VOLUME 1: CHAPTER 3: THE PROPOSED DEVELOPMENT

Figures (Volume 2 of this EIA Report)

Appendices (Volume 4 of this EIA Report)

3. THE PROPOSED DEVELOPMENT

3.1 Introduction

3.1.1 This Chapter describes the elements that constitute the Proposed Development. It provides a description of the key components and information regarding the construction, operation and maintenance of the Proposed Development.

3.2 Overview of the Proposed Development

3.2.1 The Proposed Development would be required to connect both the consented Cloiche Wind Farm[1] and the proposed Dell 2 Wind Farm[2] to the electricity transmission network at Melgarve substation. Between the two proposed / consented wind farms and Melgarve substation, the Proposed Development would comprise a combination of approximately 7 km of new double circuit steel structure 132 kV overhead line (OHL) and approximately 9.9 km of new 132 kV underground cable (UGC). Cable Sealing End (CSE) compounds would be required to facilitate the transition between OHL and UGC. New permanent and temporary access tracks would also be required to facilitate the construction and operation of the Proposed Development.

Section 37 Consent

3.2.2 Section 37 Consent under the 1989 Act, including deemed planning permission under section 57(2) of the Town and Country Planning (Scotland) Act 1997, is sought for the following works:

- The installation and operation of approximately 7 km of new OHL on double circuit L7 lattice towers carrying both the consented Cloiche Wind Farm and the proposed Dell 2 Wind Farm connections (see **Figure 3.1a-b**)[3].

Ancillary Development

3.2.3 Deemed planning permission under section 57(2) of the Town and Country Planning (Scotland) Act 1997 is also sought for the following elements, or ancillary development required to facilitate the Proposed Development's construction and operation (see also **Figure 3.1a-b)**:

- **Two Cable Sealing End (CSE) compounds** to facilitate the transition between OHL and UGC. One CSE compound would be situated at approximate Ordnance Survey (OS) grid reference NH 48474 01491 which lies approximately 1.3 km southeast of the consented Cloiche Wind Farm substation, and the other CSE compound would be situated at approximate OS grid reference NN 50665 95775 which lies approximately 0.5 km northeast of Melgarve substation;
- **Approximately 7.3 km of 132 kV UGC** between the proposed Dell 2 Wind Farm on-site substation at approximate OS grid reference NH 49722 06710 and the new CSE approximately 1.3 km to the southeast of the consented Cloiche Wind Farm substation;
- **Approximately 1.8 km of 132 kV UGC** between the consented Cloiche Wind Farm on-site substation at approximate OS grid reference NH 47429 02486 and the new CSE approximately 1.3 km to the southeast of the consented Cloiche Wind Farm substation; and
- **Approximately 0.8 km of two 132 kV UGCs** running parallel to each other from the new CSE located approximately 0.5 km northeast of Melgarve substation, splitting apart again before they enter into Melgarve substation itself. The existing Melgarve substation is situated at OS grid reference NN 50119 95611.

3.2.4 UGC elements are classed as permitted development under Class 40 1(a) of The Town and Country Planning (General Permitted Development) (Scotland) Order 1992. However, in this case, given that there is no technical alternative to the

[1] Received consent from the Scottish Government in November 2023.

[2] It should be noted that in August 2019, an application to build and operate Dell Wind Farm was consented following an appeal to the Scottish Ministers. However, the wind farm has been re-designed at the same location to increase capacity and energy capture with fewer wind turbines. The application for Dell 2 Wind Farm was submitted to the Scottish Government Energy Consents Unit on behalf of the Scottish Ministers on 11th March 2024 and awaits decision. It is this proposed re-designed Dell 2 Wind Farm that this EIA Report refers to throughout, rather than the previously consented design.

[3] A Limit of Deviation (LoD) applies. This is described in Section 3.4 and can be seen on **Figure 3.1a-b**.

UGC at either end of the OHL and following review of the Screening Opinion, the UGC is to be considered as part of the Proposed Development for which deemed planning permission under section 57(2) of the Town and Country Planning (Scotland) Act 1997 (as amended) is sought.

3.2.5 The following ancillary works would also be required as part of the Proposed Development, or to facilitate its construction and operation, for which deemed planning permission under section 57(2) of the Town and Country Planning (Scotland) Act 1997 (as amended) is sought:

- Upgrades to existing access tracks;
- New permanent access tracks (including bridges) and new temporary access tracks (see **Figure 3.1a-b**);
- Permanent stone hardstanding areas related to the CSE compounds and associated working areas around infrastructure to facilitate construction;
- Vegetation clearance to facilitate construction and operation of the Proposed Development, to comply with the Electricity Safety, Quality and Continuity Regulations (ESQCR) 2002[4];
- Temporary measures to protect water crossings (e.g. scaffolding and temporary bridges); and
- Working areas around infrastructure to facilitate construction.

3.3 Associated Works

3.3.1 Other associated works are required to facilitate construction of the Proposed Development, or would occur as a consequence of its construction and operation. These works, listed below, do not form part of the description of the Proposed Development and are therefore not included in the application for statutory consents. On that basis they are therefore not assessed in detail in this EIA Report. The associated works are:

- Borrow pits and quarries which would be required to source stone for the construction of access tracks. Separate planning applications for these works would be sought by the Principal Contractor; and
- Temporary construction compounds which would be required to facilitate construction of the Proposed Development. The final location and design of temporary site compounds would be confirmed by the Principal Contractor and separate planning permissions would be sought as required.

