# Chapter 4

Development Description and Construction, Operation and Maintenance

### **Development Description and Construction**, 4 **Operation and Maintenance**

### Introduction

- This chapter provides details of the components that comprise the proposed development. This includes 4.1 the substation extension itself as well as other works, including the road and junction improvements, landscaping, temporary compounds, soils, materials and vehicle storage areas and drainage. It provides information on the construction and operational requirements of the proposed development, including providing information on:
  - the construction process including details of the indicative construction programme, and the proposed environmental management procedures;
  - the operational maintenance requirements associated with the substation extension; and
  - health and safety procedures.
- Within this chapter and those which follow, the 'proposed development' includes the Glenlee substation 4.2 extension (outlined in green in Figure 4.1) together with all associated works to be undertaken within the planning application boundary as detailed within paragraphs 4.1-4.19 unless the context indicates otherwise.

### Proposed Development

#### **Existing Glenlee Substation**

The existing Glenlee substation lies approximately 1.5km south-west of St John's Town of Dalry and has 4.3 a footprint of approximately 0.55ha. The extension to the substation will result in an increased footprint of approximately 0.35ha to facilitate the operation of the KTR Project.

#### The Connections of the KTR Project

Of the five overhead line (OHL) connections of the KTR Project which are being applied for separately 44 under Section 37 of the Electricity Act and which therefore do not form part of the application for planning permission for the proposed development, four are directly linked to Glenlee Substation as detailed below. In addition, the KTR Project also involves the removal of part of the existing N route and the R route, which will be replaced by the five connections below.

#### Polquhanity-Glenlee via Kendoon (P-G via K)

A new 132kV OHL is required between Polguhanity (approximately 3km north of the existing Kendoon 4.5 substation) and the existing Glenlee substation, via the existing Kendoon substation. The OHL will be supported on steel towers. The OHL will terminate on to a new gantry within the existing Glenlee substation compound.

#### Earlstoun-Glenlee (E-G)

4.6 A new 132kV OHL, of approximately 1.6km in length, is required between the hydro power station at Earlstoun and the existing substation at Glenlee. The OHL will be supported on a 'trident' design wood pole. A short section of approximately 250m of underground cable will be required to connect into the Glenlee substation extension.

#### BG Route Deviation (BG)

4.7 The 'BG' route comprises an existing 132kV OHL between the existing Glenlee substation and the existing substation at Newton Stewart. The BG route is supported on steel towers. To facilitate construction and operation of the proposed OHL for the Glenlee to Tongland (G-T) connection of the KTR Project (detailed below), the first five existing towers of BG route (BG098-BG102) are proposed to be

#### Glenlee-Tongland (G-T)

4.8 A new 132kV OHL, of approximately 32.5km in length, is required between the existing/extended Glenlee substation and the existing Tongland substation. The OHL will be supported on steel towers.

#### Carsfad-Kendoon (C-K)

4.9 In addition to the four connections referred to above which are directly linked to the Glenlee substation extension, a new 132kV OHL, of approximately 2.6km in length and supported on a 'trident' design wood pole, is required between the hydro power station at Carsfad and the existing substation at Kendoon.

#### Substation Extension and Associated Works

- The layout of the proposed development and full site boundary is illustrated on Figure 1.1 and Figure 4 1 4.1 shows the detailed layout of the proposed extension. Figure 4.2a and 4.2b show the elevations of the proposed Glenlee substation extension. The substation extension will consist of the following elements as described in further detail below:
  - a new 4.5m wide access track;
  - new electrical switchgear and plant;
  - a new 3m steel palisade security fence around the perimeter;
  - an extension of approximately 4m x 8m to the existing control building located adjacent to the access off the U2s (as shown on **Figure 4.2**)
  - drainage works including diversion of the existing watercourse that crosses the field into a culvert underneath the substation; and
  - removal of existing trees and mitigation planting (indicative plan illustrated on Figure 4.3).
- In addition, the following temporary works will also be required: 4.2
  - temporary construction compounds (a typical layout is shown on **Figure 4.4**)
  - a temporary vehicle holding area up-slope from the proposed substation extension;
  - temporary topsoil storage areas;
  - temporary Sustainable Drainage Systems (SuDS), including settlement ponds and ditches, to prevent and
  - installation of a noise fence (further details are provided in Chapter 10: Construction Noise)

