habitat to occur, impacting the SAC population, as a result of construction work related to the Proposed Development which could cause water quality to deteriorate. As a result appropriate assessment is required.

2.4.5 Conclusion

There is potential for likely significant effects on the qualifying features of the SAC, via a recognised hydrological pathway. Therefore appropriate assessment is required to consider impacts of possible pollution on the qualifying features of the SAC.

2.5 Carn nan Tri-tighearnan SAC

2.5.1 Habitats

The Carn nan Tri-tighearnan SAC lies approximately 7.15km to the north-north-east of the Proposed Development at its closest point.

Due to the separation distance between the Proposed Development and the SAC, there will be no impact on the qualifying habitats. There is no hydrological connectivity between the SAC and the Proposed Development.

No likely significant effects have been identified on the qualifying features of the Carn nan Tri-tighearnan SAC. As a result, the shadow HRA can be concluded for this site having found that the Proposed Development can proceed without adverse effect on the site integrity of the SAC.

2.6 Loch Vaa SPA

There was no evidence of Slavonian grebe within or around the Proposed Development and there is no suitable habitat present for them within the Proposed Development. Given the distance between the Proposed Development and the SPA there would be no impacts on the SPA population of Slavonian grebes, nor on their habitats. Appropriate assessment is therefore not required.

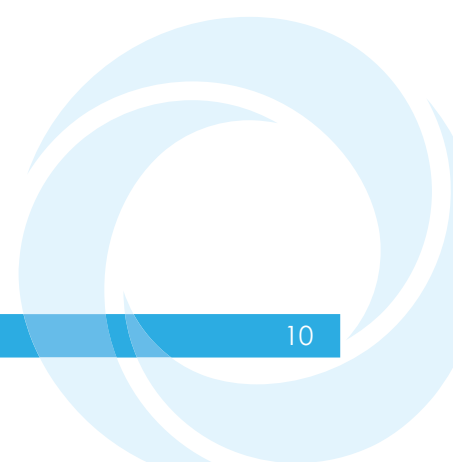
As a result, the shadow HRA can be concluded for this site having found that the Proposed Development can proceed without adverse effect on the site integrity of the SPA.

2.7 Summary of Likely Significant Effects

After screening is completed, Table 6 summarises the features of different European sites for which likely significant effects cannot be ruled out at the screening stage and Appropriate Assessment is required.

Table 6: Summary of Likely Significant Effects

Natura Site	Receptor	Likely significant effect
Kinveachy Forest SAC	Bog woodland	Potential pollution of supporting habitat
Kinveachy Forest SAC	Caledonian forest	Potential pollution of supporting habitat
River Spey SAC	Otter	Potential pollution of supporting habitat
River Spey SAC	Freshwater pearl mussel	Potential pollution of supporting habitat
River Spey SAC	Sea lamprey	Potential pollution of supporting habitat
River Spey SAC	Atlantic salmon	Potential pollution of supporting habitat



3 Appropriate Assessment

For those qualifying features for which a likely significant effect has been identified at the screening stage, further assessment is carried out to establish if the Proposed Development will have an adverse effect on the Natura site. At this stage of the appraisal, mitigation may be considered.

As a likely significant effect has been determined due to the effects of actions taken near the SAC to features indirectly linked to it, appropriate assessment is required to determine if there is a potential adverse impact on the SAC, and if so whether it can be mitigated so as to avoid any such effect. In particular, an assessment must be made as to whether as a result of works at the Proposed Development, without mitigation, the effects on the habitat feature are such that the conservation objectives could no longer be met / upheld.

3.1 Mitigation

Protection of Kinveachy Forest and River Spey SACs has been a key consideration during the development process. A design consideration of the Proposed Development was to minimise works in the vicinity of mapped watercourses and to minimise the need for new watercourse crossings to reduce the risk of pollution and changes to watercourse morphology.

Cabling will follow access tracks so there will be no need to trench through or under watercourses to lay them.

