



Cloich Forest Wind Farm

Volume 1 – SEI Report Text

November 2022



CLOICH FOREST WIND FARM

SEI Report – Volume 1 – SEI Report Text

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Chapter 1
Introduction



1 INTRODUCTION

1.1 BACKGROUND

In June 2021, Cloch Windfarm Partnership LLP ('the Applicant'), wholly owned by EDF Energy Renewables Limited, submitted an application, supported by an Environmental Impact Assessment Report (EIA Report), for consent pursuant to Section 36 of the Electricity Act 1989¹ (Ref ECU00003288) to install and operate a wind farm comprising of up to 12 wind turbines, with a generation capacity exceeding 50 megawatts (MW), and associated infrastructure, at a site within the Scottish Borders for a period of thirty years (the Development). In addition, the Applicant sought a Direction from the Scottish Ministers for planning permission to be deemed to be granted under Section 57(2) of the Town and Country Planning (Scotland) Act 1997, as amended. The Development represents a re-design of the consented Cloch Forest Wind Farm (the Consented Scheme), which was granted Section 36 consent and deemed planning permission following a Public Local Inquiry (PLI), on 8 July 2016 (Planning and Environmental Appeals Division (DPEA) Reference: WIN-140-1).

Given that the Development is expected to exceed 50 MW and is classed as a Section 36 application, an EIA was undertaken in accordance with the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017² referred to as the EIA Regulations.

In line with the EIA Regulations, the Applicant recognised the Development is an 'EIA Development' following consideration of its characteristics, the location of the land within the site boundary in which the Development is located (the Site) and the characteristics of the potential impacts as outlined within Schedule 4 of the EIA Regulations.

The EIA Report as submitted in June 2021, presented information on the likely significant environmental effects of the Development. The EIA Report also informed the reader of the nature of the Development and the measures proposed to protect the environment during site preparation, construction, operation and decommissioning.

Following submission of the EIA Report, the Energy Consents Unit (ECU) of the Scottish Government consulted relevant statutory and non-statutory organisations, the majority of which have provided consultation responses.

Since the EIA Report was submitted and on receipt of consultation responses, the Applicant has taken the decision to amend the location of Turbine 8 (T8) and the infrastructure components associated with this turbine (the SEI Layout), the effects of which need to be reassessed under the EIA Regulations. The SEI Layout also includes an additional Temporary Construction Compound (TCC) for Scottish Power Transmission (SPT) to use during the installation of grid connection infrastructure and provision for an additional control building within the wind farm's substation compound.

The Applicant has therefore prepared this Supplementary Environmental Information Report (SEI Report) to respond to specific points raised from consultees during the consultation process and to provide an EIA of effects arising from the design amendments to the Development.

This Chapter of the SEI Report is supported by the Figures provided in Volume 2a: Figures excluding LVIA of the EIA Report.

¹ UK Government, 1989, Electricity Act 1989 [Online] Available at: <http://www.legislation.gov.uk/ukpga/1989/29/contents> (Accessed 20/09/2022)

² The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 <http://www.legislation.gov.uk/ssi/2017/101/contents/made> (Accessed 20/09/2022)

1.2 SUPPLEMENTARY ENVIRONMENTAL INFORMATION REPORT

This SEI Report provides the information required to be submitted as a result of design amendments and information requests in the consultation responses. The majority of the baseline information and assessment reported within the EIA Report is still relevant to the SEI Layout because 11 turbine positions and the majority of site infrastructure and the Site is unchanged.

This SEI Report should be read in conjunction with the EIA Report. It describes how the predicted effects of the SEI Layout differ from that presented in the EIA Report. It is not the intention of the SEI Report to repeat information presented within the EIA Report that remains valid, except where alterations in the baseline, assessment methodology or assessment results have been identified. Additionally, clarifications on information presented in the EIA Report have been incorporated as appropriate as well as relevant updates since submission of the EIA Report such as variations in guidance and consideration of new wind farm developments in the cumulative landscape assessment.

1.3 PROJECT TEAM AND COMPETENCY

The SEI project team is led by Arcus and this SEI Report has been compiled by Arcus on behalf of the Applicant. The full SEI project team is listed in Table 1.1 below. The table details where there has been a change between the EIA and SEI project team.

While Arcus have had overall responsibility for the SEI Report, Land Use Consultants Ltd (LUC) and Scottish Woodlands Ltd have prepared specialist assessment chapters and provided input to the SEI as indicated in Table 1.1 below. For each topic, the detailed assessment of likely significant effects has been undertaken by organisations with relevant specialist skills, drawing on their qualifications, and experience of working on other development projects, good practice in EIA and on relevant published information. Table 1.1 lists the organisations that have been involved in each topic of this SEI Report.

Table 1.1 Project Team

Chapter Number	Title	Organisation Responsible (EIA)	Organisation Responsible (SEI)
1	Introduction	Arcus	Arcus
2	Site Selection and Design	Fiona MacGregor BSc (Hons) MSc PGDip (22 years)	Fiona MacGregor PEIAP, BSc (Hons) MSc PGDip (22 years)
3	Project Description	Stuart Davidson BSc (Hons) IEMA Registered EIA Practitioner (13 years)	Becca Leake BSc (Hons) MSc (2 years)
4	EIA Methodology	Dr Della Lansley BSc (Hons) MSc (Disc.) PhD (16 years) Fraser Clarke BSc (Hons) (1 year) David Ballentyne BSc (Hons) (18 years)	Laurence Marshall BSc (Hons) (<1 year)
5	Landscape and Visual Impact Assessment	LUC Sam Oxely BSc MA CMLI (over 20 years) Laura Cargill BSc MLC CMLI (12 years) Erin Hynes BSc MSc (3 years)	No change.

Chapter Number	Title	Organisation Responsible (EIA)	Organisation Responsible (SEI)
6	Archaeology and Cultural Heritage	Arcus Heather Kwiatkowski BA MA MCiFA RPA IEMA Registered EIA Practitioner (24 years) Dr Della Lansley BSc (Hons) MSc (Disc.) PhD (16 years) Stuart Davidson BSc (Hons) IEMA Registered EIA Practitioner (13 years)	Arcus Heather Kwiatkowski BA MA MCiFA RPA IEMA Registered EIA Practitioner (24 years) Amy Farrington McCabe BA MA MCiFA (10 years) David McCaughie BSc (hons), PhD. (1 year)
7	Ecology	Arcus Nicolas Wright BSc (Hons) MRes MCIEEM CEnv (11 years) James Allison BSc (Hons) (8 years)	No change.
8	Ornithology	Arcus Nicolas Wright BSc (Hons) MRes MCIEEM CEnv (11 years) James Allison BSc (Hons) (8 years)	No change.
9	Geology, Ground Conditions, and Peat	Arcus David Ballentyne BSc (Hons) (18 years) Gregor Hirst BSc (Hons) (5 years)	No change.
10	Hydrology and Hydrogeology	Arcus Liam Nevins BSc (Hons) MCIWEM C.WEM (14 years) Dr Della Lansley BSc (Hons) MSc (Disc.) PhD (16 years)	Arcus Liam Nevins BSc (Hons) MCIWEM C.WEM (14 years) Rebecca Simister BSc (hons) MSc MCIWEM C.WEM (12 years)
11	Noise	Arcus Alan Moore BA (Hons) MIOA (11 years) Martin Stevenson BSc MIOA (8 years)	Arcus Alan Moore BA (Hons) MIOA (11 years) Mark Tideswell BA (Hons), AMIOA (9 years)
12	Access, Traffic, and Transportation	Arcus Tomos Ap Tomos BEng (Hons) MIHT (23 years) Frank Ocran BSc (Hons) MSc MCIHT (13 years)	No change.
13	Forestry	Scottish Woodlands Andrew Crompton BSc (Hons) MRICS (15 years)	No change.
14	Aviation & Radar	WPAC Ltd Cdr John Taylor RN (Ret) (over 35 years)	No change

Chapter Number	Title	Organisation Responsible (EIA)	Organisation Responsible (SEI)
		XI Engineering Consultants Ltd Dr M. P. Buckingham BEng (Hons) AMIMechE PhD (20 Years) R. Horton BSc MAAT (18 years) G. Cowie (10 years)	No Change
15	Socio-Economics, Land Use, Recreation, and Tourism	Arcus Fiona MacGregor BSc (Hons) MSc PGDip (22 years) Stuart Davidson BSc (Hons) IEMA Registered EIA Practitioner (13 years) Dr Della Lansley BSc (Hons) MSc (Disc.) PhD (16 years) Fraser Clarke BSc (Hons) (1 year) Lucy Starling BSc (Hons) (1 year)	Arcus Fiona MacGregor PEIAP, BSc (Hons) MSc PGDip (22 years) Becca Leake BSc (Hons) MSc (2 years) Laurence Marshall BSc (Hons) (<1 year)
16	Climate Change and Carbon Balance	Arcus Fiona MacGregor BSc (Hons) MSc PGDip (22 years) Stuart Davidson BSc (Hons) IEMA Registered EIA Practitioner (13 years) Dr Della Lansley BSc (Hons) MSc (Disc.) PhD (16 years) Fraser Clarke BSc (Hons) (1 year) Lucy Starling BSc (Hons) (1 year)	Arcus Fiona MacGregor PEIAP, BSc (Hons) MSc PGDip (22 years) Becca Leake BSc (Hons) MSc (2 years) Laurence Marshall BSc (Hons) (<1 year)
17	Other Issues (Shadow Flicker, Telecommunications & Utilities, and Health & Safety ((Including: Major Accidents & Disasters))	Arcus Fiona MacGregor BSc (Hons) MSc PGDip (22 years) Stuart Davidson BSc (Hons) IEMA Registered EIA Practitioner (13 years) Dr Della Lansley BSc (Hons) MSc (Disc.) PhD (16 years) Sophie Williams BMus (Hons) AMIOA (3 years) Fraser Clarke BSc (Hons) (1 year) Lucy Starling BSc (Hons) (1 year)	Arcus Fiona MacGregor PEIAP BSc (Hons) MSc PGDip (22 years) Mark Tideswell BA (Hons), AMIOA (9 years) Becca Leake BSc (Hons) MSc (2 years) Laurence Marshall BSc (Hons) (<1 year)
18	Summary of Mitigation	Arcus Fiona MacGregor BSc (Hons) MSc PGDip (22 years) Dr Della Lansley BSc (Hons) MSc (Disc.) PhD (16 years) Stuart Davidson BSc (Hons) IEMA Registered EIA Practitioner (13 years) Fraser Clarke BSc (Hons) (1 year)	Arcus Fiona MacGregor PEIAP, BSc (Hons) MSc PGDip (22 years) Becca Leake BSc (Hons) MSc (2 years)

1.4 STRUCTURE OF SEI REPORT

This SEI Report presents the findings of the updated EIA. It includes a description of the SEI Layout and focuses on changes to the identified likely effects which may result therefrom. Where appropriate, additional mitigation is proposed which has not been identified within the EIA Report, and residual effects are highlighted. The SEI Report is presented in three Volumes described as the following.

- **Volume 1** – SEI Report Text; presents the background of the Development and technical chapters;
- **Volume 2** – SEI Report Figures; including revised and new figures where appropriate. This will be specified within the relevant chapter;
 - Volume 2a- SEI Report Figures excluding LVIA;
 - Volume 2b- SEI Report LVIA Figures;
 - Volume 2c- SEI Report Visualisations; and
- **Volume 3** – SEI Technical Appendices: present the supporting technical appendices where appropriate.
- **Volume 4**- SEI Report Non-Technical Summary.

The first four chapters of the SEI Report provide a detail of the changes that have been made to the design of the Development and set out the methodology used within the SEI Report. Chapters 1-4 simply provide an update to the changes made, sections of these chapters within the EIA Report remain valid unless otherwise specified. The SEI Report should be read in conjunction with the EIA Report and is divided into a series of technical chapters. All of these have been reviewed to identify the need to update or replace content in the light of the amendments to the Development and/or information gathered since the EIA Report was concluded. The chapter numbering of the SEI Report reflects that of the EIA Report and the format and content of the technical chapters also remains the same.

As in the EIA Report, the SEI Report includes chapters covering the following areas:

- **SEI Chapter 1 – Introduction;**
- **SEI Chapter 2 – Site Selection and Design;**
- **SEI Chapter 3 – Project Description;**
- **SEI Chapter 4 – EIA Methodology;**
- **SEI Chapter 5 – Landscape and Visual Impact Assessment;**
- **SEI Chapter 6 – Archaeology and Cultural Heritage;**
- **SEI Chapter 7 – Ecology;**
- **SEI Chapter 8 – Ornithology;**
- **SEI Chapter 9 – Geology, Ground Conditions and Peat;**
- **SEI Chapter 10 – Hydrology and Hydrogeology;**
- **SEI Chapter 11 – Noise;**
- **SEI Chapter 12 – Access, Traffic and Transportation;**
- **SEI Chapter 13 – Forestry;**
- **SEI Chapter 14 – Aviation and Radar;**
- **SEI Chapter 15 – Socio-Economic, Land Use, Recreation, and Tourism;**
- **SEI Chapter 16 – Climate Change and Carbon Balance;**
- **SEI Chapter 17 – Other Issues;** and
- **SEI Chapter 18 – Summary of Mitigation.**

1.5 ADDITIONAL DOCUMENTS

An updated Planning Statement has been prepared to accompany the application. The Planning Statement sets out an assessment of the Development in the context of national planning, energy policy, the local development plan, and emerging planning policies. It also considers the potential benefits and harm which may arise and concludes as to the

overall acceptability of the Development in relation to the planning context. This report would supersede the Planning Statement as submitted alongside the EIA Report.

This additional document does not form part of the EIA Report or SEI Report.

1.6 CONTACT DETAILS

This SEI Report will be publicised in accordance with Part 6 of the EIA Regulations.

This SEI Report and supporting documentation, together with the EIA Report, is available on the Cloich Forest Wind Farm project website at: <https://www.edf-re.uk/our-sites/cloich-forest/>

In addition, copies of this SEI Report alongside the EIA Report in its entirety, will be made available for public inspection during the consultation period at the following locations during normal opening hours:

- Peebles Library, Chambers Institute, High St, Peebles EH45 8AG.
- Scottish Borders Council, Council Headquarters, Newtown St. Boswells, Melrose, TD6 0SA.
- Scottish Government Library at Victoria Quay, Edinburgh, EH6 6QQ.

DVD copies of the complete SEI Report and EIA Report are available free of charge upon request. Hard copies may be obtained at a reasonable charge reflecting the cost of printing the volumes requested.

To request a copy of the application submission, EIA Report and/or this SEI Report, please contact:

EDF Renewables	Or	Arcus Consultancy Services
Rory Carmichael		info@arcusconsulting.co.uk
Rory.Carmichael@edf-re.uk		
EDF Renewables		Arcus Consultancy Services
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Chapter 2
Site Selection and Design



2 SITE SELECTION AND DESIGN

2.1 INTRODUCTION

This Chapter of the Supplementary Environmental Information Report (SEI Report) provides detail on the site design process which has taken place since the submission of the Environmental Impact Assessment Report (EIA Report). It supplements **Chapter 2: Site Selection and Design** of the EIA Report which should be read in conjunction with this chapter.

This Chapter of the SEI Report is supported by figures within Volume 2a: Figures excluding LVIA of the EIA Report and the following figures provided in Volume 2a: SEI Report Figures excluding LVIA:

- Figure 2.1: SEI Design Evolution.
- Figure 2.2: T8 Location Change.

These figures are submitted in addition to those submitted in Volume 2a of the EIA Report to depict the change in infrastructure within the SEI Layout.

2.2 KEY CONCLUSIONS OF THE EIA REPORT

Chapter 2: Site Selection and Design of the EIA Report set out the design strategy for the Development in which various economic, technical and environmental factors were all considered in the iterative design process and resulted in the layout proposed within the EIA Report (the EIA Report Layout). The factors were informed through a variety of baseline surveys and consultation with a range of stakeholders.

A key element of this process was informed by NatureScot¹ guidance and, in accordance with this guidance, the landscape and visual impact of the Development was a key consideration from an early stage during the feasibility studies and subsequent design process. The Development was designed to remain in keeping with the visual impacts of the Consented Scheme whilst enabling the use of taller turbines. This led to a reduction in the overall number of turbines from 18 to 12 and an increase in maximum tip height from 115 m to 149.9 m. Landscape architects worked closely with the project team to achieve a design at a scale that minimises the potential landscape and visual effects whilst maintaining economic viability. Several design workshops were undertaken which sought to eliminate any unacceptable landscape and visual effects of the Development.

2.3 POST SUBMISSION DESIGN EVOLUTION

As noted in **Chapter 1: Introduction** and **Chapter 4: EIA Methodology** of the SEI Report, following the submission of the Section 36 application for the Development, stakeholders were given an opportunity to provide comment on the application and EIA Report and consultation responses were received from various statutory and non-statutory bodies.

A key element of this process was feedback received from Historic Environment Scotland (HES) which has informed amendments to the design to form the SEI Layout. HES cited concern over the potential impact to the setting of the 'Whaup Law, cairn' Scheduled Monument. Their concern related only to Turbine 8 as this turbine was the closest in distance to the heritage asset. HES considered that the significance of the effect was sufficient to warrant an objection. Additional consultation took place with HES and the location of T8 was revised. It was suggested that T8 be re-sited 150 m south from the position assessed within the EIA Report. HES agreed that this design change would

¹ NatureScot (2017) Siting and Designing Wind Farms in the Landscape Version 3 [Online] Available at: <https://www.nature.scot/siting-and-designing-wind-farms-landscape-version-3a> (Accessed 01/11/2022)

resolve the concerns that gave rise to an objection. Plate 2.1 and 2.2 show the location of T8 as assessed in the EIA Report alongside the revised location. These wirelines were presented within the additional consultation to HES and helped to demonstrate that the re-siting would reduce the potential effect to setting.

There have been no changes made to the remaining eleven turbines. In addition to the change to the location of T8 and its associated infrastructure, the substation compound now makes allowance for two control buildings; one for the wind farm operator and one for the grid operator. For recent developments, grid operators have requested a separate building with transmission connections. Both buildings would be accommodated within the area previously identified for the substation compound. The two buildings are expected to be approximately 20 m x 7 m for the wind farm and 13 m x 20 m for the SPT building and can be seen in Figure 3.3 of the SEI Report. There is also an additional Temporary Construction Compound for use by SPT to the north of the site. The final design, layout and finishes of the substation buildings and substation compound would be subject to approval via a pre-construction planning condition.

The amendments to the design to form the SEI Layout are fully described in **Chapter 3: Project Description** of the SEI Report.

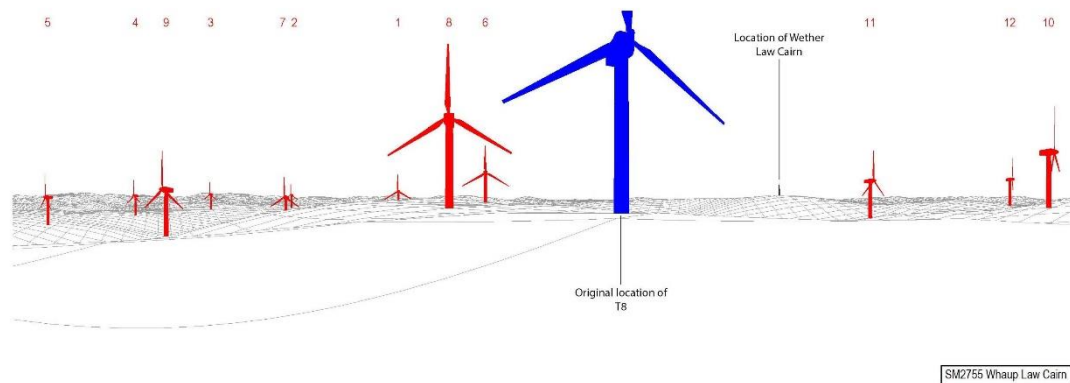


Figure A1: SM2755 Whaup Law Cairn T8 Comparison (180 degree field of view)

Plate 2.1 – Visualisation of EIA Report Layout with the SEI Layout from 'Whaup Law, cairn' towards 'Wether Law, cairn'.

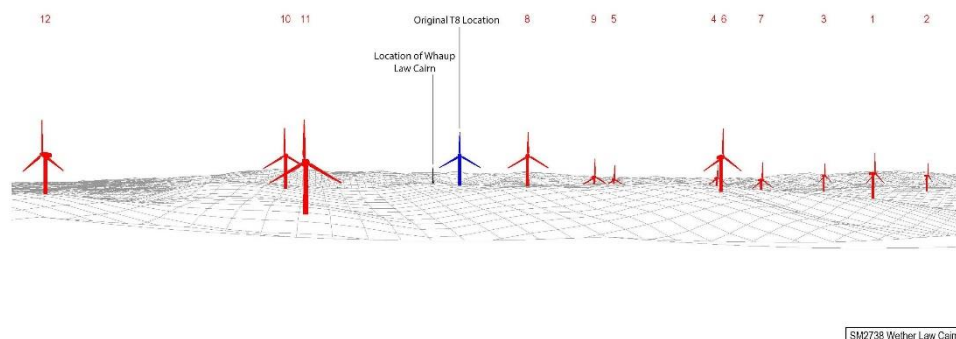


Figure A3: SM2738 Wether Law Cairn Comparison (120 degree field of view)

Plate 2.2 – Visualisation of EIA Report Layout with the SEI Layout looking from 'Wether Law, cairn' onto 'Whaup Law, cairn'.

The key iterations as described in **Chapter 2: Site Selection and Design** of the EIA Report and the above, are shown in Figure 2.3 of the EIA Report which demonstrates how the layouts have evolved throughout the EIA process. Figure 2.1 of the SEI Report shows the current SEI layout. Plates 2.1 and 2.2 demonstrate how the layout has evolved by focusing on views between 'Whaup Law, cairn' Scheduled Monument and 'Wether Law, cairn' Scheduled Monument. These changes are fully assessed within **Chapter 6: Archaeological and Cultural Heritage** and **Chapter 5: LVIA** of the SEI Report.

2.4 SUMMARY

Various economic, technical and environmental factors were considered in the iterative design process which are described in greater detail in **Chapter 2: Site Selection and Design** of the EIA Report. The design process has been informed through a variety of baseline environmental surveys as well as pre and post submission consultation with a range of stakeholders. Comments from HES following the submission of the EIA Report has led the Applicant to change the location of one turbine which is reflected in the SEI Layout presented and assessed within this SEI Report.

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Chapter 3
Project Description



3 PROJECT DESCRIPTION

3.1 INTRODUCTION

This chapter of the Supplementary Environment Information (SEI) Report details the changes from the Development assessed within the EIA Report, which result in the SEI Layout, and provides an update to the following parts of Chapter 3 of the EIA Report with all other EIA Report sections of this chapter remaining extant.

This Chapter of the SEI Report is supported by figures within Volume 2a: Figures excluding LVIA of the EIA Report and the following figures provided in Volume 2a: SEI Report Figures excluding LVIA.

- Figure 3.1a-d: Detailed Development SEI Site Layout. This figure supersedes Figure 3.1a-d of the EIA Report.
- Figure 3.2: Indicative Scottish Power Transmission Temporary Construction Compound. This is a new figure for the SEI Report, in addition to the EIA Report figures.
- Figure 3.3: Indicative Substation & BESS Compound. This figure supersedes Figure 3.6 of the EIA Report.
- Figure 3.4: Indicative Control Buildings & BESS Elevations. This figure supersedes Figure 3.7 of the EIA Report.

3.1.1 SEI Layout Overview

Section 3.2 of **Chapter 3: Projection Description** of the EIA Report provided an overview description of the Development. For the purposes of this SEI Report, this is now updated to reflect the SEI Layout (Figure 3.1a-d of the SEI Report).

The Development comprises a wind powered electricity generating station known as Cloich Forest Wind Farm with a generation capacity exceeding 50 MW. It will involve the construction and operation of a wind farm and associated infrastructure and include widening works along the main public road access, as described in Table 3.1 below.

The Development will comprise:

- Up to 12 wind turbines including external transformers and associated infrastructure including:
- Widening works along public road;
- A substation compound & two control buildings;
- An approximate 20 MW battery energy storage system (BESS); and
- Forestry felling.

The Development is located within Cloich Forest approximately 5.5 kilometres (km) north-west of Peebles ('the Site'). As the Site is currently used as a commercial forestry plantation with existing good quality forestry tracks, efforts have been made to utilise these existing tracks where possible. The components of the Development are summarised in Table 3.1 and shown on Figure 3.1a-d of the SEI Report.

Table 3.1 Key Parameters of the Development

Element	EIA Layout	SEI Layout
Turbines	<p>Up to 12 turbines with a maximum tip height of 149.9 m. Depending on the final turbine choice, a small transformer may be located at the base of each turbine.</p> <p>Each turbine will have a foundation with a diameter of approximately 24 m, with a depth of up to 3 m (Figure 3.3 of the EIA Report).</p>	<p>T8 and its associated infrastructure have been relocated 150 m to the south of the position assessed within the EIA Report.</p>
Public Road Access (D17 Whim – Shiplaw & D18 Cloich)	<p>From the junction with the A703, the route to the main body of the Site will be afforded via the 'D17 Whim – Shiplaw' & 'D18 Cloich' public roads.</p> <p>The Public Road Access consists of approximately 2.4 km of public road and will be subject to road widening works. The existing surfaced road's width varies between approximately 3 m and 5 m. The road upgrade works will create a width of at least 4.5 m along its length, suitable for the delivery of turbine components, and cranes. For much of the route, widening works can be carried out in the road verge, with some re-alignment of field boundaries where appropriate. The widening works are illustrated in Figure 3.1a-d of the SEI Report.</p>	<p>No change.</p>
Site Entrance	<p>The Site encompasses both the 'D17 Whim – Shiplaw' & 'D18 Cloich' public roads which lead to the Site Entrance located on existing forestry track, which will form part of the Onsite Access Tracks, at the western extent of the Site; additionally, there will be a Secondary Entrance in the eastern portion of the Site, which will be used by vehicles etc. already inducted via the Site Entrance at an earlier date.</p> <p>Figure 3.1a-d of the SEI Report illustrates both the Site Entrance and the Secondary Entrance.</p>	<p>No change.</p>
Onsite Access Tracks	<p>Onsite Access Tracks occur from the point at which public road (the D18 Cloich) ceases, as shown on Figure 3.1a-d of the SEI Report & Figure 1.3 of Chapter 1: Introduction of the EIA Report. The Onsite Access Tracks are served by two main access points, as described above.</p> <p>Onsite Access tracks within the wind farm will have a width of approximately 5 m, with the exception of the proposed new connecting track that is for light vehicle use only and connects the northern and southern areas of the Site (see Figure 3.1a-d of the SEI Report & Figure 3.9 of the EIA Report). This, approximately, 1.4 km long section of track will be constructed to Forestry and Land Scotland (FLS) Civils Specifications and will not be used for transporting oversized turbine components or cranes. It is anticipated to be 3 m wide.</p> <p>Access tracks will consist of approximately 7.6 km of existing forestry tracks (with some minor upgrading in locations), and approximately 8.2 km of newly constructed track.</p>	<p>Minor amendment to the location of the access track serving T8 following the relocation of this turbine.</p>

Element	EIA Layout	SEI Layout
Electrical Infrastructure	<p>Onsite cabling will be laid underground alongside the access tracks where possible, linking the turbine transformers to the wind farm control building and substation (Figure 3.5 of the EIA Report). Transformer units for wind turbines will be located in kiosks (3m x 2.5m x 2.5m) adjacent to turbines.</p> <p>A substation compound will be located at approximately NGR 320611, 649305 (Figure 3.1a-d of the SEI Report). The compound measuring approximately 100 m x 50 m will include a single storey control building, external electrical infrastructure, BESS components, recycling and storage, and vehicle parking etc. (Figure 3.3 of the SEI Report).</p>	<p>Minor change to the substation compound, which now contains 2 control buildings, one for the windfarm operator and one for the grid operator. The two buildings are expected to be approximately 20 m x 7 m for the wind farm and 13 m x 20 m for the SPT building, as shown on Figure 3.3 of the SEI Report.</p>
Battery Energy Storage System (BESS)	<p>An approximate 20 Megawatt (MW) BESS facility will be located within the substation compound, as shown on Figure 3.1a-d & Figure 3.3 of the SEI Report. It is proposed that the BESS will comprise of four 'energy storage units' (ESU), where one ESU contains:</p> <ul style="list-style-type: none"> • 2 x battery containers; • 1 x transformer; • 1 x HVAC Cooler; • A perimeter fence; and • Electrical cabling connecting to the nearby substation. 	<p>No change.</p>
Crane Hardstanding	<p>Crane hardstandings will be required adjacent to each turbine, this will consist of an area of approximately 1250 m² at each turbine (Figure 3.4 of the EIA Report).</p> <p>In addition to the main hardstanding area, there will be an auxiliary crane area which will consist of a temporary flattened area for crane assembly and turbine blade storage which will not be formed of hardstanding.</p>	<p>Minor amendment to the location of the crane hardstanding at T8 following the relocation of this turbine</p>
Temporary Construction Compound (TCC)	<p>A temporary construction compound will be required during the construction of the Development, forming an area of hardstanding providing space for temporary construction cabins, parking and lay down areas; this will measure approximately 100 m x 50 m and be located in the western area of the Site, at approximately NGR 320548, 649205 (Figure 3.1a-d of the SEI Report & Figure 3.8 of the EIA Report).</p>	<p>No change.</p>
Borrow Pits	<p>Up to two onsite borrow pits are proposed. One is located approximately 130 m north-east of T12, along one of the main access tracks into the Site and will extend an existing quarry; the second borrow pit is to be located in the west of the Site, approximately 170 m north of T5, and will extend a disused quarry.</p> <p>Given that the track layout reuses 7.6 km of existing access track, less aggregate will be required when compared to a typical wind farm of this size, and the use of both borrow pits may not be required.</p>	<p>No change.</p>

Element	EIA Layout	SEI Layout
Scottish Power Transmission (SPT) TCC	N/A	A TCC is required for SPT during construction of the Development to install the grid connection infrastructure. This will measure approximately 82 m x 60 m in the western area of the Site, at approximately NGR 320660.6, 649377.1 (Figure 3.1a-d and Figure 3.2 of the SEI Report).

The SEI Layout includes the relocation of T8 and its associated infrastructure 150 m to the south of the position assessed within the EIA Report. Additional forestry felling is required to accommodate this turbine relocation and to account for the increased footprint of the SEI Layout as a result of the additional SPT TCC. These details are further discussed in section 3.1.2.

3.1.2 Key Changes

The main changes to the Development, as detailed in the EIA Report, are set out in SEI Table 3.2 below.

Table 3.2: Key Changes

Key Changes
Re-siting of T8 approximately 150 m south, primarily to reduce impact to the setting on 'Whaup Law, cairn' Scheduled Monument.
Additional Temporary Construction Compound directly adjacent to the proposed BESS for use by SPT.
Provision for an additional control building at the substation compound. It is expected that the grid operator (SPT) will request a separate control building to the wind farm's control building.
Additional area is required for management and infrastructure felling, due to the relocation of T8 and additional TCC. In the EIA Report this was assessed as 200.25 ha. As a result of the turbine change the total required area is now 203.06 ha.

The SEI Layout has a slightly larger land-take than that which was presented in the EIA Report due to the additional TCC required for SPT required to install the grid connection infrastructure. Therefore, this change has been considered within the SEI Report, including a revision to vehicle numbers and material requirements.

The SEI Layout, as described above, is shown in Figure 3.1a-d of the SEI Report. SEI Table 3.3 specifies the indicative national grid reference and maximum tip height for each turbine; that one for which the position has been amended from the EIA Report is shaded in grey. The turbines will be subject to a micro-siting allowance as detailed below to ensure that their final position on the ground has some flexibility. There is also an additional TCC for use by SPT which would be restored to forestry use following completion of construction. This would be directly adjacent to the site of the proposed BESS.

The substation compound now makes allowance for two control buildings; one for the wind farm operator and one for the grid operator. Grid operators have requested a separate building in recent developments with transmission connections. Both buildings would be accommodated within the area previously identified for the substation compound. The two buildings are expected to be approximately 20 m x 7 m for the wind farm and 13 m x 20 m for the SPT building and of a similar design to the indicative control building illustrated in Figure 3.3 of the SEI Report. The final design, layout and finishes of the substation buildings and compound would be subject to approval via a pre-construction planning condition.

There are no changes to the dimensions of other infrastructure.

Table 3.3: Wind Turbine Approximate Grid Reference and Maximum Tip Heights

Turbine No.	EIA Report Easting	EIA Report Northing	SEI Report Easting	SEI Report Northing
1	319967	646980	319967	646980
2	320015	645991	320015	645991
3	320558	646130	320558	646130
4	320947	646570	320947	646570
5	321167	647062	321167	647062
6	320149	647527	320149	647527
7	320425	646942	320425	646942
8	320616	647950	320601	647801
9	320830	647414	320830	647414
10	320594	648446	320594	648446
11	320190	648389	320190	648389
12	320212	648875	320212	648875

As per the EIA Report, the installed capacity of the Development remains the same with a generation capacity exceeding 50 MW. Design parameters that affect individual technical assessments are set out in Chapter 4 of this SEI Report.

The SEI Layout will require the felling of approximately 203.06 ha of commercial coniferous crops which exceeds the felling area set out in the EIA Report of 200.25 ha.

3.1.3 Micro-siting

Micro-siting is discussed in section 3.2.11 of the EIA Report and the specifications set out in this section still remain valid for the SEI Layout. There is additional micro-siting mitigation provided for T3, this is further detailed in **Chapter 10: Hydrology and Hydrogeology** and **Chapter 18: Summary Mitigation** of the SEI Report.