#### Access

- 4.3 Access to the site will be undertaken via the A713, which runs broadly north-south between Ayr and Castle Douglas. From the A713, traffic will then access the A762 before turning west at Coom Bridge on to the U2s which is the existing access to the Glenlee substation and Glenlee hydro power station. From the U2s there is an existing bellmouth and access located to the rear of Carville which will be widened and extended to form a permanent access behind the properties of Tummel and Rannoch before continuing further south to the temporary construction vehicle holding area described above. In addition, a temporary access will be required off the A762 to the north of the Glenlee hydro power station which will extend to the temporary construction site compound as described further below.
- 4.4 Standard HGVs will be used to transport construction materials to the site and all HGV traffic will be required to approach the site on the A762 from the north to reduce the impact of construction traffic on New Galloway. Figure 11.1 illustrates the construction traffic routes which will be used to access the site. To support the application for planning permission for the proposed development, a Construction Traffic Management Plan has been prepared and is provided as **Appendix 11.1**.
- To allow safe transportation of materials and equipment to the site, it will be necessary to widen some 45 sections of the A762 and U2s to provide passing places with an available minimum width of 6.75m as

the pollution of watercourses during construction (drainage proposals are illustrated on **Figure 4.5**);

required under the New Roads and Street Works Act. Whilst most of this can be accommodated within the public highway, there will be some requirement to extend into third party land. The location of the passing places is illustrated on Figure 1.1 and Appendix 11.1 includes drawings of the passing places on the A762 and U2s. In addition, minor works will also be required to facilitate access at the proposed site compound location in the form of a bellmouth as noted above. Further information on this is also provided in Appendix 11.1.

#### New Switchgear and Electrical Plant

The substation extension will contain new switchgear, cable sealing ends and three terminal gantries up 4.6 to 12m in height. These are generally of metal lattice construction with concrete bases with associated foundations. The existing R route (north) tower within the Glenlee substation, located adjacent to the hydro power station, will be removed when the P-G via K connection of the KTR Project is constructed and will be replaced by two gantries. The three gantries form part of the planning application for the proposed development.

#### Security Fencing

4.7 The proposed development will be surrounded by a 3m high standard steel palisade security fence to match the existing substation. Warning notices about possible dangers will be displayed on the fencing.

#### Drainage Works and Culvert Extension

- 4.8 An existing culvert for the unnamed watercourse which runs under the existing Glenlee substation will require to be extended as part of the proposed development. The watercourse drains from Glenlee Hill (located to the south-west of the site of the proposed extension) and traverses the site in a northeasterly direction. The watercourse appears to retain its original route and flows in a south-easterly direction north of Glenlee Hill before turning north-east, passing under the Glenlee hydro power station penstock, and flowing into the site of the substation extension. The watercourse leaves the site and passes under the U2s local road and is conveyed eastwards and then again in a north-easterly direction discharging into the low-lying, wetland area close to the hydro power station tailrace<sup>1</sup>. The watercourse was culverted through the site of the existing Glenlee substation when the Glenlee hydro power station was constructed.
- Currently the culvert at its inlet is 0.45m in diameter, however plans of the culvert show that it is 49 restricted by a smaller section of 0.375m diameter. To extend the Glenlee substation will require the culvert to be realigned and lengthened and, whilst SEPA does generally not accept the culverting of open channel watercourses, it is considered that the scheme can be considered "Essential Infrastructure" under the SEPA Land Use Vulnerability Classification. Specifically the existing substation, which is essential utility infrastructure, requires to be extended and it would be impractical to locate the substation elsewhere. According to SEPA's Flood Risk and Land Use Vulnerability Guidance, development of "Essential Infrastructure" can proceed so long as the development is designed and constructed to remain operational during 1 in 200-year floods and does not impede the flow of water. Whilst not explicitly detailed in this guidance, developments should not increase flood risk downstream or to others.
- 4.10 Extensive modelling work has been undertaken which has established that, due to local topography which is relatively steep to the south of the existing substation but predominantly flat in the lower parts of the existing substation and between the substation and the tailrace, it is not possible to develop a culvert that can convey the 1 in 200-year flow. As such, it is proposed that flows in excess of the capacity of the network will be conveyed along the proposed substation extension road network within the site, and intercepted by a 'road verge drain' with a view to minimising the risk of flooding within the site and downstream of the culvert.
- 4.11 It is proposed that the drain be a 'filter drain' which generally consists of a trench lined with a geotextile and filled with gravel or other suitable material with a perforated pipe at the bottom to aid conveyance. The proposed drain will serve to intercept some of the overland flows and, therefore, reduce flood depths within the road. The proposed filter drain runs close to the site boundary within close proximity to existing residential properties therefore a barrier (for example a kerb, verge, wall, or bund) will be provided between the drain and the existing properties to protect them in the event the capacity of the filter drain is exceeded. The filter drain will only convey flows to the lower part of the site close to the U2s local road. Once flows reach this point they will spill out onto the road within the site. At this point, either storage capacity will be provided within the site to mitigate against flooding, or flows will be