3.4 Limits of Deviation

3.4.1 In general terms, a Limit of Deviation (LoD) defines the maximum extent within which a development can be built. In the case of the Proposed Development, a prescribed horizontal LoD is required for each of the key components of the project to allow flexibility in the final siting of individual towers, UGCs and access tracks to reflect localised land, engineering and environmental constraints. The LoDs for the different elements of the Proposed Development are as follows:

- 100 m LoD (i.e. 50 m either side of the centre line of the proposed OHL alignment) is sought to allow for micro-siting of the OHL towers during construction (see **Figure 3.1a-b**);
- 100 m LoD (i.e. 50 m either side of the centre line of the proposed UGC alignment) is sought to allow for micro-siting of the UGC during construction (see **Figure 3.1a-b**);
- 100 m LoD (i.e. 50 m around the indicative CSE Compounds) is sought for the construction of the CSE Compounds (see **Figure 3.1a-b**); and
- An LoD is sought for the construction of new permanent access tracks and new temporary access tracks. This LoD would generally be 50 m (i.e. 25 m either side of the centre line of the proposed track). There are instances however, where the LoD for the access track would need to be extended to the edge of the boundary of the OHL or UGC LoDs. This is to account for the possible movement of the OHL or UGC within their respective LoDs that the access would still need to serve.

3.4.2 It should be noted that the design of the Proposed Development described within this EIA Report has been established following the identification of detailed environmental and technical considerations. The design process has included the

[4] The Electricity Safety, Quality and Continuity Regulations (2002), available at https://www.legislation.gov.uk/uksi/2002/2665/contents/made

appointment by SSEN Transmission of an OHL Contractor to inform the design process and the constructability of the Proposed Development, covering overhead elements of the project, and access tracks. In addition, SSEN Transmission has appointed a UGC Contractor who has developed a practical design for the underground elements of the proposals, taking cognisance of the existing and proposed wind farm access tracks. This has involved carrying out ground investigation works (including boreholes and trials pits) along much of the route to determine ground conditions as well as peat probing along the full extent. There is therefore a good degree of certainty with respect to the location of infrastructure, as presented within this EIA Report. Nevertheless, it is possible that further micro-siting may be required during the construction process to reflect localised land, engineering and environmental constraints, and therefore the LoD provides some flexibility in this regard.

3.4.3 A vertical LoD, i.e. the maximum height of a tower above ground level, is also sought to allow a height increase or decrease of 3 m on the proposed tower height. An indicative tower schedule presenting these heights is included in **Appendix 3.1 - Indicative Tower Schedule**, the tower numbers shown on **Figure 3.1a-b** correspond to the tower numbers in the indicative tower schedule. The 3 m variation is consistent with the extensions to which steel lattice towers are designed, and therefore any increase or decrease of steel lattice towers would be no greater than 3 m. As noted within paragraph 3.4.2 with respect to the location of infrastructure, there is also a high degree of certainty in relation to the height of infrastructure given the engineering design work undertaken to date. The vertical LoD provides some flexibility nonetheless.

3.4.4 Where there is a requirement to vary the location (or height) of infrastructure within the LoDs, the relevant environmental information within the EIA Report would be reviewed to establish any potential constraints or adverse change in effect. Further advice on LoD changes would be sought from environmental specialists, and where relevant, consultation would be sought from The Highland Council (as local planning authority) and any relevant statutory consultees as required.

3.5 Description of Overhead Line Infrastructure

3.5.1 As displayed on **Figure 3.1a-b**, the proposed OHL would commence from a CSE Compound approximately 1.3 km southeast of the consented Cloiche Wind Farm substation. From the CSE Compound, the proposed OHL would continue to the southeast for approximately 2.5 km, crossing Allt Creag Chomaich, passing to the northeast of Lochan Iain and Dubh Lochan. Approximately 1.5 km to the west of the Corbett Meall na h-Aisre, the Proposed Development would turn in a generally more southerly direction for approximately 4.5 km. It would pass between Meall nan Ruadhag and Sherramore Forest and cross the Allt Gilbe. It would pass to the east of the Meall a Ghiubhais and before reaching the nearby Beauly-Denny OHL would terminate at another CSE Compound, which lies approximately 0.5 km northeast of Melgarve substation.

Double Circuit L7 Lattice Towers

3.5.2 An indicative tower schedule is included in **Appendix 3.1 - Indicative Tower Schedule**. The 33 steel lattice towers that form part of the Proposed Development would be constructed from fabricated galvanised steel and would be grey in colour. The towers would likely comprise a 'L7' series of steel lattice tower (an example photograph of which is shown in **Plate 3.1** overleaf). Three types of tower are proposed to be used, as described below:

- suspension towers: these are used for straight sections of OHL where there is no need to terminate the conductor. There are 23 suspension towers proposed;
- angle / tension towers: these are typically used where there is a need to change the orientation of the OHL. There are 8 angle / tension towers proposed; and
- Terminal towers; where the OHL transitions to UGC, via a CSE. There are 2 terminal towers proposed, where the OHL transitions to UGC.

