8 Terrestrial Ecology Assessment

8.1 Introduction

8.1.1 This chapter provides a revised assessment of the likely significant effects on terrestrial ecology receptors associated with the construction, operation and maintenance, and decommissioning of the revised proposed development. It provides a summary of consultation responses to date and how these have been addressed, relevant changes in policy, legislation and guidance, and the amendments to the 'original proposed development' detailed and assessed in the EIA Report October 2023 that are relevant to terrestrial ecology receptors. The revised proposed development refers to all of the permanent and temporary infrastructure proposed to be constructed or installed within the site included as part of the AEI submission.

8.1.2 The site is defined as the area bounded by the site boundary as referenced by the revised proposed development (see **AEI Figure 1.2**) and not that referenced in the original proposed development within this AEI. For EIA technical appendices, terminology is reflective of design plans at the stage of writing and have not been updated (with the exception of the Outline Biodiversity Enhancement Plan and shadow Habitats Regulations Appraisal).

8.1.3 For the purposes of the assessment presented in this chapter and for ease of reading, references to 'the original site boundary' refer to site boundary of the original proposed development, and references to 'the revised site boundary' refer to the site boundary of the revised proposed development. These are as illustrated on **AEI Figure 2.2**.

8.1.4 As interrelationships exist between the assessment of effects terrestrial biodiversity including ecology receptors and certain other environmental factors reference should be made to the following chapters of the AEI:

- **AEI Chapter 3: Revised Proposed Development Description**;
- **AEI Chapter 9: Ornithology**; and
- **AEI Chapter 10: Hydrology, Hydrogeology and Geology**.

8.1.5 The assessment has been carried out by Rowan Smith MSc BSC (Hons). Rowan is a senior ecologist with over 6 years professional experience in the environmental sector specialising in aquatic/riparian ecology and impact assessment. Rowan has a proven track record of project managing ecological elements of large scale (2000 MW) energy infrastructure projects, including pump storage hydro schemes, wind farms and solar farms across Scotland where she compiled a range of assessments including EIA chapters, Ecological Impact Assessments (EcIAs) and Habitats Regulations Appraisals.

8.1.6 This assessment has been reviewed by Richard Arnold (MCIEEM) Technical Director. Richard has over 26 years of experience as a professional ecological consultant. Richard has worked on projects in most development sectors, including pipelines, cable routes, railways, roads, urban regeneration, ports, power stations and renewable energy projects, such as wind farms, and at all stages of the development process, from design to completed development. His work includes undertaking and directing ecology surveys, ecological impact assessments, Habitats Regulations Assessments, protected species licensing and on-site mitigation. Consequently, he has in depth knowledge of biodiversity legislation and planning guidance relating to nature conservation.

8.1.7 This AEI chapter is supported by the following technical appendices:

- AEI Technical Appendices:
  - **EIA Technical Appendix 8.1: Ecology Desk Study Report**;
  - **EIA Technical Appendix 8.2: Vegetation Survey and Habitat Mapping Report**;
  - **EIA Technical Appendix 8.3: Protected Mammal Survey Report**;
  - **EIA Technical Appendix 8.4: Bat Survey Report**;
  - **EIA Technical Appendix 8.5: Fish Habitat and Electro-fishing Survey Report**;
  - **AEI Technical Appendix 8.6: Outline Biodiversity Enhancement and Restoration Plan**;
  - **AEI Technical Appendix 8.7: Habitats Regulations Appraisal Shadow Screening Report**; and
  - **AEI Technical Appendix 8.8: Habitats Regulations Appraisal Report to Inform Appropriate Assessment (RIAA)**.

8.2 Legislation, Policy and Guidance

8.2.1 No changes have been made to legislation, policy or guidance relevant to terrestrial ecology between the assessment of the original proposed development and the revised proposed development. Further information regarding planning policy is provided in **AEI Chapter 4: Energy Policy**.

8.3 Consultation

8.3.1 **AEI AEI Table** 8.1 provides a summary of the key consultation responses to date, including those presented in the Chapter 8 of EIA Report October 2023. A reply to the consultee responses is also provided in AEI Table 8.1, and where appropriate guidance to relevant sections of this chapter or EIA Report October 2023.

AEI Table 8.1 List of Consultee Responses to date

Consultee / Date	Consultee Comment	Applicant Response / Action
NatureScot January 2024	A Habitats Regulation Appraisal (HRA) will be required. We advise that sufficient information is provided in the EIA Report to enable the competent authority to carry out an appraisal of the likely impact of the proposed development on the qualifying interests of the River Tweed SAC.	A shadow HRA screening is provided in **AEI Technical Appendix 8.7**. One statutory site, the River Tweed was progressed to Appropriate Assessment, provided in **AEI Technical Appendix 8.8.**
	We would advise caution with regards planting of juniper given the risk of spreading juniper dieback (*Phytopthera austrocedri*) and potential connectivity with the Lammer Law Site of Special Scientific Interest.	The OBERP (see **AEI Technical Appendix 8.6)** has omitted significant juniper planting within the site. Additional consultation is proposed with Trees for Life regarding local micro-siting of juniper stands to minimize connectivity to the SSSI. If a suitable location cannot be determined or the risk of spread is too high, juniper will be removed from the seed mix.
Historic Environment Scotland	Neither of these [Glenburnie Fort (SM4473) and Longcroft Hill homestead (SM4480)] scheduled monuments have been clearly	The OBERP (see **AEI Technical Appendix 8.6)** has implemented a 500 m exclusion zone for proposed compensation /

Consultee / Date	Consultee Comment	Applicant Response / Action
February 2024	identified within the indicative management areas proposed for biodiversity enhancements on Figure 8.6.1 of Technical Appendix 8.6: Outline Biodiversity Enhancement and Restoration Plan.	enhancement works for both scheduled monuments. Ongoing management will survey the edges of the 500 m buffer to ensure to encroachment or natural succession of vegetation from planting within this area.

8.3.2 Additional scoping was conducted with the Butterfly Conservation in August 2023 and the SBC Ecology Officer in July 2024 regarding the presence of Northern Brown Argus Butterfly and their primary habitat, rockrose. Rockrose is not present within the site of the revised proposed development and is closely reliant on calcareous grassland which now lies exclusively south of the site.

8.4 Scope of Additional Environmental Information

8.4.1 This chapter considers the likely significant effects of the revised proposed development upon terrestrial biodiversity including ecology receptors. Ornithological receptors are not assessed within this document, this is provided in **AEI Chapter 9 Ornithology**.

8.5 Methodology

Baseline Characterisation

Study Area

8.5.1 The study area used in the assessment varies according to the ecological receptor in question, based on relevant good practice guidance. Guidance has not been updated or revised for the receptors at risk of impact since the assessment of the original proposed development, therefore the study areas remain applicable considering the site of the revised proposed development is wholly within the site of the original proposed development.

8.5.2 The study areas used e.g. for protected mammal and vegetation surveys are detailed for each survey methodology set out below and are described in more detail within **EIA Technical Appendices 8.2 – 8.5**.

Survey Area

8.5.3 The survey area was based on the site of the original proposed development extending to a buffer of 250 m to account for the potential presence of ground water dependent terrestrial ecosystems (GWDTE). The site of the revised proposed development has decreased and covers no additional areas beyond that surveyed in 2023, as such the survey area for protected mammals and vegetation surveys is valid and no extension is required to inform the impact assessment (excluding re-calculations and updated measurements of existing data).

8.5.4 A bat activity static survey took place at key locations within the site of the original proposed development (see Figure 8.4.1 within **EIA Technical Appendix 8.4**). Static bat detector locations

were identified based on an initial layout for 29 wind turbines in accordance with NatureScot guidance[1]. As both the number of wind turbines and site boundary have decreased, data is now in excess of that required to fulfil best practice guidance. See Section 8.6 for further information on survey limitations.

8.5.5 Fish habitat assessment and electrofishing surveys were conducted at key locations on site (see Figure 8.5.1 within **EIA Technical Appendix 8.5**). As both the number of crossing locations and the site boundary have decreased, data is now in excess of that required to fulfil best practice guidance.

Desk Study / Field Survey

8.5.6 A data search was conducted in October 2023 and included information from all years within 2 km of the site of the original proposed development for all species, and up to 10 km for bats from a number of sources including The Wildlife Information Centre (TWIC), Botanical Society of Britain and Ireland, Butterfly Conservation – Scottish Borders Butterflies and Amphibian and Reptile Conservation (ARC) Record Pool Data.

8.5.7 Elements of the desk study were updated to inform this assessment to account for recent records of protected or notable species scoped out in the EIA Report October 2023 including pine marten, beaver and red squirrel. The following information sources were used to conduct a search in the last 3 years (to account for new records since 2023) up to a distance of 2 km for notable and protected species, and up to 10 km for bats, from the centre point of the site for the revised proposed development:

- NBN Atlas[2] (CC-BY Licenced data only);
- Saving Scotland's Red Squirrels[3];
- NatureScot Site Link[4]; and
- NatureScot Ancient Woodland Inventory[5].

8.5.8 No additional field surveys were conducted to inform this assessment.

Assessment Methods

8.5.9 For full assessment methodology refer to Chapter 8 of the EIA Report October 2023. This assessment follows the methodologies outlined in the previous assessment.

8.5.10 The ecological evaluation and impact assessment approach used in this chapter is the same as that described in Chapter 8 of the EIA Report October 2023, which was based on CIEEM's 2022 Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland[6] (most recent guidelines at the time of writing)[Error! Bookmark not defined.]. The CIEEM guidelines have been endorsed by NatureScot.

[1] NatureScot. (2021). Bats and onshore wind turbine – survey, assessment and mitigation. [Online] Available at: https://www.nature.scot/doc/bats-and-onshore-wind-turbines-survey-assessment-and-mitigation#5.2.5%C2%A0+Deployment+and+testing+of+automated+static+bat+detectors

[2] NBN Atlas. (2025). Explore Your Area. [Online] Available at: https://records.nbnatlas.org/explore/your-area#56.3011|-3.7007|12|ALL_SPECIES

[3] Saving Scotland's Red Squirrels. (2025). Recent Sightings. [Online] Available at: https://scottishsquirrels.org.uk/

[4] NatureScot. (2025). SiteLink. [Online] Available at: https://sitelink.nature.scot/home

[5] NatureScot. (2025). Ancient Woodland Inventory. [Online] Available at: https://opendata.nature.scot/datasets/ancient-woodland-inventory/explore?location=55.760397%2C-2.706689%2C12.23

[6] CIEEM. (2022). Guidelines for Ecological Impact Assessment (EcIA). [Online] Available at: https://cieem.net/wp-content/uploads/2018/08/EcIA-Guidelines-v1.3-Sept-2024.pdf

8.5.11 Proposals for biodiversity enhancement consider biodiversity as a whole, in line with relevant policy including NPF4.

8.5.12 A cumulative impact assessment was described in Chapter 8 of the EIA Report October 2023to account for the potential for cumulative effects with other developments (in planning, construction, operation or due to be decommissioned). The cumulative impact assessment, and the developments considered for in-combination effects, have been updated to inform the assessment. Where variations to the baseline may change the outcome of residual impacts on ecological receptors identified within the Chapter 8 of the EIA Report October 2023 these are highlighted.