No routes of any natural drainage features will be altered as part of the Proposed Development. Mitigation for all aquatic features aims to preserve existing water quality ratings as a minimum.

In advance of construction commencing a number of management documents will be prepared which will detail the management of the Proposed Development from a design, construction and environmental perspective. These documents will help support the delivery of mitigation for the SACs:

- Drainage Impact Assessment (DIA);
- Construction Method Statement (CMS);
- Construction Environmental Management Plan (CEMP). The CEMP will contain a number of relevant plans:
 - Drainage Management Plan (DMP);
 - Pollution Prevention Plan (PPP);
 - Emergency Response Plan (ERP);
 - Water Quality Monitoring Plan (WQMP);
- Species Protection Plan.

3.1.1 Drainage Impact Assessment

A Drainage Impact Assessment (DIA) will be prepared by the appointed Contractor in advance of construction commencing, to inform the temporary and permanent drainage design. It will be submitted for agreement with SEPA.

The DIA will develop outline SuDS Principles for the Proposed Development and lay out design criteria (where applicable). It will give a broad overview of possible site drainage layout systems that conform to the topography and the likely grading of site tracks. It would advise on drainage features for site tracks, watercourse crossings, construction compounds, turbines and associated crane hard standings. It will assess preliminary impacts from surface water drainage and advise upon principal construction and operation and maintenance requirements. The DIA will identify sensitive issues, including those that arise from the presence of the SACs downstream from the Proposed Development Site. These will also include all watercourses and 'pinch' points which are likely to cause issues during construction and operation such as long straight slopes or where the access track is particularly close to water courses or conduits.

Site drainage (during construction, and then for the operational stage) will be designed to take account of the likely Storm Event Intensity for an area and infrastructure appropriately designed for a 1:200-year event. The design will be in accordance with sustainable drainage systems (SuDS) principles which mimic natural systems by providing storage, flow attenuation and biological treatment. This will reduce the chance of extreme events overloading the site drainage systems, causing overflow into watercourses which could lead to siltation events occurring which could have an adverse effect on the SACs.

It will be submitted for agreement with SEPA. The approved DIA will inform the preparation of a Drainage Management Plan (DMP) which will also be submitted for approval by SEPA.

3.1.2 Construction Method Statement

Given the likely areas where construction will occur adjacent to watercourses upstream of but connected to the SACs, it is considered that the Construction Method Statement (CMS) should fully characterise all design associated with the water environment to include for environmental design considerations and design features and safe environmental and water environment construction methods. This will include:

- Methods and materials for widening and upgrading existing track(s);
- Outline design and methods for constructing new track(s);
- Consideration of the engineering need for, and design of, upgrade of any existing crossings for the proposed traffic against current crossing design;
- Outline designs for all new watercourse crossings;
- Design and working plans for borrow pits; and
- Method of emplacement of underground cables close to river valleys and beneath watercourse crossings.

This is in addition to standard methods for infrastructure excavations, e.g., for turbines, crane hardstandings and construction compounds.

The CMS will also detail the watercourse crossing design which will be based on best practice guidelines:

- SEPA, November 2010E, WATSG-25 - Engineering in the water environment: good practice guide, River crossings, Second edition;

- SEPA WAT-PS-06-02: Culverting of Watercourses – Position Statement to support the implementation of the Water Environment (Controlled Activities) (Scotland) Regulations 2011;
- SEPA, October 2019, The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended), A Practical Guide, Version 8.4; and
- SEPA, WAT-PS-06-02: Position Paper Culverting of Watercourses – Position Statement and Supporting Guidance.

Additional guidance which will be taken account of includes:

- 'River Crossings and Migratory Fish: Design Guidance' (Scottish Government, 2012);
- 'Guidelines on Protection of Fisheries during Construction Works in and Adjacent to Waters' (Inland Fisheries Ireland, 2016);
- 'Control of water pollution from construction sites – Guidance for consultants and contractors' (Masters-Williams, 2001); and
- 'Control of water pollution from linear construction projects' (Murnane, Heap, & Swain, 2006).