3.5.3 The span length (distance between towers) would vary slightly depending on topography and land usage. Typically, the span lengths for the Proposed Development would be between approximately 124 m and 308 m. Tower heights would also vary, depending on local topography, but would typically be in the region of approximately 26 m to 36 m in height. The average OHL structure height would be approximately 30 m.

3.5.4 The towers would carry two circuits, each with three conductors supported from either glass, porcelain, or composite insulators attached to the horizontal cross arms on both sides of each steel lattice tower. An Optical Ground Wire (OPGW)[5] would be suspended between tower peaks, above the conductors. **Plate 3.1** shows a photograph of a typical steel lattice tower for illustrative purposes.

Plate 3.1: Photograph of Steel Lattice Tower Double Circuit (L7 series)

3.6 Typical Construction Activities for Overhead Line Infrastructure

3.6.1 High voltage OHL construction typically follows a standard sequence of events as follows:

- Phase 1 – enabling works;
- Phase 2 – OHL construction;
- Phase 3 – OHL commissioning; and
- Phase 4 – re-instatement.

Phase 1 – Enabling Works

Forestry / Vegetation Clearance

3.6.2 The Proposed Development would not pass through or close to areas of woodland and commercial forestry, therefore forestry clearance is not anticipated to be required. Some minor vegetation clearance may be required, which will be done in accordance with best practice methodologies.

5 Optical Ground Wire is a dual functioning cable, providing a 'shield' to conductors from lightning, whilst also comprising optical cables for telecommunication purposes.

Site Compounds / Borrow Pits and Quarries

3.6.3 As stated in **Section 3.3**, temporary construction compounds, laydown areas, borrow pits and quarries would be required to facilitate construction of the Proposed Development. The final location and design of these would be confirmed by the Principal Contractor and separate planning permissions / applications would be sought as required.

Onsite Access Tracks

3.6.4 Construction access to the Proposed Development would be taken via the existing public road network (see **Section 3.12**).

3.6.5 For construction on site, it is anticipated that access would mainly be achieved by making use of existing infrastructure and estate tracks (upgraded as required) as far as practicable, as well as utilising the proposed and consented accesses as part of the consented Cloiche Wind Farm and the proposed Dell 2 Wind Farm. The installation of new tracks, both temporary and permanent would also be required to facilitate construction of the Proposed Development. Floating stone road or trackway panel construction (typically a short term solution) may be installed in sensitive areas such as over deeper areas of peat. All new tracks would be constructed in accordance with best practice construction methods, and with reference to NatureScot's good practice guide on constructing tracks in Scottish uplands[6].

3.6.6 Vehicle access would be required to each tower location for the creation of foundations and to facilitate tower installation, and along the length of the UGC trench during construction. **Figure 3.1a-b** shows the proposed indicative access arrangements, which comprise existing, those proposed as part of the consented Cloiche wind farms and the proposed Dell 2 Wind Farm and a combination of new temporary and permanent access tracks. Access arrangements typically comprise:

- Existing access tracks to Melgarve substation, and those constructed as part of Glendoe Hydro Scheme, Stronelairg Wind Farm and its grid connection. Some minor improvements would be anticipated to some of these access tracks, such as localised small scale widening and running surface improvements;
- Proposed and consented access tracks as part of the consented Cloiche Wind Farm and the proposed Dell 2 Wind Farm tracks would be used during construction wherever possible, as shown on **Figure 3.1a-b**;
- New permanent and new temporary access routes required where no existing tracks can be used. These are shown on **Figure 3.1a-b** and an access track schematic is included in **Appendix 3.2 - Access Track Schematic**. Where the existing ground provides the appropriate bearing capacities, the new accesses would be constructed on-formation. Where the existing ground does not provide the appropriate bearing capacities and / or where peat is located, the new accesses would likely be floated on top of the soft ground, circumnavigating the requirement for deep excavations and disturbance to the peat.
    - Permanent access tracks during construction are expected to have a working corridor of approximately 3.5 m, except in limited areas of deeper peat where they may require to be different techniques and may be widened to a maximum of 6 m, see **Appendix 3.4 - SSEN Transmission - General Environmental Management Plans (GEMPS).** However, to minimise longer term impacts, permanent track width will be reduced to approximately 2.5 m for the operational period (the exception being two short sections of track serving cable sealing end compounds that will need to be 3.5m in width during the operational period), with track-side habitat reinstated.
    - Temporary access tracks will be 3.5 m wide.
- Other access by low ground pressure vehicles may be required between towers. Such access would not require formal access tracks as access would either be via tracked vehicles or temporary trackway systems would be utilised in boggy / soft ground areas where required.

[6] Constructed tracks in the Scottish Uplands (Updated September 2015), NatureScot.

Watercourse Crossings

3.6.7 Where new watercourse crossings are required, the design of the crossing would be in accordance with best practice guidelines and taking account of any ecological or hydrological constraints. The design of crossings would be agreed with SEPA prior to construction and be regulated by the Water Environment (Controlled Activities) (Scotland) Regulations 2011[7] (CAR). A watercourse crossing schedule for permanent watercourse crossings is provided in **Appendix 10.3: Schedule of Watercourse Crossings**.

Phase 2 – Construction Works

OHL Tower Foundations

3.6.8 Foundation types and designs for each tower would be confirmed by the Principal Contractor following detailed geotechnical investigation and analysis of geotechnical data at each tower position.