8.6 Baseline

Current Baseline

Statutory and Non-Statutory Designated Sites

Statutory Sites

8.6.1 An updated search found eight statutory designated sites within 10 km of the site of the revised proposed development (six were previously identified in the **EIA Technical Appendix 8.1**). A summary of statutory sites and updated distances is provided in **AEI AEI Table** 8.2**.**

AEI Table 8.2 Summary of Statutory Designated Sites

Site	Designation	Approximate Distance and Direction from Site	Reasons for Designation	Evaluation
River Tweed	SAC	Within the site	Atlantic salmon (*Salmo salar*), brook lamprey (*Lampetra planeri*), otter (*Lutra lutra*), river lamprey (*Lampetra fluviatilus*), sea lamprey (*Petromyzon marinus*) and rivers with floating vegetation often dominated by water-crowfoot	European value
	SSSI	5.97 km E	Atlantic salmon (*Salmo salar*), brook lamprey (*Lampetra planeri*), otter (*Lutra lutra*), river lamprey (*Lampetra fluviatilus*), sea lamprey (*Petromyzon marinus*), fly assemblage, trophic range river/stream and vascular plant assemblage.	National value
Lammer Law	SSSI	1.49 km NNW	Blanket bog, juniper scrub, subalpine dry heath and upland habitat assemblages	National value
Airhouse Wood	SSSI	4.39 km WSW	Upland oak ancient woodland	National value
Threepwood Moss	SAC	7.41 km SSW	Active raised bog, degraded raised bog	European value
	SSSI	7.41 km SSW	Raised Bog	National value

Site	Designation	Approximate Distance and Direction from Site	Reasons for Designation	Evaluation
Danskine Loch	SSSI	8.29 km N	Fens and fen woodland	National value
Papana Water	SSSI	8.96 km NNE	Upland mixed ash woodland	National value
Fala Flow	Ramsar	9.03 km	Blanket Bog	International value
	SSSI			National value
Colmsliehill Junipers	SSSI	9.22 km SSW	Juniper Scrub	National value

Non-Statutory Sites

8.6.2 There are 12 non-statutory designated sites within 2 km of the site of the revised proposed development. A summary of statutory sites and updated distances is provided in **AEI Table** 8.3. Three sites have overlapping boundaries with the site of the revised proposed development.

AEI Table 8.3 Summary of Non-Statutory Designated Sites

Site	Designation	Approximate Distance and Direction from Site	Reasons for Designation
Soonhope Burn Upper, The Howe	LBS	Within the site	Upland birchwoods, cleughs and flushes with both Borders and UK priority species
Soonhope Burn upper and Longformacus Burn	LBS	0.51 km NW	Upland burnsides, cleughs and flushes with notable plants
Soonhope Burn, Lower	pLBS	Within the site	No data
Whalplaw Burn, Upper	LBS	Within the site	Burnside and flush communities including fine base-rich flushes and juniper
Earnscelugh Water – Nether Stirkstruther	plbs	0.39 km SSE	No data
Earnscelugh Water - Bermuda	pLBS	0.91 km S	No data
Earnscleugh Water – Borrowston Rig	pLBS	1.17 km S	No data
Earnscleugh Water, Earns Cleugh	pLBS	0.99 km S	No data
Addinston Hill Meadow	pLBS	1.58 km WSW	No data
Kelphope Burn Dod Cleugh to Hazeldean Wood	pLBS	1.39 km W	No data
Wester Black Burn	LBS	1.86 km NE	Burnsides and degraded moorland with one fine acid flush.

Site	Designation	Approximate Distance and Direction from Site	Reasons for Designation
Lammermuirs	LBS	1.88 km NE	Large block of low altitude moorland, important for a variety of breeding upland species.

8.6.3 The updated data search returned no information relating to ancient woodland habitat within 2 km of the site of the revised proposed development. Ancient woodland was, however, identified within the wider area (within 10 km of the site).

Shadow Habitats Regulations Appraisal

8.6.4 A shadow Habitats Regulations Appraisal (HRA) Screening assessment was compiled in March 2023, this was revised in light of revised proposed development in March 2025 (refer to **AEI Technical Appendix 8.7**). A report to inform the appropriate assessment (RIAA) was compiled in March 2025 in support of the screening assessment (refer to **AEI Technical Appendix 8.8**).

8.6.5 Two applicable statutory sites, the River Tweed SAC and Fala Flow Ramsar, were considered within the screening stage, however, the Fala Flow Ramsar was screened out of further assessment based on a lack of pathways for effect. One site, the River Tweed SAC was considered within the RIAA and concluded that the revised proposed development is unlikely to have an adverse effect on the integrity of any European/Statutory site.

Habitats

8.6.6 UKHab and National Vegetation Classification (NVC) surveys were conducted in 2023 (refer to **EIA Technical Appendix 8.2**). Habitat areas were recalculated to reflect the site of the revised proposed development and this is summarised in **AEI** Error! Reference source not found..

AEI Table 8.4 Habitats Within the Revised Proposed Development

UKHab Classification	Area (ha)	Direct loss (ha)	Indirect loss (ha)[7]	Combined loss (ha)	Corresponding NVC Community	Annex I Habitat	SBL Priority Habitat	Potential GWDTE Status
Cereal crops (c1c)	11.39	0.02	0.22	0.24	N/A	N/A	N/A	N/A
Winter stubble (c1c5)	9.02	0	0	0	N/A	N/A	N/A	N/A
Blanket bog (f1a5) >50cm	5.90	0.07	0.58	0.65	M17, M18, M19, M19/M20	H7130 Blanket bog, priority[8]	Blanket bog	N/A
Blanket bog / Carbon-rich soil (f1a5) <50cm	10.15	0.39	0.66	1.05	M17, M18, M19, M19/M20	N/A	Blanket bog	N/A
Degraded blanket bog (f1a6) >50cm	28.46	0.10	1.16	1.26	M16, M20, M25	N/A	Blanket bog	High in mosaics
Degraded blanket bog / Carbon-rich soil (f1a6) <50cm	249.17	8.79	9.98	18.77	M16, M20, M25	N/A	Blanket bog	High in mosaics
Purple moor-grass and rush pasture (f2b)	6.67	<0.01	<0.01	<0.01	M23	N/A	Purple moor grass and rush pasture	High
Upland flushes fens and swamps (f2c)	0.69	0	0	0	M6	N/A	Upland flushes, fens and swamps	High
Acid grassland (g1)	11.22	0	0	0	M23/Je/H9c	N/A	N/A	High / High in Mosaic
Upland acid grassland (g1b)	6.09	0	0	0	M23/U4/U5	N/A	Nardus stricta – Galium saxatile grassland	High / High in Mosaic

[7] Indirect habitat loss was calculated for peatland (f1a5 and f1a6) for habitats within 30 m of built infrastructure, and 5 m for all other habitats

[8] Based on NatureScot definitions of priority peatland and carbon-rich soils within 'Advising on peatland, carbon-rich soils and priority peatland habitats in development management' [Online] Available at: https://www.nature.scot/doc/advising-peatland-carbon-rich-soils-and-priority-peatland-habitats-development-management#:~:text=The%20purpose%20of%20this%20guidance%20is%20to%20help,on%20peatland%2C%20carbon-rich%20soils%20and%20priority%20peatland%20habitat.

UKHab Classification	Area (ha)	Direct loss (ha)	Indirect loss (ha)[7]	Combined loss (ha)	Corresponding NVC Community	Annex I Habitat	SBL Priority Habitat	Potential GWDTE Status
							Juncus squarrosus – Festuca ovina grassland	
Other upland acid grassland (g1b6)	83.04	0.53	1.06	1.59	H9/H12/U4/U5/ U20/M23	H4030 European dry heaths (upland)	N/A	High / High-Moderate in Mosaic
Bracken (g1c)	124.96	4.21	0.66	4.87	U20	N/A	N/A	Moderate in Mosaic
Other neutral grassland (g3c)	21.03	1.45	1.62	3.07	MG1/MG6	N/A	N/A	N/A
Modified grassland (g4)	23.12	0.10	0.46	0.56	MG6/MG7	N/A	N/A	N/A
Upland heathland (h1b)	20.62	0	0	0	H9/H12/H18/RB	H4030 European dry heaths (upland)	Upland heathland	N/A
Dry heaths – upland (h1b5)	487.81	10.48	6.66	17.14	H9/H12/H18/RB U4/U5/U20 M19/M20/M23	H4030 European dry heaths (upland)	Upland heathland	N/A
Gorse scrub (h3e)	0.71	0	0	0	W23	N/A	N/A	N/A
Mixed scrub (h3h)	5.27	0	0.17	0.17	W23	N/A	N/A	N/A
Standing open water and canals (r1)	9.49	0	0	0	N/A	N/A	N/A	N/A
Developed land -sealed surface (u1b)	0.89	0	0	0	N/A	N/A	N/A	N/A
Buildings (u1b5)	0.63	0	0	0	N/A	N/A	N/A	N/A

UKHab Classification	Area (ha)	Direct loss (ha)	Indirect loss (ha)[7]	Combined loss (ha)	Corresponding NVC Community	Annex I Habitat	SBL Priority Habitat	Potential GWDTE Status
Suburban mosaic of developed and natural surface (u1d)	0.35	<0.01	0.06	0.07	N/A	N/A	N/A	N/A
Upland birchwoods (w1e)	1.00	0	0	0	W11	N/A	N/A	N/A
Other woodland; mixed; mainly conifer (w1h6)	1.77	0	0	0	N/A	N/A	N/A	N/A
Coniferous woodland (w2)	1.79	0	0	0	N/A	N/A	N/A	N/A
Other coniferous woodland (w2c)	0.09	0	0	0	CF	N/A	N/A	N/A
Total:	**1121.33**	**26.14**	**23.29**	**49.44**				

8.6.7 The site of the revised proposed development is dominated by dry heath (upland) at 487.81 ha and degraded blanket bog / carbon rich soil at 249.17 ha. High levels of bracken (124.96 ha) and other acid grassland were also present (83.04 ha).

8.6.8 Two Annex I habitats were present on site, [4030] European dry heath (upland) and [7130] blanket bog. A total of seven Scottish Biodiversity List (SBL) priority habitats (habitats of principal importance) were present. NatureScot priority and non-priority peatland were both present within the site.

8.6.9 Groundwater dependent terrestrial ecosystems (GWDTE) continue to be present within the site as areas of High and Moderate Potential GWDTE, no areas of Low Potential are present.

8.6.10 A total direct habitat loss of 26.14 ha and indirect habitat loss of 23.29 ha is predicted. This is dominated by dry heath (upland) and degraded blanket bog / carbon rich soil (<50 cm), the most prevalent habitat types present on the site (combined area of 736.98 ha).

8.6.11 A number of notable flora species were identified within the site including juniper, *Juniperus communis* (UKBAP species), and wild pansy, *Viola tricolor* (SBL species).

8.6.12 There is less watercourse habitat within the site of the revised proposed development compared to the site of the original proposed development. Due to the reduction of the site, the length of the Whalplaw Burn, the primary watercourse running through the site, has decreased by 3.4 km from the length within site of the original proposed development. However, the watercourse runs parallel to an existing track until the track joins the D124 public road and is thus at risk of pollution. The Soonhope Burn length within the site of the revised proposed development is reduced by 2.8 km, and the Hope Burn is now fully outwith the site (outwith zone of influence or hydrological and airborne pollution). The tributaries of the Earnscleugh Water continue to be within the east of the site.

Protected, Priority and Notable Species

8.6.13 **AEI AEI Table** 8.5 provides a summary of the protected and notable fauna species recorded on site during the original baseline assessment, the evaluation of value of each receptor and an updated baseline based on the site of the revised proposed development.