The crossings will be WAT-SG-25 compliant and sized for 1:200 events and with 20% added for climate change over next 25 years.

All culverts on Site will follow SEPA guidance.

Batching of wet-cement products will make use of appropriate buffers. Use of wet-cement products within the hydrological buffer will be avoided, insofar as possible (and in agreement with the EnvCoW and SEPA).

The decision-making hierarchy adopted with regards to the design of culverted watercourse crossings was, in order of preference:

- Retain the existing watercourse crossing infrastructure unchanged;
- Retain the existing watercourse crossing infrastructure, but upgraded or extended to accommodate the proposed scheme;
- Replace the existing watercourse crossing infrastructure with new infrastructure. If an old structure is being replaced, the old structure should be removed rather than leaving it in place and building a new structure next to it;
- Take into account the proximity of the watercourses, especially those that flow through the SACs, and watercourse dimensions and flow characteristics including the nature and size of the crossing, fluvial scour and environmental requirements, hydraulic performance requirements and other aspects of design such as the amount of freeboard that is required; and
- Particular consideration will be given to the provision of mammal and fish passage, and culvert embedment alongside geometric constraints, hydraulic performance requirements and other aspects of design, consider the amount of freeboard that is required e.g. to aide passage of large woody debris.

Additional design considerations are given below:

- Natural low flow depths are maintained through the culvert base which should be of natural substrate;
- Underground cables will be buried beneath watercourse crossings. Where laid through a floodplain, a Flood Risk Assessment would be required;

- Crossings will be designed to mimic natural pre-existing conditions with no change in water flow upstream or downstream and not to exacerbate erosion;
- Abutments to the culverts will be sufficiently set back so as not to affect the bed and banks, ecology, and water levels of the watercourse. Avoid perched inverts, drop from culvert outfall to downstream, undersized or excessively wide crossings, maintain good existing riparian habitat;
- Design should provide continuity of river bed, maintain sediment transport and provide energy dissipation through the proposed structures; and
- The EnvCoW will carry out an ecological requirement survey of each crossing in advance of construction for protected species and habitats and identify whether there is a need for fish / mammal passage.

3.1.3 Construction Environmental Management Plan

Environmental aspects of construction will be controlled through a Construction Environmental Management Plan (CEMP). This will be linked to the Construction Method Statement and the Construction Risk Register. The CEMP will be a dynamic document and subject to review at various stages post consent and pre- and during construction. An Outline CEMP has been provided in Technical Appendix 3.1: Outline Construction Environmental Management Plan.

It will implement specific measures to ensure good practice and set out mitigation as required during construction. There will be a number of sub plans to the CEMP; those which are relevant to mitigation for Kinveachy Forest and River Spey SACs are the DMP, the Pollution Prevention Plan (PPP), the Emergency Response Plan (ERP) and the Water Quality Monitoring Plan (WQMP).

Relevant measures which are pertinent to protection of the SACs will include the following. Further measures are included in the relevant sub plans discussed below:

- Works to be overseen by an Environmental Clerk of Works (EnvCoW) and their role and responsibilities will be detailed in the CEMP. In outline, this role will include ongoing monitoring of environmental / ecological constraints, review and audit of the appointed contractor's environmental performance, delivery of toolbox talks, and supervision of construction works;
- There will be no direct discharges to any natural watercourses, with all drainage waters being dispersed as overland flows, as directed by the Environmental Clerk of Works to avoid erosion or siltation of existing watercourses in the process. All discharges from the proposed works areas will be made over vegetation filters at an appropriate distance from natural watercourses;
- There will be no direct dewatering to watercourses during the construction phase. All outflows from drainage associated with construction will be by diffuse overland drainage at appropriate locations and through settlement ponds;
- Double silt fences will be installed around those watercourses that flow into the SACs (specifically Caochan na Cuileige, Allt an t-Sionnach, Allt Coire Chaillich, Allt Coire Phris Mhòir and the unnamed tributary). These double silt fences will afford additional protection and prevention of sediment / silt infiltration ingress during construction. They will protect siltation from works on track upgrades especially where those works are around watercourse crossings;
- Works for watercourse crossings will be carried out during July to September to avoid the vulnerable period for juvenile salmonids (spawn to parr) that may be

present in downstream environments outside of this window. Any works outside of this period would require a derogation under the Local Authorities (Works) Act, 1949;

