APPENDIX 1.1: PERMITTED DEVELOPMENT WORKS APPRAISAL

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Annexes

Annex A: Permitted Development Schedule of Mitigation

Annex B: Permitted Development Biodiversity Net Gain Assessment

1. INTRODUCTION

1.1 Overview

1.1.1 As noted within **Chapter 1: Introduction**, the Proposed Development would include the proposed installation of a section of underground cable (UGC). The proposed UGC would fall under the Applicant's permitted development rights under Class 40 1(a) of The Town and Country Planning (General Permitted Development) (Scotland) Order 1992. As such these works do not require specific express consent. The appraisal of potential effects from the installation of the UGC are however included in this appendix for completeness.

1.1.2 The section of UGC is proposed to be approximately 1.2 km in length. It would commence from the Achany Wind Farm Extension on-site substation and travel south-west to connect to a proposed Cable Sealing End (CSE) structure to facilitate its transition into overhead line (OHL). The indicative UGC alignment is shown on **Figure 3.1a: The Proposed Development** of the EA. A limit of deviation (LoD) of 100 m (50 m either side of the centreline of the UGC) is sought to allow for micro-siting of the UGC during construction. A working corridor of approximately 30 m would be required during the installation of the 132 kV underground cables.

1.1.3 The construction activities anticipated for this proposed UGC section are outlined within **Chapter 3: The Proposed Development**, in particular **Section 3.9**.

1.1.4 Appraisals of potential effects associated with the proposed UGC section are set out within this Appendix, which is structured in accordance with the main Environmental Appraisal (EA) technical chapters:

- Chapter 4: Landscape and Visual;
- Chapter 5: Ecology;
- Chapter 6: Ornithology;
- Chapter 7: Geology, Hydrology and Hydrogeology;
- Chapter 8: Cultural Heritage; and
- Chapter 9: Forestry.

1.1.5 Mitigation measures specific to the proposed permitted development are also summarised in the below sections where appropriate. A summary of these mitigation measures can be found in **Annex A**.

1.1.6 Each of the technical chapters of the EA establishes the baseline information, appraisal methodology and study area associated with each topic appraisal, with the chapters addressing the effects of the elements of the Proposed Development which are subject to consent under Section 37 of the Electricity Act 1989 (i.e. the 132 kV single circuit OHL) and deemed planning under section 57(2) of the Town and Country Planning (Scotland) Act 1997 (as amended). The chapters, and their supporting figures and appendices, should be referred to as part of this Appendix; each Section below identifies the relevant EA Chapter to refer to.

2. LANDSCAPE AND VISUAL

2.1 Overview

2.1.1 Please refer to **Chapter 4: Landscape and Visual**.

2.1.2 This Appendix reports the findings of the Landscape and Visual Appraisal (LVA) for the proposed UGC and its construction. The appraisal is limited to effects during the construction period, since it is anticipated that cable trenches and temporary access tracks would be reinstated upon completion.

2.1.3 As the specific location of joint bays (a location at which cable lengths are jointed) and associated above ground link pillar is not currently known, these are not addressed within this appraisal. However, mitigation measures are suggested to limit any potential longer-term effects.

2.2 Landscape and Visual Baseline Conditions and Potential Effects

Landscape

2.2.1 The proposed UGC would be located within Landscape Character Type (LCT) 135: Rounded Hills – Caithness & Sutherland (see **Chapter 4** for baseline description and characteristics of this LCT) and partially within the Wild Land Area (WLA) 34. Reay – Cassley (see **Figure 4.2: Protected and Designated Landscapes** of the EA) which is valued most for its extensive high wildness and identified as nationally important in National Planning Framework 4 (NPF4).

2.2.2 Locally, the landscape around the proposed UGC is dominated by broad, rolling moorlands, with a strong remote feel and wild character due to the long journey required to reach the area and the enclosure of the surrounding mountains. However, the presence of Achany Wind Farm turbines in the area reduces any sense of wildness locally. Therefore, the temporary construction activity for the proposed UGC in the context of Achany Wind Farm Extension turbines and on-site substation is considered unlikely to lead to any detrimental effects on wildness and on the qualities of the WLA 34, consequently, potential effects on this WLA have not been considered.

2.2.3 Construction works associated with the proposed UGC would lead to an increase in movement and activity within part of LCT 135. Magnitude of change would be **Low** during construction and **Negligible** in the operational stage. The construction of the proposed UGC would temporarily form a new focus and distraction within the local area, slightly increasing the presence of development in the context of the Proposed Development and the proposed Achany Extension Wind Farm. Elsewhere, the construction works associated with the proposed UGC would be experienced in the distance within the context of existing electrical and wind farm infrastructure. The proposed UGC works are therefore anticipated to have a **Minor** effect locally and a **Negligible** effect elsewhere within the LCT during construction. During the operational stage, the proposed UGC works are anticipated to have a **Negligible** effect both, locally and overall.

Visual

2.2.4 Visual effects are unlikely to arise as a result of the installation of the proposed UGC. **Figure 4.4: Visual Receptor Locations** of the EA's **Chapter 4** identifies visual receptors in relation to the Proposed Development. The closest visual receptors are located 3.5 km south (B2) and 3 km south (R1) (see **Chapter 4** for Visual Receptor Appraisal) and are unlikely to be affected by the proposed UGC installation works as any views from these areas are likely to be obscured by local topography. No effects which would lead to a notable reduction to visual amenity were identified for any of the visual receptors within the study area.

2.2.5 The proposed UGC would be well contained by local topography, therefore construction works associated with the installation of the proposed UGC would be visible in close proximity to the proposed UGC only. An increase in movement related to transport along Glencassley Minor Road (R1) might temporarily reduce visual amenity and form a temporary distraction for route receptor R1. The views from Glen Rossal House (B2) are unlikely to be affected by construction activity as this residential property benefits from a high level of screening from surrounding woodland.

2.2.6 This would result in a **Low magnitude** of change for these **Medium** (R1) and **Low** (B2) sensitivity receptors. The works would be seen in the context of substations, wind farms and the Proposed Development construction resulting in a **Negligible** effect for both receptors during construction.

2.3 Landscape and Visual Mitigation

2.3.1 Following commissioning of the proposed UGC, it is anticipated that all areas disturbed during construction would be reinstated. Reinstatement would form part of the contract obligations for the Principal Contractor and would include the removal of all temporary access tracks and the re-vegetation of disturbed areas and the perimeter around joint bays to recreate the former habitat as far as possible.

3. ECOLOGY

3.1 Ecology Overview

3.1.1 Please refer to **Chapter 5: Ecology**.

3.1.2 Surveys undertaken to characterise the baseline of the proposed UGC works area followed the methodologies set out in **Appendix 5.1: Habitat and Protected Species Survey Report** and included UKHab survey to categorise the types of habitats present, National Vegetation Classification (NVC) survey of priority and sensitive habitats, identification of potential groundwater-dependent terrestrial ecosystems (GWDTEs) and protected species surveys focusing on badger, red squirrel, water vole, otter, pine marten and structures that could support roosting bats.

3.1.3 The appraisal of effects on ecological receptors followed the current guidance detailed by the CIEEM[1] and the methodology set out in **Chapter 5**. This appraisal is based on the description of works provided in **Chapter 3**.

3.2 Ecology Baseline Conditions

3.2.1 Two Special Area of Conservation (SAC) sites and one Ramsar site are located within 10 km of the proposed UGC works. These include the Caithness and Sutherland Peatlands SAC and Ramsar site, located 160 m east, and the River Oykel SAC, located 1.6 km south-west of the proposed UGC works. In addition, one Site of Special Scientific Interest (SSSI) is located within 5 km; the Grudie Peatlands SSSI, forming part of the Caithness and Sutherland Peatlands SAC and Ramsar site, located 160 m east of the proposed UGC works. Summaries of the citations for each designation are given in **Table 5.5** and **Table 5.6** in **Chapter 5** and their locations shown on **Figure 5.1: Sites Designated for Nature Conservation**.

3.2.2 There are no Local Nature Reserves, wildlife sites or other local designated sites within 5 km of the proposed UGC works. The carbon and peatland map 2016[2] indicates that the proposed UGC works are located in an area of Class 2 peatland, defined as 'nationally important carbon-rich soils, deep peat and priority peatland habitat – areas of potentially high conservation value and restoration potential'. Class 1 peatland, defined as 'nationally important carbon rich soils, deep peat and priority peatland habitat – areas likely to be of high conservation', does not fall within the proposed UGC works area but is located within 80 m of the proposed UGC works. For the extent of Class 1 and Class 2 peatland habitats, refer to **Figure 7.4: Peatland Classification**.

3.2.3 No woodland areas are present within the proposed UGC works area and the closest area of woodland included on the Ancient Woodland Inventory (AWI) lies 1.3 km to the west, as shown on **Figure 5.1: Sites Designated for Nature Conservation.**

3.2.4 Habitats mapped in accordance with UKHab symbology and NVC communities of priority habitats are displayed on **Figure 5.2: UKHab Classification** and **Figure 5.3: NVC of Priority Habitats**, with Target Notes (TNs) providing further detail in **Appendix 5.1: Habitat and Protected Species Survey Report**.