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Chapter 4
EIA Methodology



4 EIA METHODOLOGY

4.1 INTRODUCTION

This Chapter of the Supplementary Environmental Information Report (SEI Report) explains the approach to reviewing the environmental effects associated with the SEI Layout and the consideration of EIA consultee responses received post-submission of the Environmental Impact Assessment Report (EIA Report). It should be read in conjunction with **Chapter 4: EIA Methodology** of the EIA Report.

4.2 PURPOSE OF THE SEI REPORT

The purpose of the SEI Report is to present the environmental assessment of likely significant effects resulting from the SEI Layout, and to update and supplement information presented in the EIA Report as appropriate.

4.3 ASSESSMENT METHODOLOGY

The broad assessment methodology used within the SEI Report remains as stated in the EIA Report.

The majority of technical assessment methods presented in the EIA Report remain valid; however, where different assessment methods have been used within the SEI Report to correspond with the latest guidance or assessment tools, these are highlighted within the individual technical chapters.

4.4 SIGNIFICANCE OF EFFECTS

The significance criteria used within the SEI Report remains as stated in the EIA Report. Each technical chapter within the SEI Report includes a description of the changes to the level of significance due to the design changes incorporated within the SEI Layout.

4.5 CONSULTATION

4.5.1 Consent Application

Following submission of the Cloich Wind Farm application for consent (ECU00003288), consultation responses were received from various statutory and non-statutory consultees.

Table 4.1 summarises the consultation responses received post submission where further actions were taken or further information has been presented in this SEI Report. Full responses can be found on the ECU portal.

Table 4.1: Consultee Responses – Action Taken

Consultee	Technical Area	Comments from Consultee	Response and Action Taken
SEPA 19 th August 2021	Hydrology and Hydrogeology (Chapter 10)	SEPA submitted a holding objection until additional information had been supplied on the private water supply of Stewarton. This objection related only to Turbine 3.	Ground water monitoring around Turbine 3 has been undertaken and reported in an updated Technical Appendix A10.1: Private Water Supply Risk Assessment of the SEI Report which has been submitted as an Appendix to the Chapter 10: Hydrology and

Consultee	Technical Area	Comments from Consultee	Response and Action Taken
			Hydrogeology of the SEI Report.
Historic Environment Scotland (HES) 16 th September 2021	Archaeology and Cultural Heritage (Chapter 6)	HES objected to the application as a result of the potential significant adverse impacts on the setting of the Scheduled Monument 'Whaup Law, cairn'. They identified that Turbine 8 was the closest to the Scheduled Monument and the most likely to impact its setting.	Further consultation with HES took place on 11 th November 2021. HES agreed that the objection could be lifted following the re-siting of T8 as has been incorporated in the SEI Layout where Turbine 8 has been moved 150 m south to reduce impacts on 'Whaup Law, cairn.'
Edinburgh Airport 22 nd August 2021	Aviation & Radar (Chapter 14)	Edinburgh Airport objected on the grounds that the Development conflicts with safeguarding criteria. An Instrument Flight Procedure (IFP) Assessment was requested before the objection could be lifted.	Edinburgh Airport have completed an initial IFP Assessment and there are ongoing discussions to resolve a potential issue with T8 that is likely to relate to an inaccuracy within the terrain data used. If an IFP Scheme is required then suitable mitigation will be designed and approved with Edinburgh Airport, the Civil Aviation Authority and NATS.
Defence Infrastructure Organisation (DIO) 1 st September 2021	Aviation & Radar (Chapter 14)	The DIO objected due to an alleged unacceptable impact on Eskdalemuir Seismological Recording Station where there is no additional seismic noise budget available.	Based on the SEI Layout, revised calculations for Eskdalemuir are provided in Technical Appendix A14.1: Eskdalemuir Desktop Budget Calculations of the SEI Report. This shows that the windfarm can operate within its Eskdalemuir budget allocated for the consented wind farm.
Peebles and District Community Council 22 nd September 2021	Hydrology and Hydrogeology (Chapter 10)	Raised no objection but were unhappy with the lack of consultation events and consideration for smaller settlements and their private water supply.	Ground water monitoring around Turbine 3 has been undertaken and reported in an updated Technical Appendix A10.1: Private Water Supply Risk Assessment of the SEI Report which has been submitted as an Appendix to the Chapter 10: Hydrology and Hydrogeology of the SEI Report. Details of pre-application consultation activities, which are considered to

Consultee	Technical Area	Comments from Consultee	Response and Action Taken
			be appropriate, are set out in the Pre-Application Consultation Report that was submitted alongside the S36 Application.
Manor, Stobo & Lyne Community Council 30 th September 2021	Hydrology and Hydrogeology (Chapter 10); LVIA (Chapter 5) and Socio-Economics, Land use, Recreation and Tourism (Chapter 15)	The consultee objects and was concerned about the local private water supply and the landscape implications of the Development. They were also concerned that the local socio-economic benefits are minimal.	Ground water monitoring around Turbine 3 has been undertaken and reported in an updated Technical Appendix A10.1: Private Water Supply Risk Assessment of the SEI Report which has been submitted as an Appendix to the Chapter 10: Hydrology and Hydrogeology of the SEI Report. Chapter 15: Socio-Economics, Land use, Recreation and Tourism of the EIA Report details effects to Socio-Economics including local benefits. The SEI Report concludes no additional effects arising from the relocation of T8.
Eddleston & District Community Council 30 th September 2021	Hydrology and Hydrogeology (Chapter 10) and LVIA (Chapter 5)	The consultee objects and was concerned about the local private water supply and the landscape implications of the Development.	Ground water monitoring around Turbine 3 has been undertaken and reported in an updated Technical Appendix A10.1: Private Water Supply Risk Assessment of the SEI Report which has been submitted as an Appendix to the Chapter 10: Hydrology and Hydrogeology of the SEI Report. Chapter 5: LVIA of the EIA Report details effects to landscape. The SEI Report concludes no additional effects arising from the relocation of T8.
Lamancha Newlands and Kirkcubbin Community Council 20 th October 2021	Hydrology and Hydrogeology (Chapter 10) and LVIA (Chapter 5)	The consultee objects and was concerned about the local private water supply and the landscape implications of the Development.	Ground water monitoring around Turbine 3 has been undertaken and reported in an updated Technical Appendix A10.1: Private Water Supply Risk Assessment of the SEI Report which has been submitted as an

Consultee	Technical Area	Comments from Consultee	Response and Action Taken
			Appendix to the Chapter 10: Hydrology and Hydrogeology of the SEI Report. Chapter 5: LVIA of the EIA Report details effects to landscape. The SEI Report concludes no additional effects arising from the relocation of T8.
Scottish Borders Council - Environmental Health (External Consultant: Carmichael Acoustics)	Noise (Chapter 11)	The consultee raised concerns regarding an error within the Chapter 11: Noise of the EIA Report in Table 11.9: Margin Between Predicted Noise levels and Noise Limits.	This error has been corrected and is reflected in Chapter 11: Noise of the SEI Report. This error had no effect on the outcome of the assessment.
Ironside Farrar 10 th November 2021	Geology, Ground Conditions and Peat (Chapter 9)	Requested that minor revisions to the PLHRA (PSRA) are made.	The PSRA has been revised to reflect the requested changes and is included as Technical Appendix A9.1 PSRA of the SEI Report.

Table 4.2 summarises the consultation responses received post submission where no further actions were required as a result of the SEI layout. Full responses can be found on the ECU portal.

Table 4.2: Consultation Responses – No Actions Required

Consultee	Technical Area	Comments from Consultee
Royal Society for the Protection of Birds (RSPB) 29 th July 2021	Ornithology (Chapter 8)	No objection.
National Air Traffic Services (NATS) 16 th July 2021	Aviation & Radar (Chapter 14)	No objection.
Transport Scotland 19 th August 2021	Traffic and Transport (Chapter 12)	Stated that they were satisfied that there will be no significant environmental impacts associated with increased construction traffic on the road network.
British Telecommunications (BT); 16 th July 2021	Other Issues: Telecommunications (Chapter 17)	No objection.
Scottish Water 12 th July 2021	Hydrology and Hydrogeology (Chapter 10)	No objection.
Crown Estate Scotland 15 th July 2021	Socio-Economics, Land use, Recreation and Tourism (Chapter 15)	No comments made.
British Horse Society 19 th July 2021	Socio-Economics, Land use, Recreation and Tourism (Chapter 15)	Generic comments; consultee noted that the Development is

Consultee	Technical Area	Comments from Consultee
		a good opportunity to improve access etc.
Scotways 30 th September 2021	Socio-Economics, Land use, Recreation and Tourism (Chapter 15) and LVIA (Chapter 5)	Objection on the ground of residential amenity and landscape.
Midlothian Council 22 nd October 2021	LVIA (Chapter 5) and Traffic and Transport (Chapter 12)	The council did not object but raised concerns regarding the local landscape implications of the site. They were also concerned about the increase in HGV movements that the development would bring to the local area.
NatureScot 25 th October 2021	Ecology (Chapter 7) and LVIA (Chapter 5)	No objection, comments relating to natural heritage and landscape implications. Especially regarding the Upper Tweeddale NSA and the River Tweed SAC.
Joint Radio Company 2 nd August 2021	Other Issues: Telecommunications (Chapter 17)	No objection.

4.6 ASSUMPTION AND LIMITATIONS

A number of assumptions have been made during preparation and production of this SEI Report, as set out below. The assumptions are:

- The principal land uses adjacent to the Site remain as they are at the time of writing, except in cases where permission has already been granted for a development. In these cases, it is assumed that the approved development will take place, and these have been considered within the assessment of “cumulative” effects in technical chapters where appropriate (cumulative cut-off date of 29th September 2022).
- Information provided by third parties, including publicly available information and databases, is correct at the time of publication.
- Baseline conditions are assumed to be accurate at the time of the physical surveys but, due to the dynamic nature of the environment, conditions may change over time and could be different during site preparation, construction, operational and decommissioning phases.

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Chapter 5
Landscape and Visual Impact Assessment



5 LANDSCAPE AND VISUAL IMPACT ASSESSMENT

5.1 INTRODUCTION

This Chapter of the Supplementary Environmental Information Report (SEI Report) evaluates the effects of the SEI Layout of the Cloich Forest Wind Farm (the Development) on the landscape and visual resource. This assessment was undertaken by Chartered Landscape Architects (Chartered Members of the Landscape Institute, or CMLI) at LUC (Land Use Consultants Limited).

This Chapter supplements **Chapter 5: Landscape and Visual Impact Assessment** and accompanying appendices of the EIA Report which should be read in conjunction with this chapter.

This Chapter of the SEI Report is supported by the figures contained in Volume 2b: LVIA Figures of the Landscape and Visual Impact Assessment (LVIA) of the EIA Report and the following updated figures contained in **Volume 2b: SEI Report LVIA Figures**, which replace those in the aforementioned volume:

- Figure 5.1.2a: Blade Tip Height (149.9 m) Zone of Theoretical Visibility (ZTV) (A3);
- Figure 5.1.2b: Blade Tip Height (149.9 m) Zone of Theoretical Visibility (ZTV) (A1);
- Figure 5.1.3a: Hub Height (83.4 m) Zone of Theoretical Visibility (ZTV) (A3); and
- Figure 5.1.3b: Hub Height (83.4 m) Zone of Theoretical Visibility (ZTV) (A1).

Accompanying comparative visualisations are provided in **Volume 2c: SEI Report LVIA Visualisations** and have been prepared in accordance with the methodology set out in Technical Appendix A5.1 to the LVIA contained in the EIA Report. Visualisations have only been updated where the change in position of T8 would be theoretically visible, or where there has been a change to visible cumulative wind farms. The visualisations presented in Volume 2c should be viewed alongside the original visualisations presented in the EIA Report in order to understand the amendments to the Development incorporated in the SEI Layout.

This Chapter of the SEI Report is supported by the following Technical Appendix documents provided in **Volume 3: EIA Report Technical Appendices** of the EIA Report:

- A5.1: LVIA Assessment Methodology;
- A5.2: ZTV and Visualisation Methodology; and,
- A5.3: Residential Visual Amenity Assessment (RVAA).

This chapter includes the following elements:

- Key Conclusions of the EIA Report;
- Changes to Legislation, Policy and Guidance;
- Methodology and Scope of Assessment;
- Consultation;
- Baseline Review and Update;
- Assessment of Potential Effects;
- Mitigation and Residual Effects;
- Cumulative Effect Assessment;
- Summary of Effects; and
- Statement of Significance.

5.2 KEY CONCLUSIONS OF THE EIA REPORT

The Landscape and Visual Impact Assessment (LVIA) presented in the EIA Report sets out the likely significant landscape and visual effects of the Development (up to 12 wind

turbines with a maximum blade tip height of 149.9 m) during construction, operation, and decommissioning, with reference to mitigation which was developed during the design and EIA process. The LVIA considered micro-siting of turbines (up to 50 m) and determined that this was unlikely to result in changes to predicted landscape or visual effects.

The LVIA also considered the possible cumulative landscape and visual effects arising from the Development in conjunction with other approved, under construction and proposed wind farms in the local area.

Landscape Effects

The Development would introduce wind turbines into the Plateau Outliers Landscape Character Type (LCT), a large-scale undulating landscape of moorland and coniferous forest. There are no operational wind turbines within this LCT, however the landscape is influenced by human development including wind farms outside of the LCT, forestry and development in neighbouring valleys. Overall sensitivity of the Plateau Outliers was considered to be medium.

Significant effects were predicted on the landscape resource of the Site itself (major) during construction and operation. Significant effects on landscape character were predicted for the Plateau Outliers (host LCT), Dissected Plateau Moorland, Rolling Farmland – Borders, Upland Fringe Rough Grassland and Pastoral Upland Valley LCTs. Although existing wind farms (notably Bowbeat approximately 7 km to the east of the Site) have influenced the character of some of these LCTs, the Development would extend this influence within the following area: northwards to Auchencorth Moss; eastwards across the Eddleston Valley as far as the summit of Dundreich; southwards as far as the summits of Black Meldon and White Meldon; and westwards to Whiteside Hill, Hag Law and Wether Law. A significant effect on landscape character would be experienced within this area.

Visual Effects

Potential visual receptors (people) within the LVIA Study Area include:

- Residents, including views from isolated properties, scattered communities or defined settlements;
- Road users (including those travelling on recognised tourist routes);
- Those engaged in recreational activities (e.g. hill walkers and cyclists); and
- People at their place of work, including agricultural workers.

Significant effects on views were predicted from 10 of the 26 representative viewpoints, all of which are located within 10 km of the Development. Major effects were predicted from Viewpoint 1: Cross Borders Drove Road (West) and Viewpoint 2: Cross Borders Drove Road (East), which are both locations on the long-distance route, immediately west and east of the Site, respectively, where close views of the Development would be experienced. Major effects were also predicted from Viewpoint 3: Old Post Road Core Path (east of Observatory), from a view which is representative of residents and walkers. In addition, major effects were predicted from Viewpoint 4: Black Meldon and Viewpoint 6: Core Path 154 near Eddleston which both represent views experienced by recreational receptors to the south and east of the Site, respectively.

Significant (moderate) effects were predicted from: Viewpoint 7 Minor Road near Spylaw and Wester Deans; Viewpoint 9 Portmore House; Viewpoint 16 Haswellsykes; Viewpoint 17 Glentress Forest, Makeness Kippis; and Viewpoint 19: Cademuir Hill Fort.

In terms of settlements, a significant (moderate) effect was identified at Eddleston, where properties in the more elevated eastern areas would have views of the turbines across the Eddleston Valley. No significant effects were identified at Romannobridge, West Linton, Dolphinton or Peebles.

Significant (moderate) effects would be experienced from localised sections of the A703, Meldons Road and the John Buchan Way. A significant (major) effect would be experienced from localised sections of the Cross Borders Drove Road which passes through the Site.

All these significant visual effects would be experienced within 10 km of the Site. From some receptors, the Development would be seen in successive views with Bowbeat Wind Farm in the Moorfoot Hills approximately 7 km to the east of the Site.

Effects on Residential Visual Amenity

The RVAA was included as Technical Appendix A5.3 to the LVIA in the EIA Report. The RVAA assessed effects at 12 residential properties within around 2 km of the nearest turbine. The RVAA concluded that the Development did not have the potential to affect overall 'living conditions' rendering any of the properties an unattractive place to live, and therefore did not breach the 'Residential Visual Amenity Threshold' set out in LI TGN 2/19¹.

Designated Landscapes and Wild Land

The Site is not within a designated landscape but is in proximity to several including the Upper Tweeddale NSA, approximately 3.5 km to the south of the nearest proposed turbine, and Tweed Valley SLA, approximately 2.4 km to the south-east of the nearest proposed turbine. Although significant effects on landscape character were identified from the fringes of these designated areas, the LVIA judged that the overall integrity and reasons for their designation would not be affected.

Cumulative Effects

Operational wind farms and those under construction were included as part of the baseline for the LVIA and considered as part of the primary LVIA assessment. Scenario 1 of the Cumulative Landscape and Visual Impact Assessment (CLVIA) considers the addition of the Development to a landscape with operational, under construction and consented wind farms. Scenario 2 of the CLVIA considered the addition of the Development to a landscape with operational, under construction, consented and undetermined valid planning applications.

The CLVIA focused on wind farms within 20 km of the Development, of which there were two consented schemes: Glenkerie Extension, a 6-turbine scheme (100 m to tip) located approximately 21 km to the south-west of the Development, alongside the operational Glenkerie Wind Farm; and Camilty Wind Farm, a 6-turbine scheme (149.9 m to tip) located approximately 17.5 km to the north-west.

The CLVIA concluded that Glenkerie Extension would be perceived to extend the influence of an existing wind farm across a small part of the Southern Uplands. Camilty Wind Farm would be perceived to extend the influence of other wind farms, notably Harburnhead and Pearie Law, across the upland fringes between the Pentland Hills and settled West Lothian lowlands. Given this, as well as the distance between the Development and both of these cumulative schemes, **no significant** cumulative landscape or visual effects were identified.

5.3 CHANGES TO LEGISLATION, POLICY AND GUIDANCE

The relevant legislation, policy and guidance listed in the LVIA in the EIA Report remain current, with the exception of NatureScot's guidance on assessing the cumulative

¹ Landscape Institute (2019) Technical Guidance Note 2/19 Residential Visual Amenity Assessment (RVAA)

landscape and visual impact of onshore wind energy developments², which was adopted in its final form in March 2021, but with no changes relevant to this assessment.

5.4 METHODOLOGY AND SCOPE OF ASSESSMENT

The LVIA methodology was prepared in accordance with the principles contained within GLVIA3³ and is described in detail in Technical Appendix A5.1 of the EIA Report. Technical Appendix A5.1 of the EIA Report should be referred to whilst reviewing the findings of this assessment in order to gain a clear understanding of how findings of significance have been informed.

5.5 CONSULTATION

Consultation responses of relevance to landscape and visual matters were received after submission of the EIA Report from NatureScot, Midlothian Council, Lamancha Newlands & Kirkurd Community Council, Eddleston District and Community Council, Manor Stobo Lyne Community Council, and ScotWays. A summary of these responses with respect to landscape and visual amenity are summarised in **Table 5.1** below.

Table 5.1: Post-submission Consultation Responses

Consultee	Type and Date	Summary of Post-submission Consultation Response	Response to Consultee
NatureScot	Letter dated 25 October 2021	NatureScot has not objected on landscape and visual grounds, but comments of relevance to the LVIA are summarised below. NatureScot considers that the proposal would adversely affect sensitive landscapes of the Upper Tweeddale National Scenic Area (NSA) by virtue of its location, scale and design, but will not compromise the objectives of the designation or its overall integrity. When compared to the previous proposal, NatureScot considers that both the increased vertical scale and horizontal extent of the development have intensified adverse landscape and visual effects within the surrounding area over and above what was found with the consented development.	No action required.
Midlothian Council	Letter dated 22 October 2021	Midlothian Council has not objected on landscape and visual grounds but have some concerns as follows. Notes widespread theoretical visibility from settlements in Midlothian (in particular at	No action required.

² NatureScot (2021). Guidance - Assessing the cumulative landscape and visual impact of onshore wind energy developments. [Online] Available at: <https://www.nature.scot/doc/guidance-assessing-cumulative-landscape-and-visual-impact-onshore-wind-energy-developments> (Accessed 07/10/2022)

³ Landscape Institute and the Institute of Environmental Assessment (2013), Guidelines for Landscape and Visual Impact Assessment, 3rd Edition (GLVIA3)

Consultee	Type and Date	Summary of Post-submission Consultation Response	Response to Consultee
		<p>Penicuik, Howgate and Silverburn), as well as houses in the Leadburn-Wellington area (as represented by LVIA viewpoint 13).</p> <p>Considers that the Development may affect the special qualities of the Gladhouse Reservoir and Moorfoots Scarp Special Landscape Area (SLA) in respect of views from the SLA; and the integrity of the Pentland Hills SLA, in respect of introducing a noticeable feature in views to and from the hills.</p> <p>Notes some concerns about the cumulative impact from the Development and other wind turbine developments, including the Bowbeat, Carcant and Dun Law wind farms on views from Midlothian to the South.</p>	
Lamancha Newlands & Kirkurd Community Council	Email dated 20 October 2021	Notes a previous objection to the original application for 18 turbines at 115m height to tip, and stated concerns about the increase in tip height and increased visibility of the turbines.	No action required.
Eddleston District and Community Council	Letter dated 30 September 2021	<p>Objects to the Development on the grounds of increased turbine tip height and landscape and visual impacts.</p> <p>Considers that the photography and visuals presented in the EIA have downplayed the level of landscape and visual impact and has based some assumptions on smaller turbine sizes of around 100 metres in height.</p>	The methodology for the production of visualisations in the EIA was based on current good practice guidance from NatureScot ⁴ and the Landscape Institute ⁵ .
Manor Stobo Lyne Community Council	Email dated 30 September 2021	<p>Objects to the Development on the grounds of its impact on the Upper Tweeddale NSA, a landscape of national significance.</p> <p>Considers that the photomontages presented in the EIA downplay the significance of the visual impact of the Development.</p>	The methodology for the production of visualisations in the EIA was based on current good practice guidance from NatureScot ⁴ and the Landscape Institute ⁵ .

⁴ Scottish Natural Heritage (2017). Visual Representation of Wind Farms, Version 2.2.

⁵ Landscape Institute (2019). Technical Guidance Note 06/19 Visual representation of development proposals.

Consultee	Type and Date	Summary of Post-submission Consultation Response	Response to Consultee
Scottish Rights of Way and Access Society (ScotWays)	Letter dated 30 September 2021	Objects to the Development on the grounds of recreational amenity, and also notes some concerns about cumulative wind farm development.	No action required.

The SEI Layout has sought to address the key concern of Historic Environment Scotland (HES) which is detailed in **Chapter 2: Site Selection & Design** of the SEI Report. These changes were informed by initial email dialogue between the Applicant and HES in November 2021, followed by a design workshop held via video conference in November 2021 where HES' concerns were explored in further detail between the LUC team and the Applicant.

5.6 BASELINE REVIEW AND UPDATE

The landscape and visual baseline remains similar to that within the EIA Report. Therefore, the baseline conditions presented in Section 5.4 within **Chapter 5: LVIA** of the EIA Report remain valid and form the basis of the assessment presented in Section 5.7 of this SEI Report.

Figures 5.1.2a-b and 5.1.3a-b of the SEI Report illustrate the updated theoretical visibility of the wind turbines of the SEI Layout to blade tip height (149.9 m) and hub height (83.4 m) respectively. Theoretical visibility of the SEI Layout remains very similar to that of the EIA Layout, with any changes in theoretical visibility being barely perceptible across the Study Area. An analysis of the visibility of the Development is set out in Section 5.6.2 of **Chapter 5: LVIA** of the EIA Report.

Changes to the cumulative baseline are set out in Section 5.9: Cumulative Effect Assessment.

5.7 ASSESSMENT OF POTENTIAL EFFECTS

The assessment of landscape and visual effects follows the methodology set out in detail in Technical Appendix A5.1 of the EIA Report and is based upon the project description for the SEI Layout outlined in **Chapter 3: Project Description** of the SEI Report. Key changes to the design, comprising the SEI Layout, are outlined in **Chapter 2: Site Selection and Design** of the SEI Report.

As only T8 will be moving for the SEI Layout, and this will move approximately 150 m further south of its position within the EIA Report layout, landscape and visual effects during construction, and effects on landscape character during operation are expected to remain unchanged from those detailed in the EIA Report. For this reason, these elements are scoped out of this updated assessment. Additionally, as the proposed relocation of T8 is minor in terms of distance, any changes in effects on visual receptors in settlements and travelling along routes will be minimal and are judged to be imperceptible. These receptors have also been scoped out of the assessment.

As T8 is moving south, parallel to the track which was assessed as part of the Development, no substantial additional track will be required for the SEI Layout. One short spur off the main track to the turbine hardstanding will be required, however this is not expected to be visible in views due to surrounding forestry.

In addition, the SEI Layout includes an additional control building within the substation compound and a new temporary construction compound adjacent to the BESS. An additional area (2.81 ha) of felling is required around relocated T8 and the additional

temporary construction compound, as shown in Figures 13.1 to 13.3 of the SEI Report. These changes will not however be perceptible from the LVIA viewpoints.

Table 5.2 below provides a summary of the effects detailed in the LVIA for each of the viewpoints, with an updated assessment for the proposed SEI Layout.

Table 5.2: Summary of Effects

Receptor	Sensitivity of Receptor	Development Layout Magnitude of Change & Residual Effect	Revised Development Layout (with T8 relocated) Magnitude of Change & Residual Effect
Operational Effects on Views and Visual Amenity			
VP1: Cross Borders Drove Road (west)	High	High magnitude of change Major (adverse), significant effect (Detailed in Table 5.26 of the LVIA).	The re-location of T8 will not be visible from this viewpoint. Therefore, the magnitude of change will remain as high, resulting in a major (adverse) and significant effect.
VP2: Cross Borders Drove Road (east)	High	High magnitude of change Major (adverse), significant effect (Detailed in Table 5.27 of the LVIA).	See Figures 5.2.2a-c of the SEI Report. The slight relocation of T8 in the SEI Layout will remove the stacking between T8 and T5, but will increase stacking between T8, T9 and T11. However, the overall appearance of the SEI Layout will appear similar. Overall, the change in views from this location will be minimal and will not result in a change to the magnitude of change or significance of visual effect on receptors represented by this viewpoint. The magnitude of change will remain as high, resulting in a major (adverse) and significant effect.
VP3: Old Post Road Core Path (east of Observatory)	Medium	High magnitude of change Major (adverse), significant effect (Detailed in Table 5.28 of the LVIA).	See Figures 5.2.3a-d of the SEI Report. The slight relocation of T8 will result in some stacking with T6. The relocation of T8 will also increase the gap to T10. Additional forestry felling required for the relocation of T8 will not be perceptible. However, overall the change in views from this location will be relatively small and will not result in a change to the magnitude of change or significance of visual effect on receptors represented by this viewpoint. The magnitude of change will remain as high, resulting in a major (adverse) and significant effect.

Receptor	Sensitivity of Receptor	Development Layout Magnitude of Change & Residual Effect	Revised Development Layout (with T8 relocated) Magnitude of Change & Residual Effect
VP4: Black Meldon	High	High magnitude of change Major (adverse), significant effect (Detailed in Table 5.29 of the LVIA).	See Figures 5.2.4a-e of the SEI Report. The slight relocation of T8 in the SEI Layout will be barely noticeable in views from this location. Additional forestry felling required for the relocation of T8 will not be perceptible from this viewpoint. Overall the change in views will not result in a change to the magnitude of change or significance of visual effect on receptors represented by this viewpoint. The magnitude of change will remain as high, resulting in a major (adverse) and significant effect.
VP5: Meldon Valley	Medium-High	Low magnitude of change Negligible, not significant effect (Detailed in Table 5.30 of the LVIA).	The re-location of T8 will not be visible from this viewpoint. Therefore, the magnitude of change will remain as low, resulting in a negligible and not significant effect.
VP6: Core Path 154 near Eddleston	High	High magnitude of change Major (adverse), significant effect (Detailed in Table 5.31 of the LVIA).	See Figures 5.2.6a-d of the SEI Report. The slight relocation of T8 in the SEI Layout will be barely noticeable in views from this location. Additional forestry felling required for the relocation of T8 will not be perceptible from this viewpoint. Whilst the relocation of T8 will slightly increase the spacing with T11 and result in additional forestry being felled, it will not result in a change to the magnitude of change or significance of visual effect on receptors represented by this viewpoint. The magnitude of change will remain as high, resulting in a major (adverse) and significant effect.
VP7: Minor Road near Spylaw and Wester Deans	Medium	High magnitude of change Moderate (adverse), significant effect (Detailed in Table 5.32 of the LVIA).	See Figures 5.2.7a-c of the SEI Report. The slight relocation of T8 in the SEI Layout will be barely noticeable in views from this location. The additional temporary construction compound, and the felling required for it, would not be perceptible from this viewpoint. The additional control building at the substation compound will not be perceptible.

