





Appendix 2.2: Schedule of Embedded Mitigation, Additional Mitigation, Offsetting and Monitoring Measures

This appendix provides a consolidated list of embedded/good practice mitigation, additional mitigation, offsetting and monitoring measures which have been identified through the design and EIA processes, and which will be implemented during construction and operation of the proposed New 132kV OHL and decommissioning and removal of the Existing 132kV OHL (collectively comprising the EDM Project). Measures are presented on a topic-by-topic basis, reflecting the chapters of the EIA Report. Where no mitigation or monitoring measures are proposed within a chapter, or for a discrete topic being assessed within a chapter, the chapter or topic has been omitted from this appendix. It should be noted that all design measures which have been incorporated into the design of the EDM Project to avoid or minimise the significance of effects have not been included in this appendix as they form part of the project design.

Embedded Mitigation, Additional Mitigation, Enhancement and Monitoring Measures	
<b>Project Description</b> <b>(Chapter 4)</b>	<p>Prior to the commencement of the EDM Project, SPEN will develop a detailed Construction and Decommissioning Environmental Management Plan (CDEMP) with the appointed Principal Contractor.</p> <p>The purpose of the CDEMP will be to:</p> <ul style="list-style-type: none"><li>■ Provide a mechanism for ensuring that construction methods avoid, minimise and control potentially adverse significant environmental effects, as identified in the EIA Report;</li><li>■ Ensure that good construction practices are adopted and maintained throughout the construction of the New 132kV OHL and decommissioning of the Existing 132kV OHL;</li><li>■ Provide a framework for mitigating unexpected effects during construction and decommissioning</li><li>■ Provide assurance to third parties that agreed environmental performance criteria are met;</li><li>■ Establish procedures for ensuring compliance with environmental legislation and statutory consent; and</li><li>■ Detail the process for monitoring and auditing environmental performance.</li></ul> <p>The CDEMP will be updated when necessary to account for changes or updates to legislation and good practice methods throughout the construction and decommissioning phases. The CDEMP will also be amended to incorporate information obtained during detailed ground investigations which will be undertaken post consent and prior to construction activities for the New 132kV OHL. Compliance with the CDEMP (including procedures, record keeping, monitoring and auditing) will be overseen by a suitably qualified and experienced Environmental Manager from SPEN.</p> <p>The CDEMP will contain the following documents, which the Principal Contractor and their sub-contractors will be required to adhere to throughout the construction process:</p> <ul style="list-style-type: none"><li>■ A Pollution Prevention Plan (PPP);</li><li>■ Construction Method Statements (CMS);</li><li>■ A Water Protection Plan (WPP);</li><li>■ A Site Waste Management Plan (SWMP); and</li><li>■ A Construction Traffic Management Plan (CTMP).</li></ul> <p>Performance against these documents will be monitored by SPENs Construction Project Manager and the ECoW throughout the construction (and decommissioning) phases. They will ensure that the works carried out are in accordance with the relevant best practice guidance documents.</p> <p>In its scoping response, SNH advised that the retention of existing in situ concrete bases associated with the Existing 132kV OHL would be the least damaging option for surface vegetation and underlying hydrology, particularly in areas surrounding Dargavel Burn Special Site of Scientific Interest (SSSI). Historic Environment Scotland (HES) also acknowledged that scheduled monument consent would be required for decommissioning works within Whitemoss Roman Fort (SM1652).</p> <p>The CDEMP will contain established construction and decommissioning method statements to minimise environmental disturbance. The method statement in relation to working within the Dargavel Burn SSSI will include information on: the stability of the surface, machinery to be used within the site (low pressure and/or bog-mats), access route to be used, and storage areas to be used (to avoid the SSSI/wetland vegetation). The method of working within the Scheduled Monument will comprise installation of trackway to facilitate access/egress and work areas adjacent to the towers, laying of protective matting and/or tractor towers around the tower, removal of cross-arms from towers, attaching the tower to a tractor and winch, cutting of the steel tower legs and pulling the tower onto the matting. Lastly, the process will involve cutting up the tower in-situ and transport offsite.</p> <p>The approval of and adherence to method statements in the CDEMP and the need to secure Scheduled Monument consent from HES in advance of works within Whitemoss Roman Fort (SM1652) are likely to be the subject of conditions attached to the deemed planning permission.</p>