3.2.5 Priority habitats recorded within 250 m of the proposed UGC works included:

- f1a5 Blanket bog – most of the blanket bog recorded within the proposed UGC works area and 250 m survey area was considered to be modified through grazing and drainage and possibly other historic management practices such as burning, resulting in some areas where the sward has become impoverished;

[1] CIEEM (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine Version 1.3, updated September 2024. Chartered Institute of Ecology and Environmental Management, Winchester.
[2] Available from https://soils.environment.gov.scot/maps/thematic-maps/carbon-and-peatland-2016-map/

- f1a6 Degraded blanket bog – found in open habitats, often adjacent to or in a fine scale mosaic with blanket bog. This habitat has an impoverished Sphagnum bryophyte layer and is typically drier than non-degraded blanket bog habitat. Many areas of this habitat found within the HSA is dominated by purple moor-grass (*Molinia caerulea*);
- h1b5 Dry heaths; upland – dominated by heather, this habitat is limited to small pockets on drier knolls;
- h1b6 Wet heathland with cross-leaved heath; upland – the most frequently recorded habitat within the proposed UGC works area and wider 250 m survey area. The NVC community M15c was commonly found on rocky areas where bare peat was visible through the open vegetation with a high coverage of *Cladonia* lichens;
- f2c Upland flushes, fens and swamps – found infrequently and limited to small linear flushes along the banks of the Allt an Ràsail watercourse; and
- r2 rivers and lakes – the Allt an Ràsail watercourse is located within 150 m of the proposed UGC works at its closest point. Occasional small bog pools are located throughout mire and wet heath habitats, but there are no significant waterbodies within 250 m of the proposed UGC works.

3.2.6 Potential GWDTE habitats within 250 m of the proposed UGC works are displayed on **Figure 5.4: Potential GWDTE**, and include:

- M23b *Juncus effusus / actutiflorus-Galium palustre* mire, *Juncus effusus* sub-community, located along the banks of the Allt an Ràsail watercourse (high potential groundwater dependency);
- M10a *Carex dioica-Pinguicula vulgaris* mire, *Carex viridula* spp. *Oedocarpa-Juncus bulbosus* sub-community (high potential groundwater dependency); and
- M15c *Trichophorum cespitosum-Erica tetralix* wet heath, *Cladonia spp,* sub-community and M15b wet heath, typical sub-community (low – moderate potential groundwater dependency).

3.2.7 No invasive non-native plant species (INNS) or notable plant species were identified within 250 m of the proposed UGC works.

3.2.8 Protected species surveys undertaken within 250 m of the proposed UGC works identified signs of or structures supporting water vole. Water vole habitat is found along the banks of the Allt an Ràsail watercourse, where 14 burrows were identified within 140 m of proposed UGC works. The burrows were active at the time of survey, with signs of recent activity.

3.3 Ecology Potential Effects

3.3.1 The embedded mitigation relevant to ecology is detailed in Section 5.7 of **Chapter 5** and includes, but is not limited to, the adherence to the Applicant's General Environmental Management Plans (GEMPs) (**Appendix 3.2**) and Species Protection Plans (SPPs) (**Appendix 3.3**) for otter, badger, water vole, bats, red squirrel and pine marten, the development of a site-specific Construction and Environmental Management Plan (CEMP) and the employment of an Environmental Clerk of Works (ECoW).

3.3.2 As set out in **Chapter 5**, Section 5.7.5, where it can be considered that effects from the Proposed Development are unlikely and appropriate embedded mitigation is in place, several ecological receptors can be scoped out of the appraisal based on the desk-study results and baseline data collected. Ecological receptors scoped out of the appraisal are included in **Chapter 5**, **Table 5.9**. As there is no significant difference between the desk-study and baseline findings for the proposed OHL and UGC works, the ecological receptors scoped out in **Chapter 5,** can also be scoped out for the proposed UGC works appraisal.

3.3.3 The ecological features scoped into the appraisal for the proposed UGC works are:

- Degradation and loss of priority habitat as a result of temporary cable trench excavation.

3.3.4 The UGC works would result in the disturbance of habitats within and around the footprint of the cable trench excavation, which is anticipated to be 1.3 m wide and 2 m in depth over a length of 1.2 km. In addition, one or two cable joint bays would be required along the route of the cable trench, the location of which would be determined during the detailed design phase. For the purposes of this EA is has been assumed that two joint bays would be required and they would be installed in wet heath habitat (the most frequently found habitat along the UGC alignment). Each joint bay would comprise an underground concrete lined structure approximately 9 m in length, 3.5 m wide and 2 m deep. The cable trench would be opened using a tracked excavator, with arisings from the cable trench temporarily stored adjacent to the trench. The habitats within the route of the UGC comprise wet heath (65 %), blanket bog (20 %) and degraded blanket bog (15 %). Permanent habitat loss would be limited to 0.01 Ha of wet heath, lost as a result of the installation of joint bay(s). Temporary disturbance would occur along the alignment of the UGC, with 0.16 Ha of wet heath, 0.05 Ha blanket bog and 0.03 Ha degraded blanket bog disturbed during the excavation of the cable trench and reinstated following completion of cable laying. No habitats considered to have high potential to be GWDTE (e.g. M23 flush) would be disturbed by the cable trench, with the closest area of habitat with high potential to be GWDTE located 150 m east of the proposed UGC works, close to the Allt an Ràsail watercourse.

3.3.5 A section of 1.2 km temporary access track running alongside the cable trench and two spurs joining the consented Achany Extension Wind Farm access track would utilise temporary trackway solutions to minimise impacts to underlying peat, soils and vegetation. Temporary track panels do not require ground works and there would be not excavation of the underlying vegetation.

3.3.6 No works are proposed within disturbance distance of the water vole colony identified along the Allt an Ràsail watercourse. Pre-construction surveys, as described in Section 5.7.2 of **Chapter 5**, would be carried out prior to works commencing, in line with the SPPs, to identify any signs or shelters of protected species within proximity to the proposed UGC works.

3.4 Ecology Mitigation

3.4.1 The cable trench excavation would be kept free from water by use of mobile pumps, with water pumped to a suitable location as agreed onsite by the ECoW and in accordance with the GEMPs. Embedded mitigation to reduce the disturbance to excavated peat is outlined in the GEMPs and the Peat Management Plan (PMP) (**Appendix 7.2**).

3.4.2 The underground cable would be installed progressively, with the length of time the cable trench remains open minimised as far as possible. The GEMPs include the requirement for careful removal and temporary storage of vegetated turves, removal and storage of soil, sub-soil and peat layers separately to avoid mixing, replacement of excavated horizons in the correct order, short timescales between lifting and replacement of turves and ensuring stored turves are kept in good condition (including watering when weather conditions could lead to desiccation). All excavated material from the UGC trench would be carefully stored a minimum of 50 m from any watercourses, with soil mounds and restoration depths no higher than 2 m. Care would be taken to prevent any risk of runoff or windborne dry sediment from the temporary storage areas being discharged into watercourses.

3.4.3 The installation of the cable trench is anticipated to be undertaken over a 6-month period. Upon the successful installation of the cables, all temporary works would be removed and the area reinstated. Due to the temporary nature of the proposed UGC works and with the full implementation of the CEMP, GEMPs and PMP, habitats are likely to recover within two years of the commencement of construction.

3.4.4 Open sections of cable trench would be ramped to prevent mammal entrapment, the design and the frequency of mammal exit ramps would be detailed within the CEMP.

3.4.5 Consideration has been given to how the Proposed Development can deliver enhancement to biodiversity over its lifetime. A Biodiversity Net Gain (BNG) Assessment has been undertaken for the proposed UGC and is included in **Annex B: Biodiversity Net Gain Assessment**.

3.5 Ecology Summary

3.5.1 The UGC works have been aligned to avoid effects on nearby designated sites and to minimise effects to sensitive habitats and protected species shelters. Temporary disturbance of sensitive blanket bog habitat during the excavation of the cable trench would be minimised by adherence to the site-specific CEMP, PMP and the Applicant's GEMPs. An ECoW would be appointed to undertake pre-construction surveys for protected species and invasive non-native species, to provide advice throughout construction and to monitor compliance with environmental legislation and documentation (including GEMPs, SPPs, PMP and the CEMP). A BNG Assessment has been undertaken by the Applicant, who is committed to achieving a minimum of 10 % gain through habitat enhancement. This will be achieved through the development of a Habitat Management Plan (HMP) with the aims of restoring degraded blanket bog to compensate for the disturbance of blanket bog during the construction of the Proposed Development.