- There will be no crossing of rivers or streams by machinery during the construction phase, other than by constructed access routes, and all machinery must remain within the works corridor and utilise designated access routes;
- Soils removed from the excavated area will be stored separately in piles, no greater than 3m in height, directly adjacent to, or near the tracks on ground appropriate for storage of materials i.e., relatively dry and flat ground, a minimum of 50m away from any watercourses. Wherever possible, reinstatement will be carried out as track construction progresses;
- There will be an Emergency Response Plan (ERP) for the construction phase to deal with accidental spillages included in the CEMP;
- Wastewater emanating on-site (sewage, wastewater from site office) will be taken off-Site for disposal / treatment at controlled facilities. To this effect, welfare facilities for construction site workers will include self-contained port-a-loos with an integrated waste holding tank. No water will be sourced on the Proposed Development Site, nor will any wastewater be discharged from the Site;
- Deposition areas will be sealed with a digger bucket and vegetated as soon possible to reduce sediment entrainment in runoff;
- In order to avoid run-off of silt-laden water impacting upon water quality within surface water features adjacent to the works corridor, reinstatement works including measures to re-vegetate disturbed areas through re-seeding and / or placement of saved turves will be undertaken immediately after construction works; and
- During construction, turves will be stored separately from spoil (soil / rock). Separate storage of turves will ensure vegetation is not considerably damaged and that turves can be replaced as a top-mat to facilitate rapid re-instatement of the surface vegetation, thereby reducing the likelihood of soil erosion and the likelihood of silt laden surface waters affecting water quality.

Within the CEMP will be a number of more detailed technical plans. While these have not been developed in detail at this time, an outline is provided here.

Drainage Management Plan

The DMP will:

- Ensure care is taken during the construction phase to avoid damage to protected species and habitats and to reduce the risk of pollution;
- Cover pre-earthworks drainage, temporary construction drainage and installation of permanent drainage;
- Identify and provide mitigation for high risk pinch points such as track construction or upgrading within 50m of watercourses or on steep slopes above watercourses;
- Seek to avoid large capacity build ups of surface water that could lead to additional loadings being placed on the surrounding ground that may lead to soil failure, especially in areas with peat stability concerns;
- Lay out the design and specification for pre-earthworks temporary cut off drains around working areas to minimise sediment laden water from entering excavations;
- Seek to install permanent drainage before or during track construction;
- Lay out optimal ditch and drain locations and profile;

- Require silt traps, straw bales, silt fencing in series and sediment ponds to collect sediment during construction. Avoid long runs and erosion by check dams, angled clean water run offs and / or swales;
- Outline weather dependent actions to minimise risk, especially during storm events;
- Ensure no direct discharge to natural or existing drains, channels or watercourses;
- Propose culverts or pipes and regular cross drainage under tracks to avoid up gradient build-up of groundwater and to maintain flow to downgradient Groundwater Dependent Terrestrial Ecosystems (GWDTE);
- Avoid direct infiltration of sediment laden into vegetation, until after a period of settlement treatment;
- Discharge clean water, post settlement or from cut-off drains downslope and >50m from any channels;
- Seek to avoid watercourse diversions, bank modifications and dams as much as possible;
- Set out cabling trenches founded on sand with regular check dams of clay and run-offs to avoid fast access flow pathways for collected drainage and polluted run-off;
- Lay out an Inspection and maintenance programme for permanent and temporary track drainage;
- Identify protocols for sediment structure maintenance;
- Detail site drainage measures, including drainage ditches and silt traps, which will be provided to collect and treat increased surface run off;
- Ensure infiltration interception drains for upslope 'clean' water collection and dispersion are installed; and
- Address reinstatement of temporary drainage.