permitted to leave the site via the site access road and across the U2s to the wetland area referred to above as per the current situation.

4.12 A maintenance regime will be put in place to maintain the culvert including the inlet and the proposed channel to prevent blockages. Further details on the implications of the extension to the existing culvert in relation to hydrology and flood risk are provided in detail in Chapter 7: Hydrology and Water **Resources**, and **Appendix 7.1** and the existing culvert and drainage proposals are illustrated on **Figure** 4.5

#### Mitigation Screen Planting

- 4.13 During the construction phase a number of existing mature oak trees close to the existing watercourse and areas of farmland will be removed. Proposed mitigation planting will compensate for this loss, and will provide screening in close proximity views looking into the site from the north, east, west and in part the south<sup>2</sup>. Planting will also help integrate the site into the wider rural landscape in longer distance views experienced from elevated positions including Waterside Hill to the north and Mulloch Hill to the east. Native broadleaf trees and shrubs are proposed adjacent to the north-western and south-eastern edges of the site beyond the extent of platform excavations; this was agreed in consultation with Dumfries and Galloway Council's (D&GC) Landscape Architect in August 2017. The location of the planting is illustrated on Figure 4.3 and the following specifications for the mitigation planting will be adhered to:
  - All trees and shrubs will be positioned to provide at least one tree length separation between planting and over headlines.
  - All proposed planting will maintain a minimum distance of 3m from the drainage system (including filter drain and culvert), and existing property boundaries, and vegetation.
  - Appropriate maintenance strips will be included for ease of access (i.e. 1m offset from proposed broadleaf woodland).
  - Bund areas will be sown with neutral grassland seed mix in accordance with SNH Advisory Note 106, seed mix MG5<sup>3</sup>; culvert areas to be sown with damp grassland seed mix MG8<sup>4</sup>.
  - The seeding of the bund area and culvert area will be undertaken with engineer guidance to insure the structural integrity of the bund and drainage.
  - All proposed woodland planting will be protected by deer/sheep and rabbit fencing to ensure successful establishment.
  - All fencing will be in accordance with Technical Guide, Forest Fencing (Forestry Commission, 2006).
  - Where possible, fencing will be designed to appear sympathetic with the surrounding landscape, and fence lines will be designed to tie into existing contours.
  - Planting will comprise plant species of local provenance with stock in accordance with seed zone 108 as described in Seed Sources for Planting Native Trees and Shrubs in Scotland (Forestry Commission 2006)<sup>5</sup> and informed by plants identified during fieldwork.

#### Temporary Construction Compounds

4.14 A temporary construction compound is required for initial enabling works (including road improvements and formation of the main construction works compound), on the site of the overflow car park, northeast of the substation on the opposite side of the public road (U2s). A second temporary construction compound for the main construction works is proposed to the west of the existing substation and behind the hydro power station (an area used for previous construction works). This construction compound will accommodate temporary cabins, staff welfare facilities and staff parking places.