4. ORNITHOLOGY

4.1 Ornithology Overview

4.1.1 Please refer to **Chapter 6: Ornithology**.

4.1.2 Ornithology surveys to characterise the baseline within proximity to the proposed UGC works were undertaken in conjunction with surveys for the OHL and ancillary works. The survey areas for breeding raptors, divers, moorland breeding birds, black grouse and winter walkovers, as summarised in paragraph 6.5.4 of **Chapter 6**, and detailed in **Appendix 6.1: Ornithology Report**, included the proposed UGC works plus appropriate buffer, as displayed on **Figure 6.4: Ornithological Survey Areas**.

4.1.3 The appraisal of effects on ornithological receptors followed the current guidance detailed by the CIEEM[3] and the methodology set out in **Chapter 6**. This appraisal is based on the description of works provided in **Chapter 3**.

4.2 Ornithology Baseline Conditions

4.2.1 One Special Protection Area (SPA) site is located within 10 km of the proposed UGC works; the Caithness and Sutherland Peatlands SPA, located 160 m east of the proposed UGC works. In addition, one Site of Special Scientific Interest (SSSI) is located 160 m east of the proposed UGC works. This is the Grudie Peatlands SSSI, forming part of the Caithness and Sutherland Peatlands SPA site. Summaries of the citations for each designation are given in **Table 6.5** and **Table 6.6** of **Chapter 6** and their locations shown on **Figure 6.1: Sites Designated for Nature Conservation**.

4.2.2 No breeding raptors, owls, divers or black grouse were recorded within published disturbance distances[4] of the proposed UGC works. A golden plover territory was identified 545 m from the proposed UGC works, as displayed on **Figure 6.7: Moorland Breeding Bird Survey Records**; this is just out with the published disturbance distance (200 – 500 m) for this species.

4.3 Ornithology Potential Effects

4.3.1 The embedded mitigation relevant to ornithology is detailed in Sections 6.7.2 – 6.7.5 of **Chapter 6** and includes, but is not limited to, the adherence to the Applicant's GEMPs (**Appendix 3.2**) and SPPs (**Appendix 3.3**), the development of a site-specific CEMP and the employment of an ECoW.

4.3.2 The Applicant's SPP for breeding birds (**Appendix 3.3**) details the requirements for pre-construction surveys and a mitigation hierarchy to avoid or minimise effects on protected or priority species. A summary of the main points from the SPP are provided below:

- Relevant local recorders e.g. Highland Raptor Study Group (HRSG), will be contacted at the pre-construction phase for recent records of sensitive species that might be affected;
- Pre-construction surveys and monitoring undertaken by a suitably qualified ornithologist up to 1 km either side of the LoD in accordance with current guidance;
- ECoW to include checks for protected species including Schedule 1 birds and nests of all breeding birds immediately before construction works begin;
- Pre-construction environmental inductions would be given to all construction staff, including information on sensitive species and legislation;

[3] CIEEM (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine Version 1.3, updated September 2024. Chartered Institute of Ecology and Environmental Management, Winchester.
[4] Goodship, N.M. and Furness, R.W. (MacArthur Green) (2022) Disturbance distances review: An updated literature review of disturbance distances of selected bird species. NatureScot Research Report 1283

- Regular ongoing watching briefs for breeding birds across the construction areas during the breeding season (mid-March to end of August); and
- An emergency procedure would be implemented if breeding birds are encountered. All work would cease within 50 m (non-scheduled species) or the relevant maximum protection distance for the species and the ECoW would define any mitigation required in line with the breeding bird SPP.

4.3.3 Potential effects on ornithological receptors associated with the construction and / or operation of the proposed UGC works are:

- Loss of breeding or foraging habitat – habitat modification changes due to disturbance as a result of cable trench excavation; and
- Disturbance / displacement – disturbance of breeding birds and displacement of foraging birds from suitable habitats may occur, primarily during construction works, but also during operational maintenance works.

4.4 Ornithology Mitigation

4.4.1 General and embedded mitigation measures for protected species, such as complying with best practice, micrositing provisions, presence of an ECoW and adherence to a site-specific detailed CEMP are included in paragraphs 6.7.2 – 6.7.5 of **Chapter 6**. Should operational maintenance be required within the breeding bird season (March to August) pre-construction surveys will also be undertaken to prevent disturbance of breeding birds.

4.5 Ornithology Summary

4.5.1 Habitat reinstatement would be undertaken promptly upon completion of cable installation, as described in Section 3.4.2 above, in accordance with the site-specific CEMP, PMP and the Applicant's GEMPs. Upon completion of works, the temporary tracks (anticipated to be trackway) would be removed. Habitat disturbance would be temporary and habitats are expected to recover within a short time-frame, therefore loss of breeding and foraging habitat is not expected to have an effect on breeding birds due to the widespread nature of similar habitats in the surrounding area and the temporary nature of the proposed UGC works.

4.5.2 Disturbance of breeding birds would be avoided through the implementation of pre-construction surveys and ongoing monitoring during the construction phase, with the ECoW implementing any buffer zones to prevent disturbance to breeding birds where required. Pre-construction breeding bird surveys would also be a requirement if any operational maintenance is required to be undertaken within the breeding bird season. With consideration of the baseline survey findings and the embedded mitigation of pre-construction surveys, the effects of displacement and disturbance on breeding birds during construction and operation are not considered likely.

5. GEOLOGY, HYDROLOGY AND HYDROGEOLOGY

5.1 Geology, Hydrology and Hydrogeology Overview

5.1.1 Please refer to **Chapter 7: Geology, Hydrology and Hydrogeology**.

5.2 Geology, Hydrology and Hydrogeology Baseline Conditions

5.2.1 The existing geology (including soils and peat resources), hydrogeology and hydrology have been characterised as part of the EA. The study area considered in the EA included all elements of the proposed UGC works.

5.2.1 No elements of the proposed UGC works are located within a designated site and nor are they hydrologically connected to a designated site. The soils locally comprise peaty gleys and mapping published by the British Geological Survey shows no peat. Mapping published by NatureScot shows the proposed UGC is potentially underlain by Class 2 priority peatland. Project specific peat depth probing has confirmed that typically soils are <0.5 m and identified one discrete location where a peat depth of up to 3 m deep has been recorded. The UGC is underlain by low grade metamorphic rock of the Altnaharra Psammite Formation.

5.2.2 A detailed assessment of the peat characteristics, potential for peat landslide and measures that would be used to safeguard carbon rich soils and peat is given in **Appendix 7.1: Peat Landslide Risk Assessment** and **Appendix 7.2: Peat Management Plan** of the EA.

5.2.3 Both the superficial and solid geology is common regionally. The geology does not support an important groundwater aquifer, which is reflected by the absence of groundwater abstractions locally and regionally.

5.2.4 The proposed UGC is located within the River Cassley surface water catchment. It is not located in a Drinking Water Protected Area and no private or licensed water supplies have been recorded within 500 m of the proposed UGC.

5.2.5 Areas of potential flood risk are typically restricted to watercourse corridors and do not extend far from watercourse channels. SEPA flood maps indicate that the proposed UGC works are not located within an area noted to be at flood risk. The proposed UGC would pass beneath three watercourses. The dimensions and photographs of the watercourses at the proposed crossing points are given in **Appendix 7.3: Schedule of Watercourse Crossings** of the EA.

5.3 Application of Best Practice

5.3.1 The Applicant has established best practice construction techniques and procedures that have been agreed with statutory consultees, including Scottish Environment Protection Agency (SEPA) and NatureScot. These are set out within Applicant's GEMPs (see **Appendix 3.2**). Elements of the proposed UGC would be constructed in accordance with these plans.

5.3.2 In addition, the works would also be undertaken in accordance with good practice guidance, including UK and Scottish guidance outlined within the following documents:

- The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended) – A Practical Guide (Version 9.4), SEPA, July 2024.
- C532 Control of Water Pollution from Construction Sites (2001)
- C648 Control of Water Pollution from Linear Construction Projects – Technical Guidance (2006).
- C741 Environmental Good Practice on Site (2015).
- C753 The SuDS Manual (2015).

- Engineering in the Water Environment: Good Practice Guide – River Crossings (2010).
- Engineering in the Water Environment: Good Practice Guide – Sediment Management (2010).

5.3.3 The Guidance for Pollution Prevention (GPPs)) identified below are the principal guidance documents for preventing water pollution and erosion from construction activities and would also be used and applied during the proposed UGC works:

- GPP01 Understanding your environmental responsibilities – good environmental practices;
- GPP02 Above Ground Oil Storage Tanks;
- GPP03 Use and Design of Oil Separators in Surface Water Drainage Systems;
- GPP05 Works and Maintenance in or near Water;
- GPP06 Working at Construction and Demolition Sites;
- GPP08 Safe Storage and Disposal of Used Oils;
- GPP13 Vehicle Washing and Cleaning; and
- GPP21 Pollution Incident Response Plans; and
- GPP22 Dealing with Spills.