Pollution Prevention Plan

A Pollution Risk assessment will be carried out identifying materials, areas and activities of greatest risk and laying out controls on these. From this a Pollution Prevention Plan (PPP) will be prepared. An Outline Pollution Prevention Plan (PPP) has been provided in Technical Appendix 3.3: Outline Pollution Prevention Plan.

It will reference the extensive guidance and outline protocols for pollution control. It will include reference to fuel, oils, cementitious materials, other hazardous substances and prohibited materials.

It will address such activities as use and storage, spillage kit and emergency procedures for chemical and hydrocarbon pollution of surface water, safe refuelling locations and protocols, concrete pouring and mixing protocols and use of construction compounds. Inspection and maintenance regimes will be identified for implementation.

Measures to be included are given below. This is not an exhaustive list but focuses instead on issues of particular concern to the aquatic environment.

- Cement leachate, hydrocarbon oils and other toxic poisonous materials will require full containment and will not be permitted to discharge to any waters;
- There will be appropriate bunded storage area(s) for storage of fuels / oils, with onsite storage of hydrocarbons to be kept to a minimum;
- No refuelling will be permitted at works locations within the 50m of watercourses;

- As in-situ wet cement mixing on site is likely to be required, appropriate measures should be undertaken to minimise water usage on site and improve pollution prevention. No discharge of cement contaminated waters to the construction phase drainage system or directly to any artificial drain or watercourse will be permitted;
- Appropriate consideration to the initial siting of concrete mixing facilities on site should be undertaken, ensuring that they are sited away (minimum 50m) from any watercourses or drainage channels to prevent accidental escapes of liquid or slurries to the water environment;
- Wash out areas for concrete batching plant as well as the use of ready mixed concrete lorries should be located as far as practically possible from watercourses to provide a hydrological buffer on site (minimum 50m);
- Wash down water arising from the washing of equipment that has come into contact with concrete must be collected in an impervious container; and
- Lined cement washout ponds will be used for chute cleaning, with minimal use of water take imported onto the Site. This will help to minimise the risk of pollution from concrete batching and reduce overall water usage on site.

Emergency Response Plan

An Emergency Response Plan (ERP) will sit within the CEMP during the construction phase, detailing the response to be taken if unplanned incidents or accidents occur which have potential to cause harm to the environment. Information about the ERP will be provided in the site induction for all workers and information and any required equipment will be held on site.

Water Quality Monitoring Plan

A Water Quality Monitoring Programme (WQMP) will be designed as part of the CEMP. The water quality monitoring will be implemented before and during and after construction to record the existing water condition and ensure no deterioration to water quality during or following construction. It will address both surface and ground water quality and protection and include measures for different rainfall and flow conditions.

The WQMP will focus on those watercourses that flow into the SACs, specifically Caochan na Cuileige, Allt an t-Sionnaich, Allt Coire Chaillich, Allt Coire Phris Mhòir and the unnamed tributary. Its stated purpose will be to ensure no deterioration of water quality and to protect fish populations within and downstream of the Proposed Development area. It will be associated with a Fish Monitoring Programme.

The WQMP will be accompanied by a specific Emergency Response Plan for water environment incidents. The WQMP will also contain a section regarding review of its findings and consequent appropriate site specific mitigation measures to be incorporated into the mitigation schedule.

The WQMP survey and monitoring programmes will follow the MSS published guidance on survey/monitoring programmes associated with onshore wind farm developments (Marine Scotland, 2018) such that:

- The Water Quality Monitoring Plan (WQMP) will be submitted to and approved in writing by the Planning Authority in consultation with Marine Scotland Science, SEPA and NatureScot;

- Water quality sampling will be carried out at least 12 months prior to construction commencing, during construction and for at least 12 months after construction is complete; and
- The water quality monitoring plan will include key hydrochemical parameters, turbidity, and flow data, the identification of sampling locations (including control sites), frequency of sampling, sampling methodology, data analysis and reporting.