The tailrace contains the water that has passed through the hydro power station.

<sup>&</sup>lt;sup>2</sup> The proposed broadleaf woodland mix includes silver birch, dog rose, wild cherry, bird cherry, blackthorn, wych elm, oak, sessile oack, rowan, and whitebeam

<sup>&</sup>lt;sup>3</sup> MG5 includes the following grass species: common bent, sweet vernal grass, crested dogs's tail, and red fescue. It also includes the following species of forbs: yarrow, common knapweed, pignut, lady's bedstraw, cat's ear, meadow vetchling, autumn hawkbit, oxeye daisy, common bird's foot trefoil, ribwort plantain, selfheal, meadow buttercup, yellow rattle, common sorrel, devil's bit scabious, red clover, germander speedwell, and tufted vetch

<sup>&</sup>lt;sup>4</sup> MG8 includes the following grass species: sweet vernal grass, crested dogs's tail, red fescue, and rough meadow-grass. It also includes the following species of forbs: sneezewort, wild angelica, daisy, marsh-marigold, meadosweat, Common marsh-bedstraw, water avens, autumn hawkbit, oxeye daisy, common bird's foot trefoil, Ribwort plantain, selfheal, meadow buttercup, yellow rattle, common sorrel, devil's bit scabious, red clover, and germander speedwell.

<sup>&</sup>lt;sup>5</sup> Available at https://forestry.gov.scot/forests-environment/biodiversity/native-woodlands/seed-sources

4.15 The compounds will be lit during normal working hours as required. In addition, for site security reasons, the compounds will be fitted with electrical sensors to activate the compound lighting during the hours of darkness should movement be detected, but otherwise lighting will be limited outside working hours. An indicative temporary construction compound layout is shown in Figure 4.4. Each temporary construction compound will be fenced off during construction and will be restored fully once the corresponding phase of construction is complete and the connection is commissioned.

#### Vehicle Holding Area

4.16 During consultation with D&GC's Roads Department, it was recommended that construction traffic management measures should be put in place to ensure that construction vehicles do not wait or stack on public roads. To address this, the proposed development includes a temporary construction vehicle holding area located to the rear of the properties at Garry, Orrin, Maree and Navar which will link to the new permanent access off the U2s as illustrated on Figure 4.1.

#### Topsoil Storage

4.17 A number of temporary areas are proposed where stripped topsoil will be stored during construction. These areas will be managed to ensure that the guality of the soil is retained and to ensure that any run off is controlled and treated. To ensure that soil is stored and managed appropriately, a Soil Resources Management Plan will be prepared for the site as detailed further below. Indicative soil storage locations are shown on Figure 4.1.

#### Construction Personnel

4.18 The peak number of staff is estimated to be approximately 35 personnel on site during the earthworks and enabling phase (assuming road widening works will take place simultaneous to enabling works), with an average of 20-25 over the course of the construction programme. It is likely that construction personnel will travel to site by crew carrier; however this will be contractor led.

#### Construction Working Hours

4.19 A 48 week working year and construction over a six day working week has been assumed for assessment purposes. Construction activities will be undertaken Monday to Friday between approximately 07:00 to 19:00 hours in summer (April to September), and 08:00 to 17:00 hours (or as daylight allows) in winter (October to March). Hours will be 07:00 to 13:00 hours on Saturdays and there will be no working on Sundays or public holidays. Should working outside of these hours be required then this would be discussed with local residents before being agreed with D&GC through the CEMP.

#### Micrositing

4.20 The final layout of the substation extension has been designed to avoid effects on the environment as far as possible based on the information available at this stage. The design is considered to be sufficiently progressed that micrositing of the substation extension is unlikely to be required. Should any minor (non-material) changes be required, these would be within the site boundary, and would be agreed with D&GC.