3.6.9 Dimensions of each foundation would be confirmed following micrositing. For the purposes of this assessment however it has been assumed that each foundation would be buried to depths estimated up to 2.5 m below ground level (BGL) although extending up to 4 m depth where ground conditions require. They would extend over an area suitable to deliver the loading characteristics required (which would be a function of the underlying ground conditions and the weight of the structures to be supported). Piled type foundations may be required where low strength ground conditions exist, particularly where peat is encountered at over 1 m depth.

3.6.10 For the purposes of the EIA, it has been assumed that a working area of approximately 2,025 m^2 (45 m x 45 m) would be required around each individual tower foundation and associated construction activities. The exact dimensions of the working area around each tower will be confirmed following micrositing but would typically be no greater than 2,025 m^2.

3.6.11 Where encountered, top soil (including peat) would be stripped from the tower working area to allow installation of tower erection pad(s) as necessary in order to accommodate construction plant. Concrete is likely to be brought to site ready-mixed with no requirement for concrete batching at individual tower locations. Once the concrete has been cast and set, the excavation would be backfilled, using the original excavated material where possible.

3.6.12 It is anticipated that formation of each tower foundation would take approximately 4 weeks. **Plate 3.2** provides and illustrative image of tower foundation construction.

[7] Water Environment (Controlled Activities) (Scotland) Regulations 2011, available at https://www.legislation.gov.uk/ssi/2011/209/contents/made [Accessed November 2021]

Plate 3.2: Illustrative Image of Tower Foundation Construction

OHL Tower Construction

3.6.13 Tower construction can typically commence two weeks after the foundations have been cast, subject to weather conditions and concrete curing rates. Tower steelwork would be delivered to each tower construction site either as individual steel members or as prefabricated panels, depending on the method of installation and the available access, and placed within dedicated laydown areas ready for assembly. Sections are then assembled on the ground in preparation for sequential lifting operations. The tower sections are lifted into position with a 360 Roto telehandler. For sections of the tower that a 360 Roto telehandler cannot erect, an all-terrain mobile crane is deployed to complete the tower erection. A telehandler would be utilised for moving tower sections in to place for the crane and assisting in tandem lifts. A 360 Roto telehandler and typically an 80 tonne all-terrain mobile crane would then be required to erect the tower. **Plate 3.3** provides an example of tower construction.

3.6.14 Major items of plant required for erection would also include a flatbed wagon to transport the steelwork to location.

Plate 3.3: Illustrative Image of Steel Lattice Tower Construction

OHL Conductor Stringing

3.6.15 Prior to stringing the conductors, temporary protection measures (normally netted scaffolds) would be required across public roads and existing access tracks.

3.6.16 Conductor stringing equipment (i.e. winches, tensioners and ancillary equipment) are set out at either end of pre-selected sections of the OHL.

3.6.17 Prior to wiring operations, Equi-Potential Zones (EPZ) pulling positions need to be established. The typical size of a working area required for an EPZ pulling location is approximately 10 m x 15 m. This would likely be set up on trackway panels. As conductors are required to be pulled in opposite directions, two EPZ 8 m x 12 m trackway panelled pulling locations are required at each respective pulling tower (one on the upside and one on the downside of the tower).

3.6.18 Pilot wires would be pulled through the section to be strung. These would be hung on blocks (wheels) at each suspension tower and connected to a winch and tensioner at the respective end of the section. The winch, in conjunction with the tensioner is used to pull the pilot wires between the structures. The conductor is pulled via the pilot wires through the section under tension to avoid contact with the ground and any underrunning obstacles. Once the conductor has been strung between the ends of the section it is then tensioned and permanently clamped at each tower.

Phase 3 – Commissioning

3.6.19 The OHL and support towers would then be subject to an inspection and snagging process. This allows the Contractor and SSEN Transmission to check that the works have been built to specification and are fit to energise. The Proposed Development would also go through a commissioning procedure for the switchgear, communications and protection controls through connecting substations. The circuits would then be energised from the substations.

Phase 4 – Reinstatement

3.6.20 Following commissioning of the Proposed Development, it is anticipated that all areas disturbed during construction would be reinstated. Reinstatement will form part of the contract obligations for the Principal Contractor and will include the removal of all temporary access tracks, all work sites around the tower locations and the re-vegetation of laydown areas to recreate the former habitat as far as possible. Reinstatement is described further in Section 3.16 of this Chapter.

3.7 Description of Cable Sealing End Compounds

3.7.1 Two CSE Compounds are required to facilitate the transitions from underground cable to OHL (and vice versa). These are proposed at the following locations:

- approximate OS grid reference NH 48474 01491 which is approximately 1.3 km southeast of the consented Cloiche Wind Farm substation (see **Figure 3.1a**); and
- approximate OS grid reference NN50665 95775 which lies approximately 0.5 km northeast of Melgarve substation (see **Figure 3.1b**).

3.7.2 The compounds would be anticipated to be approximately 50 m x 50 m. Due to the hazards associated with live electricity, the compound is secured by installing fencing and gates around the perimeter of usually 2.4 m in height. Within the CSE compounds there would be a terminal tower, and associated gantry infrastructure. A permanent access track would be required at each CSE compound.