UGC Duct Construction and Restoration

5.3.4 In accordance with this guidance, the UGC ducts would be installed progressively. The length of time the cable trench would remain open would be minimised. The cable trench would be opened using a tracked excavator. Arisings from the trench would be temporarily stored adjacent to the trench ready for use to restore the trench.

5.3.5 Arisings would be stored so that the potential for erosion and sedimentation is minimised (see above). Silt fences, cut-off drains and temporary cover of the stockpiles would be deployed as directed by the ECoW.

5.3.6 Vegetation turves would be stored separately to the spoil arisings. Once the cable has been installed in the cable trench, arisings would be used to restore the trench and backfilled in the same order that the material was excavated from the trench. Turves would then be replaced on the backfilled trench.

5.3.7 If directed by the project ECoW, low permeability barriers would be installed in the trench to prevent the trench forming a preferential water flow path. Where ground conditions are saturated a geotextile wrap would be used within the trench to ensure there is no loss of the sand cable surround to adjacent ground.

5.3.8 Concrete for joint bays would be brought to site, poured and managed in accordance with the Applicants GEMP.

5.3.9 Where required localised temporary pumping of water from the cable trench would be undertaken to maintain safe working conditions and to facilitate cable duct installation. Pumping arrangements would be agreed and supervised by the ECoW. Pumping would cease once the cable duct has been installed.

5.3.10 Following completion of the installation of a cable duct, a cable team would install (pull) the cables through the ducts. Safeguards used to control pollution, runoff, erosion and sedimentation presented above would be deployed as required.

Watercourse Crossings

5.3.11 The method and approach for installing the UGC duct beneath watercourses would be determined by the appointed Principal Contractor as part of the project detailed design. It is likely that the ducts would be installed by either open cut or Horizontal Directional Drilling (HDD). As above, whichever approach is preferred, it be undertaken in accordance with industry good practice guidance and in accordance with the requirements of the

Controlled Activity Regulations. Where necessary, authorisation for the watercourse crossings and construction methodology would be agreed with SEPA and all works would be supervised by the project ECoW.

Access Tracks

5.3.12 No permanent access tracks are proposed. Access during construction would be undertaken by low load bearing All Terrain Vehicles (ATV's) and temporary trackway would be deployed where required to ensure safe working conditions and if directed by the project ECoW. The same safeguards as detailed in the EA would be used where watercourses need to be forded by machinery used to install the UGC.

5.4 Geology, Hydrology and Hydrogeology Potential Effects

5.4.1 The best practice guidance and construction approach detailed above would ensure that the proposed UGC would not alter surface water flow paths, increase the rate or volume of surface water runoff, or impair water quality. This would also safeguard the River Cassley and tributary catchments through which the proposed UGC would be placed.

5.4.2 Notwithstanding this, a monitoring programme is proposed to monitor water quality in principal watercourses that are potentially at risk from the proposed UGC without the adherence of best practice.

6. CULTURAL HERITAGE

6.1 Overview

6.1.1 Please refer to **Chapter 8: Cultural Heritage**.

6.2 Cultural Heritage Baseline Conditions

6.2.1 The proposed UGC is located on high open moorland with no potential for the archaeological remains of settlement or land use. The nearest archaeological asset is one shieling hut adjacent to the Allt an Rasail at NGR 24718 90869, 500 m east of the proposed UGC (see **Figure 8.1: Cultural Heritage Assets** of the EA). This is in a typical location for an asset of this nature and is not indicative of any further such features in the vicinity.

6.2.2 The LoD of the proposed UGC was included in a walk-over survey carried out to inform the Environmental Statement for Glencassley Wind Farm[5] in 2012. This confirmed the absence of any archaeological interest in this area.

6.3 Cultural Heritage Potential Effects

Direct Impacts

6.3.1 Direct (physical) effects on cultural heritage assets are most likely to arise from ground-disturbing activities that occur during UGC construction works including open-cut trench techniques. These may damage, and possibly destroy, cultural heritage remains. Direct effects may also occur by above-ground disturbance, for example as a result of vehicle movement over cultural heritage features, or storage of construction materials upon them. Direct effects on cultural heritage assets are normally adverse, permanent, and irreversible.

6.3.2 Installation of the proposed UGC would have no adverse effect on any recorded cultural heritage assets. No cultural heritage assets are located along the proposed UGC or within the LoD.

6.3.3 Any ground-breaking activities associated with the proposed UGC have the potential to disturb or destroy any buried, hitherto unrecorded buried archaeological remains present within affected areas. However, it has been established that there is a very low probability for any buried remains to be located within the proposed UGC area.

Indirect Impacts

6.3.4 Indirect impacts are those which can adversely affect the historic setting of heritage features due to the Proposed Development's visibility from a feature or its curtilage. Installation of the proposed UGC would have no potential for indirect impacts on cultural heritage assets.

6.4 Cultural Heritage Mitigation

6.4.1 No requirements for archaeological investigations or watching briefs for the proposed UGC within previously undisturbed ground are recommended. It is not anticipated that an Archaeological Clerk of Works would be required to be retained for this part of the project.

6.4.2 There remains a very low potential for unexpected discoveries of archaeological significance.

6.4.3 Formal arrangements would be put in place by the Contractor for any unforeseen archaeological discoveries made by the Contractor to be reported to the Highland Council Historic Environment Team. These arrangements would require any unexpected discoveries to be assessed and would make clear the legal

[5] Glencassley Wind Farm Environmental Statement | Energy Consents Unit Reference: EC00005263

responsibilities placed upon those who make unexpected discoveries of archaeological significance. These arrangements would be included in the CEMP for the construction project and would be explained in toolbox talks.

7. FORESTRY

7.1 Forestry Overview

7.1.1 Please refer to **Chapter 9: Forestry**

7.1.2 The likely effects on forestry have been appraised based upon the results of desk study and field reports to inform the forestry baseline.

7.1.3 There are no forests or woodlands present in the vicinity of the proposed UGC. As such no forestry effects would be anticipated to occur during the construction or operational periods as a result of the proposed UGC works.

8. CONCLUSION

8.1 Overview

8.1.1 This Appendix appraises the potential environmental effects associated with the Achany Wind Farm Extension Grid Connection's proposed UGC section which would fall under the Applicant's permitted development rights under Class 40 1(a) of The Town and Country Planning (General Permitted Development) (Scotland) Order 1992). These works do not require specific express consent, but this appraisal has been included for completeness

8.1.2 Appraisals of potential effects associated with the UGC section are set out within this Appendix, which is structured in accordance with the main EA technical chapters:

- Chapter 4: Landscape and Visual;
- Chapter 5: Ecology;
- Chapter 6: Ornithology;
- Chapter 7: Geology, Hydrology and Hydrogeology;
- Chapter 8: Cultural Heritage; and
- Chapter 9: Forestry;

8.1.3 Each of the technical chapters of the EA establishes the baseline information, appraisal methodology and study area associated with each topic appraisal, with the chapters addressing the effects of the elements of the Proposed Development which are subject to consent under Section 37 of the Electricity Act 1989 (i.e. the 132 kV single circuit OHL) and deemed planning under section 57(2) of the Town and Country Planning (Scotland) Act 1997 (as amended). The chapters, and their supporting figures and appendices, should be referred to as part of this Appendix.

ANNEX A – SCHEDULE OF MITIGATION

The purpose of this Annex is to provide a summary of mitigation measures proposed throughout **Appendix 1.1: Permitted Development Works Appraisal**, to minimise or offset the potential effects of the permitted development elements of the Proposed Development on the receiving environment. **Table 1.1.1** provides this summary.

Table 1.1.1: Schedule of Mitigation Measures (Permitted Development)

Topic	Issue	Mitigation Reference	Mitigation / Monitoring Measure	Location	Responsibility
Landscape and Visual	Site Reinstatement	LV1	It is anticipated that all areas disturbed during construction would be reinstated. Reinstatement would include the removal of all temporary access tracks and the re-vegetation of disturbed areas and the perimeter around joint bays to recreate the former habitat as far as possible.	2.3.1	The Applicant / Contractor
Ecology	Peat Management	E1	Embedded mitigation to reduce the disturbance to excavated peat is outlined in the GEMPs and the Peat Management Plan. These include the requirement for careful removal and temporary storage of vegetated turves, removal and storage of soil, sub-soil and peat layers separately to avoid mixing, replacement of excavated horizons in the correct order, short timescales between lifting and replacement of turves and ensuring stored turves are kept in good condition.	3.4.1 - 3.4.2	The Applicant / Contractor / ECoW
	Peat Management	E2	All excavated material from the UGC trench would be carefully stored a minimum of 50 m from any watercourses, with soil mounds and restoration depths no higher than 2 m. Care would be taken to prevent any risk of runoff or windborne dry sediment from the temporary storage areas being discharged into watercourses.	3.4.2	Contractor / ECoW
	Site Reinstatement	E3	Upon the successful installation of the cables, all temporary works would be removed and the area reinstated to allow habitats to recover.	3.4.3	Contractor
	Mammal Entrapment	E4	Open sections of cable trench would be ramped to prevent mammal entrapment, the design and the frequency of mammal exit ramps would be detailed within the Construction and Environmental Management Plan (CEMP).	3.4.4	Contractor / ECoW
Ornithology	Protected Species	O1	Pre-construction surveys and monitoring undertaken by a suitably qualified ornithologist up to 1 km either side of the Limit of Deviation (LoD) in accordance with current guidance.	4.3.2	Contractor / The Applicant