#### **Construction Programme**

- 4.21 Subject to receiving planning permission and the fulfilment of any associated conditions, construction is programmed to commence in month 1 of the construction programme shown in **Table 4.1**. Construction is anticipated to commence in August 2020 and the substation extension will be commissioned in September 2024. Final demobilisation, reinstatement and landscaping is likely to continue until the end of 2024. It should be noted that construction associated with the KTR Project will extend beyond this time period. The key activities that will take place during construction are summarised below.
- 4.22 It should also be noted that the programme detailed below is dependent on obtaining the necessary planning permission for the proposed development. It will also be dependent on obtaining the relevant section 37 consents for the associated overhead lines forming the KTR Project, from the Scottish Ministers.

#### Enabling Works

• Site set up will involve site cabins being transported and set up at the overflow car park located on the other side of the U2s from the existing substation. These will be in use for the duration of the enabling works and construction of the main site compound adjacent to Glenlee hydro power station.  Construction and set up of the construction compound will include earthworks, formation of topsoil storage areas and installation of drainage measures.

#### Access Track Construction

- This will include the temporary access track from the local public road (the U2s) that leads to the passing places as detailed in **Appendix 11.1**.
- Construction of the new permanent surfaced access track will primarily take place between the behind Orrin and Garry.

#### Earthworks and Base Construction

- Earthworks will be undertaken to form the platform for the substation extension, including the formation of temporary soil storage areas.
- In addition to construction of the equipment bases, this stage will include installation of the 132kV cable duct, removal of the existing fence, construction of new fencing, and removal of redundant plant, the construction of bases and installation of new substation switchgear.

#### Commissioning

 On completion of the electrical plant installation, the substation will be connected to the connected OHLs and a period of equipment testing will be undertaken prior to the new equipment becoming operationally live.

construction compound and road improvement works along the A762 and U2s, including provision of

substation boundary and the fenceline at the back of the row of houses, then into the field where the substation extension is to be located. This will link to the temporary construction vehicle holding area

#### Table 4.1: Summary Construction Programme

Month	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	0ct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	22-dac			Dec-22 Jan-23	Fah-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24
Activity	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25 2	26 2	27 2	8 2	29 3	0 3	1 32	2 33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
Enabling Works																																																	
Access Road Construction																																																	
Earthworks																																																	
Base Construction																																																	
Commissioning																																																	
Commissioning G- E/K **																																																	
Commissioning K- C-E-G **																																																	
Commissioning G- NC **																																																	
Commissioning K- G **																																																	
Commissioning G- NS/GI **																																																	

\* Within the programme there will be localised timing restrictions associated with breeding periods for protected species (including birds). As noted above in paragraph 4.21, the programme is likely to extend until the end of 2024 for final demobilisation, reinstatement and landscaping.

\*\* G = Glenlee; E = Earlstoun; K = Kendoon; C = Carsfad; NC = New Cumnock; NS = Newton Stewart; GI = Glenluce. Commissioning of these elements is linked to the wider KTR Project.