The WQMP shall be submitted to the Planning Authority on a 6 monthly basis or on request.

3.1.4 Protected Species Plan

This would cover a number of different sensitive species present or with potential to be present on the Proposed Development. With respect to otter the following measures would apply:

- A pre-construction survey for otter will be undertaken within 2 weeks of the start of construction, covering suitable habitat within 200m from construction areas. This survey will be undertaken by a suitably qualified ecologist. The survey will aim to identify if otter activity levels have continued as identified in the baseline surveys. The results of the pre-construction surveys will inform whether the CEMP will include further mitigation with regard to otter (for example if resting places are located which require further specific protection).
- Excavations will be covered at the end of each working day to minimise the risk of animals becoming injured or trapped. Alternatively, a wooden plank or similar means of egress will be placed inside to allow a means of escape for animals should they enter the excavation. Any temporarily exposed open pipe system would be capped in such a way as to prevent wildlife gaining access and pipes should be checked for otter use before they are installed.
- In the event that a European protected species is discovered on Site, all work in that area would stop immediately and the EnvCoW contacted. Increased buffer areas may be required in these locations. Details of the local police Wildlife Crime Officer, NatureScot Area Officer, and Scottish Society for the Prevention of Cruelty to Animals (SSPCA) relevant Officer would be held in the site emergency procedure documents.
- A site speed limit of 15 mph would apply during the construction period but also once the Proposed Development becomes operational.

3.2 Assessment

3.2.1 Kinveachy Forest SAC

All construction activity will take place outwith the SAC; however there is potential for surface water runoff from the construction site to flow into watercourses that subsequently flow into the SAC, potentially causing an impact.

Therefore management of construction activity around those watercourses that subsequently flow into the SAC (specifically Caochan na Cuileige, Allt an t-Sionnaich, Allt Coire Chaillich, Allt Coire Phris Mhòir and the unnamed tributary) will be key to ensuring there are no effects on the Kinveachy Forest SAC. Acknowledging this, the mitigation to ensure that adverse effects on water quality and flow are avoided has

been described in some detail above. Additional mitigation measures, based on the principles outlined in Section 3.1 will be identified and described in the documents outlined as the detailed design work for the Proposed Development proceeds.

The mitigation identified in Section 3.1 relies on the experience on other wind farms and is based on guidance and tested techniques. There are control stages and feedback stages, via agreement with stakeholders of future key documents, and testing and monitoring programmes that ensure protection of the SAC can be delivered. As a result, while there remains potential for there to be adverse effects on the SAC, the mitigation as described in outline or in detail will prevent that adverse effect occurring. This would protect the qualifying features of bog woodland and Caledonian forest such that there would be no adverse effects on them during the construction and operational phase.

Summary

Table 7 reviews the conservation objectives for each of the qualifying features identified for appropriate assessment if the Proposed Development were to proceed.

Table 7: Details of conservation objectives for habitats for which the Kinveachy Forest SAC has been designated

Conservation objective	Bog Woodland	Caledonian Forest
1	This conservation objective would be maintained.	This conservation objective would be maintained.
2:		
2a	The habitat would be maintained as there would be no effects which would affect habitat viability. This conservation objective would be maintained.	The habitat would be maintained as there would be no effects which would affect habitat viability. This conservation objective would be maintained.
2b	The structure, function and supporting processes of bog woodland would be unaffected by the Proposed Development. This conservation objective would be maintained.	The structure, function and supporting processes of bog woodland would be unaffected by the Proposed Development. This conservation objective would be maintained.
2c	The distribution and viability of typical species of bog woodland would be unaffected by the Proposed Development. This conservation objective would be maintained.	The distribution and viability of typical species of Caledonian forest would be unaffected by the Proposed Development. This conservation objective would be maintained.

This shows that the Proposed Development can proceed without having an adverse impact on the integrity of the Kinveachy Forest SAC.