	Breeding Birds	O2	Should operational maintenance be required within the breeding bird season (March to August) pre-construction surveys will also be undertaken to prevent disturbance of breeding birds.	4.4.1	Contractor / The Applicant
Geology, Water and Soils	Best Practice Guidance	GWS1	Where necessary, authorisation for the watercourse crossings and construction methodology would be agreed with SEPA and all works would be supervised by the project ECoW.	5.3.11	Contractor / ECoW
Cultural Heritage	Unforeseen Archaeological Discoveries	CH1	Formal arrangements would be put in place by the Contractor for any unforeseen archaeological discoveries made by the Contractor to be reported to the Highland Council Historic Environment Team.	6.4.3	Contractor

ANNEX B: PERMITTED DEVELOPMENT BIODIVERSITY NET GAIN ASSESSMENT

Scottish & Southern Electricity Networks
TRANSMISSION

TEM-NET-ENV-508
Environmental

Biodiversity Net Gain Assessment Report

Project Name – Achany Wind Farm Extension Grid Connection: Permitted Development

Project Code – LT361/362

TEM-NET-ENV-508	Biodiversity Net Gain Assessment Report		Applies to Transmission ✓
Revision: 1.00	**Classification:** Public	**Issue Date:** April 2024	**Review Date:** April 2030

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Issue/Revision	**1**	**2**	**3**	**4**
Date	07/02/2025	03/03/2025	17/03/2025	21/03/2025
Remarks	Updates required	Updates required	Updates required	Finalisation
Prepared by	H. Chance	H. Chance	H. Chance	H. Chance
Signature	H. Chance	H. Chance	H. Chance	H. Chance
Checked by	H. Lane	H. Lane	H. Lane	H. Lane
Signature	H. Lane	H. Lane	H. Lane	H. Lane
Authorised by	A. Curds	A. Curds	A. Curds	A. Curds
Signature	A. Curds	A. Curds	A. Curds	A. Curds
Project Code	LT361/362	LT361/362	LT361/362	LT361/362
Report number	EA	EA	EA	EA

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Executive Summary

This report sets out the results of the Biodiversity Net Gain (BNG) calculations and the approach to delivering on SSEN Transmission's BNG commitments for the Project. This report should be read alongside the SSEN Biodiversity Project Toolkit Excel Sheet for the Project Site (hereafter referred to as 'the Toolkit').

This report details the BNG assessment undertaken for the permitted development elements of the Achany Wind Farm Extension Grid Connection Project. The permitted development elements comprise the installation of 1.2 km of underground cable (UGC), located in an area of upland heath moorland and upland bog habitat.

This report includes:

- A calculation of baseline Biodiversity Units (BU) for the UGC following the guidance outlined within SSEN Transmission's Biodiversity Net Gain Toolkit User Guide.
- A prediction of the post development on-site BU following successful reinstatement.
- A qualitative assessment against the Biodiversity Net Gain Good Practice Principles; and
- Details of the required habitat creation or enhancements required to achieve biodiversity enhancements.

The BNG assessment measures the baseline non-irreplaceable habitats within the footprint of the UGC as 7.37 BU. The proposed post-development plans for habitats impacted by the construction of the UGC will lead to a net loss of 2.43 BU (– 33 %). It is recommended that offsetting opportunities are sought as close to UGC as possible to achieve the required 10 % gain.

Irreplaceable habitats are acknowledged for their particular importance therefore appropriate mitigation has been identified for any impacts on these habitats. SSEN Transmission consider irreplaceable habitats within their network are to be Ancient Woodland (categories 1a & 2a of the Ancient Woodland Inventory (AWI)), ancient or veteran trees, blanket bog or raised bog in good or moderate condition.

No Category 1a or 2a Ancient Woodland, ancient or veteran trees, or raised bog, were found within the UGC footprint. Irreplaceable blanket bog in moderate condition will be disturbed by the installation of the UGC. The UGC will result in the loss of 0.12 ha of irreplaceable habitat. SSEN Transmission will seek to secure an offsetting opportunity to appropriately offset the UGC within the local area.

2 Introduction

2.1 Background of the Project

2.1.1 Scottish and Southern Electricity Networks (SSEN Transmission), operating under licence held by Scottish Hydro Electric Transmission plc, to operate and develop the high voltage electricity transmission system in the north of Scotland and remote islands commissioned ASH design + assessment Ltd. to undertake a Biodiversity Net Gain (BNG) assessment for the Achany Wind Farm Extension Grid Connection Project using the SSEN Biodiversity Project Toolkit. SSEN Transmission, hereafter referred to as "the applicant".

2.1.2 The applicant seeks consent under section 37 of the 1989 Act and deemed planning permission under section 57(2) of the Town and Country Planning (Scotland) Act 1997 (as amended), to construct and operate a new single circuit 132 kV overhead line (OHL) between the consented Achany Wind Farm Extension substation and the existing Shin substation. Deemed planning permission under section 57(2) of the Town and Country Planning (Scotland) Act 1997 is also sought for 1.2 km of underground cable (UGC) between the on-site Achany Wind Farm Extension substation and the proposed cable sealing end (CSE) structure hereafter referred to as the "UGC". The purpose of this report is to assess the biodiversity net gains or losses resulting from the impacts of the UGC.

2.1.3 The UGC will be installed under the applicant's permitted development rights under Class 40 1(a) of the Town and Country Planning (General Permitted Development) (Scotland) Order 1992. As such, these works do not require specific consent, however an appraisal of the potential effects on nature conservation have been considered in Appendix 1.1 of the Achany Wind Farm Grid Connection Environmental Appraisal (EA) and this BNG assessment has been undertaken to record any net loss / gain of habitats as a result of the UGC.

2.2 Site Description

2.2.1 The UGC is not located within any statutory or non-statutory site designated for nature conservation. Two Special Area of Conservation (SAC) sites and one Ramsar site are located within 10 km of the UGC – Caithness and Sutherland Peatlands SAC and Ramsar site, located 160 m east and River Oykel SAC, located 1.6 km south-west. In addition, one Site of Special Scientific Interest (SSSI) is located within 5 km – Grudie Peatlands SSSI, forming part of the Caithness and Sutherland Peatlands SAC and Ramsar site. There are no Local Nature Reserves or other local designated sites within 5 km of the UGC. The UGC is not located within any areas of woodland. The closest area of woodland included on the Ancient Woodland Inventory (AWI) lies 1.3 km west of the UGC.

2.2.2 Located approximately 12.5 km west of Lairg, the UGC is located between 230 and 280 m above ordnance datum.

2.2.3 Habitats recorded within the Survey Area, a 500 m corridor, defined as 250 m from infrastructure associated with the UGC included:

- f1a5 Blanket bog – most of the blanket bog recorded within the Survey Area was considered to be modified through grazing and drainage and possibly other historic

management practices such as burning, resulting in some areas where the sward has become impoverished;

- f1a6 Degraded blanket bog – found in open habitats, often adjacent to or in a fine scale mosaic with blanket bog. This habitat has an impoverished Sphagnum bryophyte layer and is typically drier than non-degraded blanket bog habitat. Many areas of this habitat found within the Survey Area is dominated by purple moor-grass (*Molinia caerulea*);
- h1b5 Dry heaths; upland – dominated by heather, this habitat is limited to small pockets on drier knolls;
- h1b6 Wet heathland with cross-leaved heath; upland – the most frequently recorded habitat within the Survey Area. The NVC community M15c was commonly found on rocky areas where bare peat was visible through the open vegetation with a high coverage of *Cladonia* lichens;
- f2c Upland flushes, fens and swamps – found infrequently and limited to small linear flushes along the banks of the Allt an Ràsail watercourse; and
- r2 rivers and lakes – the Allt an Ràsail watercourse is located within 150 m of the UGC at its closest point. Occasional small bog pools are located throughout mire and wet heath habitats, but there are no significant waterbodies within the Survey Area.

2.3 Proposed UGC Development Description

2.3.1 The UGC, which is the subject of the applicant's permitted development rights comprises:

- Installation of a temporary access track, from the consented Achany Wind Farm Extension access track, formed of temporary track panels, to provide a temporary surface for construction vehicles;
- Excavation of a cable trench (1.3 m wide, 2 m depth) over 1.22 km between the consented Achany Wind Farm Extension on-site substation and the proposed CSE structure;
- Installation of cables within the cable trench;
- Installation of one to two joint bays (a location at which cable lengths are jointed), the locations of which are to be agreed during detailed design phase and in discussion with the relevant landowner. The joint bay(s) would comprise an underground concrete lined structure approximately 9 m in length, 3.5 m wide and 2 m deep; and
- Removal of temporary works and site reinstatement.