Receptor	Sensitivity of Receptor	Development Layout Magnitude of Change & Residual Effect	Revised Development Layout (with T8 relocated) Magnitude of Change & Residual Effect
			<p>There will be no change to the magnitude of change or significance of visual effect on receptors represented by this viewpoint.</p> <p>The magnitude of change will remain as high, resulting in a moderate (adverse) and significant effect.</p>
VP8: B7059 between Boghouse/Kaimhouse	Low	<p>Medium magnitude of change</p> <p>Minor (adverse), not significant effect</p> <p>(Detailed in Table 5.33 of the LVIA).</p>	<p>See Figures 5.2.8a-b of the SEI Report.</p> <p>The slight relocation of T8 in the SEI Layout will be barely noticeable in views from this location and will not result in a change to the magnitude of change or significance of visual effect on receptors represented by this viewpoint.</p> <p>The magnitude of change will remain as medium, resulting in a minor (adverse) and not significant effect.</p>
VP9: Portmore House	High	<p>Medium magnitude of change</p> <p>Moderate (adverse), significant effect</p> <p>(Detailed in Table 5.34 of the LVIA).</p>	<p>See Figures 5.2.9a-c of the SEI Report.</p> <p>The slight relocation of T8 in the SEI Layout will be barely noticeable in views from this location.</p> <p>Additional forestry felling required for the relocation of T8 will not be perceptible from this viewpoint. Whilst the relocation will slightly increase the spacing with T10, it will not result in a change to the magnitude of change or significance of visual effect on receptors represented by this viewpoint.</p> <p>The magnitude of change will remain as medium, resulting in a moderate (adverse) and significant effect.</p>
VP10: A701 Mountain Cross	Medium	<p>Low magnitude of change</p> <p>Minor (adverse), not significant effect</p> <p>(Detailed in Table 5.35 of the LVIA).</p>	<p>The re-location of T8 will not be visible from this viewpoint.</p> <p>Therefore, the magnitude of change will remain as low, resulting in a minor (adverse) and not significant effect.</p>
VP11: A703 near Langside Farm (North of Peebles)	Medium	<p>Low magnitude of change</p> <p>Minor (adverse), not significant effect</p>	<p>See Figures 5.2.11a-b of the SEI Report.</p> <p>The relocation of T8 in the SEI Layout will increase the stacking between the cluster of turbines comprising T8, T5, T9 and T11.</p>

Receptor	Sensitivity of Receptor	Development Layout Magnitude of Change & Residual Effect	Revised Development Layout (with T8 relocated) Magnitude of Change & Residual Effect
		(Detailed in Table 5.36 of the LVIA).	Although the SEI Layout introduces more stacking, the overall change in views from this location will be minimal and will not result in a change to the magnitude of change or significance of visual effect on receptors represented by this viewpoint. The composition of views and the perception of stacking seen from the A703 in this area will alter as viewers move along the road. The magnitude of change will remain as medium, resulting in a minor (adverse) and not significant effect.
VP12: A702, approach to West Linton	Medium	Low magnitude of change Minor (adverse), not significant effect (Detailed in Table 5.37 of the LVIA).	See Figures 5.2.12a-d of the SEI Report. The slight relocation of T8 in the SEI Layout will remove the stacking between T8 and T11, helping to create a more balanced appearance in the SEI Layout. The composition of views and the perception of stacking seen from the A702 in this area will alter as viewers move along the road. Overall, the change in views from this location will be minimal and will not result in a change to the magnitude of change or significance of visual effect on receptors represented by this viewpoint. The magnitude of change will remain as low, resulting in a minor (adverse) and not significant effect.
VP13: A703 Lay-by	Low	Medium magnitude of change Minor (adverse), not significant effect (Detailed in Table 5.38 of the LVIA).	See Figures 5.2.13a-b of the SEI Report. The slight relocation of T8 in the SEI Layout will be barely noticeable in views from this location and will not result in a change to the magnitude of change or significance of visual effect on receptors represented by this viewpoint. The magnitude of change will remain as medium, resulting in a minor (adverse) and not significant effect.
VP14: B712 / Stobo Road	Medium	Low magnitude of change Negligible, not significant effect	The slight relocation of T8 in the SEI Layout will not be perceptible in views from this location due to the

Receptor	Sensitivity of Receptor	Development Layout Magnitude of Change & Residual Effect	Revised Development Layout (with T8 relocated) Magnitude of Change & Residual Effect
		(Detailed in Table 5.39 of the LVIA).	extensive screening provided by intervening vegetation. Overall, the relocation of T8 will not result in a change to the magnitude of change or significance of visual effect on receptors represented by this viewpoint. The magnitude of change will remain as low, resulting in a negligible and not significant effect.
VP15: Path near Wester Happrew Burn	High	Low magnitude of change Minor (adverse), not significant effect (Detailed in Table 5.40 of the LVIA).	See Figures 5.2.15a-b of the SEI Report. From this viewpoint, as with the Development Layout, most of the SEI Layout will be screened from view by intervening landform. The blade tip of T8 will be just visible above the horizon. The slight relocation of T8 in the SEI Layout will be barely noticeable in views from this location and will not result in a change to the magnitude of change or significance of visual effect on receptors represented by this viewpoint. The magnitude of change will remain as medium, resulting in a minor (adverse) and not significant effect.
VP16: Haswellskyles	Medium	Medium magnitude of change Moderate (adverse), significant effect (Detailed in Table 5.41 of the LVIA).	See Figures 5.2.16a-b of the SEI Report. The slight relocation of T8 in the SEI Layout will reduce the stacking between T8 and T10 in the Development Layout, however there would still be some overlap between these turbines in the SEI Layout. Overall, the change in views from this location will be minimal, and will not result in a change to the magnitude of change or significance of visual effect on receptors represented by this viewpoint. The magnitude of change will remain as medium, resulting in a moderate (adverse) and significant effect.
VP17: Glentress Forest, Makeness Kipps	Medium	Medium magnitude of change	See Figures 5.2.17a-c of the SEI Report. The slight relocation of T8 and additional forestry felling in the SEI Layout will be barely noticeable in

Receptor	Sensitivity of Receptor	Development Layout Magnitude of Change & Residual Effect	Revised Development Layout (with T8 relocated) Magnitude of Change & Residual Effect
		<p>Moderate (adverse), significant effect (Detailed in Table 5.42 of the LVIA).</p>	<p>views from this location and will not result in a change to the magnitude of change or significance of visual effect on receptors represented by this viewpoint. The magnitude of change will remain as medium, resulting in a moderate (adverse) and significant effect.</p>
VP18: A702, Dolphinton	High	<p>Low magnitude of change Minor (adverse), not significant effect (Detailed in Table 5.43 of the LVIA).</p>	<p>See Figures 5.2.18a-b of the SEI Report. The slight relocation of T8 in the SEI Layout will be barely noticeable in views from this location and will not result in a change to the magnitude of change or significance of visual effect on receptors represented by this viewpoint. The magnitude of change will remain as low, resulting in a minor (adverse) and not significant effect.</p>
VP19: Cademuir Hill Fort	High	<p>Medium magnitude of change Moderate (adverse), significant effect (Detailed in Table 5.44 of the LVIA).</p>	<p>See Figures 5.2.19a-d of the SEI Report. The slight relocation of T8 in the SEI Layout will slightly reduce the appearance of stacking. However, given the intervening distance the change will not be noticeable, and will not result in a change to the magnitude of change or significance of visual effect on receptors represented by this viewpoint. The magnitude of change will remain as medium, resulting in a moderate (adverse) and significant effect.</p>
VP20: Blackhope Scar	Medium	<p>Low magnitude of change Minor (adverse), not significant effect (Detailed in Table 5.45 of the LVIA).</p>	<p>See Figures 5.2.20a-e of the SEI Report. Given the distant nature of views, the relocation of T8 in the SEI Layout will be barely noticeable in views from this location and will not result in a change to the magnitude of change or significance of visual effect on receptors represented by this viewpoint. The magnitude of change will remain as low, resulting in a minor (adverse) and not significant effect.</p>

Receptor	Sensitivity of Receptor	Development Layout Magnitude of Change & Residual Effect	Revised Development Layout (with T8 relocated) Magnitude of Change & Residual Effect
VP21: Gladhouse Reservoir	High	Low magnitude of change Minor (adverse), not significant effect (Detailed in Table 5.46 of the LVIA).	See Figures 5.2.21a-b of the SEI Report. The relocation of T8 in the SEI layout will theoretically introduce stacking in views from this viewpoint. However, given the intervening distance, and the presence of the vegetated island in the foreground, T8 will not be visible in practice. It will not result in a change to the magnitude of change or significance of visual effect on receptors represented by this viewpoint. The magnitude of change will remain as low, resulting in a minor (adverse) and not significant effect.
VP22: Carnethy Hill	High	Low magnitude of change Minor (adverse), not significant effect (Detailed in Table 5.47 of the LVIA).	See Figures 5.2.22a-e of the SEI Report. Given the distant nature of views, the relocation of T8 in the SEI Layout will be barely noticeable in views from this location and will not result in a change to the magnitude of change or significance of visual effect on receptors represented by this viewpoint. The magnitude of change will remain as low, resulting in a minor (adverse) and not significant effect.
VP23: Stob Law	High	Low magnitude of change Minor (adverse), not significant effect (Detailed in Table 5.48 of the LVIA).	See Figures 5.2.23a-d of the SEI Report. Given the distant nature of views, the relocation of T8 in the SEI Layout will be barely noticeable in views from this location and will not result in a change to the magnitude of change or significance of visual effect on receptors represented by this viewpoint. The magnitude of change will remain as low, resulting in a minor (adverse) and not significant effect.
VP24: Bleak Law	High	Low magnitude of change Minor (adverse), not significant effect	See Figures 5.2.24a-d of the SEI Report. Given the distant nature of views, the relocation of T8 in the SEI Layout will be barely noticeable in views from this location and will not result in a change to the magnitude

Receptor	Sensitivity of Receptor	Development Layout Magnitude of Change & Residual Effect	Revised Development Layout (with T8 relocated) Magnitude of Change & Residual Effect
		(Detailed in Table 5.49 of the LVIA).	of change or significance of visual effect on receptors represented by this viewpoint. The magnitude of change will remain as low, resulting in a minor (adverse) and not significant effect.
VP25: Lee Pen	High	Low magnitude of change Minor (adverse), not significant effect (Detailed in Table 5.50 of the LVIA).	See Figures 5.2.25a-e of the SEI Report. Given the distant nature of views, the relocation of T8 in the SEI Layout will be barely noticeable in views from this location and will not result in a change to the magnitude of change or significance of visual effect on receptors represented by this viewpoint. The magnitude of change will remain as low, resulting in a minor (adverse) and not significant effect.
VP26: B7007 (northern edge of Moorfoot Hills)	Medium	Low magnitude of change Minor (adverse), not significant effect (Detailed in Table 5.51 of the LVIA).	See Figures 5.2.26a-c of the SEI Report. Given the distant nature of views, the relocation of T8 in the SEI Layout will be barely noticeable in views from this location and will not result in a change to the magnitude of change or significance of visual effect on receptors represented by this viewpoint. The magnitude of change will remain as low, resulting in a minor (adverse) and not significant effect.

In respect of effects of residential visual amenity, the relocation of T8 will not change the findings of the RVAA as set out in Technical Appendix A5.3 of the EIA Report. Updated wireframes have been provided from representative viewpoints RVAS1: Harehope (Figure 5.3.2a-b of the SEI Report) and RVAS2: Nether Stewarton (Figure 5.3.3a-c of the SEI Report). These wireframes illustrate minimal changes to the layout as seen by nearby residential receptors.

5.8 MITIGATION AND RESIDUAL EFFECTS

As set out in the methodology for the LVIA (Technical Appendix A5.1 of the EIA Report), mitigation of landscape and visual effects has been incorporated through design modifications and input to the design process. The design evolution is set out in **Chapter 2: Site Selection and Design** of the SEI Report. As most mitigation for landscape and visual effects is embedded within the final design for the SEI Layout, all effects identified in this chapter are residual effects.

5.9 CUMULATIVE EFFECT ASSESSMENT

Since submission of the S.36 application⁶ for the EIA Report layout proposed in June 2021 there have been some changes to the cumulative baseline.

Most of the cumulative changes have resulted from schemes previously assessed at 'Application Stage' in the EIA Report receiving consent. In addition, several new applications have come in, notably Greystone Knowe Wind Farm, Grayside Wind Farm and Junction 2a Dunfermline Wind Farm. For reference, the changes to the cumulative baseline are summarised in **Table 5.3** below, with key changes shown in **bold**.

The slight relocation of T8 will not have an effect on the cumulative relationship between the Development and other schemes. Given that the new proposed wind farms within the Study Area are over 17 km away from the Development, it is not deemed necessary to undertake a detailed update of the CLVIA. The updated cumulative baseline is shown in the visualisations provided in **Volume 2c: SEI Report LVIA Visualisations**.

Table 5.3: Changes to Other Wind Farm Developments (highlighted in bold)

Name	Status	Number of Wind Turbines	Blade Tip Height (m)	Distance (km) ⁷
Operational and Under Construction				
Bowbeat	Operational	24	80	6.9
Carcant	Operational	3	99.7	15.8
Muirhall South	Operational	3	147	18.6
Harburnhead	Operational	22	126	18.7
Muirhall Extension	Operational	2	147	19.1
Muirhall	Operational	6	125	19.4
Glenkerie	Operational	11	120	20.0
Pearie Law	Operational	6	125	20.9
Pates Hill	Operational	7	107	22.2
Burnhouse - Carnwrath	Operational	2	64	23.0
Toddleburn	Operational	12	125	24.2
Dun Law - Phase 2	Operational	35	75	25.8
Longpark	Operational	18	100	25.8
Clyde Extension	Operational	54	142	26.0
Tormywheel	Operational	15	102	26.0
Dun Law - Phase 1	Operational	26	63.5	27.1
Clyde	Operational	152	125	28.0
Black Law Extension Phase 1	Operational	23	126.5	28.6

⁶ A cut-off date of 26th January 2021 was applied for the inclusion of other wind energy developments within the cumulative assessment for the LVIA.

⁷ Approximate distance between the outermost turbines of the Development and other wind farms.

Name	Status	Number of Wind Turbines	Blade Tip Height (m)	Distance (km) ⁷
Pogbie Extension	Operational	6	74	28.6
Pogbie	Operational	6	76	28.7
Black Law	Operational	54	115.1	29.1
Keith Hill	Operational	5	76	29.4
Black Law Extension Phase 2	Operational	11	126.5	31.2
Langhope Rig	Operational	10	121.5	32.6
Torrance Farm Extension	Operational	2	125	33.2
Standhill Farm	Operational	2	84	33.6
Torrance Farm	Operational	3	125	33.8
Drumduff	Operational	3	120	36.8
Burnhead	Operational	13	127	37.2
Fallago Rig	Operational	48	125	37.6
Middle Muir	Operational	15	149.9	39.1
West Benhar	Under Construction	8	149.9	32.1
Consented				
Camilty	Consented	6	149.9	17.5
Glenkerie Extension	Consented	6	100	20.8
Pearie Law II	Consented	4	180	21.0
Longhill Burn	Consented	8	200	23.6
Heathland	Consented	14	180	24.0
Tormywheel Extension	Consented	2	126.5	27.1
Whitelaw Brae	Consented	14	133.5	28.3
Priestgill	Consented	7	200	31.4
Watsonhead Farm	Consented	2	150	35.1
Broken Cross	Consented	10	149.9	35.4
Broken Cross surface mine	Consented	2	55.7	36.3
Birkhill	Consented	2	98.14	37.4
Hartwood	Consented	7	126.5	37.4
Forrestfield	Consented	4	125	37.5
Crookedstane	Consented	4	126.5	39.2
Proposed and Appeal/ Public Inquiry				
Greystone Knowe	Application	14	180	17.7

Name	Status	Number of Wind Turbines	Blade Tip Height (m)	Distance (km) ⁷
Grayside	Application	21	200	25.2
Junction 2a Dunfermline	Application	2	131	39.1

5.10 STATEMENT OF SIGNIFICANCE

The overall significance of effects on the landscape and visual amenity of the Study Area will remain the same as that assessed in the EIA Report.

The relocation of T8 as part of the SEI Layout will result in minimal change in the appearance of the Development from all LVIA viewpoints around the Study Area. Overall, the magnitude of change and level of effect for the landscape and visual receptors considered within the assessment will remain the same as that set out in the EIA Report. Given the limited change in the layout, and the intervening distance (over 17 km) from new cumulative schemes, changes to cumulative effects will be barely perceptible, and remain as set out in the **Chapter 5: LVIA** of the EIA Report.

Whilst changes to the forestry felling schedule may be perceptible from some viewpoints, it would not change the magnitude of change or significance of effect previously identified within the EIA Report. Cloich Forest is a commercial plantation where felling and replanting is carried out periodically. Likewise, the addition of a new control building and temporary construction compound will be visible from one viewpoint (Viewpoint 7). However, these additions would not change the magnitude of change or significance of effect previously identified (moderate adverse and significant effects).

Due to the minimal change in location of one turbine (T8), effects on landscape character and receptors in settlements and along routes were scoped out of this updated assessment. The magnitude of change and level of effect identified for these remain the same as those identified in the LVIA.

The following significant visual effects will remain for the receptors at the following representative viewpoints:

- Viewpoint 1: Cross Borders Drove Road (West) - major (adverse) and significant effects;
- Viewpoint 2: Cross Borders Drove Road (East) - major (adverse) and significant effects;
- Viewpoint 3: Old Post Road Core Path (east of Observatory) - major (adverse) and significant effects;
- Viewpoint 4: Black Meldon - major (adverse) and significant effects;
- Viewpoint 6: Core Path 154 near Eddleston - major (adverse) and significant effects;
- Viewpoint 7 Minor Road near Spylaw and Wester Deans – moderate (adverse) and significant effects;
- Viewpoint 9 Portmore House – moderate (adverse) and significant effects;
- Viewpoint 14 Haswellsykes – moderate (adverse) and significant effects;
- Viewpoint 17 Glentress Forest, Makeness Kipps – moderate (adverse) and significant effects; and,
- Viewpoint 19: Cademuir Hill Fort – moderate (adverse) and significant effects.

CLOICH FOREST WIND FARM
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Chapter 6
Archaeology and Cultural Heritage



6 ARCHAEOLOGY AND CULTURAL HERITAGE

6.1 INTRODUCTION

This Chapter of the Supplementary Environmental Information Report (SEI Report) evaluates the effects of the SEI Layout on the archaeology and cultural heritage resource. It supplements **Chapter 6: Archaeology and Cultural Heritage** of the EIA Report which should be read in conjunction with this chapter. This assessment was undertaken by Arcus Consultancy Services Limited (Arcus).

This Chapter of the SEI Report is supported by the following supplementary Figures provided in Volume 2a: SEI Report Figures excluding LVIA:

- Figure 6.1 – SEI Layout and Scheduled Monuments;
- Figure 6.2 – SM2755 Whaup Law, cairn T8 Comparison;
- Figure 6.3 – SM2755 Whaup Law, cairn T8 Relocation;
- Figure 6.4 – SM2738 Whether Law Cairn T8 Comparison; and
- Figure 6.5 – SM2738 Whether Law Cairn T8 Relocation.

These figures have been provided in addition to those in the EIA Report.

This Chapter of the SEI Report is also supported by the following visualisations in Volume 2c: SEI Report LVIA Visualisations. Visualisations have only been updated where the change in position of T8 would be theoretically visible, or where there has been a change to visible cumulative wind farms. The visualisations presented in Volume 2c should be viewed alongside the original visualisations presented in the EIA Report in order to understand the amendments to the Development incorporated in the SEI Layout.

- Chapter 5: Landscape and Visual Impact Assessment (LVIA) Visualisations
 - Figure 5.2.4a-e: LVIA VP 4: Black Meldon (SM2703);
 - Figure 5.2.8a-b: LVIA VP 8: B7059 between Boghouse and Kaimeshouse (representative of Category A Listed Spitalhaugh House LB3861)
 - Figure 5.2.9a-c: LVIA VP 9: Portmore House (Garden and Designed Landscape); and
 - Figure 5.2.19a-d: LVIA VP 19: Cademuir Hill Fort (SM2441).
- Chapter 6: Archaeology and Cultural Heritage Visualisations
 - Figure 6.4a-d: Heritage VP 1: Milkieston Ring Forts (SM2416);
 - Figure 6.5a-d: Heritage VP 2: White Meldon (SM114);
 - Figure 6.6a-c: Heritage VP 3: Easter Dawyck Fort and Settlement (SM3049);
 - Figure 6.7a-d: Heritage VP 4: Whiteside Hill Fort (SM2955);
 - Figure 6.8a-b: Heritage VP 5: MacBeth's Castle (Wood Hill Fort, SM3056); and
 - Figure 6.9a-c: Heritage VP 6: Camp Hill Fort (SM1163).

This Chapter of the SEI Report is supported by the following supplementary Technical Appendix document presented in Volume 3: SEI Report Technical Appendices:

- A6.1 Post Application Historic Environment Scotland Consultation.

This Chapter is also supported by the following Technical Appendix documents formerly presented in Volume 3: EIA Report Technical Appendices:

- A6.1: Desk-Based Assessment;
- A6.2: Pre-Application Consultation and Responses; and
- A6.3: Setting Assessment.

This chapter includes the following elements:

- Key Conclusions of the EIA Report;

- Changes to Legislation, Policy and Guidance;
- Methodology and Approach;
- Consultation;
- Baseline Review and Update;
- Assessment of Potential Effects;
- Mitigation and Residual Effects;
- Cumulative Effect Assessment;
- Summary of Effects; and
- Statement of Significance.

6.2 KEY CONCLUSIONS OF THE EIA REPORT

The EIA Report was informed by a Desk-Based Assessment (DBA) which aided understanding of impacts on known (buried) archaeological remains within the Core Study Area (CSA), and the potential for unknown (buried) archaeological remains to be present. The CSA is defined as the site boundary (the Site), covering approximately 1,085 hectares (ha), centred on National Grid Reference (NGR) 320514 647192. The DBA revealed that the archaeological interest of the CSA is limited by existing forestry operations which is considered to have had a destructive effect on sub surface archaeology, and heavily truncate any previously unknown archaeological remains. Therefore, the archaeological interest of the CSA is focused around known records and along waterways. The archaeological remains recorded within the CSA and the wider 1 km Study Area relate to prehistoric settlement, defensive structures, and funerary practices as well as medieval to post-medieval agricultural activities.

A programme of archaeological work was recommended to include a watching brief for all works in proximity to Kilrubie Hill Ring Enclosures (SM2756) to ensure direct effects are not significant for the Development. Additionally, enhancement mitigation is embedded within the Development's forestry plan to remove trees from Kilrubie Hill Ring Enclosures (SM2756), to preserve surviving elements of the monument.

The EIA Report considered the potential effect of the turbines in relation to the setting of heritage assets beyond the CSA. The EIA Report identified twelve significant indirect (settings) effects at nine locations. These were generally concentrated at elevated hill forts including White Meldon (SM114, SM3075), Black Meldon (SM2703), Milkieston Rings fort (SM2416), Whiteside Hill (SM2955), Cademuir (SM2716, SM3044, SM3045), and Woodhouse (SM3051). Other significant effects in proximity to the site include at Whaup Law, cairn (SM2755) and at Green Knowe enclosures and barrows (SM2734). A localised significant effect in one view looking across Category A Portmore House (LB2037) was also identified. Other effects as a result of changes to setting were negligible to slight and not significant.

For designated heritage assets within the Site, the Development's forestry felling includes embedded enhancement mitigation for Kilrubie Hill Ring Enclosures (SM2756) and Whaup Law, cairn (SM2755). Kilrubie Hill Ring Enclosures (SM2756) is currently covered in forestry with this area to be felled and not replanted in order to preserve surviving elements of the monument. The top of Whaup Law would be felled and not replanted as part of the Development's forestry proposals in order to open up viewsheds from Whaup Law, cairn (SM2755) towards the wider landscape, most notably Wether Law (SM2738) Cairn to the north-west, which currently does not exist due to surrounding forestry.

Other designated heritage assets where significant effects were identified are not within the Site. Given that many of the most sensitive receptors are elevated prehistoric monuments such as hillforts, screening is not a viable option for mitigation. Where landowners agree to survey access, Light Detection and Ranging Survey (LIDAR) over key hill forts in the area would provide an opportunity to enhance the appreciation and

understanding of heritage assets, though would not change the assessment of residual effect of the Development.

No additional significant cumulative indirect (setting effects) from the Development and other wind farm developments is likely, therefore, any effect would result from the Development as assessed in isolation. All cumulative effects are considered to be **not significant**.

6.3 CHANGES TO LEGISLATION, POLICY AND GUIDANCE

There have been no changes to legislation, policy or guidance since the EIA Report, therefore, **Chapter 6: Archaeology and Cultural Heritage**, Section 6.2 Legislation, Policy and Guidance of the EIA Report remains valid.

6.4 METHODOLOGY AND APPROACH

The assessment methodology and significance criteria used within the SEI Report remain the same as stated within **Chapter 6: Archaeology and Cultural Heritage**, Section 6.3.6 of the EIA Report.

6.5 CONSULTATION

Consultation responses were received after submission of the EIA Report from Historic Environment Scotland (HES). A summary of their response with respect to archaeology and cultural heritage and how these responses have been addressed is provided in Table 6.1 below, full details are provided in Technical Appendix A6.1 of the SEI Report.

Table 6.1 Post Application Consultation Responses

Consultee	Summary of Consultation Response	Response to Consultee
Historic Environment Scotland (HES), 16 th September 2021	<p>HES object to the application because it raises impacts in the national interest on the setting of the scheduled monument known as Whaup Law, cairn (SM 2755). HES's concern is the impact of one specific turbine – T8, which would lie 200 m to the west of the monument in the EIA Report Layout.</p> <p>The proximity and scale of the turbine is such that it would impact the integrity of the setting of the cairn, adversely affecting its cultural significance. HES have concluded, therefore, that it is contrary to Scottish Planning Policy paragraph 145 and to Historic Environment Policy for Scotland, policy HEP 4.</p>	<p>Arcus provided a response to HES's objection on 11th November 2021 and detailed a proposed relocation of T8, which would form part of the SEI Layout.</p> <p>Arcus outlined the proposed relocation of T8 to NGR 320601, 647801 – located approximately 300 m southwest of SM2755, representing a ~150 m southward move from its originally proposed location, away from Whaup Law, cairn.</p> <p>Arcus sought feedback from HES as to whether this alternative location would enable HES to remove its objection.</p>
Historic Environment Scotland (HES), 3 rd December 2021.	<p>In its email response, HES outlined that the relocation of turbine 8 as demonstrated on 11th November 2021 consultation <i>"should allow us to remove our objection to the scheme, based on the information we have available. The new location proposed for Turbine 8 is similar to that of Turbine 9 of the previous (consented) scheme; a</i></p>	<p>The revised location of T8 has been incorporated in the SEI Layout and considered in this SEI Report.</p>

Consultee	Summary of Consultation Response	Response to Consultee
	<p><i>little higher in elevation and taller, but slightly further way from the monument. The potential setting impacts on the cairn from the current proposal are therefore likely to be very similar to that from the earlier consented scheme. We do not consider this impact to raise issues in the national interest and therefore would not object to the revised proposals.</i></p> <p><i>Please note that this is not a formal statement of our position. We will give this in full if and when we are consulted by ECU on this variation. However, we expect this to be our position based on the current information."</i></p>	

6.6 BASELINE REVIEW AND UPDATE

The Study Areas within the SEI Report remain the same as stated within **Chapter 6: Archaeology and Cultural Heritage** (Section 6.3.3) of the EIA Report.

There are no changes to the baseline, therefore, the Baseline Conditions presented in Section 6.4 within **Chapter 6: Archaeology and Cultural Heritage** of the EIA Report remain valid and forms the basis of the assessment presented in Section 6.8 of this SEI Report.

6.7 ASSESSMENT OF POTENTIAL EFFECTS

As detailed in **Chapter 3: Project Description** of the SEI Report, the SEI Layout includes a revised location for T8, as shown in Figure 6.1 of the SEI Report.

6.7.1 Construction Effects

The SEI Layout does not affect the assessment of direct or indirect construction effects, which remain as reported in Section 6.5.1 within **Chapter 6: Archaeology and Cultural Heritage** of the EIA Report. As detailed in Section 6.5.1 of the EIA Report, three Scheduled Monuments and 15 undesignated heritage assets lie within the CSA. As with the EIA Report Layout, these have been avoided in the SEI Layout, however, Kilrubie Hill Ring Enclosures (SM2756) and Grassfield Ring Enclosure (HER51667) lie in close proximity to the existing access track, with mitigation suggested in Section 6.6 of the EIA Report centred around a full survey of these features prior to construction, and dissemination of reporting.

The potential for direct effects upon unknown subsurface archaeology ranges from high to low across the CSA as detailed in the DBA (Technical Appendix A6.1 of the EIA Report). Should any unknown subsurface archaeological deposits survive within the Site, these have the potential to be damaged during construction. However, this is unlikely to be significant due to their undesignated status and level of disturbance associated with forestry operations.

6.7.2 Operational Effects

The SEI Layout has resulted in the relocation of Turbine 8 further to the south as detailed in **Chapter 3: Project Description** of the SEI Report and shown in Figure 6.1 of the SEI Report.

Due to the movement of the turbine, the assessment of operational effects within this SEI is focused upon those designated heritage assets in closest proximity as follows:

- Whaup Law, cairn (SM2755); and
- Wether Law Cairn (SM2738).

For the remaining heritage assets, the minor movement of the turbine would not result in a noticeable change to visibility. As such, the precautionary assessment in **Chapter 6: Archaeology and Cultural Heritage** of the EIA Report remains valid.

SM2755 Whaup Law, cairn

SM2755 Whaup Law, cairn					
Designation	Scheduled Monument	Sensitivity (Value)	High	Distance and Direction to Nearest Turbine	310 m SW of T8 (Figure 6.1 of the SEI Report)
Figure / Plate	Figures 6.1-6.5/Plate 1 of the SEI Report				
Summary of Asset and Cultural Significance	<p>The monument comprises a round funerary prehistoric cairn, approximately 12 m in diameter and 0.75 m in height on the summit of Whaup Law. At the summit, there is also a modern cairn marker, presumed to have been built from stone from the monument.</p> <p>The monument is culturally significant as it has the potential to enhance our understanding of funerary and ritual practices during the prehistoric period. Whilst stones may have been borrowed for the modern cairn, it is still largely intact with probable associated funerary archaeological deposits.</p>				
Definition of Setting and Contribution to Cultural Significance	<p>The most important setting elements of the cairn is its relationship with the surrounding landscape and likely contemporary prehistoric assets. The setting of the monument is its elevated position at the summit of Whaup Law, of similar elevation as summits to the north (Peat Hill, on which stands an undesignated cairn impacted by forestry), south (Ewe Hill) and west (Wether Law where another scheduled cairn is sited). Key setting views, although impacted by forestry, would be northwards and westwards towards other cairns, with more uninterrupted long distance views eastwards across the lower elevations and tributaries leading to Eddleston Water. These views and connections are no longer readily appreciable due to the surrounding commercial forestry plantation, which hinders the cairn's connection with the wider landscape.</p> <p>Due to the introduction of modern forestry plantation, coupled with landscape changes during the post-medieval and modern periods, the monument's current setting has been greatly altered, limiting to some extent the appreciation of the prehistoric landscape and connectivity to other prehistoric assets. The cairn is a substantial mound within a small clearance, therefore, views in all directions are screened by trees. As such, the contribution of setting to the cairn's cultural significance has been diminished as it is no longer a prominent feature in the modern landscape, with views from the hilltop obscured by forestry in various states of growth and felling which also limits views towards the cairn.</p>				
Scheme revision in relation to asset	<p>The SEI Layout has resulted in the relocation of T8 from NGR 320616, 647950, approximately 200 m west-southwest of the monument, to NGR 320601, 647801, located approximately 310 m southwest of the monument. Plate 1 illustrates the original and new location of T8, with the revised turbine location allowing for a c. 150 m move southward from the original application. This relocation also decreases the elevation for T8 down 10 m</p>				

SM2755 Whaup Law, cairn	
	Above Ordnance Datum (AOD) from 450 m AOD to 440 m AOD, and away off the crest of the hill on which Whaup Law, cairn SM2755 lies.
Magnitude of Change to Cultural Significance	<p>Through the relocation of T8, the proposed turbine position is now a further 100 m away (300 m in total) from the scheduled monument and located further south. A comparison of visualisations and wirelines (Figures 6.2-6.5 of the SEI Report) show that the relocated T8 would be further away from the cairn and less visually prominent, as it no longer shares the hill summit with the monument. This is a marked improvement to the layout, enabling Whaup Law, cairn to be the dominant feature upon the hilltop. The relocation to the south has also increased the gap between T8 and T6 to the south and T11 to the north, facilitating a wider field of view, resulting in greater visibility between Whaup Law and Wether Law Cairns as shown in Figures 6.2-6.5 of the SEI Report.</p> <p>As detailed in the EIA Report, the proposed forestry restocking plan includes mitigation for the cairn which would further open the forestry at the top of Whaup Law in order to re-establish the visual connection between the Whaup Law, cairn and Wether Hill Cairn.</p> <p>Whilst the turbines would still be a tall, modern addition to the forested landscape, the SEI Layout comprises fewer turbines than the consented wind farm, and sites turbines further from Whaup Law than in the consented wind farm and the EIA Report Layout, thereby lessening their perceived dominance from the hilltop and cairn.</p> <p>There would still be commercial forestry on the slopes of Whaup Law surrounding the monument, and the height of the turbines would change the appreciation and experience of the monument, however, the reduction in adjacent forestry would result in the benefit of a more open setting around the cairn, but within the context of a modern wind farm. On balance, the magnitude of change to the cultural significance is considered moderate.</p>
Statement of Significance of Effect	As a heritage asset of high sensitivity with a moderate change to cultural significance, there is a moderate effect upon the heritage asset as a result of the Development. This is significant in terms of the EIA Regulations.

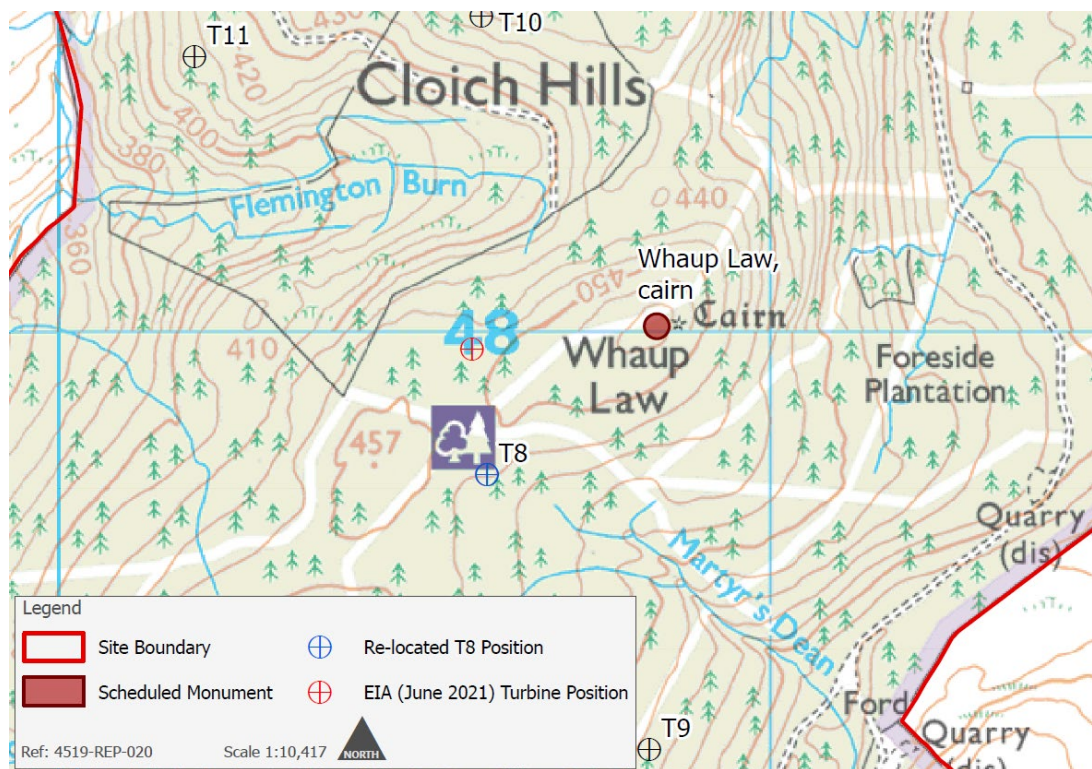


Plate 1 – Original and revised location of T8, in relation to Whaup Law.

SM2738 Wether Law Cairn

SM2738 Wether Law Cairn					
Designation	Scheduled Monument	Sensitivity (Value)	High	Distance and Direction to Nearest Turbine	720 m E T11
Figure / Plate	Figures 6.1-6.5/Plate 2 of the SEI Report				
Summary of Asset and Cultural Significance	<p>The monument comprises a large grass covered Bronze Age burial mound, measuring approximately 8 m in diameter and 0.6 m in height, and is located on the summit (479 m) of Wether Law to the west of Cloich Forest (Figure 6.1 of the SEI Report). Its elevation is slightly higher than Whaup Law and Peat Hill within the Site, circa 1 km to the east.</p> <p>The monument is culturally significant as it has the potential to enhance our understanding of funerary and ritual practices during the prehistoric period. Whilst stones may have been borrowed for the nearby modern cairn, it is still largely intact with probable associated funerary archaeological deposits.</p>				
Definition of Setting and Contribution to Cultural Significance	<p>The most important elements of setting for the cairn are its relationship with the surrounding landscape and likely contemporary prehistoric assets. The setting of the monument is its elevated position at the summit of Wether Law, with similar elevation to summits to the east (at Whaup Law, cairn SM2755 and Peat Hill on which stands another cairn impacted by forestry), south (Hag Law and Ewe Hill) and westwards (Romanno Mains SM2728 and SM2730). Key setting views are eastwards and southwards towards other cairns with more uninterrupted long distance views westwards towards the Lyne Water. These views and connections to the east are currently limited due to the commercial forestry plantation upon the Cloich Hills, which hinders the cairn's connection with this part of the landscape, most notably cairns on Peat Law and Whaup Law within the Site.</p>				

SM2738 Wether Law Cairn	
	Due to the introduction of modern forestry plantation to the north and east of the cairn, the surrounding landscape has been altered. Therefore, limiting the monument's current setting to some extent. The appreciation of the prehistoric landscape and connectivity to other prehistoric assets to the north and east through open views southwards and south-westwards remain unaffected.
Magnitude of Change to Cultural Significance	<p>The SEI Layout has resulted in the relocation of T8 further southwards from Whaup Law, cairn (SM2755). Comparative wirelines (Figures 6.2-6.5 of the SEI Report) show that the relocation of T8 has increased the gap between T8 and T6 to the south and T11 to the north so that there is a wider field of view available between Whaup Law cairn and Wether Law Cairns.</p> <p>Whilst this is a considerable improvement to the intervisibility between the two cairns, the turbines would still appear as dominant features in views eastwards from Wether Law Cairn due to their proximity as shown on Figures 6.4 and 6.5 of the SEI Report.</p> <p>The Development's forestry plan would open sightlines between Whaup Law and Wether Hill with the removal of forestry from the summit of Whaup Law, re-establishing the connectivity of the cairns within the landscape, albeit within the context of a modern wind farm and modern forestry plantation.</p> <p>Although opening the views to and from the asset improves the asset's connectivity to Whaup Law, cairn (SM2755), the dominance of the turbines still represents an appreciable change to the cultural significance of the monument, which remains moderate.</p>
Statement of Significance of Effect	As a heritage asset of high sensitivity with a moderate change in the experience of the heritage asset, there is a moderate effect upon the heritage asset as a result of the Development. This is significant in terms of the EIA Regulations.