3.7.3 The plant required to facilitate the transition between underground cable and OHL is shown in **Plate 3.4**, and a photo of a CSE compound is shown in **Plate 3.5**.

Plate 3.4: Overhead Line to Cable Transition

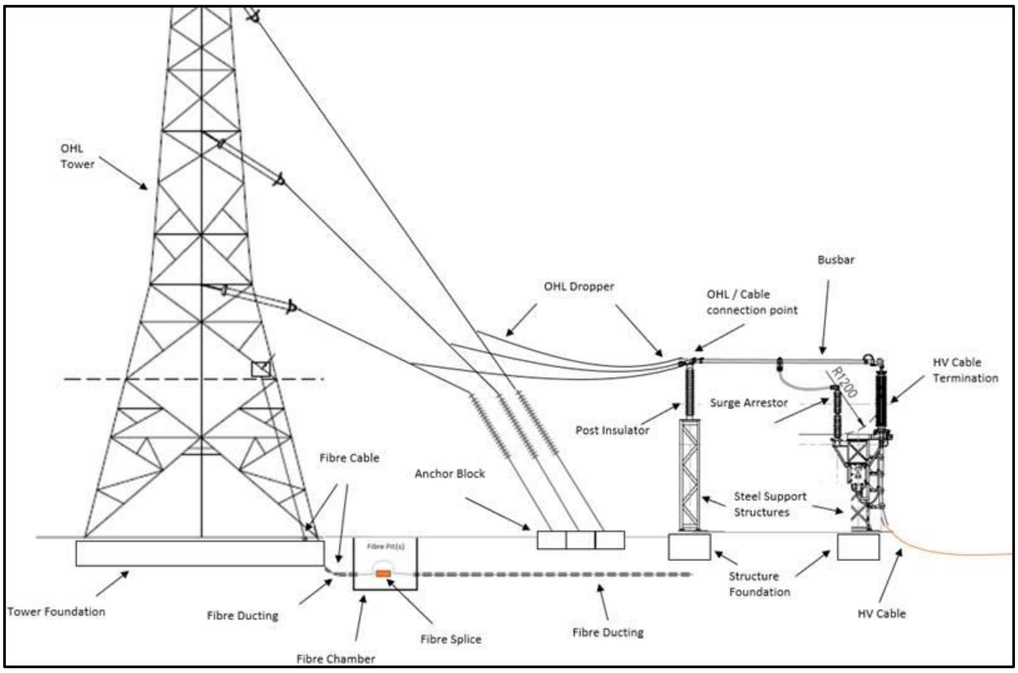

Plate 3.5: Example of a Cable Sealing End Compound

3.8 Description of Underground Cable

3.8.1 Three sections of UGC would be required for the Proposed Development, one of which would consist of the two connections running parallel to each other (double circuit installation). As described in Section 3.4, these are:

- Approximately 7.3 km of single circuit installation 132 kV UGC between the proposed Dell 2 Wind Farm on-site substation and the proposed CSE Compound approximately 1.3 km to the southeast of the consented Cloiche Wind Farm substation;
- Approximately 1.8 km of single circuit installation 132 kV UGC between the consented Cloiche Wind Farm on-site substation and the proposed CSE approximately 1.3 km to the southeast of the consented Cloiche Wind Farm substation; and
- Approximately 0.8 km of double circuit installation 132 kV UGCs running parallel to each other from the new CSE located approximately 0.5 km northeast of Melgarve substation, splitting apart again before they enter into Melgarve substation itself.

3.8.2 The cable alignments are shown on **Figure 3.1a-b**, along with their LoD of 100 m (50 m either side of the UGC alignment). A working corridor of approximately 25 m would be required during the installation for the single circuit installations, while a working corridor of approximately 37 m would be required during the installation for the double circuit installation. The different UGC working corridor requirements have been marked on **Figure 3.1a-b.** The working corridor would accommodate excavation and cable installation equipment and store excavated materials during construction for reinstatement once the installation process is complete. A temporary haul road would be constructed along the length of the cable during the construction phase, with the circuits installed side by side.

3.8.3 As can be seen on **Figure 3.1a-b**, to pass across already disturbed ground as far as possible, the UGC follows the existing tracks of Stronelairg Wind Farm, and the proposed / consented tracks of Dell 2 and Cloiche wind farms.

3.9 Typical Construction Activities for Underground Cable

3.9.1 Cables would typically be installed through open cut trench techniques. The proposed cabling would comprise one electrical circuit in a single trench comprising of three phases (cables) in a ducted trefoil (triangular) formation. There would also be one fibre duct and one small micro duct installed within the trench. The trench would be approximately 1.3 m wide and 2 m in depth. In some instances, the trench could be made wider (through benching and battering) for stability and safety of the workforce. Alternative trench and duct arrangements may be employed for short lengths (<20 m) for specialist crossing locations such as crossing other cable circuits or larger watercourses. .

3.9.2 **Plate 3.6** shows a typical UGC construction corridor and a photograph of a typical installation.

Plate 3.6: Photograph of Underground Cable Installation

3.9.3 The trench bottom would be uniform with adequate clearance on each side of the ducts and be free from roots, organic debris, clods, rocks, stones, and other materials likely to cause damage to the cable duct.