2.3.2 The installation of the cable trench is anticipated to be undertaken over a 6-month period. Upon the successful installation of the cables, all temporary works will be removed and the area reinstated.

2.3.3 Other works associated with the grid connection, which is seeking Section 37 consent under the 1989 Act, including deemed planning permission under section 57(2) of the Town and Country Planning (Scotland) Act 1997, include:

- The installation and operation of approximately 16 km of new trident H-wood pole overhead line (OHL) between a new CSE structure, approximately 1.2 km south of the consented Achany Wind Farm Extension on-site substation and the existing Shin substation; and
- Ancillary works required to facilitate the construction and operation of the OHL, including tree felling and vegetation clearance, temporary measures to protect road and water crossings, upgrades to existing access tracks and existing access points, new permanent and temporary access tracks, permanent stone hardstanding areas related to the CSE structure, and associated working areas around infrastructure to facilitate construction.

2.3.4 This BNG assessment considers works associated with the applicant's permitted development rights only, works associated with the Section 37 consent are not included within this report and are considered in a separate BNG assessment for the Project.

2.4 Scope of Study

2.4.1 This report sets out the results of the BNG assessment and the approach to delivering on SSEN Transmission's BNG commitments for the Project. This report identifies the baseline biodiversity measured in Biodiversity Units (BU).

Policy and Legislation

2.4.2 A route optioneering assessment was undertaken early in the project design to inform the route selection process based on the surrounding designated sites and the habitats identified through this assessment. In depth consultation was also held with the relevant statutory bodies on the route options and subsequent alignment options. The route optioneering assessment sought to avoid the UGC entering the adjacent Caithness and Sutherland Peatlands SAC and Ramsar site and to increase the separation distance between the UGC and the designation. The mitigation hierarchy has been applied to avoid impacts to biodiversity where possible. The extensive nature of blanket bog and degraded blanket bog habitat south of the consented Achany Wind Farm Extension on-site substation meant that complete avoidance of these habitats was not possible. Where avoidance has not been possible, impacts to these habitats have been minimised as far as practicably possible with appropriate mitigation measures set out the EA.

3 Methodology

3.1 Area and Surveys

3.1.1 **Desk Based Assessment** – The desk-based assessment was based upon collation of data from publicly available datasets provided by statutory and non-statutory authorities and analysis of freely-available aerial imagery. Desk-based survey included analysis of the following datasets:

- Joint Nature Conservation (JNCC) website[1];
- NatureScot Site Link website[2];
- NatureScot Natural Spaces datasets[3];
- Habitat Map of Scotland (HabMos) website[4];
- Native Woodland Survey of Scotland (NWSS) data[5];
- Carbon and Peatland Map of Scotland[6];
- Open source data from the National Biodiversity Network[7];
- Highland Nature Biodiversity Action Plan 2021 – 2026[8];
- Scottish Biodiversity List (SBL)[9]; and
- Detailed aerial imagery from Ordnance Survey.

3.1.2 **Field Assessment** – Habitat surveys were undertaken within the Survey Area, defined as a 250 m buffer from the UGC, in June 2023. Habitats across the Survey Area were classified and mapped following the UK Habitat (UKHab)[10] classification system. Target notes were taken to provide a photographic record of the habitats recorded and any features of interest. National Vegetation Classification (NVC) was undertaken for priority habitats within the Survey Area. Habitat Condition Assessment (HCA) was undertaken alongside the UKHab surveys and assigned each habitat parcel a condition score (Good, Moderate, Poor or N/A). based on the Condition Assessment sheets detailed in the Natural England Biodiversity Metric 3.1[11]. Where habitat mosaics were recorded, the representative ratios of each habitat type were included.

3.1.3 **Evidence of technical competence –** Surveys were undertaken by Consultant Ecologists from Orrin Ecology who are full CIEEM members, capable in surveying sites within the Highlands of similar habitat types, with 14 years of relevant consultancy experience.

[1] Joint Nature Conservation (JNCC) website: https://jncc.gov.uk
[2] NatureScot Site Link website: https://sitelink.nature.scot/home
[3] NatureScot Natural Spaces datasets: https://www.nature.scot/information-hub/naturescot-data-services
[4] Habitat Map of Scotland (HabMos) website: https://www.nature.scot/landscapes-and-habitats/

3.2 Approach to Biodiversity Net Gain

3.2.1 A full BNG Assessment was undertaken for the Project Site. The BNG assessment was completed within the SSEN Biodiversity Toolkit following the SSEN Biodiversity Net Gain Toolkit User Guide (2022). This method has been revised to align with Natural England Biodiversity Metric 3.1, adapted to reflect the requirements of Scottish habitats, to quantify losses and gains of biodiversity. Data were collected on type, area, and condition of the habitat of the UGC, indicating the biodiversity present on-site before the work begins. The same Toolkit was used to calculate the biodiversity losses and the units resulting from the proposed habitat creation after works. The outcomes have been used to ensure the biodiversity targets are being met for the development.

3.2.2 The SSEN Transmission BNG toolkit assesses losses of area and linear habitat separately. The Toolkit produces a Unit score for three categories of habitat: Biodiversity Units, Linear Hedgerow (H) Units and Linear Watercourse (W) Units. No linear hedgerow features are present within the UGC. Watercourse features are found within the UGC, with limitations and assumptions for the calculation of Watercourse W Units detailed in Section 3.3 below.

3.3 Limitations and Assumptions

3.3.1 To produce this assessment, certain assumptions have been made and are detailed in this section.

3.3.2 The following assumptions have been made as part of this assessment:

- Temporary access tracks will be required between the consented Achany Wind Farm Extension access tracks and along the length of the UGC alignment to enable access for cable installation. The temporary access tracks will utilise temporary track panels which will be in place for up to 6 months. The use of temporary track panels does not require breaking of ground and usually only results in a flattening of the sward, creating minimal disturbance to the underlying habitats. Track panels are proposed to be located in areas of h1b6 Wet heathland with cross-leaved heath, upland (moderate condition); f1a6 Degraded blanket bog (poor condition) and f1a5 Blanket

[5] Native Woodland Survey of Scotland (NWSS) data: https://forestry.gov.scot/support-regulations/scottish-forestry-map-viewer
[6] SNH (2016) Carbon and Peatland map of Scotland. Available from: https://soils.environment.gov.scot/maps/thematic-maps/carbon-and-peatland-2016-map/
[7] National Biodiversity Network website: https://nbnatlas.org/
[8] Highland Environmental Forum (2021). Highland Nature: Biodiversity Action Plan 2021 – 2026. Available from: https://www.highlandenvironmentforum.info/biodiversity/action-plan/
[9] Scottish Biodiversity List: https://www.nature.scot/scotlands-biodiversity/scottish-biodiversity-strategy-and-cop15/scottish-biodiversity-list
[10] UKHab Ltd (2023) UK Habitat Classification Version 2.0. Available online: https://www.ukhab.org
[11] Natural England, 2023. Archive site for the Biodiversity Metric 3.1. Available online: https://publications.naturalengland.org.uk/file/4711800952848384

bog (moderate condition). The track panels for temporary access tracks will not require breaking of ground and as such will not result in the loss of habitat, however the areas impacted by track panels have been included within the Toolkit calculations. Areas of h1b6 Wet heathland with cross-leaved heath, upland (moderate condition) and f1a6 Degraded blanket bog (Poor condition) are expected to return to their original extent and condition within 2 years of the panels being removed. A one year delay in reinstatement has been added for areas impacted by temporary track panels, which are anticipated to be in place for 6 months.

- An area of 0.07 ha f1a5 Blanket bog (moderate condition) will be impacted by the installation of track panels for temporary access tracks. As above, the area is anticipated to be restored to its original extent and condition within three years of construction commencing (two years to recover plus one year delay in reinstatement). As this habitat type is considered an irreplaceable habitat, the area disturbed is treated as permanent loss and is compensated for appropriately as detailed in Section 4.2 and 4.4.
- Temporary construction compounds and laydown areas which would be required to facilitate construction of the UGC are yet to be identified and would form part of a separate planning applications which would be sought by the Principal Contractor. At this stage it is assumed that the adjacent consented Achany Wind Farm Extension access tracks and laydown areas will be utilised and as such has not been included in the Toolkit. Following confirmation of the location of these areas, it is recommended that this assessment is updated.
- The final cable installation method would be determined by the Principal Contractor, but for the purposes of the EA and this BNG Assessment it is assumed that an open cable trench method would be used along the length of the alignment, representing a worst-case scenario in terms of the ground disturbed.
- The construction period for the UGC is estimated to be 6 months. There is a requirement to include temporal risk within the Toolkit for created habitats. Where habitats are impacted by the installation of the UGC, an additional year has been added to the time anticipated for the habitat to reach target condition to account for the delay in time for reinstatement to commence as the Toolkit only allows for whole year delays.
- Reinstatement works will follow SSEN Transmission General Environmental Management Plans (GEMPs), specifically Soil Management, Working in Sensitive Habitats, and Restoration to ensure that construction methods are followed to enable the successful reinstatement of habitats post-construction. Habitats impacted by the installation of the UGC trench include 0.03 ha of f1a6 Degraded blanket bog (poor condition) and 0.16 of h1b6 Wet heathland with cross-leaved heath, upland (moderate condition). These areas will be reinstated upon completion of the UGC installation. It is anticipated that areas of f1a6 Degraded blanket bog (poor condition) habitat would be reinstated to the original extent and condition within the timeframe of 32+ years, as recommended by the Biodiversity Metric 3.1 Technical Supplement. Areas of h1b6 Wet heathland with cross-leaved heath, upland (moderate condition) would be reinstated to its original extent and condition

within 21 years (20 years, as recommended by the Biodiversity Metric 3.1 Technical Supplement, plus one year for temporal delay).