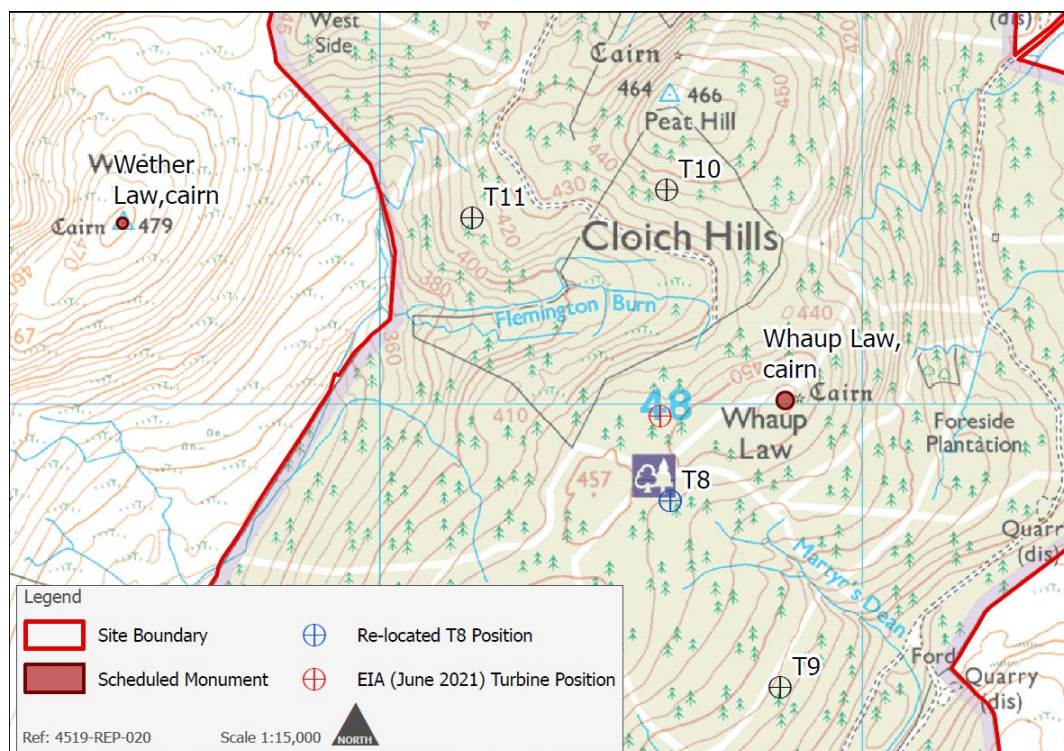


Plate 2 – Original (red) and revised location (blue) of T8, in relation to Wether Law.

6.8 MITIGATION AND RESIDUAL EFFECTS

The mitigation proposed in Section 6.6 in **Chapter 6: Archaeology and Cultural Heritage** of the EIA Report remains valid.

6.9 CUMULATIVE EFFECT ASSESSMENT

The cumulative assessment in Section 6.3.2.2 in **Chapter 6: Archaeology and Cultural Heritage** of the EIA Report identified **no significant** cumulative effects, and remains valid.

6.10 SUMMARY OF EFFECTS

Receptor	Potential Effect	Significance of Effect	Mitigation Proposed	Residual Effect
Construction Phase – no change from that presented in EIA Report				
Operational Phase				
Designated Heritage Assets	Changes to setting that affect cultural significance have been identified for 12 heritage assets at nine locations as detailed in Table 6.14 of the EIA Report. SM2755 Whaup Law, cairn and SM2738 Wether Law Cairn have been re-assessed in this SEI.	Significant	Whaup Law not to be replanted with forestry to open up viewshed from SM2755 Whaup Law, cairn. Enhancement measures to include LiDAR Survey, Community Outreach and Local Learning Resource	Significant
Whaup Law, cairn (SM2755)	There remains a moderate effect upon the heritage asset as a result of the SEI Layout.	Significant	No further mitigation is proposed	Significant
Wether Law Cairn (SM2738)	There remains a moderate effect upon the heritage asset as a result of the SEI Layout.	Significant	No further mitigation is proposed	Significant
Designated Heritage Assets	For all other heritage assets, changes to setting that affect cultural significance are negligible or minor.	Not Significant	No mitigation is proposed	Not Significant
Decommissioning Phase – no change from that presented in EIA Report				

6.11 STATEMENT OF SIGNIFICANCE

Effects are considered to be significant for the purposes of the EIA Regulations where the effect is classified as being of 'major' or 'moderate' significance.

There are considered to be **no significant** direct effects upon known archaeological features with a low potential to encounter unknown remains due to forestry operations within the Site. Therefore, the assessment in Section 6.5 in **Chapter 6: Archaeology and Cultural Heritage** of the EIA Report remains valid.

There are considered to be twelve likely **significant** indirect (settings) effects upon cultural heritage receptors in the surrounding environment as a result of the SEI Layout.

The SEI Layout has moved T8 further from Whaup Law to lessen its perceived dominance from the hilltop and cairn, moreover, the Development's forestry plan would open sightlines between Whaup Law and Wether Hill, with the re-establishing of the connectivity of views of the cairns within the landscape. Although this represents an improvement of intervisibility between the assets, there remains a moderate effect upon Whaup Law, cairn (SM2755) and Wether Law Cairn (SM2738) as a result of the Development. This is significant in terms of the EIA Regulations. No other cultural heritage receptors were reassessed within this SEI due to the nature of the design changes in the SEI Layout which would not result in a noticeable change. For these assets, the assessment in Section 6.5 in **Chapter 6: Archaeology and Cultural Heritage** of the EIA Report remains valid.

All cumulative effects are considered to be **not significant**.

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Chapter 7
Ecology



7 ECOLOGY

7.1 INTRODUCTION

This Chapter of the Supplementary Environmental Information Report (the SEI Report) evaluates the effects of the SEI Layout on the ecological resource. It supplements the previous **Chapter 7: Ecology** of the Environmental Impact Assessment Report (the EIA Report) which should be read in conjunction with this Chapter. This assessment was undertaken by Arcus Consultancy Services Limited (Arcus).

This Chapter of the SEI Report is supported by the Figures provided in Volume 2a: Figures excluding LVIA of the EIA Report. Additionally, this Chapter of the SEI Report is supported by the Technical Appendices A7.1 – A7.5 provided in Volume 3: EIA Report Technical Appendices of the EIA Report and the baseline data they contain remains valid and should be read in conjunction with this report.

This chapter includes the following elements:

- Key Conclusions of the EIA Report;
- Changes to Legislation, Policy and Guidance;
- Methodology and Scope of Assessment;
- Consultation;
- Baseline Review and Update;
- Assessment of Potential Effects;
- Mitigation and Residual Effects;
- Cumulative Effect Assessment;
- Summary of Effects; and
- Statement of Significance.

7.2 KEY CONCLUSIONS OF THE EIA REPORT

The EIA Report chapter assessed the likely significance of effects of the Development on ecology. Baseline ecology surveys including; Phase 1 Habitat, National Vegetation Classification (NVC), badger (*Meles meles*), otter (*Lutra lutra*), water vole (*Arvicola amphibius*) bat and fisheries surveys were carried out during the period of September 2019 to October 2020.

Following the collection of baseline data (both field and desk based), Important Ecological Features (IEFs) were determined as follows in accordance with Chartered Institute of Ecology and Environmental Management (CIEEM) guidelines for Ecological Impact Assessment (EcIA)¹:

- River Tweed Special Area of Conservation (SAC);
- River Tweed Site of Special Scientific Interest (SSSI);
- Atlantic salmon (*Salmo salar*);
- Brown trout (*Salmo trutta*);
- Brook lamprey (*Lampetra planeri*);
- River lamprey (*Lampetra fluviatilis*);
- Sea lamprey (*Petromyzon marinus*);
- Bats;
- Otter; and
- Badger

¹ CIEEM. (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. [Online]. Available at: <https://cieem.net/wp-content/uploads/2018/08/ECIA-Guidelines-Sept-2019.pdf> [Accessed 07/07/2022]

Following the implementation of embedded mitigation and good practice measures detailed within **Chapter 7: Ecology** of the EIA Report (and also mitigation presented within **Chapter 10: Hydrology and Hydrogeology** of the EIA Report to safeguard the water environment), no significant effects (in terms of the EIA Regulations) were predicted on any of the above IEFs.

7.3 CHANGES TO LEGISLATION, POLICY AND GUIDANCE

All legislation, policy and guidance listed in **Chapter 7: Ecology** of the EIA Report remains applicable.

7.4 METHODOLOGY AND APPROACH

The methodology and approach to assessment for the EIA are unchanged from those presented in Section 7.3.6 of **Chapter 7: Ecology** in the EIA Report.

7.5 CONSULTATION

Consultation responses were received after submission of the EIA Report from NatureScot. A summary of their response with respect to ecology and how these responses have been addressed are summarised in Table 7.1 below.

Table 7.1 Post Application Consultation Responses

Consultee	Summary of Consultation Response	Response to Consultee
NatureScot 25 October 2021	<p><u>European Site: River Tweed SAC</u></p> <p><i>"The proposal lies close to the River Tweed SAC. There is potential for construction-related pollution to affect the qualifying interests of the SAC. The proposal could be progressed with appropriate mitigation. However, because it could affect internationally important natural heritage interests, we object to it unless it is subject to conditions so that works carried out in accordance with the mitigation detailed in our appraisal."</i></p> <p><i>"Noting that watercourses on the development site feed into the nearby SAC, and given the potential for construction related pollution, our advice is that this proposal is likely to have a significant effect on qualifying interests of the SAC. Consequently, Scottish Ministers, as competent authority, are required to carry out an appropriate assessment in view of the conservation objectives for the qualifying interests of the site. To help you do this we advise that based on the information provided, our conclusion is that, if the proposal is undertaken in accordance with the following mitigation, it will not adversely affect the integrity of the site. The mitigation will reduce the risk of construction related pollution.</i></p> <p><i>We advise that a suitable condition is applied (or conditions are applied) to ensure implementation of the EIA report's various pollution prevention and environmental management measures, as summarised at Chapter 18 - Summary of Mitigation of the EIA report.</i></p> <p><i>We note that this will ensure the production of a Construction Environmental Management Plan, a</i></p>	<p>Planning conditions will be secured to ensure that the mitigation set out in the EIA Report is in place to protect the designated features of the SAC. See Chapter 10: Hydrology and Hydrogeology of the SEI Report for further detail on the mitigation including consultation with the Scottish Environmental Protection Agency (SEPA).</p>

Consultee	Summary of Consultation Response	Response to Consultee
	<p><i>Water Construction Environmental Management Plan and a Pollution Prevention Plan."</i></p>	
	<p><u>River Tweed SSSI</u></p> <p><i>"Similarly, in relation to the River Tweed SSSI the proposal could be progressed with mitigation. However, because the proposal could adversely affect natural heritage interests of national importance, we object to it unless it is made subject to the same mitigation measures (as for the SAC)."</i></p> <p><i>"The River Tweed SSSI boundary is not exactly the same as the SAC boundary. The SAC takes in many more of the tributary streams. The SSSI lies approximately 5km south of the development site. It is also designated for Atlantic salmon, three species of lamprey, and otter as well as particular assemblages of invertebrates and freshwater habitats and plants. We advise that, subject to the same mitigation measures (as are required for the SAC), the proposal will not have a significant effect on the notified features of the River Tweed SSSI."</i></p>	<p>Planning conditions will be secured to ensure that the mitigation set out in the EIA Report is in place to protect the designated features of the SSSI. See Chapter 10: Hydrology and Hydrogeology of the SEI Report for further detail on the mitigation including consultation with the Scottish Environmental Protection Agency (SEPA).</p>
	<p><u>Bats</u></p> <p><i>"To minimise the risk of bats colliding with operational turbines, the EIA report proposes a 50m buffer between blade tips and high-value bat habitats. As noted in the bats and wind farm guidance, this constitutes standard basic mitigation that, in practice, should be applied universally, including at key-holed sites.</i></p> <p><i>The bat guidance also recommends an additional form of mitigation, 'reduced rotation speed while idling', to help reduce bat mortality rates. In relation, it notes that: "The reduction in speed resulting from feathering compared with normal idling may reduce fatality rates by up to 50%. As this option does not result in any loss of output, as best practice, it is recommended wherever it is practically possible and there remains uncertainty over the risk posed to bats. It can be applied at any site with a blade pitch control system which can be automated using SCADA data."</i></p> <p><i>In this case, levels of bat activity have been assessed as low to moderate overall, albeit with variation across the site. Felling of the commercial forest for wind farm infrastructure will also create new edge habitats, and forestry restocking will create new habitats and edge features in the longer term. Therefore, noting that a level of uncertainty remains over the risk posed to bats, we recommend that, if practically possible, 'reduced rotation speed while idling' is applied as additional mitigation alongside 50m buffer mitigation."</i></p>	<p>A detailed HMP will be written and developed in full following consent, and in consultation with NatureScot and the Scottish Borders Council (the Council), where relevant. Additional recommended mitigation has been specified in Section 7.8 of this Chapter.</p>

7.6 BASELINE REVIEW

A summary of the surveys carried out in 2019/20 for the Development was presented in Section 7.4 of **Chapter 7: Ecology** in the EIA Report. There have been no further updates to the ecological baseline since the submission of the EIA Report.

In accordance with NatureScot guidance² some ecological survey data is now approaching the end of NatureScot's advised validity period for protected species data to inform a planning application. This is summarised in Table 7.2 below.

Table 7.2: Summary of Ecology Surveys & Validity Periods

Survey Completed	Surveys completed/Survey Period	NatureScot Validity
Protected Species Surveys (badger, otter and red squirrel surveys)	September 2020	2 years – October 2022
Protected Species Surveys (water vole and pine marten)	April to September 2020	2 survey periods – until before start of third survey period (April 2023)
Bat Surveys	April to October 2020	2 survey periods – until before start of third survey period (April 2023)

Although no further field surveys have been undertaken since the EIA Report was submitted, NatureScot advice was developed to ensure that the assessment process is informed by sufficiently up to date baseline data, particularly, for example, in the case that there is a delay in the initial planning application.

For this reason, survey data validity is only reasonably required to be considered at SEI stage in exceptional circumstances. For example, when there was a particularly sensitive receptor previously assessed that may require more robust consideration, or where there is likely to have been a considerable change in the baseline. For example, if an area previously recorded as coniferous plantation has undergone extensive clear felling changing its suitability to support protected species.

No changes in habitats or site use have occurred since the completion of the surveys. In addition, as outlined in the EIA Report, pre-construction Protected Species Surveys would be carried out to update the baseline post-consent to ensure protected species are sufficiently safeguarded.

In light of the above, the baseline data is considered sufficient and does not compromise the accuracy of the assessment presented in the EIA Report. As such baseline information remains as described within **Chapter 7: Ecology** of the EIA Report

7.7 ASSESSMENT OF POTENTIAL EFFECTS

The aim of the assessment is to determine whether the changes made to the Development, as outlined in **Chapter 1: Introduction** and **Chapter 3 Project Description** of the SEI Report, will result in any new effects, or change the significance of predicted effects upon IEFs previously assessed in **Chapter 7: Ecology** of the EIA Report.

In relation to ecological features, the main change, as exhibited by the SEI Layout, is the relocation of a turbine (T8) 150 metres (m) to the south and the inclusion of the Scottish Power Transmission TCC, as shown in Figure 2.1 of **Chapter 2: Site Selection and**

² NatureScot (2021) Planning and development: protected species. Available online at: <https://www.nature.scot/professional-advice/planning-and-development/planning-and-development-advice/planning-and-development-protected-species>. [Accessed 22/03/2022]

Design of the SEI Report. This turbine relocation and additional TCC will also require an additional area of felling. The SEI Layout will require the felling of approximately 203.06 ha of commercial coniferous crops, which exceeds the felling area set out in the EIA Report of 200.25 ha. Of this area, 71 ha will be permanently removed for turbine keyholing and tracks, with the remainder subsequently re-stocked with forestry. Further details relating to forestry management requirements are included in **Chapter 13: Forestry** of the SEI Report.

Whilst the nature of potential effects has not changed, the following sections update the assessment of potential effects due to the relocation of T8.

7.7.1 Construction Effects

The re-location of T8 and other infrastructure do not occur within disturbance buffers of any IEF (i.e. close to badger setts, otter holts or watercourses), so no change to construction disturbance or displacement effects are predicted.

Direct habitat loss for IEFs due to the construction of temporary and permanent infrastructure would still occur, and with an increased footprint, the effects of the SEI Layout would be slightly increased from those predicted for the Development in the EIA Report.

No habitats were identified as IEFs within the EIA Report, and the only habitat affected by the changes within the SEI Layout is conifer plantation, a habitat of low conservation value. As stated above, the SEI Layout will require the felling of approximately 203.06 ha of commercial coniferous crops, which exceeds the felling area set out in the EIA Report of 200.25 ha.

As the increase in direct habitat loss is relatively small, and consists entirely of commercial coniferous crops. The duration and nature of construction activities would also be similar and therefore it can be reasonably concluded that residual construction effects predicted for the Development will be unchanged for the SEI Layout.

The unmitigated effects on IEFs from construction are therefore classified as at worst, low magnitude and therefore **not significant** in the context of the EIA Regulations.

7.7.2 Operational Effects

The re-location of T8 and other infrastructure do not occur within disturbance buffers of any IEF (i.e. close to badger setts, otter holts or watercourses), so therefore no change to construction disturbance or displacement effects are predicted.

The effects of operation on IEFs would be no different than those stated within the previous EIA Report, which remain **not significant**.

7.7.3 Potential Decommissioning Effects

The effects of decommissioning on IEFs would be no different than those stated within the previous EIA Report, and therefore remain **not significant**.

7.7.4 Habitat Regulations Appraisal

As presented in Table 7.1, NatureScot has concluded that the Development could be progressed with appropriate mitigation. As it could affect internationally important natural heritage interests, mitigation to safeguard qualifying features associated with the River Tweed SAC (outlined in section 7.5 of **Chapter 7: Ecology** in the EIA Report) will be required and made subject to planning condition.

Although in the absence of mitigation there is potential for 'likely significant effects' on the SAC, and thus the requirement of an Appropriate Assessment, through appropriate

mitigation secured by a planning condition (see Section 7.8) an adverse effect on the site integrity of the SAC will be avoided.

7.8 MITIGATION AND RESIDUAL EFFECTS

The mitigation and enhancement measures outlined in Section 7.5 of **Chapter 7: Ecology** in the EIA Report remain appropriate and committed to by the Applicant. Enhancement measures include re-planting large areas of felled non-native Sitka spruce (*Picea sitchensis*) with native broadleaved woodland and the installation of bat boxes. These measures will contribute to meeting the aims of the Revised Draft National Planning Framework 4³, which requests that proposals will 'conserve, restore and enhance biodiversity'.

Embedded mitigation will be delivered, including the implementation of a 50 m separation distance between blade tips and high-value bat habitats, to be maintained throughout the operational life of the Development by ensuring that tree regeneration does not encroach on the buffer.

Additionally, to ensure the removal of NatureScot's objection to the potential for impacts to the River Tweed SAC and SSSI's qualifying features, it is proposed that the mitigation as outlined in **Chapter 10: Hydrology and Hydrogeology** of the EIA Report is secured by planning condition.

Consultation with NatureScot (see Table 7.1) has resulted in the recommendation that 'reduced rotation speed while idling' is incorporated into the Development. This is further detailed in the latest bat guidance⁴ which states "*The reduction in speed resulting from feathering compared with normal idling may reduce fatality rates by up to 50%. As this option does not result in any loss of output, as best practice, it is recommended wherever it is practically possible and there remains uncertainty over the risk posed to bats. It can be applied at any site with a blade pitch control system which can be automated using SCADA data.*". Therefore, it is proposed that during periods when bats are likely to be active (i.e. April to October inclusive, from 30 minutes prior to sunset to 30 minutes after sunrise), this mitigation will also be adopted in addition to the 50 m bat separation buffer that is applied to forestry edges in the project design.

As a result of the prescribed mitigation measures, the residual effects were reduced to, at most, minor adverse and **not significant** for all IEFs, and these are unchanged for the SEI Layout.

7.9 CUMULATIVE EFFECT ASSESSMENT

The cumulative effect assessment in Section 7.8 of **Chapter 7: Ecology** in the EIA Report evaluated the effects of the Development on IEFs, when considered alongside other reasonably foreseeable wind farm projects. It was concluded that the significance of cumulative effects on the relevant regional populations are negligible and **not significant**.

Data searches have not identified any changes in status of considered wind farm projects within 10 km of the Development, therefore no further cumulative assessment is considered necessary for the SEI Layout. As such the conclusions within the EIA Report remain unchanged (**not significant**).

³ Scottish Government (2022). National Planning Framework 4: revised draft. Available online at: <https://www.gov.scot/publications/national-planning-framework-4-revised-draft/pages/2/>. [Accessed 15/11/22].

⁴ NatureScot, Natural England, Natural Resources Wales, Renewable UK, ScottishPower Renewables, Ecotricity Ltd, the University of Exeter and the Bat Conservation Trust (2019): Bats and Onshore Wind Turbines: Survey, Assessment and Mitigation. Version: August 2021.

7.10 STATEMENT OF SIGNIFICANCE

The assessment for the SEI Layout has concluded that there would be no change to the levels of residual significance predicted for the Development in the EIA Report, either alone, or cumulatively with other wind farm projects and all effects remain **not significant**.

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Chapter 8
Ornithology



8 ORNITHOLOGY

8.1 INTRODUCTION

This Chapter of the Supplementary Environmental Information Report ('the SEI Report') evaluates the effects of the SEI Layout on the ornithological resource. It supplements the previous **Chapter 8: Ornithology** of the Environmental Impact Assessment Report ('the EIA Report') which should be read in conjunction with this Chapter. This assessment was undertaken by Arcus Consultancy Services Limited (Arcus).

This Chapter of the SEI Report is supported by the Figures provided in Volume 2a: Figures excluding LVIA of the EIA Report. Additionally, this Chapter is supported by Technical Appendices A8.1 – A8.5 provided in Volume 3: EIA Report Technical Appendices of the EIA Report as the baseline data they contain remains valid and should be read in conjunction with the SEI Report.

This Chapter includes the following elements:

- Key Conclusions of the EIA Report;
- Changes to Legislation, Policy and Guidance;
- Methodology and Scope of Assessment;
- Consultation;
- Baseline Review and Update;
- Assessment of Potential Effects;
- Mitigation and Residual Effects;
- Cumulative Effect Assessment; and
- Statement of Significance.

8.2 KEY CONCLUSIONS OF THE EIA REPORT

The EIA Report Chapter assessed the likely significance of effects of the Development on ornithology.

Following baseline surveys, Important Ornithological Features (IOFs) were determined as follows:

- Goshawk (*Accipiter gentilis*); and
- Crossbill (*Loxia* sp.)

Construction and operational effects were considered for each IOF. Construction effects included temporary and permanent habitat loss, and disturbance over a short-term construction period.

All effects on IOFs within and surrounding the Site were assessed as low or negligible magnitude following mitigation and are not significant in terms of the EIA Regulations.

8.3 CHANGES TO LEGISLATION, POLICY AND GUIDANCE

Since the publication of the EIA Report, an updated version of the UK's Birds of Conservation Concern list has been published¹. The status of all IOFs is unchanged despite this update. All other legislation, policy and guidance listed in **Chapter 8: Ornithology** of the EIA Report remains applicable.

¹ Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. 2021. The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. *British Birds* 114: 723-747. Available online at <https://britishbirds.co.uk/content/status-our-bird-populations>. [Accessed 07/10/22]

8.4 METHODOLOGY AND APPROACH

The methodology and approach to assessment for the EIA are unchanged from those presented in **Chapter 8: Ornithology** of the EIA Report (outlined in Section 8.3.7).

8.5 CONSULTATION

Consultation responses were received after submission of the EIA Report from NatureScot and the Royal Society for the Protection of Birds (RSPB) Scotland. A summary of their responses with respect to ornithology and how these responses have been considered in the assessment are summarised in Table 8.1.

Table 8.1 Post Application Consultation Responses

Consultee	Summary of Consultation Response	Response to Consultee
NatureScot 25 October 2021	It is unlikely that the Development will have a significant effect on any qualifying interests either directly or indirectly on the Gladhouse Reservoir Special Protection Area (SPA) and Westwater SPA. An appropriate assessment is therefore not required.	Noted.
	<i>"We note that it is proposed that a Breeding Bird Protection Plan (BBPP) will be developed to help safeguard breeding birds during all phases of the developments. Amongst other things the plan will include proposed pre-construction surveys for goshawk, given that it is a historic breeder within the site. The pre-construction surveys for goshawk will encompass areas of suitable nesting habitat within 500 m of proposed works, and we expect the BBPP will detail the need to apply appropriate buffers around any active nest, to avoid risk of an offence."</i>	All mitigation measures presented in Chapter 8: Ornithology of the EIA Report remain unchanged and include the recommendations detailed by NatureScot.
RSPB Scotland 29 July 2021	<i>"Given the very low flight activity and absence of foraging sites recorded through survey effort in 2019/20 and 2011/12, we would agree that there is likely no significant effect on the SPA from this proposal."</i>	Noted.
	<i>"We agree that given the status of breeding goshawk on site that pre-construction surveys will be required to identify nesting activity within 500 m of planned works in order to deploy the appropriate mitigation measures to prevent disturbance. We would advise that this buffer area is deployed between any nest site and construction activities for wind farm infrastructure during the breeding season and that this requirement is made part of any planning consent."</i>	All mitigation measures presented in Chapter 8: Ornithology of the EIA Report remain unchanged and include the recommendations detailed by RSPB.
	<i>"We would agree with the conclusions drawn that due to the low level of flight activity for curlew and other wader species and given the proposed location of this project within forestry, that this proposal does not pose a significant risk to breeding waders. However, we should highlight that the summary of the status of breeding curlew in Scotland is incorrect. Breeding curlew is a globally near-</i>	Noted.

Consultee	Summary of Consultation Response	Response to Consultee
	<p><i>threatened species undergoing rapid declines in the UK with population estimated at 58,500 birds in 2016. The population in Scotland was estimated as 35,533 birds in 2015. The reference of 58,800 cited in the EIAR as the Scottish population is therefore incorrect. Due to its status and continued decline, we do not agree with the statement that it is 'widespread and common' bird in Scotland. Furthermore, the evaluation does not use Natural Heritage Zone (NHZ) population estimates, which would be more relevant to assess feature status. The Border Hills NHZ population estimate for breeding curlew in 2015 was of 1,400 pairs. Based on this, the two to three pairs recorded within the 500m buffer of the proposed project boundary would be 0.2 to 0.4% of the NHZ population, although we would suggest that this impact would not be significant."</i></p>	
	<p><i>"We fully support the involvement of the local raptor study group in the monitoring of goshawk nest site success through post construction survey work.</i></p> <p><i>We would advise that given the low collision risk identified for all species that post construction monitoring to verify collision fatalities would not be necessary."</i></p>	<p>Noted.</p>

8.6 BASELINE REVIEW AND UPDATE

The Ornithology Study Area is the same as stated within **Chapter 8: Ornithology** of the EIA Report, as shown in EIA Figure 8.1.1 of Technical Appendix A8.1 of the EIA Report.

A summary of the surveys carried out in 2019/20 for the Development was presented in Section 8.4 of **Chapter 8: Ornithology** of the EIA Report. There have been no further updates to the ornithological baseline since the submission of the EIA Report, therefore the same baseline data has been used in this assessment. As the surveys were completed within the last five years, all baseline data for the EIA Report are still valid for this assessment².

8.7 ASSESSMENT OF POTENTIAL EFFECTS

The aim of the assessment is to determine whether the changes made to the Development, as outlined in **Chapter 1: Introduction** and **Chapter 3 Project Description** of the SEI Report, will result in any new effects, or change the significance of predicted effects upon IOFs previously assessed in **Chapter 8: Ornithology** of the EIA Report.

In relation to ornithological features, the main change, as exhibited by the SEI Layout, is the relocation of a turbine (T8) 150 metres (m) to the south, and additional Scottish Power Transmission Temporary Construction Compound (TCC) as shown in Figure 2.1 of **Chapter 2: Site Selection and Design** of the SEI Report. This turbine relocation and additional TCC will also require an additional area of management felling. The SEI Layout will require the felling of approximately 203.06 ha of commercial coniferous crops, which

² NatureScot (2017). *Recommended bird survey methods to inform impact assessment of onshore wind farms*, Version 2.

exceeds the felling area set out in the EIA Report of 200.25 ha. Of this area, 71 ha will be permanently removed for turbine keyholing and tracks, with the remainder subsequently re-stocked with forestry. Further details relating to forestry management requirements are included in **Chapter 13: Forestry** of the SEI Report.

Whilst the nature of potential effects has not changed, the following sections update the assessment of potential effects due to the relocation of T8.

8.7.1 Construction Effects

The re-location of T8 and other changes to infrastructure do not occur within disturbance distances of any IOF territories, so therefore no change to construction disturbance or displacement effects are predicted.

Direct habitat loss for IOFs due to the construction of temporary and permanent infrastructure would still occur, but with a slightly increased footprint. As such, the effects of the SEI Layout would be slightly increased from those predicted for the Development in the EIA Report.

The SEI Layout will require the felling of approximately 203.06 ha of commercial coniferous crops, which exceeds the felling area set out in the EIA Report of 200.25 ha. As the increase in direct habitat loss is relatively small and consists entirely of commercial coniferous crops, it can be reasonably concluded that residual construction effects predicted for the Development will be unchanged for the SEI Layout.

The unmitigated effects on each IOF's regional breeding population from construction are therefore classified as at worst, low magnitude, and **not significant** in the context of the EIA Regulations.

8.7.2 Operational Effects

The re-location of T8 and other infrastructure does not occur within disturbance distances of any IOF territories, so therefore no change to operational disturbance or displacement effects are predicted.

Collision Risk Modelling (CRM) has not been updated for the SEI Layout as the baseline data remains unchanged and the model used to calculate potential collisions for goshawk and curlew in Technical Appendix 8.4 of **Chapter 8: Ornithology** of the EIA Report was the random model³. The random model defines the Collision Risk Zone (CRZ) as the visible area within the Vantage Point (VP) viewsheds used for the Flight Activity Surveys (FAS) and, as this has not changed, there will be no change to collision risk. Therefore, there is no requirement to update the CRM for these species.

The effects of operation on IOFs would be no different than those stated within the previous EIA Report, which remain **not significant**.

8.7.3 Potential Decommissioning Effects

The effects of decommissioning on IOFs would be no different than those stated within **Chapter 8: Ornithology** of the EIA Report, and therefore remain **not significant**.

8.8 MITIGATION AND RESIDUAL EFFECTS

The mitigation and monitoring measures outlined in Section 8.6 of **Chapter 8: Ornithology** in the EIA Report remain appropriate and committed to by the Applicant. This includes the implementation of the BBPP which specifies the requirement to

³ The 'random model' is used where species flights are irregular/non-directional within the Survey Area, the 'direct model' is used where species show obvious directional flight patterns (e.g. between clearly defined and spatially distinct feeding areas and roosting or breeding sites)

undertake pre-construction surveys for goshawk and crossbill (and other breeding birds), and the protection of all nesting birds (see **Chapter 8: Ornithology** of the EIA Report, Section 8.4.5).

As a result of the prescribed mitigation measures, the residual effects were reduced to, at most, minor adverse and **not significant** for all IOFs, and these are unchanged for the SEI Layout.

8.9 CUMULATIVE EFFECT ASSESSMENT

The cumulative effect assessment in Section 8.9 of **Chapter 8: Ornithology** in the EIA Report evaluated the construction (habitat loss and disturbance) and operational (displacement and collision) effects of the Development on IOFs, when considered alongside other wind farm projects. It was concluded that the significance of cumulative effects on the relevant regional populations are negligible and **not significant**.

Data searches have not identified any changes in status of considered wind farm projects within 10 km of the Development, therefore no further cumulative assessment is therefore considered necessary for the SEI Layout. As such the conclusions within the EIA Report remain unchanged (**not significant**).

8.10 STATEMENT OF SIGNIFICANCE

The above assessment for SEI Layout has concluded that there would be no change to the levels of residual significance predicted for the Development in the EIA Report, either alone, or cumulatively with other wind farm projects and all effects remain **not significant**.