3.9.4 Trench walls would be supported appropriately where necessary to ensure trench stability. Excavations would be kept free from water by use of mobile pumps, with water pumped to a suitable location as agreed on site by the Environmental Clerk of Works (ECoW) and in accordance with SSEN Transmission's General Environmental Management Plans (GEMPs). Drainage design measures to ensure the discharge would not result in pollution to surface water will be set out in the Construction Environmental Management Plan (CEMP).

3.9.5 All excavated material would be carefully stored a minimum of 10 m and downslope of any adjacent watercourse with particular care taken to prevent any risk of runoff or windborne dry sediment being discharged into the watercourses.

3.9.6 Engineered backfill would be placed around the cable ducts in appropriate layers to protect the cable from accidental damage, and to ensure the desired cable rating is achieved. A 75 mm minimum bedding layer of stabilised backfill would be laid in the trench to provide bedding for the ducts. Marker boards would then be placed on top of the engineered fill. Excavated material would then be placed on top of the marker board and compacted in place.

3.9.7 Given the length of the cable section from the proposed Dell 2 Wind Farm, seven joint bays (a location at which cable lengths are jointed) would likely be required. Given the length of the cable section from the consented Cloiche Wind Farm, two joint bays would likely be required. One further joint bay for the UGC leading into Melgarve substation would be anticipated. Therefore, there would be a total of 10 permanent joint bays required for the Proposed Development. The location of the required joint bays would be agreed during detailed design, and in discussion with the relevant landowners. The joint bays would comprise an underground concrete lined structure approximately 9 m in length, 3.5 m wide and 2 m deep.

3.9.8 Where an above ground link pillar would also be required, it would be within 10 m of the joint bay. A total of five link pillars would be required for the Proposed Development. **Plate 3.7** illustrates a typical above ground link pillar.

Plate 3.7: Typical Link Pillar

3.9.9 Once all trenching has been complete, and the ducting installed and backfilled, the cable installation process would be able to begin. The cable would be coiled onto a cable drum to allow for transportation from the manufacturing plant to the site location. This drum would then be then loaded onto a cable installation trailer which would allow the drum to rotate and the cable to be pulled from the drum. A steel wire bond would be attached to a winch and drawn through the duct until it would reach the joint bay or location at which the cable drum is positioned. Following pre-installation checks, the cable would be able to be drawn through the duct.

3.9.10 Reinstatement of the surface layers would be completed by returning the remaining excavated material to the trench in layers, in reverse order with the existing vegetation placed on the trench where possible, before commissioning of the cable system.

3.10 Site Access

3.10.1 It is anticipated that construction traffic would access the site via two main access points.

3.10.2 The first would be to the plateau of higher ground where the consented Cloiche wind farm and the proposed Dell 2 wind farm would be located and where the Glendoe Hydro Scheme and Stronelairg Wind Farm exist. Construction traffic would reach this area via the A82 and the B862, taking access from the public road network via the existing junction and access track constructed as part of Glendoe Hydro Scheme and Stronelairg Wind Farm, approximately 2 km east of Fort Augustus. The existing access track network on the plateau (and new tracks proposed as part of the consented Cloiche Wind Farm and the proposed Dell 2 Wind Farm) would be utilised as far as practicable to limit new access track construction.

3.10.3 The second main access point would be from Melgarve substation. Access to this area would utilise existing access tracks from the A86 constructed for the Beauly–Denny OHL and Melgarve substation. To access the area between Melgarve substation and the plateau, use would be made of the existing track constructed to install Stronelairg UGC where possible to limit new access track construction.

3.10.4 Construction of the Proposed Development would give rise to regular numbers of staff transport movements, with small work crews travelling to work site areas. The final location and design of temporary site compounds would be confirmed by the Principal Contractor and separate planning permissions would be sought as required.

3.10.5 Construction access would utilise existing tracks where possible. Vehicle movements may be required to upgrade accesses and tracks; deliver the foundation and tower components and conductor materials to site; transportation of the workforce; and deliver and collect materials and construction plant from the site compound and to individual tower locations and work areas.

3.10.6 The Contractor would determine where access is required, and for which items of plant, and prepare a Construction Traffic Management Plan (CTMP) in consultation with SSEN Transmission and the local roads authority. To address potential impacts from construction traffic and describe all mitigation and signage measures that are proposed on public road accesses, a CTMP would be prepared pre-construction in consultation with THC and Transport Scotland. Access along or crossing Core Paths, or any recreational routes would be managed via an Outdoor Access Plan, which would form part of the CTMP. The CTMP implemented for the works would be reviewed throughout the project and updated as necessary. A Transport Assessment can be seen in **Appendix 11.1**, and an Outline Site Restoration Plan can be seen in **Appendix 3.3.**

Delivery of Structures and Materials

3.10.7 All materials would be delivered to construction compounds. Concrete would be expected to be delivered to site pre-mixed, however this would be confirmed by the Contractor.

Abnormal Loads

3.10.8 No abnormal loads are anticipated to be required for transport of components for the Proposed Development. All vehicles associated with construction would be below the criteria for abnormal loads, as defined by the UK Government.[8]

3.11 Land Take for Construction and Operation of the Proposed Development

3.11.1 **Table 3.1** summarises the indicative land take associated with the Proposed Development.