3.2.2 River Spey SAC

All construction activity will take place outwith the SAC; however there is potential for surface water runoff from the construction site to flow into watercourses that subsequently flow into the SAC, potentially causing an impact.

Therefore management of construction activity around those watercourses that subsequently flow into the SAC (specifically Caochan na Cuileige, Allt an t-Sionnach, Allt Coire Chaillich, Allt Coire Phris Mhòir and the unnamed tributary) will be key to

ensuring there are no effects on the River Spey SAC. Acknowledging this, the mitigation to ensure that adverse effects on water quality and flow are avoided has been described in some detail above. Additional mitigation measures, based on the principles outlined in Section 3.1 will be identified and described in the documents outlined as the detailed design work for the Proposed Development proceeds.

The mitigation identified in Section 3.1 relies on the experience on other wind farms and is based on guidance and tested techniques. There are control stages and feedback stages, via agreement with stakeholders of future key documents, and testing and monitoring programmes that ensure protection of the SAC can be delivered. As a result, while there remains potential for there to be adverse effects on the SAC, the mitigation as described in outline or in detail will prevent that adverse effect occurring. This would protect the qualifying features of otter, freshwater pearl mussel, sea lamprey and Atlantic salmon such that there would be no adverse effects on them during the construction and operational phase.

Of the qualifying features, it is considered that only otter could occur within the Proposed Development Site. Mitigation has been described to protect otters during the works. There may be temporary displacement / disturbance during the construction process, but there was also limited evidence of otter activity on the Site and otter can habituate to human infrastructure readily so this would not be expected to persist into the operational period. Surveys would be carried out prior to work commencing to identify if there are any resting places which would require additional protection and measures have been put in place which would protect individual otters from harm. As a result, there would be no adverse effects on the otter population of the SAC.

Summary

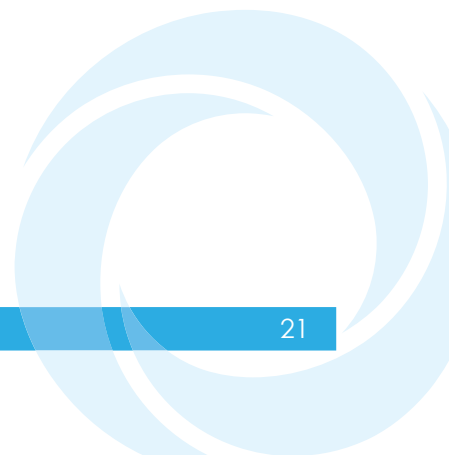
Table 8 reviews the conservation objectives for each of the qualifying features identified for appropriate assessment if the Proposed Development were to proceed.

Table 8: Details of conservation objectives for habitats for which the River Spey SAC has been designated

Conservation objective	Otter	Freshwater pearl mussel	Sea lamprey	Atlantic salmon
1	This conservation objective would be maintained.	This conservation objective would be maintained.	This conservation objective would be maintained.	This conservation objective would be maintained.
2:				
2a	The population would be maintained as there would be no effects which would affect population viability. This conservation objective would be maintained.	The existing population would be maintained as there would be no effects which would affect population viability. This conservation objective would be maintained.	The population would be maintained as there would be no effects which would affect population viability. This conservation objective would be maintained.	The existing population would be maintained as there would be no effects which would affect population viability. This conservation objective would be maintained.
2b	There would be no change in the distribution of the species as a result of the Proposed	There would be no change in the distribution of the species as a result of the Proposed	There would be no change in the distribution of the species as a result of the Proposed	There would be no change in the distribution of the species as a result of the Proposed