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Chapter 9
Geology, Ground Conditions and Peat



9 GEOLOGY, GROUND CONDITIONS & PEAT

9.1 INTRODUCTION

This chapter of the Supplementary Environmental Information Report (SEI Report) evaluates the effects of the SEI Layout on the Geology, Ground Conditions and Peat. It supplements the previous **Chapter 9: Geology, Ground Conditions & Peat** of the EIA Report which should be read in conjunction with this Chapter. This assessment was undertaken by Arcus Consultancy Services Limited (Arcus).

This chapter of the SEI Report is also supported by updates to the following Technical Appendix documents provided in Volume 3: SEI Report Technical Appendices:

- A9.1: Peat Slide Risk Assessment (PSRA).
- A9.2: Outline Peat Management Plan (oPMP).

A9.1 and A9.2 of the SEI Report supersede A9.1 and A9.2 of the EIA Report.

This chapter of the SEI Report includes the following figures in Volume 2a: SEI Report Figures excluding LVIA:

- Figure 9.1: Superficial Soils.
- Figure 9.2: Bedrock Geology.
- Figure 9.3: National Soils of Scotland.
- Figure 9.4: Extract from Carbon and Peatland 2016 Map.
- Figure 9.5: Interpolated Peat Depths.

Figures 9.1 – 9.5 of the SEI Report supersede Figures 9.1 – 9.5 of the EIA Report.

This chapter includes the following elements:

- Key Conclusions of the EIA Report;
- Changes to Legislation, Policy and Guidance;
- Methodology and Scope of Assessment;
- Consultation;
- Baseline Review and Update;
- Assessment of Potential Effects;
- Mitigation and Residual Effects;
- Cumulative Effect Assessment;
- Summary of Effects; and
- Statement of Significance.

9.2 KEY CONCLUSIONS OF THE EIA REPORT

The assessment for the Development in the EIA Report was based on a desk study, site surveys and consultation with SEPA. Embedded mitigation measures to reduce the effects of the Development upon geology, ground conditions and peat included a micro-siting limit of up to 50 m for turbines and other infrastructure, should there be encroachment on areas of deep peat.

Intrusive site investigations will be undertaken across infrastructure areas prior to construction, including turbine locations, which will provide an opportunity to further assess the extent and nature of any peat present.

Slope stability monitoring will occur focusing on steep topography, but primarily on locations deemed as being of risk in as detailed in Technical Appendix A9.1: PSRA of the SEI Report. Overall, the effects of peat instability were "**not significant**" in terms of the EIA regulations.

With the mitigation proposed, the significance of effects on peat disturbance can be reduced from minor to negligible and is “**not significant**” in terms of the EIA Regulations.

The EIA also concluded that loss of soils, compaction of peat and soils, and effects on geology were all “**not significant**” in terms of the EIA regulations.

9.3 CHANGES TO LEGISLATION, POLICY AND GUIDANCE

There have been no changes to Legislation, Policy and Guidance with respect to Geology, Ground Conditions and Peat since the EIA Report, therefore, **Chapter 9: Geology, Ground Conditions & Peat**, Section 9.2 Legislation, Policy and Guidance of the EIA Report remains valid.

9.4 METHODOLOGY AND APPROACH

The assessment methodology and significance criteria used within the SEI Report remain the same as stated within **Chapter 9: Geology, Ground Conditions & Peat**, Section 6.3 of the EIA Report.

Additional peat probing was undertaken at the revised T8 location, and the additional TCC.

9.5 CONSULTATION

Consultation responses were received following the submission of the EIA Report. A summary of responses relating to Geology, Ground Conditions and Peat are displayed in Table 9.4 along with how these responses have been addressed.

Table 9.4: Post Submission Consultation Responses

Consultee	Type of Response	Summary of Consultation Response	Response to Consultee
HES	Response to EIA Consultation	HES objected to the location of Turbine 8 (T8) due to its proximity to the Whaup Law, cairn Scheduled Monument.	T8 has been relocated to ensure that it is sufficiently removed from Whaup Law Cairn. A peat depth survey was carried out in the new T8 location, the results of this are included in Section 9.6 of this report.
Ironside Farrar	PSRA Checking Report	The PLHRA (PSRA) requires minor revisions: Although much of the PLHRA (PSRA) is sound, there are some key elements that are considered to be insufficiently robust to support the PLHRA (PSRA) conclusions and minor revisions are required. Areas of attention will be advised in the review of the findings and may be progressed by the developer through either an appendix to the original submission or by clarification letter. Recommendations requiring clarification from the Developer:	Please refer to the updated Technical Appendix A9.1: PSRA of the SEI Report.

Consultee	Type of Response	Summary of Consultation Response	Response to Consultee
		<ul style="list-style-type: none"> • Please provide the qualifications of the key persons. • Please provide some discussion on the aerial photography review and whether this affects any of the assessment. • Please confirm the resolution of the digital terrain model used to provide slope information and inputs to the assessment. • Please confirm the method of interpolation and any limitations this might have (e.g. over-estimating interpolation etc.). • Please confirm whether there is any artificial drainage on the site, and if so, how this might affect peat instability. • Please confirm how vegetation, hydrology and peat instability has been integrated into the assessment of likelihood and if these factors affect the robustness of the assessment. In the reporting, these elements are noted as factors requiring consideration, but do not appear to have been brought forward into the assessment/ calculation. • Please confirm what value has been used for the depth of the water table in the Factor of Safety (FoS) analysis. 	

9.6 BASELINE REVIEW

The core study area is the same as that outlined in **Chapter 9: Geology, Ground Conditions & Peat** of the EIA Report.

There has been no change to the published mapping referred to in the EIA Report, nor the land use in the Site, therefore there are no changes to the baseline conditions presented in Section 9.4 of the EIA Report.

An additional peat depth survey was carried out at the proposed new location for T8, probes were sunk at 10 m centres at the proposed turbine location and at locations specific to the layout of the revised hardstanding location. Probing was undertaken at the additional TCC area in a 25 m x 25 m grid.

The latest surveys comprised of 47 probes, bringing the total number of probes sunk on the Site to 1129 including surveys conducted during the EIA. The peat probe locations and interpolation map are shown in Figure 9.5 of the SEI Report, while further details of the peat probing can be found in Technical Appendix A9.2: oPMP of the SEI Report.

There were 34 probes sunk at the previous T8 location during earlier peat depth surveys conducted at the Site. Table 9.5 summarises the findings of the peat depth survey at the new location of T8 compared the findings of surveys at the previous location.

Table 9.5: Comparative Peat Depth Summary (50 m radius)

EIA Peat Depth Summary (initial T8 location)			SEI Peat Depth Summary (revised T8 location)		
Peat Depth Range (m)	Number of peat probes	Percentage of Total (%)	Peat Depth Range (m)	Number of peat probes	Percentage of Total (%)
<0.50	21	61.8	<0.50	29	100
0.51 - 1.00	10	29.4	0.51 - 1.00	0	0
1.01 - 1.50	2	5.9	1.01 - 1.50	0	0
1.51 - 2.00	1	2.9	1.51 - 2.00	0	0
TOTAL	34	-	TOTAL	29	-

The average peat depth recorded around the previous location of T8 was found to be 0.48 m, with 61.8% of probes recording 0.5 m or less and 91.2% at 1.0 m or less. The average peat depth at the revised T8 location was found to be 0.07 m, with 100% of probes recording a peat depth of 0.5 m or less.

The average peat depth recorded at the proposed TCC was 0.45 m, with over 77% of probes sunk in the area recording depths of less than 0.5 m. Taking all peat probe results from both the SEI and EIA into account, the average depth of peat across the Site is 0.26 m.

9.7 ASSESSMENT OF POTENTIAL EFFECTS

9.7.1 Overview

As detailed in **Chapter 3: Project Description** of the SEI Report, the revisions incorporated within the SEI Layout are:

- Relocating T8 and its associated infrastructure to ensure that it is sufficiently removed from Whaup Law, cairn;
- An additional TCC in the north of the Site.
- An additional control building at the substation compound; and
- An additional area of felling due to the relocation of T8 and additional TCC.

Although Geology, Ground Conditions and Peat were not the primary considerations for the changes made to the Development, the relocation of T8 has reduced the impact on peat in comparison to the EIA layout. Furthermore, the peat depths encountered beneath the proposed additional TCC were less than 0.5m and therefore also do not present any additional risks to Geology, Ground Conditions and Peat.

9.7.2 Construction Effects

9.7.2.1 Peat Disturbance

The SEI Layout includes the repositioning of T8 to an area of shallower peat than its previous location and the addition of a new TCC. Including a 10% bulking factor this collectively results in a peat disturbance reduction of approximately 3,035m³ as outlined in Table 9.6.

Table 9.6: Comparison of Peat Disturbance:

EIA – Estimated Peat Excavation Vol (m ³)	SEI – Estimated Peat Excavation Vol (m ³)
53,122	50,087

Therefore, in the absence of mitigation, the SEI Layout is considered to result in a potential minor effect that would be **not significant**, in terms of the EIA regulations showing no change from the EIA Report.

9.7.22 Peat Instability

The SEI Layout includes the relocation of T8 and its associated infrastructure to an area of shallower peat and an additional TCC in areas of very shallow peat therefore this reduces the risk of peat disturbance and in turn reduces the potential for peat instability.

The rest of the Development remains unchanged from EIA Report Layout. The EIA Report assessment found that the Development was of Low or Negligible risk while the analysis of the SEI Layout highlighted that the changes made to the design present negligible risk, and is therefore **not significant**, in terms of the regulations.

9.7.23 Loss and Compaction of Peat and Soils

The SEI Layout presents the relocation of T8 to an area of shallower peat than its previous location and the addition of a TCC at the north of the Site in areas of very shallow peat. This has resulted in a slight reduction in the impact of the Development on peat, which was already considered to be very low. The significance of effects of Loss and Compaction of Peat and Soils is consistent with those outlined in the EIA Report; confirming that the SEI Layout presents no additional risk and therefore, is **not significant** in terms of the EIA regulations.

9.7.24 Effects on Geology

Effects on Geology were assessed as being negligible in the EIA Report. The revisions made to the Development design produces minor increase in overall footprint which may require excavation although this would only be superficial and unlikely to impact geology. Therefore, the SEI Layout is considered to be **not significant** in relation to effects on geology.

9.7.3 Operational Effects

The EIA Report highlighted that there would be minimal or no impacts upon peat and soils during the operational phase and that no significant effects were anticipated.

During the operational phase, only constructed tracks and hardstand areas would be accessed, therefore there would be no potential impacts to peat.

This remains the case for the SEI Layout.

9.7.4 Decommissioning Effects

The EIA Report highlighted that decommissioning activities would be less intrusive with infrastructure in place for access meaning no or little requirement for further disturbance of peat. Therefore, **no significant effects** were anticipated during the Decommissioning phase and this remains the case for the SEI Layout.

9.8 CUMULATIVE EFFECT ASSESSMENT

The EIA Report concluded Geology, Soils and Peat is considered as a site-specific consideration and it is not anticipated that there will be cumulative effects, which remains the same for the SEI Report.

9.9 MITIGATION AND RESIDUAL EFFECTS

No additional mitigation is proposed as a result of the SEI Layout., Mitigation measures were set out in Section 9.7 of the EIA Report, which remain valid and will be applied to the SEI Layout. Information on mitigation are also included in Technical Appendix A9.1: Peat Slide Risk Assessment (PSRA) and Technical Appendix A9.2: Outline Peat Management Plan (oPMP) of the SEI Report.

The SEI Layout results in a slight reduction in the amount of peat disturbance in comparison to the EIA Report due to the relocation of T8 to an area of shallower peat. The EIA Report concluded that the risk of peat disturbance was minor and therefore **not significant** in terms of the EIA regulations. Residual effects associated with peat disturbance, peat stability and peat and soil losses are predicted to be negligible and therefore **not significant** in terms of the EIA regulations.

9.10 SUMMARY

The SEI Layout would result in a slight reduction in the impact of the Development on Geology, Soils and Peat.

Following the same mitigation methods outlined in the EIA Report and supplemented with the mitigation proposed in Technical Appendices A9.1: PSRA and A9.2: oPMP of the SEI Report, the effects are considered negligible and **not significant**.

9.11 STATEMENT OF SIGNIFICANCE

The effects on Geology, Ground Conditions and Peat associated with the SEI Layout are considered to be **not significant**.

This represents no change to the conclusions outlined in the EIA Report.

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Chapter 10
Hydrology and Hydrogeology



10 HYDROLOGY AND HYDROGEOLOGY

10.1 INTRODUCTION

This Chapter of the Supplementary Environmental Information Report ('the SEI Report') evaluates the effects of the Development on the hydrological and hydrogeological resource. It supplements the previous **Chapter 10: Hydrology and Hydrogeology** of the EIA Report which should be read in conjunction with this Chapter. This assessment was undertaken by Arcus Consultancy Services Limited (Arcus).

This Chapter of the SEI is supported by SEI Figures in Volume 2a: SEI Report Figures excluding LVIA. These Figures include:

- Figure 3.1 Detailed Development Site Layout Plan. This figure supersedes Figure 3.1 of the EIA Report; and
- Figure 10.1 Groundwater Dependent Terrestrial Ecosystems. This figure supersedes Figure 10.6 of the EIA Report.

Additionally, this Chapter is supported by Technical Appendix A10.1 'Supplementary Information for Private Water Supply Risk Assessment (PWSRA)' of the SEI Report, as well as Technical Appendix A10.2 'Private Water Supply Risk Assessment' of the EIA Report.

This Chapter of the SEI Report is also supported by the Figures provided in Volume 2a: Figures excluding LVIA of the EIA Report and the technical appendices provided in Volume 3: EIA Report Technical Appendices of the EIA Report as they are deemed relevant due to the layout and infrastructure changes. This is with the exception of the two figures outlined above, Figures 3.1 and 10.1.

This chapter includes the following elements:

- Key Conclusions of the EIA Report;
- Changes to Legislation, Policy and Guidance;
- Methodology and Scope of Assessment;
- Consultation;
- Baseline Review and Update;
- Assessment of Potential Effects;
- Mitigation and Residual Effects;
- Cumulative Effect Assessment;
- Summary of Effects; and
- Statement of Significance.

10.2 KEY CONCLUSIONS OF THE EIA REPORT

Chapter 10: Hydrology and Hydrogeology of the EIA Report assessed the likely significance of effects of the Development on hydrology and hydrogeology.

Potential Groundwater Dependent Terrestrial Ecosystem (GWDTE) communities identified through habitat surveys were assessed from a hydrological perspective to be not groundwater dependent (ombrotrophic).

In relation to Private Water Supplies (PWS), the Private Water Supply Risk Assessment (PWSRA) identified specific risks to properties with mitigation required for three supplies.

Embedded good practice construction methods provided in the outline Water and Construction Environmental Management Plan (WCEMP) (Technical Appendix A10.1 of the EIA Report) and a 50 m buffer of surface watercourses, where possible, along with specific mitigation for PWS, will be employed to reduce potential effects on the hydrological environment.

All effects on the hydrology and hydrogeology assets within and surrounding the Site were assessed as negligible or minor, following mitigation, and are not significant in terms of the EIA Regulations.

10.3 CHANGES TO LEGISLATION, POLICY AND GUIDANCE

The following guidance, legislation and information sources have been updated since the EIA Report submission in June 2021:

- The Water Environment (Controlled Activities) (Scotland) Amendment Regulations 2021 (the CAR Regulations¹);
- The Scottish Environment Protection Agency (SEPA) (2022), CAR – A Practical Guide, Version 9.1²; and
- SEPA (December 2021), River Basin Management Plan³.

Updates in Netregs Pollution Prevention Guidelines (PPGs) and replacement Guidance for Pollution Prevention (GPPs):

- GPP21: Pollution incident response planning⁴ (June 2021).

The changes in legislation and guidance above are minor in nature and will relate to pre-construction and construction phase activities, and do not change the impact assessment process.

10.4 METHODOLOGY AND APPROACH

There has been no change to the methodology and approach to assessment for hydrological and hydrogeological receptors from the EIA Report. However, further information has been gathered to update the PWSRA, which will be used to inform this assessment.

10.5 CONSULTATION

A summary of SEPA and Scottish Borders Council (SBC) consultation comments and responses following EIA submission with respect to Hydrology and Hydrogeology is provided in Table 10.1. It should be noted that the PWS Nether Stewarton is also referred to as Stewarton within both the SEI chapter and the updated PWSRA. Additionally, consultation has been undertaken with non-statutory consultees including community councils and public consultation. A summary of the consultees responses in relation to Hydrology, Hydrogeology and Private Water Supplies (PWS) can be found in Table 10.2.

Due to the length of consultation information, full detail on this consultation in relation to PWS is provided in **Technical Appendix A10.1** of the SEI Report. It should be noted some of this consultation relates to the site investigation works (and not the Development).

¹ SEPA (2022) The Water Environment (Controlled Activities) (Scotland) Amendment regulations 2021 [Online] Available at: <https://www.legislation.gov.uk/ssi/2021/412/body/made> (Accessed 12/08/2022)

² SEPA (2022) The CAR Practical Guide, Version 9. Available at: https://www.sepa.org.uk/media/34761/car_a_practical_guide.pdf (Accessed on: 12/08/2022)

³ SEPA (2021) River Basin Management Plan. Available at: <https://www.sepa.org.uk/environment/water/river-basin-management-planning/> [Available online] (Accessed: 12/08/2022)

⁴ SEPA (2021) GPP21: Pollution incident response planning [online] Available at: <https://www.netregs.org.uk/media/1436/gpp-21-final.pdf> (Accessed 12/08/2022).

Table 10.1 Post Application Consultation Responses

Consultee	Summary of Consultation Response	Arcus Response to Consultee
SEPA (19/08/2021)	<p>Initial post-submission response in addition to a holding objection regarding Stewarton PWS.</p> <p>Planning condition for monitoring at PWS Earlyburn (Observatory) and PWS Cloich Farm.</p> <p>Planning condition for works to be carried out in line with Chapter 18 Mitigation of the EIA Report.</p> <p>Planning condition for 50 m buffer of waterbodies and for oversized bottomless arched culverts or bridges.</p>	<p>Response dated (19/10/2021)</p> <p>Acknowledgement of SEPA response and clarification of information. The response also outlined that presence or absence of groundwater would be confirmed through Ground Investigation prior to construction. Provided within Annex E of Technical Appendix A10.1 of the SEI Report.</p>
SEPA (03/11/2021)	<p>SEPA request a site investigation and groundwater assessment at T3 location pre-determination to inform on the groundwater level and flow to answer uncertainties in the site conceptual model.</p>	<p>Response dated (11/11/2021)</p> <p>Arcus agree to undertake a site investigation and groundwater assessment and submit a technical note to establish scope of works.</p>
SEPA (16/11/2021)	<p>SEPA agree on scope of works for site investigation and methodology of groundwater monitoring.</p>	<p>Letter response dated (26/07/2022) (provided in Annex E of the PWSRA) confirms that site investigation works have now been completed at the proposed T3 location. This letter update includes a figure showing groundwater monitoring locations, groundwater monitoring data and the site investigation report.</p>
SEPA (12/08/2022)	<p>SEPA comment on the finding of the site investigation and highlight the key points:</p> <ul style="list-style-type: none"> • No further monitoring is required but applicant may wish to continue through the winter; • Additional permeability testing could be carried out in the winter or through a different testing method; • Comment required on the final siting of T3 in relation to different geological settings at BH01 and BH02; • Comment required on the productivity of the supply during summer period; and • Summer groundwater levels show depth is below turbine foundation depth and therefore predicted to have a Negligible impact on groundwater contribution to the PWS Nether Stewarton water supply yield. 	<p>Further information is provided within this SEI Report Chapter and updated Technical Appendix A10.1 Supplementary Information for Private Water Supply Risk Assessment of the SEI Report.</p>

Consultee	Summary of Consultation Response	Arcus Response to Consultee
<p>Energy Consents Unit (ECU) (21/12/2021)</p>	<p>The ECU were contacted by the residents at Stewarton in relation to the private water supplies and proposed ground investigation. The following questions were asked:</p> <ol style="list-style-type: none"> 1. What, in your view, are the potential risks of this site investigation work on the Stewarton PWS? 2. Prior to undertaking this site investigation work and assessment is the Applicant required to obtain any licences or authorisations prior to work commencing on site? If so from whom? 3. Is it necessary for this site investigation work by the Applicant be overseen or monitored by either SEPA or SBC or any other authorised body? 4. As far as ECU are aware no water monitoring or sampling of the Stewarton private water supply has been done to date nor has it been proposed as part of these intended works - Is it necessary to have an assessment of the current baseline of the water quality at these properties? How could a comparison be done in the event of a complaint arising by property owners claiming impacts due to the ground investigation works? Is this something SBC's EHO would be able to answer? 	<p>The request for information was sent to SEPA.</p>
<p>SEPA (19/01/2022)</p>	<p>In response to the Private Water Supply queries from ECU (dated 21/12/2021):</p> <ol style="list-style-type: none"> 1. The main risk is associated with the intrusive site investigations is the accidental spillage of lubricants, fuel and cooling liquid from the machinery used on site. The localised spill has the potential to reach the groundwater table and migrate downgradient. The drilling activity generates also suspended solids that potentially can reach water courses downstream in the vicinity of the drilling site if not properly contained. However, as the proposed monitoring sites are in a different surface water catchment area than the Stewarton PWS the suspended solids would not be a risk to the PWS. 2. The intrusive site investigations proposed are covered under The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended) (CAR). See the General Binding Rule (GBR) 3 in the CAR Practical Guide. No further authorisation is required by SEPA if GBR 3 rules are observed. 	<p>SEPA response to ECU (no Arcus input).</p>

Consultee	Summary of Consultation Response	Arcus Response to Consultee
	<p>3. No, the site investigation activities are undertaken without SEPA's supervision.</p> <p>4. An assessment of the water quality at the PWS is not necessary due to the location and the low risk of the proposed site intrusive investigations. A comparison of the water quality at the supply post-works would not be possible without a pre-works water analysis. It is recommended that a baseline monitoring of the PWS is undertaken as it is in the interest of the applicant to protect themselves from future complaints.</p> <p>Scottish Borders Council's Environment Health department usually perform water analysis of private water supplies used for human consumption. Records may be available from the Scottish Borders Council, however, these analyses may have been carried out sometime in the past (years) and may not be directly relevant to present.</p>	
<p>Scottish Borders Council (04/02/2022)</p>	<p>SBC response to ECU queries in relation to their views on the proposed site investigation works at T3, including a review of information to date.</p> <p>SBC state there is potential for impact to water quality and quantity however revert back to SEPA and their guidance. Confirms no licence, authorisation or monitoring required from SBC. SBC also recommend baseline monitoring at PWS Nether Stewarton.</p>	<p>Letter response dated (05/04/2022) (provided in Annex E of the PWSRA) confirms applicant view is that site investigation works pose a very low residual risk, with a number of mitigation measures in place such as risk assessment and method statements, supervision of works by an Ecological Clerk of Works (ECoW) and hydrologist.</p>
<p>Midlothian Council (22/10/2021)</p>	<p>"Midlothian Council notes that a Private Water Supply study area has been established on the basis of a 3km cordon from the core study area (Technical Appendix A10.2 Private Water Supplies). Midlothian Council considers this to be a reasonable approach. Figure 10.1 presents a map of the PWS study area which reduces this to 2km. It is unclear whether this is an error on the Figure 10.1 map key or if the actual study area has been reduced to a 2km radius. It will be necessary to have this discrepancy explained, and if necessary any additional identified private water supplies considered."</p>	<p>Figure 10.1 of the EIA Report included an error within the legend where a '2 km' study area was noted; the PWS survey area did extend to 3 km, in line with the EIA Chapter and Technical Appendix A10.2 of the EIA Report.</p>
<p>Peebles & District Community Council (22/09/2021)</p>	<p>"We are further concerned by the lack of consideration given to the smaller settlements, farms, businesses, and groups of houses. These settlements, etc. around Cloich, including Stewarton, Cringletie, Whitmuir and others, are mainly dependent</p>	<p>Small settlements were given due consideration within the Application documents, in relation to PWS.</p> <p>The Applicant is fully aware of the small settlements, such as</p>

Consultee	Summary of Consultation Response	Arcus Response to Consultee
	<p>on private water supplies which may be adversely affected by the development. These are dismissed in the non-technical overview as "isolated individual dwellings." This is both unsatisfactory and incorrect and they deserve the same consideration as larger settlements."</p>	<p>Stewarton, and has considered them fully within the EIA Report and SEI Report assessments/documents.</p>
<p>Manor, Stobo & Lyne Council (30/10/2021)</p>	<p>"Most of the properties within 2-3 km of the development rely upon private water supplies which are fed from springs in the Cloich Hills that may be affected by the civil works required to build the turbines. There are up to 40 properties including several farms that might be at risk if private water supplies are damaged. This was a major concern for the original development proposal and is significantly worsened for the much larger turbines proposed. The advisers acting on behalf of EDF-RE have done little to address this issue and appear to believe that they can rely upon poorly drafted conditions in the original planning consent. They have not been willing to give concrete and legally-binding guarantees"</p>	<p>All properties with potential PWS within the 3 km of the Proposed Development have been given consideration within the PWSRA found in Technical Appendix A10.2 of the EIA Report and Technical Appendix A10.1 of the SEI Report.</p>
<p>Eddleston & District Community Council (30/09/2021)</p>	<p>EDCC previously raised concerns about the potential impact on private water supplies to houses and farms in the immediate vicinity of the proposed scheme. This concern was upheld in the prior consented scheme, resulting in Condition 20, which states:</p> <p>"There shall be no commencement of development unless a method statement has been submitted to and approved in writing by the planning authority, detailing all mitigation measures to be delivered to secure the quality, quantity and continuity of water supplies to properties which are served by private water supplies at the date of this consent and which may be affected by the development....The approved method statement shall accord with SEPA guidance note 31 and shall thereafter be implemented in full. Reason: to maintain a secure and adequate quality water supply to all properties with private water supplies which may be affected by the development."</p> <p>Environmental Impact Assessment Chapter 10, paragraph 100 reveals a total of some 145 properties within the study area supplied by private water supplies. Paragraph 103 shows that the following, all within EDCC's boundary, "have the potential to be at risk":</p> <ul style="list-style-type: none"> • Earlyvale House • Upper Stewarton • Cloich Fram; • Foresthill (Woodbank) • Darnhall Mains and Whitelaw Burn 	<p>Technical Appendix A10.2 accompanying the EIA report and Technical Appendix A10.1 of the SEI Report fully assesses the risk to all PWS within the 3 km study area. These appendices identify potential hydrological connection to the Development, all potential risks to PWS and outline mitigation where appropriate.</p> <p>Small settlements were given due consideration within the Application documents, particularly in relation to PWS.</p> <p>The Applicant is fully aware of the small settlements, such as Stewarton, and has considered them fully within the EIA Report and SEI Report assessments/documents.</p>

Consultee	Summary of Consultation Response	Arcus Response to Consultee
	<ul style="list-style-type: none"> • Stewarton • Black Barony Home Farm • Earlyburn (Observatory) • Shiplaw and Shiphorn • Harehope A & B <p>We dispute the reference to these as "scattered individual dwellings" they are settlements, collections of houses, farms, businesses where real people and livestock live; and use water. We would urge Scottish Ministers to consider the extent to which householders have already – at their own expense – shown up large flaws in the developer's assessment of water sources and their relationship with dwellings and farm businesses. This work was conducted as part of the public inquiry into the 2016 consented scheme and showed the hydrological connection between the development and the residences listed above.</p> <p>The wider Eddleston community is dismayed by the developer's proposal for a 'watching brief' and the acknowledgement that this scheme might result in bottled or bowsered water having to be provided to farms and homes should the water supply be impacted. There should be zero tolerance to any such risk. EDCC considers this unacceptable and reason alone to reject this application.</p> <p>The new proposal, with turbines significantly taller than those currently consented will require increased disturbance to ground conditions and therefore increased risk to PWS. Scottish Ministers and the ECU must not allow their own conditions to be undermined by a successor application and should reject this application for its failure to adequately address Condition 20."</p>	
<p>Lamancha, Newlands and Kirkurd Community Council (20/10/2021)</p>	<p>In addition to our concerns about the adverse landscape and visual impact of these turbines (which are 30 per cent higher than those proposed under the previous proposal), we are also aware that there are serious concerns about the impact of the scheme on private water supplies.</p>	<p>A full assessment of PWS is found in Technical Appendix A10.2 of the EIA Report and an updated assessment of PWS can be found in Technical Appendix A10.1 of the SEI Report.</p>
<p>Public Comments</p>	<p>The main comments and concerns from public comments are as follows:</p> <ul style="list-style-type: none"> ▪ All PWS within the vicinity of the Development should be identified and any potential risks should be assessed. ▪ There are concerns that PWS will be impacted and mitigation measures put in place for PWS are not satisfactory. ▪ It has been commented that the River Tweed SAC/SSSI is connected to the Site by various burns and tributaries 	<p>A comprehensive assessment of PWS within the vicinity of the proposed Development has been carried out in Technical Appendix A10.2 of the EIA Report and Technical Appendix A10.1 of the SEI Report.</p> <p>Within Technical Appendix A10.2 of the EIA Report, a potential hydrological or hydrogeological connection was found between five PWS and the proposed</p>

Consultee	Summary of Consultation Response	Arcus Response to Consultee
	<p>which flow through the Development area.</p> <ul style="list-style-type: none"> ▪ There are concerns regarding flooding to the surrounding areas caused by the Development. ▪ Public consultees are concerned by the earthworks associated with the Development and how they may impact the watercourses and PWS. <p>There are concerns that the Development may result in watercourse diversions which will change the hydrology of the area.</p>	<p>Development. The risk to each PWS was deemed negligible to low with mitigation implemented.</p> <p>Supplementary information was provided for Nether Stewarton in Technical Appendix A10.1 of the SEI Report. This assessment included carrying out a site investigation to assess groundwater conditions and confirm potential hydrological connection.</p> <p>An assessment of potential impacts to hydrological receptors including potential impacts from activities both during construction and during the operational phase are found within Section 10.6 of the EIA Report and Section 10.7 of the SEI Report.</p> <p>Impacts to statutory designated receptors such as the River Tweed SAC/SSSI and all construction activities have been fully assessed within the EIA Report. Within the EIA Report, embedded mitigation has been detailed within Technical Appendix A10.1 WCEMP, detailing all further mitigation.</p> <p>Engineering activities within the water environment such as culverts or watercourse diversions are fully compliant with Controlled activities (Scotland) (Water Environment) Regulations 2011 as discussed within Technical Appendix A10.1 of the EIA Report.</p>

10.6 BASELINE REVIEW

The Core Study Area used in this assessment is the same as stated within **Chapter 10: Hydrology and Hydrogeology** of the EIA Report.

There have been no changes to land use or hydrological/hydrogeological baseline conditions associated with the Core Study Area and therefore no changes from conditions presented within Section 10.4 of the EIA Report.

Receptors identified as having high sensitivity in Section 10.5 of the EIA Report remain the same.

Several potential GWDTEs were recorded as part of the Phase 1 ecology surveys. Whilst the Core Study Area is underlain by a low productivity aquifer, it is likely that areas identified as GWDTEs are ombrogenous in nature, being dependent on surface water run-off and precipitation, rather than groundwater.

A site investigation was carried out in May 2022 to obtain further information on the hydrogeological conditions at T3. Groundwater monitoring was carried out from May to October 2022 on a monthly basis at all three boreholes (BH).

The key findings are summarised here:

- At BH01 and BH02, ground conditions included fill/made ground material and underlying superficial deposits (glacial till) with no bedrock encountered during drilling;
- At BH03, shallow superficial deposits (topsoil and peat) were encountered with bedrock encountered at 1.2 m depth. Bedrock was confirmed as sandstone (Portpatrick formation) which was highly weathered and fractured;
- The difference in geological conditions varies from the crest of the hill at BH03 (limited superficial cover) to a greater depth of superficial geological cover at BH01 and BH02;
- Groundwater flow direction could not be determined as bedrock was not encountered at all three boreholes;
- Shallow groundwater within superficial deposits was encountered at BH01 and BH02 located downslope of T3 (although the locations of the borehole were immediately downslope of the existing forestry track location which may locally alter near surface flow). The highest groundwater level recorded at BH03 was 3.25 mbgl during the monitoring period; and
- In-situ rising head (permeability) tests were carried out at all three locations, reporting permeabilities of between 5.5×10^{-08} m/s and 7.4×10^{-09} m/s. On a review of BGS typical hydraulic conductivity ranges⁵, this is a very low permeability aquifer.

10.7 ASSESSMENT OF POTENTIAL EFFECTS

The potential effects of the Development on hydrological receptors has been considered for the construction, operation and decommissioning phases. Effects occurring during construction and decommissioning are short term effects, with those occurring during the operational phase of the Development being considered as long-term effects.

10.7.1 Overview of Infrastructure Changes

As detailed in **Chapter 1: Introduction** of the SEI Report and as shown in Figure 3.1 of the SEI Report, the design of the Development has been revised to form the SEI Layout.

These revisions result in the following changes of relevance to hydrology and hydrogeology:

- Relocating T8 and its associated infrastructure;
- An additional Temporary Construction Compound (TCC) in the north of the Core Study Area;
- An additional control building at the substation compound; and
- An additional area of management and infrastructure felling due to the relocation of T8 and additional TCC.

Whilst the nature of potential effects has not changed, the following sections outline updates to these assessments.

⁵ British Geological Survey. BGS Permeability. Open Report OR/20/54. Version 8. Accessed online on 29/09/2022 at <https://www.bgs.ac.uk/datasets/permeability/>

10.7.2 Construction Effects

The nature and magnitude of effects that could result from construction activities are assessed in the following paragraphs. This includes construction of new access tracks, wind turbines and associated infrastructure, hardstanding, and TCCs and borrow pits for the Development.

10.7.2.1 Chemical Pollution

The SEI Layout does not encroach on the 50 m buffer of watercourses and the potential for chemical pollution remains the same as stated within the EIA Report. The embedded good practice and design measures discussed within the WCEMP (Technical Appendix A10.1 of the EIA report) mean that there will be no change to the significance previously stated and therefore is '**not significant**'.