8.6.14 Full details of baseline results can be found in the relevant **EIA Technical Appendices 8.3 to 8.5**.

8.6.15 No further surveys were undertaken to inform the updated baseline.

AEI Table 8.5 Baseline and Updated Protected, Priority and Notable Species

Species	Document Reference	Original Baseline	Original Evaluation	Revised Baseline	Revised Evaluation
Eurasian Otter	**EIA Technical Appendix 8.3**	One couch and three spraints. The three main watercourses/ riparian zones are considered suitable foraging and commuting habitat of varying quality with limited potential for resting/ places of shelter. Otter is an internationally and nationally protected species. In the context of this site the otter activity was considered to be relatively low at the time of survey and the lack of bank side cover make it unlikely that this site is a key area for otter in the wider area. Otter at this site are therefore considered of Local value.	Local Value	The site of the revised proposed development has reduced lengths of watercourse (refer to Error! Reference source not found.). No otter signs were identified within the site, however, signs upstream and downstream on the same watercourse, the Soonhope Burn, indicate likely use within the site. Annex II species (of the Habitats Directive), Schedule 2 species (of the Habitats Regulations), European Protected Species (EPS), SBL species, qualifying interest (QI) of the River Tweed SAC[9].	Local Value
Bat (spp.)	**EIA Technical Appendix 8.4**	Six species recorded during acoustic surveys including: common pipistrelle, soprano pipistrelle, brown long-eared, Daubenton's bat, natterer's and noctule. Bat activity and acoustic surveys indicated 'Low' risk assessment scores for all high collision risk species (common and soprano pipistrelle, Nyctalus sp.). This assessment was made on the 29 turbine location layout in 2022. Foraging habitat quality and connectivity within this buffer area is low with a largely treeless environment and small open upland	Local / National Value	The number of wind turbines has significantly reduced from 29 to 12 since surveys were undertaken in 2022. As such it is considered that collision risk to bats will be lower than previous assessment and therefore remain as 'Low'. Foraging habitat and connectivity within the site is still considered to present a 'Low' habitat risk classification. Annex II species (of the Habitats Directive), Schedule 2 species (of the Habitats Regulations), EPS, SBL	Local / National value

[9] All qualifying interests of the River Tweed SAC have been assessed in the Shadow Habitats Regulations Appraisal screening assessment and RIAA (see AEI Technical Appendix 8.7-8.8), a summary of which is provided in this AEI.

Species	Document Reference	Original Baseline	Original Evaluation	Revised Baseline	Revised Evaluation
		burns and a fairly homogenous area of open moorland and marshy grassland habitat present, resulting in a habitat risk classification of 'Low'.			
Adder	**EIA Technical Appendix 8.3**	One adder was observed during protected species surveys (**EIA Technical Appendix 8.3**). Adder were also recorded frequently during ornithological visits, with seven sightings and a snake slough (shed skin) noted (**EIA Technical Appendix 8.3**). Adder are likely to be widespread in the local area, the desk study data contained three records within 2 km of the site. There was no evidence to suggest that this site supports an unusually dense population and similar suitable habitat is abundant in the wider area. The adder population is therefore considered of local value.	Local Value	No change to baseline conditions. SBL	Local value
Common Lizard	**EIA Technical Appendix 8.3**	Common lizards were observed during ornithological visits (**EIA Technical Appendix 8.3**). Common lizards are widespread in Scotland and there was no evidence to suggest that this site supports an unusually dense population. In addition, similar suitable habitat is abundant in the wider area. The common lizard population is therefore considered of local value.	Local Value	No change to baseline conditions. SBL	Local value

Species	Document Reference	Original Baseline	Original Evaluation	Revised Baseline	Revised Evaluation
Wild deer	**EIA Technical Appendix 8.3**	Information from the shooting tenant indicates that there are very few deer on site. They are therefore considered of less than local value.	Less than local value	No change to baseline conditions. Deer (Scotland) Act 1996	Less than local value
Mountain hare	**EIA Technical Appendix 8.3**	One historical record of mountain hare from within the site was recorded in 2019 as detailed in **EIA Technical Appendix 8.1**. One sighting was made on site on the lower hill slopes, near to the watercourse, on site (note this was incorrectly identified as a brown hare in **Technical Appendix 8.3**). The mountain hare is a species of 'Community interest' listed on Annex V of the Habitats Directive and so has some protection under the Habitats Regulations 1994 (as amended). No individuals were recorded on site, however, the species is known to be elusive, particularly in grouse managed environments. Given connectivity and typical low densities they were assumed to be present.	Local Value	No presence within the site, however, given nearby presence, connectivity of suitable habitat and typical low densities on habitat management associated with the site they have assumed to still be present. Annex V (of the Habitats Directive), Schedule 5 species (of the Habitats Regulations), SBL	Local value
European eel *Anguilla anguilla*	**EIA Technical Appendix 8.5**	No eels were captured during electrofishing and habitat on site was considered to be unsuitable. Eel are therefore considered to be either absent in watercourse within the ZOI or present only in very low densities	Less than local value	No change to baseline conditions. EPS, SBL, OSPAR, LBAP	Absent
Atlantic salmon *Salmo salar*	**EIA Technical Appendix 8.5**	Juvenile salmon were present at multiple locations on site. Populations on site are hydrologically connected with the River	Regional value	No salmon were identified in the site of the revised proposed development. The closest salmon identified was 500 m downstream of	Regional value

Species	Document Reference	Original Baseline	Original Evaluation	Revised Baseline	Revised Evaluation
		Tweed SAC (designated for species including Atlantic salmon and otter). The salmon on site likely form part of the River Tweed meta-population; small populations observed are likely to represent a small part of the River Tweed population and are therefore considered of regional rather than national or higher importance in the context of the site. Otter are a wide ranging species with likely presence within the site, salmon on site likely represent part of the diet of the River Tweed otter population.		the site, however, salmon may be present in smaller numbers upstream and within the site due to a lack of instream barriers. Annex II species (of the Habitats Directive), Schedule 3 species (of the Habitats Regulations), OSPAR, SBL, QI of River Tweed SAC	
Brown trout *Salmo trutta*	**EIA Technical Appendix 8.5**	Juvenile trout were present at multiple locations on site. The populations on site are hydrologically connected with the River Tweed SAC. Otter, a qualifying species of the River Tweed SAC, are a wide-ranging species and the trout on site likely form, or supplement, the diet of the Tweed otter population. The trout population on site is therefore considered of local importance.	Local value	Brown trout were present at all three locations within the site of the revised proposed development, and all downstream locations. Brown trout are likely to continue to form an important prey species for otter. SBL (migratory sea trout only)	Local value
Lamprey (sp.) *Lampetra planeri / fluviatilus*	**EIA Technical Appendix 8.5**	Juvenile river lamprey were present at one location, a control site on the Kelphope Burn outwith the site and not hydrologically connected to the windfarms potential downstream zone of influence. No individuals	Regional value	No lamprey (sp.) were recorded within the site, or downstream, and solely within the control site (not at risk of effect from the revised proposed development). Hydrological connectivity exists between the Kelphope Burn	Regional value

Species	Document Reference	Original Baseline	Original Evaluation	Revised Baseline	Revised Evaluation
		were identified on site, however, due to their presence within the same sub-catchment as the site and their patchy nature of sample locations it is assumed that they are present. The assumed population on site is hydrologically connected with the River Tweed SAC which it is partly designated for this species. The lamprey on site likely form part of the River Tweed meta-population, however, small densities on site suggest they only represent a small part of the meta-population and are therefore considered of regional rather than national importance (or higher) in the context of the site.		and watercourses within the site, as such they may exist in low populations. Sea lamprey, *Petromyzon marinus,* have known presence within the River Tweed and are a qualifying species of the SAC. For the purposes of the updated assessment, all three species of lamprey are considered to have potential presence as meta-populations of the River Tweed SAC populations. River Lamprey - Annex II species (of the Habitats Directive), Schedule 3 species (of the Habitats Regulations), SBL, QI of River Tweed SAC Brook Lamprey – LBAP, SBL, QI of River Tweed SAC	
Three spined stickleback *Gasterosteus aculeatus*	**EIA Technical Appendix 8.5**	These are common and widespread species and their populations here are therefore considered of less than local value (but they still contribute towards the overall biodiversity value of the aquatic habitats).	Less than local	No change to baseline conditions.	Less than local
Stone loach *Barbatula barbatula*					
Minnow					

Species	Document Reference	Original Baseline	Original Evaluation	Revised Baseline	Revised Evaluation
Phoxinus phoxinus					

Survey Limitations

8.6.16 Bat acoustic data was collected in spring and summer 2022, and as such is outwith typical ecological data validity of 12-18 months[10]. Considering minimal changes to baseline habitat conditions (e.g. new presence of tree stands or buildings with potential roosing features) or food resources are likely to have occurred within the site, it is considered unlikely that bat populations or species structure has significantly changed from the baseline. Additionally, an updated desk study for protected species found no new species of bats present since the initial study was conducted (refer to **EIA Technical Appendix 8.1**).

8.6.17 A total of eight electrofishing locations were conducted in 2023, covering several locations on major watercourses within the site of the original proposed development. Of the original eight surveys, only three are now present within the site of the revised proposed development. As such it is considered to be less representative of direct effects on fish receptors within the site. However, this survey served to indicate likely fish species present, and population abundance of salmonids within watercourses within the site, which remains valid. The single control site remains valid and undisturbed by the revised proposed development.

8.6.18 Within the updated desk study search, two red squirrels were identified 330 m from the site of the revised proposed development in 2024, and one record 8.75 km south. No records were available for 2025. As there is limited suitable habitat (e.g. mature coniferous or deciduous woodland stands) within the site it is unlikely that the species has moved and/or spread into the site since initial surveys were conducted, and thus original baseline surveys are considered valid.

Effects Scoped Out

8.6.19 During the scoping, a number of ecology matters were proposed to be scoped out of the EIA. The matters are described below, together with a concise justification for scoping them out.

8.6.20 Pine marten (*Martes martes*), red squirrel (*Sciurus vulgaris*) and beaver (*Castor fiber*) surveys and assessment were not considered to be necessary. Beaver have not been recorded within 10 km of the site of the original proposed development, and there is a lack of suitable woodland habitat for pine marten and red squirrel. No recent records were identified during the updated desk study. These have been scoped out of this assessment.

8.6.21 No records of great crested newt (GCN) are known within 2 km of site at present, with one unconfirmed record provided in 2019 in a residential pond by a member of the public 3.9 km west of the site of the original proposed development. No further surveys (eDNA surveys or activity surveys), or assessment of potential impacts on GCN were required, as such they have been scoped out of this assessment.

8.6.22 No evidence of badger (*Meles meles*) was found within the site of the original proposed development or 100 m buffer; desk study records indicate last presence was 10 years ago (2015). No recent records were identified during the updated desk study. One incidental badger sett was located 1.5 km away from the site of the original proposed development but was considered outwith the ZOI, on this basis

[10] CIEEM. (2019). Advice Note on the Lifespan of Ecological Reports & Surveys. [Online] Available at: https://cieem.net/wp-content/uploads/2019/04/Advice-Note.pdf

badger have been scoped out from this assessment. Updated mitigation measures for badger, as pre-construction surveys, have been included in Section 8.7.

8.6.23 Invertebrates and reptiles were scoped out in accordance with current guidance[11], surveys for invertebrates and reptiles and were not considered necessary to inform the EIA (note that the guidance states: *"…with standard mitigation, [amphibians] are unlikely to experience any significant environmental effects*" and will "*not normally require surveys to inform the EIA, unless they are European Protected Species (EPS) or qualifying features of protected areas*". As defined in the scoping report, the NatureScot guidance will be followed "*to apply mitigation during construction to minimise impacts and avoid committing an offence*" in the EIA chapter. A habitat-based assessment was undertaken and informed potential impacts and mitigation measures in the EIA chapter. As such this is continued to be scoped out of this assessment. Updated mitigation measures have not been included in this assessment for invertebrates and reptiles.