### Environmental Management

#### **Construction Environmental Management Plan**

- 4.23 Prior to the commencement of construction of the proposed development, SPEN will develop a detailed CEMP with its appointed contractors. The CEMP will identify those responsible for the management and reporting on the environmental aspects during construction. The CEMP will be used to ensure a commitment to meeting all relevant conditions attached to the planning permission and delivering the environmental mitigation measures identified in the EIA Report during construction of the proposed development. Adherence to the CEMP will be a contractual requirement of each contractor engaged by SPEN during construction.
- 4.24 The purpose of the CEMP will be to:
  - provide a mechanism for ensuring that construction methods avoid, minimise and control potentially adverse significant environmental effects, as identified in the EIA Report;
  - ensure that good construction practices are adopted and maintained throughout the construction of the proposed development;
  - provide a framework for mitigating unexpected effects during construction;
  - provide assurance to third parties that agreed environmental performance criteria are met;
  - establish procedures for ensuring compliance with environmental legislation and statutory consents; ٠ and
  - detail the process for monitoring and auditing environmental performance.
- 4.25 The CEMP will be updated when necessary to account for changes or updates to legislation and good practice methods throughout the construction phase. The CEMP will also be amended to incorporate information obtained during detailed ground investigations which will be undertaken post consent and prior to construction taking place. Compliance with the CEMP (including procedures, record keeping, monitoring and auditing) will be overseen by a suitably gualified and experienced Environmental Manager from SPEN.
- 4.26 The CEMP will contain the following information:
  - policies and objectives;
  - regulatory controls and guidance to be followed;
  - a complete register of contacts including the contact details for all key personnel responsible for managing environmental issues, including SPEN representatives, the Ecological Clerk of Works (ECoW), Principal Contractor contacts, and appropriate regulator contacts;
  - the construction programme and detailed working method statements;
  - a site specific actions plan, providing a register of environmental risks and outlining the requirement for accompanying site specific mitigation, monitoring and management system reporting procedures;
  - audit and inspection procedures;
  - training plans; and
  - communication arrangements (on site, key stakeholders, neighbours and community)
- 4.27 In addition, the CEMP will contain the following documents, which the Principal Contractor and their subcontractors will be required to adhere to throughout the construction process:
  - a Pollution Prevention Plan (PPP);
  - Construction Method Statements (CMS)
  - a Soil Resources Management Plan (SRMP)
  - a Water Protection Plan (WPP)
  - a Site Waste Management Plan (SWMP); and
  - a Construction Traffic Management Plan (CTMP)

- 4.28 The CEMP and associated plans will be submitted to D&GC, and others as appropriate, prior to the commencement of works. A copy of the CEMP will be kept in the construction site office for the duration of the works and will be available for review at all times.
- 4.29 The Principal Contractor will be responsible for the continual development of the CEMP to take account of monitoring and audit results during the construction phase and changing environmental conditions and regulations. The services of other specialist advisers will be retained as appropriate, to be called on as required to advise on specific environmental issues.
- 4.30 Performance against these documents will be monitored by SPEN's Environmental Manager throughout the construction period. They will ensure that the works carried out are in accordance with the relevant best practice guidance documents. An extract from a previous CEMP prepared by SPEN is provided as Appendix 4.1. This contains the sections that would be expected to be included within the final CEMP, the approval of which will be subject to an appropriately worded planning condition.
- 4.31 Regular meetings will be held throughout the construction period to discuss environmental management, providing updates on the performance of the environmental mitigation measures and identifying any actions for performance improvement. The meetings will be attended by the SPEN's Environmental Manager, the ECoW, the SPEN Construction Project Manager, the Principal Contractor, Site Manager and any other relevant personnel or regulatory agency representative as required.
- 4.32 All site staff will be given appropriate environmental training before starting work on site. The CEMP will also include a series of specialist information packs, 'toolbox talks', to inform site operatives of the sensitivity of particular sites and of wider safeguards to protect natural and cultural heritage. An example toolbox talk relating to cultural heritage is provided as **Appendix 4.2**.

#### **Good Practice Measures**

- 4.33 Good practice measures will be employed during construction of the proposed development as standard techniques. As such, these are not considered to be mitigation, but an integral part of the construction phase. This is considered a realistic scenario given the current regulatory context and accepted good practice across the industry. Good practice measures are detailed within the assessment chapters and are summarised in Appendix 4.3. Where relevant these measures will be incorporated into the CEMP. The assessments presented in this EIA Report assume the implementation of these good practice measures. Any further specific mitigation measures are identified in the assessment of likely significant effects within each chapter of the EIA Report.
- 4.34 Good practice measures during construction will include (but are not limited to) measures associated with
  - flood risk and increased run-off;
  - pollution and accidental spillage incidents;
  - sedimentation and erosion; and
  - dust management.

#### Drainage

4.35 A detailed drainage assessment has been undertaken to identify the surface runoff rates and volumes anticipated during construction and the required SuDS to control quantity and quality of site discharges. The study is presented as **Appendix 7.2**. The final requirement for, and design of, the SuDS will be undertaken on receipt of planning permission and once a contractor has been appointed.