10.7.2.2 Erosion and Sedimentation

The SEI Layout will not change the potential for erosion and sedimentation when appropriate embedded good practice measures proposed within the WCEMP (Technical Appendix A10.1 of the EIA report) are utilised. There will be no change in the magnitude of effect i.e. Negligible residual significance and **not significant** in accordance with the EIA Regulations.

10.7.2.3 Impediments to Flow

The SEI Layout will result in no change in the number or type of watercourse crossings than the two outlined within Section 10.6.1.3 of **Chapter 10: Hydrology and Hydrogeology** of the EIA Report.

There will be no change in the magnitude of effect i.e. Negligible residual significance and **not significant** in accordance with the EIA Regulations.

10.7.2.4 Increased Run-off and Flood Risk

Due to the relocation of T8 and additional TCC, the area of forest to be felled prior to construction has increased due to an increase in the management and infrastructure felling area. The changes to the baseline in surface water run-off is shown in Table 10.2.

Table 10.2 Felled Area Required for Cowieslinn Burn, Middle Burn, Shiplaw Burn, Courhope Burn and Flemington Burn Catchments.

Catchment	Catchment Size (km ²)	Felled Area for infrastructure and management (km ²)	% of catchment	% surface water increase (as per Forests and Water Guidelines)	% surface water increase calculated within EIA Report
Cowieslinn Burn	7.44	0.18	1.02	0.20	0.50
Middle Burn	2.90	0.11	3.79	0.76	0.70
Shiplaw Burn	4.11	0.06	1.46	0.29	0.40
Courhope Burn	2.33	1.17	50.21	10.04	10.20
Flemington Burn	8.53	0.59	6.92	1.38	1.40
Stewarton Burn/Wormiston Burn	3.25	0.002	0.08	0.02	No change

Catchment	Catchment Size (km ²)	Felled Area for infrastructure and management (km ²)	% of catchment	% surface water increase (as per Forests and Water Guidelines)	% surface water increase calculated within EIA Report
Fingland Burn	3.24	0.02	0.59	0.12	No change

As shown in Table 10.2, the increase in percentage of surface water runoff compared to baseline is marginal from the layout assessed within the EIA Report. In accordance with the Forestry Commission (2019) *Managing Forest operations to protect the water environment* measures outlined within Section 3.7 of the WCEMP (Technical Appendix A10.1 of the EIA Report), such as cut-off ditches, check dams and forestry drainage, will control surface water flows to ensure surface water is not rapidly transferred to natural watercourses.

As such, the magnitude of change as a result of increased run-off from felling is considered to be Negligible. This means there will be no change to the significance previously stated and therefore is '**not significant**' in accordance with the EIA Regulations.

10.7.2.5 Effects on Groundwater Dependent Terrestrial Ecosystem (GWDTE)

As stated in the EIA Report, M23 (rush-pasture habitats) and M25 (mire habitats) communities were reported across the site, specifically in areas to the north, north-east, centre and south-east of the site. However, the vast majority of these communities were deemed to be ombrotrophic in nature and not truly groundwater dependent.

As noted in the EIA Report, areas of the access track which runs between T2 and T5 are within 100 m of GWDTEs and therefore have the potential for some indirect loss.

The relocation of T8 will not result in T8 being situated within 250 m of potential GWDTEs and therefore, there will be no alteration to the direct or indirect loss of GWDTEs. This is shown in Figure 10.1 of this SEI report.

As there is no change to the evaluation of impacts from the assessment within the EIA Report, with no GWDTE habitat directly lost as a result of infrastructure, the hydrological impact will equate to a minimal detectable effect of a GWDTE or no discernible effect on its integrity as a feature or its functionality. Therefore, the magnitude of loss will result in a negligible effect. Due to the medium sensitivity of this receptor and the negligible magnitude of effect, the resulting significance of effect remains unchanged and is stated to be '**not significant**' in accordance with the EIA Regulations.

10.7.2.6 Effects on Private Water Supplies

The assessment presented in this section relates specifically to the supply at Nether Stewarton, informed by additional information obtained during the site investigation and groundwater monitoring. The assessment for the other PWS receptors outlined within the EIA report remains unchanged.

As discussed in Technical Appendix A10.1: Supplementary Information for PWSRA of this SEI Report, it has been established that whilst the surface water source of PWS Nether Stewarton is hydrologically disconnected from T3, it is thought that there is the potential for hydrogeological connectivity. Further site investigation was requested by SEPA to determine whether there is any hydrogeological connectivity due to the underlying aquifer supplementing the Nether Stewarton supply.

The site investigation (outlined in Section 10.6) confirmed that the area surrounding T3 is underlain by a shallow superficial layer and a fractured sandstone bedrock (Portpatrick

Formation) with a very low hydraulic conductivity, which verifies the original conceptual site model for the area, Technical Appendix A10.2 (PWSRA) of the EIA Report. The site investigation also confirmed that groundwater levels during the summer months were below 3 m from surface (highest level recorded of 3.25 mbgl) at T3, and as such, the base of T3 (approximately 3 m depth) would not encounter the groundwater table. However, groundwater levels may rise above this over the winter period or during other periods of prolonged or heavy rainfall.

In relation to water quantity, the potential for shallow groundwater (taking a conservative approach) confirms the previous assumptions of the PWSRA outlined in the EIA report. During construction of T3, requirements for dewatering could temporarily divert flows away from the excavation and lower the local water table and sub-surface water levels. Localised temporary changes to groundwater and near surface water interflow patterns may therefore arise within the area surrounding the turbine.

In relation to water quality, potential impacts relate to the risk of spillage or leakage of chemicals, fuels etc, as well as erosion/sedimentation effects, which may impact private water supplies. Several good practice measures will be in place during turbine base construction to prevent the ingress of concrete and other liquids, such as blinding concrete at the base of the excavation prior to concrete pouring and other good practice measures. These are outlined in full within **Chapter 10: Hydrology and Hydrogeology** of the EIA Report. These impacts have not changed from those outlined within the original EIA report.

Mitigation requirements in relation to PWS are outlined in Section 10.8.

Following the supplementary investigation collated during the site investigation (including six months of groundwater monitoring, conclusions relating to construction impacts relating to both water quality and water quantity remain unchanged since the EIA Report, with specific mitigation detailed within the EIA Report. Therefore, the PWS at Nether Stewarton is unlikely to be significantly affected by chemical pollution, erosion and sedimentation, or changes to groundwater interflow patterns during construction. Therefore, the construction effects would be no different than those stated within the EIA Report, also meaning that the significance would not change and is therefore **'not significant'**.

10.7.3 Operational Effects

Potential effects associated with the operation of the Development are:

- Increased run-off rates and volume;
- Continued erosion and sedimentation from runoff from areas of hardstanding;
- Alterations to natural flow pathways from runoff from areas of hardstanding; and
- Risk of a pollution event from minor spills from maintenance vehicles.

In relation to changes to water quantity of PWS during the operational phase, turbine foundations and crane hardstandings have the potential to change sub-surface water flow by creating physical barriers within naturally occurring drainage macropores in superficial deposits. It is anticipated that that near-surface water will migrate around the turbine foundations, directly downslope of the turbine location under gravity, as new pathways are taken. Subsurface water controls are outlined in Section 3.5 of WCEMP of the EIA Report (Technical Appendix A10.1).

The effects of operation for the impacts above would be no different than those stated within the EIA Report, also meaning that the significance would not change and is therefore **'not significant'**.

10.7.4 Potential Decommissioning Effects

The effects of decommissioning would be no different to those stated within the EIA Report, also meaning that the significance would not change and is still assessed as being 'not significant'.

10.8 MITIGATION AND RESIDUAL EFFECTS

In relation to PWS Stewarton, the following **additional** micro-siting mitigation measures are proposed:

- The location of T3, including any crane pad or hardstanding areas, should not be micro-sited to any closer proximity to the PWS Stewarton, nor topographically higher than its existing location.

The mitigation required for PWS, including the mitigation outlined within the original PWSRA (Technical Appendix A10.2 of the EIA Report) are outlined in Table 10.3 below.

Table 10.3: Private Water Supply Mitigation

Ref	Source Name	Mitigation	Residual Risk
114	Nether Stewarton Groundwater	<p>Watching brief to monitor groundwater levels during excavations.</p> <p>This role would be undertaken by an experienced Ecological Clerk of Works (ECoW) to monitor compliance with good practice measures and provide specialist advice.</p> <p>Good practice measures outlined in the WCEMP (Technical Appendix A10.1 of the EIA report).</p> <p>Water Quality Monitoring in Stewarton Burn (tributary) and at supply (where access is permitted by landowners).</p> <p>No construction works associated with the Development to be undertaken within the PWS Nether Stewarton surface water catchment.</p> <p>Micro-siting restrictions - the location of T3, including any crane pad or hardstanding areas, should not be micro-sited in any closer proximity to the PWS at Nether Stewarton, nor topographically higher than its existing location.</p>	Low
124	Earlyburn (Observatory)	<p>Water Quality Monitoring in Early Burn and at supply (borehole) (where access is permitted by landowners).</p> <p>Good practice measures outlined in the WCEMP (Technical Appendix A10.1 of the EIA report).</p>	Negligible
65	Cloich Farm	<p>Watching brief to identify pipework and to protect infrastructure.</p> <p>Water Quality Monitoring at supply (borehole) (where access is permitted by landowners).</p> <p>Provision of alternative potable source on standby during the access track upgrade.</p> <p>Reinstatement of distribution infrastructure if required.</p>	Negligible

Ref	Source Name	Mitigation	Residual Risk
		Good practice measures outlined in the CEMP.	
124 130 & 115 64	Earlyvale House Shiplaw & Shiphorn Upper Stewarton	Water quality monitoring. Good practice measures outlined in the CEMP.	Negligible

10.9 CUMULATIVE EFFECT ASSESSMENT

A cumulative effect is considered to be an additional effect on hydrological resources arising from the Development in combination with other proposed developments (either under construction, consented but not built or at application stage) likely to affect the hydrological environment. At distances greater than 10 km, it is considered that schemes are unlikely to contribute to a cumulative hydrological effect due to attenuation and dilution over distance of potentially polluting chemicals. Therefore, for the purposes of the assessment of potential cumulative effects on the immediate catchment and hydrological regime, only consented and developments in planning within approximately 10 km of the Development have been considered. These developments have been updated through consultation with the relevant local authorities and statutory consultees, as outlined in **Chapter 5: Landscape and Visual Impact Assessment** of the SEI Report. The methodology followed to assess the cumulative effects is the same as that used for the Development in isolation.

Data searches have not identified large scale developments (*i.e.* greater than a single turbine) within 10 km of the Development and within the same catchments *i.e.* are hydrologically connected to the Development.

Operational wind farms are considered part of the baseline.

As such, there is no change to the potential for cumulative effects since the 2021 application.

10.10 STATEMENT OF SIGNIFICANCE

The above assessment has resulted in no changes to the assessment of significance of effects as a result of the Development in terms of hydrology and hydrogeology. Potential effect on hydrology and hydrogeology as result of the Development therefore remains **'not significant'**.

CLOICH FOREST WIND FARM
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Chapter 11
Noise



11 NOISE

11.1 INTRODUCTION

This Chapter of the Supplementary Environmental Information Report (the SEI Report) evaluates the effects of the SEI Layout on the acoustic environment of the area. This Chapter supplements **Chapter 11: Noise** of the Environmental Impact Assessment Report (the EIA Report) which should be read in conjunction with this Chapter. This assessment was undertaken by Arcus Consultancy Services Limited (Arcus).

This chapter is supported by the following figure within Volume 2a: SEI Report Figures excluding LVIA:

- Figure 11.1: Noise Contour Plot. This figure supersedes Figure 11.1 of the EIA Report.

This Chapter includes the following elements:

- Key Conclusions of the EIA Report;
- Changes to Legislation, Policy and Guidance;
- Methodology and Scope of Assessment;
- Consultation;
- Baseline Review and Update;
- Assessment of Potential Effects;
- Mitigation and Residual Effects;
- Summary of Effects; and
- Statement of Significance.

11.2 KEY CONCLUSIONS OF THE EIA REPORT

The key conclusions of the EIA Report in relation to noise were:

- Application of good practice measures to manage construction noise, as described in section 11.6.1 of **Chapter 11 Noise** in the EIA Report, will minimise noise effects associated with the Development as far as is reasonably practicable and that the construction process is operated in compliance with the relevant legislation;
- Levels of operational noise are predicted to be compliant with the requirements of ETSU-R-97¹ and Scottish Borders Council based upon noise limits derived in accordance with ETSU-R-97 and the recommendations of the Good Practice Guide (GPG)²; and
- Noise during decommissioning will be of a similar nature to that during construction and will be managed through best practice or other guidance or legislation relevant at the time.

11.3 CHANGES TO LEGISLATION, POLICY AND GUIDANCE

There is no change to Legislation, Policy and Guidance relating to noise from that described in **Chapter 11: Noise** of the EIA Report.

11.4 METHODOLOGY AND SCOPE OF ASSESSMENT

11.4.1 Construction Noise

There has been no change to the consideration of construction noise as described in **Chapter 11: Noise** of the EIA Report.

¹ ETSU 1996, ETSU-R-97 The Assessment and Rating of Noise from Wind Turbines, ETSU for the DTI, 1996.

² A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind turbine Noise, IOA, 2013.

11.4.2 Operational Noise

The assessment methodology applied in **Chapter 11: Noise** of the EIA Report has been applied in this SEI Report.

11.4.3 Development Design Parameters

The SEI Layout is described in **Chapter 3: Project Description** of the SEI Report and is shown on Figure 3.1 of the SEI Report. The key change between the SEI Layout and the EIA Report Layout in terms of noise is the re-siting of T8 approximately 150 m to the south.

Other changes comprise an additional Temporary Construction Compound (TCC) adjacent to the Battery Energy Storage System (BESS) and additional control building at the substation compound. The SEI Layout will also require the total felling of approximately 203.06 ha of commercial coniferous crops, which exceeds the felling area set out in the EIA Report of 200.25 ha, however these changes are not considered likely to result in any change to the assessment of significant effects in terms of noise.

11.5 CONSULTATION

Following the submission of the EIA Report, a response was provided by the Scottish Borders Council's external consultant, Carmichael Acoustics. The key points of the response are discussed and addressed in Table 11.1 below:

Table 11.1: Consultee Responses – Action Taken

Consultee	Summary of Consultation Response	Response to Consultee
Scottish Borders Council – Environmental Health (External Consultant: Carmichael Acoustics)	An error was noted in Chapter 11: Noise of the EIA Report in Table 11.9: Margin between Predicted Turbine Noise and Noise Limits, for the property Upper Stewarton.	This has been investigated and was found to be a copy / paste error; all other assessed receptors and tables were correct, and the identified error had no effect upon the outcome of the assessment. Furthermore, this SEI Report provides a reassessment of noise levels due the SEI Layout. As such, Table 11.9 in Chapter 11: Noise of the EIA Report has since been superseded by Table 11.3 of this SEI Report.
	The response queried the omission of background noise levels from Table 11.6 in Chapter 11: Noise of the EIA Report.	As stated in Paragraph 43 of the EIA Report, background noise levels (and thereby noise limits) were originally established as part of the EIA process for the application for a wind farm on the same site, which obtained planning permission in July 2016 (Planning and Environmental Appeals Division Reference: WIN-140-1). Background noise levels and associated noise limits were discussed and agreed during the Public Local Inquiry, including the use of proxy locations where appropriate. This confirms that background noise levels measured at Nether Stewarton are representative of those at Upper Stewarton, and both the EIA Report and this SEI Report therefore follow the same approach.
	Details of the turbine / receptor combinations which require a 'barrier' or 'valley' effect in terms of the GPG were requested.	These details have been provided for the SEI Layout in Table 11.4.

Consultee	Summary of Consultation Response	Response to Consultee
	Manufacturer's original noise emission documentation was requested for the candidate turbine type.	This is not typically submitted as part of the EIA Report due to copyright and commercial sensitivity issues, however, it is confirmed that the values stated in the EIA Report (and as utilised in this SEI Report) are as per the manufacturer's documentation. Following submission of this SEI Report, and should it be considered necessary, the original documentation could be provided to the Scottish Borders Council separately on a confidential basis, subject to the written permission of the manufacturer.

11.6 BASELINE REVIEW AND UPDATE

11.6.1 Assessed Noise-sensitive Receptors and Noise Limits

There is no change to the noise-sensitive receptors or noise limits that were considered within the EIA Report. In the interest of clarity, Table 11.2 details the noise limits for the Development, as per Table 11.7 of **Chapter 11: Noise** in the EIA Report.

Table 11.2: Noise Limits

Receptor	Standardised Wind Speed at 10 m AGL, ms ⁻¹								
	4	5	6	7	8	9	10	11	12
	Noise Limit, dB, L _{A90,10min}								
Daytime (0700 – 2300)									
Cloich Farm	35.0	35.0	35.0	35.0	36.0	38.0	41.0	44.0	48.0
Harehope Farm	35.0	35.0	35.0	35.0	39.0	42.0	45.0	47.0	49.0
Nether Stewarton	37.0	37.0	37.0	37.0	37.0	38.0	40.0	41.0	42.0
Ruddenleys	35.0	35.0	35.0	35.0	36.0	39.0	41.0	43.0	44.0
Upper Stewarton	39.0	39.0	39.0	39.0	39.0	39.0	40.0	41.0	42.0
Night-time (2300 – 0700)									
Cloich Farm	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0
Harehope Farm	43.0	43.0	43.0	43.0	43.0	43.0	43.0	46.0	49.0
Nether Stewarton	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.0
Ruddenleys	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0
Upper Stewarton	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.0

11.6.2 Assessed Cumulative Developments

An updated cumulative search has been undertaken; there is no change to the cumulative noise scenario assessed within the EIA Report.

11.7 ASSESSMENT OF POTENTIAL EFFECTS

11.7.1 Operational Noise due to the Development

Figure 11.1 of the SEI Report presents a noise contour plot, showing predicted noise levels due to the Development in isolation, calculated in accordance with the methodology described in Section 11.3.6.1 of **Chapter 11: Noise** in the EIA Report.

Table 11.3 presents the predicted noise immission levels at the assessed receptors due to the operation of the Development.

Table 11.3: Predicted Noise Levels due to the Development during Operation

Receptor	Standardised Wind Speed at 10 m AGL, ms ⁻¹								
	4	5	6	7	8	9	10	11	12
	Predicted Noise Level, dB, L _{A90,10min}								
Cloich Farm	23.8	29.3	33.5	34.1	34.1	34.1	34.1	34.1	34.1
Harehope Farm	20	25.5	29.7	30.3	30.3	30.3	30.3	30.3	30.3
Nether Stewarton	23.2	28.7	32.9	33.5	33.5	33.5	33.5	33.5	33.5
Ruddenleys	18.8	24.3	28.5	29.1	29.1	29.1	29.1	29.1	29.1
Upper Stewarton	25.9	31.4	35.6	36.2	36.2	36.2	36.2	36.2	36.2

As previously requested by the Scottish Borders Council's external acoustics consultant, Table 11.4 details the precise GPG barrier effects applied to each turbine / receptor combination in the interest of completeness. It should be noted that no valley effects were found to be applicable for any turbine / receptor combination.

Table 11.4: GPG Barrier Effects

Receptor	Turbine Number											
	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12
	-2dB Barrier Effect											
Cloich Farm	-2	-2										
Harehope Farm										-2	-2	-2
Nether Stewarton	-2										-2	-2
Ruddenleys		-2	-2	-2								
Upper Stewarton	-2	-2				-2	-2			-2	-2	-2

Table 11.5 details the difference (margin) between predicted noise immission levels (Table 11.3) and the noise limits (Table 11.2) for the assessed receptors. A negative margin indicates that the predicted noise level is below the derived noise limit.

Table 11.5: Margin between Predicted Turbine Noise and Noise Limits

Receptor	Standardised Wind Speed at 10 m AGL, ms ⁻¹								
	4	5	6	7	8	9	10	11	12
	Margin, dB								
Daytime									
Cloich Farm	-11.2	-5.7	-1.5	-0.9	-1.9	-3.9	-6.9	-9.9	-13.9
Harehope Farm	-15.0	-9.5	-5.3	-4.7	-8.7	-11.7	-14.7	-16.7	-18.7
Nether Stewarton	-13.8	-8.3	-4.1	-3.5	-3.5	-4.5	-6.5	-7.5	-8.5
Ruddenleys	-16.2	-10.7	-6.5	-5.9	-6.9	-9.9	-11.9	-13.9	-14.9
Upper Stewarton	-13.1	-7.6	-3.4	-2.8	-2.8	-2.8	-3.8	-4.8	-5.8
Night-time									
Cloich Farm	-19.2	-13.7	-9.5	-8.9	-8.9	-8.9	-8.9	-8.9	-8.9
Harehope Farm	-23	-17.5	-13.3	-12.7	-12.7	-12.7	-12.7	-15.7	-18.7
Nether Stewarton	-19.8	-14.3	-10.1	-9.5	-9.5	-9.5	-9.5	-9.5	-11.5
Ruddenleys	-24.2	-18.7	-14.5	-13.9	-13.9	-13.9	-13.9	-13.9	-13.9
Upper Stewarton	-17.1	-11.6	-7.4	-6.8	-6.8	-6.8	-6.8	-6.8	-8.8

As Table 11.5 shows, worst-case noise levels due to the Development are below the respective limits at all assessed receptors and wind speeds. Therefore, noise due to the operation of Development has been shown to be compliant with the requirements of ETSU-R-97.

11.7.2 Cumulative Noise due to the Development

Cumulative effects have been considered, as described in Section 11.3.2.2 of **Chapter 11: Noise** in the EIA Report. Given the substantial distance from the Development to the nearest cumulative wind farm development (Bowbeat Wind Farm, located approximately 6 km east of the Development), there is no reasonable prospect of a significant cumulative effect.

11.8 MITIGATION AND RESIDUAL EFFECTS

11.8.1 Construction and Decommissioning Phases

There is no change to this Section from that described in the EIA Report, and as such there is no reasonable prospect of a significant effect.

11.8.2 Operational Noise

The residual operational effects are the same as the operational effects identified in this assessment, and as such there is no reasonable prospect of a significant effect.

11.9 SUMMARY OF EFFECTS

An assessment of potential noise effects associated with the SEI Layout has been carried out.

As described in Section 11.6 of **Chapter 11: Noise** in the EIA Report, construction noise will be limited in duration and confined to working hours as specified by the Scottish Borders Council and therefore can be adequately controlled through the application of good practice measures and secured by planning condition. This will minimise noise effects associated with the Development as far as is reasonably practicable.

Operational noise due to the Development has been assessed in accordance with ETSU-R-97 and in line with current best practice. It has been shown that the Development would comply with the requirements of ETSU-R-97 at all receptor locations.

Cumulative noise due to the Development has been considered, and due to the substantial distance between the Development and the nearest cumulative wind farm developments, it is considered that there is no reasonable prospect of a significant cumulative effect.

Noise during decommissioning will be of a similar nature to that of construction and will be managed through best practice or other guidance or legislation relevant at the time.

11.10 STATEMENT OF SIGNIFICANCE

Construction noise effects remain the same as those discussed in the EIA Report and are considered **not significant** in terms of the EIA Regulations.

The effect of operational noise has been assessed using the methodology described in ETSU-R-97 and the GPG, and in line with the requirements of the Scottish Borders Council. The effect of operational noise is considered **not significant** in terms of the EIA Regulations.

The effect of cumulative noise has been considered, and due to the substantial distance between the Development and the nearest cumulative wind farm developments, there is no reasonable prospect of a significant cumulative effect. As such, cumulative noise is considered **not significant** in terms of the EIA Regulations.

Decommissioning noise effects remain the same at those discussed in the EIA Report, and are considered **not significant** in terms of the EIA Regulations.

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Chapter 12
Access, Traffic and Transportation



12 ACCESS, TRAFFIC AND TRANSPORTATION

12.1 INTRODUCTION

This Chapter of the Supplementary Environmental Information Report (SEI Report) evaluates the effects of the Development on the Traffic & Transportation resources within the locality of the Development and on the wider road network. It supplements **Chapter 12: Access, Traffic and Transportation** of the Environmental Impact Assessment Report (EIA Report) which should be read in conjunction with this chapter. This assessment was undertaken by Arcus Consultancy Services Limited (Arcus).

This Chapter of the SEI Report is supported by the Figures provided in Volume 2a: Figures excluding LVIA of the EIA Report. Additionally, this Chapter of the SEI Report is supported by Technical Appendix A12.1 provided in Volume 3: EIA Report Technical Appendices of the EIA Report and the following Technical Appendix within Volume 3: SEI Report Technical Appendices:

- A12.1: Construction Development Programme. This Appendix supersedes Technical Appendix A12.2 of the EIA Report.

This Chapter includes the following elements:

- Key Conclusions of the EIA Report;
- Changes to Legislation, Policy and Guidance;
- Methodology and Approach;
- Baseline Review and Update;
- Assessment of Potential Effects;
- Comparison with Previous Report;
- Operational Effects;
- Mitigation and Residual Effects;
- Cumulative Effect Assessment;
- Summary; and
- Statement of Significance.

12.2 KEY CONCLUSIONS OF THE EIA REPORT

The EIA Report concluded that a moderate effect was identified for traffic generation and pedestrian amenity at a number of sensitive locations during construction including Midlothian Hospital, Howgate Kirk, D17 road, D18 road and B6392 road. Mitigation measures were identified and the residual effects following implementation of these mitigation measures are predicted to be minor and thus **not significant** in terms of the EIA regulations.

12.3 CHANGES TO LEGISLATION, POLICY AND GUIDANCE

No changes to the relevant legislation, policy and guidance identified in Section 12.2 of **Chapter 12: Access, Traffic and Transportation** of the EIA Report have been found.

12.4 METHODOLOGY AND APPROACH

No changes to the EIA Report methodology and approach are proposed. This can be found in Sections 12.3.6 and 12.3.7 within **Chapter 12: Access, Traffic and Transportation** of the EIA Report.

12.4.1 Scoping Responses and Consultations

Consultation responses were received after submission of the EIA Report from Transport Scotland and Midlothian Council (MC). A summary of their responses with respect to

Traffic and Transportation and how these responses have been addressed are summarised in Table 12.1.

Table 12.1: Post Application Consultation Responses

Consultee	Summary of Consultation Response	Response to Consultee
Transport Scotland – 19/08/2021	Based on the review undertaken, [sic] we can confirm that we are satisfied with the submitted EIAR and we have no objection to the development in terms of environmental impacts on the trunk road network.	Noted. No further actions taken.
MC–22/10/2021	The roads team are satisfied that the proposed route for abnormal loads is acceptable in terms of structures on the route, and that the other potential routes are generally unsuitable. However, the developer should contact the Midlothian roads service to discuss arrangements for abnormal loads prior to the construction	Noted. As requested, the applicant would contact Midlothian Roads Services prior to the start of construction.
MC – 22/10/2021	Midlothian Council would wish to be a party to the further development and agreement of a Construction Transport Management Plan (CTMP) and the Council may require the developer to enter into a legal agreement to repair any excessive damage to the local road network arising from the construction operation.	Noted. A CTMP detailing how construction traffic would be managed including mitigation will be agreed with Scottish Borders Council, Transport Scotland and Midlothian Council prior to the start of construction. .

12.5 BASELINE REVIEW AND UPDATE

12.5.1 Baseline Traffic Flow Data

Baseline traffic flow conditions were gathered from publicly available traffic counts published by the Department for Transport’s (DfT) online traffic count database at four locations on the main approach corridor to the Site, including two on the A7 and one each on the A6094 and the A703. No traffic count data was available for the D17 and D18 roads at the time of completing the EIA Report. This was due to the Coronavirus Pandemic when local authorities would not accept traffic count data if undertaken as traffic movements in most areas had still not returned to normal levels. The online database has since been updated, however, these counts were undertaken during the Coronavirus Pandemic and therefore not considered appropriate. That notwithstanding, it was not considered necessary to update baseline traffic flow information, as any changes are expected to be minimal and insignificant in the context of this assessment.

12.6 ASSESSMENT OF POTENTIAL EFFECTS

The principal effect of SEI Layout when compared to the EIA Report Layout is that the length of new and upgraded access tracks and hardstanding areas is altered. This will result in a change in the volume of construction traffic associated with the import of materials for track and hardstanding construction. The following subsections detail the anticipated volume of construction traffic for each element which will change from the EIA Report. All other movements not set out in this SEI remain extant within the EIA Report. A summary of all construction vehicle movements, including those which have not changed from the previous assessment, is provided in Table 12.3.

Technical Appendix A12.1: Construction Development Programme of the SEI Report includes a programme indicating the anticipated number of vehicle movements

associated with each element of work throughout construction and is expected to run for a total of 18 months. The following sub-sections provide detail for each element of work. A summary of all predicted construction traffic is provided at the end of this section.

12.6.1 Forestry

The SEI Layout will require the felling of approximately 203.06 ha of commercial coniferous crops, which exceeds the felling area set out in the EIA Report of 200.25 ha, due to the relocation of T8 and to account for the additional TCC. However, this additional felling will be undertaken as part of the pre-commencement forestry operations (primarily felling) which are required in order to prepare the Site for construction. It was assessed that forestry works will take place over a 12 month period, commencing approximately six months in advance of the main construction programme and continuing in parallel within the first six months of the construction activities. This approach was taken within **Chapter 12: Access, Traffic and Transportation** of the EIA report, as detailed in Section 12.6.1. Therefore, there are no changes in the traffic volumes predicted as detailed in Section 12.6.1 of the EIA Report.

12.6.2 Access Track and Hardstanding Construction

The number of vehicle movements associated with access track and hardstanding construction are revised in light of the marginal increase in the amount of track and additional TCC now required within the SEI Layout.

The top 0.15 m layer of fine material required for all access tracks and hardstandings will be imported to site; the remaining aggregate required will be won from on-site borrow pits.

The volume of material required for a 0.20 m surface layer across all track and hardstandings is estimated to be 15,480 cubic metres (m³). Assuming each dump truck has a volumetric capacity of 9 m³, this will result in approximately 1,721 loads, or 3,442 two-way l vehicle movements over the duration (5 months between months 3 – 7) of this phase of works.

It is assumed that the excavators and rollers will be delivered to the Site via low loaders at the commencement of construction and will generate four vehicle trips each for delivery and another four trips during removal, the dumper trucks will be self-propelled to and from the Site. This will be required at the start and the end of these phase of works.

Other materials will require to be imported regularly throughout construction of the access tracks such as geo-membrane, drainage pipes and culvert sections

Table 12.2 sets out the anticipated number of vehicle movements associated with access track and hardstanding construction.

Table 12.2: Anticipated Vehicle Movements - Access Track and Hardstanding Construction

Operation	Vehicle Type	Construction Months	Total Movements	Maximum Monthly Movements
Plant	HGV Dump Truck	3,7	4	4
	HGV Low Loader (Excavators/Rollers)	3,7	2	2
Material Deliveries	HGV	3-7	3,442	688

Operation	Vehicle Type	Construction Months	Total Movements	Maximum Monthly Movements
Overall			3,448	694

A total of 3,316 two-way vehicle movements were anticipated to be required for access track and hardstanding construction in the original EIA Report, therefore 132 more vehicle movements are required for the SEI Layout.

12.6.3 Summary of Traffic Movements from all Activities

Table 12.3 provides a summary of all deliveries expected throughout duration of construction. The values calculated in this section may differ from those generated in Technical Appendix A12.1: Construction Development Programme of the SEI Report due to both rounding and assuming the worst-case scenario, which has led to an artificial inflation of the values in the Construction Development Programme.

Table 12.3: Anticipated Vehicle Movements – Summary

Operation	Vehicle Type	Construction Months	Total	Max Monthly
Forestry				
Forestry Plant Delivery	HGV	N/A	N/A	N/A
Timber Extraction	HGV	1-6	3,176	529
Fuel Delivery	HGV Tanker	1-6	96	16
Sub-Total			3,272	545
Site Mobilisation/Demobilisation				
Site Mobilisation/ Demobilisation	Car or Minibus	1,18	32	16
Site Mobilisation/ Demobilisation	HGV	1,18	120	60
Subtotal			152	76
Access Track and Hardstanding Construction				
Plant	HGV Dump Truck	3-7	4	4
	HGV Low Loader (Excavators/Rollers)	3-7	2	2
Material Deliveries	HGV	3-7	3,442	688
Subtotal			3,448	694
Turbine Foundation Construction				
Concrete Delivery	HGV Concrete Wagon	5-14	1,728	288
Rebar	HGV Low-Loader	4-7	96	36
Miscellaneous	HGV	4-7	80	30
Subtotal			1,904	288
Control Building Substation and Battery Storage				

Operation	Vehicle Type	Construction Months	Total	Max Monthly
Electrical Components and Switchgear Delivery, BESS Delivery	HGV	4-6	70	24
Transformer Delivery	ALV	4	2	2
	HGV	4	2	2
	Escort Car/Van	4	8	8
Concrete for Control Building	HGV Concrete Wagon	4-6	20	7
Subtotal			102	43
Electrical Cabling Delivery				
Electrical Cabling Delivery	HGV	11-14	36	9
Subtotal			36	9
Crane Delivery				
Crawler Crane	HGV	12,17	52	26
	Abnormal Load Vehicle**	12,17	2	1
	Escort Car/Van	12,17	8	4
Subtotal			62	31
Turbine Delivery				
Turbine Components	ALV	13-16	132	33
	Escort Car or Van	13-16	528	132
	HGV	13-16	132	33
Ancillary Equipment	HGV	13-16	24	6
Subtotal			816	204
Fuel Delivery				
Fuel Delivery	HGV Fuel Tanker	1-18	144	8
Subtotal			144	8
Staff				
Staff	Car or Minibus	1-18	44,298	2,496
Subtotal			44,298	2,496
Totals			Total	Max Monthly
Total HGV and Abnormal Load Movements			9,360	1,621
Total Car and Van Movements			45,504	2,632
Overall Total			54,864	3,973***

* Includes transporter vehicle leaving and then returning to site during demobilisation

**Self-propelled vehicles which arrive in one month and depart in another

***Total flow in peak month

As indicated in Table 12.3, the total number of car and van movements anticipated over the duration of construction of the Development is 45,504, while that total number of HGV and Abnormal Load Movements is 9,360, an increase of 132 movements when compared with the original EIA Report. The noted increase in HGV movement occurs as a result of an increase in length of access track and hardstanding areas requiring an increase

in the volume of fine aggregate to be imported to the Site. Although an increase in the overall number of vehicle movements is anticipated, the number of movements in the peak month remains unchanged.