<b>Hydrology, Hydrogeology, Geology, Water Resources and Peat</b> <b>(Chapter 7)</b>	<p><b>Embedded Mitigation</b></p> <p>Embedded pollution prevention and control measures will be put in place during construction. These are incorporated into the project design and reflect best practice guidance and recognised industry standards, as well as SPEN’s recent experience of constructing OHLs. Embedded mitigation measures include:</p> <ul style="list-style-type: none"><li>■ measures to reduce effects on increased flood risk and increased run-off (such as the construction of Sustainable Urban Drainage Systems (SUDS));</li><li>■ measures to reduce sedimentation and erosion (such as temporary hay bale barriers or silt and splash fences);</li><li>■ measures to reduce pollution and accidental spillage (such as the safe storage of chemicals and fuels);</li><li>■ watercourse crossings (including no works taking place within watercourses);</li><li>■ peat management (such as micro-siting infrastructure to avoid peat disturbance/excavation and unnecessary waste); and</li><li>■ measures during forestry felling (including adherence to Scottish Forestry Guidelines e.g. to ensure protection and enhancement of the water environment).</li></ul> <p>Construction or upgrade of watercourse crossings on minor watercourses of the access tracks will follow general good practice (SEPA, 2010, Engineering in the Water Environment: Good Practice Guide - River Crossings)</p> <p>Fording of watercourses will be avoided.</p> <p>The type of temporary bridges proposed for new crossings are:</p>

Embedded Mitigation, Additional Mitigation, Enhancement and Monitoring Measures	
	<ul style="list-style-type: none"> <li>■ narrow burns: a mat of timbers will be used, supported by steel beams.</li> <li>■ larger watercourses: a steel plate decking including safety barriers either side will be used, supported by main support beams with steel cross members.</li> </ul> <p>As part of embedded mitigation, temporary construction SUDS will be put in place where needed at watercourse crossings to ensure no sedimentation from construction works or pollution from plant or machinery enters the watercourse. This could include temporary hay bale barriers or silt and splash fences as there are no significant earthworks required for the temporary watercourse crossings.</p> <p>The contractor will sign up to SEPA Floodline for the West Central Area, to provide advance warning for flooding in the study area so that no works is undertaken during flooding events or when flooding is forecasted.</p> <p><b>Additional Mitigation</b></p> <p><b>Construction of New 132kV OHL</b></p> <ul style="list-style-type: none"> <li>■ Prior to construction, further investigation of the location of Private Water Supply (PWS) pipework and infrastructure will be carried out prior to microsites of the temporary access tracks to avoid damaging any PWS pipework/infrastructure.</li> <li>■ Identified sensitive springs and flushes associated with PWS 1 and 2 source (Cunston and West Kilbride) and PWS 3 Cloak Road Caravan source will be taped off to avoid any interaction of vehicles or materials, and additional measures (including silt fences, bale barriers and sensitive drainage design) will be put in place during earthworks near these areas where required.</li> <li>■ Floating temporary infrastructure or low pressure vehicles will be used where peat or marshy ground is present, so the excavation of peat is avoided and there is minimal disturbance or compaction of the wetter ground. Ground investigation and reconnaissance on foot by ecologists and engineers prior to vehicle access will be undertaken.</li> <li>■ Felling will be undertaken utilising a mixture of mechanical harvesting, mulching and hand felling techniques. Hand felling techniques will be used within and in the proximity to Dargavel Burn SSSI.</li> </ul> <p><b>Decommissioning of Existing 132kV OHL</b></p> <ul style="list-style-type: none"> <li>■ Existing tower G040a is within the Formakin SSSI designated for being the best example of lowland acid grassland in Renfrewshire. Vehicles used will be low pressure vehicles to prevent damage to the grassland and where required floating matting will be used. Reconnaissance on foot prior to vehicular access will be undertaken by an ecologist.</li> <li>■ Existing tower G048 and associated temporary access track is within close proximity to PWS 5. Ground investigation and reconnaissance on foot prior to vehicular access will be undertaken.