- An area of 0.05 ha f1a5 Blanket bog (moderate condition) will be impacted by the installation of the UGC trench. The area is anticipated to be restored to the original extent and condition within the timeframe of 32+ years, as recommended by the Biodiversity Metric 3.1 Technical Supplement. As this habitat type is considered an irreplaceable habitat, the area disturbed is treated as permanent loss and is compensated for appropriately as detailed in Section 4.2 and 4.4.
- The installation of one to two joint bays will be required along the length of the UGC and the location which will be agreed during detailed design phase and in discussion with the relevant landowner. For the purposes of the EA and this BNG Assessment it has been assumed that two joint bays will be required and they will be installed in h1b6 Wet heathland with cross-leaved heath, upland (moderate condition), the most commonly found habitat along the UGC alignment. The avoidance hierarchy will be assumed to be followed in locating they joint bays out with areas of blanket bog habitat. Following confirmation of the location of these areas, it is recommended that this assessment is updated. Habitat loss within areas of the joint bays would be permanent.
- Watercourses are present within the Survey Area, with two tributaries of the Allt an Rasàil. The method and approach for installing the UGC duct beneath watercourses will be determined by the Principal Contractor as part of the project detailed design. It is likely the ducts will be installed by either open cut (whilst the channel is dry using cofferdams and bypass pumps in accordance with best practice and the requirements of the Controlled Activity Regulations) or Horizontal Directional Drilling (HDD). It is therefore assumed that there will be no impact to any of the watercourses within the UGC and watercourses have not been assessed within the Toolkit.

3.3.3 The following limitations are present within the assessment:

- Habitat mosaics are not accepted within the Toolkit, where habitat mosaics were recorded during field surveys, NVC habitat data which included representative ratios of each habitat within the mosaic, was used to attribute a relevant portion of each habitat parcel to a distinct habitat type in the Toolkit.
- The Toolkit does not allow areas of less than 0.01 ha to be input which can create discrepancies in the area of habitat loss calculated as part of the EA and the Toolkit calculations. This is particularly problematic when multiple habitat parcels are impacted by a linear feature such as a UGC, which results in losses to multiple habitat parcels that are less than 0.01 ha. To avoid this discrepancy issue, habitat losses for each habitat type are grouped where the habitat condition is the same and is input into the Toolkit as a single entry.
- The Toolkit calculates BU to four decimal points, but only two decimal points are used for reporting purposes in this report. This results in slight differences in values such as 7.36 BU baseline calculated in the Toolkit compared with 7.37 BU reported in Table 1. The differences are no greater than 0.01 and as such are not considered to be a limitation to reporting.

4 Results

4.1 Biodiversity Baseline

4.1.1 The baseline habitats impacted by development are shown in the baseline habitat plan (see Appendix A) detailed in the project Biodiversity toolkit (see Appendix B) and are detailed in Table 1 below. Impacted habitats include:

- Habitats disturbed during the installation of the UGC and temporary access tracks; and
- Habitats lost during the installation of joint bays.

4.1.2 The baseline area biodiversity units are 7.37 BU.

Table 1: Baseline Non-Irreplaceable Habitats

UKHab Type	Toolkit Habitat Type	Area of Habitat Impacted (ha)	Habitat Distinctiveness	Habitat Condition	Biodiversity Units (BU)	Action
f1a6 degraded blanket bog	Wetland – Blanket bog	0.03	High	Poor	0.23	Disturbed during UGC installation
h1b6 wet heathland with cross-leaved heath, upland	Heathland and shrub – Upland heathland	0.16	High	Moderate	2.32	Disturbed during UGC installation
h1b6 wet heathland with cross-leaved heath, upland	Heathland and shrub – Upland heathland	0.01	High	Moderate	0.15	Permanent loss for joint bay installation
f1a6 degraded blanket bog	Wetland – Blanket bog	0.06	High	Poor	0.46	Disturbed by temporary access tracks
h1b6 wet heathland with cross-leaved heath, upland	Heathland and shrub – Upland heathland	0.29	High	Moderate	4.21	Disturbed by temporary access tracks
	Totals	**0.55**			**7.37**	

4.2 Irreplaceable Habitats

4.2.1 No Category 1a or 2a Ancient Woodland, ancient or veteran trees, or raised bog, were found within the UGC. Irreplaceable f1a5 Blanket bog in moderate condition will be disturbed by the installation of the UGC and temporary access tracks. These areas will be reinstated upon completion of works, but as it is not expected to return to its original habitat type and condition within 2 years, this will be treated as a permanent loss within this report. The UGC will result in the loss of 0.12 ha of irreplaceable habitat. For the 0.05 ha of f1a5 blanket bog in moderate condition disturbed during the installation of the UGC, it is anticipated that this habitat will lose a condition score during reinstatement and be reinstated as poor condition blanket bog. The area of 0.07 ha f1a5 Blanket bog in moderate condition disturbed during the installation of temporary access tracks (track panels), is anticipated to recover to its original condition within 3 years of construction commencing (two years to recover and one year delay in reinstatement commencing).

Table 2: Baseline Irreplaceable Habitats

UKHab Type	Toolkit Habitat Type	Area of Habitat Impacted (ha)	Habitat Distinctiveness	Habitat Condition	Action
f1a5 blanket bog	Wetland – Blanket bog	0.05	High	Moderate	Disturbed during UGC installation
f1a5 blanket bog	Wetland – Blanket bog	0.07	High	Moderate	Disturbed by temporary access tracks
	Total	**0.12**			

4.3 Post-development Biodiversity Units

4.3.1 The post-development units have been calculated using the difference between the baseline and the impact on the habitat.

4.3.2 The baseline habitats will either be lost due to joint bay installation or disturbed during the reinstatement of the UGC and temporary access tracks. The post-development units for (area-based) habitats are 4.94 BU, resulting in an overall loss of 2.43 BU, representing a biodiversity net loss of 33 %.

4.4 BNG Off-setting

4.4.1 Habitats restored during the reinstatement process of the UGC trench include areas of f1a6 Degraded blanket bog (poor condition) and h1b6 Wet heathland with cross-leaved heath, upland (moderate condition). It is anticipated areas of f1a6 degraded blanket bog in poor condition would be reinstated to the original extent and condition within the timeframe of 32+ years, recommended by the Biodiversity Metric 3.1 Technical Supplement. Areas of h1b6 Wet heathland with cross-leaved heath (upland) disturbed during UGC installation are anticipated to be reinstated to the original extend and condition within the timeframe of 21 years, this is 20 years as recommended by the BM3.1 Technical Supplement, plus 1 year for the delay in creation.

4.4.2 Opportunities for habitat creation and enhancement are being explored to deliver a 10 % gain in biodiversity. To provide a 10 % gain in biodiversity, 3.17 BU will need to be delivered through off-site habitat enhancement. An area to achieve 10 % gain for non-irreplaceable habitat is yet to be identified, but the applicant is currently seeking an appropriate off-setting site in the local area.

4.4.3 In addition, SSEN Transmission will seek to identify an opportunity to compensate for the disturbance of 0.12 ha irreplaceable habitat. Although these areas will be reinstated following the completion of UGC installation, bespoke compensation for the loss of 0.12 ha of irreplaceable blanket bog will be achieved through peatland restoration. This peatland restoration seeks to contribute to national targets to restore peatlands and support the aims of the Highland Council's Ecology Strategy and Action Plan[12] and the Highland Nature Biodiversity Action Plan[13]. The area for peatland restoration would be 1.22 ha. This approach is in accordance with NatureScot guidance for developments that impact on peatland habitats[14] to commit to restoration measures of a 10:1 compensation ratio plus an additional 10 %. Improving the condition of an area of 1.22 ha of blanket bog would aim to be undertaken as close as possible to the UGC and tie in with the peatland restoration proposals for the Achany Wind Farm Extension Habitat Management Plan[15].