#### **Waste Management**

- 4.36 The Principal Contractor will be required to prepare a Site Waste Management Plan to ensure best practice principles are applied to reduce, re-use or recycle all materials where possible as part of the CEMP. Measures to reduce possible environmental effects associated with the storage and transportation of wastes will include:
  - the careful location of stockpiles and other storage areas;
  - the use of good practice in the design of waste storage areas and the use of suitable waste containers;
  - the use of sheeting, screening, and damping where appropriate and practicable;

- the control and treatment of runoff from soil and waste soil stockpiles;
- minimising storage periods;
- minimising haulage distances; and
- the sheeting of vehicles.
- 4.37 All materials will be identified, classified, quantified and, where practicable, appropriately segregated. Any materials that cannot be reused will be disposed of according to relevant waste management legislation which will serve to address a number of possible environmental effects. This includes:
  - the Duty of Care imposed by Section 34 of the Environmental Protection Act 1990;
  - the Waste Management Licensing (Scotland) Regulations 2011 (as amended), particularly provisions relating to registered exemptions from waste management licensing.
- 4.38 All materials removed from site will be handled in accordance with relevant waste and environmental regulations. Waste will be transferred using a registered waste carrier to a licensed waste disposal site or recycling centre.

#### **Resource and Energy Use**

- 4.39 It is good practice to consider energy usage during the construction of a proposed development, including associated emissions of greenhouse gases, and this is required under the EIA Regulations (as detailed further in **Chapter 2: Approach to the EIA**). It is recognised that energy will be used during the construction phase, including the fuel for construction plant and the energy required for the transportation of personnel. The materials used to construct the proposed development will also incorporate embodied energy, i.e. energy required to manufacture construction materials, including the energy used in the transport of the material from its source to the site, via a processing plant where applicable.
- 4.40 The current scope to reduce the consumption of energy and associated  $CO_2$  emissions by selecting energy efficient equipment, and fuels and materials with low embodied energy is considered to be limited, for example biodiesel fuel could not be used at present for all construction vehicle trips as it is not commercially available to large scale users at the present time. However, work to progress the practical application of emerging technologies is ongoing will be given further consideration prior to construction.

#### Soil Management

- 4.41 A Soil Resources Management Plan (SRMP) will be prepared which will include the following information:
  - estimation of the volume of soil likely to be excavated during construction;
  - identification of opportunities to minimise excavation volumes;
  - options for onsite reuse of excavated material; and
  - good practice methods to be employed in relation to handling and storage of excavated soil.
- 4.42 Adherence to the SRMP will ensure that excavated soil is appropriately managed and re-used onsite. Prior to construction and on completion of ground investigations, the SRMP will be refined and agreed with SEPA and SNH.

#### **Community Liaison**

- 4.43 In partnership with SPEN, the appointed contractors will be required to maintain close liaison with local community representatives, landowners and statutory consultees throughout the construction period. This is likely to include circulation of information about ongoing activities, particularly those that could potentially cause disturbance. A telephone number will be provided and persons with appropriate authority to respond to calls and resolve any problems made available.
- 4.44 SPEN and the appointed contractors will liaise with the local councils and communities to identify any major events in the area and to programme construction works to ensure that these do not disrupt the local road network on those days.

### Reinstatement

4.45 Upon completion of the construction, the contractor shall remove the temporary construction compound and accesses and make good any damage. This will include removal of all surfacing material and geotextile materials used during temporary construction works<sup>6</sup>. This will be undertaken as soon as possible after construction is completed and temporary road materials are removed. This will enable the subsoil to be sealed, preventing sediment run-off. As noted above, topsoil will be stripped and stored adjacent to the works in a manner which ensures that the soil quality is retained. The topsoil will be transported from the topsoil storage locations and will be placed by a tracked excavator. Appropriate seeding if deemed necessary may be by hand or by machine spreading.

### **Operational Maintenance**

4.46 Glenlee substation is currently unmanned and will remain so when the extended site comes into operation. Maintenance will take place regularly during the lifetime of the substation and this is usually carried out during periods of planned operational outages in the operation of the electricity network, e.g. when electricity demand is low, typically during the summer period.