[8] GOV.UK. (2019). *Transporting abnormal loads*. [online] Available at: https://www.gov.uk/esdal-and-abnormal-loads [accessed 09.08.23].

Table 3.1: Indicative Land Take for Construction and Operation of the Proposed Development

Activity	Construction (ha)	Operation (ha)
Access Track (Temporary)	**0.92**	**N / A**
Access Track (Permanent)	**2.22**	**1.12**
Temporary Construction Working Area at towers	**6.18**	**N / A**
Cable Sealing End Compound	**0.5**	**0.5**
Underground Cable	**25.41**	**0.04125** (relates just to joint bays and link pillars)
Permanent Land Take for 132 kV towers	**0.004** (relates just to tower feet)	**0.004** (relates just to tower feet)

3.12 Construction Programme, Employment and Hours of Work

3.12.1 It is anticipated that construction of the project would take place over a 24-month period, following the granting of consents, although detailed programming of the works would be the responsibility of the Contractor in agreement with SSEN Transmission.

3.12.2 Construction activities would in general be undertaken during daytime periods. Weekend working would also be proposed with timings to be confirmed by the Contractor in due course. Construction working is likely to be during daytime periods only. Working hours are anticipated 7 days a week between approximately 07.00 to 19.00 March to September and 07.30 to 17.00 (or within daylight hours) October to February. Working hours would be confirmed by the Principal Contractor and agreed with The Highland Council as planning authority. As working hours would be during daytime periods only, any external lighting requirements during construction are anticipated to be minimal.

3.12.3 SSEN Transmission considers it important to act as a responsible developer with regards to the communities which host the construction works. The delivery of a major programme of capital investment provides the opportunity to maximise support of local communities. Employment of construction staff would be the responsibility of the Contractor; however, the Applicant would encourage the Contractor to make use of suitable labour and resources from areas local to the Proposed Development where possible.

3.13 Environmental Management During Construction

3.13.1 Best practice construction measures would be implemented during the construction work. All works will be carried out in accordance with the following:

GEMPs

3.13.2 General Environmental Management Plans (GEMPs) have been developed by the Applicant. The GEMPs considered relevant for this project are identified in **Appendix 3.4**.

SPPs

3.13.3 Species Protection Plans (SPPs) have been developed by the Applicant and have been agreed with NatureScot. These can be found in **Appendix 3.5**.

CEMP

3.13.4 A contractual requirement of the Contractor would be the development and implementation of a Construction Environmental Management Plan (CEMP). It is anticipated that the implementation of a CEMP would be a condition to any grant of consent. The CEMP would be developed for the project and adopted by the successful contractor during the construction phase. The principal objective of this document is to provide information on the proposed infrastructure and to aid in avoiding, minimising and controlling adverse environmental impacts associated with the Proposed Development. An Outline CEMP is included as **Appendix 3.6 – Outline CEMP**.

3.13.5 Furthermore, this document would aim to define good practice as well as specific actions required to implement mitigation identified in the EIA, the planning process and / or other licencing or consenting processes. **Chapter 14 – Schedule of Mitigation** of this EIA Report provides a summary of all mitigation measures identified within this EIA, and this will be updated as required following further consultation and consent conditions. The CEMP would be updated during the pre-construction phase and would form part of the contractor documents between the Applicant and the appointed construction contractor.

3.13.6 The CEMP would also reference the aforementioned GEMPs and SPPs. The implementation of the CEMP would be managed on site by a suitably qualified and experienced Environmental Clerk of Works (ECoW), with support from other environmental professionals as required. SSEN Transmission would undertake monthly inspections and quarterly audits to ensure compliance with the CEMP.

Existing Melgarve Substation Planting

3.13.7 There is some potential for the works to install the UGC into the existing Melgarve substation to affect areas previously planted as part of the substation proposals.

3.13.8 SSEN Transmission will seek to minimise the impact on previously planted areas within the substation boundary where possible during detailed design. It is proposed that a future application to THC will be submitted to vary the landscaping condition of consent for Melgarve substation, and propose appropriate compensatory planting requirements for any loss.

Reinstatement

3.13.9 Reinstatement works are generally undertaken during construction (and immediate post-construction phase) and aim to address any areas of ground disturbance and changes to the landscape as part of the construction works. Such works would involve the reinstatement of areas disturbed during the construction phase.

3.13.10 An outline site reinstatement and restoration plan has been prepared to describe the principles and best practice guidance and measures that would be followed in the reinstatement and restoration of disturbed ground. This is included in **Appendix 3.3: Outline Site Restoration Plan,** and would be developed by the Applicant, the Principal Contractor and consenting authorities as required prior to construction commencing.

3.13.11 The following paragraphs provide a summary of the working areas that would be reinstated, and typically how this would be achieved.

Reinstatement of Access Tracks

3.13.12 As shown in **Figure 3.1a-b,** new permanent and new temporary tracks are required to facilitate construction and operation of the Proposed Development. Tracks to be retained would be partially reinstated on commissioning of the OHL to reduce their width to approximately 2.4 m for use by SSEN Transmission for maintenance access. Other tracks noted as temporary would be removed and the land reinstated.