4.4.4 Any peatland restoration undertaken to provide habitat enhancement offsite will be undertaken in line with the Peatland ACTION technical guidance[16] and seeks to reduce physical erosion of peat and help rewet adjacent peatlands, which in turn helps to reduce the release of carbon stored (e.g. into watercourses in dissolved and particulate forms or into the atmosphere as CO2) within areas of actively eroding peatland.

4.4.5 It is anticipated that the peatland restoration measures to provide habitat enhancement would be detailed in a Habitat Management Plan (HMP), secured by condition of consent, and would include the monitoring and maintenance regime associated with the BNG peatland restoration proposals. SSEN Transmission will be responsible for implementing monitoring and maintenance measures included the HMP.

[12] Highland Council Ecology Strategy and Action Plan (2024). Available from: https://www.highland.gov.uk/download/meetings/id/84059/item_13_ecology_strategy_and_action_plan

5 Summary

5.1 The UGC will result in the loss of 2.43 biodiversity units (-33 % loss) and the disturbance of 0.12 ha of irreplaceable habitat. To achieve a 10 % net gain for non-irreplaceable habitats, 3.17 BU will be required to be gained at an appropriate off-setting site. To achieve compensation for disturbance irreplaceable habitat, an area of 1.22 ha of peatland restoration will be required at an appropriate off-setting site. SSEN Transmission will seek to secure an offsetting opportunity to appropriately offset the UGC.

5.1.1 The habitat creation / enhancements will be designed to be achieved within a reasonable timeframe and with reasonable certainty as the outcomes from the toolkit have been informed by the Natural England Biodiversity Metric 3.1. The restoration and enhancement of biodiversity was conducted in accordance with local and national guidance, including the Peatland ACTION technical guidance. It is considered these measures are appropriate to the nature and scale of the UGC and means the project will achieve positive effects for biodiversity, leaving the natural environment in a demonstrably better state than before development work began.

5.2 Summary of Results

Table 3. Summary of biodiversity units

Habitat Type	Baseline Biodiversity Units (BU)	Post – Development Biodiversity Units (BU)	Difference in Biodiversity Units (BU)	Difference in Biodiversity Units (%)	Biodiversity Units Required Off-site to achieve 10 % gain (BU)
Area	7.37	4.94	-2.43	-33	3.17
Linear (Hedgerows)	0	0	0	0	0
Linear (Watercourses)*	0	0	0	0	0
*Several watercourses are present within the Survey Area. As detailed in Section 3.3 above, the method of UGC installation is not anticipated to result in changes to watercourses.					

[13] Highland Nature: Biodiversity Action Plan 2023 – 2026. Available from https://www.highlandenvironmentalforum.info/biodiversity/action-plan/

[14] NatureScot (2023) Advising on peatland, carbon-rich soils and priority peatland habitats in development management. Available from: https://www.nature.scot/doc/advising-peatland-carbon-rich-soils-and-priority-peatland-habitats-development-management

[15] Scottish and Southern Energy (SSE) (2023) Achany Wind Farm Extension Environmental Impact Assessment (EIA). Energy consents reference: ECU00001930

[16] Peatland ACTION (2022) Technical Compendium. Available from: https://www.nature.scot/doc/peatland-action-technical-compendium

5.3 Biodiversity Outcomes

5.3.1 The outcomes of the proposed peatland restoration off-site works to provide bespoke compensation for the lost irreplaceable blanket bog will be:

- **Reduce carbon emissions** by reducing the physical erosion of peat in drain bases and sides and also in gullies to minimise losses of particulate matter and through re-wetting of peat adjacent to drains to reduce oxidative losses. Reprofiling of hags will reduce the area of bare peat, reducing the effects of drying and wind erosion;
- **Improve water quality and reducing downstream flood risks** by reducing the levels of suspended solids runoff in eroding drains and holding water within peatland higher up in the catchment. If the implementation of peatland restoration proposals are undertaken in areas of poor condition blanket bog within proximity to the UGC, this would also have downstream benefits from decreased erosion and runoff into the watercourses traversing the UGC and subsequently the River Cassley, part of the River Oykel SAC; and
- **Increase floral and faunal diversity** by reducing areas of bare peat and providing more habitat for plants and the animals that browse on them. Increasing the extent of standing water within restored peatland locally adjacent to bunds to stabilise peat pans and behind drain dams will encourage a broader range of plant and animal species, including qualifying species of the adjacent Caithness and Sutherland Peatlands SAC, Ramsar and Special Protection Area (SPA).

5.4 Implementing and Monitoring

5.4.1 Biodiversity enhancements will be achieved within the following timeframe. Following the successful implementation of the bespoke compensation, in the form of peatland restoration, in line with Peatland ACTION technical guidance, it is anticipated that areas of poor condition blanket bog could be managed to reach moderate condition in 32+ years. This timeframe is in line with the Biodiversity Metric 3.1 Technical Supplement guidance for improving blanket bog habitat from poor to moderate target condition.

5.4.2 To ensure positive enhancements are achieved long term, monitoring and maintenance procedures will be implemented. A programme of vegetation condition monitoring will be developed and undertaken before and at regular intervals after restoration works to monitor the progress and success or failure of the restoration. The monitoring plan will continue for a 30 year period, by which time it is anticipated that the peatland restoration will have been successful in achieving moderate condition for the restored blanket bog habitat. It is anticipated that the monitoring and maintenance would be detailed in a Habitat Management Plan (HMP), secured by condition of consent, and would include the monitoring and maintenance regime associated with the BNG peatland restoration proposals. SSEN Transmission will be responsible for implementing monitoring and maintenance measures included the HMP.

Appendix A Good practice principles for biodiversity net gain

The project has applied the UK good practice principles for biodiversity net gain (CIRIA C776a Biodiversity net gain. Good practice principles for development. Part A: A practical guide) below:

Principle	Summary of project actions
Apply the mitigation hierarchy	The mitigation hierarchy, to avoid / minimise impacts on surrounding biodiversity, has been applied throughout the evolution of the design process for the Proposed Development, seeking to avoid impacts to the adjacent designated sites and utilising existing and already consented access tracks to minimise habitat loss. This hierarchy has also been applied through the recommendations within the Environmental Appraisal (EA) undertaken for the Proposed Development.
Avoid losing biodiversity that cannot be offset elsewhere	No designated sites would be directly impacted by the Proposed Development. Habitats of high distinctiveness and irreplaceable habitats have been avoided where possible. Where impacts to these habitats have been identified as a result of the Proposed Development, measures have been set out to offset these losses as close to the Proposed Development as possible.
Be inclusive and equitable	Throughout the EA process, statutory bodies and stakeholders have been consulted to explore the approaches for biodiversity.
Address risk	The habitat reinstatement would follow recognised best practice as detailed in the Applicant's General Environmental Management Plans to minimise the risk of damage to underlying peat and aid recovery of habitats. This BNG assessment incorporates delivery, spatial and difficulty risk when enhancing and creating habitats. Habitat enhancement and creation should be explored in advance of construction commencing to reduce temporal risk. A Habitat Management Plan (HMP) will be developed for the Project, detailing results of further surveys within the proposed areas of

	peatland restoration as part of compensation measures. The HMP will also include monitoring requirements to determine if the created habitats are on track to reach their target condition. Should habitat creation / enhancement be unsuccessful in any location, the HMP would include a feedback loop to ensure that active management is undertaken, and remedial measures are implemented.
Make a measurable net gain contribution	SSEN Transmission have published commitments to BNG in their Sustainability Strategy, the Pathway to 2030 (2024). SSEN Transmission's BNG toolkit provides evidence on how the Project baseline habitat units and created habitat units, the difference between these is used to measure the Project's success in meeting a 10 % gain.
Achieve the best outcomes for biodiversity	The improvement of peatland condition can provide benefits to breeding and foraging birds, mammals and invertebrates. If the peatland restoration proposals are undertaken adjacent to the Proposed Development, this can provide benefits for the qualifying features of the adjacent Caithness and Sutherland Peatlands SPA, SAC and Ramsar designated site. Downstream benefits can also be realised for the River Cassley, a tributary of the River Oykel SAC. Blanket bog is a priority habitat, listed within the Scottish Biodiversity List and a priority habitat of the LBAP.
Be additional	Any mitigation required identified within the EA should be included in habitat enhancement plans to ensure the plans go beyond these mitigation requirements.
Create a net gain legacy	The peatland restoration would provide long-term benefits through adaptive management planning and dedicated funding for long-term management.
Optimise sustainability	As BNG has been included from the start of the Proposed Development route options appraisal and the work has been carried out by people across multiple disciplines this optimises the sustainability of the Proposed Development. This will be explored further during the next

	stages of the development including the appointment of the Principal Contractor.
Be transparent	SSEN Transmission is keen to ensure that approaches following on from this project and others are shared to ensure that any lessons learnt through BNG assessment, habitat creation / enhancement and habitat management can be factored into future projects.