12.7 COMPARISON WITH THE EIA REPORT

Referring to the overall construction programme in Technical Appendix A12.1: Construction Development Programme of the SEI Report it can be seen that the anticipated peak month of construction is Month 6, during which an estimated 291 movements per day are expected on the 12 non-consecutive days of concrete delivery. This does not differ from the EIA Report.

Outside of the concrete delivery phase, it is anticipated that daily average of 147 vehicle movements is expected. This does not differ from the EIA Report.

No change to the estimated vehicle movements during the peak months of construction is anticipated. Therefore, no change to the effects detailed in the EIA Report would occur and no further assessment is warranted.

12.8 OPERATIONAL EFFECTS

No changes to operational effects in relation to traffic and transport are anticipated.

12.9 MITIGATION AND RESIDUAL EFFECTS

As no change in effects is predicted, mitigation will be as detailed in Section 12.9.1 of **Chapter 12: Access, Traffic and Transportation** of the EIA Report.

12.10 CUMULATIVE EFFECT ASSESSMENT

Following a review of proposed developments which have the potential to result in cumulative traffic and transport effects, no new wind farm developments, or applications, for which construction timescales may overlap with that of the Development have been identified in the area.

On that basis and given that any developments would be subject to appropriate planning conditions, no cumulative assessment of traffic effects has been undertaken.

12.11 SUMMARY

The SEI Layout would result in a marginal increase in overall total number of traffic movements through construction of the Development due to the re-siting of T8 and the provision of an additional TCC. However, no change to the average daily number of movements during the peak months of construction are anticipated. Therefore, the assessed effect on routes is unchanged from the EIA Report including in relation to pedestrian amenity. Additionally, it should be noted that the proposed mitigation measures remain extant. All residual effects are anticipated to be low or negligible and **not significant**, and no further assessment is warranted.

12.12 STATEMENT OF SIGNIFICANCE

No change from the original EIA Report has been identified, and the proposed mitigation from the EIA Report remains extant and all residual effects are **not significant**.

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Chapter 13
Forestry



13 FORESTRY

13.1 INTRODUCTION

This Chapter of the Supplementary Environmental Information (SEI Report) evaluates the effects of the SEI Layout on the tree crops present within the forestry resource. This assessment was undertaken by Scottish Woodlands Ltd.

This Chapter of the SEI Report is supported by the following Figures provided in Volume 2a: SEI Report Figures excluding LVIA:

- Figure 13.1a: Infrastructure Felling. This figure supersedes Figure 13.3a of the EIA Report;
- Figure 13.1b: Infrastructure Felling. This figure supersedes Figure 13.3b of the EIA Report;
- Figure 13.2: Management Felling. This figure supersedes Figure 13.4 of the EIA Report;
- Figure 13.3: Restocking of Management Felling Areas. This figure supersedes Figure 13.5 of the EIA Report.

This Chapter includes the following elements:

- Key Conclusions of the EIA Report;
- Changes to Legislation, Policy and Guidance;
- Methodology and Scope of Assessment;
- Consultation;
- Baseline Review and Update;
- Assessment of Potential Effects;
- Mitigation and Residual Effects;
- Cumulative Effect Assessment;
- Summary of Effects; and
- Statement of Significance.

13.2 KEY CONCLUSIONS OF THE EIA REPORT

Chapter 13: Forestry of the EIA Report concluded that the construction of the Development would result in the removal of 70.62 hectares (ha) of forest crops and it would be necessary to remove a further area of 129.63 ha for associated management felling of trees on adjoining ground due to the predicted instability of these crops.

Analysis of the existing Land Management Plan (LMP) confirmed that over the remaining phase of the approved LMP an area of 233.48 ha was proposed for felling and a further 127.34 ha was scheduled to be felled and restocked over the following 5-year period subject to a plan review and the approval of the second 10-year phase of the plan in 2027.

This suggested that there was adequate scope to adjust the LMP felling programme so as to accommodate the crop clearance required for infrastructure construction and associated management felling which would extend in total to an area of 200.25 ha of crops. Appropriate adjustments could be made to accommodate the felling necessary for the Development by substituting these areas with areas currently approved for felling and restocking under the LMP.

The management felling areas would be replanted on-site in line with the LMP and the areas lost to infrastructure construction (there were no projected losses due to the

operational or decommissioning phases) were to be replicated with a new planting project on a substitute site in compliance with the Control of Woodland Removal Policy (CoWRP)¹.

The significance of the temporary loss of forestry crops from within the Site was viewed as low, given the scale of the woodland resource within the Site and the nature of the forestry asset (which is commercial plantation forestry rather than ancient or semi-natural woodland). The mitigation work to re-establish the areas of crops removed, by both restocking within the Site and supplemental compensatory planting outwith the Site, would ensure the necessary areas of forestry crops were maintained, to comply with the CoWRP and, overall, the significance of the Development on the existing forestry crops was considered to be **negligible** and not significant.

13.3 CHANGES TO LEGISLATION, POLICY AND GUIDANCE

There have been no subsequent changes in relevant legislation, policy or guidance from the date of the EIA Report.

13.4 METHODOLOGY AND SCOPE OF ASSESSMENT

The assessment methodology and significance criteria used within this SEI Report remain the same as stated within the EIA Report.

This report assesses the change in the impact on the forest crops of relocating T8 from its original position to a location 150 metres further south and the addition of a temporary construction compound (TCC) to the north of the Site.

13.5 CONSULTATION

No post-submission comments relating to forestry were received.

13.6 BASELINE REVIEW AND UPDATE

The baseline remains as per the EIA Report as there has been no further timber harvesting or replanting work within Cloich Forest over the intervening period.

13.7 ASSESSMENT OF POTENTIAL EFFECTS

Construction of the permanent infrastructure required for the Development (including the temporary construction compounds, access tracks, borrow pits, turbine foundations and crane pads) would require the removal of trees from the Site and for these areas to be subsequently maintained free of trees to accommodate equipment and ensure access for maintenance during the lifetime of the Development.

Table 13.1 summarises the previous assessment of crops removed for infrastructure construction as presented in the EIA Report. Table 13.2 summarises the impact of the construction of the revised infrastructure layout allowing for the relocation of T8 and the TCC.

Table 13.1 Summary of the stocking within the land required for infrastructure construction as reported in the EIA Report.

Planting Year	Species (ha)								TOTAL (ha)
	DF	LAR	MB	MC	NS	OG	SP	SS	
0						16.73			16.73

¹ Forestry Commission Scotland (2009). The Scottish Government's Policy on the Control of Woodland Removal. Edinburgh. Available at: <https://forestry.gov.scot/publications/349-scottish-government-s-policy-on-control-of-woodland-removal-implementation-guidance> (Accessed 24/05/2021) Note that in April 2019 Forestry Commission Scotland became "Scottish Forestry".

Planting Year	Species (ha)								TOTAL (ha)
	DF	LAR	MB	MC	NS	OG	SP	SS	
1962		0.06						9.72	9.78
1970								0.42	0.42
1972	0.35				0.78			15.36	16.49
1973		0.07						0.19	0.26
1974		0.08		3.68			0.08	19.28	23.12
1975								4.28	4.28
1982					0.22			1.32	1.54
1989								0.10	0.10
1992								0.26	0.26
2005			0.42		0.42			0.46	1.30
2006			0.37					0.17	0.54
2010			0.08	0.18	0.28		2.06	3.94	6.54
2012			0.10		0.17			3.83	4.10
2015								1.83	1.83
2018								0.06	0.06
TOTAL (ha)	0.35	0.21	0.97	3.86	1.87	16.7	2.14	61.22	87.35

(DF= Douglas fir, Lar = Larch species, MB = Mixed broadleaves, MC = Mixed conifers, NS = Norway spruce, OG= Open ground, SP = Scots pine, SS = Sitka spruce.)

Table 13.2 Summary of the stocking within the land required for the revised infrastructure layout proposed in the SEI layout.

Planting Year	Species (ha)								TOTAL (ha)
	DF	LAR	MB	MC	NS	OG	SP	SS	
0						17.17			17.17
1962		0.06						9.72	9.78
1970								0.42	0.42
1972	0.35				0.78			19.57	20.70
1973		0.18						0.08	0.26
1974		0.08		3.53			0.08	15.07	18.76
1975								4.28	4.28
1982					0.22			1.32	1.54
1989								0.10	0.10
1992								0.26	0.26
2005			0.28		0.42			0.46	1.16
2006			0.37					0.17	0.54
2010				0.18	0.28		2.06	4.18	6.70
2012					0.17			3.83	4.00

Planting Year	Species (ha)								TOTAL (ha)
	DF	LAR	MB	MC	NS	OG	SP	SS	
2015								2.44	2.44
2018								0.06	0.06
TOTAL (ha)	0.35	0.32	0.65	3.71	1.87	17.17	2.14	61.96	88.17

(DF= Douglas fir, Lar = Larch species, MB = Mixed broadleaves, MC = Mixed conifers, NS = Norway spruce, OG= Open ground, SP = Scots pine, SS = Sitka spruce.)

Comparison of the figures presented in Tables 13.1 and 13.2 confirms that the SEI Layout will occupy a slightly larger area at 88.17 ha (an increase of 0.31 ha from the initial design). When considering the areas of Open Ground affected by the Development (16.7 ha for the EIA Layout and 17.17 ha for the SEI Layout), the stocked area within the infrastructure footprint increase slightly from 70.62 ha to 71.00 ha (an increase of 0.38 ha).

Some crops adjoining the areas to be felled to construct the roads, turbines and sub-station etc. may require further management tree clearance due to the predicted instability of these adjoining stands of trees due to the new exposure of non wind-firm edges.

Table 13.3 summarises the previous assessment of the requirement for management felling detailed in the EIA Report and Table 13.4 illustrates the management felling requirement as a result of the SEI Layout allowing for the relocation of T8 and the TCC.

Table 13.3 Summary of the management felling required around infrastructure construction as reported in the EIA Report.

Planting Year	Species (ha)				TOTAL (ha)
	LAR	MC	NS	SS	
0					0.00
1962	0.46			13.91	14.37
1972			3.68	47.12	50.80
1974		2.82		38.12	40.94
1975				16.32	16.32
1982				7.20	7.20
TOTAL (ha)	0.46	2.82	3.68	122.67	129.63

(LAR = Larch species, MC = Mixed conifers, NS = Norway spruce, SP = Scots pine, SS = Sitka spruce).

Table 13.4 Summary of the management felling required for the revised infrastructure layout proposed in the SEI layout.

Planting Year	Species (ha)				TOTAL (ha)
	LAR	MC	NS	SS	
0					0.00
1962	0.46			13.91	14.37

Planting Year	Species (ha)				TOTAL (ha)
	LAR	MC	NS	SS	
1972			3.68	44.68	48.36
1974		2.82		42.99	45.81
1975				16.32	16.32
1982				7.20	7.20
TOTAL (ha)	0.46	2.82	3.68	125.10	132.06

(LAR = Larch species, MC = Mixed conifers, NS = Norway spruce, SP = Scots pine, SS = Sitka spruce).

Comparison of the figures presented in Tables 13.3 and 13.4 confirms that the management felling required around the SEI Layout will be a slightly higher figure of 132.06 ha, an increase of 2.43 ha from the EIA Report layout.

In total, the SEI Layout will require the felling of approximately 203.06 ha of commercial coniferous crops for infrastructure construction and associated management felling, which exceeds the felling area set out in the EIA Report of 200.25 ha, an increase of 2.81 ha. Of this area, 71.00 ha will be permanently removed for turbine keyholing and tracks and the remainder will subsequently be re-stocked with forestry.

As with the EIA Layout, there are no projected woodland losses due to the operational or decommissioning phases of the Development.

13.8 MITIGATION AND RESIDUAL EFFECTS

13.8.1 Tree planting

Under the Scottish Government's CoWRP any tree crops permanently removed to accommodate the Development would require to be replanted on a like-for-like area basis either within the Site or at a suitable substitute location.

It is proposed that the management felling areas cleared to create wind-firm boundaries in crops adjoining the turbine construction areas and sections of new access tracks would be restocked after felling in the same location, in line with the existing restock design within the approved LMP (with possible minor adjustments to improve landscape design if requested by Scottish Forestry during the LMP revision process). Replanting would be with native broadleaved woodland (to replace areas of felled non-native Sitka spruce (*Picea sitchensis*)) and include the installation of bat boxes. These measures will contribute to meeting the aims of the Revised Draft National Planning Framework 4², which requests that proposals will 'conserve, restore and enhance biodiversity'.

When considering open land, 71.00 ha of productive crops would be removed from forestry for the duration of the operation of the Development and would be replaced by an appropriately designed new compensatory planting scheme on a substitute site. In compliance with the terms of the CoWRP, details including the location, design, planting timescale and an appropriate post-planting maintenance schedule would be agreed with Scottish Forestry in advance of construction commencing on the Site.

The substitute site would replicate the net crop area felled for infrastructure construction and would also include additional land to accommodate a 10% designed open ground component, in addition to the planted crops, in order to comply with the UK Forestry

² Scottish Government (2022). National Planning Framework 4: revised draft. Available online at: <https://www.gov.scot/publications/national-planning-framework-4-revised-draft/pages/2/>. [Accessed 15/11/22].

Standard. The substitute site area would therefore extend to a total area of 78.89 ha as illustrated in Table 13.5.

Table 13.5 Summary of proposed compensatory planting.

Species	Area (ha)
MB	3.95
OG	7.89
SS/MC	67.05
Total	78.89

(MB = Mixed broadleaves, OG= Open ground, SS/MC = Sitka spruce & Mixed conifers.)

13.8.2 Residual Effects

The proposed on-site restocking of the management felling areas and the intended substitute new planting would ensure the necessary compliance with the CoWRP.

The proposed work would ensure that the required areas of forest crops present within the Site would be maintained once the proposed off-site substitute planting and on-site replanting work has been completed.

13.9 CUMULATIVE EFFECT ASSESSMENT

There are no particular cumulative effects of tree removal linked to other wind farm projects in the area due to the restocking/replanting mitigation which has to be implemented for all such projects.

13.10 SUMMARY OF EFFECTS

Table 13.6 provides a summary of the effects detailed within this Chapter.

Table 13.6 Summary of Effects

Receptor	Potential Effect	Mitigation Proposed	Residual Effect
Construction Phase			
Existing forestry crops	Removal of 71.00 ha of forest crops for construction.	71.00 ha of tree planting will be undertaken within a new compensatory planting site.	Negligible
Existing forestry crops	Risk of windblow in crops adjoining construction areas prompting management felling over 132.06 ha.	Restocking within the Site to comprise 123.85 ha of tree crops and 8.21 ha of integrated open ground (in line with the current LMP) will be carried out.	Negligible

13.11 STATEMENT OF SIGNIFICANCE

The significance of the temporary loss of forestry crops from within the Site is viewed as low, given the scale of the woodland resource within the Site and the nature of the forestry asset (which is commercial plantation forestry rather than ancient or semi-natural woodland). The mitigation work to re-establish the areas of crops removed by both restocking within the Site and supplemental compensatory planting outwith the Site (as summarised in Table 13.6) will ensure the necessary areas of forestry crops are maintained, to comply with the CoWRP.

As the area of tree crops removed is to be replicated and the timescale between crop removal and any restocking and new compensatory planting being implemented will be short-term, the overall significance of the Development on the existing forestry crops is considered to be **negligible** and not significant.

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Chapter 14
Aviation and Radar



14 AVIATION AND RADAR

14.1 INTRODUCTION

This Chapter of the Supplementary Environmental Information Report (SEI Report) evaluates the effects of the Development on aviation and radar. It supplements **Chapter 14: Aviation and Radar** of the EIA Report which should be read in conjunction with this chapter. This assessment was undertaken by Arcus Consultancy Services Limited (Arcus).

This Chapter of the SEI Report is supported by the following Technical Appendix documents provided in Volume 3: SEI Report Technical Appendices of the SEI Report:

- A14.1: Cloich Forest Wind Farm, Eskdalemuir Seismic array Considerations. This appendix supersedes Technical Appendix A14.1 of the EIA Report.

This chapter includes the following elements:

- Key Conclusions of the EIA Report;
- Changes to Legislation, Policy and Guidance;
- Methodology and Scope of Assessment;
- Consultation;
- Baseline Review and Update;
- Assessment of Potential Effects;
- Mitigation and Residual Effects;
- Cumulative Effect Assessment;

14.2 KEY CONCLUSIONS OF THE EIA REPORT

The EIA Report concluded that there were **no significant effects** to aviation and radar on any receptors during the construction, operation and decommissioning of the Development. The Development has been shown to not exceed allocated budget with regard to Eskdalemuir Seismic Array.

14.3 CHANGES TO LEGISLATION, POLICY AND GUIDANCE

Since **Chapter 14: Aviation and Radar** of the EIA report was submitted, the Scottish Government have consulted on the draft Onshore Wind Policy Statement. This draft specifically detailed four potential options in relation to the Eskdalemuir Zone. The options outlined within this report are yet to be adopted but these have been considered in further detail within Technical Appendix A14.1: Revised Eskdalemuir Calculations of the SEI Report. The Onshore Wind Policy Statement is due for adoption in winter 2022.

14.4 METHODOLOGY AND SCOPE OF ASSESSMENT

The assessment methodology applied in the EIA Report has been applied in this SEI Report.

The scope of this SEI assessment is to consider the change in potential aviation and radar effects as a result of re-siting Turbine 8 ('T8') approximately 150 m to the south of the location considered in the EIA report. The other design changes incorporated in the SEI Layout would not influence the assessment.

14.5 CONSULTATION

Following the submission of the EIA Report, responses were provided which are detailed in Table 14.1 below, alongside the response to these comments.

Table 14.1 Consultee Responses – Action Taken

Consultee	Summary of Consultation Response	Response to Consultee
Edinburgh Airport 22 nd August 2021	Edinburgh Airport object on the grounds that the proposal conflicts with safeguarding criteria. An IFP Assessment was requested before the objection could be lifted.	Edinburgh Airport have completed an initial IFP Assessment and there are ongoing discussions to resolve a potential issue with T8 that is likely to relate to an inaccuracy within the terrain data used. If an IFP Scheme is required then suitable mitigation will be designed and approved with Edinburgh Airport, the Civil Aviation Authority and NATS.
Defence Infrastructure Organisation (DIO) 1 st September 2021	At this time there is no noise budget available so the DIO object as the proposal may have an unacceptable impact to the array. The consultee also notes that <i>"the addition of turbines in this location has the potential to introduce a physical obstruction to low flying aircraft operating in the area. To address this impact on aviation safety, MOD would normally require conditions that necessitate the submission, approval, and implementation of an aviation lighting scheme."</i>	As detailed in section 14.5.8 of Chapter 14 Aviation of the EIA Report, the MoD has allocated the Consented Scheme (refer to Chapter 1 Introduction of the SEI Report for further detail), and therefore the Development, a seismic budget of 0.0064902nm. Revised calculations for Eskdalemuir are provided for the SEI Layout in Technical Appendix A14.1 Cloich Forest Wind Farm, Eskdalemuir Seismic array Considerations of the SEI Report, to account for the layout changes identified within Chapter 3 Project Description of the SEI Report. Technical Appendix A14.1 of the SEI Report has confirmed that the SEI Layout is able to operate within this allocated budget with the candidate turbine, based on the assumptions outlined in A14.1. The condition on the aviation lighting scheme is also noted.
National Air Traffic Services (NATS) 16 th July 2021	No objection.	No action required.

14.6 BASELINE REVIEW AND UPDATE

The baseline remains as per the EIA Report.

14.7 ASSESSMENT OF POTENTIAL EFFECTS

14.7.1 Eskdalemuir Seismic Array

The Eskdalemuir calculations were rerun based on the SEI Layout (see Technical Appendix A14.1 of the SEI Report). The MoD has allocated the Consented Scheme a seismic budget of 0.0064902nm. Based on the assumptions used, Technical Appendix A14.1 of the SEI Report has confirmed that the SEI Layout is able to operate within this allocated budget with the candidate turbine.

14.7.2 Other Effects

Overall, there is no change to the aviation baseline conditions, and the relocation of turbine T8 will make no material change to the potential aviation effects determined within the EIA Report, which remain valid, unchanged and conclude **no significant effects** to aviation and radar.

14.8 MITIGATION AND RESIDUAL EFFECTS

Mitigation effects remain unchanged from those within the EIA Report. The only proposed mitigation was to satisfy the MOD requirement to ensure the wind farm is visible to pilots of low flying aircraft.

The MOD response (shown in Table 14.1 of **Chapter 14: Aviation and Radar** of the EIA Report) states that either "*MOD accredited 25 candela omnidirectional red lighting or infrared lighting with an optimised flash pattern of 60 flashes per minute of 200ms to 500ms duration at the highest practicable point.*"

Cloich Windfarm Partnership LLP ('the Applicant') will elect to install infra-red lighting as it is invisible to the naked eye and will therefore, have no landscape or visual effects.

14.9 CUMULATIVE EFFECT ASSESSMENT

Given no effects are identified, there are no cumulative effects to take into account.

14.10 STATEMENT OF SIGNIFICANCE

Overall, as noted in the EIA Report, **no significant effects** in terms of the EIA Regulations are predicted on Aviation and Radar receptors during all phases of the Development. The conclusions of the EIA Report remain appropriate and valid for the SEI Layout.

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Chapter 15
Socio-Economics, Land-Use, Recreation and Tourism



15 SOCIO-ECONOMICS, LAND USE, RECREATION, AND TOURISM

15.1 INTRODUCTION

This Chapter of the Supplementary Environmental Information Report (SEI Report) evaluates the effects of the Development on the Socio-economics, Recreation and Land-use. It supplements **Chapter 15: Socio-Economics, Land-use, Recreation and Land-use** of the Environmental Impact Assessment Report (EIA Report) which should be read in conjunction with this chapter. This assessment was undertaken by Arcus Consultancy Services Limited (Arcus).

The principles of the EIA Report remain valid and appropriate and therefore have not been reassessed for this SEI, unless otherwise stated.

This chapter includes the following elements:

- Key Conclusions of the EIA Report;
- Changes to Legislation, Policy and Guidance;
- Methodology and Scope of Assessment;
- Consultation;
- Baseline Review and Update;
- Assessment of Potential Effects;
- Mitigation and Residual Effects;
- Cumulative Effect Assessment;
- Summary of Effects; and
- Statement of Significance.

15.2 KEY CONCLUSIONS OF THE EIA REPORT

The key conclusions of the EIA Report are as follows:

- No significant effect in terms of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017¹ (EIA Regulations) are predicted on socio-economics, recreation and land-use during the construction, operation or decommissioning phases of the Development;
- Capital expenditure is expected to be £75.2 million over the lifetime of the Development (30 years), based on the installed capacity of 57 MW;
- Operational expenditure per annum is expected to be in the region of £3.4 million. Of this total spend, 42% would be spent in the local area, with 87% of the total operational expenditure to be within the UK;
- There are limited opportunities for formal recreation within the immediate area;
- No significant direct or indirect effects on tourism or recreation receptors are predicted as a result of the Development, in isolation or cumulatively; and
- The effect on existing land-use within the Site is not significant in terms of the EIA Regulations.

15.3 CHANGES TO LEGISLATION, POLICY AND GUIDANCE

No changes have been noted in terms of policy regarding socio-economics, recreation and land-use receptors from those presented in **Chapter 15: Socio-Economics, Land-use, Recreation and Land-use** of the EIA Report.

¹ The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017
<http://www.legislation.gov.uk/ssi/2017/101/contents/made> (Accessed 16/08/2019)

15.4 METHODOLOGY AND SCOPE OF ASSESSMENT

The assessment methodology and significance criteria used within the SEI Report remain the same as stated within the EIA Report with regard to socio-economic, recreation and tourism.

15.5 CONSULTATION

Consultation responses were received after submission of the EIA Report. A summary of their responses with respect to socio-economic, recreation and land-use and how these responses have been addressed is summarised in Table 15.1 below.

Table 15.1: Post Application Consultation Responses

Consultee	Summary of Consultation Response	Response to Consultee
Scotways 30 th September 2021	Objection on the ground of amenity of the users of the trails within the site and landscape including concern with Cross Border Drove Road, Post Road and BT6, BT10, BT40 and BT41. The consultee does acknowledge that the design adheres to and exceeds guidance on separation distances.	Consideration of effects from specific viewpoints is covered within Section 5.9.3 of Chapter 5: LVIA of the EIA Report including viewpoints from Cross Borders Drove Road (VP1 and VP2) (parts of which use BT40) and Post Road (VP3). It is also noted that the consultee acknowledges that the separation distances applied to turbines adheres to and exceeds guidance. Overall, this is considered that no further action should be taken.
British Horse Society 19th July 2021	The BHS noted that the Development is a good opportunity to improve access etc. for hacking and so on.	Noted, no further action taken.
Manor, Stobo & Lyne Community Council 30 th September 2021	The Community Council raised concerns that the local socio-economic benefits are minimal.	Noted, no further action taken

15.6 BASELINE REVIEW AND UPDATE

There is no change to the baseline conditions reported in the EIA Report. The study area and potential receptors remain applicable and valid for the SEI Layout.

15.7 ASSESSMENT OF POTENTIAL EFFECTS

15.7.1 Construction Effects

No changes to construction effects in relation to socio-economics, recreation and land-use are anticipated as a result of the SEI Layout. **No significant effects** are predicted and the EIA Report assessment will remain applicable and valid for the SEI Layout.

15.7.2 Operational Effects

No changes to operational effects in relation to socio-economics, recreation and land-use are anticipated as a result of the SEI Layout. It is also noted that the Scotways post-application response highlights that the design both adheres to and exceeds turbine separation distances, and the design complies with guidance. **No significant effects** are predicted on socio-economics, recreation and land-use receptors during the

operational phase of the Development and the EIA Report assessment will remain applicable and valid for the SEI Layout.

15.8 MITIGATION AND RESIDUAL EFFECTS

As no change in effects is predicted with effects remaining **not significant**, mitigation will be as detailed in Section 15.7 of **Chapter 15: Socio-Economics, Tourism and Land-Use** of the EIA Report.

15.9 CUMULATIVE EFFECT ASSESSMENT

No significant cumulative effects were identified in the EIA Report on socio-economics, recreation and land-use and this is considered to still be applicable to the SEI Layout.

15.10 SUMMARY

It is considered that the conclusions of **Chapter 15: Socio-Economics, Tourism and Land-Use** of the EIA Report remain valid as a result of the SEI Layout. The Development is considered to have **no significant effects** on socio-economics, land-use, recreation and tourism.

15.11 STATEMENT OF SIGNIFICANCE

Overall, as noted in the EIA Report, **no significant effects** in terms of the EIA Regulations are predicted on socio-economics, land use, recreation and tourism receptors during all phases of the Development. The conclusions of the EIA Report remain appropriate and valid for the SEI Layout.

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Chapter 16
Climate Change and Carbon Balance



16 CLIMATE CHANGE AND CARBON BALANCE

16.1 INTRODUCTION

This Chapter of the Supplementary Environmental Information Report (SEI Report) evaluates the effects of the Development on the climate change and carbon balance resource. It supplements **Chapter 16: Climate Change** of the EIA Report which should be read in conjunction with this chapter. This assessment was undertaken by Arcus Consultancy Services Limited (Arcus).

This Chapter of the SEI Report is supported by the following Technical Appendix document provided in Volume 3: SEI Report Technical Appendices:

- A16.1: Updated Carbon Balance Calculations. This Appendix supersedes Technical Appendix A16.1 of the EIA Report.

This chapter includes the following elements:

- Key Conclusions of the EIA Report;
- Changes to Legislation, Policy and Guidance;
- Methodology and Scope of Assessment;
- Consultation;
- Baseline Review and Update;
- Assessment of Potential Effects;
- Mitigation and Residual Effects;
- Cumulative Effect Assessment;
- Summary of Effects; and
- Statement of Significance.

16.2 KEY CONCLUSIONS OF THE EIA REPORT

In summary, no significant effects to all receptors identified in **Chapter 16: Climate Change and Carbon Balance** of EIA Report were predicted as a result of climate change during the operational phase of the Development. The predicted future climatic baseline conditions were considered highly unlikely to affect the operation of the Development. The Development was assessed to have a positive effect on carbon savings and a significant positive effect when considered cumulatively with the UK-wide renewable energy deployment.

16.3 CHANGES TO LEGISLATION, POLICY AND GUIDANCE

No changes have been noted in terms of policy regarding climate change and carbon balance from those presented in **Chapter 16: Climate Change and Carbon Balance** of the EIA Report.

16.4 METHODOLOGY AND SCOPE OF ASSESSMENT

The scope of this SEI assessment is to consider the change in potential climate change and carbon balance effects as a result of the SEI Layout described in **Chapter 3: Project Description** of this SEI Report.

As indicated in the EIA Report, applications submitted under Section 36 of the Electricity Act are required to undertake the carbon balance assessment using the Scottish Government's carbon calculator tool so this tool has been re-run as part of the SEI Report and is included in Technical Appendix A16.1: Updated Carbon Balance Calculations of the SEI Report.

16.5 CONSULTATION

No post-submission comment in relation to climate change and carbon balance was received.

16.6 BASELINE REVIEW AND UPDATE

The baseline conditions, including all observed climate data, remain applicable and valid for the SEI Layout.

Climate projections show that the trends over the 21st century in the UK are towards warmer and wetter winters and hotter, drier summers, with an increase in frequency and intensity of extremes.

The climate parameters considered most relevant to the assessments referenced within the EIA Chapter were wind speed, temperature and precipitation, which remain valid.

16.7 ASSESSMENT OF POTENTIAL EFFECTS

The following assessments were considered in the EIA Report:

- Vulnerability of the Development to climate change;
- The influence of the Development on climate change; and
- A summary of effects on environmental receptors sensitive to climate change.

No significant effects were identified in the EIA Report for each of the above parameters due to the Development in isolation and this assessment still remains applicable. The minor revisions incorporated in the SEI Layout, as shown on Figure 2.1 of the SEI Report, do not give rise to any additional effects in relation to the assessments undertaken in the EIA Report; as such these remain valid and applicable.

16.7.1 Carbon Savings

As indicated in Section 16.4, due to the update of the calculator and amendments to the layout, an updated carbon balance assessment has been undertaken as part of this SEI Report. The carbon balance assessment is included as Technical Appendix A16.1 of the SEI Report.

Consistent to the results presented in the EIA Report, based on an anticipated capacity factor of 27%, it is expected the Development would result in the production of 136,236 megawatt hours (MWh) annually, equating to approximately 4,087,066 MWh over the 30-year operational life of the Development. This equates to displacing approximately 1,839,180 tonnes of fossil-fuel mix generation equivalent CO₂ emissions, based on DUKES emission factors¹. A comparison to the overall carbon savings for the EIA Report Development and the SEI Report Development are presented in Table 16.1.

Table 16.1: Carbon Savings for the Development (Expected Scenario)

	Expected CO₂ Saving (t CO₂ yr⁻¹) EIA Report Findings	Expected CO₂ Saving (t CO₂ yr⁻¹) SEI Report Findings
Coal fired electricity generation	125,337	125,337

¹ DUKES (2019) Digest of United Kingdom Energy Statistics 2018 [Online] Table 5E Available at: <https://www.gov.uk/government/statistics/digest-of-uk-energy-statistics-dukes-2019> (Accessed 16/09/2019)

	Expected CO₂ Saving (t CO₂yr⁻¹) EIA Report Findings	Expected CO₂ Saving (t CO₂yr⁻¹) SEI Report Findings
Grid mix electricity generation	34,547	34,547
Fossil fuel mix electricity generation	61,306	61,306

16.7.2 Carbon Losses

An updated peat depth survey was undertaken for the SEI Layout where it was confirmed that 91.2% of the site is underlain by peat at 1.0 m or less, as detailed in **Chapter 9: Geology, Ground Conditions and Peat** of the SEI Report. The design development process has sought, where possible, to avoid disturbance to deposits of deep peat. The revised T8 position is in an area of shallower peat than the previously assessed position and the additional Temporary Construction Compound location averaged a depth of 0.45 m.

A comparison to the overall carbon losses for the EIA Report Development and the SEI Report Development are summarised in Table 16.2.

Table 16.2: Carbon Losses for the Development (Expected Scenario)

Losses	t CO₂ Equivalent (total for wind farm lifetime) EIA Report Findings	t CO₂ Equivalent (total for wind farm lifetime) SEI Report Findings
Losses due to turbine life (e.g. manufacture, construction, decommissioning)	50,369	50,369
Losses due to back-up	19,618	19,618
Losses due to reduced carbon fixing potential	954	980
Losses from soil organic matter	5,673	5,605
Losses due to Dissolved Organic Carbon (DOC) and Particulate Organic Carbon (POC) leaching	363	341
Losses due to felling forestry	27,966	28,116
TOTAL LOSSES	104,943	105,030

Overall, the carbon losses for the Development have increased, this is largely due to the increased felling resulting from the SEI Layout's slightly greater footprint and associated felling that's required.