8.6.24 Rockrose, *Cistus* spp., was present within the original proposed development within areas of calcareous grassland (g2b), of which is presence is associated with, and is the preferential species of northern brown argus butterfly, *Aricia artaxerxes,* However, no areas are present within the the site of the revised proposed development or 250 m survey buffer, as such they have been scoped out of this assessment.

8.6.25 Upland flushes, fens and swamps were present in the original proposed development. No direct or indirect loss of this habitat is anticipated on this habitat type as a result of the revised proposed development and has therefore been scoped out of this assessment.

Future Baseline

8.6.26 In the absence of the revised proposed development, the site is likely to remain as open moorland (with blanket bog and dry heath habitats) primarily used for game shooting.

8.6.27 In the absence of the revised proposed development, it is likely that otter and bats will continue to utilise suitable habitat within the site. To allow for possible changes in the distribution of protected species, a pre-construction survey is proposed to ensure legislative compliance during construction, as detailed in Section 8.7.

8.6.28 Beaver were recently re-introduced to Scotland, as such their distribution is limited. It is expected that beaver will continue to expand in population size and geographic range, as such decommissioning effects should account for the potential presence within the site.

8.6.29 Climate change is predicted to result in complex changes to biodiversity. This may result in changes to the vegetation present or the potential for new species to colonise the site, which potentially includes non-native species, although the extent of any such changes cannot be accurately predicted at this time. However, in the absence of any detailed, quantifiable information it has been assumed that in the absence of the revised proposed development the ecological condition of the site is unlikely to change significantly due to climate change over the next 50 years.

[11] NatureScot. (2024). Standing advice for planning consultations – Reptiles (Adder, Slow Worm & Common Lizard). [Online] Available at: https://www.nature.scot/doc/standing-advice-planning-consultations-reptiles-adder-slow-worm-common-lizard

8.7 Mitigation

Good Practice Measures

8.7.1 Full details of construction mitigation measures would be provided in a Construction Environmental Management Plan (CEMP). An outline CEMP is included as Technical Appendix 3.1. of the EIA Report October 2023. The CEMP includes measures to mitigate potential impacts due to dust.

8.7.2 Good practice measures in relation to pollution risk, watercourse crossings and sediment management to be adopted during the construction and operation phases are also set out in Chapter 10 of the EIA Report October 2023. During the construction phase, good practice techniques with respect to peatland environments, as contained within *Advising on peatland, carbon-rich soils and priority peatland habitats in development management*[12] and *Good Practice during Windfarm Construction*[13], would be implemented. Further details on peat and water management during construction are provided in Chapter 10 Technical Appendix 3.1 and Technical Appendix 10.2 of the EIA Report October 2023.

8.7.3 Good practice measures to protect retained habitats during the construction phase would be implemented, including the erection of temporary protective fencing demarcating the working footprint, to be overseen and policed by the ECoW; further details are provided in the outline CEMP. Good practice techniques for vegetation and habitat reinstatement would be adopted and implemented on areas subject to disturbance during construction as soon as is practicable as per guidance in the *Good Practice during Windfarm Construction*.

General Mitigation for Protected Species

8.7.4 During construction, site speed limits of 15 mph would reduce the likelihood of accidental direct/ indirect injury/ killing of animals or unplanned indirect effects of habitat loss/degradation by construction traffic.

8.7.5 All potentially dangerous substance or materials within the temporary construction compound would be carefully stored to prevent then causing any harm to any nocturnal animals which may enter the compound at night.

8.7.6 During construction, all excavations greater than 1 m depth would either be covered at night or designed to include a ramp to allow animals a means of escape should they fall in.

8.7.7 A procedure should be in place during the construction phase which outlines what to do if any protected species or its resting place is encountered during works.

8.7.8 Specific mitigation measures relating to reptiles, otter and fish, including fish monitoring, are provided in the Chapter 8 of the EIA Report October 2023 (Refer to Section 8.6.21-30) and **AEI Technical Appendix 8.7** & **8.8** (specific to the qualifying interests of the River Tweed SAC); these

[12] NatureScot. (2023). Advising on peatland, carbon-rich soils and priority peatland habitats in development management. [Online] Available at: https://www.nature.scot/doc/advising-peatland-carbon-rich-soils-and-priority-peatland-habitats-development-management#:~:text=The%20purpose%20of%20this%20guidance%20is%20to%20help,on%20peatland%2C%20carbon-rich%20soils%20and%20priority%20peatland%20habitat.

[13] NatureScot. (2015). Good Practice during Wind Farm Construction. [Online] Available at: https://www.nature.scot/sites/default/files/2018-08/Guidance%20-%20Good%20Practice%20during%20wind%20farm%20construction.pdf

measures continue to be valid in light of the revised proposed development and have not been updated in this assessment.

Pre-construction Surveys

8.7.9 Due to the time that will have elapsed since the last surveys and the possibility that otter activity could have changed in the intervening period, a pre-construction survey for otter and other key species would be undertaken.

8.7.10 It is also proposed that a daytime bat walkover survey is conducted to establish if any new potential roost features have developed since the 2023 surveys (e.g. large cracks in trees). This would cover all watercourses and other suitable habitat to a maximum of 250 m from revised proposed development (access permitting and species specific). The results of the pre-construction survey would inform the need for further mitigation (if required) in respect of working practices, or consultation with NatureScot.

8.7.11 Pre-construction surveys should take particular note to search for signs of red squirrel, pine marten, beaver and badger not recorded within site, the former of which was identified within 330 m of the site within the updated desk study. Presence is not anticipated for red squirrel, pine marten and beaver given a lack of suitable habitat within the site.

8.7.12 Pre-construction fish monitoring, to be included within a fish monitoring plan was proposed in Chapter 8 of the EIA Report October 2023. It is recommended that such a plan takes into account existing valid monitoring locations within the site and proposes new electrofishing locations within downstream sections of effected watercourses to better reflect reduced extent of the site and revised proposed development. It may also include recommendations for control sites upstream of the revised proposed development on the effected watercourses.

Species Licencing

8.7.13 Where surveys identify legally protected features, licensing may be appropriate with the first preference to avoid impacts wherever possible (mitigation hierarchy). In the event that avoidance is not possible, then species licence applications to NatureScot may be relevant (e.g., if a place of otter shelter is identified within 30 m of the revised proposed development). Surveys indicated no otter resting locations within 30 m of the revised proposed development; however, this may change with the elapsed time between surveys and construction. Pre-construction surveys will identify any new otter features relevant to the revised proposed development and the need for licencing at that stage.

8.7.14 Evidence of bats using two buildings as roosts (referred to as B and C in **EIA Technical Appendix 8.4**), and features on one ash tree that could be used by multiple bats will require further presence/likely absence surveys pre-construction to establish use, species and individual number estimates (since the features exist just within a 30 m zone of influence of potential indirect disturbance effects) resulting from access track works. See **EIA Technical Appendix 8.4** for more details. No direct impacts of habitat loss/ damage to any confirmed/ suspected roosts were predicted based on current survey evidence and proposed infrastructure. Presence/likely absence surveys should be conducted pre-construction in the optimal months (May – August inclusive) to add to the baseline data collated. These surveys will provide evidence to support a bat species licencing application to NatureScot (to permit what would be otherwise unlawful acts within 30 m of these

features). Licensed bat ecologist supervision and mitigation will be prescribed in a mitigation plan (e.g., restricting timing of works seasonally and at dusk/dawn plus lighting considerations within 30 m of the features) to support the licence application accordingly and will require to be strictly adhered to, to protect the legal status of the roost and individual bats.

Ecological Clerk of Works

8.7.15 A suitably qualified ECoW would be employed for the duration of the construction and reinstatement periods, to ensure natural heritage interests are safeguarded, although this may not necessarily be a full-time role throughout. The role of the ECoW would include the following tasks:

- To give toolbox talks to all staff onsite, e.g., an ecological induction, so staff are aware of the ecological sensitivities on the site and the legal implications of not complying with agreed working practices;
- To undertake pre-construction surveys and checks for otter (and other notable/protected species) and advise on ecological issues where required;
- To carry out pre-construction inspections of areas which require reptile mitigation and supervision of mitigation works, where required;
- To assist with hydrological measures; and
- To conduct checks for nesting birds.

8.8 Updated Assessment of Potential Effects

Design Amendments

8.8.1 As outlined in **AEI Chapter 3: Revised Proposed Development Description**, the primary design amendment from the original proposed development is the reduction in number of wind turbines from 19 to 12 and ancillary infrastructure. Initial layouts of the original proposed development, pre-2023, included 29 wind turbines (as mentioned in reference to bat acoustic surveys undertaken). To reflect the revised proposed development, the site has significantly reduced (refer to **AEI Figure 2.2**), however, it is within the site of the original proposed development.

8.8.2 The number of water-crossings required has decreased from 12 to 11, reflecting a reduction in length of new or upgraded access tracks required, as shown on **AEI Figure 10.3**. Of the 11 crossings required, five are upgrades to existing watercourses and six are new. Water crossings will comprise a mixture of single span bridges, bottomless arch or closed culverts.

Construction and Decommissioning Effects

Summary of Assessment for the Original and Revised Proposed Development

8.8.3 This assessment considers all Embedded Mitigation and Good Working Practices, and Mitigation and Enhancement Measures as detailed in Section 8.7 of Chapter 8 of the EIA Report October 2023. Assessment for species and receptors is provided in **AEI AEI Table** 8. 6.

8.8.4 A shadow HRA screening report and RIAA was compiled in relation to relevant international / European protected areas and is provided in **AEI Technical Appendix 8.7-8.8**.

AEI Table 8. 6 Summary of Assessment for the Construction and Decommissioning Phase

Species / Receptor	Evaluation	Original Significance (Considering Embedded Mitigation, Good Working Practices, Mitigation and Enhancements)	Updated Justification for Significance	Updated Significance
River Tweed SAC	International Value	Significant negative impacts at a local level prior to mitigation/ compensation (i.e., BERP). No significant effects following mitigation/ compensation. Potential positive effect (based on Outline BERP).	The River Tweed SAC is present within the site of the revised proposed development as the Whalplaw Burn and the Soonhope Burn, there are therefore established hydrological links with the revised proposed development (as was the case in the original proposed development). A number of likely significant effects were identified at the construction and decommissioning stages of the revised proposed development affecting all qualifying species (see below for Atlantic salmon, brown trout, lamprey spp. including river lamprey, and otter), however, assuming that embedded mitigation measures and good working practices are strictly followed the revised proposed development is unlikely to result in an adverse effect on the integrity of the SAC. The embedded mitigation and good working practices detailed in this assessment address the potential LSEs to avoid adverse impacts on the integrity of the SAC and its designated features.	Significant negative impacts at a local level prior to mitigation/ compensation (i.e., BERP). **No significant residual effects predicted** following mitigation/ compensation. Potential positive effect (based on O BERP (see **AEI Technical Appendix 8.6)**).
River Tweed SSSI	National Value	No previous assessment.	The River Tweed SSSI is located approximately 5.79 km east of the revised proposed development (straight line distance), and a distance of 27 km downstream (where the Leader Water meets the River Tweed). This is considered outwith the ZOI for hydrological effect or airborne contamination. Qualifying features may, however, be present within the site as meta-populations (Atlantic salmon, brook/river/sea lamprey) or individuals with large home ranges (e.g. otter with up to 40 km home ranges). Following embedded mitigation measures and good working practices the revised proposed development is unlikely to have an impact on the integrity of the site.	**No significant residual effects predicted.**

Species / Receptor	Evaluation	Original Significance (Considering Embedded Mitigation, Good Working Practices, Mitigation and Enhancements)	Updated Justification for Significance	Updated Significance
Lammer Law SSSI	National Value	No significant effects predicted.	There are no pathways to potential impacts to the qualifying features of this site's blanket bog and juniper scrub which is over 1.5 km from the revised proposed development. Embedded mitigation and good working practices will avoid impacts of dust/habitat quality. In limiting juniper planting on-site and careful siting of stands will seek to reduce connectivity of the SSSI and prevent spread of *Phytophthora austrocedri*.	**No significant effects predicted**.
Airhouse Wood SSSI	National value	No significant effects predicted.	There are no pathways to potential impacts to the qualifying features of this site's upland oak wood which is 4.39 km from the revised proposed development.	**No significant effects predicted.**
Danskine Loch SSSI	National value	No significant effects predicted.	There are no pathways to potential impacts to the qualifying features of this site's fens and fen woodland which is 8.29 km from the revised proposed development.	**No significant effects predicted.**
Papana Water SSSI	National value	No significant effects predicted.	There are no pathways to potential impacts to the qualifying features of this site's upland mixed ash woodland which is 8.96 km from the revised proposed development.	**No significant effects predicted.**
Fala Flow Ramsar & SSSI	International Value	No significant effects predicted.	There are no pathways to potential impacts to the non-avian qualifying features of this site's blanket bog which is 9.03 km from the revised proposed development. Neither is it hydrologically connected. A shadow HRA is provided in **AEI Technical Appendix 8.7**.	**No significant effects predicted.**
Juniper	Local Value	No significant effects following mitigation/ compensation. Potential	The area where juniper was recorded is now over 450 m from the site of the revised proposed development (access track). No negative direct or indirect impacts of construction are therefore anticipated with adherence to	**No significant effects predicted** following mitigation/ compensation.