### Decommissioning of the Glenlee Substation Extension

- 4.47 The operational environmental effects of the Glenlee substation extension are assumed to be long term, however when the operational life of the new substation extension comes to an end in 40 years, it may be i) re-fitted with new equipment, or ii) demolished and removed.
- 4.48 An assessment of the effects associated with decommissioning has not been undertaken as part of the EIA as i) the future baseline conditions (environmental and other developments) cannot be predicted accurately at this stage and ii) the proposals for refurbishment /decommissioning are not known at this stage. It is expected that a decommissioning plan will be required closer to the time, which will set out measures to ensure that any potential environmental effects associated with mitigation are identified and addressed as required.

### Health and Safety

4.49 Health and safety is of primary importance to SPEN, with commitment from the highest levels. In constructing and operating the Glenlee Substation extension, SPEN will take account of the health and safety of all those who could potentially be affected, including construction workers, SPEN company operatives and the general public.

#### Construction

- 4.50 All construction activities will be managed within the requirements of The Construction (Design and Management) Regulations 2015 and will not conflict with the Health and Safety at Work etc. Act 1974. To further reduce possible health and safety risks, a Health and Safety Plan for the proposed development will also be drawn up. All staff and contractors working on the Project will be required to comply with the safety procedures and work instructions outlined in the Health and Safety Plan at all times.
- 4.51 To ensure that hazards are appropriately managed, risk assessments will be undertaken for all major construction activities, with measures put in place to manage any hazards identified.
- 4.52 Current industry standards will be followed to manage the risks posed by heavy equipment, falls from heights and rough and dangerous terrain. Information will be made available to the public with respect to any possible safety hazards.

<sup>&</sup>lt;sup>6</sup> The exception to this is where geotextiles may be used for bank protection of the watercourse at the location of the new culvert outlet to mitigate any potential erosion of the outer bank at the discharged location. These would be retained permanently.

#### **Operation and Maintenance**

- 4.53 The substation extension will be designed and tested to ensure compliance with relevant UK and European Standards before it becomes fully operational.
- 4.54 The substation extension will also be operated to ensure compliance with the Electricity Safety, Quality and Continuity Regulations 2002 regarding safety. The regulations impose obligations regarding the prevention of unauthorised access and the provision of security fencing and the taking of reasonable precautions such as warning notices. All operational works within the substation will be undertaken in compliance with SPEN's electrical and mechanical safety procedures.

Chapter 4: Development Description and Construction, Operation and Maintenance



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#### Figure 4.1: Glenlee Substation Extension Layout and Temporary Construction Works

- Planning application boundary
- Substation extension
- Temporary compound and access for main works
- Temporary construction vehicle holding area
- Drainage ditch diversion
- Indicative temporary soil storage
- Temporary compound for enabling works
- Passing place

#### Drainage

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- Existing water courses
- Proposed drainage
- Temporary drainage





	Glenlee Substation Extension EIA Report
	Figure 4.2: 132kV Glenlee Substation Extension Proposed Detailed Layout
	Existing equipment to be retained
	New equipment to be installed
	Existing equipment to be removed
	Elevations are shown on Figure 4.2a and Figure 4.2b
Q-ELECTRIC	
IN STATION	
	LUC SP ENERGY NETWORKS









NEW CUMNOCK

SECTION ON 'F-F'



SECTION ON 'G-G'



SECTION ON 'J-J'





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#### Figure 4.3: Glenlee Substation Extension Landscape Mitigation Plan

Planning application boundary

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Substation extension

Drainage ditch diversion

#### Landscape mitigation plan

Indicative vegation to be removed

- Proposed broadleaf woodland
- Proposed seeded areas
- \_\_\_\_ Indicative top soil storage

Proposed permanent stock proof fence





Figure 4.4: Indicative Construction Compound Layout





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# Figure 4.5: Glenlee Substation Extension Drainage Proposals



- Planning application boundary
- Substation extension
- Drainage ditch diversion
- Indicative temporary soil storage

#### Drainage

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- Existing water courses
- Proposed drainage
- Temporary drainage