16.7.3 Carbon Payback Period

The carbon payback period is calculated by taking the total carbon cost (carbon losses) associated with the Development and dividing by the annual carbon gains from displaced

fossil fuel power generation and any site improvements. For all scenarios, this is the same as that calculated within section 16.5.1.3 of the EIA Report.

16.8 MITIGATION AND RESIDUAL EFFECTS

This Chapter of the SEI Report identified that no significant negative effects are predicted as a result of the SEI Layout and therefore, no formal mitigation is required under the EIA Regulations other than that already incorporated into the Development and recommended as best practice.

Other best practice mitigation measures will include the management of wind turbines to maintain operational efficiency during their lifetime. Maintenance plans for wind turbines would be developed to maximise turbine output and efficiency. Key performance indicators to monitor and track operational efficiency would be developed.

16.9 CUMULATIVE EFFECT ASSESSMENT

As indicated in the EIA Report, the cumulative effect of the Development with other UK renewables generation is considered to be a fundamental change in the climate effects of UK energy supply, which is a major, positive, environmental effect that is significant under the EIA Regulations and will contribute to the UK's legally binding emission reduction targets.

16.10 SUMMARY

In summary, **no significant effects** were predicted in the EIA Report on the Development as a result of climate change. As stated within the EIA Report, the predicted future climatic baseline conditions are highly unlikely to affect the operation of the Development. The Development will have a positive effect on carbon savings and a significant positive effect when considered cumulatively with UK-wide renewable energy development.

16.11 STATEMENT OF SIGNIFICANCE

Effects relating to climate change associated with the SEI Layout remain **not significant**. As stated in section 16.9 the cumulative effect with other UK renewables generation will have a major, positive environmental effect that is significant under the EIA Regulations. This represents no change to the conclusions outlined in the EIA Report.

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Chapter 17
Other Issues



17 OTHER ISSUES

17.1 INTRODUCTION

This Chapter of the Supplementary Environmental Information Report (SEI Report) evaluates the effects of the SEI Layout of the Cloich Forest Wind Farm (the Development) on the topics covered in **Chapter 17: Other Issues** of the EIA Report. This assessment was undertaken by Arcus Consultancy Services Limited (Arcus).

The topics included within this Chapter include:

- Shadow Flicker;
- Telecommunications and Utilities; and
- Human Health & Safety, Major Accidents & Disasters and Waste..

This Chapter of the SEI Report is supported by the following Figure provided in Volume 2a: SEI Report Figures excluding LVIA:

- Figure 17.1: Shadow Flicker Study Area and Casting Map. This figure supersedes Figure 17.1 of the EIA Report.

This chapter includes the following elements:

- Key Conclusions of the EIA Report;
- Changes to Legislation, Policy and Guidance;
- Methodology and Scope of Assessment;
- Consultation;
- Baseline Review and Update;
- Assessment of Potential Effects;
- Mitigation and Residual Effects;
- Cumulative Effect Assessment;
- Summary of Effects; and
- Statement of Significance.

17.2 SHADOW FLICKER

17.2.1 Key Conclusions of the EIA Report

The key conclusions of the EIA Report in relation to Shadow Flicker were:

- Eleven properties were identified within a study area of 2 km from the turbines (the study area is in line with the '*Scottish Borders Council Supplementary Guidance: Renewable Energy*¹'), seven of which were expected to experience shadow flicker effects as a result of the operation of the Development;
- At one property (Cloich Farm Peebles) the theoretical maximum calculated shadow flicker effects were 34.8 hours per year, in excess of the 30 hours per year threshold recommended in the 'Wind Energy Development Guidelines' published by the Northern Ireland Department of the Environment, Heritage and Local Government (2009)², however at all other properties the theoretical maximum calculated shadow flicker effects were below 30 hours per year;
- At all properties, calculated shadow flicker effects based on a more realistic 'likely' scenario which considered typical annual sunshine hours for the area in which the Development is located would not exceed the threshold of 30 hours per year; and

¹ Scottish Borders Council (2018) Supplementary Guidance, Renewable Energy [Online] Available at: https://www.scotborders.gov.uk/download/downloads/id/2757/renewable_energy_supplementary_guidance.pdf (Accessed 29/09/22)

² Department of the Environment, Best Practice Guidance to Planning Policy Statement 18 'Renewable Energy', 2009

- Shadow flicker will not occur during construction or decommissioning.

17.2.2 Changes to Legislation, Policy and Guidance

There is no change to Legislation, Policy and Guidance relating to shadow flicker from that described in the EIA Report.

17.2.3 Methodology and Scope of Assessment

The assessment methodology applied in the EIA Report has been applied in this SEI Report.

The scope of this SEI assessment is to consider the change in potential shadow flicker effects as a result of re-siting Turbine 8 ('T8') approximately 150 m to the south of the location considered in the EIA report.

17.2.4 Consultation

No comments relating to shadow flicker were received, consequently no additional consultation on shadow flicker has been undertaken.

17.2.5 Baseline Review and Update

The baseline remains as per the EIA Report³.

17.2.6 Assessment of Potential Effects

Figure 17.1 of the SEI Report presents the revised shadow flicker study area and casting map (the area over which shadows may be cast), reflecting the re-siting of T8 in the SEI Layout.

Table 17.1 presents the theoretical maximum levels of shadow flicker that may result from the SEI Layout, based on the worst-case assumptions discussed in Section 17.2.3 of **Chapter 17: Other Issues** of the EIA Report.

Table 17.1: Potential Shadow Flicker Effects at Assessed Locations

Property Name	Days per year that shadow flicker could occur	Maximum minutes per day that shadow flicker could occur	Average minutes per day that shadow flicker could occur	Theoretical Maximum Hours per Annum	Likely Hours per Annum ⁴
Cloich Farm Peebles	99	39	19.8	33	10.9
Whitelaw Burn	26	18.6	14.4	6.2	2.0
Upper Stewarton	76	29.4	15.6	19.9	6.6
Nether Stewarton	64	24.6	17.4	18.8	6.2
Stewarton House	71	24.6	17.4	20.5	6.8
Stewarton Toll	44	22.8	17.4	13	4.3

³ It should be noted that the Chapter 17 of the 2021 EIA Report contained an error with regards to the number of properties assessed; a number of references were made to 12 properties located within the 2 km study area, eight of which were described as having the potential to receive shadow flicker. The correct numbers were 11 properties within the study area, seven of which had the potential to receive shadow flicker (as described in Section 17.2.1).

⁴ Assumes bright sunshine occurs 33% of the time, based on data from: World Weather Online, Peebles [Online] Available at: <https://www.worldweatheronline.com/peebles-weather/scottish-borders/gb.aspx> (Accessed 29/09/2022)

Property Name	Days per year that shadow flicker could occur	Maximum minutes per day that shadow flicker could occur	Average minutes per day that shadow flicker could occur	Theoretical Maximum Hours per Annum	Likely Hours per Annum ⁴
Stewarton Lodge	38	21.6	16.8	10.6	3.5
Harehope Farmhouse	0	0	0	0	0
Old Harehope	0	0	0	0	0
The Steading	0	0	0	0	0
Harehope Cottage	0	0	0	0	0

It has been calculated that shadow flicker may occur as a result of the Development at seven of the eleven properties within the study area, as shown on Figure 17.1 of the SEI Report. Cloich Farm Peebles has the greatest potential to experience shadow flicker effects, with levels calculated as being possible for up to a theoretical maximum of 33 hours per annum and up to 39 minutes per day (a reduction compared to the maximum 40.2 minutes per day and 34.8 hours per year reported for this property in the EIA Report). No shadow flicker effects were found for Harehope Farmhouse, Old Harehope, The Steading, or Harehope Cottage.

Based upon weather conditions required to facilitate shadow flicker occurring for only 33% of the time (as outlined in Section 17.2.3 of the EIA Report), the likely number of hours per year where shadow flicker could potentially occur is reduced by this factor to 10.9 hours per annum at Cloich Farm Peebles.

The maximum calculated daily levels of shadow flicker at Cloich Farm Peebles exceeds the recommended threshold of 30 minutes per day for a total of six days per year; for the remaining 93 days per year when shadow flicker may occur at this property, the duration would be below the 30-minute threshold. It should be noted that the calculated annual and daily shadow flicker levels at Cloich Farm Peebles are likely to comprise an over-estimate of actual effects, given the conservative aspects of this assessment as set out in the assessment methodology. It is likely that actual shadow flicker occurrence will be lower than the calculated levels in practice due to screening and weather conditions (including cloud cover, wind speed and wind direction).

As seen from Table 17.1, all other properties assessed are predicted to receive shadow flicker effects for durations below the guidance threshold of 30 minutes per day or 30 hours per year.

It is understood that a micro-siting allowance of 50 m is being applied for with this application. Should turbines be fully micro-sited, it is predicted that the likely shadow flicker duration at all assessed locations will remain well below the shadow flicker threshold.

17.2.7 Mitigation and Residual Effects

Shadow flicker effects have been assessed as not significant; therefore, no mitigation is required.

17.2.8 Cumulative Effect Assessment

The nearest wind farm is Bowbeat Wind Farm, a 24-turbine development located 8.6 km east of the Development. As this distance exceeds the 2 km distance for likely shadow flicker effects, it is considered that shadow flicker impacts from Bowbeat Wind Farm are

unlikely to occur, at the assessed properties in Table 17.1. Cumulative shadow flicker effects from Bowbeat Wind Farm have therefore not been considered further.

17.2.9 Summary of Effects

An assessment of potential shadow flicker effects associated with the Development has been carried out.

As described in Section 17.2.5.1 of **Chapter 17: Other Issues** in the EIA Report, shadow flicker can only occur due to operational wind turbines; shadow flicker cannot occur during the construction or decommissioning of the Development.

Calculated shadow flicker levels, considering typical occurrence of bright sunshine (required for shadow flicker to occur), are below the thresholds recommended in the 'Wind Energy Development Guidelines' published by the Northern Ireland Department of the Environment, Heritage and Local Government (2009) at all properties with the exception of Cloich Farm Peebles, where shadow flicker may marginally exceed the threshold of 30 minutes per day for up to six days per year in a theoretical maximum scenario. However, considering the calculations are based on worst-case assumptions (discussed in Section 17.2.3 of **Chapter 17: Other Issues** in the EIA Report) it is likely that actual shadow flicker occurrence will be lower than the calculated levels in practice.

Cumulative shadow flicker due to the Development has been considered. Due to the substantial distance between the Development and the nearest cumulative wind farm, there is no reasonable prospect of cumulative shadow flicker effects occurring.

17.2.10 Statement of Significance

Shadow flicker effects resulting from the construction, operation and decommissioning of the Development are considered **not significant** in terms of the EIA Regulations.

The effect of cumulative shadow flicker has been considered, and due to the substantial distance between the Development and the nearest cumulative wind farm development, there is no reasonable prospect of a significant cumulative effect. As such, cumulative shadow flicker effects are considered **not significant** in terms of the EIA Regulations.

17.3 TELECOMMUNICATIONS AND UTILITIES

17.3.1 Key Conclusions of the EIA Report

The EIA Report did not identify potential significant effects on any receptors during the construction, operation and decommissioning of the Development.

17.3.2 Changes to Legislation, Policy and Guidance

There is no change to Legislation, Policy and Guidance relating to Telecommunications and Utilities from that described in the EIA Report.

17.3.3 Methodology and Scope of Assessment

The assessment methodology applied in the EIA Report has been applied in this SEI Report.

The scope of this SEI assessment is to consider the change in potential Telecommunications and Utilities effects as a result of re-siting Turbine 8 ('T8') approximately 150 m to the south of the location considered in the EIA report.

17.3.4 Consultation

No objections relating to Telecommunications and Utilities were received from the consultation following the submission of the EIA Report. For those that responded, consultation was then repeated as part of further consultation as the Development's design progressed. On all occasions, no objections were received. The below comments were received during the post-submission consultation process.

Table 17.3 Post Application Consultation Responses

Consultee	Summary of Consultation Response	Response to Consultee
British Telecommunications (BT); 16 th July 2021	BT stated that Project should not cause interference to BT's current and presently planned radio network.	Noted, no further action taken.
Joint Radio Company 2 nd August 2021	The consultee stated that the proposal is cleared with respect to radio link infrastructure operated by Scottish Power and Scotia Gas Networks.	Noted, no further action taken.

17.3.5 Baseline Review and Update

The baseline remains as per the EIA Report.

17.3.6 Assessment of Potential Effects

There is no known change to the telecommunication and utility baseline conditions, and the relocation of turbine T8 will make no material change to the potential effects determined within the EIA Report, which concluded **no significant effects** to telecommunications and utilities.

17.3.7 Mitigation and Residual Effects

Telecommunications and Utilities effects have been assessed as not significant and no mitigation measures were proposed in the EIA Report; therefore, no mitigation is considered necessary due to the changes associated with the SEI Layout.

17.3.8 Summary of Effects

It is considered that the conclusions of **Chapter 17: Other Issues** of the EIA Report remain valid as a result of the SEI Layout. The Development is considered to have **no significant effects** on telecommunications and utilities.

17.3.1 Statement of Significance

No change from the original EIA Report has been identified, which concluded that **no significant effects** were predicted upon telecommunications and utilities as a result of the Development and the proposed mitigation from the EIA Report remains extant.

17.4 HUMAN HEALTH & SAFETY, INCLUDING MAJOR ACCIDENTS & DISASTERS AND WASTE

Overall, there is no change to the baseline, legislation or methodology applied to assess impacts on Human Health & Safety, Major Accidents & Disasters and Waste. No significant effects in terms of the EIA regulations are predicted on health and safety or waste, including accident during all phases of the Development. The conclusions in **Chapter 17: Other Issues** of the EIA Report remains appropriate and valid for the SEI Layout.

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Chapter 18
Summary of Mitigation



18 SUMMARY OF MITIGATION

This Chapter of the Supplementary Environmental Information Report (SEI Report) provides a summary of mitigation measures that have been proposed to prevent, reduce or offset the effects associated with the Cloich Forest Wind Farm ('the Development').

Embedded mitigation measures have been integral to the design evolution of the Development as outlined in **Chapter 2: Site Selection and Design** and **Chapter 3: Project Description** of the EIA and SEI Report. The overall aim of the design strategy was to create a wind farm with a cohesive design that relates to the surrounding landscape whilst taking account of the environmental characteristics of the area in which the Development is located, for example priority habitats and key ornithological species, peat and hydrological resources, and cultural heritage assets.

Table 18.1 of the EIA Report presented a schedule of mitigation measures for the Development listed according to the relevant environmental topic, which would be applied during the construction and operation of the Development. This chapter supersedes **Chapter 18: Summary of Mitigation** of the EIA Report and Table 18.1 of this chapter summarises all mitigation as proposed within the EIA Report and any additional mitigation that has been identified or implemented as part of the SEI Report. Additional mitigation identified within the SEI Report in Table 18.1 is indicated by the grey shading.

Table 18.1: Summary of Mitigation

Chapter	Proposed Mitigation	Timing
<p>Chapter 3: Project Description</p>	<p>Micro-siting A micro-siting allowance of 50 metres (m) in all directions is proposed for turbines and associated infrastructure. This is to allow for a degree of flexibility should unsuitable ground conditions be encountered or in the event of environmental constraints being identified during pre-construction surveys. Any changes will be subject to approval of an Ecological Clerk of Works (ECoW) with other specialist environmental advice (e.g., hydrology, archaeology, etc.) as required.</p>	Pre-Construction and Construction
	<p>Construction Method Statements (CMSs) The construction phase will be controlled via a series of detailed CMSs which will be prepared by a civil engineering contractor appointed by the Applicant, who will have overall responsibility for environmental management on the construction site.</p>	Pre-Construction and Construction
	<p>Construction Environmental Management Plan (CEMP) The CEMP, produced prior to construction, will be the overarching live document which combines the principles of all other management plans and environmental plans outlined within this EIA Report and would support the CMSs. The CEMP will typically be supported by, but not limited to, the following documents which apply to the construction process:</p> <ul style="list-style-type: none"> • Water Construction Environmental Management Plan (WCEMP); • Peat Management Plan; • Pollution Prevention Plan; • Traffic Management Plan; • Site Waste Management Plan (SWMP); and • Restoration Plan. 	Pre-Construction and Construction

Chapter	Proposed Mitigation	Timing
	<p>Health and Safety</p> <p>Health and safety issues during construction and decommissioning fall under the Construction (Design and Management) (CDM) Regulations 2015¹. A Construction Phase Plan (Health and Safety Plan) will be prepared by the Construction Project Manager with records provided to the Applicant during the works to enable the Health and Safety File to be completed.</p>	Pre-Construction and Construction
Chapter 5: Landscape and Visual Impact Assessment (LVIA)	<p>Embedded Mitigation</p> <p>Embedded Mitigation includes the design changes that been implemented during the development of the scheme, these are set out in detail in Chapter 2: Site Selection & Design of the EIA and SEI Report. All mitigation for landscape and visual effects is embedded within the final design for the Development.</p>	Pre-Submission
	<p>Construction Environmental Management Plan (CEMP)</p> <p>Measures such as arrangements for vegetation and soil removal, storage and replacement and the restoration of disturbed areas after construction will be detailed in the CEMP produced following consent and prior to construction, which will also include reference to CMSs.</p>	Pre-Construction and Construction
Chapter 6: Archaeology and Cultural Heritage	<p>Embedded Mitigation</p> <p>Embedded Mitigation includes the design changes that been implemented during the development of the scheme, these are set out in detail in Chapter 2: Site Selection & Design of the EIA and SEI Report. All mitigation for archaeological and cultural heritage effects is embedded within the final design for the Development.</p>	Pre-Submission
	<p>Pre-Construction Surveys & Tool Box Talks</p> <p>Archaeological features (SM2756 and HER51667) would be subject to a full survey of prior to construction; tool box talks highlighting the archaeology within the Development Site; fencing (if required); and a watching brief during construction in the vicinity of SM2756.</p>	Pre-Construction & Construction

¹ Health and Safety Executive (2015) Construction Design and Management Regulations 2015 [Online] Available at: <http://www.hse.gov.uk/construction/cdm/2015/index.htm> (Accessed 23/06/2021).

Chapter	Proposed Mitigation	Timing
	<p>Enhancement Mitigation</p> <p>SM2756 Kilrubie Hill Ring Enclosures and the top of Whaup Law (SM2755) would be felled and not replanted as part of the Development’s forestry proposals in order to end the planting disturbance to SM2756 and to open up viewsheds from Whaup Law Cairn (SM2755) which currently do not exist due to surrounding forestry.</p>	Pre-Construction, Construction, and Operation
	<p>Enhancement Mitigation – Light Detection and Ranging (LIDAR)</p> <p>LIDAR survey has been a successful tool for identifying archaeological features within forestry plantation and is recommended here.</p> <p>This LIDAR survey would be carried out over the most important and sensitive areas of historic landscape that would be affected by the Development, where appropriate permissions can be obtained. This would include the Meldon Valley, the valley of Flemington Burn and the Cademuir hillforts.</p> <p>In selected areas, the LIDAR would be collected at ultra-high resolution (to at least c. 0.25 m) alongside detailed vertical aerial photographs. These areas would include:</p> <ul style="list-style-type: none"> • White Meldon and Black Meldon; • Upper and Lower Cademuir hillforts; and • Whiteside Hill hillfort. <p>The full details of the specification for this survey would be resolved in discussions with Historic Scotland, the Council Archaeological Officer and Forestry Scotland senior archaeologist.</p>	Pre-Construction & Construction
Chapter 7: Ecology	<p>Embedded Mitigation – Environmental Clerk of Works (ECoW)</p> <p>A suitably qualified and experienced Environmental Clerk of Works (ECoW) will be appointed to provide appropriate ecological and environmental advice during construction, including the monitoring of compliance with conservation legislation, the recommendations of this EIA Report and any subsequent planning conditions.</p>	Pre-Construction and Construction
	<p>Embedded Mitigation – Pre-construction Survey for Protected Species</p> <p>Pre-construction Surveys for protected species, such as otter and badger, will be undertaken to provide up-to-date information about the distribution and abundance of the protected species identified in the baseline. The results of the surveys will inform the need for Species Protection Plans and associated mitigation and licencing requirements, all of which will be developed in line with NatureScot guidance.</p>	Pre-Construction

Chapter	Proposed Mitigation	Timing
	<p>Embedded Mitigation – Bat Separation Distance</p> <p>To minimise the risk of bats colliding with operational turbines, the 50 m separation distance between blade tips and high-value bat habitats implemented during construction, will be maintained throughout the operational life of the Development by ensuring that tree regeneration does not encroach on the buffer.</p>	Operation
	<p>Enhancement Mitigation - Outline Habitat Management Plan</p> <p>Habitat Management will be implemented in accordance with a Habitat Management Plan (HMP). A detailed HMP will be written and developed in full following consent, and in consultation with NatureScot, SBC, RSPB and the Tweed Forum, where relevant.</p> <p>Certain high-value areas (i.e., areas with broadleaved trees) will be enhanced with the provision of 15 bat boxes (i.e., three boxes on each of five trees). Exact specifications will be provided in the HMP.</p>	Pre-Construction, Construction, and Operation
	<p>Rotation Speed</p> <p>Blades will be stopped from idling during periods when bats are likely to be active (i.e. April to October inclusive, from 30 minutes prior to sunset to 30 minutes after sunrise), which is further detailed in the latest bat guidance².</p>	Operation
Chapter 8: Ornithology	<p>Embedded Mitigation – Breeding Bird Protection Plan (BBPP)</p> <p>The key embedded mitigation with relevance to ornithological features is the implementation of a Breeding Bird Protection Plan (BBPP). This will be developed to detail good practice measures aimed at ensuring the safeguarding of breeding birds and legislative compliance during all phases of the Development. Proposed measures are outlined below.</p>	Pre-Construction, Construction, and Operation
	<p>Embedded Mitigation – Timing of Works</p> <p>Where possible, site clearance works will take place outside the main breeding bird season (March to August inclusive).</p>	Construction

² NatureScot, Natural England, Natural Resources Wales, Renewable UK, ScottishPower Renewables, Ecotricity Ltd, the University of Exeter and the Bat Conservation Trust (2019): Bats and Onshore Wind Turbines: Survey, Assessment and Mitigation. Version: August 2021.

Chapter	Proposed Mitigation	Timing
	<p>Embedded Mitigation – Pre-Construction Surveys (Goshawk) Pre-construction surveys for goshawk is recommended. A pre-construction survey of areas of suitable habitat for nesting goshawk within 500 m of works will be completed ahead of any operations, by a suitably experienced and qualified Ecological Clerk of Works (ECoW), to check for active nests (or other evidence of breeding).</p>	Pre-Construction
	<p>Embedded Mitigation – Pre-Construction Surveys (Crossbill) Prior to any felling, precautions must be taken to avoid potential disturbance to nesting birds or destruction of active nests. A pre-construction survey of areas of suitable habitat for nesting crossbill within 150 m of works will be completed ahead of any operations, regardless of the time of year, by a suitably experienced and qualified ECoW, to check for evidence of breeding (such as active nests or territorial behaviour).</p>	Pre-Construction
	<p>Embedded Mitigation – Pre-Construction Surveys (other breeding birds) Where construction works are required during the breeding bird season (March to August inclusive), the area within 500 m of works will be surveyed ahead of any operations, by a suitably experienced and qualified ECoW, to check for active nests of all bird species.</p>	Pre-Construction
	<p>Embedded Mitigation – Toolbox Talk A 'toolbox talk' will be delivered by a suitably experienced ECoW to ensure that all contractors working on the Development are aware of ornithological sensitivities and relevant legislation.</p>	Pre-Construction & Construction
	<p>Embedded Mitigation – Protection of Nesting birds If any nests (or breeding territories of Schedule 1 species) are identified during pre-construction surveys, an exclusion zone around the nest/breeding territory will be established (with the distance appropriate to the species and agreed through consultation with NatureScot). No works will be permitted within the exclusion zone and no personnel or vehicles will be allowed to enter or pass through until the ECoW has confirmed that the breeding attempt has reached a natural conclusion. Where this is not feasible, NatureScot will be contacted and further mitigation measures agreed to ensure that nesting birds are not harmed and any breeding Schedule 1-listed species are not disturbed.</p>	Pre-Construction & Construction

Chapter	Proposed Mitigation	Timing
	<p>Monitoring</p> <p>It is proposed that ornithological monitoring should take place post-construction, in line with NatureScot guidance.</p> <p>In line with NatureScot guidance, monitoring should take place annually during construction, and after the Development becomes operational, during years 1-3, 5, 10 and 15 as a minimum, with the requirement for further surveys to be determined based on previous survey results.</p> <p>Goshawk nest monitoring will be undertaken in liaison with the Lothian and Borders Raptor Study Group, to determine the operational impacts on breeding success.</p>	Construction and Operation
<p>Chapter 9: Geology, Ground Conditions and Peat</p>	<p>Embedded Mitigation – Design</p> <p>Design of the site layout avoiding key environmental constraints including avoidance of deepest peat (i.e., no turbines sited in peat > 1 m) or limiting the impacts on deep peat where possible, as well as taking cognisance of hydrological and ecological features and associated buffers.</p>	Pre-Submission
	<p>Embedded Mitigation – Best Practice</p> <p>Best practice methods and works as outlined in the publication 'Good Practice during Wind Farm Construction'³ will be adhered to during construction.</p>	Pre-Construction & Construction
	<p>Pre-Construction Surveys</p> <p>Intrusive site investigations will be undertaken across the infrastructure areas prior to construction, particularly at turbine locations to determine the extent and nature of any peat.</p>	Pre-Construction
	<p>Micrositing</p> <p>Where infrastructure associated with turbines is found to encroach on deep peat, this will be microsited (if possible) out with these areas in order to reduce the overall effect on peat disturbance, stability and loss of soils.</p>	Pre-Construction & Construction

³ Scottish Renewables et al. (2019) Good Practice during Wind Farm Construction, 4th Edition 2019 [Online]. Available at: <https://www.nature.scot/sites/default/files/2020-12/Good%20Practice%20during%20wind%20farm%20construction%20-%204th%20Ed.pdf> (Accessed 04/05/2021)

Chapter	Proposed Mitigation	Timing
	<p>Drainage Maintenance of existing drainage is critical to avoid compaction of soils, therefore, all existing drainage network channels would be maintained and, where necessary, channelled below the access track construction drainage ditches on the upslope of the track.</p>	Pre-Construction & Construction
	<p>Peat Slide Risk Assessment Slope stability monitoring will occur during pre-construction and construction phases of work, including for both peat stability and non-peat related stability.</p>	Pre-Construction & Construction
	<p>Outline Peat Management Plan Best practice measures for managing excavated peat and peaty soils are detailed in Technical Appendix A9.2: Outline Peat Management Plan of the SEI Report.</p>	Pre-Construction & Construction
<p>Chapter 10: Hydrology and Hydrogeology</p>	<p>Embedded Design The following mitigation measures relating to the hydrological environment are embedded into the design and construction of the Development:</p> <ul style="list-style-type: none"> • 50 m watercourse buffers for construction works with the exception of watercourse crossings and access tracks; and • 250 m buffer from turbines bases and groundwater abstractions via boreholes has been established in accordance with LUPS-31. <p>The existing network of access tracks which serve the forestry operations have been utilised, where possible, limiting the requirement for additional felling and for new watercourse crossings.</p>	Pre-Submission
	<p>Micro-siting As per Chapter 3: Project Description of the EIA Report, each turbine and associated infrastructure is subject to a micro-siting allowance of 50 metres in all directions. Chapter 10 of the SEI Report highlights that the location of T3, including any cranepad or harstanding areas, should not be microsited in any closer proximity to the Private Water Supply (PWS) at Stewarton, nor topographically higher than its existing location. This is to mitigate any impacts to the nearby PWS.</p>	Pre-Construction

Chapter	Proposed Mitigation	Timing
	<p>Embedded Design - Water Construction Environmental Management Plan (WCEMP)</p> <p>Construction good practice methods and works for protection of hydrological receptors are outlined in the Technical Appendix A10.1: WCEMP of the EIA Report. The WCEMP describes water management measures to control surface water run-off and drain hardstanding's and other structures during the construction and operation of the Development.</p> <p>Embedded measures include;</p> <ul style="list-style-type: none"> • Buffer zones around receptors where no construction works are to be carried out e.g., watercourses (50 m) or private water supplies (buffer zone is dependent on type and abstraction volume of supply); • Appropriate material storage and maintenance; • Silt management including silt traps, silt fencing, sediment mats and settlement lagoons; • Infiltration trenches and rock stockpiles to treat run-off before discharging back to the hydrological network; and • Vehicle washout facilities for washing of associated vehicles. • Water quantity mitigation measures to prevent changes to yield include, but are not limited to; • Settlement lagoons to attenuate run-off from turbine foundations and tracks; and • Permanent swales and drainage ditches adjacent to access tracks with outlets at specified intervals to reduce the volume of water collected in a single channel and the potential for erosion. <p>This will form part of a Pollution Prevention Plan (PPP) to be implemented for the Development. The PPP will set out measures to be employed to avoid or mitigate potential effects for all phases of the Development, and will also include an Incident Plan to be followed should a pollution event occur.</p>	<p>Construction and Operation</p>

Chapter	Proposed Mitigation	Timing
	<p>Private Water Supplies (PWS)</p> <p>Mitigation measures are outlined in Technical Appendix A10.2: Private Water Supply Risk Assessment of the EIA Report.</p> <p>A programme of private water supply monitoring will be undertaken at selected properties, to ensure that PWS is reinstated to baseline water quality and quantity conditions following the construction phase.</p>	Pre-Construction & Construction

Chapter	Proposed Mitigation	Timing
<p>Chapter 11: Noise</p>	<p>Construction Noise Good Practice</p> <ul style="list-style-type: none"> • Operations shall be limited to times agreed with Scottish Borders Council (the Council); • Deliveries of turbine components, plant and materials by HGV to site shall only take place by designated routes and within times agreed with the Council; • The site contractors shall be required to employ the best practicable means of reducing noise emissions from plant, machinery and construction activities, as advocated in BS 5228; • Where practicable, the work programme will be phased, which would help to reduce the combined effects arising from several noisy operations; • Where necessary and practicable, noise from fixed plant and equipment will be contained within suitable acoustic enclosures or behind acoustic screens; • All sub-contractors appointed by the main contractor will be formally and legally obliged, and required through contract, to comply with all environmental noise conditions and / or Construction Environmental Management Plans; • Where practicable, night-time working will not be carried out. Local residents shall be notified in advance of any night-time construction activities likely to generate significant noise levels, e.g., turbine erection; and • Any plant and equipment normally required for operation at night (23:00 - 07:00), e.g., generators or dewatering pumps, shall be silenced or suitably shielded to ensure that the night-time lower threshold of 45 dB, LAeq, night shall not be exceeded at the nearest noise-sensitive receptors. <p>In the event that stone is required to be extracted from borrow pits by blasting, the following process would be employed to ensure that the effects of blasting noise and vibration on nearby properties are adequately controlled:</p> <ul style="list-style-type: none"> • Compliance with planning conditions specifying limits to vibration resulting from blasting, restrictions on times of blasting, and a requirement for vibration monitoring; • Trial blasting, using progressively larger charge loads, to establish suitable acceptable charge; and • Provision of information on blasting to neighbouring residents. 	<p>Construction</p>

Chapter	Proposed Mitigation	Timing
<p>Chapter 12: Traffic and Transportation</p>	<p>Construction Traffic Management Plan</p> <p>A Construction Traffic Management Plan (CTMP) is proposed and will include specific mitigation measures, including:</p> <ul style="list-style-type: none"> • As far as reasonably possible, deliveries should be scheduled outside of church service times; • Drivers of all delivery vehicles to be made aware during induction of the presence of schools, hospital and other amenities within settlements; • Delivery times will be scheduled to ensure that deliveries do not arrive in a convoy; • Timing of the deliveries will be outlined within the CTMP to ensure construction vehicles avoid potentially congested networks at peak hours; and • Communications with local communities should be undertaken for planned activities such as turbine deliveries and concrete delivery days (if onsite batching is not possible). 	<p>Pre-Construction and Construction</p>
<p>Chapter 13: Forestry</p>	<p>Tree Planting & Compensatory Tree Planting</p> <p>Any tree crops permanently removed to accommodate the Development will be replanted on a like-for-like area basis either within the Site or at a suitable substitute location.</p>	<p>Construction and Operation</p>
<p>Chapter 14: Aviation and Radar</p>	<p>Infra-red Lighting</p> <p>Infra-red lighting will be installed to ensure the Development is visible to pilots of low flying aircraft.</p>	<p>Operation</p>
<p>Chapter 15: Socio-Economics, Land-Use, Recreation and Tourism</p>	<p>Access Management Plan</p> <p>Access Management Plan to be drafted and agreed with the Council prior to construction. The Access Management Plan may include a gating system operated by banksman at required locations; in addition, the Access Management Plan may include appropriate health and safety signage local route diversions (if required), and traffic management measures.</p>	<p>Construction</p>

Chapter	Proposed Mitigation	Timing
<p>Chapter 16: Climate Change and Carbon Balance</p>	<p>Embedded Design</p> <p>The design choices made as a consequence of the key constraints are considered to be mitigation which is 'embedded' in the design; the following are most relevant for the climate change impact assessment:</p> <ul style="list-style-type: none"> • Development infrastructure is built to withstand strong windspeeds and to harness energy; • Turbine spacing is sufficient to reduce turbulence effects on turbines downwind; • The turbines are located to maximise energy generation while minimising environmental impacts; • The Development design aims to reduce impacts on peat – e.g., through use of existing track layout and avoiding areas of deep peat; • Implementation of a CEMP, PMP etc. during construction to minimise environmental impacts and peat disturbance; and • Buffers from watercourses incorporated in layout design, protecting water quality and also protecting Development infrastructure from flooding. 	<p>Pre-Construction & Construction</p>