</li> <li>■ Existing towers G052 and G054 are located within the Dargavel SSSI– the area is marshland and traversed by small watercourses. The access tracks to these towers have been designed to avoid the Dargavel SSSI and watercourses crossings where possible. Small sections of temporary track will enter the Dargavel SSSI to access these towers. Vehicles used will be low pressure vehicles to prevent damage to the marshland and where required floating matting will be used. No watercourses crossing within the SSSI are required. The existing tower foundations will remain in-situ as requested by SNH in consultation and to prevent disturbance of the ground conditions within the SSSI. No earthworks are required within the SSSI. Ground investigation and reconnaissance on foot by ecologists and engineers prior to vehicular access will be undertaken. Further consultation will be undertaken with SNH in advance of the works and appropriate mitigation put in place (e.g. timing of removal; see <b>Chapter 4</b> for specific decommissioning process, <b>Chapter 8: ecology and Ornithology</b>).</li> <li>■ Existing Tower G068 and the associated existing and new temporary access track are within the catchment of PWS 1. The existing and new temporary access track to existing tower G067 and G068 crosses the indicative underground piping route for PWS 1 and PWS 2.</li> <li>■ Across Devol Moor to the west of Devol Road will require temporary crossing of marshy/peaty ground to access existing towers G072 to G074. Vehicles used will be low pressure vehicle to prevent damage to the marsh/peaty ground and where required floating matting will be used to avoid soil compression.</li> <li>■ Identified sensitive springs and flushes associated with PWS 5 (Mid Glen) source will be taped off to avoid any interaction of vehicles or materials, and additional measures (including silt fences, bale barriers and sensitive drainage design) will be put in place during earthworks near these areas where required.</li> <li>■ Where peat or marshy ground is present (one localised area discussed above) floating infrastructure will be used so that no peat will be excavated, and there is minimal disturbance or compaction on this wetter ground.</li> </ul> <p><b>Monitoring</b></p> <p><b>Construction and Decommissioning</b></p> <ul style="list-style-type: none"> <li>■ Monitoring of water quality of selected PWS 1, 2, 3 and 5 will be undertaken before, during and after the construction and decommissioning phases to ensure no contamination of the supplies. In the event of the water quality deteriorating during construction, an emergency water supply will be installed at the PWS property such as portable bowzers to ensure minimal disruption of supply. The Contractors will have an emergency supply of bowzers read to deploy if required.</li> <li>■ An ECoW (or equivalent) will be present onsite throughout the construction and decommissioning of the overhead lines (OHLs) to monitor the effectiveness of the SUDS and pollution control measures and the PWS.</li> <li>■ Further ground investigation and/or ECoW and Engineer walkover will be undertaken to determine suitable temporary tracking methods before work commences.</li> <li>■ Further ground investigation surveys will be undertaken by the contractor to further assess the distribution and type of marsh and peatland to microsite the temporary access tracking and to determine the best type of temporary access to preserve the existing ground conditions and habitats, in particular, the three peatlands areas, the Formakin SSSI and Dargavel SSSI.</li> </ul>
<b>Ecology and Ornithology (Chapter 8)</b>	<p><b>Embedded Mitigation</b></p> <ul style="list-style-type: none"> <li>■ Application of standard pollution prevention measures as detailed in the CDEMP.</li> <li>■ The method statement, as part of the CDEMP, in relation to working within the Dargavel Burn SSSI will include information on: the stability of the surface, machinery to be used within the site (lowpressure and/or bog-mats), access route to be used, and storage areas to be used (to avoid the SSSI/wetland vegetation).</li> <li>■ Tool-box talks will be undertaken for all contractor staff prior to works commencing, with regular ‘top-up’ talks during the breeding season/ecologically sensitive season.</li> <li>■ Presence of an ECoW during all construction operations to provide ongoing support and monitoring. The ECoW role will be developed in accordance with current good practice guidelines.</li> </ul>

Embedded Mitigation, Additional Mitigation, Enhancement and Monitoring Measures	