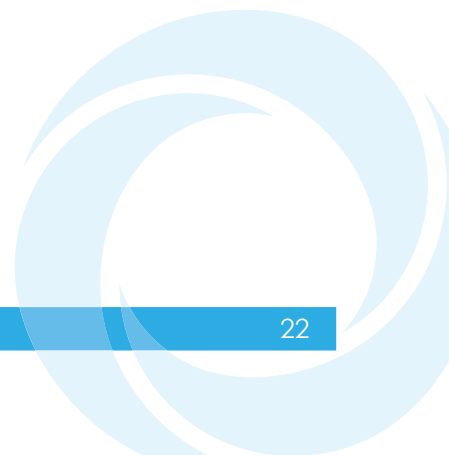
Conservation objective	Otter	Freshwater pearl mussel	Sea lamprey	Atlantic salmon
	Development. This conservation objective would be maintained.	Development. This conservation objective would be maintained.	Development. This conservation objective would be maintained.	Development. This conservation objective would be maintained.
2c	There would be no deterioration of habitats supporting the species within or above the site and food availability would be maintained. This conservation objective would be maintained.	There would be no deterioration of habitats supporting the species within the site and food availability would be maintained. This conservation objective would be maintained.	There would be no deterioration of habitats supporting the species within or above the site and food availability would be maintained. This conservation objective would be maintained.	There would be no deterioration of habitats supporting the species within the site and food availability would be maintained. This conservation objective would be maintained.
2d		There would be no change in the distribution or population viability of the host species as a result of the Proposed Development. This conservation objective would be maintained.		

This shows that the Proposed Development can proceed without having an adverse impact on the integrity of the River Spey SAC.



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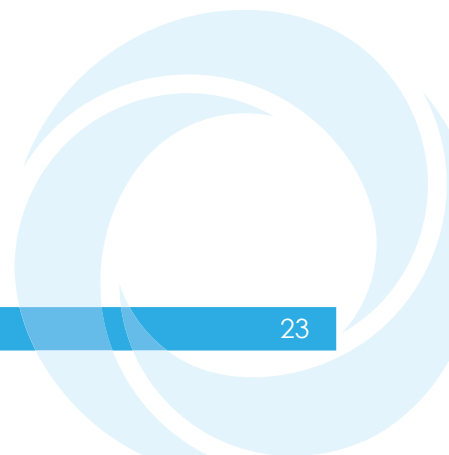


Appendices

Appendix A. Figures

Figure 8.3.1 - Site Location Plan

Figure 8.3.2 - Environmental Designations




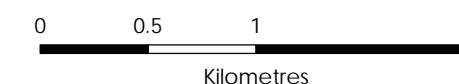
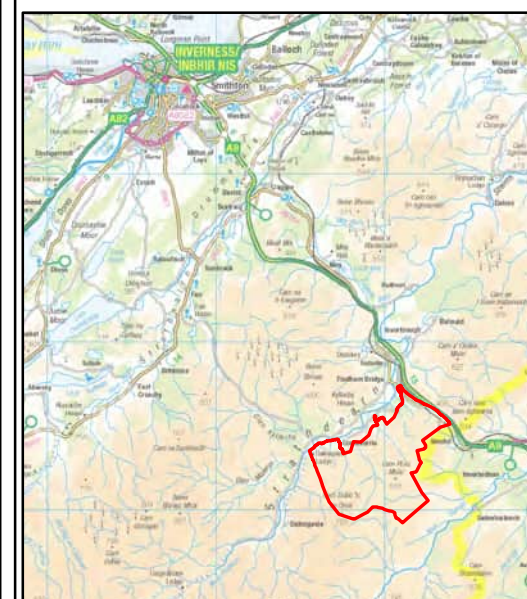
Clune Wind Farm



Figure 8.3.1
Site location Plan

Key

 Site boundary



Scale @ A3:
1:35,000



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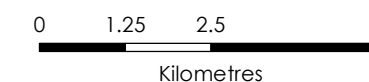
Clune Wind Farm



Figure 8.3.2
Designated Sites within 10 km

Key

- Site boundary
- 5km and 10km site buffers
- ▲ Proposed turbine
- Ancient Woodland Inventory
- Special Area of Conservation
- Special Protection Area
- National Nature Reserve
- Site of Special Scientific Interest
- RSPB Reserve
- Ramsar wetland
- RSPB Important Bird Areas



Scale @ A3:
1:110,000



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