3.13.13 Reinstatement would involve replacement of subsoil, then topsoil, grading and installation of drainage as required with turves replaced vegetation side up. Where there are insufficient turves the ground would be allowed to vegetate naturally, although some seeding may be required to stabilise sites and prevent erosion, or where landowner requirements dictate otherwise. Methods for the reinstatement of peat would be set out in the Peat Management Plan (see **Appendix 10.2: Peat Management Plan**).

Reinstatement of Work Areas (Towers and Underground Cable)

3.13.14 Soil would be stored within the working area for each element of the work during construction. Subsoils and topsoil removed to enable the construction of the foundations, or excavation of trenches, would be temporarily stockpiled in separate bunds within the working area or corridor, with stripped turves stored on top of the bunds.

3.13.15 Reinstatement would involve replacement of subsoil, then topsoil with turves replaced vegetation side up. Where there are insufficient turves the ground would be allowed to vegetate naturally, although some seeding may be required to stabilise sites and prevent erosion, or where landowner requirements dictate otherwise.

Reinstatement of Construction Compounds

3.13.16 At the end of construction all materials, buildings, and temporary compounds would be removed. Where required the land would be regraded with subsoil put down first, then topsoil with turves replaced vegetation side up. Where there are insufficient turves the ground would be allowed to vegetate naturally, although some seeding may be required to stabilise sites and prevent erosion.

SSEN Transmission's Biodiversity Ambition

3.13.17 Biodiversity Net Gain (BNG) is a process which leaves nature in a better state than before development work started. As described further in **Appendix 8.4 - Outline Habitat Management Plan**, SSEN Transmission has developed a BNG toolkit based upon Natural England Biodiversity Metric[9, 10] (in the absence of an agreed Scottish metric) which aims to quantify biodiversity based upon the value of habitats for nature. It is an efficient and effective method for demonstrating whether development projects have been able to maintain or increase the biodiversity value of a development site after construction works.

3.13.18 The scope of the BNG assessment is to quantify the overall potential biodiversity impacts for the Proposed Development; this includes a biodiversity baseline assessment, quantification of habitat losses due to temporary works and permanent structures, and analysis of biodiversity gains following reinstatement of habitats in areas of temporary construction work and additional habitat enhancement and creation (whether onsite and/or offsite).

3.13.19 SSEN Transmission is committed to protecting and enhancing the environment by minimising the potential impacts from their construction and operational activities. As part of this approach, SSEN Transmission has made commitments to ultimately ensure a 10% net gain for biodiversity in line with the Applicants biodiversity ambition and environmental legacy commitments[11], Sustainability Strategy[12] and Sustainability Plan[13]. New infrastructure projects must:

- Ensure natural environment considerations are included in decision making at each stage of a project's development;

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9 Natural England (2019) The Biodiversity Metric 2.0: auditing and accounting for biodiversity value. User Guide (Beta Version, July 2019). http://publications.naturalengland.org.uk/file/5366205450027008

10 Further versions of the Natural England Biodiversity Metric have since been published. SSEN Transmission are in the process of incorporating this into their guidance and toolkit.

11 SSEN Transmission (2023). Delivering a positive environmental legacy. https://www.ssen-transmission.co.uk/globalassets/documents/sustainability-and-environment/environmental-legacy-booklet

12 Delivering a smart, sustainable energy future: The Scottish Hydro Electric Transmission Sustainability Strategy (2018) https://www.ssen-transmission.co.uk/media/2701/sustainability-strategy.pdf

13 Our Sustainability Plan: Turning Ambition into Action. (2019) SHE Transmission. https://www.ssen-transmission.co.uk/media/3215/our-sustainability-plan-consultation-report.pdf

- Utilise the mitigation hierarchy to avoid impacts by consideration of biodiversity in project design;
- Positively contribute to the UN and Scottish Government Biodiversity strategies by achieving an overall Net Gain; and
- Work with their supply chain to gain the maximum benefit during asset replacement and upgrades.

3.13.20 The design and evolution of this project has been carried out in line with these commitments, and the Applicant is committed to delivering a 10% net gain for biodiversity following implementation of the outline Habitat Management Plan (**Appendix 8.4 - Outline Habitat Management Plan**).

3.14 Operation and Maintenance

3.14.1 In general, OHLs and UGCs require very little maintenance. Regular inspections are undertaken to identify any unacceptable deterioration of components, so that they can be replaced. From time to time, inclement weather, storms or lightning can cause damage to either the insulators or the conductors on OHLs. If conductors are damaged, short sections may have to be replaced.

3.14.2 During the operation of the Proposed Development, it may be necessary to manage vegetation to maintain required safety clearance distances from infrastructure.

3.15 Decommissioning the Proposed Development

3.15.1 If the Proposed Development were to be decommissioned all components of the OHL, inclusive of steel from the towers, conductors and fittings, would be removed from site and either recycled or disposed of appropriately. The UGCs would be removed where practical to do so, however if they could not be retrieved then the ducts would be cut and sealed. The expectation is that this cable system would be recoverable at decommissioning.

3.15.2 A method statement would also be agreed with The Highland Council setting out the detail of the decommissioning process for OHL and UGC.

3.15.3 Efforts would be made to repurpose the Proposed Development for future connections prior to any decommissioning. Consent to be applied for is therefore in perpetuity.

3.15.4 The effects associated with the construction phase can be considered to be representative of worst-case decommissioning effects, and therefore no separate assessment on decommissioning has been undertaken as part of this EIA Report.