Species / Receptor	Evaluation	Original Significance (Considering Embedded Mitigation, Good Working Practices, Mitigation and Enhancements)	Updated Justification for Significance	Updated Significance
		positive effect (based on Outline BERP) at a local level.	embedded mitigation/good working practices (preventing risks of dust/habitat degradation). The OBERP, includes measures to increase the population of juniper via inclusion of this species in sections of riparian planting. Therefore, positive effects on this species are likely. It is not possible to assess if these will be significant at a local scale until the details of the planting proposals have been finalised (e.g., in the detailed BERP post-consent and discussing with Trees for Life).	Potential positive effect (based on Outline BERP) at a local level.
Wild Pansy	Regional Value	Significant negative impacts at a local level prior to mitigation/ compensation. No significant effects following mitigation/ compensation.	Wild pansy grows within the site in NVC U4 acid grassland. U4 acid grassland is primarily concentrated in the west of the site, and within the 250 m study area. A direct loss of 0.53 ha of acid grassland will result from construction of the revised proposed development with indirect loss of further 1.06 ha (total loss of 1.59 ha). It is unclear what proportion if any of the pansy population lies within the area to be lost. We have therefore assumed that it is distributed roughly evenly across the available habitat and that at least 1.9% of the plants on site will be lost (a worst-case scenario could be the full population). This is a small proportion (1.9%) of the on-site population and therefore would be considered significant at a local rather than regional level. Mitigation outlined in paragraph 8.7.1 of Chapter 8 of the EIA Report October 2023, recommends plant rescue, seed collection and sowing in appropriate location to compensate for this loss, pre-construction surveys as specified in the embedded mitigation will allow more accurate determination of the population of wild pansy's to be lost and therefore the number of new plants that need to be established in compensation.	**Significant negative effect** at a local level prior to mitigation/ compensation. **No significant effects predicted** following mitigation/ compensation.

Species / Receptor	Evaluation	Original Significance (Considering Embedded Mitigation, Good Working Practices, Mitigation and Enhancements)	Updated Justification for Significance	Updated Significance
Upland acid grassland	Local Value	No significant effects predicted. Potential positive effects.	Direct loss of 0.53 ha of other upland acid grassland (g1b6) will result from construction of the revised proposed development with indirect loss of further 1.06 ha (total loss of 1.59 ha). There are no predicted direct or indirect losses for acid grassland (g1) or upland acid grassland (g1b). Wild pansy (SBL and Scottish Borders LBAP species) was recorded within upland acid grassland habitat in several locations within the survey area. The examples of this habitat on-site are species poor and significantly modified from their typical species rich state, and ground condition dependant on distribution of grazing and muir burning. Goal 2, restoration of heathland and other open up-land habitats, and Goal 4, to maintain or enhance the population of wild pansy on-site, of the OBERP (see **AEI Technical Appendix 8.6**) provides enhancement measures to address habitat losses through improvement of remaining habitat.	**No significant effects predicted.** Potential positive effects.
Upland birchwoods	Local value	Potential positive effects following implementation of measures detailed in Outline BERP.	No direct or indirect loss of this habitat is anticipated.	**No significant effects predicted.** Potential positive effects following implementation of measures detailed in OBERP.
Upland dry heath, Annex I Habitat	Local value	No significant effects predicted.	Direct loss of 10.48 ha of dry heath - upland (h1b5) will result from construction of hard standing and access tracks with indirect loss of further 6.66 ha (total loss of 17.14ha). There are no predicted direct or indirect losses for upland heathland (h1b).	**Significant negative effect** at a local level. Effects will be offset via compensation measures detailed in the OBERP.

Species / Receptor	Evaluation	Original Significance (Considering Embedded Mitigation, Good Working Practices, Mitigation and Enhancements)	Updated Justification for Significance	Updated Significance
Blanket bog >50cm Annex 1 Habitat NatureScot priority peatland	National Value	Significant negative impacts at a local level prior to mitigation/ compensation (i.e., BERP). No significant effects following mitigation/ compensation.	Direct loss of 0.07 ha and an indirect loss of 0.58 ha is predicted (total loss of 0.65 ha). No priority peatland communities that should be completely avoided are present within the site including M1, M2 and M3 NVC communities or montane bog. Priority peatland communities were impacts have the potential to raise issues of national interest are present within the site, these are characterised by M17, M18 and M19 NVC communities. Goal 1 of the OBERP aims to rewet degraded peatland to raise its water table and condition. The objective of the enhancement measures is to address habitat losses through improvement of remaining habitats. It is not possible to assess if these will be significant at a national scale until the details of the enhancement proposals have been finalised (e.g., in the detailed BERP post-consent). No significant impacts on this habitat are anticipated following compensation measures that will address the residual significant effects.	**Significant negative effect** at a national level. Effects will be offset via compensation measures detailed in the OBERP.
Blanket bog / Carbon-rich soil <50cm	Regional Value	Significant negative impacts at a local level prior to mitigation/ compensation (i.e., BERP). No significant effects following mitigation/ compensation.	Direct loss of 0.39 ha and an indirect loss of 0.66 ha is predicted (total loss of 1.05 ha). Carbon-rich soils (<50 cm in depth) are not considered a priority habitat for NatureScot, however, are an important source of carbon storage for Scotland and the UK.	**Significant negative effect** at a regional level. Effects will be offset via compensation measures detailed in the OBERP.

Species / Receptor	Evaluation	Original Significance (Considering Embedded Mitigation, Good Working Practices, Mitigation and Enhancements)	Updated Justification for Significance	Updated Significance
Degraded blanket bog >50cm	Regional Value	Significant negative impacts at a local level prior to mitigation/ compensation (i.e., BERP). No significant effects following mitigation/ compensation.	Direct loss of 0.1 ha and an indirect loss of 1.16 ha is predicted (total loss of 1.26 ha). Degraded peatland, characterised by M20 and M25 NVC communities within the site, is not priority peatland and considered unlikely to raise issues of national interest. Goal 1 of the OBERP aims to rewet degraded peatland to raise its water table and condition. The objective of the enhancement measures is to address habitat losses through improvement of remaining habitats. It is not possible to assess if these will be significant at a national scale until the details of the enhancement proposals have been finalised (e.g., in the detailed BERP post-consent). No significant impacts on this habitat are anticipated following compensation measures that will address the residual significant effects.	**Significant negative effect** at a regional level. Effects will be offset via compensation measures detailed in the OBERP.
Degraded blanket bog / Carbon-rich soil <50cm	Local Value	Significant negative impacts at a local level prior to mitigation/ compensation (i.e. BERP).	Direct loss of 8.79 ha and an indirect loss of 9.98 ha is predicted (total loss of 8.77 ha). Carbon-rich soils (<50 cm in depth) are not considered a priority habitat for NatureScot.	**Significant negative effect** at a local level. Effects will be offset via compensation measures detailed in the OBERP.
Purple moor grass and rush pasture	Local Value	Significant negative impacts at a local level prior to mitigation/	Direct loss of <0.01 ha and indirect temporary loss of <0.01 ha will result from construction of the revised proposed development. Goal 1 of the OBERP aims to rewet degraded peatland to raise its water table and condition. The objective of the enhancement measures is to	**No significant residual effects predicted** following mitigation/ compensation. Potential positive effect.

Species / Receptor	Evaluation	Original Significance (Considering Embedded Mitigation, Good Working Practices, Mitigation and Enhancements)	Updated Justification for Significance	Updated Significance
		compensation (i.e., BERP). No significant effects following mitigation/ compensation.	address habitat losses through improvement of remaining habitats. It is not possible to assess if these will be significant at a national scale until the details of the enhancement proposals have been finalised (e.g., in the detailed BERP post-consent). No significant Impacts on this habitat are anticipated following mitigation/compensation.	
Rivers and streams SBL/SAC	International Value (due to SAC)	Significant negative impacts at a local level prior to mitigation/ compensation (i.e., Outline CEMP and OBERP). No significant effects following mitigation/ compensation predicted.	Minimal loss of this habitat is anticipated through construction of watercourse crossing (11 locations including 6 new crossings) equating to <0.001ha.	**No significant residual effects predicted** following mitigation/ compensation. Potential positive effect.
Eurasian Otter Annex II Species, SBL	Local Value	No significant effects predicted. No contravention of the relevant legislation and policy is likely following mitigation/ compensation predicted.	The reduction of the site of the revised proposed development has reduced lengths of watercourse. No otter signs were identified within the site, however, signs (one couch and three spraints) upstream and downstream on connecting watercourses, the Soonhope Burn, indicate likely use within the site. The death or injury of an individual otter during construction could potentially have a significant effect on the conservation status of this species in the local area. However, following implementation of the good practice measures outlined in Section 8.7, death or injury to otters during	**No significant residual effects predicted**. No contravention of the relevant legislation and policy is likely following mitigation/ enhancement predicted.

Species / Receptor	Evaluation	Original Significance (Considering Embedded Mitigation, Good Working Practices, Mitigation and Enhancements)	Updated Justification for Significance	Updated Significance
			construction is not likely. As such, no significant effects would be predicted to occur. Construction activities have some potential to cause temporary disturbance to otters which may use some of the watercourses and waterbodies on and around the site for foraging and commuting. This disturbance would likely be via noise and human presence. However, there is a 50 m minimum stand off to infrastructure to watercourses other than watercourse crossings. Given the low levels of otter activity detected on site and the fact that otters have large home ranges and are able to adapt to a certain level of human disturbance[14] the likelihood of potential disturbance to otter is low. With strict adherence to good working practices, embedded mitigation, pre-construction surveys, ECoW, species licensing (if required, not currently deemed to be required), no significant effects are predicted. Furthermore, positive effects may arise from measures set out within the OBERP (e.g., riparian woodland creation).	
Bats (spp.) Annex II Species, SBL	Local (common pipistrelle, soprano pipistrelle, brown long-eared and Daubenton's) and National	Significant negative impacts at a local and national level prior to mitigation/ compensation (i.e., pre-construction surveys, licensing, ECoW and measures detailed in OBERP).	Construction activities have potential to cause temporary disturbance to the levels of common, rarer and rarest species bat activity on site (with exception of Noctules in buildings as would not be likely to use these features). No direct effects (e.g., of direct mortality or loss of roosts) are predicted during construction. The site has limited roosting potential for bats. Two buildings and one tree are within 30 m of the proposed access track, considered within the ZOI due to potential disturbance due to increased noise, vibration and dust during construction phases and modification to the access track. Confirmed roosts	Significant negative impacts at a local and national level prior to mitigation/ compensation (i.e., pre-construction surveys, licensing, ECoW and measures detailed in OBERP).