	<p><b>Additional Mitigation</b></p> <p><b>Construction of New 132kV OHL</b></p> <p><b>Breeding Birds</b></p> <ul style="list-style-type: none"> <li>■ Avoidance of vegetation clearance during the breeding season (March – August).</li> <li>■ Detailed pre-construction checks where vegetation clearance cannot be avoided during the breeding season. Where nests are found, the ECoW will establish appropriate exclusion zones.</li> <li>■ Demarcation of sensitive areas with tape, prior to works commencing. Sensitive areas will include stands of trees, scrub, hedgerows and upland habitats.</li> </ul> <p><b>Operation of New 132kV OHL</b></p> <p><b>Breeding and Wintering Birds – Collision Risk</b></p> <ul style="list-style-type: none"> <li>■ Installation of visible line markers, to deter birds from collision. Wires will be marked, between Poles 31-70 and 128-148, with devices that are as large as possible and installed from pole to pole. Markers will be installed as close together as possible (at least every 5 to 10m on power lines), and in contrasting colours e.g. black and white for maximum visibility in different weather and light conditions. Line markers will be maintained regularly to ensure they continue to protect birds from collision.</li> </ul> <p><b>Monitoring</b></p> <ul style="list-style-type: none"> <li>■ An ECoW will be appointed prior to construction and decommissioning/removal and will be responsible for monitoring compliance with nature conservation legislation, the CDEMP and location specific mitigation. The ECoW will be authorised to provide support in relation to micrositeing (Infrastructure Location Allowance) to avoid sensitive ecological features.</li> <li>■ During operation of the New 132kV OHL, line markers, designed to prevent bird collision, will be monitored regularly to ensure their ongoing efficacy.</li> </ul>
<b>Cultural Heritage (Chapter 9)</b>	<p><b>Embedded Mitigation</b></p> <ul style="list-style-type: none"> <li>■ Working areas can be modified in size/ shape to avoid effects on cultural heritage features. They will also be cordoned off, thus preventing accidental damage to known heritage assets.</li> <li>■ To avoid effects such as compression and truncation from access, low ground pressure vehicles and matting will be utilised, where ground conditions allow.</li> <li>■ Where breaches of existing drystone wall cannot be avoided these will be reinstated by a professional drystone wall builder upon completion of the construction works in affected areas.</li> <li>■ The CDEMP will include written guidelines for use by all construction contractors, outlining the need to avoid causing unnecessary damage to known heritage assets. The guidelines will contain arrangements for calling upon retained professional archaeological support in the event that features of potential archaeological interest (such as building remains, human remains, artefacts etc.) are discovered in areas not subjected to archaeological monitoring.</li> <li>■ All forestry works will be conducted with due regard to the Forestry Commission's Forests and Archaeology Guidelines (1995) and any discoveries made reported to the forestry management and local authority archaeological advisors, who will advise as to whether any mitigation is required.</li> </ul> <p><b>Additional Mitigation</b></p> <p><b>Construction of New 132kV OHL</b></p> <p><b>Non-designated Assets</b></p> <p>Where physical effects cannot be avoided, no development shall take place until the applicant has secured the implementation of a programme of archaeological work in accordance with a written scheme of investigation (WSI) that has been submitted to and approved by the archaeological advisers to the planning authority. Watching briefs will also be required during the excavation of the New 132kV OHL poles located in areas of archaeological potential, and in the event of physical interaction with non-designated assets.</p> <p><b>Decommissioning of Existing 132kV OHL</b></p> <p><b>Whitemoss Roman Fort</b></p> <p>No development shall take place in or near Whitemoss Roman Fort until Scheduled Monument Consent is obtained from HES. A separate application, accompanied by an appropriate heritage impact assessment and written scheme of investigation, will be submitted by SPEN to HES, allowing for a standard eight week determination period.</p> <p>During the decommissioning of the Existing 132kV OHL, the steel tower foundations, which are encased in concrete, will be left in-situ following the removal of the tower to avoid any adverse physical effects to underlying, in-situ archaeological remains.</p> <p><b>Monitoring</b></p> <ul style="list-style-type: none"> <li>■ During the decommissioning of the Existing 132kV OHL at the scheduled Whitemoss Roman Fort, a watching brief will be required to monitor any potential impacts arising from dismantling/felling tower sections.</li> </ul>
<b>Forestry (Chapter 10)</b>	<p><b>Offsetting</b></p> <p>Proposed measures to offset the loss of native woodland as a result of the decommissioning of the Existing 132kV OHL include the replanting or natural regeneration of the corridor to native woodland. Specific areas where this could be investigated include areas where the decommissioned OHL passes through areas designated as Ancient Semi-Natural Woodland (ASNW) or identified as Native Woodland by the Native Woodland Survey of Scotland (NWSS). As many of these areas are not directly controlled by SPEN, this would be subject to landowner agreement or where the land is within ownership of Forestry and Land Scotland who have a woodland restoration remit and are therefore not committed-mitigation.</p>