[14] Chanin. (2003). Monitoring the otter: Conserving Natura 2000 rivers. Monitoring Series No. 10. Available at: https://cieem.net/wp-content/uploads/2019/07/otter_monitoring.pdf

Species / Receptor	Evaluation	Original Significance (Considering Embedded Mitigation, Good Working Practices, Mitigation and Enhancements)	Updated Justification for Significance	Updated Significance
	value (Natterer's and Noctule)	No significant effects following mitigation/ compensation. No contravention of the relevant legislation / policy is likely with strict adherence to licensing application and process in agreement with /approved licence from NatureScot (Section 8.7).	(in Buildings B and C/Houses 1, 2, 3 and 4) are just within the ZOI of indirect disturbance during the access track works, as detailed within **EIA Technical Appendix 8.4**. The bat population on site is therefore considered to be of local and national value (species specific) for bat species identified to be present on Site. The death or injury of an individual during construction is unlikely to have a significant effect on the conservation status of bat species populations of local value; although, there are welfare considerations. Following implementation of the good practice measures outlined in Section 8.7-8 of Chapter 8 of the EIA Report October 2023 and with due regard to mitigation measures, death or injury to bats during construction is not likely. The role of the pre-construction surveys, ECoW, need for licensing to lawfully permit any disturbance effects or otherwise (i.e., indirect disturbance of roost within Building B) are of particular relevance. As such, no significant effects would be predicted to occur. Furthermore, measures for bats detailed within the OBERP are designed to increase opportunities for roosting bats on site. The death or injury of an individual during construction may have a significant effect on the conservation status of bat species populations of national value. Further mitigation and enhancement measures are required to address as detailed within Section 8.7 and the OBERP.	**No significant residual effects predicted** following mitigation. No contravention of the relevant legislation / policy is likely with strict adherence to licensing application and process in agreement with /approved licence from NatureScot (Section 8.7).
Adder and common lizard SBL	Local Value	Significant negative impacts at a local level prior to mitigation/ compensation.	Adder and common lizard have been recorded on the site. The construction of the wind farm would result in the direct loss of potentially suitable habitat for these species. In the absence of compensation, the population will decline proportional to the habitat lost. It is expected that	Significant negative impacts at a local level prior to mitigation/ compensation.

Species / Receptor	Evaluation	Original Significance (Considering Embedded Mitigation, Good Working Practices, Mitigation and Enhancements)	Updated Justification for Significance	Updated Significance
		No significant effects following mitigation/ compensation.	indirect/temporary loss may still be used by reptiles for activities such as basking and potentially foraging (following habitat reinstatement). Good practice mitigation measures aimed at reptiles, would be implemented during the construction phase, to prevent the inadvertent injury or killing of individuals. On the basis that the proposed measures are implemented, no significant effects are predicted, and no contravention of the relevant legislation is likely.	**No significant residual effects following mitigation/ compensation.**
Mountain hare SBL	Local value	No significant negative effects are predicted. No contravention of the relevant legislation and policy is likely following mitigation/good working practices. Potential positive effects via mitigation/ compensation.	Construction activities have potential to cause direct mortality and disturbance to this species as well as direct and indirect habitat losses/degradation used for shelter, foraging and commuting. The death or injury of an individual during construction is unlikely to have a significant effect on the conservation status of the population in the local area. However, following implementation of the good practice measures (including pre-construction surveys) and with due regard to mitigation measures outlined in Section 8.7, construction effects are not likely significant. The role of the pre-construction surveys, ECoW, need for licensing to lawfully permit any direct effects including disturbance effects or otherwise (i.e., indirect disturbance of mountain hare within upland terrestrial habitats) are of particular relevance. As such, no significant effects would be predicted to occur. Moorland restoration (reducing grazing and muirburn in selected areas) will seek to improve conditions for mountain hare on site (Goal 2 in the OBERP).	**No significant negative effects** are predicted. No contravention of the relevant legislation and policy is likely following mitigation/good working practices. Potential positive effects habitat enhancement.
European eel OSPAR, SBL	Local Value	No significant negative effects are predicted with strict adherence to	No loss of fish habitat is expected during the operational stage. Potential impacts to fish are therefore from pollution and sedimentation e.g., during track maintenance or accidental spillage of fuel.	**No significant residual effects** are predicted with strict

Species / Receptor	Evaluation	Original Significance (Considering Embedded Mitigation, Good Working Practices, Mitigation and Enhancements)	Updated Justification for Significance	Updated Significance
Atlantic salmon Annex II Species, SBL	Regional Value	mitigation/ compensation measures). No contravention of the relevant legislation and policy is likely.	Assuming good practice mitigation to protect water quality, as per the embedded mitigation Section 8.7 and that set out in **AEI Chapter 10**, no significant impacts on fish are anticipated.	adherence to mitigation/ compensation measures). No contravention of the relevant legislation and policy is likely.
Brown / Sea trout SBL	Local Value			
Lamprey (sp.) Annex II Species, SBL, OSPAR	Regional Value			
Three spined stickleback, stone loach and minnow	Less than Local value			

Operational Effects

8.8.5 **AEI AEI Table** 8.7 summarises the expected operational impacts on Annex II, protected and priority species and any populations of local or greater value within the context of the site. In the interests of conciseness, justification for the assessment is contained within the table.

AEI Table 8.7 Summary of Assessment for the Operational Phase

Species / Receptor	Evaluation	Significance (Considering Embedded Mitigation, Good Working Practices, Mitigation and Enhancements)	Updated Justification for Significance	Updated Significance
River Tweed SAC	International value	No significant effects predicted with adoption of embedded mitigation and good working practices.	This site is hydrologically linked with watercourse on the proposed wind farm site. No significant impacts are anticipated on populations of qualifying species of this site during operation assuming that embedded mitigation is implemented (see below for lamprey spp. including river lamprey, Atlantic salmon and otter). A habitat regulations screening report is provided in **AEI Technical Appendix 8.7**, for all six qualifying features. There is a 50 m minimum stand off to infrastructure to watercourses (with the exception of access tracks that may lead to occasional lighting effects on river or pollution impacts from vehicle fuel spills from passing vehicles or maintenance works); yet, with adherence to good working practice and embedded mitigation (detailed in **AEI Chapter 10**) no significant effects are predicted.	**No significant residual effects** predicted following avoidance and mitigation measures.
River Tweed SSSI	National Value	No significant effects predicted with adoption of embedded mitigation and good working practices.	The River Tweed SSSI is located approximately 5.79 km east of the revised proposed development (straight line distance), and a distance of 27 km downstream (where the Leader Water meets the River Tweed). This is considered outwith the ZOI for hydrological effect or airborne contamination. Qualifying features may, however, be present within the site as meta-populations (Atlantic salmon, brook/river/sea lamprey) or as individuals with large home ranges (e.g. otter with up to 50 km home ranges). Following embedded mitigation measures and good working practices the revised proposed development is unlikely to have an impact on the integrity of the site.	**No significant effects** predicted.

Species / Receptor	Evaluation	Significance (Considering Embedded Mitigation, Good Working Practices, Mitigation and Enhancements)	Updated Justification for Significance	Updated Significance
Lammer Law SSSI	National value	No significant effects predicted.	There are no pathways to potential impacts to the qualifying features of this site blanket bog and juniper scrub which is over 1.5 km from the revised site boundary. Embedded mitigation and good working practices will avoid impacts of dust/habitat quality. In limiting juniper planting on site and careful citing of stands will seek to reduce connectivity of the SSSI and prevent spread of *Phytophthora austrocedri*.	**No significant effects** predicted.
Airhouse Wood SSSI	National value	No significant effects predicted.	There are no pathways to potential impacts to the qualifying features, upland oak wood, which is 4.39 km from the site.	**No significant effects** predicted.
Danskine Loch SSSI	National value	No significant effects predicted.	There are no pathways to potential impacts to the qualifying features, fens and fen woodland, which is 8.29 km from the site.	**No significant effects** predicted.
Papana Water SSSI	National value	No significant effects predicted.	There are no pathways to potential impacts to the qualifying features, mixed ash woodland, which is 8.96 km from the site.	**No significant effects** predicted.
Fala Flow Ramsar & SSSI	International value	No significant effects predicted.	There are no clear routes to potential impacts to the non-avian qualifying features, blanket bog, which is 9.03 km from the site.	**No significant effects** predicted.
Juniper	Local value	No significant effects predicted.	There are no clear routes to impact such as loss of habitat or indirect impacts which could affect the populations of these species during the operation of the wind farm.	**No significant effects** predicted.

Species / Receptor	Evaluation	Significance (Considering Embedded Mitigation, Good Working Practices, Mitigation and Enhancements)	Updated Justification for Significance	Updated Significance
Wild pansy	Regional value	No significant effects predicted.	There are no clear routes to impact such as loss of habitat or indirect impacts which could affect the populations of these species during the operation of the wind farm.	**No significant effects** predicted.
Terrestrial habitats	Local-national value	No significant effects predicted.	No loss or direct or indirect impacts to terrestrial habitats are anticipated during the operation of the wind farm.	**No significant effects** predicted.
Rivers and streams	National value	No significant effects following mitigation/ compensation.	There is a potential route to impact from pollution associated with use of the access track (dust and surface run off), however, infrequent use, good practice measures and embedded mitigation to protect water quality. No significant impacts on this habitat are anticipated.	**No residual significant effects** predicted.
Eurasian otter	Local value	No significant effects following mitigation/ compensation predicted. No contravention of the relevant legislation and policy is likely.	The death or injury of an individual otter during operation could potentially have a significant effect on the conservation status of this species population in the local area, however, following implementation of the good practice measures such as a traffic speed limit as outlined in paragraphs, death or injury to otters during operation is not likely. As such, no significant effects would be predicted to occur. Operational activities such as turbine maintenance have some potential to cause temporary disturbance to otters which may use some of the watercourses and waterbodies on and around the site for foraging and commuting. Minor, occasional disturbance would be possible via noise and human presence, however, adherence to the 50 m minimum stand off of infrastructure to watercourses (with the exception of access tracks that may lead to occasional lighting effects on river from passing vehicles or maintenance works) will likely mitigate any effect.	**No residual significant effects** predicted following mitigation and enhancement.

Species / Receptor	Evaluation	Significance (Considering Embedded Mitigation, Good Working Practices, Mitigation and Enhancements)	Updated Justification for Significance	Updated Significance
			Otters have large home ranges and are able to adapt to a certain level of human disturbance (Chanin, 2003) and as such, the likelihood of potential disturbance to otter would be minor and occasional during operation, and no significant effects are predicted.	
Adder	Local value	No significant effects predicted. No contravention of the relevant legislation or policy is likely.	Adder and common lizard have been recorded on the site. The operation of the wind farm poses a very low risk to individuals via road traffic fatalities, however, any fatalities would not affect the overall population size. Good practice mitigation measures aimed at reptiles (see Section 8.7), would be implemented during the construction phase, to prevent the inadvertent injury or killing of individuals. On the basis that the proposed measures are implemented, no significant effects are predicted, and no contravention of the relevant legislation is likely.	**No residual significant effects** predicted following mitigation and enhancement.
Common lizard	Local value			
Deer	Less than local value	No significant effects predicted. No contravention of the relevant legislation or policy is likely.	Operational activities have some potential to cause temporary disturbance to deer which may displace them from nearby habitats. This disturbance would likely be via noise and human presence. This temporary displacement is not considered significant, given the extensive availability of similar suitable habitats within the site and wider area, especially as deer are highly mobile species. In addition, as the numbers of deer on site are low, their displacement to other areas is considered unlikely to have significant negative impacts on surrounding habitats. As such no significant effects are predicted. Deer are scarce on site based on evidence from the shooting tenant. The death or injury of an individual during operation is unlikely to have a	**No significant effects** predicted.

Species / Receptor	Evaluation	Significance (Considering Embedded Mitigation, Good Working Practices, Mitigation and Enhancements)	Updated Justification for Significance	Updated Significance
			significant effect on the conservation status of this species in the local area although there are welfare considerations. However, following implementation of the good practice measures outlined in **Section** Error! Reference source not found. death or injury to deer during operations is not likely. As such, no significant effects would be predicted to occur.	
Bats	Local (common pipistrelle, soprano pipistrelle, brown long-eared and Daubenton's) and National value (Natterer's, Noctule)	No likely significant effects predicted in operational phase based on current site baseline. No significant effects following mitigation/ compensation (with species licensing route to be strictly adhered to should additional roosts be identified during construction phase so that no contravention of the relevant legislation and policy is likely (e.g.,	Operational wind turbines can affect bats in a number of ways, although the main concerns relate to collision mortality, barotrauma and other injuries resulting from collision with, or flying in very close proximity to, moving turbine blades[15]. A study on bat mortality at wind farm sites in the UK found fatality rates to range from 0-5.25 bats per turbine per month[16]. Understanding of the key factors which result in some wind farms posing a high risk of collision to bats is incomplete. Though, a number of elements were highlighted in a review of the interactions of bats with wind farms[17] which may influence the risk to bat populations. • Bats are more likely killed on nights with warm air temperatures and low wind speed. • Most bat fatalities occur in late summer/early autumn. • Mitigation for bat collision should be applied to the wind farm as a whole and not at individual turbine locations.	**No residual significant effects** predicted following mitigation (curtailment, monitoring and carcass detection) and adherence to licencing where appropriate.

[15] NatureScot *et al*. (2021). Bats and onshore wind turbines – survey, assessment and mitigation. [Online] Available at: https://www.nature.scot/doc/bats-and-onshore-wind-turbines-survey-assessment-and-mitigation
[16] University of Exeter. (2016). Hundreds of bat deaths at wind farms could be prevented, finds new research. [Online] Available at: https://news-archive.exeter.ac.uk/2016/november/title_551128_en.html#:~:text=At%20the%2029%20windfarms%20studied%20by%20the%20researchers%2C,study%20by%20academics%20at%20the%20University%20of%20Exeter.
[17] Arnett, E. B. and Baerwald, E. F. (2013). Impacts of wind energy development on bats: implications for conservation. In: RA Adams, SC Peterson (eds) Bat Evolution, Ecology, and Conservation, 435-455. Springer Science Press, New York: USA.

Species / Receptor	Evaluation	Significance (Considering Embedded Mitigation, Good Working Practices, Mitigation and Enhancements)	Updated Justification for Significance	Updated Significance
		a new roost identified within feature closer to access track would require to be assessed accordingly).	• There may be an attraction between bats/or their insect prey, and wind turbines which would not be captured during pre-construction surveys. Bat species, which are more vulnerable to collision mortality, are species which are adapted to fly in uncluttered air space, (i.e., away from vegetation). This includes both soprano and common pipistrelle and Nyctalus Spp. as high-risk species relevant to this assessment. Additional analysis (for other projects) carried out by SPR (Scottish Power Renewables) also predicts that without mitigation there is potential for fatality rates to be high for both Pipistrellus species. The overall collision risk assessment was undertaken for high collision risk species which were identified within the proposed development (i.e., common pipistrelle, soprano pipistrelle and Nyctalus spp.). The original proposed development was defined as a 'Medium' sized project with a 'Low' habitat risk classification; the site was assessed as having an overall collision risk to bats of 'Low/Lowest'. Without mitigation, the risk of bat mortality during the operation phase was considered to be significant at the local level for both pipistrellus species (common and soprano) and Nyctalus (all high risk species identified via activity surveys). See **EIA Technical Appendix 8.4** for full details. Despite the reduction in wind turbine numbers within the revised proposed development, with a subsequent reduction in likely collision risk, there is still considered to be a risk of collision significant at the local level for both pipistrellus species (common and soprano) and Nyctalus (all species identified via activity surveys).	

Species / Receptor	Evaluation	Significance (Considering Embedded Mitigation, Good Working Practices, Mitigation and Enhancements)	Updated Justification for Significance	Updated Significance
			Mitigation will therefore be implemented during the operational phase to reduce the risk of turbine-related bat mortality and is outlined in **Section 8.7** of this chapter and Chapter 8 of the EIA Report October 2023. This includes measures such as curtailment during specific conditions within established activity seasons, monitoring of bat activity post-consent and carcass searches. With implementation no residual significant effects on bat populations will be predicted via collision. No works that are likely to damage or disturb roosts are predicted during operation of the wind farm. Confirmed roosts within the ZOI of indirect disturbance to bats during the construction phase (i.e., roosting within Buildings B and C is predicted). One tree with high roost potential (subject to partial tree climb) was also identified. Further surveys will be necessary to establish the species present; nevertheless, no direct or indirect effects of disturbance are predicted for the operational phase to roosting bats within these structures since the vehicular traffic will be minimal increase to current levels of traffic on the access track and set back >20 m from access track route when operational (considered beyond ZOI of indirect disturbance effects when operational).	
Mountain hare	Local value	No significant negative effects are predicted. Potential positive effects with adherence to mitigation / enhancement measures (e.g., BERP).	Operational activities pose a very low risk of direct mortality (vehicular movements) and disturbance to this species. The death or injury of an individual during operation is unlikely to have a significant effect on the conservation status of the population in the local area, however, following implementation of the good practice measures and with due regard to mitigation measures, detailed in **Section 8.7** of this chapter and of Chapter 8 of the EIA Report October 2023 impacts to this species during operation are not likely. As such, no significant effects would be predicted to occur.	**No residual significant effects** predicted following mitigation and enhancement.

Species / Receptor	Evaluation	Significance (Considering Embedded Mitigation, Good Working Practices, Mitigation and Enhancements)	Updated Justification for Significance	Updated Significance
		No contravention of the relevant legislation and policy is likely.	Moorland restoration (reducing grazing and muirburn in selected areas) will seek to improve conditions for mountain hare on site (Goal 2 in the OBERP).	
Atlantic salmon	Regional value	No significant negative effects are predicted with strict adherence to mitigation/ compensation measures). No contravention of the relevant legislation and policy is likely.	No loss of fish habitat is expected during the operational stage. Potential impacts to fish are therefore from pollution and sedimentation e.g., during track maintenance or accidental spillage of fuel. Assuming good practice mitigation to protect water quality, as per the embedded mitigation section and that set out in **AEI Chapter 10**, no significant impacts on fish are anticipated.	**No residual significant effects** predicted following mitigation and enhancement.

Summary

8.8.6 It is considered that no residual significant impacts to important ecological features during all phases of the revised proposed development will occur following avoidance measures, mitigation measures (embedded mitigation, following best practice guidance and species specific mitigation) and compensation measures, as outlined in **AEI Technical Appendix 8.6**.

8.8.7 Avoidance measures were implemented where possible and includes, avoidance of ecologically sensitive areas, such as culverts to avoid suitable salmonid and macrophyte habitat.

8.8.8 Mitigation was applied for a number of receptors to reduce adverse effects including otter, Atlantic salmon, lamprey spp., bat spp., adder and lizard. Embedded mitigation follows best practice guidance such as water pollution prevention measures, however, additional mitigation has been proposed where necessary and is species-specific. Such important receptors had a significant negative effect prior to implementation of mitigation, many of which are expected to have an overall positive effect through implementation of the OBERP.

8.8.9 Compensation measures are outlined in **AEI Technical Appendix 8.6**. Where it has not been possible to mitigate effects via avoidance or mitigation, such as direct habitat loss, compensation measures have been implemented to demonstrate enhancements to biodiversity within the site, above baseline conditions expected without intervention in line with NPF4.

8.9 Updated Assessment of Cumulative Effects

8.9.1 An updated search for developments within 45 km of the revised proposed development was undertaken to account for additional proposed, in-planning or operational projects since the previous assessment was undertaken.

Construction Phase

8.9.2 The EIA Report October 2023 identified 10 wind farms within 10 km that had the potential for cumulative effect during the construction phase on habitats, otter, rivers and streams, riparian habitats, bats, reptiles, fish and mountain hare.

8.9.3 Two important receptors, Annex I habitats dry heath and blanket bog (priority type) was identified as having a potential significant effect. Compensation measures outlined in the OBERP that will address the residual significant effects. No other significant effects were identified.

8.9.4 The assessment for the revised proposed development identified a total of 53 wind farms within 45 km of the site. Wind farms exceeding 10 km in distance were excluded from the cumulative assessment, in line with the methodology outlined in the Chapter 8 of the EIA Report October 2023. Thus, an additional two wind farms were included in the revised cumulative impact assessment (a total of 12), these are summarised in **AEI AEI Table** 8. 8**.**

AEI Table 8. 8 Potential Cumulative Effects Assessment – Construction/Decommissioning Phase

Project/ No. of Wind Turbines	Status	Distance from Site (km)	Details	Assessment of Cumulative Effects
Greystone Knowe / 14	Application	5-10	Habitats present were dominated by dry heath and semi-improved grassland, blanket bog and dry heath (Phase 1 map); habitat loss from infrastructure is dominated in these areas. The site is adjacent to the Gala Water, and provides connectivity to the River Tweed SAC; otter was the only qualifying features surveyed (included 5 signs). A number of protected species were identified including otter, brown hare, mountain hare, bats and red squirrel. The EIA predicted no significant effects on ecological receptors alone or in combination.	Potentially significant effect on otter and dry heath. OBERP measures will address any cumulative effects thereby making the effects not significant.
Ditcher Law / 9	Application	<5	Habitats were dominated by improved grassland and arable fields. Limited information is available on habitat losses. The site intersects with the River Tweed SAC towards the south of the site. Electrofishing surveys identified Atlantic salmon fry and parr, and larval lamprey (not identified to species level) in low densities throughout the site. With water quality and fish monitoring in place cumulative effect is unlikely especially given distances outwith typical ZOI for consideration (2 km). Otter were additionally identified within the site and connecting tributaries. Information relating to badger is considered confidential and not available.	Potentially significant effect on otter. OBERP measures will address any cumulative effects thereby making the effects not significant.

Operation Phase

8.9.5 Two additional wind farms were considered for cumulative impacts at the operational phase, these are summarised in **AEI Table 8.9**.

AEI Table 8.9 Potential Cumulative Effects Assessment – Operational Phase

Project/ No. of Wind Turbines	Status	Distance from Site (km)	Details	Assessment of Cumulative Effects
Greystone Knowe / 14	Application	5-10	No potential cumulative disturbance predicted due to limited roosting features on site. Median risks for common and soprano pipistrelle was medium, however, embedded design buffers and woodland management implemented results in minor significant effect (which is not considered to be significant).	Potentially significant effect to bats in the absence of mitigation, embedded design and enhancement measures. Not significant when measures incorporated.
Ditcher Law / 9	Application	<5	No relevant information.	Assessment of significant not possible in absence of information.

8.9.6 In total twelve wind farms were included within this assessment, ten of which are considered in the EIA Chapter 8.

8.9.7 Due to the extensive coverage of peatland throughout the site, complete avoidance was not possible. Loss or damage of blanket bog and carbon rich soils was considered to be significant for the proposed development alone, with some loss of blanket bog (>50 cm) considered to raise issues of national interest prior to enhancement measures, and is therefore also considered to represent a significant cumulative adverse effect on a feature of National and Regional value. The adverse effect resulting from the proposed development will be offset by the compensation measures set out in the OBERP, as such total blanket bog (>50 cm) coverage will increase beyond baseline areas.

8.9.8 In terms of cumulative effects on aquatic habitats (watercourses), no residual effects are predicted. Each of the other wind farms concluded that through implementation of appropriate mitigation measures, no likely significant residual effect relating to the degradation of the aquatic environment were predicted. In addition, with seven developments already built/in construction, it is unlikely that the construction phase of the proposed development would coincide with the construction phases of these developments, and therefore the risk of combined pollution and/or sedimentation events discharging into the same catchment is low.

8.9.9 Hydrological connectivity, and thus habitat connectivity for commuting, foraging and resting otter, exists between watercourses bordering the site and nearby development projects (<5 km): Fallago Rig I; Ditchers Law Wind Farm; and Dunside Wind Farm. Both Greystone Knowe and Ditcher Law identified potential significant effects to otter prior to mitigation. Otter is a highly mobile species that is known to occupy large home ranges, thus otters observed at Greystone Knowe and Ditcher

Law may be the same individuals recorded within the site. Whilst otter may utilise other areas of its territory during the construction phase, overlap in construction periods, may reduce areas without disturbance resulting in an overall significant effect. Through implementation of embedded and best practice mitigation outlined in Section 8.7 and those proposed within the EIAs for adjacent developments, and with knowledge of otter home range size and the abundance of alternative suitable habitat within the Tweed catchment, cumulative effects to populations of otter are considered unlikely and not significant during all phases of development.

8.10 Summary of Residual Effects

8.10.1 **AEI Table 8.10** provides a summary comparison of the effects of the original and revised proposed developments on ecological features detailed within this chapter. No significant residual ecological effects were identified in the EIA Report October 2023 and this is consistent with the conclusions of this revised assessment.

AEI Table 8.10 Summary of Residual Effects from Original and Revised Proposed Developments

Receptor	Evaluation	Original Proposed Development Residual Effects		Revised Proposed Development Residual Effects	
		Construction / Decommissioning	Operation	Construction / Decommissioning	Operation
River Tweed SAC	International	Significant negative impacts at a local level prior to mitigation/ compensation (i.e., BERP). No significant effects following mitigation/ compensation. Potential positive effect (based on Outline BERP).	No significant effects predicted with adoption of embedded mitigation and good working practices.	Significant negative impacts at a local level prior to mitigation/ compensation (i.e., BERP). No significant residual effects predicted following mitigation/ compensation. Potential positive effect (based on OBERP (see AEI Technical Appendix 8.6)).	No significant residual effects predicted following avoidance and mitigation measures.
River Tweed SSSI	National	No previous assessment.	No significant effects predicted with adoption of embedded mitigation and good working practices.	No significant residual effects predicted.	No significant effects predicted.
Lammer Law SSSI	National	No significant effects predicted.	No significant effects predicted.	No significant effects predicted.	No significant effects predicted.
Airhouse Wood SSSI	National	No significant effects predicted.	No significant effects predicted.	No significant effects predicted.	No significant effects predicted.
Danskine Loch SSSI	National	No significant effects predicted.	No significant effects predicted.	No significant effects predicted.	No significant effects predicted.
Papana Water SSSI	National	No significant effects predicted.	No significant effects predicted.	No significant effects predicted.	No significant effects predicted.

Receptor	Evaluation	Original Proposed Development Residual Effects		Revised Proposed Development Residual Effects	
		Construction / Decommissioning	Operation	Construction / Decommissioning	Operation
Fala Flow Ramsar & SSSI	International	No significant effects predicted.	No significant effects predicted.	No significant effects predicted.	No significant effects predicted.
Juniper	Local	No significant effects following mitigation/ compensation. Potential positive effect (based on Outline BERP) at a local level.	No significant effects predicted.	No significant effects predicted following mitigation/ compensation. Potential positive effect (based on Outline BERP) at a local level.	No significant effects predicted.
Wild Pansy	Regional	Significant negative impacts at a local level prior to mitigation/ compensation. No significant effects following mitigation/ compensation.	No significant effects predicted.	Significant negative effect at a local level prior to mitigation/ compensation. No significant effects predicted following mitigation/ compensation.	No significant effects predicted.
Upland acid grassland	Local	No significant effects predicted. Potential positive effects.	No significant effects predicted.	No significant effects predicted. Potential positive effects.	No significant effects predicted.
Upland birchwoods	Local	Potential positive effects following implementation of measures detailed in Outline BERP.	No significant effects predicted.	No significant effects predicted. Potential positive effects following implementation of measures detailed in OBERP.	No significant effects predicted.
Upland dry heath, Annex I Habitat	Local	No significant effects predicted.	No significant effects predicted.	Significant negative effect at a local level. Effects will be offset via compensation measures detailed in the OBERP.	No significant effects predicted.

Receptor	Evaluation	Original Proposed Development Residual Effects		Revised Proposed Development Residual Effects	
		Construction / Decommissioning	Operation	Construction / Decommissioning	Operation
Blanket bog >50cm Annex 1 Habitat, NatureScot priority peatland	National	Significant negative impacts at a local level prior to mitigation/ compensation (i.e., BERP). No significant effects following mitigation/ compensation.	No significant effects predicted.	Significant negative effect at a national level. Effects will be offset via compensation measures detailed in the OBERP.	No significant effects predicted.
Blanket bog / Carbon-rich soil <50cm	Regional	Significant negative impacts at a local level prior to mitigation/ compensation (i.e., BERP). No significant effects following mitigation/ compensation.	No significant effects predicted.	Significant negative effect at a regional level. Effects will be offset via compensation measures detailed in the OBERP.	No significant effects predicted.
Degraded blanket bog >50cm	Regional	Significant negative impacts at a local level prior to mitigation/ compensation (i.e., BERP). No significant effects following mitigation/ compensation.	No significant effects predicted.	Significant negative effect at a regional level. Effects will be offset via compensation measures detailed in the OBERP.	No significant effects predicted.
Degraded blanket bog / Carbon-rich soil <50cm	Local	Significant negative impacts at a local level prior to mitigation/ compensation (i.e. BERP).	No significant effects predicted.	Significant negative effect at a local level. Effects will be offset via compensation measures detailed in the OBERP.	No significant effects predicted.

Receptor	Evaluation	Original Proposed Development Residual Effects		Revised Proposed Development Residual Effects	
		Construction / Decommissioning	Operation	Construction / Decommissioning	Operation
Purple moor grass and rush pasture	Local	Significant negative impacts at a local level prior to mitigation/ compensation (i.e., BERP). No significant effects following mitigation/ compensation.	No significant effects predicted.	No significant residual effects predicted following mitigation/ compensation. Potential positive effect.	No significant effects predicted.
Rivers and streams SBL/SAC	International (due to SAC)	Significant negative impacts at a local level prior to mitigation/ compensation (i.e., Outline CEMP and OBERP). No significant effects following mitigation/ compensation predicted.	No significant effects following mitigation/ compensation.	No significant residual effects predicted following mitigation/ compensation. Potential positive effect.	No residual significant effects predicted.
Eurasian Otter Annex II Species, SBL	Local	No significant effects predicted. No contravention of the relevant legislation and policy is likely following mitigation/ compensation predicted.	No significant effects following mitigation/ compensation predicted. No contravention of the relevant legislation and policy is likely.	No significant residual effects predicted. No contravention of the relevant legislation and policy is likely following mitigation/ enhancement predicted.	No residual significant effects predicted following mitigation and enhancement.
Bats (spp.)	National (Natterer's and Noctule) all others Local	Significant negative impacts at a local and national level prior to mitigation/ compensation (i.e., pre-construction surveys, licensing, ECoW and measures detailed in OBERP). No significant effects following mitigation/	No likely significant effects predicted in operational phase based on current site baseline. No significant effects following mitigation/ compensation (with species licensing route to be strictly adhered to should	Significant negative impacts at a local and national level prior to mitigation/ compensation (i.e., pre-construction surveys, licensing, ECoW and measures detailed in OBERP). No significant residual effects predicted following mitigation. No contravention of the relevant	No residual significant effects predicted following mitigation (curtailment, monitoring and carcass detection) and adherence to licencing where appropriate.

Receptor	Evaluation	Original Proposed Development Residual Effects		Revised Proposed Development Residual Effects	
		Construction / Decommissioning	Operation	Construction / Decommissioning	Operation
		compensation. No contravention of the relevant legislation / policy is likely with strict adherence to licensing application and process in agreement with /approved licence from NatureScot (Section 8.7).	additional roosts be identified during construction phase so that no contravention of the relevant legislation and policy is likely (e.g., a new roost identified within feature closer to access track would require to be assessed accordingly).	legislation / policy is likely with strict adherence to licensing application and process in agreement with /approved licence from NatureScot (Section 8.7).	
Adder and common lizard	Local	Significant negative impacts at a local level prior to mitigation/ compensation. No significant effects following mitigation/ compensation.	No significant effects predicted. No contravention of the relevant legislation or policy is likely.	Significant negative impacts at a local level prior to mitigation/ compensation. No significant residual effects following mitigation/ compensation.	No residual significant effects predicted following mitigation and enhancement.
Mountain hare	Local	No significant negative effects are predicted. No contravention of the relevant legislation and policy is likely following mitigation/good working practices. Potential positive effects via mitigation/ compensation.	No significant negative effects are predicted. Potential positive effects with adherence to mitigation / enhancement measures (e.g., BERP). No contravention of the relevant legislation and policy is likely.	No significant negative effects are predicted. No contravention of the relevant legislation and policy is likely following mitigation/good working practices. Potential positive effects habitat enhancement.	No residual significant effects predicted following mitigation and enhancement.
European eel	Local	No significant negative effects are predicted with strict adherence to	No significant negative effects are predicted with strict adherence to	No significant residual effects are predicted with strict adherence to	No residual significant effects predicted
Atlantic salmon	Regional				

Receptor	Evaluation	Original Proposed Development Residual Effects		Revised Proposed Development Residual Effects	
		Construction / Decommissioning	Operation	Construction / Decommissioning	Operation
Brown / Sea trout	Local	mitigation/ compensation measures). No contravention of the relevant legislation and policy is likely.	mitigation/ compensation measures). No contravention of the relevant legislation and policy is likely.	mitigation/ compensation measures). No contravention of the relevant legislation and policy is likely.	following mitigation and enhancement.
Lamprey (sp.)	Regional				
Three spined stickleback, stone loach and minnow	Less than Local				

8.11 Conclusion

8.11.1 Following the avoidance of important receptors during the layout design of the revised proposed development where possible, and with the implementation of the proposed good practice measures and additional mitigation, enhancement and compensatory measures detailed herein this assessment and the OBERP (**AEI Technical Appendix 8.6**) no significant effects are predicted during the construction, operation and decommissioning phases of the revised proposed development.

8.11.2 Potential significant cumulative effects on bats during operation were identified, but following the mitigation, enhancement and compensatory measures detailed herein this assessment and the OBERPO no significant cumulative effect are predicted during the construction, operation and decommissioning phases of the revised proposed development.

8.11.3 Overall, there are not likely to be any significant effects on ecology as a result of the revised proposed development.